EMPLOYEE CHARACTERISTICS AND THEIR

IMPACT ON THE VALUE OF THE FIRM

(AS INDICATED BY THE FIRMS SHARE PRICE)

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DEDICATION

To my wife Jennifer for her support, patience and understanding.

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As I said at the beginning I owe a debt of gratitude to many people, too many to name them all so I will limit my special thanks to the above three named people while acknowledging my many other friends and colleagues who have made this work possible.

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ABSTRACT

This research attempts to establish a link between employee characteristics and the value of the firm. It does this by establishing the characteristics which are considered important and have been identified in the past in the Human Capital Literature. These are then tested, using regression analysis, against the share price to show that a linear relationship exists and examine how "strong" that relationship is.

In order to justify this link it is important that, at least for all practical purposes it can be argued that markets are efficient. The efficient market hypothesis is therefore examined and a conclusion is reached that although there are problems with the hypothesis it can be used as a good working tool.

Once the basic arguments had been made a questionnaire was produced and sent to selected companies chosen from the F.A.M.E data base. It is this data base that was used together with the completed questionnaires and the London Stock Exchange daily official list as the sources of the raw material with which to test the hypothesis.

A regression was then run (using SPSS/PC) and it was found that after certain modification to the data set being used were made (explained in detail in chapter seven) there was in fact a linear relationship between employee characteristics and the companies share price.

To strengthen the above hypothesis the effect of layoffs on a firms share price was examined. It can be hypothesised that if the layoffs are reported to be for reasons of efficiency then the share price around the date of the announcement should rise. The research confirmed that the market regards employees as a resource and that the share price falls as the resource is depleted. This then tends to confirm the 'employees as a resource' argument used in the hypothesis.

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CHAPTER ONE

INTRODUCTION

1.1 THE RESEARCH PROBLEM

It can be argued that employees are an important "asset" in any company and that therefore their contribution to a company's health should be reflected in that company's share price. In fact Black (1986) has made this point when he states:

> "...... I think we would find fluctuations in the value of human
> capital to be highly correlated with fluctuations in the level of the
> stock market ....."
>
> (Black 1986 p 536)

There does not appear, however, to have been any research in this area which has attempted to show whether or not a relationship existed between the "value" of employees to a firm and the value of the firm as indicated by its share price.

One possible reason for this is the problem of attempting to place a "value" on employees. This can, however, be overcome by examining the Human Resource Accounting and Human Capital Literature. Both of these areas will be examined in this research although the Human Capital Literature, in economics, will be used in an attempt to formulate a model. Denison (1967) for example has used surrogates to put a value on human capital and it is this approach which will be followed in attempting to find a relationship.

Another problem, which this research might start to address, is the poor reporting of employee and employee related statistics in accounts. It is

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probably naive to expect that any major changes can be made in the short term but if a relationship can be found a debate can be started and further research initiated which might eventually lead to a more relevant reporting of employee statistics in accounts. This could be particularly true if a strong mathematical relationship were obtained.

1.2   THE PURPOSE OF THIS RESEARCH

The purpose of this research is to test the hypothesis that there is a relationship between employee characteristics and the value of the firm. An examination of the Human Capital Literature shows that many researchers in this field are using very similar characteristics in their respective research. It can therefore be argued that there is a general consensus as to which variables are seen to be important by researchers in the field of Human Capital. These variables will be examined in Chapter Four but it is worth mentioning here that they are at a relatively high level of aggregation which is general in this kind of research. No attempt will be made to use a more detailed breakdown such as that quoted by Hinson (1981) where the Illinois Division of Adult Vocational and Technical Education came up with 500 occupational survival skills.

This research will use five variables namely

     Experience

     Health

     Sex

     Vigour and

     Education

using surrogates in order to test the hypothesis that there is a relationship between these variables and the share price. If such a relationship can be found it could be used to stimulate discussion and debate which might mean that employees are given greater consideration when employers are making decisions, as there would now be an established link which had been measured between the Human Capital employed by a firm and the "health" of the firm as measured by its share price.

It follows from the above that another purpose of this research is to try, through debate, to create a climate where there is better reporting of employees' data in accounts with employees being given a higher profile by their firms. This might well occur if a link could be established.

1.3   THE STRUCTURE OF THE THESIS

As with much of the work done in economics/econometrics positive theory is being used as a methodology and a classical econometric approach is being taken whereby a theory is tested using regression analysis and the results are explained without any attempt being made to adjust" or find a "better" theory by using such techniques as backward elimination or forward selection.

The thesis begins by examining in Chapter Two the general justification for the research. It argues that employees are of significant value to a firm and should therefore be treated as such with their impact on the firm being measured so that all user of financial statements are aware of how this resource is being utilised.

Chapter 3 looks at the changing environment arguing that business and accounting are having to adapt to rapidly changing circumstances, driven to a great extent by information technology, which are tending towards making many of the old systems obsolete whilst at the same time drastically increasing the amount of and the speed at which information is available. It will argue that business is becoming knowledge based which has the effect of increasing the profile of employees within a firm and as a consequence of this it becomes more important to reflect in some way their "value".

Chapter 4 looks at factors that may act against or delay change. It argues that regulations set the tone for financial reporting and that it is normally a long process to amend them, with some types of regulation being more difficult to change than others e.g. Company's Acts/Financial Reporting Standards, the latter are easier to change in most instances than the former. The section ends by arguing that recent changes (1990) in the way

accounting standards are set, with a more theoretical approach now being taken, means that new ideas are arguably more likely to be accommodated in the future.

Chapter five looks at how firms and their shares are valued by initially examining the three principle methods of valuation, which appear in the accounting literature. An argument it made that all the methods have problems associated with them and that in practical terms these methods should be used in conjunction with one another in order to obtain a range of values that can be used in any negotiation. Other methods are also examined, as are some of the other factors, which need to be taken into account when valuing firms, but these are not examined in the same detail. The relationship between valuation methods is then examined and the chapter ends by arguing that this research could be used as a starting point for a valuation model but stresses that this is not the primary concern of this particular research, the aim here being to establish a link between employee characteristics and share price.

In Chapter six the Human Resource Accounting and Human Capital Literature is reviewed. This literature provides the background to the type of research that has been carried out in these areas in the past and enables an argument to be put forward as to which characteristics are important for this research. Other variables, which will not be included in this research such as colour and family status, are also discussed and the reasons for their exclusion are given. This enables a final list of variables to be drawn up based on the literature and findings of the research that has already been done in this area. It is these variables that form the basis of the theory that is being tested in this work.

Chapter seven examines human resource accounting and other related

academic theories. It starts by discussing why human resource accounting is gaining in importance going on to acknowledge the three strands of academic theory that underpin it. After this several specific systems are discussed in detail showing that there is no correct method and that different researchers and indeed practitioners have different views of what is important in a model.

Chapter eight will examine the human resource strategy literature which argues firms have a stock of human capital and its relevance to this research will be assessed. In order that a relationship can exist between employee characteristics and the value of the firm markets must be efficient, so that information about firms is impounded in the share price. Chapter nine therefore, looks at the efficient market hypothesis literature to ascertain the work that has been done in this specific area and to see whether it is reasonable to argue that, in general terms, markets are efficient. This will enable the link between employees and share price to be made explicit. In doing this, some of the major literature that has tried to disprove the efficient market hypothesis will be examined and reasons why, in general terms, the efficient market hypothesis still holds, will be given.

While chapter ten examines some event studies to see if the market appears to react to the information, reinforcing chapter nine.

The following chapter, Chapter eleven, gives details of how the research was actually done. It will describe how the information was obtained and the use that was made of the data. The problems that occurred in the collection and use of the information will be discussed and the method by which they were overcome will be explained. It will also explain how the crude data collected was standardised, for example all share prices being taken to a standardised equivalent of a £1 share, in order that like was being compared with like. This

chapter will also explain the surrogates that are to be used in measuring the relevant variables.

Chapter twelve will state the result of the research. It will begin by specifying the model that is being tested and will then give the model estimation. The regression coefficients will then be discussed in relation to each of the independent variables. After this the various statistical tests which will be calculated will be examined and their significance explained. An adjusted data set will then be examined (Chapter eleven having given the reasons behind the adjustments) and the findings will be examined and compared with the original data set.

Next, Chapter thirteen will examine the effects of layoffs on the firms share price. Layoffs will be split into two types, those due to reduced demand and those due to efficiency measures. Previous research has found that, in spite of the fact that it can be hypothesised that layoffs due to efficiency should increase the share price, share prices tend to fall. Details of the above research will be examined and the results of the research carried out in this thesis reported to see if a general argument can be made that the share price could be falling because employees are being viewed as a resource of the firm and the firm has just reduced its asset (resource) base.

In Chapter fourteen the conclusions reached in this research will be given. This will be followed by a discussion as to the possible areas of and directions for further research in this field.

CHAPTER TWO

2 GENERAL JUSTIFICATION FOR THE RESEARCH

2.1 INTRODUCTION

The information provided by traditional financial reports has been seen as unsatisfactory and in need of change for some time now. In 1969, for example the Council of the Institute of Chartered Accountants in England and Wales (ICAEW) acknowledged that Company law needed the support of some authoritative pronouncements from the accountancy profession and issued a statement of intent on accounting standards in the 1970's.

This resulted in the Accounting Standards Steering Committee being established in 1970, which became the Accounting Standards Committee in 1976 and was replaced in 1990 by the Accounting Standards Board. The latter change was seen to be necessary as accounting issues have become more complex and financial reports needed to be more sophisticated. It was felt that this could not be done by the A.S.C., which was a voluntary part time committee, which had serious limitations in its scope and authority.

In 1975 the then Accounting Standards Steering Committee issued 'The Corporate Report' (1975) which was the first attempt in the UK to develop a conceptual framework which looked at the aims of published financial reports and the mean by which these aims could be achieved. The Accounting Standards Committee followed this in 1981 with the Macve Report which had the title 'A Conceptual Framework for Financial Accounting and Reporting: the possibilities for an agreed structure' (1981). One of the conclusions that it reached was that the form and content of financial statements is as much a

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political as a technical process and it can be argued that many of the problems associated with financial reporting stem from this fact.

More recently The Institute of Chartered Accountants of Scotland have issued a discussion document 'Making Corporate Reports Valuable' (1988). This document starts afresh ignoring existing terminology, accounting rules and laws in an attempt to arrive at what its authors believe to be the best results. The radical proposals contained in the report mean, of course, that the actual implementation of much that is in this document will be difficult but it has injected a breath of refresh air into the long running debate.

This chapter will look at the Corporate Report (1975) and making Corporate Reports Valuable (1988) together with other associated literature in order to show that this research is relevant in the context of contemporary debate and that the research is in line with current thinking on the topic.

2.2 THE CORPORATE REPORT (1975)

The first attempt at developing a conceptual framework of accounting by the accounting profession in the UK resulted in the publication in 1975 of the Corporate Report. This discussion paper attempted to generate debate on

> "...the fundamental aims of published financial reports and the means by which these aims can be achieved".
>
> (The Corporate Report 1975 p 9)

It set about discussing the problem by dividing the paper into three parts. Part one identified and discussed the underlying concepts and aims of corporate reports, part two discussed the manner in which the above can, in practical terms, be achieved while part three provided a summary of the discussion paper.

In fact the Corporate Report (1975) fell short of making a significant contribution towards the development of a conceptual framework although it did bring the problem to a wider audience and help stimulate a debate which has been on going ever since. Part of the reason for this lack of impact was the fact that the Sandilands Report (1975) on inflation accounting was published about the same time. This was a high profile report and tended to overshadow the former. It can also be argued that the business community were willing to see this happen, as an enthusiastic reception for the Corporate Report would have probably meant that their reporting requirements would need to be extended as the idea of accountability was enlarged. One of the main problems, however, with the Corporate Report and probably a major reason why it failed to make the desired impact was the fact that, although it identified individual user groups, it did not identify accounting models which would be appropriate to the needs of those groups. In fact it is clear from the

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report that the committee did not consider that a single set of generalised external financial reports could meet the informational requirements of all the users simultaneously, and that historical cost information alone was inadequate. The report also failed to suggest supplementary information that it considered would be appropriate to meet the needs of the various user groups. Despite these problems it had much to say about financial reporting that is relevant to this project and will be used as a starting point in the justification of this research.

The report starts by stating that all entities should be accountable and as far as possible try to satisfy the information needs of users of corporate reports. It defines users as

"...those having a reasonable right to information concerning the reporting entity arising from the public accountability of the entity"
(The Corporate Report 1975 p 17)

and identified

The Equity Investor Group
The Loan Creditor Group
The Employer Group
The Analyst - Advisor Group
The Business Contact Group
The Government
and The Public

Other reports for example, Making Corporate Reports Valuable (1988) and the Solomon's Report (1989) identified slightly different external user groups but it can be argued that the differences arise because some user groups can acquire the information from the reporting entity or from other sources (Arnold et al 1991). One example of this in Making Corporate Reports Valuable is given by the fact that the analysts-advisor group is omitted from the latter's listing, the authors explain this as follows

"... we do not include the analyst-advisor group in the list.......
because we consider the group does not have a direct right to
information from the reporting entity"
(Making Corporate Reports Valuable 1988 p 28)

They go on to say that the above act as agents for other groups and that therefore if the information package is satisfactory to these groups it should be satisfactory to the analyst-advisor group.

In passing it can be noted that prior to being disbanded the Accounting Standards Committee agreed to recognise the framework issued by the international Accounting Standards Committee (1989) as a benchmark against which future proposals would be measured. This framework recognises seven groups

1) Investors

2) Employers

3) Lenders

4) Suppliers and Other Trade Creditors

5) Customers

6) Governments and Their Agencies

7) Public

and it can be seen how in general terms, they fit in with the grouping that was given in The Corporate Report as stated above. The New Accounting Standards Board which succeeded the Accounting Standards Committee on 1st August 1990 stated its intention to produce its own framework document although it can be argued that on past evidence it is unlikely that the user groups, even though they might be differently expressed, are likely to change significantly.

It can also be argued that it is unlikely that a single set of objectives will command a consensus among the users (Buzby 1974) because of the varying

needs of the various user groups. The Corporate Report (1975) seems to be agreeing with this statement when it argues for example, when talking about the employee group, that

> "General purpose corporate reports cannot fully meet all the needs of this group".
>
> (The Corporate Report 1975 p 22)

It also makes the statement that

> "There is a growing need to find new ways of expressing the importance and communicating the contribution of business operation to the economy".
>
> (The Corporate Report 1975 p 37)

These themes are still relevant today as can be seen from the work of Arnold et al (1991) when they argue

> "The way forward to improving financial reporting involves:
> - increased awareness of the need for change
> - experimentation with the new statements by companies
> - refinement of the proposals in the light of further research
> - identification of the legal constraints and of ways in which they could be removed".
>
> (Arnold et al 1991 p 2)

They also argue for an eclectic approach to the valuing of assets and liabilities and it can be argued that this research is in the spirit of experimentation just mentioned and will be useful to many of the user groups.

The Corporate Report (1975) goes on to state the need for additional performance indicators. It starts by arguing that business can only survive with the approval of the community in which they operate going on to argue that it is in a business's interest to give information to a community which will show how the interest of different groups within the community are being balanced for the benefit of the whole community.

The first of the above statements is obviously true in the sense that the community, through its elected representatives, can curtail a businesses operation and if it is seen as necessary, stop those operations altogether. The second statement is only true to the extent that the community "demands" information and it can be argued that firms do not subscribe to the principle of social accountability (Owen & Harte 1984).

In France there is legislation which requires a formal statistical report from all large corporations covering a number of employment related topics. This limited intervention would surely not be needed if firms saw it to be in their interest to provide information. One problem with existing social reporting is that it tends to overemphasise costs to the neglect of the benefits, it stresses inputs rather than outputs (Preston 1981). This research will in fact demonstrate the benefits that are to be derived from good employment decisions so that these criticisms are addressed. The research will naturally not allow the suppression of unfavourable data, which, together with the problem of better reported crime = more crime (not directly relevant to this research), were other problems identified by Preston (1981). It can also be argued that some investors want additional information for example ethical investors (Maunders 1984) and this research could help provide some of these requirements. The research could also form part of an information policy for employees in order to foster a more satisfactory working relationship and reduce their insecurity, both of which are the benefits stated in Purdy (1981) of such a policy. Another factor in favour of this research is that it is in the area of the employment relationships which, according to Preston (1981), is the obvious essential area for social reporting.

In the sense, therefore, that the community is demanding additional

information as it (the community) becomes more sophisticated then The Corporate Report (1975) is correct when it argues that it is in a business's interest to give information and for the reasons stated above the information given by this research would be of value. It should be stressed however that businesses in general, will only voluntarily give information if they see it as being in their interest and it can be argued that, to a great extent, information will only be given where there is a public or pressure group demand for it.

The maximising of profit is another area mentioned in the report which goes on to state that profit is not the only legitimate aim of business and that therefore

"distributable profit can no longer be regarded as the sole or premier indicator of performance".
(Corporate Report 1975 p 38)

This means according to the report, that there is a need for additional performance indicators. Today this argument is still being put forward when for example Arnold et al (1991) states

"Much emphasis is placed on a single measure of earnings (per share). In an increasingly complex world it is unlikely that any single number can capture the variety of facets which contribute to the changes in an enterprises worth during a period".
(Arnold et al 1991 p 5)

Research therefore into employee characteristics and their impact on the value of a firm could add to the value of the information given in accounts as employees can be seen as key variables which ought to be, but are not well

reported. This research will help to redress the balance. It will also help moves away from a system where labour can be regarded as a free good which can be drawn on when demand is high (Cherns 1978) and to give additional information to both shareholders and employees making management more accountable for the labour resources that they use.

The Corporate Report (1975) acknowledges the above argument by stating that

> "Managements naturally respond to those indicators by which they consider their performance is judged and strive to achieve and present results accordingly".
>
> (Corporate Report 1975 p 38)

.... and this is yet another reason why the research is considered to be important as it helps to bring employee issues to the forefront and as the report says it believes that the additional information which should be reported
> ".... would give an insight into the reporting entity's employment policies use of human resources and contribution to national efficiency".
>
> (Corporate Report 1975 p 39)

This research, to a greater or lesser extent, addresses all three of these areas, increasing the boundaries of corporate reporting (without significant additional cost) and ensuring that those who rely on financial statements as their principal source of information obtain details that will enable them to make more useful decisions. It will also mean that the stewardship function of firms will be expanded to cover employees who are, after all, a valuable part of any organisation.

Another reason for additional reporting is given by Cooper and Sherer (1984) when they make the point that private information will enable certain people to make gains at the expense of others which is expressed, slightly differently by

Tinker et al (1982) when they argue that accounting theories are not neutral but serve specific interests and are a product of the society in which they operate.

It can be argued that attitudes towards disclosure are changing as is evidenced by many of the references cited in this chapter together with the fact that many firms give, for whatever reason, some social disclosure (Preston 1981). Preston is not alone in this line of argument. Owen & Harte (1984) are arguing in the same direction when they state that profit for a period is no longer a sufficient expression of the success of an enterprise. Both see the need for the widening of the scope of accounts and Preston (1981) while accepting that there are a wide variety of purposes as to why there should be social accounting, specifically mentions

a)   The fulfilment of a public relations need

b)   To provide a response to specific internal/external groups

c)   To improve the awareness of management

Again this research could help to meet these needs and The Corporate Report (1975) itself strengthens the above argument when it quotes the 1973 Companies Bill (which lapsed due to a change of government) where in clause 53 it stated

> "The matters to which the Directors of a company are entitled
> to have regard in exercising their powers shall include the
> interests of the company's employees generally as well as the
> interests of its members".
>
> (Companies Bill 1973 p 39)

The above clearly shows an intention to expand the boundaries of the Corporate Reports of Companies to include at least some social as well as financial information and indeed the Corporate Report (1975) goes on to give

examples of legislation which require some form of disclosure which is not directly linked to the requirements of shareholders going on to state that the European Community in its programme of harmonisation of company law, is likely to mean a greater recognition of the rights of employees. This research while being of direct interest to shareholders, as the information will enable them to make more informed investment decisions, will also be of interest to employees by showing how their input impacts on the worth of the firm and how well the stewardship function is being performed by management. This is clearly in line with the concept of expanding the boundaries covered by companies reports mentioned above.

The Corporate Report (1975) states that

> "The fundamental objective of Corporate Reports is to communicate economic measurements of and information about the resources and performance of the reporting entity useful to those having reasonable rights to such information".
>
> (Corporate Report 1975 p 28)

and the above discussion has been arguing that this research will assist with this objective. It will also be in line with the desired characteristics of reports as itemised in The Corporate Report i.e.

Relevant:- It will give information to shareholders employees and other interested parties on the stewardship of the firm and enable decisions to be made using employee information that was not previously available.

Understandable:- the basic concept is straight forward and should therefore be reasonably easy to come to grips with.

Reliable:- it is calculated from information which is independently verifiable.

Complete:-   It gives an overall picture with regard to employees and the impact they have on the firm.

Objective:-   the information used is neutral and factual showing no bias to one group or another.

Timely:-   it can be obtained quickly so that decisions can be made as the information can be compared year on year and with industrial averages.

From the above it can therefore be argued that the research will be within the spirit of the Corporate Report, meeting its characteristics and giving information beneficial to a wide audience on how management has discharged its stewardship function and enabling users of corporate reports to make decisions from a wider information base.

2.3 MAKING CORPORATE REPORTS VALUABLE (1988)

The previous section has examined the first attempt in the UK to develop a conceptual framework, namely The Corporate Report (1975), placing it in the context of this research. Another major and more up to date project on these lines was Making Corporate Reports Valuable (1988) which was produced in part to stimulate discussion and experimentation the authors noting that

> "...such hopes have often been expressed in vain by those who have sought to stimulate change in accounting practice".
> (Making Corporate Reports Valuable 1988 p 11)

The lack of progress in this area since The Corporate Report (1975) can be deduced from the fact that another major report was seen to be necessary.

In order to produce the above mentioned report the authors used a normative approach, ignoring accounting standards, the law and other constraints in the hope that this would provide the best outcome. They in fact decided that corporate reports required restructuring and not merely amending but they considered that in the short term there could be improvements made which would not be inconsistent with the long term objectives. It can be argued that this research is one such improvement and in particular, that it addresses an area mentioned in the report when it argues that directors need information so that they can monitor the present position and decide what should be done for the future, this being one area where information is lacking in corporate reports namely that covering information on employees. This is particularly true if the view is taken that firms have a duty to society as a whole and are not, or should not be, solely concerned with profit maximisation.

Making Corporate Reports Valuable (1988) suggests that external reports

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should cover

> "(i)   The performance of an entity towards meeting its objectives,
> (ii)   The present total wealth of an entity compared with that at the   previous report date and reasons for the change.
> (iii)   Likely future developments and the resources necessary to meet   them,
> (iv)   Information about an entity's economic environment and
> (v)   Information about the ownership and management of an entity".
>
> (Making Corporate Reports Valuable 1988 p 33)

It can be argued that research such as that which is being done in this work can aid management in achieving these objectives. If the five points mentioned above are looked at in turn the first states that the performance of an entity towards meeting its objectives should be reported upon. Traditionally employees have been marginalised in this reporting and their effect on a firm has not been given much of a priority. Companies such as IBM, which have historically stressed the importance of hiring and retaining excellent employees, are cited by Moses and Cherney (1989) in support of their argument that the real strength of many companies lies in their employees. Yet employees are most commonly reported upon only superficially and are a means by which firms can attempt within limits to manipulate their results. McRae (1971) puts this well when he argues that employees (seen as human assets) are implicitly assumed to be a free good i.e. one without costs. One outcome of this is that firms can reduce employees and hence wages, increasing short term profits to the detriment of the long term prospects of the company.

The next point says that the total wealth of an entity should be compared with the wealth for the previous period and changes reported on. This follows on from the previous argument in the sense that part of the wealth of any

organisation is its employees. It therefore follows that companies should, if one agrees with the argument, give details of the way in which employee's impact on the firm in order to give a more rounded picture which should prove useful to users.

Likely future developments are also mentioned and the report says that it will be necessary to state the responses needed to meet those developments. This research could be used to aid predictions as, if details were published, past trends in individual company or sectors could be used as benchmarks and the likely effects of changes estimated. If it is not published, past trends in the company concerned could be used again to, predict likely future outcomes.

The next quoted point is about giving information about an entity's economic environment and is also aided by this research as the research uses an external indication, stock market price, in order to show the impact of employee characteristics the latter being controlled by the firm.

The final point on details of the ownership and management of the firm is not directly addressed in this research. It can be noted in passing that in the opinion of the authors of Making Corporate Reports Valuable (1988)

> "..... management in order to manage properly, need to know
> items (i) to (iv) inclusive .....".
> (Making Corporate Reports Valuable 1988 p 33)

Making Corporate Reports Valuable also suggests that more information than is currently given to external users should be made available. It gives its reasons for advocating wider disclosure as follows

"(a) to prevent insiders using information to their advantage

(b) to help improve the efficiency of the market for an entity's   securities

(c) to improve investors control over their management

(d) to give investors a firmer foundation on which to base their judgement, and

(e) to enhance the reputation as forward looking of the entities   concerned".

(Making Corporate Reports Valuable 1988 p 33)

They did, however, go on to say that certain sensitive information ought not to be made public but gave no specific examples.   This research will, by widening the information available to management and users, help to address the issues (a) to (e) mentioned above (if published).

Making Corporate Reports Valuable (1988) argues that the present day balance sheet is virtually meaningless and in practice provides nothing that is worthwhile as there is no consistency in the figures produced, some assets being shown at cost and some being revalued for example.   This means, according to the report, that analysts, in order to arrive at an opinion on the company, have to untangle the balance sheet and make their own estimates of the position.   It goes without saying that some other users will find this almost impossible.

The profit and loss account fairs no better as present practice in the UK means that only realised gains/losses are recorded in the profit and loss account which therefore takes no account of what can be a major part of a company's growth in wealth, namely unrealised gains.   Unrealised losses on the other hand are taken immediately to the profit and loss account.   This is done on the grounds of prudence but it can be argued that it has the effect of distorting the true position of the company.

It can be seen from the above that a major adjustment to the present mode of reporting is necessary if the information to be provided is to be useful to users. As The Future Shape of Financial Reports (Arnold et al 1991) has argued when presenting its report

> "We hope that this Report stimulates discussion and encourages experimentation and reform in financial reporting. Experiments with the suggested financial statements would probably have to fall outside the statutory reporting framework in the form of supplementing statements".
>
> (Arnold et al 1991 p 1)

This research could be seen as providing a small part of this "new information" which is seen by some as necessary if financial statements, in the broadest sense are to be made more useful to users. In particular it will help to address the problem of the shortage of information that is given about employees which Making Corporate Reports Valuable (1988) sees as meagre and capable of improvement. It suggests that it would be helpful to external users

> ".... if the personnel's contribution to the difference between an entities market capitalisation and its financial wealth could be arrived at in some way".
>
> (Making Corporate Reports Valuable 1988 pp 53-54)

going on to point out that after twenty years of trying to bring "human assets" into the balance sheet the results have been rather unsatisfactory stating that it believes that a

> "...... major research project on the best way of reporting to management and investors on the worth of personnel" [is required]
>
> (Making Corporate Reports Valuable 1988 p 54)

The research being done here although not being done in the direct way that is implicit in the above statements can be seen as a step in the direction of at least partially meeting the objective of giving useful information about

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personnel.

2.4   THE GENERAL LITERATURE

The executive summary of the report, The Future Shape of Financial Reports (Arnold et al 1991) starts by stating: -

> "Financial reporting practice in the UK has been criticised increasingly in recent years for failing to provide information which is useful and relevant. This Report provides a rationale and framework for an evolutionary but fundamental reform of financial reporting".
>
> (Arnold et al 1991 p 3)

The report came about as the result of the "findings" of an Action Group set up by the Research Board of the Institute of Chartered Accountants in England and Wales and the research committee of The Institute of Chartered Accountants of Scotland and was the result of much dissatisfaction with the present form of financial reports. This dissatisfaction is nothing new and has existed within the accounting literature for many years in one form or another. Human Asset Accounting for example has been debated since the 1960's urging that accounts should give more information about employees, but failing to agree on what form this information might take.

Giles & Robinson (1972) are writers who have argued for more information on employees making several points that also inform this research. They state that Taylors slogan that what you cannot measure you cannot manage has a high number of adherents going on to say that measurement is usually in financial terms. Elsewhere they argue that employees are the only business element that has so far eluded financial evaluation and that explicit recognition of human resources would bring employees within the framework of asset management, helping to confirm or contradict the idea that "people are our most important asset". They were arguing from the point of view of putting a

value for employees into the financial statements in a more direct way than this research but this research could be used as a means to the same ends.

Different writers give different reasons to justify the extension of reporting to include information about employees. It can be argued that failure to measure employees can conceal sub optimum decisions and that because of this, decisions that on the face of it seem to be beneficial, may actually harm an organisation by depleting its human resources (Flamholtz 1972). This is the argument that says that in the short term, profits can be increased by depleting the workforce, but that this is not necessarily in the long term interest of the firm and that being hidden it is unlikely that the effects will be discussed (except in extreme cases) in any meaningful way. The argument can be extended by pointing out that often the managers who carry out such actions will, by the time the adverse effects become clear have moved on, complete with their records of success, leaving other managers to try and correct the position. Brummet (1970) makes a similar point when he argues that overt recognition of human resources can prevent programmes that cause serious human resource deterioration.

Baker (1974) has argued that the need to modify established practices or to produce supplementary information is necessary because users have become more sophisticated. This means that users needs have changed and the implication is that reporting has not kept pace with these changes. The above statement is broader than the scope of this research but it can be argued that employees should be part of this extended reporting. If it were accepted that employees are a major factor in a firm's well being (Jauch & Skigen 1974) then the argument for their inclusion in any extended reporting would appear to be a strong one. In fact it could be argued from some of the statements already made in previous sections that the state of reporting is fairly chaotic

and that an extension of reporting to cover employees would help to alleviate this position, especially bearing in mind the large sums of money expended on employees.

It can also be argued that if accountants don't provide relevant information then other sources will fill the gap (Beaver 1972) and provide the information which users require as an aid to their decision making. In another article (Beaver et al 1970) it is pointed out that our knowledge of security prices is incomplete and that we do not know what non price data is impounded in security prices. The article goes on to state that these underlying events are reflected in the market price of securities. This assumption is obviously important to this research as non-price data (employee characteristics) are being evaluated against security prices. An indication of the reasonableness of this assumption was provided by Acland (1976) when he showed that investment analysis can weigh human resource indicators, but this can be partially countered by the remarks of Cherns (1978) when he argues that we pay lip service to what we cannot measure but in practice we discount it, and Molyneux (1986) who argued that the expertise of analysts in the area of human resource management is at best questionable and often non existent. Providing some data on employees should help the situation as the behaviour of users is guided by the information available to them (Likert 1958) and if it is accepted that information in this area is inadequate then this could lead to bad decisions.

Bowman (1973) has argued that the economic efficiency of the decisions and activities of a firm can be considered to be a major social responsibility of a firm as it acquires and uses the limited resources of society and if these are efficiently converted by the firm it will be serving society better. Cooper and Sherer (1984) looked at the effects of a firm on society from a different point of

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view arguing that accounting policies were not neutral but operated for the benefit of some sections of society to the detriment of others going on to say that there is an assumption made that it is shareholders and security markets that are important. Although at one level this is obviously true from what has already been said it can be argued that the emphasis is starting to change, albeit slowly and that other user groups are gaining in importance. Their needs are now being examined and the information that they require is starting to be produced by some firms. Examples of this would be value added statements and in a more general sense the use of pie charts and other graphical representations in firms reports, the latter helping naive users to understand some aspects of a firms operations "better". Other writers have argued that accounting reports themselves may have an influence on how a firm is financed and on its operating decisions (Prakash & Rappaport 1977) (Heald 1980) while Lee and Tweedie (1977) came to the conclusion that the financial information that is available at present is little used or understood [by private shareholders]. They go on to state that, according to their survey

> "...general information about the company (that is pertaining to its activities, labour force and industrial relations records and geographical location) were all of interest to many of the respondents".
>
> (Lee and Tweedie 1977 p 72)

All the above would tend to suggest that there is a need to extend and amend current reporting practices and it can be argued that this research will help in this aim.

As Likert (1958) has said relying on judgement alone will tend to lead to notorious inaccuracies and that these will tend to be at their greatest where the general situation of the firm is unsatisfactory or deteriorating. This sentiment is also echoed by Lee (1979) when he queries the statement that markets are sufficiently expert not to be fooled by published accounting

information by mentioning the cases of Handley Page and Rolls Royce. It can be argued, in general terms, that if inadequate information is available there will be a tendency to make poor decisions. One reason for these poor decisions is that where there is an information void an assumption is often made that things have not changed since the previous reporting period as implicit effects tend to be ignored (Likert an Bowers 1973). This can lead to inaccurate assumption being made that in turn can lead to erroneous conclusions. Another problem with an information void is that it enables managers to manipulate the situation to their advantage. McRae (1971) has pointed out that managers are not allowed to juggle inventories to adjust profits and he goes on to argue that the juggling of Human Assets is just as spurious pointing out that Human Assets are implicitly assumed to be a free good, one without cost. Indeed it can be argued that the human resources employed by an organisation are just as important as the state of the organisations tangible assets. Indeed some might argue that they are more important as the very existence of organisations can be seen as a tool which can be used as a means of increasing the wealth of the individuals who make up society. This latter point was echoed by Cooper and Essex (1977) when they argued in a slightly different context, that information should be provided that enables decision makers to satisfy their goals and enable them to make an improvement in their welfare. They also argued in the same article that the objectives of employees could not be satisfied by maximising wages. The research that is being established here will help to bridge the information void mentioned above and also assist in moving away from the current position where wages are the "only" measure of an employees worth.

Dermer and Seigel (1974) have argued that managers tend to focus on what is measured. In the case of employees the main measurement (see chapter 4 for other details) is wages. This has the following consequences, it means

arguably that there might be a tendency to treat employees as just another expense, looking at them in much the same way as electricity or gas and as Gan (1986) has stated, it means that people that are making decisions are having to do so through a veil of ignorance. It might well be of course, that some decision makers prefer this situation as it could give them "room to manoeuvre" and make them less accountable. Employees, therefore appear to be at the margin when it comes to the point of looking at the information provided by firms. This is despite the fact that, following an argument made by Bowman (1973) (which talked about management personnel), employees can be said to be the single most potent factor in the continuing success of any business. The "fact" that employees are marginalised when it comes to the reporting systems of firms seems even less acceptable when it is taken into account that there is, according to Brummet (1970), a continuing increase and commitment by government, business and individuals of time and resources towards maintaining and improving human capabilities. This must mean that the employees of a firm are becoming an ever-increasing investment both for the nation and for individual companies and it therefore must surely make sense to give more information about them in accounts.

2.5   SOME CONCLUDING REMARKS

From what has been said it can be argued that the value of employees is significant and that changes in that value through time are also significant. In order to account for employees effectively some extension to the present corporate report is required. This extension should ideally be in money terms in order to maximise the impact. Lee (1987) has made the point that there has been no essential change in financial reporting over the last 30 years, going on to say that there is an obvious need for innovation. In another article (Lee 1976) he argues that financial journalists, analysts and stockbrokers appear to be the source on which shareholders rely in order to get information, the clear implication being that accountants are not providing it.

It is worth reiterating that one area where information is particularly lax is the area of reporting on employees although employees do have a major impact on firms and such information would almost certainly be of use to both internal and external users. As Brummet (1970) has pointed out an assessment of human resources would encourage managers to give serious considerations to the impact that employees have on decisions in general as well as to their human resource investment decisions. He goes on to argue that such information could improve both management decisions and the forming of organisational objectives. In a similar vein the Committee on Human Resource Accounting (1973) has argued that investors could benefit from information on how the human assets of the organisation have increased or diminished during the period.

One problem in failing to give such information is that a certain type of manager will be able to get short-term results by reducing the wage bill in the short term that might result in long term harm to the firm. In fact Likert &

Bowers (1973) have argued that it is when managers focus on short term results that problems occur. Likert (1958) going further by suggesting that companies are encouraging managers to dissipate human assets by rewarding them for doing it while Lee (1976), when discussing financial information in general, makes the point that inefficient and/or inadequate information when combined with management misuse of such information could lead to bad decision making and an inefficient allocation of resources. If this is allowed to happen managers are not fulfilling their social responsibility.

This research will not put right all the wrongs mentioned in this chapter but it will give managers and other users information which should enable them to make more informed decisions and also enable external users to assess how well the directors have undertaken their stewardship function.

CHAPTER THREE

3   THE CHANGING ENVIRONMENT AND ITS IMPACT ON ACCOUNTING

3.1   INTRODUCTION

"Firms conventional performance measurement bases are regarded as obsolete by many commentators, both academic and industrial, yet they continue to be retained by companies which are otherwise at the forefront of technology. Many of the managers of the companies visited recognise this, but relatively few of them had made progress towards implementation or even consideration of alternatives, preferring to adapt existing measures in a manner which was felt would accommodate long-term planning needs".

(Coates et al. 1996 p 74)

The remaining sections in this chapter will be arguing that the above observation is correct. It will state how the environment is affecting business in general in a way which makes the old systems to some extent redundant and will argue that the new systems must of necessity take greater account of employees.

The next section will argue that the context in which businesses operate has changed dramatically and that this change is likely to accelerate in the future. An argument will be put forward that the type of business has also changed and this new type of business requires a different type of reporting. Due to the above changes reporting on employees will be even more important and it will be shown how this research will fit into the new pattern of business.

3.2 THE EVOLUTION OF BUSINESS

One way of looking at the evolution of business is to break it down into three distinct eras. The first of these is the agricultural era, which according to Elliott (1992) lasted 10 millennia. In this era only simple accounting processes were required such as single entry accounting. This is the first example of major social and economic change, which was brought about by the introduction of technology.

The second change came about by way of the industrial revolution. This took people off the land and located them in cities close to where the factories were. Production became much more specialised and more complex accounting systems were required which relied on double entry accounting.

Elliott (1992) states that this era lasted for a very much shorter period and has been superseded by a third era which

> "... can be dated to the 1950's with the invention of the transistor and the installation of the first commercial computer".

(Elliott 1992 p 62)

In the agricultural era it was labour that "fuelled" the system, in the industrial era it was machinery but in the third era, the era of the knowledge industries, it is information which fuels the system.

Roos & Roos (1997) give an example of this

> "The market value in March 1997 of GM which has considerable traditional assets, is approximately $49 billion. Microsoft, which has few such assets apart from its headquarters buildings in Seattle, has a market value of some $119 billion".

(Roos & Roos 1997 p 413)

It can be "seen" that Microsoft has few assets in the traditional sense but that its employees and their knowledge are the assets that are being used to build up the market value of the business, indeed, as Roos & Roos (1997) went on to argue if Microsoft's major analysts left the company in any numbers the share price would fall and it could be argued that the company had gone intellectually bankrupt.

They go on to say

> "Intellectual performance, that is growth/decline of the intellectual capital of the company, is increasingly interpreted as an early warning signal of subsequent financial performance. Simply because they say more about future earning capabilities, we are convinced measures of intellectual capital will increasingly be at the forefront in discussing the health and value of companies, inside and outside the organisation".

> (Roos & Roos 1997 p 417)

Lank (1977) has made a similar point stating

> ".... the first task for any organisation wishing to succeed in the knowledge era is to get management attention on this issue. Otherwise managers will continue to use - and be rewarded for using - traditional measures designed for a different environment, a world where capital, labour and land were the factors of production and where know-how and expertise were unmeasured by-products".

> (Lank 1997 p 408)

This third era is based around information technology and the computer. It will require a different type of accounting information which can take account of the more "important" role played in business by employees and which can also keep abreast of the fast moving, computer age. This research will help in the first of these requirements.

It is not only businesses that produce or use information that are concerned with this third era. Many non-information businesses produce or use information in some of their departments; for example the marketing department and they are therefore themselves involved in this third era.

The way business conducts itself is changing dramatically and this means that the way businesses are managed has also to change. Heracleous (1997) for example, has argued that the shift from resource based to knowledge based industries means that skill and knowledge are the only long-term competitive advantage going on to state that

"These trends:

• are causing radically altered demand patterns for goods and services;

• necessitate different psychological contracts with increasingly mobile knowledge workers with less loyalty to individual employers;

• necessitate new organisational forms which can operate effectively and efficiently in this changing context".

(Heracleous 1997 p 299)

It can be argued from this that the general shift in business may be towards a reduction in permanent (core) staff with the greater use of freelance workers and part time workers with many more people than now being self-employed. This will mean that many individuals will have to take responsibility for planning their career and managing their own career, whereas in the past the might well have been done for them by their employer.

At the same time businesses will have to develop new relationships with their "employees" probably assisting in their development to meet the businesses

needs. Pay may well become performance based and the business will have to develop new methods of keeping its confidential information secure. In this new situation human resources take on an increased significance and new ways of reporting this asset should be examined.

One consequence of the above development is that the previous normal business structure will no longer be applicable and the business will run on a more network structure based around the computer. This enables a business to change rapidly as circumstances and tasks change. A network organisation will allow businesses to move a lot faster.

3.3   THE IMPLICATIONS OF THESE CHANGES FOR ACCOUNTING

At the present time we are still not completely integrated into the third era and accounting systems have not yet been developed that can meet the changing circumstances.   There are however, several points that can be made. Traditional accounting can be spilt into two types external and internal (or management accounts). It is likely that these distinctions will tend to blur even more than they have in the past.

There has always been an argument as to what details should be included in financial accounts and what information should remain internal too the firm. Too much information in external accounts can lead to information overload and adversely affect the "general users" ability to understand them. On the other hand different users of accounts require different information so that, for example,   investors,   employees,   lenders,   suppliers,   customers,   the government and the public all need to be catered for.   This means that decisions have to be made which will satisfy the general requirement of all users without overloading the accounts with too much information. At the same time as providing this information the firm must take into account the fact that it could do itself actual harm if it disclosed sensitive information to its competitors.   This is one reason why many firms disclose only the "legal" minimum and others only produce additional information because of some perceived benefit to the firm e.g. heavy polluters publishing their environmental policies.

In this new era more and more workers are knowledge workers and they will require information in order to function.   This means that the traditional information which was exclusively for management will be required by more people and what was traditionally internal information may well be required by

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a larger audience with some of it, possibly, ending up as external information. Under such circumstances confidentiality will be hard to maintain and new control systems will need to be devised.

It has already been stated that such systems have not yet been developed but writers such as Elliott (1992) have made some general comment as to how they see the position developing. Elliott (1992) argues that these systems will focus on changes, looking at the rates off change in resources and processes

> "It must repudiate the Taylor model, which suppresses all change, including improvement".

(Elliott 1992 p 69)

Elliott (1992) goes on to argue that some businesses are beginning to use such systems giving the example of how firms are writing their contracts

> "The third-wave procurement contract demands a defect rate of less than X parts per 1,000 this quarter, X parts per 10,000 next quarter and X parts per 100,000 the following quarter".

(Elliott 1992 p 70)

going on to state

> "The resources and obligations measured in a third-wave accounting system must also change. The resources that drive the third-wave company are information based assets such as R.D, human assets, knowledge, data and capacity for innovation. These assets don't even appear on a second-wave balance sheet. We cannot leave them out of the accountability set and expect managers and investors to reach sound decisions".

(Elliott 1992 p 70)

As can be seen from the above human assets are one of the assets that according to Elliott should, but do not, appear on the balance sheet. This

research would give information about human assets, but would not directly, be putting them on the balance sheet. It can therefore be argued that the research is moving towards providing information for this third era.

Other writers such as Edvinsson (1997) have pointed out the need to begin to account for employees. The argument is that from the point of view of accounts goodwill is a surrogate for the value of employees etc (and indeed this research uses this concept). However

> ".... from an accounting point of view goodwill is a trash item. As an intangible item goodwill should be deducted as quickly as possible thereby actually reducing the value of the balance sheet. From a knowledge value viewpoint however, it could be considered to reflect the intellectual value which grows over time".

> (Edvinsson 1997 p 368)

The article goes on to explain how one company, Skandia AFS, produced a valuation scheme. The basic idea was to make intangible and soft assets more visible, partly by identifying them and then to try and measure them. This they hoped would enable them to reduce the lead-time between knowledge being obtained and it being taught and recycled with the consequent transfer of skills and practical experience.

They originally produced a long list of items that were not in conventional accounts but were nonetheless valuable and from this they produced a simplified definition of intellectual capital i.e.

> Human Capital + Structural Capital = Intellectual Capital

This definition came about because, on examination, they found that

> "These new units represented mainly human capital, while in those units which had already been in operation in the market had something else as well as human capital. Those dimensions beyond human capital were left behind when the

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staff went home. They were, for example, the concessions, the IT systems etc. So what was learned from this was that out of human capital grows some kind of structural capital".

(Edvinsson 1997 p 368/9)

According to Skandia, market value is made up of financial capital and intellectual capital the latter being spilt between human capital and structural capital and they would argue that structural capital was less volatile than human capital and remained when the employees went home. They therefore see the conversion of human capital into structural capital as a major goal for an organisation.

In one sense the above is true but it is not as clear-cut as Skandia would seem to be arguing. A company can, for example, have information on customers that would be classed as structural capital and it cannot be denied that the company would have some valuable information which would help to stabilise the company. At the same time it can be argued that in many instances customers are loyal to the individuals with whom they have had dealings and that this will tend to negate any clear distinction between human capital and structural capital. At the same time it cannot be denied that any attempts that can be made by management to increase the amount of structural capital "owned" by the company and to reduce the human capital element will strengthen the company leaving it less prone to the whims of individuals, but although, from the companies point of view, this must be a major aim, which as we have argued is going to become more important in the future with the growth of knowledge based industries, it is difficult to see how it can ever be totally attained.

Skandia argues that

"... a key role of leadership is the transformation of human

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capital into structural capital. Furthermore, the human capital cannot be owned, it can only be rented. The structural capital can, from a shareholders point of view, be owned and traded".

(Edvinsson 1997 p 369)

But as has been argued above this might be true for "customers names and addresses" but if the customer deals with the employee and has loyalty to him/her then the names and addresses lose at least some of their value, the true value resting with the employee. It goes, however, without saying that if the company can isolate structural capital from human capital then the company will, all things being equal, benefit from doing so. This means that companies should be aware of the "problem" and accept it as an aim and a challenge even though they will, arguably, in many instances not be able to actually totally complete the transfer (from human capital to structural capital).

The Skandia valuation scheme uses similar techniques to those used in this research. It starts with the market value of the shares and deducts from this the financial capital (tangible net assets) this leaves the intellectual capital, which Skandia breaks down into human capital and structural capital. It then goes on to further subdivide structural capital. Edvinsson (1997) explains the process as follows, although no details account is given as to how the individual items are valued.

"This approach starts with the stock market value and deducts the financial capital. This leaves intellectual capital as the balancing item. Considering the simplified definition of intellectual capital, the next step shows the two building blocks of human capital and structural capital. Deducting the value of the human capital from the intellectual capital leaves structural capital as the balancing item.

Within structural capital, the major component left behind when the employees go home is customer capital. Deducting the value of the customer relationships from the structural capital leaves organisational capital as the balancing value. Within organisational capital the value of processes could be extracted

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leaving innovation capital as the balancing value. Within the innovation capital it is possible to identify the value of intellectual properties such as patents, trade marks, etc. This leaves intangible assets as the balancing value."

(Edvinsson 1997 p 370)

It can be seen from the above that Skandia attempted to subdivide intellectual capital into many sub-divisions. It is, however, very difficult to see how values that were in any way objective could be placed on these sub-divisions. Indeed Skandia itself accepted that both financial and non-financial reporting was needed in this area and that according to their findings

"One interesting ratio emerging from this exercise is that in establishing units, usually the human capital is a smaller component than the structural capital".

(Edvinsson 1997 p 370)

This finding will to a great extent depend for its validity on how the items were measured. The customer base for example could be, and from the article it is implicit that it was included in structural capital. It has, however, already been argued that customers are often loyal not to companies but to individuals. It can, therefore, be argued that to include the entire customer base in structural capital, is overstating the value of structural capital and understating the value of human capital. This problem will occur in many areas such as for example computer software engineers where it will be difficult to value the "assets" they produce for the firm in a way which allows a definite break between the value of the structural capital from the value of the human capital as it can be argued that the two are too tightly linked together.

This research is using the term human capital to cover what Skandia calls

intellectual capital. It is not attempting to split this asset into its component parts as at present there are no rules as to how this should/could be done and any attempt would of necessity be very subjective.

Indeed as Edvinsson (1997) has said

> "Intellectual capital has many dimensions... It involves off balance sheet values. It measures the unmeasurable".

<div align="right">(Edvinsson 1997 p 372)</div>

In such circumstances various possibilities should be examined Skandia is one such method, this research provides an alternative.

The Skandia model is not the only model that is being developed at the moment. Roos and Roos (1997) have developed a model which takes intellectual capital but subdivides it into three areas namely human capital, organisational capital and customer and relationship capital, instead of the two used by Skandia. They then applied their model to five sample companies using a qualitative research methodology using indicators and ranking their importance. They used a bottom up process, unlike Skandia who started with intellectual capital and worked down. They argued that this was necessary

> "...simply because their measurements must make sense to the people who do the measuring and be understood by those who are to be measured".

<div align="right">(Roos & Roos 1997 p 419)</div>

Their research is in the area of non-financial indicators and in obtaining a balance of these so that an overall picture emerges. In this sense it is different from the research that is being done here, as it does not attempt to obtain a money value for intellectual capital.

There are other approaches to examining human capital and seeing how it

should be planned and developed. Grundy (1997) for example suggests that workshops can be used which senior line managers attend. At these workshops the managers discuss the current organisational position and go on to think about the future shape of the organisation and the implication of this for human resource needs. One way they can do this is by using gap analysis.

> "There will therefore be two gap analysis - 1. One between present capability and present need; and 2. another between present capability and future need (the gap between present and future often being greater in magnitude)."

(Grundy 1997 p 551)

This type of work although it highlights the importance of human resources to the continuing success of a business has no direct relationships with the research being done here, although it can be argued that the two different approaches compliment one another. Indeed an argument can be put forward that it is a good thing to look at the "problem" of human resources using several approaches so obtaining a rounded overall picture.

Wright and Keegan (1997) in a publication for the Price Waterhouse, PW Papers Series, Insights for Decision Makers, entitled Pursuing Value: The Emerging Art of Reporting On the Future, argue

> "What is new today is the world-wide surge of interest in the shareholder value concept. It is challenging both corporate managers and their service providers to move beyond historical financial reporting towards reporting on underlying economic performance".

(Wright and Keegan 1997 p. 2)

going on to state that

> "As the value of intangible assets such as intellectual property

or brands increases as a proportion of the company's total value, while conversely the amount of long-term (i.e., non liquid) assets decreases the correlation between book value and market value lessens".

<div align="right">(Wright and Keegan 1997 p. 4)</div>

They go on to argue from this that a company's cash and future cash position is becoming more and more important and that a different type of reporting will be necessary in the future. In the process of making this argument they state that one of the topics that might usefully be included in external reporting is additions to intellectual capital. Later they go on to develop six "financial value drivers" and state that people have an impact on four of these namely, the sales growth rate, the operating profit margin, working capital to sales and capital expenditure to sales going on to state "In operating the Company we need to be able to focus on the activities that provide sustainable growth in corporate value".

<div align="right">(Wright & Keegan 1997 p 14)</div>

with the clear implication that people are an important part of these activities. In fact they go on to make this explicit

> "... although improvements have been made in the way performance is measured, particularly in the areas of "people value", which we believe will be the next most important factor in the Company's long-term success".

<div align="right">(Wright and Keegan 1997 p 19)</div>

and later

> "... we believe this position is sustainable provided we continue to invest carefully in technical innovation and human capital".

<div align="right">(Wright and Keegan 1997 p 23)</div>

They suggest several ways to measure people value: - An employee survey index can be used when employers are asked to rate various criteria such as, job satisfaction, career development, skills building, life style and rewards. From this key weaknesses can be identified and steps taken to correct them. They also suggest an intellect index. This is an attempt to "measure" the intellectual capacity of the company and can be done by looking at the qualifications and relevant experience of all the company's employees. Two other performance indicators are mentioned. The first is a report on the cultural balance of the organisation and the second a report on the investment that the company has made in training. Here again explicitly and implicitly human capital is being given a more prominent role even though it is being done using non-financial indicators.

Price Waterhouse, the publisher of this paper is an international firm of "chartered" accountants and it would seem reasonable to argue that they are interested in practical, as oppose to theoretical accounting matters. If this is true the publication of this paper can be seen as an indication that, amongst other things, practical accountants are seeing the need for information about human capital and are indeed putting forward suggestions as to how this information might be presented.

It is interesting to note that the paper suggests several ways to measure people value (previously stated) and that although they do not "agree" exactly with the measurements being used in this research a clear trend in the same direction can be seen.

The above has argued that there is a changing environment within industry and that this has implications for the way in which firms report their results. Human resource is one part of this "problem" and it has been shown that the

general area is of interest to both practical accountants and theoreticians. This research forms a part of this overall debate.

3.4 CONCLUSIONS

This chapter has argued that business reporting has to change because the environment in which businesses are working is changing. It has argued that there are a growing number of firms whose main assets are intangible and that this has increased the importance of human capital and means that ways will need to be found to measure it. Following on from this some examples of ways in which this may be done have been discussed.

Certain related terms have been discussed, such as intellectual capital and definitions of these terms has been given. It must, however, be remembered that there are no official definitions and various writers will use these terms differently. As Jordan and Jones (1997) has written

> "The specialist knowledge of individual employees goes home
> with them each night and is unlikely to confer long-term
> advantage. Individuals are free to transfer between firms and
> can take their personal knowledge with them"
>
> (Jordan & Jones 1997 p 393)

Whilst this is true it is also true that a business cannot function without human resources, so that if one individual leaves a business then all things being equal, the individual will need to be replaced. In other words a stock of human resources is required by any business and even though it may not be a constant pool there will be a certain level that is required.

An implicit argument has been made that intellectual capital and knowledge are amongst the most important assets of many businesses and as Wiig (1997) has argued

"To be highly competitive and successful, enterprises must create and sustain a balanced intellectual capital portfolio".

(Wiig 1997 p 404)

This research looks at human capital characteristics and relates these to the value added in the share price. In this sense it is attempting to establish the balance of characteristics that are required by a business.

It can be stressed that as Jordan and Jones (1977) have stated

"It is not the knowledge of the organisational members per se which is of critical strategic importance, it is the firms productivity in building, integrating and utilising its intellectual capital which is vital".

(Jordan and Jones 1997 p 393)

This research will not measure how efficiently human capital is being used but will provide a base from which management can begin to assess the areas where they might gain most advantage by developing the businesses human capital.

Before concluding this chapter two points can usefully be stressed. The first is by Demarest (1997)

".... knowledge is the capital of the 90's and that, just as the CFO closely manages the capital of the firm, reporting on cashflows and producing balance sheets, so a new corporate officer, the Chief Knowledge Officer (CKO) should be charged with managing the firms knowledge assets along similar lines".

(Demarest 1997 p 381)

and the second by Lank (1997)

"Would an investor put his money in a business that didn't keep track of its financial assets? Certainly not. Before too long investors may be asking how intangible assets are managed as a key aspect of their due diligence process".

(Lank 1977 p 409)

Both these statements would tend to support the argument that there is a need for research into, amongst other things, human capital and it can be argued that this research could help to identify a possible starting point for the measurement of employees which is needed in order that reporting can keep abreast of the rapid changes in the business environment.

CHAPTER FOUR

FACTORS WHICH MAY ACT AGAINST OR DELAY CHANGE

4.1   INTRODUCTION

Company reports are in the main governed in this country by the Company's Act 1985 as amended by the Company's Act 1989, Statements of Standard Accounting Practice (SSAP's), Financial Reporting Standards (FRS's) and Stock Exchange Requirements. These regulations tend to set the tone for financial reporting and although companies are always free to give more information than is "legally" necessary, unless there is pressure from an outside source and the company can see benefits in providing such information (for example giving environmental information, when the company is in a sensitive industry and can put forward a good case that it is acting responsibly) it would seem reasonable to argue that many companies would not bother. In fact it can be argued that once there are regulations governing how company reports are produced then these will tend to be followed and less companies will take the initiative to produce information which is outside the "legal" minimum. In other words the minimum will tend to become the maximum.

At the same time once regulations are in place it is normally a slow process to amend them and indeed this is one of the arguments that can be put forward for using standards to regulate company reporting, as oppose to laws, as it is argued that it is quicker to change standards as business practices develop, than it is to amend laws.

This section will examine the way that standards are set in this country to see

how, if at all they will affect the way companies report their results.

4.2   THE ACCOUNTING STANDARDS COMMITTEE (ASC)

It can be argued that in the main the Companies Act just give broad rules as to what must appear in a company's report and that it is the standards that give details of how these broad rules should be interpreted.

Prior to 1970 there was nothing other than company law to govern what went into financial statements. It was, however, becoming increasingly obvious that some other form of regulation was needed to stop the inconsistencies and abuses that were becoming more and more apparent in company reports. To this end the ASC was eventually formed, reporting to the Consultative Committee of Accounting Bodies (CCAB) and requiring their agreement to issue a standard.

The ASC was given the task of

1)   keeping under review standards of financial accounting and reporting

2)   to propose to the councils of each of the CCAB members statements of standard accounting practice and interpretation of such statements

3)   to publish consultative documents discussing papers and exposure drafts and submit to the Councils of each the CCAB member's non-mandatory guidance notes with the object of maintaining and advancing accounting standards

4)   to consult, as appropriate, with representations

5)   to maintain close links with the International Accounting Standards Committees and the accounting profession in Europe and throughout the world.

It can be argued from the above that the task given to the ASC was quite extensive and placed a heavy burden on the Committee. In a relatively short space of time it became clear that the committee had several major problems

that needed to be overcome before it could be truly effective. There was no conceptual framework, which meant that the committee was preparing standards in an ad hoc manner with nothing to act as an underpinning. In fact it can be argued that the ASC for this and other reasons, which will be explained later, ended up doing very little more than firefight i.e. problems were brought to its attention which needed in some cases "urgent" action and they attempted to address the problems by setting the process in motion to issue a standard.

They were, however, put in a very difficult position because they were not allowed to issue standards in their own right but required the agreement of the CCAB. This meant that the six "main" accounting bodies in the UK had to agree before a standard could be issued which in effect meant that because of pressure group involvement and internal politics within the CCAB many of the standards ended up as a compromise which it can be argued was not always a satisfactory outcome.

SSAP 4 on government grants is a case in point where the ASC issued a standard which due to outside pressure stated that there were two ways to deal with capital grants both of which give a true and fair view, but one, netting the grant off the price of the asset, is illegal under the Companies Act. This gives a indication of the extent of the pressure that could be brought to bear on the ASC when they could be forced through pressure to include something which is illegal in their standards in order to get it passed.

There were other problems which tended to weaken the ASC. The committee comprised part time members only, who gave their time free of charge, and it can certainly be argued that with the type and amount of work that was required there should be some full time staff. They were also short of

resources being expected to raise their own finance. Another major problem was that they had "no teeth", there was no supervisory body to look at accounts that had any authority to ensure compliance. At the same time there was the issue of whether certain standards should apply only to large companies, which needed some attention. On top of all this they had the overriding problem of pressure groups constantly making a very difficult job even more difficult.

In such an atmosphere it is possibly not surprising that the ASC tended, as has already been stated, to firefight, as oppose to planning a conceptual framework and trying to look at the larger picture. It is also not surprising, giving the pressure they were under, that they tended to set standards by looking at the current practices in the area and choosing after consultation the practice or practices that appeared to be "best accounting practice" and using this/these as the basis for the standard.

Setting standards in this way ignores the bigger picture and although it is not impossible it is highly unlikely for new innovative accounting ideas to be included in the mainstream accounting regulations. It can, in fact, be argued that the system was not able to cope with the existing accounting problems and certainly, because of the restrictions placed on it, was not able to react quickly.

In such circumstances any new and theoretical research would have little chance of gaining formal recognition and it would be left to interested companies and individuals to pioneer the research with presumably other companies/individuals joining in as the techniques were improved and the benefits of using the information could be seen.

From the above it can be argued that had the ASC survived, there would, in many cases, have been a very long lead time between any theoretical research being done and it finding acceptance, as if things had proceeded without change, unless some special circumstances came up, companies would first have to adopt the general practice and then eventually where different companies were treating it in different ways the ASC would step in and look to see what was best accounting practice/s, codifying it/them in an SSAP.

It had, however, become obvious that accounting issues were becoming more and more complex and that more sophisticated financial reporting was required. Criticism mounted against the ASC for being unable to respond quickly to changing needs or to "solve" many of the issues, e.g. inflation accounting, which were seen as important. Under these circumstances in 1987 the CCAB appointed a Review Committee to make recommendations on the standard setting process. This was to prove to be the beginning of the end of the ASC.

4.3   THE REVIEW COMMITTEE

The report of the Review Committee (1989) (The Dearing Report) made several recommendations of which the principal ones were

1)   The need for a conceptual framework

2)   Quality of accounting standards as oppose to quantity

3)   The application of standards to small companies

4)   Public sector bodies

5)   The role of the law

6)   A financial reporting council

7)   An accounting standards board

8)   A review panel

9)   Staffing and funding.

These will now be examined in turn. The need for a conceptual framework can be seen as an aid to obtaining an overall direction for standards so that they do not stand alone or even worse contradict one another, which is always a possibility if they are prepared in isolation. The review recommended that the conceptual frameworks of the Financial accounting Standards Board (FASB) in the USA and the International Accounting Standards Committee (IASC) should be used as a base on which to build and that with or without such a framework standards should be accompanied by a statement giving the principles underlying them and reasons why alternatives were rejected. From the point of view of this and other research moving towards a conceptual framework must be seen as a step in the right direction as it moves away from the idea of finding out what is "best accounting practice" and codifying it to looking at what ought to happen, irrespective of whether it is happening in practice at the present moment or not.

The quality of accounting standards is obviously important and the committee recommended that standards should concentrate on quality, timeliness, reducing the number of ways items could be treated and in obtaining compliance rather than producing a large number of standards covering every option. This recommendation has little direct relevance to this research and indeed it can be argued that the point is an obvious one but it will mean that if and when any standard is set in the area of human resources, the number of ways it can be recorded will be limited as it is part of the standards aim to reduce options. The effect of this will be that many of the current ideas on how human resources should be recorded will be marginalised in favour of the one/s which best fit into the conceptual framework, although, of course, additional information can always be given in a set of accounts.

There has for some time been a debate as to whether all standard should apply to small companies. The ASC had in the past exempted small companies from certain standards and the Review Committee recommended that this should be continued, a cost/benefit test being used to make the decision. It can be argued that the committee was being practical as in the past where standards have not been perceived as having benefits which exceeded the cost of compliance e.g. the standard on inflation accounting, companies have on mass ignored the standard. From the point of view of this research this recommendation would probably mean that only large/medium companies would be required to comply with any standard.

With regards to public sector bodies the committee argued that it was important to have a unified standard of accounting across the board and argued that these bodies should therefore come within the standard setting framework and they recommended that support for compliance could come from the relevant Secretary of State. From the point of view of this research

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this recommendation is important because most public sector bodies are "people orientated" being usually service organisations. This of course means that accounting for human resources in such an organisation becomes even more important.

It has already been stated that the ASC had no means of enforcing companies to comply with the standards. One suggestion that had been made to combat this is that standards should have legal backing so that they could be enforced. The committee, however, did not recommend this course of action. They took the view that a legalistic approach would hamper the ability of the standard setters to respond quickly to new challenges and developments. If in some form human resources are going to be accounted for and the method to be used codified then it would seem a good thing from the point of view of research into new areas that the codifying process was as adaptable as possible and could be changed quickly.

The Review Committee then made some specific recommendation with regard to the actual structures that they considered should be in place to enable their ideas to be effectively and efficiently pursued. They started by recommending a Financial Reporting Council (FRC). This was to be a council that would guide the new standard setting body on work programmes and issues of public concern. It was recommended that it should be drawn from the whole community and should consist of approximately twenty members, half being accountants from all sections of industry and the profession and half from other interested parties. The council was envisaged as meeting three to four times a year and of taking an overview of the process. This would take some of the pressure of the accounting setting body and would be an improvement on the position under which the ASC had to work.

The actual accounting setting body was to be the Accounting Standards Board (ASB) to replace the ASC, this board being able to issue standards in its own right i.e.. ...without the approval of the CCAB. It was recommended that it should have a full time Chairman and Technical Director and a membership not exceeding nine. It was also recommended that a two-thirds majority was all that should be required for the approval of a standard. It can be seen from the above that the ASB was to be set up as a much stronger body than the old ASC.

The next recommendation was that a review panel (RP) should be set up which would examine actual/possible departures from accounting standards and it should spell out what additional information should be given to users in order that the financial statements should show a true and fair view.

The last main area that the committee looked at was that of staffing and funding. They estimated that the new structure would cost approximately 1½ million as opposed to the £440,000 budget that the ASC had and made some suggestion as to how these costs might be met. They also recommended that a professional staff of about ten should support the above bodies.

The specific recommendations as to the envisaged new structure have, it can be argued, changed the emphasis away from looking at current practices and using these to set standards. It has taken many of the pressures from the new standard setting body which will enable it to take a more thoughtful view of what ought to be reported in financial statements and it can be argued that this gives research a better chance of being brought into the mainstream reporting structure.

4.4   THE FATE OF THE REVIEW COMMITTEE PROPOSALS

The review committee proposals were, in the main implemented and the ASB succeeded the ASC on the 1st August 1990. The committee had made four recommendations as to changes in company law of which only two were incorporated in the 1989 Companies Act namely:

1)   The accounts of large companies now have to state whether they have been prepared in accordance with applicable accounting standards and give details of and reasons for any material departures and

2)   That the secretary of state or other authorised person can apply to the court for an order requiring the revision of defective accounts. It also provides procedures for voluntary revision of accounts without any need to involve the court and for procedures to enable companies to explain why they believe no revision is required.

The above effectively gives the standards some teeth as, in practice, it means the RP can look at a company's accounts and if it considers them defective it can request that they are changed. If the company refuses then it can be taken to court where if it loses (and this is the real power that the review panel has) the directors are personally liable for any costs and cannot contract to have these paid by the company.

It has already been stated that the review committee's proposals have been more or less accepted in tact. This means that there is now an FRC which has the job of advising the ASB and the RP and arranging finance on their behalf, taking a great deal of direct pressure off these two groups. The RP has already been mentioned above in explaining how it has been given some authority in overseeing that company's accounts comply with the standards. This leaves the actual body that sets the standards namely the ASB. The

general working of this board has been explained in the previous section and there was no change when the recommendations were implemented. The board now issues Financial Reporting Standards (FRS's) whereas the standards issued by the ASC were called Statements of Standards Accounting Practice (SSAP's). The board took over the existing SSAP's until such time they amended them by issuing a FRS.

One interesting thing that the board has done is to form a subcommittee entitled the Urgent Issues Task Force (UITF). This committee, as its name suggests looks at issues which for one reason or another requires some immediate action and it issues, through the ASB Abstracts which it is necessary for companies to follow in order to show a true and fair view, until such time as an FRS can be issued. This again takes a lot of pressure off the ASB as it allows them to plan their programme of standards without being pushed off course by every emergency which crops up. In other words there is no need for the ASB programme of work to be constantly interrupted by firefighting as the ASC programme was.

This means that the ASB can concentrate on what ought to be done in financial statements and this has to be good news for the future.

4.5 <u>CONCLUDING REMARKS</u>

This chapter started by stating that company reports were, in the main governed by standards, the Company's Acts, and the Stock Exchange. It has since then concentrated on how the standards and the process by which they are created has changed and how this has affected the possibility of more research being used practically in financial statements. The reason for this is that the Company's Acts tend only to set the basic rules whereas the standards relate these rules to the actual environment, are more detailed and are in fact the place where research will either be encouraged or stifled.

Likewise the stock exchange and the other security markets in the UK have their own requirements if a company wishes to be quoted on them but while they are in their own right important they again tend not to have the major impact that standards have although they are in a very strong position to influence companies and to encourage them to abide by the standards.

It can, therefore, be argued that standards are in a sense a double-edged sword. On the one hand standards are regulations and although they are more easily adjusted and changed than legislation, as the business environment changes, they still have to be revised or withdrawn and new standards issued, which by the very nature of the process is time consuming. On the other hand the standards are now being set taking into account what ought to be shown in financial statements as oppose to what is current best practice and this must be a step in the right direction.

The ASB is in the process of preparing a conceptual framework and it could be argued that this might tend to restrict the way data is shown in financial statements. On the other hand it is looking at what ought to be in financial

statements and in an ever-changing environment it will be necessary to be continually reassessing the needs of the various user groups. This will tend to make the ASB open to new ideas and new research as the boundaries in which businesses operate change. It can certainly be argued that the change from the ASC to the ASB has changed the whole tone vis-à-vis the standard setting process and research.

The type of research being done here must certainly stand a reasonable chance of in some form being brought into financial statements. This it can be argued, must happen because the environment is changing very rapidly away from tangible assets to intangible assets, of which a major one is human resources, and as this change accelerates the ASB will not be able to ignore it, for if they do financial statements will become, arguably less and less relevant as more and more assets are excluded from the statements. It is therefore important to do research in this area and as has been explained above the infrastructure is already in place which will allow this type of research to be taken on board and integrated into the financial statements, of companies, to meet the changing needs of users.

This chapter has looked at factors that may act against or delay change. If the ASC had not been replaced by the ASB then almost certainly change of the type envisaged by this research would not have been readily accepted into financial statements. With the change to the ASB however a much more theoretical approach is taken to standard setting and although all structures tend to be conservative and support the status quo it can be argued that the ASB might to some extent delay the recording of human resources in financial statements but it is unlikely that it will stop it as it is set up to be much more progressive than its predecessor the ASC.

CHAPTER FIVE

5.1 HOW FIRMS AND THEIR SHARES ARE VALUED

This chapter will examine the principle methods that are used in the financial accounting literature for valuing companies. It will state when each is most applicable and the limitations that are generally recognised as applying to these methods. It will also discuss some of the variants that are used.

The methods, which will be discussed, are:

a)   The dividend yield valuation method

b)   The price earnings ratio method (p/e)

c)   The assets basis.

Most financial accounting and managerial finance texts take these methods as their starting point. Gitman (1988) for example states

> "Many popular approaches for measuring value exist, but only
> one is widely accepted. The popular approaches to valuation
> include the use of book value, liquidation value or some type of
> a price/earnings multiple."

> (Gitman 1988 p 258)

going on to say

> "Simply stated the value of a share of common stock is equal to
> the present value of all future dividends it is expected to provide
> over an infinite time horizon"

> (Gitman 1988 p 261)

It can be seen that these two quotations taken together cover the three principle methods that are to be discussed.

It is worth pointing out that these quotations are from a writer on finance and are theoretically correct in "discounting" all but one approach (the dividend method). In practical terms, however, all the principle methods are used, together with other methods as all the methods have practical difficulties and limitations, which restricts their usefulness. It is in practice normal to use a number of methods to arrive at a range of values and to use these values as a guide when negotiating a price. Woolf, Tanna & Singh (1985) for example state that

> ".... In general terms the dividend yield method is appropriate for small shareholdings where the shareholding will have little or no influence on dividend policy.
> For substantial minority holdings and controlling interests, both the P/E ratio method and the asset basis might be relevant."
>
> (Woolf, Tanna & Singh 1985 p 554)

These writers are not disagreeing with one another rather one is writing from a theoretical standpoint while the other is taking a practical stance. This chapter when discussing these methods will, while accepting the theoretical superiority of the dividend method, take a more practical approach which will not "discount" the other methods to the extent that is warranted by taking a theoretical approach. Looking at the benefit that can be derived from each method while at the same time recognising its shortcomings will do this.

Other methods and some variants of the above methods will be discussed together with their advantages and disadvantages. At this point the valuation that can be obtained using this research will be introduced as one possible further method of valuing shares/businesses.

Throughout this chapter it should be borne in mind that the general argument

will be that no one method should be used when valuing shares but that rather the reason for the valuation should be the guiding principle and a range of values should be obtained using the most appropriate methods indicated and driven by the reason for the valuation.

5.2 THE ASSET BASIS

The value of shares using this method is found by taking the net tangible assets attributable to those shares. This ignores intangible assets, but it can certainly be argued that in some instances, for example the service industries, goodwill and other intangibles can be a large part of the value of the shares. Another problem relates to the actual values themselves. Figures have to be attached to each asset and valuations can vary considerably.

It can be argued that different valuers can on occasions give widely different values even when they use the same basis for their valuation. This is due in part to the fact that valuation are normally subjective and also a valuer will be approaching it bearing in mind the requirements of his client i.e. the valuer will be taking the purpose of the valuation into account.

Another reason why values may vary considerably is to do with the basis on which the value is made. The valuation can be made on a going concern basis assuming that the firm is going to continue to operate in the future. On the other hand it can be made on a break up basis assuming the firm is to cease trading but even here a decision has to be made as to whether the value should be based on a "quick sale of the assets through say an auction or whether a more leisurely sale should be assumed as in most cases the latter will give the larger value.

In general balance sheet values should not be used for this exercise as in most cases the figures do not represent the value of the assets. Indeed in the late sixties and early seventies some large profits were made from assets stripping and it can be argued that this was only possible because balance sheets did not reflect the true asset value. From what has been said it should

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not be supposed that all values in a balance sheet would be undervalued. It is true that in general if they have not been revalued on a regular basis land and building will be undervalued in the balance sheet. Other assets may well, however, be overvalued, stock and debtors require careful evaluation to see that they are all realisable/collectable (especially if the time scale for this to be done is being reduced).

There are also other factors to be taken into consideration for example is there a market for the assets and are there any prior charges on the assets, also if the assets are based abroad will this create any problems if they are to be sold. On the other side "hidden" liabilities need to be assessed for example any redundancy payments or closure costs for which provision has not been made. At the same time it will be necessary to make sure that other liabilities have been accurately quantified deferred tax and contingent liabilities are examples of the kinds of liabilities which will require examination.

Deferred tax can be defined as (following SSAP 15)

> "The tax attributable to timing differences. Timing differences are differences between profits or losses compute for tax purposes and results as stated in financial statements, which arise from the inclusion of items of income and expenditure in tax computations in periods different from those in which they are included in financial statements. Timing differences originate in one period and are capable of reversal in one or more subsequent periods".

> (Davies, Paterson & Wilson 1994 p 1086)

An example of this occurs when assets are depreciated in financial accounts at one rate but are adjusted in the tax computations at a different rate.

A contingency can be defined as (following SSAP 18)

"A condition which exists at the balance sheet date, where the outcome will be confirmed only on the occurrence or non-occurrence of one or more uncertain future events".

(Davies, Paterson & Wilson 1994 p 1266)

and again following SSAP 18 a contingent loss can be defines as

"...a loss dependent on a contingency".

(Davies, Paterson & Wilson 1994 p 1267)

An example of a contingent loss would be a claim in the courts for damages.

From what has been said it can be seen that it is no simple task to value a company using the asset basis and it can certainly be argued that due to the inevitable subjectivity, many valuation are possible for the same business. This is further complicated by the fact that there is another problem that has to be addressed (although it is partially covered by the going concern/liquidation valuation arguments) i.e. whether input or output prices are to be used. A car for example can have one price if a firm was buying it in, another if it was to be sold in the normal course of business, and yet another if offered for a quick sale. The valuation to be used often depends on whether you are a buyer or a seller.

All methods of valuation are subject to some forms of uncertainty and it is therefore not possible to arrive at a valuation, which can be claimed to be uniquely "correct". Valuations are, therefore, made in order to create a framework, which will allow negotiations to take place that will enable the parties, hopefully, to agree on a price. It follows from this that several methods of valuation should be used to form the basis for negotiation and that no one valuation should normally be used in isolation.

As a general point it can be argued that in most cases the net asset basis will provide the lowest valuation of the business and it will normally only be the basis chosen for the valuation where the company is about to go into liquidation. It should, however, still be calculated even when the business is going to continue, as, if output prices are used, it will indicate the worst possible scenario.

In the last sentence it has been argued that output values will give the worst possible scenario. This is generally true but specific circumstances must always be taken into account and the above statement, although normally true, may on occasions prove to be inaccurate. On example of this would be where a shareholder in a private limited company is trying to sell 20% of the ordinary shares where the other 80% are family owned. It does not matter how prudently the net assets are calculated or how generous the write down for lack of marketability is; common sense in the end must dictate the value. If the prospective purchaser is an outsider and the company distributes its profits by way of bonuses rather than dividend, the prospective purchaser of 20% would have no means of forcing the company to pay a dividend and as an outsider no means of receiving a bonus. In such circumstances he would receive no dividends and the family shareholders by way of bonuses could manipulate the position so that even capital growth would not arise. Given this scenario it does not matter which valuation method is used common sense would suggest that, all things being equal, these shares are virtually unsaleable i.e. they are worth almost nothing.

This does not mean that the firm is not worth anything as can be seen from a simple illustration. Suppose a firm has 100 shares and £100,000 net asset and is not going into liquidation. Under such circumstances the shares are "worth" £1000 each. If 20% are then sold in circumstances similar to those described above then in general terms the 80 shares remaining in the control

of the family will get the benefit from all the assets i.e. in simple terms, ignoring terminal values and discounting, the 80 shares will be worth an extra 25% because they "control" all the assets and are likely to for the foreseeable future.

This can happen when a shareholder that is active in a firm dies and bequeaths his shares outside the firm. There is "no" incentive for the remaining shareholders to purchase these shares and for all practical purposes they are worthless.

5.3   THE PRICE EARNINGS RATIO METHOD (P/E)

The price earning ratio shows the relationship between the firms share and its earnings, that is to say how much an investor is willing to pay for each £1 of profit. It follows from this that a high ratio means that the market think that the firm will be "successful" in the future and visa versa.

A high ratio in this sense is a ratio that is high when compared to similar firms in the same type of industry. Firms in different sectors cannot be used for comparison as different sectors have different amounts of risk and using the P/E ratios low ratios are associated with high risk.

The formula for calculating the P/E ratio is

$$P/E = \frac{\text{Market Price (Quoted Price) Per Share}}{\text{Earnings Per Share}}$$

When a firm has a high P/E ratio, within its sector, the share price is probably as high as it will go. If however the P/E ratio is low compared to similar firms there may be the opportunity for profitable investment, which will mean that the share price will increase, and the P/E ratio rise.

The figure in the formula that the firm can "control" is the earnings per share figure (E.P.S) and it is therefore not surprising that firms attempt to show this figure as high as possible. Often there is an added incentive to doing this as bonus payments to top executives can be tied to the E.P.S. figure.

Because of the importance of the E.P.S. figure the accounting profession has attempted to regulate how it is to be calculated. It did this firstly by issuing

SSAP 3 Earnings Per Share in 1972 and then amended it by issuing FRS 3 Reporting Financial Performance in 1992.

Before looking at these regulations in details the importance of the E.P.S. figure can be stressed by looking at a quotation from Davies, Paterson and Wilson (1994)

> "It would appear that reported and forecast E.P.S. can, through the P/E ratio, significantly affect a company's share price. This is evident whenever events occur that alter market expectations of future E.P.S."

(Davies, Paterson & Wilson 1994 p 1199)

who go on to argue

> "It seems, therefore, that companies are perhaps more concerned with reporting a level of earnings in line with market expectations rather than the manner by which they have been achieved. Consequently, a somewhat disproportionate level of importance is placed on published EPS data.
>
> EPS has also served as a means of assessing the stewardship and management role performed by company directors and managers; by linking remuneration packages to EPS growth performance, some companies deliberately increase the pressure on management to improve EPS. Not surprisingly, such powerful factors and incentives have all contributed to the growth of attempts to distort EPS."

(Davies, Paterson & Wilson 1994 p 1200)

Earnings per share was originally defined in SSAP 3 as

> "The profit in pence attributable to each equity share, based on the consolidated profit of the period after tax, and after deducting minority interests and preference dividends, but before taking into account extraordinary items, divided by the number of equity shares in issue and ranking for dividend in respect of the period."

(Davies, Paterson & Wilson 1994 p 1200/1201)

FRS 3 redefined EPS, the main change being that the basic EPS is now calculated after deducting extraordinary items, whereas originally the calculation was done before deducting extraordinary items.

In financial accounting there is an argument about the profit and loss account. It can be argued that the profit and loss account should show the underlying trend of the "trading" profit of the company and that any non recurring items should be excluded from the profit and loss account, this is called reserve accounting. Others argue that all items of profit and loss should go through the profit and loss account, this is called the all-inclusive approach.

SSAP 6 Extraordinary Items and Prior Year Adjustments came out in favour of the all-inclusive approach of showing all profits and losses for the year in the profit and loss account. It did, however, appreciate that this would mean that if nothing were done to separate out items, which fell outside the ordinary activities of the company, then profits would in some instances be extremely volatile and it would be difficult to use them in comparisons. To overcome this problem they stated a firms profit must be shown both before and after what are known as extraordinary items. In other words the profit on ordinary activities would be shown and then items which are not part of the ordinary activities of the business (extraordinary items) should be deducted to leave a final profit. At the same time SSAP 6 gave some examples of items which could be extraordinary items they included profits or losses arising from

1)   the discontinuance of a business segment

2)   the sale of an investment not acquired with the intention of resale e.g. investment in a subsidiary or associated company.

3)   disposal of fixed assets

4)   the expropriation of assets.

Other examples are also given by SSAP 6 but the above gives a general indication of the type of items involved. In theory this solved the problem of showing the underlying trends from operating activities while at the same time showing all realised profits and losses for the period through the profit and loss account.

This meant that the EPS could be calculated on operating profits rather than the more volatile total profits. It did, however, open the floodgates to abuse. Managers, who were under pressure to show good EPS would classify as extraordinary, expenses which were part of the operating expenses of the company and would classify as ordinary profits, profits which ought to have been classified as extraordinary profits so manipulating the profits and hence the E.P.S. in the company's and often the managers favour.

Because of this abuse FRS 3 changed the method of calculation and now E.P.S. calculations have to be done after all profits and losses have been taken into account. This is called the Basic E.P.S. and it is recognised that it may be volatile. In addition to the Basic E.P.S. additional E.P.S. calculations may be produced and FRS 3 says that where this occurs it should be done on a consistent basis over time, reconciled to the Basic E.P.S. and cannot be reported any more prominently than the Basic E.P.S.

Changes in equity share capital may also have an effect on the E.P.S. calculation and there are detailed rules covering the various scenarios that can arise. In the same way it is possible to calculate the E.P.S. on either the net or the nil basis. SSAP 3 says that the net basis must be used but that the nil basis should also be disclosed when it is materially different from the net basis. The net basis deducts from profits all taxes while the nil basis adds back to profit any tax, which has occurred because of the level of dividends.

In practice this means adding back to profits any tax that has occurred because of the level of dividends, that is to say adding back to profits any unrecoverable A.C.T. (Advance Corporation Tax).

Another problem that needs examining is the problem of dilution. Companies can have for example convertible loans, debentures and preference stock; they can also have options or warrants to subscribe for equity shares. If these situations are not taken into account then distorted E.P.S. figures might be produced. There will be a tendency under most circumstances for companies to appear, incorrectly, to have growth in their Basic E.P.S. SSAP 3 requires that fully diluted E.P.S. of 5% or more should be disclosed as well as the Basic E.P.S.

There is one more reason why the E.P.S. calculation has been changed, some might argue to a less meaningful figure, and that is that the Accounting Standards Board (A.S.B.) has been arguing that it is not possible to show the performance of a complex organisation in a single figure. It did not appear to like the prominence that the E.P.S. figure had achieved and the inclusion of extraordinary items in the new calculation can be seen as an attempt to de-emphasise E.P.S.

From what has been discussed above it can be seen that there is no "simple" "correct" P/E ratios and that in fact, because of the pressure on the managers of many companies to increase their E.P.S. the figure might well be artificially distorted. This means that when using P/E ratios for valuation purposes they must be used with caution and can only ever be a general indication of value to be used along with other indicators in arriving at a negotiated value.

An alternative way of expressing a company's earnings in relation to its share

price is the earnings yield method the formula being

$$\text{Earnings Yield} = \frac{\underline{\text{Earnings Per Share}}}{\text{Share Price}} \times 100$$

However this shows up another problem as traditionally the earnings yield uses gross earnings per share (adjusted for the tax credit) (Lewis & Pendrill 1991 pp 400) whereas the P/E ratio uses net earnings per share and so it is important to realise whether the figure that is being used for valuation purposes is gross or net.

Another market value ratio mentioned in Campsey & Bringham (1985) is the market to book ratio and is given by the formula

$$\text{Market/Book Ratio} = \frac{\underline{\text{Market Price Per Share}}}{\text{Book Value Per Share}}$$

High multiples of book value generally indicates a high rate of return on equity and visa versa. It must be admitted, however, that this is not one of the more common ratios that would be used as a market value ratio.

Many of these ratios are inter-related and the accounting rate of return (ARR) could be discussed here but will be dealt with later as a separate topic. If the problems of different earnings figure and subjective estimates are ignored the relationship between the ARR and P/E ratios is as follows: - The P/E ratio is as can be seen from above the reciprocal of the earnings yield which is itself a measure of the return on capital employed which is the basis for rate of return calculations.

5.4   THE DIVIDEND YIELD VALUATION METHOD

Before starting to explain the method one very important practical problem associated with this method should be noted. In financial management <u>net</u> dividends are used whereas in financial accounting it is normal to use <u>gross</u> dividends. Any possible complications due to the timing of tax payments or repayments are usually ignored.

Two quotations will illustrate the difference

"Thus common stock values are determined by the present value of a stream of cashflows associated with owning the stock".

(Campsey & Brigham 1985 pp 499)

"The dividend yield is thus given by
Dividend Yield =   <u>Gross Dividend Per Share</u> X 100"
                   Market Price Per Share

(Lewis & Pendrill 1991 p 398)

No further reference will be made to this point in the general discussion that follows although of course, it is extremely important in practice to know what has been used.

The value of shares in a company can be calculated as the present value of an infinite stream of dividends. In practical terms, however, the idea of an infinite stream of dividends is not critical as for most purposes a time horizon of about 50 years will produce the same present value.

The basic formula is

$$V_0 = \frac{D_1}{(1+K)} + \frac{D_2}{(1+K)^2} + \frac{D_3}{(1+K)^3} + \ldots \frac{D_n}{(1+K)^n}$$

where

V_0	=	the present value of the business
$D_1 D_2$	=	the dividends at the end of year 1 and 2
n	=	the life of the business
K	=	the required return

The problem is, of course, the practicability of this approach. Because of this financial accountants often take a practical approach by calculating a figure for maintainable dividends and use the simplified formula

$$V_0 = \frac{D_0}{K}$$

where Do = the expected future dividend per annum in perpetuity.

This model, however, ignores growth and it is possible to expand the model into a constant growth model often called the Gordon Model, which can be written

$$V_0 = \frac{D}{K-G}$$

Where

G = a constant rate of growth

D = the amount of the annual dividend at the end of next year.

If the dividend just paid is used the formula becomes

$$V_0 = D_0 \frac{(1+G)}{(K-G)}$$

where D_0 is the dividend just paid.

One problem with this model is that the growth rate has to be estimated usually from past results using the earliest and latest dividends. This method has the obvious fault that past trends are being used to predict the future and the past is not always an accurate predictor of the future.

A "refinement" of this model is the variable growth model, which can allow for changes in the dividend growth rate. Any number of changes can be incorporated into the model but the mathematics is often simplified by using a single growth rate change. In words the model works by

1)   Finding the value of the cash dividends at the end of each year during the initial growth period.

2)   Find the present value of the dividends expected during the initial growth period.

3)   Find the value of the shares at the end of the initial growth period.

4)   Add 2 and 3 together to find the value of the shares.

The present value of a share's cashflows (dividends) is in theory the best valuation model. Unfortunately there is a problem. The information that is required for the model is information about the future and must therefore be estimated. This requires an estimate of the dividends to be received and also an estimate of the required return taking into account the risk associated with the investment.

The first of these has been discussed with the Gordon Model where growth was estimated using past results. When the required returns are examined we have the same problem of estimation. It is a reasonable assumption that most investors are risk averse and will require a higher return from risky investments i.e. the more the risk involved the higher will be the return required. In practical this is often done by taking the rate on a risk free

investment and adding a premium calculated on some subjective basis. More objective models have been formulated and the Capital Asset Pricing Model is probably the most widely known of these.

The formula for this model is

$$E x j = r + (Exm-r)\ \beta j$$

where

Exj	=	the expected return on share j
r	=	the risk free rate of interest
Exm	=	the expected return on the market
βj	=	the systematic (non-diversifiable) risk of the share

From the formula it can be seen that in order to use the model a β value has to be obtained for the share. This means that an industry sector has to be identified for the share. Many companies, however are diversified into several sectors and this brings subjective judgement into the calculation. The calculation is further complicated by inflation, which affects the value of the capital that is invested.

Another approach is the opportunity cost approach. This is the best alternative return foregone. It is useful as it enables an estimate of the cost of capital to be made by looking at other similar investments with the "same" risk characteristics. Getting an ideal company for comparison is a problem as is the fact that concentrating on the level of dividends ignores other characteristics such as assets and earnings, which will have an effect on future dividends.

Before discussing the cost of capital the Gordon Model was discussed (in relationship to growth) and it should not be assumed that this is the only model. Another way of taking account of growth is by adding a premium for

capital appreciation. This was used in the case of re Lynall when the formula used was

$$\frac{(N \times \underline{D}) + p}{y}$$

where

N = the nominal share value

D = the potential dividend yield

y = the required dividend yield

p = the premium for capital appreciation.

It can be seen from the above that this formula is extremely subject relying on many assumptions.

At the beginning of this section it was stated that the problem with the dividend yield valuation method was the practicability of the approach. The problem is that although in theory the method is sound, in practice, because information about the future is required, many estimates have to be made and this must affect the accuracy of the resulting value.

Because of this, like all the other methods, it cannot give a factual value. Indeed it can be argued that there is no such thing as a factual value and that shares are worth whatever people are prepared to pay for them. It is, therefore, worth stressing that the three valuation models discussed up to now all give only an indication of the share values and should be used as an aid to finding an acceptable value bearing in mind the purpose for which the valuation is required and taking into account other non monetary information that is pertinent.

At the beginning of this chapter the above three methods were mentioned and were called the principle methods. There are however many more methods

and some of these will be discussed now. The first of these methods could have been included as one of the principle methods but is a variant of the price earnings ratio method (using much the same formula as the dividend yield valuation method only substituting earnings for dividends) and as such can be used instead of the P/E ratio, in theory, although in practice both may as well be calculated and used to obtain a better picture as, because of the estimates made, they will normally give different answers.

5.5 THE CAPITALISATION OF EARNINGS METHODS (RATE OF RETURN METHOD)

The accounting rate of return is based on profit (earnings) and the capital required to earn that profit. The P/E ratio is based on earnings and price (the capital required to make those earnings). It can therefore be argued that they are the "same" ratio.

The formula for the capitalisation of earnings method is as follows

$$V_0 = \frac{E_1}{(1+K)} + \frac{E_2}{(1+K)^2} + \frac{E_3}{(1+K)^3} + \ldots \frac{E_n}{(1+K)^n}$$

where

V_0 = the value of the business at time o

$E_1 \, E_2$ = the earnings at the end of years 1 and 2

n = the life of the business

K = the discount rate

Just as with the dividend method the above is not normally practicable and a normal approach is to assume that maintainable earnings will be carried on indefinitely and to use the formula

$$V_0 = \frac{E_0}{K}$$

Where E_0 = the expected future maintainable earnings per annum in perpetuity.

Again this formula is similar to the one used in the dividend yield method, substituting maintainable earnings for dividends

It should be noted that the last formula needs maintainable earnings i.e. earnings that will be maintainable in future years. In order to do this past earnings figures have often to be adjusted. Common adjustments are

1)   a new level of directors remuneration

2)   a new level of interest charge

3)   a notional rent

4)   adjustments for product rationalisation, improved management etc.

These are needed because commercial charges for rent, directors remuneration etc should be reflected in the earnings but this is not always the case in actual accounts.

Another decision that has to be made once these adjustments have been put through is how to decide on the maintainable earnings to be used. Often if the earnings have been showing a steady increase then the last years earnings will be used but where the earnings have been more volatile then a three years average or a five years average might be used, sometimes weighing the current years more heavily. It is obvious from what has been said above that some major estimates have to be made when this model is used and that in the reduced model the earnings figure is a very generalised figure. As far as the discount rate is concerned this is the required return and is subject to the same kind of considerations that were discussed when the dividend yield valuation method was being examined.

5.6   THE SUPER PROFITS METHOD

This method, although it used to be very popular, is now just mentioned in passing in many of the new texts.

It starts with the net tangible assets and applies a "fair return" to these. The expected profit is then compared to the "fair return" and any excess is the super profits. This is used as a basis for the calculation of goodwill. That is to say that the goodwill is calculated by taking a certain number of years of the super profits. This is then added to the tangible net assets to arrive at a value.

This differs from the earnings method because the earnings method in its reduced state assumes that the future expected maintainable earnings will go in perpetuity whereas in this method only a certain number of years "super profits" are purchased.

Again, many assumptions have to be made in order to arrive at a value. Another technique which is related to the super profits method is the Dual Capitalisation Method and relies on the following formula

$$\text{Total Value} = \frac{\text{Value of}}{\text{Net Tangible Assets}} + \frac{\text{Expected Profit} - \left[\frac{\text{Return Required on net Tangible asset}} \times \frac{\text{Value of Net Tangible assets}}\right]}{\text{Return Required on intangible assets}}$$

The techniques discussed above are not exhaustive and other methods such as the purchase of a number of years' fees are common in practice.

5.7   OTHER FACTORS TO BE TAKEN INTO ACCOUNT WHEN ARRIVING AT A VALUATION

When an investor buys shares in a company the contract is governed by the Articles of Association and these can restrict a shareholder's rights and may therefore affect the value of the shares.

Typical clauses might govern

1)   Voting power

2)   The right to participate in the profits of the company

3)   The right to participate in any surplus on liquidation

4)   Restrictions on the ability to transfer shares

5)   Restrictions on the transfer price of shares.

On top of this different classes of shares may have different rights.

Another factor, which has to be taken into consideration, is the size of the shareholdings. It can be argued that shareholdings up to and including 50% have little direct control (this will be expanded on below) and that, in financial accounting theory, the principal basis of valuation should be the dividend yield as the shareholder has no direct means of influencing the level of dividend. Over 50% shareholdings on the other hand, again in financial accounting theory, should use the earning method as the principal basis of valuation as the shareholder can influence the level of dividend and has some control over how the earnings are distributed.

It was mentioned above that with a shareholding of 50% or less there is a lack of control over the company's earnings and this is true but it is also relative. A 45% holding when the next largest holding is 10% is a much stronger position and therefore the holding should be more valuable than a holding of 45% of

the shares when the rest (55%) are held by one other party.

Also to be taken into consideration is why the buyer wants the shares. It has already been implied that controlling interests are usually valued at a premium and it therefore follows that a small number of shares, which will take the buyer over the 50% mark, will usually have a premium attached to them.

When valuing a substantial shareholding which is not large enough to give actual or effective control it should be remembered that there may be a limited market for such a block of shares and that because of this the price could be lower than for a smaller holding.

The above factors give an indication of the types of problems which must be addressed and which are not covered in any valuation model.

5.8 THE RELATIONSHIP BETWEEN VALUATION METHODS

"Regardless of the security in question, valuations always involve
determining the present value of a stream of cash flows that are
expected to accrue to the holder of the security over its life,
using an appropriate, risk-adjusted discount rate that is related
to the economy's riskless rate of interest"

(Megginson 1997 P 164)

This would suggest that there is a relationship between may of the methods and indeed this is the case. The price earnings ratio method has already been discussed and ended by stating that the price earning ratio in the reciprocal of the earnings yield which is itself a measure of the return in capital employed (the basis for rate of return calculation). Later the capitalisation of earnings method was discussed and it was stated that it could, in theory be used instead of the P/E ratio, but that normally, because estimates are required in the calculations different answers will be obtained.

It can rightly be argued that the value of any asset is the present value of all its future cash flows. Megginson (1997) has stated

"In the particular case of common stock, value can be computed as the
present value of all future earnings available to common stockholders.
or as the discounted value of all future cash dividends that will be
paid out to stockholders. Valuation is also the process that links risk
and return to determine the worth of an asset. The key inputs to the
valuation process include cash flows (returns), timing and the required
return (risk)."

(Megginson 1997 P 165)

This brings out the link between the Dividends and Earnings methods. It can, however, be argued that the key inputs to the models are highly subjective and therefore in practice they are unlikely to give the same results when

valuing a company.   On the other hand it is correct to argue that many of these methods are interrelated and ought to give the same answer.

At a different level if investors are not getting the return that they require in an efficient market a price adjustment will occur bringing the market back into equilibrium.   This is another way of arguing that models 'must; give the same answer providing they are trading in a 'perfect' market such as one of the major stock exchanges.

Not all methods, however, take the company's future earnings potential into account and it can be argued that some of these

"...lacks any true relationship to the firms value in the market place."

(Meggison 1997 P 198)

Book value would normally be a good example of this as would be the methods which rely for their existence on custom and practice for example valuing a business on so many years turnover.   Liquidation value, if the firm was in fact still a going concern, would be another example that failed to consider the earnings power of the firm.

From what has been said it can be argued that the 'best' models take into account the present value of future cash flows and that these methods are interrelated. Because, however they rely on estimates about the future they will often give different answers.

"It is important to recognise that professional securities analysts typically use a variety of models and techniques to value stocks. For example an analyst might use the constant growth model, liquidation value, and price/earnings (P/E) multiples to estimate the true worth of a given stock."

(Meggison 1997 P 196)

and as can be seen from the above quotation analysts use methods that do not rely on future potential as well as models that do.

This section has been arguing that there is a relationship between many of the valuation models but that valuation can be extremely complex in practice and because estimates and assumptions are required even models which ought to give the same answer will in many cases give different valuations for the same firm.

5.9 HOW THIS RESEARCH IS RELEVANT TO VALUATION MODELS

Several valuation models have been examined and it has been argued that because of the estimates and assumptions that have to be made no one model should be used to arrive at a valuation. It can be argued that in order to arrive at a valuation several models should be used in conjunction with the valuers background knowledge and experience.

One of the ways to value shares is the asset basis. This basis uses net tangible assets. The method, however, is of little use to the service industries as they rely on people rather than tangible assets.

In the next chapter it will be argued that people are assets of a business quoting such articles as 'Put People On Your Balance Sheet' (Hekimian & Jones 1967). If these arguments are accepted then it follows that a valuation formula that links employees to the share price could be a valuable tool in valuing share holdings especially in the service industries where they have few tangible assets.

It must be stressed, however, that the main objective of this research is not to establish a valuation model, based on employees, but rather to identify employee characteristics and show how they influence the share price. The fact that in principle this research could be used as a starting point for a valuation model is an additional incentive to do the research.

5.10 SOME CONCLUDING REMARKS

Throughout this chapter it has been stressed that all these models are merely estimates and should only be used as an aid to arriving at a valuation. This point was made well by Rees (1990) when he wrote

> "Finally it was shown that the evidence such as it is, regarding share valuation practices, indicates a healthy disregard of academic valuation models, and possibly less reliance on financial information than was first indicated by surveys of valuation practice. This does not imply that the academic models are wrong or irrelevant, for they may well describe the essential parameters of the valuation model, but the analyst has to work in an environment of uncertainty and in developing practices to cope with this, the link between valuation practice and theory may become disguised".

(Rees 1990 P 305)

CHAPTER SIX

CHOICE OF EMPLOYEE CHARACTERISTICS

6.1   INTRODUCTION

In chapter 2 the need for research in this general area was examined. This chapter extends the argument by explicitly examining the deficiencies in the area of conventional accounts and suggests how this research can assist in alleviating the problem.

The problem of the lack of employee information in accounts is first of all examined and an argument is put forward that information along the lines of this research will be of value to all users of accounts. It then goes on to examine some of the characteristics that previous research, in other areas, have suggested are applicable when looking at employees. From this a case will be made to substantiate the specific characteristics which are to be used and to state why these characteristics as opposed to others are the most appropriate.

6.2 WHY BOTHER

> "The omission [of living capital] is, I think unfortunate in many
> ways and especially in that it unconsciously leads people to
> exaggerate the importance of the material wealth of the nation
> in the narrowest sense of the term",
>
> (Nicholson 1891 P 97)

All organisations use three types of resource, financial, physical and human. Traditional financial accounts, however, tend to concentrate on the first two giving little information about employees (the human resource). The information that is provided comes mainly from two sources, The Directors Report, which must disclose

1)   statements on the employment of disabled persons (if its average

number of UK employees is more that 250);

2)   arrangements for securing the health, safety and welfare of its

employees; and

3)   from the accounts which must make statutory disclosures on directors'

emoluments and give further limited information on employees namely

      i)   The average number of employees per week

      ii)   the aggregate amount of
              a)   Wages and salaries paid to employees
              b)   Social security costs incurred by the company on the
                      employees' behalf
              c)   other pension costs incurred by the company on the
                      employees' behalf
      iii)   The average number of employees by category, the categories
              being determined by the directors.

It can be argued from the above that external users of accounts get no information on the value of employees only their financial cost and that additional information in this area is required in order to make accounts more useful to decision makers. One way to provide this further information is by way of a mathematical model and it is this model that the research is

attempting to provide.

At present firms are free to produce accounts giving the minimum information required by the Companies Act, Stock Exchange Regulations and other regulations such as Financial Reporting Standards. Even with the existence of a model such as is proposed in this work firms would still not be required to provide the information unless it became mandatory. Of course firms are always free to give additional information and should such disclosure become a requirement it could be produced at minimum further cost. The latter will be a major advantage of having a mathematical model as many other methods of informing external users about employees, such as a full system of Human Resource Accounting can be very costly.

Internal reporting also suffers from the lack of information on employees. Good management needs wider information about employees in order to make rational decisions and if this information is not available it is perfectly possible that wrong decisions will be made. In their article Put People On Your Balance Sheet, Hekimian and Jones (1967) gave three examples of decisions which, using traditional methods, would be made incorrectly. This occurred because the scarce resource was not, as is commonly assumed money, but was instead manpower. In the course of this argument they make the point that

> "The increasingly technical complexity of modern business and the increasing time required for personnel to gain skill, experience and judgement in many vital areas promise to continue the trend towards making brain-power the crucial resource in our economy".
>
> (Hekimian & Jones 1967 P 106)

Another point that can be made for providing information, in some form, on the value of employees is that in its absence it is possible for managers to

"liquidate human assets" in order to show a short term gain, as in the short term the wages bill will be reduced and the profit increased. In other words this can have undesirable effects in the medium to long term as it has the effect of making the managers who practice such methods look good at the expense of the long term future of the firm and the firm's employees. It is perfectly possible also to argue that by the time the effects of their decisions start to show up in the firms accounts many of these managers will have moved on leaving other managers to attempt to correct the consequences of their decisions the result of which will in many cases be placed at the wrong door. The original managers will in effect be looked upon as good managers whereas in reality it may, in many instances be their decisions that have contributed towards the firm's medium/long term problems. The above arguments were expressed slightly differently by Baruch Lev and Aba Schwartz (1971) who argued that in the absence of information on human resources (employees) management might try increasing profits in the short term by hiring low quality labour while Likert (1958) points out that it is possible that productivity can be increased at least in the short term by means which adversely affect the human organisation. Details, in some form, of employees will, if these arguments are correct, tend to make policies appear less constructive by showing the effects that are associated with such actions.

If these arguments are correct giving users of accounts greater information about employees should mean that they could make better informed decisions. This has been tested by Nabil Elias (1970) in his study of "The impact of accounting for human resources on decision making, an exploratory study" where he found that by including human asset information in the financial statements the investment decision of some but not all groups of investors was different. The above does not provide empirical evidence but such an argument would seem reasonable and indeed Groves (1981) argued

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that human resource accounting information would enable external users, investors and other third parties, to evaluate the human resources in the enterprise while enabling the internal users to plan organise and control the enterprise. If information about employees is made available the need to make decisions intuitively will be reduced and the more objective valuations, which it will then be possible to make, should lead to the optimisation of both physical and human assets.

Giving quantitative information on employees, in whatever form, should mean that managers are made more aware of the effect of their decision on employees as they will have some measurement data to aid them with their decisions and it can be argued that anything that is not measured is difficult to assess and control. At the same time because employees are being brought within the scope of the "measurement system" managers' control of personnel should be improved and this should be reflected in lower labour turnover, which in many cases will itself arguably lead to greater profitability. A similar situation occurred in the R. G. Barry Corporation when they introduced human resource accounting, the major benefits being felt shortly after the system had been introduced (Groves 1981). Obviously different reporting systems for employees will have different impacts on the firm but it would seem reasonable to argue that any change, in this direction, should have effects along the same lines as those experienced by the R. G. Barry Corporation.

Once the effect that employees have on a firm is quantified the importance of their employees will be highlighted and this should increase their importance within the firms decision making process. This in turn should increase the status of the personnel department and increase its influence within the firm helping to integrate it with the other departments of the firm.

In today's social and economic climate businesses are having to take account of their social responsibilities and Caplan (1974) has argued that

> "The trend towards increased social responsibility sets the stage for consideration of human resources in the context of the overall concern for people. This trend has positive implications insofar as it shifts the emphasis from physical to human resources"

He goes on to quote Marrow (1972) who observed that:-

> "What most executives seem to miss .... is that business can best begin discharging its social responsibility by humanizing its management practices".

> (Caplan 1974 P 19)

Today these statements would still appear to be relevant as it is still possible to argue that there is both a macro and a micro element to a firm's "social" responsibility i.e. there are social responsibilities to the public at large and social responsibilities to the employees within the firm. These responsibilities can on occasions conflict, but in many instances will be reconcilable. Studies have been undertaken by the Council on Economic Priorities (Caplan 1974) which show that there is a positive correlation between profitability and firms that are categorised as socially responsible.

It is the human beings within a firm which are the active agents of production while capital and natural resources are the passive agents (Caplan 1974). Each of these elements is vital and it can be argued that it should seldom be the case that some of these elements are looked at in isolation as it is the total resources of the firm that must be managed and it is the system as a whole that is required to generate value. At the same time development of a system

must ensure that it can give information, which will be of benefit to all user groups, it must be simple to use and understand rather than sophisticated and the benefits must outweigh the costs. The process of accounting is a process of selection and as argued by Mee (1982) whatever is selected is a significant factor in determining the focus of attention of management. A measurement process should therefore be applied to the human factor as even a crude measurement could significantly improve the function of the total system. It is for these reasons that a mathematical model is being investigated.

6.3 SOME OPTIONS

> "....since the abolition of slavery in civilised communities we
> are not familiar with the capitalisation of wage earning power"
>
> (Nicholson 1891 pp 98-99)

Human resource accounting has two components, human asset accounting and human capital accounting. The former is concerned with the value of the human resources employed in an organisation from the point of view of the organisation while the latter is concerned with the value of the human resources employed in an organisation from the point of view of the employees of the organisation i.e. one looks at the present value of the services rendered to the organisation by the employee while the other looks at the value of the employee (the present value of his remaining future earnings) as a person distinct from the organisation which employs him (Morse 1973).

The distinction is important for this thesis as it will have a direct bearing on the variables which are chosen to represent the characteristics which require measurement. In passing it should be pointed out that much of the literature in this area fails to recognise this distinction (Dittman et al 1980) and therefore requires interpretation.

Assets are acquired for what they can contribute to a firm and human "assets" are in this respect no different from physical assets; indeed Hekimian & Jones (1967) have pointed out that firms are often bought in order to enable the purchaser to gain access to the firms skilled manpower. They go on to state that:-

> ".... financial analysts stress that the valuation of a company's
> securities is often based more on the ability of its managers
> than on any other factor".
>
> (Hekimian & Jones 1967 pp 105-106)

It can be argued that one of the factors that managers must get right in order to make a firm successful is the balance of the various skills of the employees so making the quotation directly applicable to this work bringing together as it does the concept of share price and the value of employees. Another related factor mentioned by Schultz (1959) in relation to Harbinger's study of Chile is that technical advantages are the key factor in achieving development and that expenditure to improve the quality of the labour force is of prime importance in achieving this end. This could, arguably be generalised and would be applicable to many firms where the quality of the labour force is more important to the development of the firm than is the firm's physical and financial assets.

When a person is hired by a firm, it is hiring a set of skills (Myers and Flowers 1974) and the success of the firm will depend, in part, on how successful it is in obtaining the correct balance of skills to meet the firms needs. Employees possess many skills in fact one attempt to list these by the Illinois Division of Adult Vocational and Technical Education quoted by Hinson (1981) came up with 500 occupational survival skills. This is of course looking at skills at the micro level, which for the purpose of this thesis is too detailed. Other writers have examined skills at a more aggregate level and it is these works on which this work will concentrated.

As has already been mentioned, human resource accounting has two distinct components, human asset accounting and human capital accounting. E. Flamholtz (1972) produced a "Model of The Determinants of an Individuals Value to the Formal Organisation".

Diagram labels

Individual

Skills

Activation Level

Organisational

Role

Reward

Promotability

Productivity

Transferability

Satisfaction

Individual's conditional value

Probability of maintaining organisational membership

Individual's expected realisable value to a formal organisation

KEY

⇒ Hypothesised Determinant

⇐⇒ Hypothesised Interaction

⟩ A Subset

→ Possible Determinant

Model of the Determinants of an Individual's Worth to the Formal Organisation

Table 6.1

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This model brings together both individual and organisational variables in order to arrive at a value of an individual from the point of view of the firm. In 1967 under the direction of W. Pyle a research team that included E. Flamholtz, R Likert and R L Brummet was set up to carry out a series of projects designed to develop concepts and methods of accounting for human resources (Flamholtz 1985). The above model undoubtedly draws heavily on this initial work which brought together not only the disciplines of accounting and economics but also that of psychology. R. Likert for example was professor of psychology and sociology at Michigan University. He argued that the productive capacity of an organisation is determined by behavioural conditions - motivation, loyalty and group cohesion (Likert 1967). Dermer and Seigel (1974) conducted an experiment on four behaviourable variables and concluded that their findings were consistent with previous research and that

".... At present there is no empirical foundation upon which to advance the use of socio-psychological measures in accounting for human resources".
(Dermer and Seigel 1974 p 96)

For this reason and others, which will be explained later, the "psychological" models will not be used in this work.

Myers and Flowers (1974) suggest that there are five dimensions to humans assets discussed later in this chapter. By way of introduction they point out that humans bring to an organisation many ready made skills citing inductive/deductive reasoning, numerical facility, verbal ability, eye-hand co-ordination and self-mobility as examples. They then go on to argue that if a persons skills are to be applied constructively a minimum of four other dimension are required, knowledge, health, availability and attitudes. However Groves (1981) quoting Groves and Savich (1975) argues that

attitudes bear little relationship to job performance. Harbison (1973) sees human resources as the energies, skills, talent and knowledge of people.

Mincer (1958) in an article looking at human capital and personal income distribution used education and occupation to measure the amount of formal training and age to measure informal training or experience. He also used colour, sex, family status and city size in order to classify the labour force and although these were important in the context of his article it will be argued later that some of these are less important to this work. One interesting point he made in passing was that labour could be viewed, when subdivided by occupations, as a set of distinct factors of production differing in the extent to which capital is accumulated in them so that as with physical capital some industries will have high "capital ratios" and others low "capital ratios". This statement is directly applicable to this project as in order to make the mathematical formulae useful, it will be necessary to classify firms into industry types in order to make the models useful as a predictive tool.

Schultz (1959, 1961, and 1962) argued that people make investments in themselves and that this enables them to enlarge their ability to make choices. He argued that skills and knowledge are a form of capital making the point that when idle this capital deteriorates. Also although human investment when compared with bricks and mortar may seem amorphous it is important because the productive capacity of human beings, when measured by labour contribution to output, is larger than all other forms of wealth taken together and when people are looked upon as capital this does nor degrade them but rather it stops them being abused for example by being used as "gun fodder" in war. It can be argued that both these points to a lesser or greater extent have validity today, making the measurement of human capital in some form, important. Schultz (1961) gives examples of investment in human capital as

being,

> "Direct expenditures on education, health, and internal migration to take advantage of better job opportunities ...... earnings forgone by mature students attending school and by workers acquiring on-the-job training...."
>
> (Schultz 1961 p 1)

Schultz (1962) also argues that all of our economic activities are not given at birth or at a later age but rather that they are developed by people undertaking activities that have the attributes of an investment. This is important because people are born into different social backgrounds and have different natural abilities and if these characteristics were the main characteristics that required measurement then characteristics such as education and experience would have only a marginal effect on the value of human capital. Most writers, however, would probably argue that compared to the latter the former attributes are insignificant certainly the tone of Schultz's articles would appear to support this view and Denison (1967) would appear to agree by the emphasis he places on other factors.

Denison (1967) points out that the value of the work that an individual is capable of performing is affected to a great extent by his educational background so that an increase in the quality of labour is a source of increase in income. It must, however, be borne in mind that the correct balance of labour is required by each industry, some industries being more skills intensive than others.

From the above it can be argued that an increase in business output can be the result of increases in knowledge. One reason for this is that a better educated workforce is more capable of learning about and utilising the most modern and efficient production practices available. This is a circular process

as education affects the pace at which knowledge advances and this then changes the content of education. From this it can be argued that additional education especially if it is of a general nature increases mobility and versatility, makes people more aware of employment opportunities and more attractive to the labour market.

Denison (1967) considered the significant and measurable characteristics of employed persons to be:

1)   The hours they work

2)   Their sex

3)   Their age (which he uses as a substitute for experience and vigour)

4)   Their educational background.

He accepts that there are some unmeasured elements in his work of these he argues that

	1)	Experience
	2)	Effort
and	3)	health are important

but he dismisses

	1)	Natural Intelligence
	2)	Family Position
and	3)	The element of chance.

The first of these is dismissed by arguing that

> "there is no reason to suppose that native intelligence viewed
> as an aptitude at birth varies significantly"
>
> (Denison 1967 p 109)

(among countries) and this same argument can be put for individual firms.

The omission of the other two elements are justified on the grounds that they do not affect the quality of labour and can in any case be expected to average out.

6.4   SPECIFIC CHOICES

It has already been stated that there are two main approaches which could be used when selecting the characteristics to be employed in this project. Following the definitions of Morse (1973) these are human assets accounting and human capital accounting.

The first of these looks at the valuation of human resources from the point of view of the organisation and many models have been put forward as possible ways of doing this. At their most basic, these models take the cash outlay on recruitment, training, familiarisation and development of personnel, capitalise it and amortise it over the economic life of the employee, in other words they treat such expenditure as "deferred revenue expenditure" and match the costs to the benefits received. More advanced models include Flamholtz's (1972) model which has already been briefly described and the Likert and Bowers (1973) model. This model attempts to estimate

> " .... the change in dollar value of the human organisation"
>
> (Likert & Bowers 1973 p 15)

It does this by organising the model into three broad classes of variables:-causal, intervening and end result, causal variables are independent variables that determine the course of development within an organisation and the results achieved by it. They include the structure of the organisation and the policies of its management. The intervening variables reflect the performance capabilities of the organisation and include loyalty, attitudes, motivation, performance goals together with the perceptions of all the members and their collective capability for effective action, interaction, communication and decision making. The end result variables are the dependent variables

reflecting the results of the organisation such as productivity, earnings and growth.

These models take into account not only an employee's personal attributes such as skill and vitality but also economic, social and psychological variables. Because of this there is in these models a great deal of subjectivity and indeed Flamholtz (1985) while discussing Likert's work made the point that

> "At present the models most important contribution is to the non monetary measurement of human resource value. It identifies several variables that can be measured by attitude surveys ..."
>
> (Flamholtz 1985 p 193)

In trying to examine employee characteristics the basic model mentioned above can be ruled out as it is merely a means of measuring actual costs and matching them to the period which benefits from them without any direct reference to the characteristics of the employees concerned. The more advanced models do take greater account of an employee's characteristics by looking at their skills and how they react within an organisation. These models however, tend to be very subjective using as they do socio-psychological measures which according to Dermer & Seigel (1974) have no empirical foundation (no evidence has been found to suggest that this statement is still not valid). It must also be remembered that the cost of obtaining information must not exceed the value of that information and experience has shown that even implementing a basic model is very costly. The R. G. Barry Corporation in the USA adopted a historical cost accounting method of human asset accounting but discontinued using it due to cost (Joo 1989). This means that, from a practical point of view, it would be impossible to obtain sufficient information to enable characteristics suggested by the advanced models to be obtained. Traditionally accounts value all assets at

historic cost (plant and machinery is not valued, normally, at its present value to the organisation). It can therefore, be argued that employees should be measured using the same basic criteria as physical assets which would mean looking at employees as an entity in themselves as opposed to being part of an organisation.

For this purpose human capital accounting is the approach that is most appropriate as this looks at the value of the human resources in a business from the point of view of the employee and requires an examination of the personal characteristics of the firms employees.

Many characteristics can be identified which are of value to a person seeking employment and hence to the firm that employs him/her. Hinson (1981) used seventeen in her research but admitted that there were many more that could have been used. Economists have tended to use much more general characteristics and these have been varied to suit the circumstances of the specific research that they have been carrying out. This project will use the economists approach but will show that these more general characteristics in fact encompass the more specific characteristics used by Hinson (1981).

In the previous section four main authors were mentioned and the "characteristics" which they identified as being important were given. These included

<u>Myers and Flowers (1974)</u>

Discussed five dimensions to human assets
Skills
Knowledge
Health
Availability
Attitudes

Mincer (1958)

Looking at human capital and personal income distribution used

Education   }
                              }   To measure formal training

Occupation, and   }

Age   To measure informal training or experience

He also mentioned

Colour

Sex

Family Status

Schultz (1961, 1962):- Gives investment in human capital as:

Direct Expenditure on Education

Direct Expenditure on Health

Direct Expenditure on Internal Migration - To take advantage of better job

opportunities

Earnings Forgone by mature Students Attending School

Earnings Forgone by Workers Acquiring On The Job Training

Denison (1967):-

Considered the Significant and Measurable Characteristics of Employed

Persons to be:-

The Hours They Work

Their Sex

Their Age (Used as a substitute for experience and vigour)

Their Educational Background

Other Characteristics mentioned but unmeasured in his work are:

Experience

Effort

Health

Natural Intelligence

Family Position

The Element of Chance.

The last three he dismisses for reasons previously stated.

It can be seen that various "characteristics" have been used depending on the nature of the work being undertaken by the authors. At the same time a general pattern would appear to be present in their choice of "characteristics" which will be used to substantiate the characteristics to be used in this work.

The characteristics chosen for this project are:

Education

Experience

Vigour (effort)

Health

Sex

If these are examined using the "characteristics" of the four authors we find that education has been mentioned by three of the four authors while the other talks about skills and knowledge. Experience has been mentioned by two of them. It has been ignored by Schultz (1961, 1962) but this is understandable because he is stating how one invests in human capital and experience is something attained over time as opposed to being something one invests in. The other authors who omitted experience were Myers & Flowers (1974) and they mentioned skills and knowledge which, it can be argued, includes experience. Only Denison (1967) has mentioned vigour (effort). He is, however, using these terms in a more restrictive sense than is being used in this thesis as he states that he can measure vigour by using age as a substitute but that he cannot measure effort. Vigour and effort in this

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work are being used in a more general sense to mean the same thing. Myers and Flowers (1974) used the word attitude and in a loose sense this can be related to vigour. The context of the other authors articles means that they can ignore this aspect. Health has been mentioned by three of the four authors but was not mentioned by the fourth, as it was not central to his work. Sex is mentioned by two of the authors but is not applicable to the specific arguments of the others.

Other characteristics that have been used are not applicable to this work. Skills and knowledge have already been mentioned and are covered by education and experience. Availability is not applicable because we are looking at existing employees' i.e. they have already made themselves available. Attitudes have already been mentioned as having a loose connection with vigour. It can also be argued that colour and family status are also irrelevant. They were used when examining human capital and income distribution where they were obviously relevant.

Internal migration, schooling and training have also been omitted. The first of these has been omitted because employees within a firm are being examined, but measuring their personal characteristics and their ability to move jobs is a consequence of the other characteristics and not of itself a direct characteristic of an employee. Schooling and training are also indirect as they result in the direct characteristics of education and experience. The hours people works are tied into vigour while natural intelligence, family position and the elements of chance can be ignored using Dennison's (1967) argument which have already been given.

As has been stated Hinson (1981) uses seventeen characteristics which are more specific than the five characteristics selected for this work. The comparison, included as table 4.2 however shows that these general

characteristics include Hinson's (1981) more specific characteristics.

Table 6.2

Specific	General				
	Education	Experience	Vigour (Effort)	Health	Sex
1. Dependable	✓	✓	✓	✓	✓
2. Get along with people	✓	✓		✓	
3. Work as a team	✓	✓	✓		
4. Understand written information	✓				
5. Have basic writing skills	✓				
6. Maintain good health				✓	
7. Know your abilities strengths and weaknesses	✓	✓			
8. Give honest days work			✓		
9. Loyalty	✓		✓		
10. Make independent decisions	✓	✓	✓		
11. Use initiative and imagination	✓	✓	✓		
12. Know what is expected of you	✓	✓	✓		
13. Be able to locate information materials or equipment	✓	✓	✓		
14. Work without close supervision	✓	✓	✓		
15. Work under tension or pressure		✓	✓		
16. Adjust to various working situations	✓	✓	✓	✓	
17 Manage time and materials efficiently	✓	✓	✓	✓	

General Employee Characteristics Compared to Those Described by Hinson (1981)

The above ✓ are a subjective assessment some of which can be omitted or included depending on how the characteristics are viewed. It does however

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illustrate that in general the specific characteristics of Hinson (1981) are included in those used in this research.

Any choice of characteristics must by its very nature be subjective and will vary depending on the precise nature of the research being undertaken. The five characteristics chosen for this exercise have been chosen because they are the least subjective of the options available and yet they cover in general terms any characteristics which a person as an individual brings to his/her employment. These characteristics are also consistent with the types of characteristics that have been chosen by researchers in the human capital branch of economics and therefore it can be argued that there is some justification for their choice.

CHAPTER SEVEN

HUMAN RESOURCE ACCOUNTING AND OTHER RELATED ACADEMIC THEORIES

7.1   INTRODUCTION

In the previous chapter the general justification for this research was explained and an attempt was made to, following Morse (1973), define some of the relevant terms but no detailed explanation was given as to what lay behind these terms.   This chapter will address this issue by examining the human resource accounting literature and how it has developed.

It must be remembered throughout this chapter that the term human resource accounting is used differently by different authors.   Sometimes it will relate to human asset accounting, which is the employees' value to the organisation.   At other times it will relate to human capital accounting which is the value of an employee in his own right.   The context of the discussion will identify, in most cases, which "definition" is being used.

Morse (1973) has argued that most of the research on human resource accounting has looked at the value of an employee to the firm quoting Flamholtz as an example of a researcher in this area and this chapter after commenting on the importance of human resource accounting will examine this work.   Morse (1973) then acknowledges the human capital approach of identifying the value of an individual as an entity giving Lev and Schwartz as an example of researchers in this area and this again will be examined.

7.2 WHY HUMAN RESOURCE ACCOUNTING IS GAINING IN IMPORTANCE

Society is changing and it can be argued that knowledge is becoming more important. Monti-Belhaoui and Riahi-Belkaoui (1995) have argued that advanced societies are in their third wave. First wave societies worked on the land and relied on cheap, plentiful peasant labour to sustain the agricultural sector.

Second wave societies worked in industry and relied on cheap plentiful manual labour and mass production processes.

Third wave societies, however are knowledge-based societies. The output here are products and services that rely on a heavy input of knowledge and the use of sophisticated technology.

Elliott (1992) has illustrated it as follows

TECHNOLOGY	1ST WAVE	2ND WAVE	3RD WAVE
Physical	Labor	Machinery	Semi-conductors
Information	Writing	Printing	Computer
Accounting	Single Entry	Double Entry	Triple Entry ?

(Elliott 1992 p 62)

and urges that in this third wave information based assets have to be accounted for in order for managers to make "accurate" decisions, identifying Research and Development, Human Assets, Knowledge Data and Capacity for Innovation as such assets.

Elliott (1992) is writing from an American perspective and although the argument that the "assets" that he has identified are not shown in accounts is generally true, Research and Development may under certain specific circumstances be carried forward and capitalised in UK. Balance Sheets.

It can be argued from the above that as societies, become more and more knowledge based then accounting systems need to adapt to show these "new" assets, as such information is becoming more relevant to today's managers and the decisions they have to make. This is one of the reasons why human resource accounting is gaining in importance.

7.3   HUMAN RESOURCE ACCOUNTING - THE HUMAN APPROACH

Flamholtz (1985) acknowledges three strands of academic theory as underpinning human resource accounting.

Firstly

> "Human Resource Accounting is, at least in part, a recognition that the skills, experience and knowledge that people possess are assets that are termed "human capital". This concept is the basis of the economic theory of human capital,. Theodore Schultz, who received a Nobel Prize for his work on this theory, stated that "Laborers have become capitalists not from a diffusion of the ownership of corporation stocks as folklore would have it, but from the acquisition of knowledge and skills that have economic value"".

(Flamholtz 1985 p XI)

going on to indicate earlier economists who recognised that human capital existed

> "Petty, Say, Senior, List, Von Thunon, Roscher, Walras, Fisher and Adam Smith"

(Flamholtz 1985 p XI)

Secondly

> "a parallel tradition in personnel management known as the "human resources school" which is based on the premise that people are valuable organisational resources and, therefore, ought to be managed as such".

(Flamholtz 1985 p XI)

Rensis Likert an organisational psychologist is an example of this school.

And thirdly some early accounting theorists

> "for example, D. R. Scott noted that "a trained force of technical operatives is always a valuable asset". Similarly W. A. Paton stated that "in a business enterprise a well organised and loyal personnel may be a much more important asset than a stock of merchandise""

(Flamholtz 1985 p XI)

As well as these three statements of academic theory there is recognition that practising managers have also for some time recognised the importance of human assets as one of their most important assets.

This approach to human resource accounting is relatively new as can be seen from the following quotation

> "The foundation for this new field was laid between 1967 and early 1970's. In 1974, I published the first book dealing with this emerging area, Human Resource Accounting"

(Flamholtz 1985 p XII)

7.4 FIRST GENERATION ACCOUNTING SYSTEMS FOR HUMAN RESOURCE COSTS

One of the early attempts of human resource accounting took the cost of employing people e.g. recruitment costs, acquisition costs, training costs, development costs and other similar costs, capitalised them and depreciated them over the life of the employee. This was not as easy to do as it might at first appear as decisions had to be made which meant that these costs would not be as objective as a user of the information might expect.

An example of the type of decision that has to be made relates to recruitment costs. Outlay costs for unsuccessful candidates had to be accounted for and in fact were added to the cost of recruiting the successful candidate. This makes it very important to stress that is the costs that are being capitalised and not the value, as two identical employees will attract different costs if one is employed at the first attempt when the other is employed after several attempts. The value of these employees, of course, should be the same as they are identical. There is also the problem of allocating/apportioning expenses of for example the personnel and hiring departments and the decisions that are made here can again greatly affect the "value" that is being capitalised.

Once the costs had been capitalised it was then necessary to depreciate them over their expected useful life that is to say for costs such as recruitment and acquisition costs, over the time that the individual is expected to remain with the organisation as this is the period over which the company is expected to benefit from employing the individual. For other costs such as training and development the benefit could be for a shorter period and this was taken into consideration. Other complications such as health deterioration was also

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taken into account and of course if an employee left any remaining balance had to be written off. It can be seen from the above that the process of depreciation is itself subjective.

The above is a very short explanation as to how one company attempted to account for human resources. Because there are no published standards, as there are for conventional financial accounts, other companies have accounted for human resource costs but used different criteria. It is therefore not possible to say this is how it ought to be done but it is an indication of how in general terms the "method" works.

7.5 SECOND GENERATION ACCOUNTING SYSTEMS FOR HUMAN RESOURCE COSTS

In the previous section costs were collected per employee. A refinement of this was to collect the information in such a way as to be able to calculate the cost per "unit" (person) hired by "division". This would then enable comparisons to be made although, as will be discussed later in this section, extreme caution would be needed when attempting to interpret results.

As with the previous system there were no rules or standards governing how the data was to be collected so that firms were able to collect it in any way that they considered was useful to them. This means that system can only be discussed in general terms and that there will be many variations. These systems tended to be for internal use, as an aid to making decisions so they tended not to appear in published accounts.

At its simplest costs are broken down into acquisition costs and development costs and collected for each "division". These can then be compared both over time and with other division. This, however, is not as easy as it might at first appear and a great deal of background knowledge is required to interpret the results correctly. It cannot, for example, be assumed that high costs are bad and low costs are good. Training costs could be high because a better standard was being required in one division as opposed to another and depending on the circumstances it could be that the "division" with the higher training costs was actually benefiting the firm more than the "Division" with low training costs.

In such circumstances it would obviously be disastrous to start cutting training down to reduce costs because this would ultimately damage the firm. Another

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reason why training costs might be high could be to do with the fact that some "divisions" recruit at a lower level than others do and have therefore to spend more on training. This could be for several reasons such as a shortage of skilled labour or a deliberate policy of the division.

It can be seen from the above that the figures alone are not sufficient to enable management to make a decision but rather that they can be used as a starting point that will allow management to get at the meaning behind the figures. In some instances this may mean that managers need retraining as many managers will be used to using figures in a more traditional way.

Flamholtz (1985) has claimed that this type of information can be of use in

"Determining an optimal personnel mix"

(Flamholtz 1985 p 147)

It can be argued that the model that this research is attempting to produce could also, as a by-product, help in determining an optimal personnel mix as it takes employees characteristics and shows their effects on the share price. If individual firms could be compared to an industrial norm it would help towards establishing an optimal mix for a particular industry. This is obviously important as the knowledge base required of industry is increasing and knowledge is an expensive commodity that requires careful management using new and innovative techniques.

7.6 FIRST GENERATION ACCOUNTING SYSTEMS FOR HUMAN RESOURCE VALUE

The last two sections have been concerned with costs. This and the next section are concerned with value.

First generation values can be broken down into their constituent parts and total values calculated from these.

Direct revenue producers are already valued in money terms e.g. fees generated but where individuals were not direct revenue producers then some form of transfer price needed to be developed. This would ideally be a market price but where no market price was available a cost base price might have to be substituted or a negotiated transfer price might have to be used.

The next step is to calculate the probability that a given person will occupy a given "role" at specified future times. This can be done in two ways. Firstly historical probabilities can be calculated. The advantages of this method are that it is capable of verification and objective, being based on what has happened in the past. The problem, of course, is that it is what is likely to happen in the future that is needed and the past might not be a good indication of what is likely to happen in the future. Secondly subjective probabilities can be calculated. These can be based on managers assessment of how confident they are that such a move will materialise. Initially such assessments would be extremely subjective but, over time, it should be possible to build up a database of how accurate manager's assessments are so that the process can be refined and the values should then become more "accurate".

The above is a brief explanation of how a human resource value system might be set up. It is not the only system that can be used it is likely that in order to overcome some of the problems that will undoubtedly arise, as the system is being implemented, other methods will; have to be used alongside the "main" method.

Firms are free to develop any type of valuation system that they wish and it is perfectly possible to develop a system along completely different lines. It can be seen from the above that it would not possible to compare companies, even if they produced human resource values, until such time as their was some form of agreement as to the method that should be used.

7.7 SECOND GENERATION ACCOUNTING SYSTEMS FOR HUMAN RESOURCE VALUE

The first generation accounting systems "valued" individuals whereas the second generation accounting systems attempted to obtain the value in total. One reason for this is that In America it is possible to make tax savings, but only if certain criteria are met.

> "According to Revenue Ruling 64-456, 1974-ZC.B. 65, it must be established that the asset " (1) has an ascertainable value separate and distinct from goodwill; and (2) has a limited useful life, the duration of which can be ascertained with reasonable accuracy"".

> (Flamholtz 1985 p 278)

In order to try and satisfy the above requirement one firm used a present value model. This model attempted to value employees by discounting a firm's future earnings and depreciating this value over its expected useful life. The firm that was being valued had just been acquired and it was hoped that the calculated value could be used to reduce the tax liability.

This model becomes extremely complex when an attempt is made to apply it to a particular firm and many decisions and subjective judgements have to be made. The resulting system is in this sense personal to the firm that created it and is only in a very general sense a universal system.

Some of the problems for which decision are required are:-

1)   Splitting employees into service states
            e.g. low producers

            medium producers

            high producers

            and terminations

2) Allocating future earnings to each production state, after having first, of course, estimated this figure.

3) Take account of upward/downward movements between states (employees)

4) Determine a discount rate

5) Decide the value of earnings lost on termination. The argument here is that an employee may take some of the client base with him but some will remain and the proportions will be different for different businesses.

6) Decide on an appropriate method of depreciation.

From the above it can be seen that the type of judgements that have to be made in order to arrive at a value are in some instances firm specific and often highly subjective and it can be argued that even with similar firms comparisons would in most instances be meaningless.

7.8 SOME ALTERNATIVE MEASUREMENT METHODS

In the preceding four sections human resource accounting systems have been examined using Flamholtz's (1985) classification, that is to say looking at examples of first and second generation cost and value systems. These systems have been explained and illustrated using only one measurement method.

There have, however, been many suggestions as to ways in which human resources may be measured and some of the more common methods will be examined in this section.

One method is the unpurchased goodwill method. This method calculates a normal return on capital employed. From this the profit that "ought" to be earned can be calculated and any "excess" profit can then be capitalised and is taken to be the value of the human assets.

Calculation of Human Assets

Capital Employed	£10,000
Net Profit	£ 2,000
Return	20%
"Normal" Return	10%
"Normal" Net profit	£1000
"Excess" Profit	£1000
Human Assets (@10%)	£10,000

This method is similar to the method employed by Hermanson (1964).

Criticism can be levied at this method for ignoring the existence of other intangible assets which can contribute to the firm making "excess" profits such as geographical location, monopoly etc. and whilst this is true, there is a general sense in which many of the intangible assets and the excess benefits

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which flow from them can be attributed to the value of the people past and present employed by the firm. It must, however, be admitted that it is a problem which is inherent in this system as is the fact that the human resources needed to generate "normal" profits are not valued. Another problem is that it is future "excess" profits that are required but it is normally historic profit that are used as a surrogate.

In its favour, however, is the fact that it uses information from existing accounting records and is therefore relatively objective and the data can be produced relatively quickly and without any great expense.

Before proceeding it can be pointed out that Jaunch and Skigen (1974) have argued that all human asset valuation methods falter if the usual definition of an asset is taken and that some new definition is needed. Hermanson (1964) attempted such a definition by extending the definition of an asset to cover

" ... all scarce resource operating in an entity that are not owned".

(Hermanson 1964 p. 5)

but as Jaunch & Skigen (1974) have argued all definitions that include items that are not owned, collapse if taken to extremes.

The human asset multiplier is another method that has been suggested. Giles and Robinson (1972) who were sponsored by The Institute of Personnel Management and The Institute of Cost and Management Accountants produced this method. It is based on the idea that different "levels" of individuals contribute differently to the success of a firm i.e. Senior Management contribute more than middle management etc. A factor is,

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therefore, used to multiply the total wage bill at each level and the resulting total is supposed to represent the value of the human resources employed in the business. If there were four "levels" within a firm the human resource "value" would be calculated as follows

	TOTAL WAGES	FACTOR	VALUE
Level A	15000	4	60000
Level B	40000	3	120000
Level C	45000	2	90000
Level D	500000	1	500000
	600000		770000

However, the factors are subjective as they are arrived at as follows

"The multiplier ranges were determined by an assessment by the company's management of the values of the contribution made by employees in the different job grades to the success of the business".

(Giles & Robinson 1972 p 18)

and they cannot be substantiated. It can be argued that this method contains most of the disadvantages found in other methods. Past remunerations is used as a surrogate for the future income that a group of employees is supposed to genarate. The weighting factors are very subjective have no conceptual basis and yet are the foundation of the method. All individuals within a group are assumed to have "equal" value in proportion to their remuneration.

The "advantages" are that the value can be produced quickly and inexpensively and can be used to track movements over time. It can, however, be argued that these are heavily outweighed by the disadvantages.

Another method suggested by Lev & Schwartz (1971) is to find the value of

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human resources by finding the present value of the salaries that the firm expects to have to pay the present employees for the remainder of their employment. This method can be criticised because the value of human resource services is not necessarily the same as the remunerations paid. Also it is very subjective as it requires estimates of for example future earnings, future service lengths (taking into account such things as deaths, moves and retirement). Promotion of employees has to be taken into account and of course it also requires a discount rate. It is, however, as Scarpello & Theeke (1989) has pointed out based on human capital investment theory, which gives it a theoretical underpinning. In passing it can be noted that there are other variations of the Lev & Schwartz (1971) model for example the model proposed by Hermanson (1964) the adjusted discounted future wage model which adjusts the present value of future wage payments by a performance efficiency factor.

A theoretical method is the economic value approach. This looks at the discounted value of the expected future earnings that can be attributed to employees but as Joo (1989) has pointed out

> "By and large, these approaches have not yet been operationalized and perhaps are not capable of operationalization"

(Joo 1989 p 19)

They also suffer from the problem that discounted earnings do not necessarily equate to the value of human resources.

The above measurements have all been measurements of value but as has been explained earlier there are other approaches that are based on cost. These approaches which are based on the cost of human resources to the

organisation will now be examined under their three main headings.

The first of these is the historical cost approach. This takes the costs of recruiting, selecting, hiring, training and development and instead of, as would normally be the case, writing them off they are capitalised and written off over the period which is expected to benefit from them. If at any time employees are, for whatever reason, no longer of economic value to the firm then the amount is written off immediately. This follows the normal accounting procedure of matching expenses to the revenues that they generate. By making investments in training and development a firm would expect to increase the value of its employees so their costs, again will be matched to the period that will benefit from the expenditure.

This method is "simple" and adheres to traditional accounting principles being an extension of the matching principle. There are, however, problems:-

A)   Normally the economic value of human resources increases over time, even if nothing is spent on training and development but using this approach the capital cost is reducing

B)   It takes no account of the value of an employee's contribution to the firm.

C)   There is a difficulty in estimating an employee's economic life and related to this, in deciding on which method of depreciation e.g. straight line or reducing balance should be used.

Another cost approach is the replacement cost approach. This approach attempts to obtain a cost for replacing the existing workforce. The general idea is that human resources are valued at the cost to the firm of replacing them with identical employees. There are several problems with this approach. It produces current costs when traditional accounts use historic

costs so it is at odds with the conventional costs used in accounts. It is subjective and different people would come up with different values, which could, in some instances be large. Following from this is the problem of auditability as the values "obtained" would be extremely difficult to verify. There is also an assumption that an identical replacement can be found but this need not always be possible.

The last cost approach is to use opportunity cost i.e. the most profitable alternative use that is foregone. The idea is to have a competitive bidding process for scarce employees within the firm. Scarce employees are employees who work for one department but whose talents are sought after by another department. Employees who can be readily obtained from outside are not included in the process and departments bid for the employees they require.

It should be noted that only the next best use within the firm of employees is considered and this is a watered down version of opportunity cost. Also it does not cover all employees excluding employees that are not scarce or for whom no bid is being made by another department. On top of this an employee might be of great value to the department for which the employee works, be valuable to another department, but not to the same extent, however, the bid will be used to set the employees value to the firm which would not reflect the employee's true value. Such a process could affect the morale within a firm and as it could be argued that the value may be inaccurate and misleading it is hard to imagine circumstances where it would be used in practice.

This section has looked at several methods of valuing human resources explaining and criticising each. In fact one thing that has emerged from this

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discussion is that there is no general agreement as to which method ought to be used. In fact every method discussed can be criticised to a lesser or greater extent and it is a matter of personal preference together with the use to which the information is to be put which will to an extent dictate the method or methods to be used.

The fact that a perfect method has not, as yet, been identified has not stopped research in this area and it can be argued that the need to continue research is more important than ever. Firms are becoming more and more knowledge based and as this trend increases, so it becomes more urgent to account in some way for this "asset" and hence some form of accounting for human resources is required.

7.9   HUMAN CAPITAL

This is the method that is being used in this research. It looks at the value of an employee as a person distinct from the firm within which the employee works. This takes away the problem of what is the value to the firm? and replaces it with arguably the more manageable problem of what are an employee's attributes that make him valuable to the firm? It is these attributes and their relationship to the share price that is being examined.

One way to value human capital is to use wages projected into the future and discounted to produce a present value. This can be done either gross or net (net of consumption)

> "The present value of a man at any given age may be defined
> operationally as his discounted expected future earnings stream
> (net of his consumption if the net concept is used)".
>
> (Weisbrod 1961 p 427)

The method can however, be criticised. It relies on imperfect data on wages and makes the assumption that this can be used as a surrogate for market output. This does not for example take account of trade union activity, regional differences etc which could affect the wage rate but would not necessarily affect output in the same way. Estimates also have to be made of the probability of death and account needs to be taken of any changes in status or if it was being calculated in total any proportional changes in type of employees needs to be accounted for. On top of this there is also the problem of what discount rate should be used.

If one accepts that it is the "social" rate that has to be used rather than some "state" imposed rate then the rate must be linked directly to individual

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preferences and would be in line with the Paretion value judgement that an individual's own valuation should count. Unfortunately as Pearce and Nash (1981) have pointed out

> "It is more than reasonable then to suppose that no one individual will have the same time preference rate as another".
>
> (Pearce & Nash 1981 p 143)

and later

> "An averaging process therefore becomes essential".
>
> (Pearce & Nash 1981 p 143)

The rate arrived at is known as the social time preference rate (STPR).

Another school believes that the social opportunity cost approach (SOC) should be used. This argues that

> "No project should be undertaken unless it secures a return at least equal to what could have been achieved if the sacrificial expenditure had gone elsewhere".
>
> (Pearce & Nash 1981 p 150)

Although this is discussing rates for projects it can be argued that these same arguments can be used on human capital which after all, is merely the wages part of the project.

Other modified rates are also possible and indeed Pearse and Nash (1981) end up arguing that the best approach would seem to be a synthetic approach. The above short discussion shows some of the general problems that occur when trying to decide on a discount rate. One way of "overcoming" this is to show the position using several discount rates.

If the calculation was being made net then the problem of consumption arises and in practical terms some kind of average would have to be used as for example it is "impossible" to decide whether nappies are consumed by babies or one or other of the adult member of the family.

The above method, namely using income as a surrogate for value, is not being used in this research. Instead human capital values are being calculated, as has been explained in details in the previous chapter, by identifying and using human attributes which make a person valuable to society. This approach enables individual differences to be highlighted and aggregated with the other employees of the firm. It is then possible to check the aggregate figures to see if the "different proportions of employee characteristics" have an effect on the share price.

Kiker (1966) points out that Ernst Engel preferred a cost of production procedure for estimating a human beings monetary value. Kiker (1966) went on to say

> "Although I see very little use for the cost of production procedure in evaluating human beings as such, a modification of Engel approach is useful in determining the components, such as education and health service capital of a human capital value. This is so simply because it is less difficult to estimate the direct (and opportunity if appropriate) cost incurred in forming a particular component of human capital value than to attribute future earnings differentials to specific items such as education and health service".

(Kiker 1966 p 483)

Engels formula takes the costs incurred up to the point of birth and adjusts for the annual percentage increase in costs so that a value could be calculated for a particular age, although the formula was only intended to be used up to

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the age of twenty six as Engels assumed that after this age an individual was "fully" produced. The formula used by Engels is based on cost whereas this research is using surrogates to represent education, health etc. but it can be argued that the basic idea is similar.

Woods and Metzger in 1927 were arguing that a country's human capital was its greatest asset going on to say that it is

> "important that public-spirited citizens and students of social welfare strongly support those movements conducive to the conservation of human life and the enjoyment of as perfect health as possible, so that the lives of productive individuals might be further lengthened and thereby add to the wealth of society"
>
> (Woods & Metzger 1927 p 162)

If this was true in 1927 how much more is it true today when production and capital intensive industries have given way in many societies to service and knowledge based industries which rely to a far greater extent on human capital.

This section has examined in general terms two methods that have been used for estimating the value of human capital namely the capitalization of earnings and the cost of production method. It is a variant of the cost of production method that is being used in this research and details of why this method was chosen together with the types of characteristics which have been examined by past researchers in human capital have been explained in detail in the previous chapter.

7.10 CONCLUDING REMARKS

This chapter has given some detailed background information into the area of human resource accounting and human capital. It gives details of the general area in which this research is being conducted, looking at some of the problems that have been encountered with the methods currently available. From this it can be argued that no "correct" method of valuing human assets has yet been attained and that indeed an argument can be put forward that no such method can exist as different researchers have different views of what is important in a model. Some will require "objective" costs and will see this as being useful for the type of research that they are doing while others will require more subjective values which will often require details of what will happen in the future which can, of course, never be accurate.

In the previous chapter the detail of how the specific characteristics that are used in this research were given in detail and they were justified by an examination of some previous writers in the area and the characteristics that they used. This chapter has reviewed the broader area in which this research is placed attempting to show this research in the context of the wider picture.

CHAPTER 8

THE HUMAN RESOURCE STRATEGY LITERATURE

8.1 INTRODUCTION

In a previous section three strands of academic theory were discussed, following Flamholtz (1985), as being the underpinning for human resource accounting. These briefly were

1) The economic theory of human capital

2) The human resource school

3) Some early accounting theorists and it can be argued that these theories also underpin this research.

The early accounting theorists have been mentioned in passing but it can be argued that they are mainly of historical interest and for this reason they will not be expanded upon in this research. The human capital literature has already been examined, leaving the human resource literature which will be the focus of this chapter.

Flamholtz (1985) makes the point that people are a valuable organisational resource and should be managed as such and it is this idea that employees are resources that should be managed that drives this research. An examination of the human resource strategy literature will therefore prove fruitful.

8.2 Three relevant concepts

Barney (1986) in his research into types of competition and the theory of strategy recognised the following concepts of competition

        1) Industrial Organisation competition

        2) Chamberlian competition

and   3) Schumpeterian competition

Industrial Organisation competition argues that returns to firms depend on the structure of the industry in which a firm is involved. The model was developed so that government policy makers could formulate economic policy. This research is using the same basic concept. Looking at the structure of employees within sectors (using employee characteristics) and measuring their impact on the share price. In so doing it will show that different industrial groupings have different impacts, by comparing them with an average for the three groups being researched.

Chamberlian competition looks at and focuses on the unique assets and capabilities of individual firms. It looks at how a firm can exploit its unique assets and capabilities. Here differences in skills and ability within a firm are seen as leading to different returns from implementing a strategy and therefore it can be argued that firms should seek a strategy which exploits their uniqueness. It then follows that any asset which enables a firm to have a positive advantage over other firms should be built into that firms strategy. As will be argued later these concepts are not mutually exclusive and this research will enable individual firms to compare themselves to, depending on the level of analysis, an industry or general average.

Schrumpeter, on the other hand, saw competition as being not stable and not fully

predictable seeing revolutionary innovations in products, markets and technology, which could only be imperfectly anticipated by firms, as the constant threat.

Barney (1986) argued that these could come under a single framework

"... for most firms, at a given point in time, face both IO
And Chamberlinian competition and live under the
constant threat of either Schumpeterian shocks or
revolutions."

(Barney 1986 p 798)

It can be argued from the above that all three concepts are important. Schumpeterian shocks and revolutions are the overarching background against which firms work whereas the Industrial Organisation and the Chamberlian concepts are the day to day concepts with which firms live. This research uses the Industrial Organisation concept to arrive at generalised data which could then be used by individual firms.

Previously in this section the level of analysis was mentioned. Rumelt (1991) states that

"Put simply, business units within industries differ from
one another a great deal more than industries differ
from one another"

(Rumelt 1991 p 182)

Whilst this may well be true it must be remembered that industries do differ from one another and therefore if possible research should be done within industry types. It can, however, be argued that as individual firms differ from one another much more than industries do that where sectorisation is not possible it should still be possible to get some generalised results.

8.3   THE RESOURCE BASED VIEW OF THE FIRM

It has been argued by Wernerfelt (1984) that most formal economic tools work on the product - market side of the economy whereas the traditional idea of strategy uses the idea of the resources available to a firm.   Once these resources are specified it is arguably possible to find the optimal product - market position.

Conner (1991) has "defined" resource based theory as follows:-

> "Resource-based theory focuses on the firm as input-combiner
> (neoclassical theory) and as efficiency seeker in production and
> distribution (Chicago), the success of which both depend
> upon the environment in which it operates (Bain -
> type IO) and also how it shapes that environment."

(Conner 1991 p 143)

In this work Conner (1991) compares resource-based theory with five schools of thought namely:-

Neoclassical

Bain - type IO

Schrumpeter

Chicargo

Coase/Williamson Transaction Costs

stating their similarities and pointing out their differences (to resource based theory),so linking theories, similar to those in the previous section directly to resource based theory.

This research classifies people as a resource of the firm and indeed argues that the firm requires a certain stock of people in order for it to operate.   Grant (1998) uses the same terminology with the statement

> "Identifying and appraising the stock of human
> capital within a firm is complex and difficult."

(Grant 1998 p 117)

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going on to argue:-

> "Resources are not normally productive on their own. A brain surgeon is close to useless without a radiologist, anaesthetist, nurses, surgical instruments, imaging equipment, and a host of other resources".
>
> (Grant 1998 p 118)

Collis and Montgomery (1995) also use the term in relation to assets and skills when they state

> "Following this logic, a company will be positioned
> to succeed if it has the best and most appropriate
> stocks of resources....."
>
> (Collis and Montgomery 1995 p 119)

Other writers although they do not use the term stock directly imply it. Mahoney & Pandian (1992) state

> "The firm may make better use of human capital by
> correctly assigning workers....."
>
> (Mahoney & Pandian 1992 p 365)

going on to argue that the " dominant logic of the management" is constrained by the resources at their disposal and that

> "Companies grow in the directions set by their
> capabilities and these capabilities slowly expand
> and change....."
>
> (Mahoney & Pandian 1992 p 367)

Collis (1991) also refers to stocks

> "....this tradition is beginning to be supplemented
> by recent advances in a perspective derived from
> an internal analysis of the firm and its accumulated
> resource (or factor) stocks, both tangible and
> intangible."
>
> (Collis 1991 p 50)

Collis (1991) then goes on to argue an important point that is taken up in different ways by different authors. It has been taken for granted that there is something called resource based theory but Collis (1991) argues that resource based analysis is still in the process of being developed and that

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"...no coherent body of theory has yet emerged to
summarize the new "resource based" view of the
firm (Barney 1990), its underlying theoretical
approach is to see the firm not through its activities
in the product market but as a unique bundle of
tangible and intangible resources (Wernerfelt 1984)."

(Collis 1991 p 50)

It can be argued that part of the explanation for this might be that much of the

development of this approach was done not by academics but by consultants

and the business committee.   Shoemaker (1990) for example states:-

"Many of the tools and techniques in strategic planning
over the past decades were developed by business
and consulting firms rather than academics......"
(Schoemaker 1990 p 1179)

and Schmalensee (1985) when discussing various traditions states:-

"A third tradition, which I will call managerial, has yet another
set of implications for business unit profitability.   Business
schools and management consultants exist because it is
widely believed that some firms are better managed than
others and that one can learn important management skills
that are not industry specific. In a widely acclaimed
best seller, Thomas Peters and Robert Waterman Jnr. (1982)
stress the importance of firm level efficiency differences
based in large measure, on differences in "organizational cultures"."
(Schmalensee 1985 pp 342 - 343)

This quotation is less specific but again would tend to support the argument

that resource based theory has been driven by business and consultancy.

Although the above arguments can be made the resource based perspective

has been around for a long time.   Conner (1991) states:-

"A historical review of strategy research suggests
that a resource - based perspective long has been
central to the field.   Influential literature, including
for example, Barnard (1938), Selznich (1957), Sloan
(1963) Chandler (1962,1977) and Rumelt (1974)
connects performance with a firm's special
competencies in deploying and combining human,
physical and reputational capital."
(Conner 1991 p 122)

so that the above arguments (non academic development) is not universally true although it can be argued that it is true in a general sense.

This research is looking at employee characteristics and how they impact on the share price hence combining both the internal and external perspectives of the firm. It is working on an idea that it is a companies resources that drives its performance (Collis and Montgomery 1995) and that the products of a firm are the product of multiple inputs coming together. However, it goes further as it attempts to arrive at some kind of norm or target. This is in line with Grant (1998) who argues

> "Resource analysis is not just about deploying
> existing resources. It is crucially concerned
> with filling resource gaps and building the company's
> Base of resources and capabilities for the future."
>
> (Grant 1998 p111)

going on to argue that

> "over time, tangible resources ... become less
> important in terms of their contribution to value
> added ..."
>
> (Grant 1998 p 115)

Barney (1986) argues that

> "Imitation increases the competition facing the
> initially successful firm ... Increased competition
> through imitation will continue until no firms are
> obtaining superior financial performance (ie., until
> all firms obtain approximately normal economic
> returns)."
>
> (Barney 1986 p 658)

An argument can be made based on the above that firms will tend towards an "industrial norm" and that therefore, to use benchmarks and averages as a means of comparison is reasonable, as this is merely to argue that firms will tend to modify their position over time so that all firms will tend towards generating normal returns.

This is not to deny that firms will have unique resources and capabilities. Collis (1991) for example states:-

> "Firms are then idiosyncratic because throughout their
> history they accumulate different physical assets and,
> often more importantly, acquire different intangible
> organizational assets ..."
>
> (Collis 1991 p50)

but rather to argue that there will be a tendency for firms to migrate, all things being equal, to the centre in the same way that Barney (1991) argues

> "...though it may not be possible for a firm to imitate
> another firms resources exactly, it may be able to
> substitute a similar resource that enables it to conceive
> of and implement the same strategies."
>
> (Barney 1991 p111)

going on to state

> "If enough firms have these valuable substitute
> resources (ie, they are not rare), or if enough
> firms can acquire them (ie, they are imitatable),
> then none of these firms (including firms whose
> resources are being substituted for) can expect
> to obtain a sustained competitive advantage."
>
> (Barney 1991 p 112)

From this the point can be made that although all firms are unique few will have non imitatable resources, in most industries and that, therefore, the use of averages or norms as benchmarks is acceptable.

8.4 - CONCLUSION

This chapter expanded on the human resource strategy literature. It started by looking at what Flamholz (1985) called the academic theory that underpinned human resource accounting going on to focus on the area of human resources and more specifically the human resource strategy literature. Three economic concepts namely the

1) Industrial Organisation concept
2) Chamberlian concept and the
3) Schumpeterian concept

were examined arguing that they were relevant to this research and that they were not mutually exclusive. Later five economic concepts which encompassed most of the arguments in the above three concepts were mentioned.

The resource literature was then examined having already made the point (Wennerfelt 1984) that most economic tools work on the product - market side of the economy, but arguing that a resource based approach is equally relevant. Indeed Mahoney and Pandian (1992) have rightly stated that

> "The product market and resource market are two
> sides of the same coin."
>
> (Mahoney and Panedian 1992 p 371)

This research contends that there is a stock of human capital and that it is this stock that has an impact on the share price. The human resource strategy literature uses this concept of stock, with regard to employees and quotes are given from Grant (1998) Collis and Montgomery (1995) and Collis (1991) to substantiate this. Following on from this a statement was made following Schoemaker (1990) that business and consulting firms rather than academics had developed many of the techniques of strategic planning (including human resource strategy) but tempering this with the fact that some academics had

been interested in strategic planning mentioning several going back as far as Barnard (1938) see Conner (1991).

From here it was argued that although some firms have got a competitive advantage over other firms there will be a tendency for firms to migrate to the centre and that therefore it can be argued that it is reasonable to look at averages and norms. (See Barney 1991).

CHAPTER NINE

THE EFFICIENT MARKET HYPOTHESIS AND THE VALUE OF THE FIRM

9.1 INTRODUCTION

In order to make the link between employee characteristics and share prices an assumption is being made that share prices broadly reflect underlying events. It is therefore necessary to examine this assumption which in turn requires an examination of the efficient market hypothesis.

This chapter will therefore start by looking at the efficient market hypothesis. The hypothesis will be defined and some of the general arguments for and against it discussed. Following on from this general examination some specific areas will be examined which have been used to raise doubts about the validity of the efficient market hypothesis.

The effect of Noise Trading on share price is a major area of debate and is therefore an area which warrants separate discussion. Another area which requires examination is that of the "weekend and other calendar effects" where there is evidence to suggest that stock market returns can exhibit "seasonal" regularities that are not random and which therefore require discussion in the context of this chapter. Following on from this dividend policy will be examined and to conclude the review of the hypothesis the effect of gearing (leverage) will also be discussed together with the effect of size, accounting policies and different industrial segments. A conclusion will then be reached as to whether or not the assumption that share prices broadly reflect underlying events is a reasonable assumption in the context of this

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research.

As it is this chapter that makes the link between employees and share price explicit it is appropriate in closing this section to include a quotation which shows that in a general sense this link has been suspected before.

> "I suspect that if it were possible to observe the value of human capital, we would find it fluctuating in much the same way that the level of the stock market fluctuates. In fact, I think we would find fluctuations in the value of human capital to be highly correlated with fluctuations in the level of the stock market though the magnitude of the fluctuations in the value of human capital is probably less than the magnitude of the fluctuations in the level of the stock market".
>
> (Black 1986 p 536)

In previous sections it has been stated that Denison (1967) and other economists have been trying to use surrogates to put a value on human capital so that it can be argued that human capital can be "valued", even if this valuation is crude. This means that to some extent Black's (1986) hypothesis can be tested by this research

9.2 THE EFFICIENT MARKET HYPOTHESIS

For investors to value a share, they require an estimate of the benefits and risks that are attached to that share and it seems reasonable to assume that in order to do this they will use all available information. This means that a direct link between market values and information can be hypothesised. If, for the moment, we also assume an efficient market then the market value of an asset will reflect all available information about that asset. This hypothesis that capital markets are efficient is called the efficient market hypothesis.

Three forms of the efficient market hypothesis are normally examined. These were suggested by Roberts (1959) and used by Fama (1970) in his review article and are the weak, semi strong and strong forms of efficiency.

Weak form efficiency hypothesises that:-

> The market value of an asset already reflects historical price information.
> This means that studying the previous price behaviour of shares cannot make gains, as there is no systematic pattern in price changes.

Semi strong form efficiency hypothesises that: -

> Stock prices reflect all historical and publicly available information.
> This means that an analysis of these is useless as the market fully discounts the information as soon as it is available which means that the market cannot be beaten.

Many writers such as Beaver (1972), Fama (1970) Gonedes (1972), Whittington (1979) have argued that research has proved both the weak and the semi strong form of the efficient market hypothesis. This proof has "held" right up the present day, which enables writers like Rees (1990) to state

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"The evidence for weak and semi-strong form efficiency is convincing, but not conclusive, whereas strong form efficiency is both more awkward to evaluate and more contentious".

(Rees 1990 p 99)

Strong form efficiency hypothesises that: -

Stock prices reflect both publicly available and private information.

Capital markets are not generally regarded as being efficient in the strong form.

(Fama 1970, Jenson 1978)

Rao (1992) draws a distinction between private information and insider information. It is of course illegal to use the latter and if this distinction is followed it means that much "private information" is excluded from the definition by means of legislation. This merely adds to the existing problem of drawing a clear distinction between semi-strong and strong form efficiency. Denison & Marsh (1984) have argued that the distinction between public and private information is blurred and that it is not always clear at what point information becomes public. As an illustration of the problem they ask the question, have brokers analysts findings become public information when they are communicated to clients?

Fama (1970) argues that the strong form of the efficient market hypothesis is an extreme model and that one would not expect it to be an exact description of the world. He goes on to argue that it is probably best to view this model as a benchmark against which the importance of deviations can be judged. Jenson (1978) made the same point when he argued that in its extreme form there have been few people who have treated the efficient market hypothesis as anything other than a logical completion of the set of possible hypotheses.

Whittington (1978) points out that there is a potential misunderstanding regarding the meaning of the term efficient in the context of the efficient market hypothesis. He argues, that the term efficient does not mean that share prices reflect the intrinsic worth of the shares but rather that the market discounts information immediately. This means that the market cannot be beaten systematically by using currently available information and that it is in this restricted sense that securities are correctly priced. Beaver Kettler and Schultz (1970) made the same point adding that on average the information appeared to be impounded in an unbiased manner.

It can be argued that stock prices are a reflection of the collective judgement that has been made by analysts and others as to the future earning power of the stock and that therefore any change in these prices will reflect changes in the expectations of investors as to what the future earning power of the stock is likely to be (Beaver & Ryan 1985). They go on to argue that this is backed up by research which has demonstrated that unexpected changes in earnings calculated in historical costs terms, explain a significant proportion of changes in stock prices (Beaver & Ryan 1985).

Hines (1982) reinforces the sentiment in the above paragraph by pointing out that these are not perfectly predictable. This means that information can be impounded into stock prices but it does not necessarily mean that it has been correctly impounded into those prices. In fact much information is subject to interpretation and it would indeed be surprising if all the users of the information interpreted it in the same way. It follows from this that some information will be processed incorrectly but this does not mean that the market is inefficient for as Hines (1982) has argued a market can be highly efficient and still process some of its information wrongly. He goes on to

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argue

"Allowance of the possibility of abnormal returns does not detract from general market efficiency - few hypotheses hold perfectly in reality - and at the same time it resolves the confounding anomaly of the E.M.H. regarding why sophisticated investors should bother to analyse publicly available information, thus keeping the market efficient, if there exists absolutely no possibility of earning abnormal returns".

(R. D. Hines 1982 p 306)

Revsine (1971) has argued along similar lines, proposing the notion that there is no suggestion in the efficient market hypothesis that the market necessarily reacts accurately to financial data but that on the contrary if "promised" financial events do not materialise, assuming that the market has acted in the first instance, price corrections will ensue to rectify the position. He goes on to argue that if the income model employed is deficient in some way so as to frequently mislead the market then the market will compensate for the inaccuracies in the data by altering its response to such information. If this were not the case then the "actors" in the market would not be learning from their experiences. Another argument along similar lines is given by Brown, Harlow and Tinic (1988) who argue that investors often have to set stock prices before the full impact of events is known in other words in the presence of imperfect information. In these circumstances their research has found that investors tend to overreact to bad news and under react to good news, adjusting their position as the impact becomes clearer. This conclusion about the way the market "overreacts" contradicts the findings of DeBondt and Thaler (1985) and will be discussed in detail later. Grossman and Stiglitz (1980) have argued that it is when there are differences of belief which are not completely arbitrated that there is an incentive to create a market and that in fact the price system, although it does make publicly available, information which informed individuals have obtained, so transferring it from the informed

to the uninformed, it in general does this imperfectly. They go on to propose that the above arguments mean that there is a need to redefine the efficient market hypothesis but this does not destroy it.

Part of the reason for this imperfection "must" be to do with the quality of the information. If the quality of the information is not good then it is only to be expected that decisions made using it may be less than optimal. This is not helped when accounting practices are so varied (even after regulation by means of statements of practice) as to make comparison extremely difficult. The picture gets more complicated when non-accounting information is allowed for Chambers (1974) has argued

> ".... that non-accounting information and judgements and events have a more severe a more frequent and a more readily identifiable impact on prices than does accounting information".
> (Chambers 1974 p 53)

and there is no reason to suppose that information from these sources is any more complete or reliable than accounting information. This means that inefficiencies could exist indefinitely and permanently if one is to believe Beaver (1972) when, in a more limited sense, he argues that price depends on the way in which accountants' report. The sentiment behind this statement could surely be broadened to encompass all information regardless of source. Indeed there are many alternative indicators such as statements by company officials, statements by unions, brokers releases, market newsletters etc. It would, therefore, seem only reasonable to include these in any arguments about information and its effect on share prices if only because it would appear to be unreasonable to assume that the market blindly accepts accounting numbers whilst ignoring all other sources of information, numeric and non numeric.

It should not be inferred from the above that the way in which information is presented is necessarily important as, if one agrees with Rees (1990)

> ".... that for the average investor, the evidence is as good as confirming an efficient market as the benefits are so negligible and ephemeral that most investors would be unable to exploit them".
>
> (Rees 1990 p 100)

then it can be argued following Keane (1980) that there are four main implications that follow from efficient market hypothesis research

> "1. Technically complex information should not be withheld from disclosure on the grounds that most readers will not understand it. Specialists' analysts within the market will ensure that the implications of sophisticated data will be impounded into the share price.
> 2. Diversity of approaches to accounting disclosure is not problematical as specialist analysts will not be confused and may even welcome accounting statements using multiple valuation bases.
> 3. Uncertainty can be treated in a more explicit manner by disclosing distributions of possible outcomes rather than relying on one deterministic estimate.
> 4. The desirable level of processing shifts away from an emphasis on the accountant subjectively making decisions to better present a true and fair view, towards increased disclosure of raw data to allow analysts to attach their own potentially different assessments of the implications".
>
> (Rees 1990 pp 101-102)

The argument about whether the manner in which information is reported matters or doesn't matter is not directly relevant to this research as providing the efficient market hypothesis remains valid, the findings of this research will similarly be valid. It should however be pointed out in the light of the above that as Downes and Drychman (1973) have stated, the efficient market hypothesis is an extreme hypothesis and is unlikely to be literally true and it

can be argued that it is because it is not literally true that the way information

is reported could affect the outcome. It can also be pointed out that there are

users of information other than investors and that they should also be catered

for so that we should not be solely looking to the needs of the stock market.

9.3 NOISE TRADING

The efficient market hypothesis assumes that stock prices reflect available information but as has been said above this is an extreme form of the hypotheses and would not normally be expected to hold in practice. One other problem with the hypothesis, not yet discussed, is that not all demand changes appear to be rational and as Shleifer, Lawrence and Summers (1990) have argued some changes in expectation or sentiment do not seem to be explained or fully justified by generally available information.

This form of trading is called noise trading the investors using noise as if it were information. Black (1986) has pointed out that it is possible that these traders think that they are trading on information when in fact what they are trading on is noise and it can be argued that in practice, the distinction between information and noise, is in many instances difficult to isolate and examine.

One reason for this is that when information is received it can well have implications which are not clear at that point in time but which will become clear, as more information is available. This means that even if there is agreement as to the general effect of the information it is unlikely that it will be correctly interpreted until there has been some clarification. Another factor which needs to be mentioned is that it is unlikely that all information will be interpreted in the same way for as, Shleifer, Lawrence and Summers (1990) have pointed out, some noise traders will have different "models" to others and some of these "models" will under certain circumstances cancel one another out while others, however will be correlated and this will lead to a price shift which is sub-optimal. Black (1986) has argued that it would be possible for information traders to eliminate noise but that in order to do so

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they would have to take up a larger position than they are usually prepared to do. He argues that the information they receive gives them the edge but does not guarantee a profit which means that the larger the position the informed trader takes the greater the risk being taken. At the same time information traders can never be 100% sure that they are trading on information rather than noise, as the information might already be reflected in the price. Black (1986) goes on to argue that the further away the price of a stock moves from its "value" the more aggressive the information trader will become and that this means that the price of a stock will tend to gradually move back to its "value" over time. It also means that the further the price of a stock moves away from its "value" the faster it will move back and this helps to limit the degree to which a stock is likely to move away from its "value" (Black 1986).

Gonedes (1978) makes the point that the honesty of information is important as the response of the informed investor will be based to some extent on that information and if it is misleading then incorrect decisions could be made. In general the informed investor will be unable in any direct way to distinguish between a dishonest signal and an honest signal although of course the dishonest signal cannot be sent too often as, if it is, it will be recognised as such and "ignored". He also argues that information does not stand alone but that it has a relationship with other information, such as being complementary to, or being a substitute for that information and that responses depend on these further relationships. This is further complicated by the fact that responses can be drastically altered once these relationships are recognised (Gonedes 1978). Gonedes was not writing about noise trading when he made these comments but it can be seen how such relationships make the picture a complicated one, which would pave the way for noise trading and help explain why it happens.

It can be argued that it is because of noise traders that prices deviate from their fundamental values and reflect more than just information about expected cash flows. Writers like Hines (1982) have argued that it is a misconception to assume that any new information would be correctly reflected in the price or that the market price represents the true intrinsic value of the stock but rather that new information is reflected in the price in an unbiased manner. Others like DeBondt & Thaler (1987) argue that as a result of overreaction, stock prices may temporarily depart from their underlying fundamental values. The clear implication of this statement is that once conditions "settle down" prices will return to their fundamental value. These arguments do not necessarily affect the efficiency of the market for, as Hines (1982) has argued, even if some information is processed wrongly a market can still be highly efficient.

A more serious challenge to the efficient market hypothesis and one which is closely associated with noisy information, is the overreaction hypothesis. This argues that investors overreact to both good and bad news with prices shooting above/below equilibrium and only slowly returning to "normal". It can be argued that this can occur for markets as a whole as well as for individual stocks and if it is true it could provide the possibility of consistently generating profits.

Brearley (1970) has noted that the occurrence of a major change in the market level appears to signal that another change may be imminent but as investors have no way of knowing the direction of the additional movement the knowledge is insufficient to provide superior profits. he goes on to argue that there appears to be a slight tendency for a change in the market on one day to be repeated on the next day saying that

> "A plausible explanation of the phenomenon is that investors do
> not at once react fully to new information".
>
> (Brealey 1970 p 39)

In his opinion, however, his observation of some regularity in stock movements is almost certainly insufficient to be profitably exploited so posing no direct threat to the efficient market hypothesis.

This idea of stock market overreaction has been extensively examined for as Howe (1986) has pointed out, evidence that overreaction can be predicted would suggest potentially profitable trading rules and would be evidence against the efficient market hypothesis. The evidence, however, tends to be contradictory as can be seen by examining two pieces of research namely Brown, Harlow and Tinic (1988) and DeBondt and Thaler (1985)

Brown, Harlow and Tinic (1988) start by giving a refined version of the efficient market hypothesis

> ".... The efficient market hypothesis (EMH) claims that the price
> of a security at any point is a noisy estimate of the present value
> of the certainty equivalent of its future cashflows".
>
> (Brown, Harlow & Tinic 1988 pp 355-356)

and then go on to refine it further by making the assumption that stock prices often have to be set before the full impact of an event is known, calling it the "uncertain information hypothesis". They then attempt to "prove" that under such circumstances risk averse investors will set stock prices significantly below their expected value and that as the uncertainty disappears these prices will adjust upwards (on average) regardless of the nature of the event. The hypothesis is then tested statistically but before they do so they concede the point that

".... price behaviour following the arrival of uncertain information is very much an open question".

(Brown, Harlow & Tinic 1988 p 357)

Their results support the view that where there is imperfect information and risk averse investors there appears to be an overreaction to bad news and an underreaction to good news but the findings imply that the response following individual events are random. From this they conclude that

".... the short-run behaviour of stock prices following unexpected and substantial news announcements does not reveal evidence of anything but rational judgements by investors".

(Brown, Harlow & Tinic 1988 p 384)

One immediate implication of their findings, which they themselves point out, is that the findings are contrary to a number of other studies that claim to find a predictable pattern of change in stock prices following the announcement of un-anticipated information and that

"In particular our results contradicts the DeBondt and Thaler (1985) hypothesis that market participants consistently overreact to substantive news of any nature".

(Brown, Harlow & Tinic 1988 p 384)

The research of DeBondt and Thaler (1985) was concerned with studying whether psychological research, which suggested that most people overreact to dramatic unexpected news, was also true with regard to stock prices. They wanted to test the overreaction hypothesis to see if it was predictive which, if achieved would mean that even weak form market efficiency did not hold. The results of their tests were consistent with the overreaction hypothesis but they also found that the effect is asymmetric, as it is much larger for losers than for winners. In short they found that investors become pessimistic when there was bad news and "undervalued" shares which was adjusted as future information showed that such depth of pessimism was not well founded

whereas they become optimistic when there was good news "overvaluing" shares which again adjusted in the light of future information by falling back.

The above examples show how difficult it is to "prove" the efficient market hypothesis but also how difficult it is to "disprove" it. As Jenson (1978) argued better data is now available and mathematical techniques are becoming more sophisticated. It would therefore be surprising if some inconsistencies were not exposed that the cruder data and techniques used in the past have missed though this does not necessarily mean that the efficient market concept has to be abandoned; it could in fact mean a better understanding of the concept as it is generally recognised.

Taking all the above evidence into account it is probably still valid to argue that the efficient market hypothesis is a good working tool where there is no reason to assume otherwise and that whilst capital markets are not perfect markets as long as efficiency broadly holds they reflect the best available estimate of underlying value. These latter two arguments are similar to those made by Rees (1990). This research will therefore proceed on the assumption that the efficient market hypothesis is broadly correct even when noise and the related criteria discussed here are taken into account.

9.4 THE WEEKEND AND OTHER CALENDAR EFFECTS

One of the arguments that can be put forward against the efficient market hypothesis is the argument mentioned in Roberts (1959) that the market contains patterns and these patterns give clues to the future. In fact many analysts, using what are known as the chartist theories have searched and continue to search for these patterns in an attempt to beat the market. It can be pointed out before proceeding that if patterns do exist they are likely to be extremely complicated or costly to manage, as it is reasonable to assume that if market imperfections do exist then people will notice them and act on them. The likely effect is probably to remove those patterns but as Roberts (1959) concedes their actions could worsen the position. In any case the status quo is unlikely to be allowed to remain.

The weekend effect is one of the patterns that has attracted researchers. Cross (1973) found that

> "In recent years stock prices have risen on Fridays more often than on any other day of the week and have risen least often on Mondays".
>
> (Cross 1973 p 67)

The research examined the distribution of price changes on Fridays and Mondays over 844 sets of Fridays and Mondays from 2.1.53 to 21.12.70 using Standard and Poor's Composite Stock Index and it was found that the difference between the proportion of times there was an advance on Friday compared to with that of Monday was highly significant and that

> "The probability that such a large difference could be explained by chance variations is less than one in a million".
>
> (Cross 1973 p 68)

Board and Sutcliffe (1988) are amongst the other writers who have examined this effect and they have done it using U.K. data from the Financial Times All Share Index. One possibility they looked at was the "closed market effect" which hypothesises that any closure of the stock market causes negative returns. They tested this hypothesis over bank holidays and came to the conclusion that there was no evidence to support a closed market effect. This confirmed work done earlier by French (1980) on U.S. Stocks.

Another possibility examined by Board and Sutcliffe (1988) was the stock exchange account effect. They start by stating that in the UK there are two effects connected with stock exchange accounts, namely settlement effects and ex dividend effects. In the U.K. the stock exchange had account periods which were two (or three) weeks long and normally started on a Monday with payments becoming due the second Monday following the end of the account. This meant that by delaying purchases from the last Friday of an account to the following Monday the buyer would gain interest free credit of 11 days or 18 days for a three week account. If, however the purchase of shares was delayed from the first or second Friday of an account to the following Monday which was not the first day of an account, interest free credit is reduced by 3 days. On top of this when shares went ex dividend they did so on the first day of an account and as, once this has happened the purchaser does not acquire the rights to the declared dividends the share price drops to reflect the loss of dividend. Taking the above into consideration Board and Sutcliffe (1988) were able to account for some, but not all of the weekend effect, which was in line with findings in the U.S. (Lakonishok and Levi 1982)

The same authors then tested for measurement error but could find no evidence that such errors were non-random. They were thus able to reject the possibility that measurement errors were responsible for the weekend

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effect.

This led them to the conclusion that although a substantial part of the non random effect that they had investigated could be explained (credit period, going ex dividend) there still remained some non randomness and that this could enable an investor to beat the market, if transaction costs were ignored. They argued, however, that once transaction costs are taken into account this is not possible, as these costs will easily outstrip any profit that may be made. It should be remembered however, that there is a tendency for transaction costs to be reducing as new technology comes on stream. These findings do, however mean that

".... if the shares are to be traded anyway it will pay to alter the timing of the transaction. For example to delay purchases from Friday to Monday and advance sales from Monday to Friday".
(Board and Sutcliffe 1988 p 211)

In the U.S. settlement on stocks is arranged differently but there is still room to manoeuvre and obtain additional days credit

"the clearing delay means that in weeks without a holiday, stock purchased on business days other then Friday gives the buyer eight calendar days before losing funds for stock purchases. These eight days are the five business days for settlement, the two weekend days, and the cheque clearing day. However, payment for stock purchased on a Friday will not occur until the second following Monday, ten calendar days after the trade".
(Lakonishok & Levi 1982 p 884)

Lakonishok and Levi (1982) found that although taking the effect of credit into account meant that the weekend effect was reduced it was not eliminated so that, like Board and Sutcliffe (1988) in the UK the difference could not be totally accounted for.

Jacobs and Levy (1988) have pointed out that work has been done on what, at first sight, might appear to be unrelated anomalies in an attempt to tie them together using the idea that human beings will tend to delay the announcement of bad news. They argue that this tendency may potentially account for three anomalies. The first of these is directly related to the weekend effect in the sense that management would delay reporting bad news until after the market closed, especially over the weekend. This would mean that negative news would be bunched together at the weekend and would help to explain the negative returns observed. This of course contradicts the findings of other researchers (Board and Sutcliffe 1988, French 1980) who came to the conclusion that there was no evidence to support a closed market effect (discussed earlier). If however, it could be proved to be correct it would explain even more of the difference between Friday's to Monday's prices. The second is in some ways the reverse of the first, as managers will tend to announce good news quickly with its resulting effect on share prices. The third effect identified occurs because, it is argued that companies which are long overdue with their earning announcement may be delaying the release of bad news. This might create a "late reporter" anomaly whereby late announcements are often negative and thus cause a price decline.

Other calendar effects have been examined for example the January effect

> "... the average January return is negative while the average non January return is significantly positive. The negative returns in January likely arise from increased profit taking among stocks with positive relative strength, motivated by a desire to defer gain recognition until the following tax year".
> (Jacob and Levy 1988 p 35)

The above explanation comes from American research and would seem

logical. As the tax year is coming to a close, investors will, if they have capital gains wish to reduce the amount payable to the bare minimum. In order to do this they will sell all the shares on which they are making a loss buying them back the "next day" (providing the authorities do not make this illegal) so obtaining losses to set off against their gains. If this is happening it will not negate the above effect but, when taken with the credit period and other arguments, illustrates how difficult it is to isolate one effect from another and is a possible reason why "definite consensus" are hard if not impossible to obtain as to whether calendar effects actually disprove the efficient market hypothesis.

From the contrasting research cited it can be seen that the situation is complicated and that it is unlikely that any simple relationships can be found as generally there are many variables involved and it is difficult to identify and disentangle them. This means that writers such as Rao (1992) can still argue that

> "The theory of efficient markets has been tested extensively, and the results generally support the theory. There is no strong evidence that over the long run any individual or institution (other than corporate insiders) has been able to generate excess returns consistently; ... the recently documented evidence regarding the anomalies that appear to be exemptions to the E.M.H. may actually be saying very little about it. Rather they may be the result of incorrectly specifying the equilibrium risk-return relationship in the marketplace. Moreover, these anomalies are not dramatic when transaction costs are taken into account".
>
> (Rao 1992 p 96)

9.5 DIVIDEND POLICY

Many researchers have examined the effects of dividend policy on stock prices following the classical opposing arguments put forward by Gordon (1959) and Miller and Modigliani (1961). The former argued that dividend policy was important and that shareholders like dividends, while the latter argued that dividend policy was not important. If in fact Gordon is right it will mean that for this research, in order to get comparability between companies the sample will have to include companies with "similar" dividend policies, whereas if Miller and Modigliani are right dividend policy will be irrelevant when choosing the sample companies. For this reason it is necessary to examine the research in this area in order to arrive at a conclusion as to its possible affect on this research.

Beaver, Kettler and Scholes (1970) stated that there was a commonly held belief that low payout policies were associated with increased risk and they argued that such a belief was perfectly rational. Firms are reluctant to cut back on dividends once a dividend level has been established, i.e. they tend to follow a policy of dividend stabilisation. They are also reluctant to pay out more than X percent of earnings in any single period. They argued that from the above facts it was reasonable and rational to view the payout ratio as a

> "surrogate for management perception of the uncertainty associated with the firms earnings".
>
> (Beaver, Kettler & Scholes 1970 p 660)

and that from this it can be argued that the more volatile the earnings of a firm the lower will be the percentage of expectant earnings that are paid out by way of dividends but it should be noted that as Keenan (1970) has pointed out, it is dividend expectations that are important not actual dividends and that

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"...dividend expectations may sometimes be best approximated by ignoring actual dividends (or non dividends)"

(Keenan, 1970 p 250)

Shepherd (1979) agreed that firms tended to stabilise dividends as a matter of policy arguing that because of this dividends were more certain than capital growth and that therefore investors were not indifferent between the two. His article goes on to argue that there are however other complications to be taken into account. Dividends are subject to income tax and historically capital gains to the smaller capital gains tax. On the face of it this should mean that investors prefer capital gains to dividends but this assumes that shareholders and firms can both produce the same amount of growth from the "dividend". According to Shepherd (1979) this does not appear to happen in practice and that therefore the tax advantage may not operate.

For a large part of the equity market, the institutional investors, there is usually no tax differential. It would therefore seem reasonable to assume that they would prefer capital growth to dividends as they can manage the situation so that they can time by planned realisations the inflows of cash and the payment of tax.

Shepherd (1979) goes on to agree that in many instances an increase in dividend is accompanied by a rise in share price but points out that it is not necessarily the dividend that is causing the rise in price as it could be that the price has risen in anticipation of higher future earnings the market having taken the opportunity to reassess the future prospects of the company in the light of the increased dividend.

The above arguments have been made in slightly different ways for some

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time. Friend & Puckett (1964) for example were arguing that because of taxation, retention carried advantages, which ought to mean that as retention increased prices should increase. They argue that the findings they examined showed that higher dividends were usually associated with higher P/E ratios. They go on to argue against this quoting the findings of Friend and Parker (1956) who found that investors who stated that a change in corporate earnings would influence their investment decision outnumbered by three to one those who would be influenced by a change in dividends. This led them to a concluding statement that

> "It would not surprise us if investors as a rule prefer at least a small non zero (and preferably a stable or rising) payout even at the cost of foregoing otherwise desirable investment".
> (Friend & Puckett 1964 p 681)

The above statement on dividend relevance is the kind of statement that is still being made today with no concrete conclusion being possible. This outcome is not surprising if it is accepted that markets are "reasonably" efficient and take on board the fact as stated by Black (1986) that (given our tax laws)

> "If people want to maximise only expected utility after tax wealth there will be no reason for firms to pay regular dividends. And when they do pay dividends, they will apologise to the stockholders (at least to individuals stockholders) for causing them the discomfort of extra taxes".
> (Black 1986 p 535)

Young and Sutcliffe in 1990 were arguing that in the situation where dividends and capital gains are taxed at nearly the same level, dividend policy should not affect the value of a company acknowledging that in the UK there is a small advantage to personal capital gains. Their own research, however, supported the view that market values were not affected by dividend policy with two exceptions

"Firstly, the situation is different for shareholders such as pension funds who pay no tax on dividends. .... secondly failure to sustain dividends may have an adverse affect on share value. Investors may interpret such a move as bad news signalling tough times ahead".

<div align="right">(Young and Sutcliffe 1990 p 31)</div>

From what has already been said it can be seen that the arguments are by no means clear cut and that the statement made by Shepherd (1979) that

"Both theory and empirical evidence have failed to produce a conclusive answer to the effect which dividend policy has on share price"

<div align="right">(Shepherd 1979 p 148)</div>

can still be made today. This might be taken to imply that there is no easy relationship between dividend policy and share price, if in fact there is any relationship at all, as any simple relationship would almost certainly have been found, given that researchers have been looking for it for thirty plus years. There is, however, a body of literature on short-termism (discussed in chapter 7) which argues that "Good profits" and "good dividends" are required and if these are not produced by the company then their shares will be used to "gamble" on the stock exchange.

9.6   GEARING (LEVERAGE), SIZE, ACCOUNTING POLICIES AND
TYPES OF BUSINESS (INDUSTRIAL SEGMENTS)

There are other variables, which will affect the value of the firm (as reflected in its share price of the ordinary shares), and those which appear most commonly in the literature will be discussed in this section. No attempt will be made at this stage to say to what degree they will be allowed for in the actual research as this will be dealt with in the more "practical" chapters that follow.

Gearing often expressed as a ratio is the relationship between debt and equity capital. It is usually calculated using balance sheet values although it can be argued that it would have more meaning if it were based on current values. The fact that different types of debt have different rights and levels of security is also traditionally ignored in calculating the ratio i.e. it is used in rather a naive form (Lewis & Pendrill 1990). When the debt/equity ratio increases the expected return on equity will rise. This is because the risk taken by the equity shareholders has increased so that the shareholders expect a higher average return as compensation. It should be pointed out that the evidence is in line with the view that the total value of the firm is not affected significantly by gearing (Young and Sutcliffe 1990).

One of the consequences of increasing gearing is to make the returns to the ordinary shareholders more volatile (Modigliani and Miller 1952). An example of this is given by J. Rutterford (J. Rutterford, D. Carter (Ed.) 1988)

Table 9.1

	Profit before Interest	Interest	Profit after interest	Profit per £ share
A) All Equity 100 £1 Shares	50	-	50	0.50
	40	-	40	0.40
	30	-	30	0.30
	20	-	20	0.20
	10	-	10	0.10
	0		-	0.00
B) 50 £1 Shares £50 Debt @ 10%	50	5	45	0.90
	40	5	35	0.70
	30	5	25	0.50
	20	5	15	0.30
	10	5	5	0.10
	0	5	(-5)	(-0.10)

Example of Volatility Offered by Rutterford (1988)

It can be seen from the above that there is when all finance is equity (A) a range of from zero profit per share to £0.50 profit per share which changes dramatically when the gearing is introduced (B) to a range of £(0.10) profit per share to £0.90 profit per share.

This observation about volatility was made by Dobbins and Pike (1979) when they also pointed out that although firms should borrow "heavily" to finance their investments they must make sure that they did not borrow to the point where compulsory interest payments could lead to lack of cash and hence to bankruptcy becoming a distinct possibility. They argue that the taxation

system favours the use of low cost debt, as the interest payments are tax deductible but stress that there is a trade off between the tax benefits of borrowing and the risk of bankruptcy.

Much research has been done into the effect of gearing and on occasions contradictory conclusions have been reached. Masulis (1980) for example points out that Ross (1977) argues that firms signal an increase in asset values by decreasing leverage. From what has just been said it can be argued that the detailed effects of gearing are not easy to ascertain but that the general argument that debt financing increases the risk for the equity shareholder is valid and that following on from this that the gearing of a firm will have an effect on the value of its equity shares.

Size may well have an effect on share price and can be put forward as an example of apparent market inefficiency although factors can be put forward to explain at least part of the premium on small firms. These factors have been listed by Rees (1990) as

1)   **Liquidity**

The shares owned in smaller companies tend to be traded less often than shares in larger companies and this may mean that shareholders experience a delay when they wish to realise their investment.

2)   **Bankruptcy**

It can be argued that there is a greater likelihood of bankruptcy among the smaller firms and the costs of bankruptcy are significantly higher. This is an additional risk and therefore investors would require higher returns to compensate for their higher risk.

3)   **Information availability**

There are fewer analysts tracking small company stocks and less

information is reaching the market therefore it can reasonably be expected that there will be greater variability between expected and actual returns for these stocks compared to those of the larger companies.

This third suggestion violates the efficient market hypothesis while the first two explain the difference in the form of increased risk. The case for the efficient market hypothesis has already been argued but in short if inefficiencies do exist then, providing the costs do not exceed the benefits, it would be expected that they would be arbitraged away and for any that are not

> "the advocates of the EMH insist that unexplained returns are due payment for some factor of asset pricing which is as yet elusive".
>
> (Rees 1990 p 250)

Jacobs and Levy (1988) when looking at the small size effect came to the following conclusion

> "[the] small size [effects] appear non-stationary; they may be anomalous or they might represent empirical return regularities only in a broader macro economic framework".
>
> (Jacobs & Levy 1988 p 37)

While Hirschey (1985) came to the conclusion that

> "Neither market share not relative firm size had any discernible influence on value of equity".
>
> (Hirschey 1985 p 97)

From what has been said it can be argued that the debate about the size effect is still continuing and no definite conclusions can yet be reached. As far as the possible violation of the efficient market hypothesis is concerned this

has been debated at some length in the literature and although there is no agreement as to whether markets are or are not efficient, there appears to be some consensus (discussed in detail previously in this chapter) that the efficient market hypothesis can, unless there are contraindications, be used as a good working tool. This still leaves unchallenged the perception that small companies are more risky than large companies. The idea of small company shares being less marketable and also small companies being more prone to bankruptcy (liquidation) than large companies and the effect this will have on the share price seems intuitively correct. It can be seen, however, that for example Jacobs and Levy (1988) and Hirschey (1985) have not been able to find this effect i.e. the effect that the size of a firm influences the value of its equity. This, it can be argued, means that the effect is not obvious and therefore probably not large, as any major effect would presumably have been demonstrated. Because of this it would seem reasonable to place more emphasis on other considerations which affect this research project, for example sample size.

Accounting policies are the bases that a company chooses when it is preparing its accounts and for many items there are several bases that can be chosen. These choices are to some extent reduced by SSAP's (Statements of Standard Accounting Practice) and FRS's (Financial Reporting Standards) but choice still remains as to the treatment of many items as more than one base is allowed by some standards. Some examples of this would be Stock, Research and Development, Goodwill and Depreciation, all of which are covered by separate standards that have more than one base from which to choose an accounting policy. On top of this there are items such as Brands, Convertible Bonds, transfers from current to fixed assets etc. which have no standards to govern them and therefore no policy restriction is placed on them until such time as a standard is produced, or the Urgent Issues Task Force

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produces an abstract on them (as an interim measure before a standard is produced).

Because companies can choose different accounting policies it follows that their results can be affected, in some cases greatly, by the policy they choose. If for example goodwill is written off immediately against reserves in one company and is capitalised and written off to profit and loss account over its economic life in another otherwise identical company, the differences can be large and permanent. The company that writes off its goodwill immediately never has any charge for goodwill going through the profit and loss account as the standard requires it to be written off directly to reserves (on the balance sheet) while the other company, over time, writes all its goodwill off through the profit and loss account.

This means that companies can, within limits, manipulate the figures that they present in their financial statements to users and the question then becomes important as to whether in fact, users are misled by these devices. Tweedie and Whittington (1990) made the point thus

> ".... users of accounts allow themselves or are believed by preparers of accounts to allow themselves to be deceived by cosmetic accounting devices".
>
> (Tweedie and Whittington 1990 p 97)

The use of the word "believed" in the above quote is interesting because it suggests that after many years of research the problem is still not resolved. In 1968 Beaver (1968) was arguing that initial research in the area seemed to indicate that investors do react directly to accounting data. If this is true and accounting data can be manipulated (as stated previously) then the efficient market hypothesis would not hold in this area creating a problem for this

research. There is however another line of argument and this line of argument leads to the conclusion that accounting policies are irrelevant and need therefore not be taken into account in this research.

Ball & Brown (1968) argue that income is made up of many components and that these are not homogeneous having, as they do, to deal with such things as price level changes, research and development, consolidation, taxation etc. They go on to state that the information is nonetheless useful as it shows whether the income differs from what the market expected, the market having being anticipating results early in the preceding year and adjusting throughout the year for changing circumstances with, according to Ball & Brown (1968), increasing success as the year progresses. Foster (1978) appears to add to and support this by suggesting that stock markets can see through and adjust for changes in accounting policy when they do not affect the economic position of the firm.

This means that it is possible to argue as Gonedes (1972) has that there are various sources of information that are available to investors so that they have no need to blindly accept accounting numbers. This leads on to the point put forward by Revsine (1971) that if the market is being misled then the market will compensate for this. The article goes on to state that to say otherwise would be to argue that investors are incapable of learning from the past. If the above arguments are true then it can be reasoned that accounts merely provide confirmation of the financial position of the company and that this has in the main been indicated to investors by other means already. Accounting policies therefore can be ignored as the assumption is being made (based on the preceding arguments) that the efficient market hypothesis holds in this area.

This leads to Industrial Segments. It is important for some kinds of research to ensure that like is being assessed with like as the characteristics of various types of industry can be very different and failure to take this into account could weaken or even negate any findings. Some industries are for example labour intensive while others are capital intensive and these differences could be important for research. Often, however, firms are classified for statistical purposes using S.I.C. codes (Standard Industrial Classification) and these codes can be picked up and used by researchers to enable them to group together broadly similar firms. The two main types of S.I.C. code common in Britain are the U.K. S.I.C. Codes and the U.S. S.I.C. codes. Both of these classify firms under ten main headings and then subdivide as necessary but the main headings of the American codes are different from those of the British codes and so it is important to be aware of which code is being adopted for any particular piece of research as well as any comparitors.

9.7   CONCLUSION

This section has mainly considered whether the efficient market hypothesis can be generally assumed to hold although certain other technical matters, which may apply to this research e.g. S.I.C. codes have also been included in this chapter for convenience. In general terms it has been argued that the efficient market hypothesis does hold and that although it is not perfect, an argument such as that put forward by Fama (1970) that for the purpose of most investors the efficient market hypothesis is a good approximation to reality, can be sustained. The major areas that have been researched in an attempt to disprove the hypothesis (noise trading, calendar effects, dividend policy, size and accounting policies) have been examined and in each case an argument has been put forward in favour of the efficient market hypothesis being in a general sense correct, and justifying its adoption in the context of this research.

This being the case it means that it is reasonable to proceed to look at employee characteristics to see how they affect the share price as it is reasonable to make the assumption that the share price broadly reflects the underlying events as the efficient market hypothesis holds.

9.8 ENDNOTE - GEARING

In this chapter gearing has been argued to be the appropriate measure to be used to standardise risk. It might, however be argued that beta's should be used as a more appropriate tool.

Betas measure the sensitivity of a security's return to changes in the return on the market, and is in this sense like gearing except that it provides the relationship between the changes in an assets return, in response to expected changes in the market return (Rao 1992). Expressed differently betas measure the volatility of returns relative to the market and can be calculated using regression analysis.

As this research is using regression analysis to find the impact of employee's characteristics on share price, using beta's to eliminate risk would eliminate some of this impact. Beta's are not objective measures their estimation is subject to a series of practical decisions which may affect the results together with some further problems which can generate differences in treatment (Rees 1990)

It might be argued that gearing often fluctuates wildly from period to period and therefore even with its disadvantages beta's should be used. Rees (1990) has however pointed out that

> "A simple test ... shows a large degree of instability in the beta of individual firms".
>
> (Rees 1990 p 228)

going on to state that

> "Fortunately the stability of beta's is much improved for portfolios as opposed to individual firms".
>
> (Rees 1990 p 229)

The above statements would tend to confirm that using betas for individual

firms would suffer from fluctuations in the same way as gearing.

CHAPTER 10

THE EFFICIENT MARKET HYPOTHESIS REVISITED.

10.1 INTRODUCTION

If markets are efficient then as events occur within companies there should be a movement in those companies share price reflecting the markets perception of the impact of the event on the value of the companies. This chapter will examine how certain events namely layoff splits and chief executive officers deaths have affected the share price (using existing research). In a later chapter UK data will be examined using layoffs in an attempt to confirm that the UK market reacts to information about people.

10.2 LAYOFFS

There are many reasons for layoffs for example Meuse et al (1994) follows Neinstedt (1989)

> "Neinstedt (1989) identified that firms downsize for numerous reasons:
>
> (a) to reduce operating costs,
>
> (b) to decrease the number of levels of management in an effort to achieve greater efficiency
>
> (c) to reduce duplication due to mergers and (d) to respond to competitive pressure".
>
> (Meuse et al 1994 pp 509/510)

Whilst Falker & Hallock (1999) identified 17 different reasons. For many purposes these can be split into two categories namely, layoffs which are aimed at improving efficiency and layoffs due to a decrease in demand. It could be argued that where the layoffs were to improve efficiency the market might react positively to the news whereas when it was due to a decrease in demand the market might react negatively. This is not however, the usual results of research in the area which has tended to show consistent negative results whatever the category of layoff although as Farker & Hallock (1999) have stated

> "These suggestions persist despite a growing body of empirical
> work that finds fairly consistent negative reactions of stock prices
> to announcements of reductions in the labour force (RIF's).."
>
> (Falker & Hallock 1999 p 1)

One explanation for persistent "negative" returns was given in Palmon, et al (1997)

> " Other publications have argued that layoffs have negative
> long term impacts (eg., loss of human capital and low moral)
> that might not be fully perceived by management"
>
> (Palmon et al 1997 p 55)

Worrell et al (1991) made some similar points

> " Finally the market viewed permanent layoffs somewhat

more negative than temporary layoffs, particularly in the Period immediately surrounding the announcement. This finding supports the view that permanent layoffs indicate enduring changes (Saffer 1983) and that the permanent loss of trained workers is seen as a more severe blow to a firm than their temporary absence.)"

(Worrel et al 1991 p 673)

and

"The market also viewed large layoffs more negatively than small layoffs."

(Worrel et al 1991 p 673)

These explanations are important because they address issues that are directly related to this research. This research relies on the fact that a firm needs a stock of employees with certain skills, in order to function and is helped by the fact that Palmon et al (1997) noted above, point out that there is an argument that layoffs have a negative effect due to loss of human capital and low moral. While Worrell (1991) argues that large layoffs have a more negative effect than small layoffs, a view that would tend to support the stock of skills idea used in this research. The idea of a stock of skills is explicitly mentioned by Haltiwanger (1984) when discussing the distinguishing characteristics of temporary and permanent layoffs

"This motivation for long term worker-firm attachment makes for an interesting interaction between stock adjustment (permanent layoffs and new hires) and factor utilisation (temporary layoffs) decisions."

(Haltiwanger 1984 p 525)

It has already been stated using Farber & Hallock (1999) that most empirical work finds negative reactions to layoffs. There are, however, some positive results but at least some of these can be seen as special cases. Lin and Rozeff (1993) looked at cost cutting measures and divided them into nine event categories namely

    1) temporary layoffs

    2) permanent layoffs hourly labour

3) permanent layoffs salaried labour

4) temporary operation closings

5) permanent operation closings

6) permanent operation closings, production reassigned

7) Wage freeze and cuts initiated by the firm

8) Concessions on salaries by labour

9) Miscellaneous cost-cutting, including early

retirement, reorganisation with layoffs.

and reported the following results

"They are significantly negative in every category except
6 (permanent plant closings with realignment of production)."
(Lin & Rozeff 1993 p 37)

This example shows one way in which positive returns may occur it also, arguably, shows that they may well be rare, supporting the main body of finding in this area. Raj and Forsyth (1999) point out that

"Ali, Raminey and Yung (1991) find significant positive
abnormal returns for announcements of Head Quarters
relocations,...."
(Raj and Forsyth 1999 p 4-5)

but here again it can be argued that this is a "rare" and rather specialised event. Lee (1997) did a corporative analysis of layoffs in the United States and Japan and showed that both countries showed negative returns but that the impact on share prices was different. The impact in Japan was less severe than the impact in the United States. Going on to argue that

"These disparities emphasize the potentially different
effects of national culture on market structure, organizational
form and the effectiveness of differing strategies."
(Lee 1997 p 892)

In the United Kingdom Raj and Forsyth (1999) have investigated the UK market to see if it differentiates between restructuring and layoffs. They have examined two hypothesis namely layoffs that attempt to restructure the firm to improve efficiency and layoffs due to decreased demand for the firms

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products.   Although using the above hypothesis, you could logically argue that the first hypotheses should produce positive returns this did not occur. This led to the conclusion

> "... the overall negative reaction to layoff announcements
> may indicate the response by the market to firms that
> reduce its human assets and the effect this may have
> on future performance."
>
> (Raj & Forsyth 1999 p19)

Here again the reduction in human assets is being cited as the possible reason for the overall negative reaction.   This mirrors the reduction in human stock arguments quoted earlier and could arguably lead to the conclusion that the UK and U.S., respond in a similar manner to layoffs and indeed Japan, even though it has a very different culture could be said to be reacting along the same general lines.

10.3 SPLITS

Other events can be studied to see if the market is efficient and reacts quickly to information. One such event is a stock split, called in the United Kingdom a bonus issue. This event occurs when companies tidy up their capital structure and capitalise some of their distributable reserves. This means that where say you had four shares previously you will now have say five. This means that the company has more shares in issue but as it has the same net assets as before, all things being equal, its profits will not be affected by the increase in the issued shares. In other words the companies total dividend should be the same as it would otherwise have been but there are now more shares over which it must be divided, reducing the dividend per share and if markets are efficient, the share price.

Charest (1978) studied common stock returns around split events using information from the New York Stock Exchange for 1947 - 1967. The research came to the following conclusion:-

> "The conclusion was that unless one has access to inside information there seems to exist negligible hope for systematic abnormal gains, at least on the New York Stock Exchange. (NYSE)."
>
> (Charest 1978 p265)

Earlier Fama et al (1969) had arrived at a similar conclusion. This research examined data for common stock splits on the New York Stock Exchange from January 1927 to December 1959 and concluded

> "Moreover, the evidence indicates that on the average market's judgements concerning the information, implications of a split are fully reflected in the price of a share at least by the end of the split month but most probably almost immediately after the announcement date. Thus the results of the study lend considerable support to the conclusion that the stock market is "efficient" in the sense that stock prices adjust very rapidly to new information."
>
> (Fama et al 1969 p20)

and later

"Finally, there seems to be no way to use a split to increase one's expected returns, unless of course insider information concerning the split or subsequent dividend behaviour is available."

(Fama et al 1969 pp20-21)

10.4 SUDDEN DEATH OF CHIEF EXECUTIVE OFFICERS

One of the problems with event studies is deciding exactly when the event "took place" and whether there had been some leakage before the announcement of the event.

When examining layoffs Statman and Sepe (1989) make the point that

> "A termination announcement that is reported in the Wall Street Journal on day 0 is likely to have been made the previous day, by -1. The effect of an announcement on stock prices might occur on day -1 if the announcement is made early in the day. However, if the announcement is made after the close of the market on day -1, its effect on stock prices will be postponed until the following day, day 0."
>
> (Statman & Sepe 1989 p77)

Going on to argue that to overcome this cumulative market-adjusted returns over the two days should be used ie., the calculation should be done on two day average returns. Faber and Hallock (1999) take a different view

> "In our case, we assume that the market became aware of the RIF on the day it was reported in the Wall Street Journal or at a time very close to that day. However it may be that the market knew of what we identify as the announced event at some time prior, and, to the extent that this is the case, our analysis will not capture the full effect of layoff announcements on stock prices."
>
> (Faber and Hallock 1999 p6)

N.B. R I F = Reduction in force.

It can be argued that most of the literature takes the same stance as Faber and Hallock(1999) with regard to the date of the event.

Most events will have some uncertainty as to the actual timing of the event, but it can be argued that the sudden death of chief executive officers (CEO's) will suffer from less uncertainty than other events, although even here the problem of early/late in the day announcements will occur. For this reason and because it is another "people" event the literature will be examined to see if the market appears to be acting "efficiently". It must be born in mind, however, that each type of event has its own "unique" possibilities for

"distorting" the results and sudden deaths are no exception. It is possible that CEO's own shares and this could distort the results. Another example of how the results could be distorted would be where a long serving CEO had outlived his usefulness so that his death could be "welcomed" by the market.

The research by Etebari et al (1987) helps to illustrate these points. This research examined the reaction of stock returns to sudden death of corporate chief executive officers arguing that the nature of market reactions are usually difficult to disentangle going on to state

> "Analysis of events that are random and unexpected
> until their actual occurrence could help remedy this
> problem".
>
> (Etebari et al 1987 p255)

and later

> "However, the extend of the changes caused by the death
> of a chief executive officer can vary from one case to
> another. The general expectation here is that unexpected
> executive deaths cause significant stock market effects, but
> the depth and direction of those effects are difficult to
> predict in advance."
>
> (Etebari et al 1987 p225)

The research conclusions point out that

> "Immediate negative reactions occur on the days of the
> death, but the ensuing return behaviour depends partly
> on the type of officer dying and the cause of the death.
> In the cases of chairmen deaths, positive cumulative
> returns develop over the thirty days subsequent to the
> death dates. In contrast, the cumulative returns following
> the deaths of presidents appear to be indiscernible, and
> if anything, are slightly negative".
>
> (Etebari et al 1987 p272)

It can be argued that the above finding, 1) can be used to support the argument that some CEO (chairmen in this case) will have outlived their usefulness, see Schwert (1985) and 2) that companies have a "stock" of employees and if one "leaves" they are merely replaced and that therefore a negligible effect should occur (president in this case).

Indeed, Etebari et al (1987) makes the point that the behaviour and effectiveness of corporations is determined to a great extent by the characteristics and actions of their members, going on then to single out C.E.O's for research.

Johnson et all (1985) came to similar conclusions to Etebari (1987) stating

"This study examined the common stock price reactions
to the sudden death of a senior corporate executive. The
evidence indicates that (1) sudden executive deaths have
little systematic impact on average common stock returns.....
and (2) announcement period excess returns were
characterised by increased cross-sectional dispersion
suggesting that positive and negative stock price adjustments to
the executives deaths occurred."

(Johnson et al 1985 pp172-173)

10.5 CONCLUSION

This chapter set out to see whether markets were efficient in the sense that they adjust rapidly to new information. It did this by examining research into different types of events, while concentrating mainly on layoffs, as it was considered that this was the most relevant to this research. From the study of these events it can be argued that markets are efficient as can be seen from the following conclusions.

> "The hypothesis of market efficiency predicts that
> postannouncement period abnormal returns are
> not different from zero.   For day +1 to +60 there is
> little or no evidence inconsistent with market efficiency
> in the nine categories."
>
>> (Lin and Rozeff 1993 p41)

> "In conclusion, it seems that layoff announcements
> generally convey negative information to investors....
> In addition, preannouncement negative market reactions
> appear likely to occur when leakage precedes an
> announcement, and announcements of large or permanent
> layoffs elicit stronger negative shareholder responses
> than announcements of small temporary layoffs."
>
>> (Worrell et al 1991 p874)

> "Finally, stock price changes differ depending on the
> nature of the layoff".
>
>> (Lee 1997 p892)

These quotations together with those previously cited can be used to argue that in general markets are efficient.

CHAPTER ELEVEN

DETAILS OF HOW THE RESEARCH WAS CARRIED OUT

11.1 INTRODUCTION

This chapter states how the basic information was obtained in order to enable this research to proceed and how this information was used. It gives details of the sources that were used in order to obtain the information and justifies the approach that has been used.

Details are given of the kind of information that was available and how this was refined to a point where decisions could be made as to which companies should be targeted. It goes on to explain how the questionnaire was applied to the companies and gives details of the results. Details are then given as to how the remainder of the data, not gathered from the questionnaire, was obtained.

The way in which the replies to the questionnaire (and other information) were used is described, followed by detail as to how the research model had to be modified in the light of circumstances which arose as the research progressed. These modifications are justified in the chapter with, were applicable, appropriate references.

The overall work described in this chapter has developed an argument justifying the cases that are to be used in the research with an explanation as to how they were to be used, giving details of the problems that were encountered and how they were overcome.

11.2 GENERAL INFORMATION AND EXPLANATIONS

This research has used a well known database of U.K. Companies namely Fame (Financial Analysis Made Easy) which is published by Jordan & Sons Ltd. It is particularly suitable because it is designed as a "search" system as opposed to a "reporting" system.

Using this package companies were sorted according to their S.I.C. No. (Standard Industrial Classification), using the first digit of the S.I.C. code number. The following results were obtained.

Table 11.1

UK S.I.C. Code	Number of Companies
0	646
1 .	435
2	3133
3	12058
4	9278
5	4949
6	17282
7	3501
8	16710
9	8122
	76114
	=====

S.I.C. Code analysis of UK Companies

The search was then narrowed to public companies with the following results.

Table 11.2

UK S.I.C. Code	Number of Publicly Quoted Companies
0	6
1	58
2	55
3	118
4	132
5	38
6	116
7	13
8	372
9	35
	943
	===

S.I.C. Code analysis of UK publicly quoted companies

It is only these latter companies that can be use in this research as the research requires the company to have a stock market quotation to give it a share price. As can be seen this drastically reduces the number of companies that could be used in this research. In the next stage these companies were reduced further by eliminating all the public companies with "small" sample sizes namely

Table11.3

UK S.I.C. Code	Number of Publicly Quoted Companies
0	6
1	58
2	55
5	38
7	13
9	35
	205
	===

S.I.C. Code analysis of "small" sector publicly quoted companies.

This exclusion was originally adopted with the intention of obtaining significant samples from the most numerous SIC groupings.

Leaving

Table 11.4

UK S.I.C. Code	Number of Publicly Quoted Companies
3	118
4	132
6	116
8	<u>372</u>
	738
	===

S.I.C. Code analysis of large sector publicly quoted companies.

From this it was decided that the research would concentrate on S.I.C. code numbers 3, 4 and 6 as it was felt that this would be representative, with similar sizes bearing in mind that it had been decided that the finally selected companies would be phoned before the questionnaire was sent out.

The chosen S.I.C. codes were then sorted again using gearing so that the companies with the highest and the lowest gearing could be eliminated so standardising for risk as much a possible. As this research was being done using 1992 figures it was the 1992 gearing figures that were used using the Fame formula.

<u>Long Term Liability + Bank Overdrafts</u>
    Share Capital and Reserves

The above exercise produced the following results

Table11.5

UK SIC Code	Total No of Companies Remainder	Eliminated on Gearing		
3	118	52	(under 30% over 85%) (29 CO's 23 CO's) 52	66
4	132	70	(under 30% over 70%) (39 CO's 31 CO's) 70	62
6	116	50	(under 30% over 80%) (33 CO's 17 CO's) 50	66
	366	172		194

S.I.C. Code analysis of non-extremely geared UK publicly quoted companies.

It was the personnel director (or equivalent) of these remaining companies (194 in all) that were contacted by phone and asked if they would be prepared to respond to the questionnaire. The following results were obtained.

Table 11.6

UK SIC Code	Agreed		Refused	Total
3	26	40	66	
4	25	37	62	
6	30	36	66	
	81	113	194	

S.I.C. analysis of companies approached.

All the companies that agreed to complete the questionnaire were

immediately sent a copy of it, addressed to the person who had said they would complete it (see Appendix A & B). Where no reply had been received within ten days a follow up letter was sent. If there was still no reply yet another reminder was sent (see Appendix C & D for copies of the reminders).

This produced the following results

Table 11.7

UK SIC CODE	Agreed to Reply	Replied	Questionnaires Completed	Returned Unanswered	Ignored
3	26	18	14	4	8
4	25	17	13	4	8
6	30	24	15	9	6
	81	59 *	42	17	22
	==	==	==	==	==

|_____|
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Monitoring of questionnaires issued.

Even after phone calls had been made to the twenty-two who had ignored the reminders no further replies were forthcoming. Thus of the 194 companies originally contacted 42 completed or partially completed questionnaires were received a response rate of just over 21% and of the 81 companies that had agreed to complete the questionnaire the response rate was just under 52% for completed or partially completed questionnaires.

Of the 42 questionnaires returned 9 were unusable leaving 33 companies available to be used in this research.

Although the questionnaire provided most of the raw data required for this

research they did not provide the share prices. These were obtained manually from the London Stock Exchange Daily Official List for Thursday 25th June 1992. In doing this it was appreciated that the different companies had different year ends but the June 1992 date was used so that external factors which might affect the share price was kept constant. This means, however, that the accounting data and the share price could have a gap of up to six months between them. In order to see if any major changes had taken place in this period the official index to the financial times for 1992 was checked. The results of this check will be discussed in the next chapter.

11.3 HOW THE REPLIES WERE USED

The replies from the questionnaire were tabulated, using Edlin , a D.O.S. utility in a form suitable for use with the statistical package SPSS. Then using the London Stock Exchange Daily Official List for Thursday 25th June 1992 the share prices was added to the tabulation.

After a preliminary examination of the data it was decided to see if the data could be modified, in a manner to be explained later, in order to bring to the fore any underlying relationship.

The human resource accounting literature has argued that one method of valuing human resources (employees) is the unpurchased goodwill method (Hermanson 1964). It must be admitted at the outset that this method is "subjective" but it was considered that it might produce a subset of data that would show meaningful relationships between the chosen variables. This point is covered in detail in the Chapter on Human Resource Accounting and Other Related Academic Theories.

In order to do this the share price (which had already been standardised so that the nominal values of all the shares were the same i.e. £1) was adjusted by the tangible net asset value per £1 share and the difference calculated. This showed that included in the data were six companies which had a negative value after the adjustment. This was surprising as the asset values used were balance sheet values and would normally be expected to be less than the "true" value of the assets as they are based on historic and revalued amounts as oppose to current values. There are doubtless many reasons why this could happen for example if the company had liquidity problems and

could not pay adequate dividends, it might well find that its share price became depressed. It was therefore decided that although there was no proof that these companies were not following the normal pattern of the other companies it was reasonable to argue that there may be different factors at work here and they were omitted from the data set. This left a data set of 27.

Because of what had happened to the data in the preceding paragraph it was decided to also omit any companies that had made losses in 1992. This was done because it was felt that although there was again no proof that different factors were taken into account when companies were making losses (in arriving at a share price) it seemed logical to argue that there could probably be a different decision making process at work. On examination it was found that there were a further four companies that had made losses during 1992 and these were omitted from the data set leaving 23 companies available for the research.

In order to justify the above decisions the finance literature was examined and in particular the work on short termism. It must be said at the onset that this work does not necessarily invalidate the efficient market hypothesis. P. Williams (1991) has for example stated

> "However I do accept the thesis that the markets in general behave efficiently".
>
> (Williams 1991 p 36)

There is no precise definition of short termism. J. Ball has said

> "Attempts to provide a precise definition of what is meant by "short termism" do not seem to me to be fruitful. This is in part because like other portmanteau terms such as "monetarism" it has come to symbolise what is perceived as a multiple of sins loosely threaded together".

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(Ball 1991 p 20)

P. Williams, however, did attempt a definition, defining it as:-

"an inability, prevalent in the Anglo-Saxon world, successfully to resolve the tension implicit in satisfying both long and short-term aims simultaneously".

(Williams 1991 p 31)

The argument is that fund managers are rewarded for and judged on short term performance and that this can be maximised by neglecting future profits. It can be argued that they do not have to take into account the long term responsibilities that are implicit in the "ownership" of a firm. As A. McInroy (1990) has pointed out, shareholders are interested in immediate profits not plans that will take years to mature. From this it would seem reasonable to conclude that fund managers will be concerned with a company's performance over the short term. This kind of argument has been made by A. Bain who wrote:-

"City investors, it is alleged are too ready to take a quick profit and attach too little weight to long-term prospects"

and

"It is likely that savers focus on performance over a period which is much less than the life of a typical investment project".

(Bain 1987 p 1)

Such statements are hard to prove but there is indirect evidence, which would tend to support such a claim. Bain's (1987) for example mentions the fact that the performance of fund managers is under continual scrutiny and this view is supported by other writers. McInroy (1990) states that he finds it alarming that decisions are made on the basis of maximising the next months performance figures, pointing out that with modern technology performance can be measured over very short period of time. He goes on to argue that

institutional shareholders do not act as proprietors and interpret their interests in a very narrow and short term sense. In arguing this he identifies the commission system as part of the problem.

The way analysts produce their forecasts will also tend to favour short termism. B. Rees (1990) states that analysts do provide forecasts for more than one year into the future but goes on to argue that these are less common than forecasts of next year's profit. Elsewhere he states

> "In general a forecast of the earnings of a company for a period into the future, normally somewhat less than two years is conducted using a variety of techniques incorporating forecasting models and the dis-aggregation of accounting statements".
>
> (Rees 1990 p 295)

It can be argued that it is logical for analysts to work in this way as past performance and near future performance will, in general, be more reliable than longer term estimates, therefore giving them more weight would make sense. A. Bain (1987) has made this argument adding that short run decisions can be reversed easily and relatively cheaply. He has also argued that with low transaction costs there is an opportunity to profit from trading as opposed to predicting the trend of future profits. In short it can be argued that the stock market undervalues future profits because of the uncertainty involved and the relatively cheap trading opportunities available. This process is exacerbated by the pressure on analysts to perform well in the short term and by the commission system.

A Bain (1987) has written

> "The fund manager aims to maximise the total return on his portfolio - dividends received and the change in market value

together - during the relevant period".

(Bain 1987 p 1)

It follows from this that dividend flow is important, as A Ferguson (1989) has pointed out shares are bought and sold in an attempt to get the right dividend flow going on to argue that

> "good earnings visibility is rated highly. The market does tend
> to be very earnings driven ".
>
> (Ferguson 1989 p 71)

J. Ball (1991) made the same type of argument when he pointed out that shareholders focus on short term performance and place too much emphasis on current profits and dividends. P. Williams (1991) made a similar type of comment when he argued that the market wanted no surprises, instead requiring quality of earnings and steady year on year growth.

From what has been said above it can be argued that firms that make losses or have liquidity problems will be penalised disproportionately as investors attempt to balance their portfolio and maximise their short term profitability. When firms make loses, all other things being equal, it will have an impact on that firm's liquidity. Most firms are not cash rich, indeed as J. Ball (1991) has argued cash rich firms tend to be seen as wasteful. This means that for many of these firms, there could be problems of maintaining the dividend payment (let alone increasing it) in the short term and inflation would tend to make this problem worse. It may of course be possible for these firms to increase their borrowing but this has implications for profitability and increases the risk of the equity shareholders as the gearing is increased.

At the same time the legal ability of a firm to pay dividends is being eroded. Firms can only pay dividends out of distributable profits, which can be defined

as accumulated realised profits, less accumulated realised losses. It follows that as losses are made the reserves which are available for dividends will be reduced so potentially restricting dividends in the short term.

Taxation is another factor that can cause problems, at least in the short term. If previous year's profits have not been heavy enough then any tax losses have to be carried forward to be offset against future profits i.e.. losses may end up gross whereas profits are net of tax. When companies pay dividends they pay them net and have to pay to the Inland Revenue Advanced Corporation Tax (A.C.T.). This can be offset against any corporation tax payable but cannot be carried back more than six years. Companies that make losses but continue to pay dividends might therefore be unable to claim back the A.C.T. (which can be considerable) until such time as they begin to make taxable profits and even then statutory restrictions might limit the amount claimable in any one year. This can have a major impact on a firm's cash flow.

From the above arguments it can be said that companies which make losses or have liquidity problems will properly be viewed by the market differently from profitable companies and it is for this reason that only profitable companies have been included in this research.

On examining the 10 companies that were eliminated from the data set the following was found

Three companies had earnings per share and dividends which fell around 1992 and all have since shown improvements. One company whose earning per share fell in 1992 had by 1995 recovered and

improved on its position before the fall. Its dividend had also improved to almost its previous position. Another had started to recover (Earning Per Share and Dividends) by 1994 and continued the recovery in 1995. The third has been making steady progress since the fall in 1992 in both Earning Per Share and Dividend up to and including 1994 (at the time of writing the 1995 accounts were not available)

One company's Earning Per Share and Dividend fell in 1993 regained their former position in 1994 but fell again in 1995.

Three companies whose Earning Per Share and Dividend had fallen had not recovered.

One company, which is involved in the production of submarines, warships, armaments and combat systems has had steadily increasing Earning Per Share and Dividend. It can be argued, however, that this company is heavily dependent on government policy and is not operating in a free market.

One company is involved in the brewing industry and here again there has been government involvement with regard to companies that both brew beer and have retail outlets. The companies Earning Per Share and Dividend fell in 1994 and improved only slightly in 1995.

One company is a utility company and prior to 1991 had no share capital. Its Earning Per Share and Dividends have tended to fluctuate going up in 1993 down in 1994 and then up again in 1995 (although not reaching the 1992/93 level). This company as with the previous

two has been subject to government involvement and is not operating in a free market.

On examining the 23 companies that were included in the data set the following was found

Eighteen companies were showing, in general, increasing dividends and earnings per share.

Eleven of these companies had dividends that had been increasing year on year. Their Earning Per Share was slightly more erratic with only five of these companies showing constant year on year increases. Two of the others had had a particularly good year since 1992 which had not been sustained. The other four had all had one year since 1992 when their Earning Per Share had fallen. One of these had more than doubled by 1994 only to fall back slightly in 1995 and only one had a negative EPS (in one year). All of these companies had increased their EPS, in many cases substantially between 1992 and their latest published accounts.

Of the seven other companies dividends had been relatively constant with only one year's drop in dividends since 1992 which in all cases was less than 1p. The Earning Per Share showed a similar picture with five of the companies falling only once, year on year, with the other two being slightly more erratic.

Five companies had a record of poor dividend and EPS.

There can doubtless be many reasons why this might be happening and yet still leave the share price above the book value of the assets. One reason which, it could be argued, might apply in the case of two of the companies is the value of the brand names. These assets are not normally recorded in conventional accounts but can be valuable in their own right. This might keep the share price high even when the company itself is performing less well.

The above analysis shows that there is evidence to suggest that reasonable grounds exist for eliminating 10 companies from the data set, so creating a sub set of 23 companies which have been used in this research. This elimination has been done on a "formula" basis and it would be unreasonable to expect a formula of this sort to eliminate all "problem" companies and indeed when the companies left in the data set were examined five performed badly but had a share price which remained above the net book value of the company's assets. It has already been argued when discussing short termism that markets are generally efficient and it therefore follows that other factors not included in the formula and maybe even individual to that company must apply. Of the 10 companies that were eliminated from the sample, it can be argued that some evidence of short termism appears to be present together with some peculiar characteristics, such as government interference. A longer period would be required to actually "prove" short termism but it can be argued that in general the companies that were eliminated have quite correctly been eliminated.

It has already been mentioned that the share prices were standardised as if they were all £1 nominal value shares and before proceeding further the basis on which the other variables were included in the calculation will be made explicit. These variables are education, experience, vigour, health and sex

and are being measured as follows

Table 11.8

Variable	Surrogate	Measurement
Education	-	% of Employees with a degree or degree equivalent
Experience	Age	Average age of workforce
Vigour	Profit	Average per employee
Health	Sick pay	Sick pay per employee (statutory)
Sex	-	% males in company

Description of variables to be measured

Profit for this purpose, has been defined as profit after tax, minority interest and preference dividend but before extraordinary items, although no preference dividends arose in this sample

In the original research design it had been envisaged that the sample be analysed into sections using the standard industrial classification in an attempt to see whether there was any difference between the different types of business. It had not, however been envisaged that the number of cases on which this research would be proceeding would be as low as 23 and it was felt that it was appropriate to review this initial objective in the light of the prevailing circumstances.

The numbers remaining in each S.I.C. code were as follows

Table 11.9

UK SIC Code	Number of Cases
3	9
4	8
6	6
	23

S.I.C. analysis of final sample

One course of action would be to attempt to increase the sample size but this was ruled out for two reasons. Firstly it had been extremely difficult to obtain the original number of cases and all possible companies, after having adjusted for gearing, had been contacted. This would mean that in order to extend the number of cases in each of the S.I.C. codes being used the gearing requirement would have to be dropped. Secondly the information required from the companies relates to 1992 and it was considered very unlikely that any would be prepared to extract this old information. This was borne out to some extent when the original information was being obtained, when some companies were refusing on the grounds that they were now using 1993 figures. This objection would also preclude the addition of other S.I.C. codes. It was, therefore, decided to continue the research with the cases that were available but to use them in aggregate.

In the process of arriving at the above decision the literature was examined to see how many cases econometricians liked to have as a minimum before they ran their tests. There is no general agreement on this but Eastman (1984) for example argues that

> "Most research uses more than 15 observations and a popular
> cut-off t-statistic occurs at the 95 percent level".
>
> (Eastman 1984 p 76)

It is therefore possible to argue that the 23 cases available for this research are a reasonable number on which to proceed. This means however that care has to be taken to see that if possible, the number of cases is not allowed to be reduced further. With this in mind it was decided that a procedure, available in many statistical packages namely the substitution of the mean in place of any missing data would be used.

Another problem that had to be overcome was to do with the fact that the data used in obtaining the share price and the companies' year-ends were different dates. All the share prices had been taken on the same date, namely Thursday 25th June 1992. This had the effect of standardising the data with regards to any external events but did mean that there could be internal factors occurring within the individual companies which might have affected the share price and hence the results.

In order to test for this The Official Index To The Financial Times 1992 was checked to see if any significant events had been reported about the companies between the 25th June 1992 and the year end of the companies. Two companies had reported major events that had or were about to happen namely a major sale of assets and the setting of a deadline for demerger. To allow for these events it was decided to omit these cases from the data and

rerun a separate regression in order to see if the basic results still held. The results of this adjustment will be discussed in the next chapter. the latter regression was however, not intended to reduce the number of cases to be used in the research which remains at 23. This is because there will, inevitably with this type of data, be some "noise" and there is no reasonable expectation of being able to make adjustments for it. Any further cases that might be dropped would be merely manipulating with the sample size.

One final problem, relevant to how the replies were used, is that in econometrics there are two approaches to building a model. Koutsoyiannis (1977) called these the "orthodox" and "experimental" approaches going on to make the point that

> "Having established his model the orthodox econometrician
> would tend to stick to it despite unfavourable statistical results"
> (Koutsoyiannis 1977 p22)

This research uses the classical (orthodox) approach as apposed to the experimental approach (which relies on variables being chosen for the final equation using backward elimination or other such statistical techniques.) Studermund (1992) is an advocate of the classical approach and indeed argues that

> "...the single most important determination of a variables
> relevance is its theoretical justification".
> (Studermund 1992 p189)

Studermund (1992) takes the above argument on to the "logical" conclusion that a theoretically important variable that is statistically insignificant should be left in the equation even if it were to make the results look bad. In contrast

backward elimination would take statistically insignificant variables out of the equation. Studermund (1992) mentions three techniques namely:-

Data mining (fishing expeditions)
Stepwise regression
and Sequential specification searches

arguing that they can potentially be used to manipulate a data set to produce almost any results by specifying different regressions until estimates with the desired properties are obtained going on to argue that these techniques are likely to mislead researchers about the statistical properties of the results. Later, when discussing an example, he states that

The example will illustrate the fact that dropping variables from a model. On the basis of t-tests alone will introduce systematic bias into the estimated equation."

(Studermund 1992 p 196)

This research looks at the human capital literature to identify characteristics which are theoretically relevant to the research, which is attempting to establish a relationship between the intangible "assets" of a firm using characteristics of the people the firm employs and the share price It does this by looking at the added value in a share price ie., the value of a share over and above the value of its net tangible assets. At the same time all other variables are kept as constant as possible. An example of this is dividends. Dividend levels can affect the value of a share as has already been explained in the section which examined the short-termisions arguments. Here it was argued that only companies with good dividends and profits should be included in the data set as other companies were used as "gambling chips" which distorts the price. This research does not directly take dividends into

account but it does exclude "bad" dividends from the data set eliminating much of the distortion. On top of this it can be argued that it is employees who decide dividend policy. Their impact on the share price is being assessed, via their characteristics, so that to include any other adjustment for dividends would be "double accounting" as good employees should make good decisions on dividends and therefore using dividends is a separate way of building up an equation not directly related to the

NET TANGIBLE ASSETS + VALUE ADDED = SHARE PRICE

model.

The use of a sub-sample to get rid of nuisance variables, in this case poor dividends and poor profits, can be dealt with using Thomas (1985) when he gives the example of Engel curves.

The argument is that in the valuation of Engel curves, household size is a nuisance variable as if such a variable is included in the equation there is a problem of multicollinearity, as it will usually be correlated with total expenditure. It can be argued that in this research dividends can be regarded as nuisance variables as people make decisions about dividends and therefore they are "included" in the value of the employee characteristics. However, as has been argued elsewhere, there is a distortion which occurs due to short - termism and this has been eliminated.

Another problem with the classical approach is the problem of omitted variables. This would be suspected if there was a low Durbin Watson statistic for as Thomas (1985) has stated

" Low d-statistics are as likely to reflect

a mis- specification of the estimating

equation as they are an autocorrelated

disturbance term".

(Thomas 1985 p 200)

As will be seen later this research does not have a low d-statistic.

On a more general note Brown (1991) states

"Almost all regression models have omitted variables

because "everything depends on everything else"

in economics."

(Brown 1991 p 154)

Indeed it has been stated by Gujarati (1988) that:-

" In consumption function analysis it has been argued

by some that besides Income, wealth of the consumer

should be included as an explanatory variable"

(Gujarati 1988 p 402)

From the above two quotations it is possible to argue that the consumption function is mis-specified as are most other models.

Gujarati (1988) went on to argue that the best approach is to use only variables that directly influence the dependant variable on theoretical grounds and are not accounted for by other included variables. Indeed, it can be argued that judgement is required when specifying a model.

Studenmund (1992) for example has argued:-

" It is important to recognise that different researchers could

come up with different final equations ..."

(Studenmund 1992 p 200)

This can be illustrated by looking at Monetarists and Keynesians. Monetarists argue that it is changes in the money supply that determines (NOMINAL) GNP, while Keynesians argue that it is changes in government expenditure that affects GNP   (see Gujarati (1988)).   Another point made by Gujarati (1988) is that Occams Razor states that a model should be kept as simple as possible and that all minor/random influences should be taken up by the error term.

The above paragraphs have been implicitly arguing that modelling is an art as much as a science and indeed Brown (1991) makes this point explicitly (page 151) going on to argue

> " The model that is finally selected depends on several factors
>
> and it is ultimately a very personal decision.   Some
>
> econometricians tend to place as much or more value on
>
> economic theory as statistical criteria.   These people are
>
> inclined to leave in variables suggested by theory even
>
> if the individual t ratios are low.   They are less inclined to
>
> keep trying alternative model specifications until they hit
>
> on the one that" works". "

<div align="right">(Brown 1991 pp 153-4)</div>

In this thesis the classical approach is used, the important characteristics of employees being identified from the Human Capital literature, with all other variables being neutralised as much as possible.   It can be argued from what has been said above, that this is a valid means of proceeding and indeed according to Kennedy (1979) and Dielman (1991) the alternative procedures namely forward selection, backward elimination and stepwise regression are not always reliable.   Dielman (1991) has made the point that research has shown that these procedures can choose unimportant variables and miss important variables.

11.4 CONCLUDING REMARKS

This chapter has given details of how the questionnaires were used and how the additional information for the research was obtained. It has pointed out how the information was standardised and how, from the basic information available, a final list of companies to be included in the research was obtained.

The way in which the variables were to be to be measured has been explained and the reasons for using only aggregate data i.e. not breaking the data down into sub samples was given. It went on to explain how statistical techniques were going to be used to maintain the number of cases at this level.

It then explained how the problem of having different dates for share prices and accounting year ends was to be addressed and gave reasons why this was not going to reduce the number of cases used in the research.

Finally the classical and experimental approach to modelling were discussed and it was stated that in this research the classical approach would be used.

11.5 ENDNOTE:- BOOK-TO-MARKET RESEARCH

In section 7.3 book values were used in eliminating the tangible net asset from the share price and it can be argued that compared to market values these are poor indicators. There is however, a small body of recent literature, which will be discussed below, that argues that there is a relationship between the book value of tangible assets and stock returns.

Chan, Hamao and Lakonishok (1993) in their research using information from the Japanese stock market found that the same factors were at work as in the USA stock market and in particular stated

> "The findings which cover a broad array of both manufacturing and non manufacturing firms, reveal significant relationships between the variables and expected returns in the Japanese market. The Book-to-market ratio is the most important variable, statistically and economically. Cash flow yield also has a positive and significant impact on returns".
>
> (Chan, Hamao and Lakonishok 1993 p 63)

and Fama and French (1993) make the following points

> "But the choice of factors especially the size and book-to-market factors is motivated by empirical experience. Without a theory that specifies the exact form of the state of the variables or common factors in returns, the choice of any particular version of the factors is somewhat arbitrary".
>
> (Fama and French 1993 p 53)

and

> "Taking together the results here and in Fama & French (1992b) suggests that there is an economic string behind the size and book-to-market effect in average stock returns".
>
> (Fama & French 1993 p 55)

As can be seen from these three quotations, the variables, namely the book-to-market ratio, cash flow and size would appear to have an impact on share price although as is admitted by Fama & French (1993) there is no theory which specifies the form of the variables.

If we now turn to this research it can be argued that these "same" variables have been used in one form or another. Before proceeding, however, it must be stressed that no claim is being made that these variables are in exactly the same form or are being used in the same way but merely that there is a loose relationship between this research and the book-to-market research. Also other variables are being used in this research that are not used in the book-to market research.

The book-to-market ratio is the ratio of book equity to market equity and the above quoted research has shown that there is a relationship between this and a stock's returns. It follows from this that there is some sort of relationship between book values and share price. In this research the book equity has been deducted from the market equity as has been previously explained, and although this may seem a poor substitute for market values (of net tangible assets) it can be argued that the book-to-market research gives some justification for the use of book values.

Cash flow is another variable that is being used in the book-to-market research and although it is not being directly used in this research there is a sense in which it is at least in part being taken into account. When the share price was adjusted by the book values, companies with negative adjusted share prices and companies that made a loss during the period under review were eliminated from the data set. One of the possible reasons for companies

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having adjusted negative share prices could arguably be lack of cash flow and companies that are making losses will, all other things being equal, have a reducing cash flow. It can therefore be argued that, to the extent described this research has adjusted for some element of cash flow.

The last variable to be taken into account in the book-to-market literature is size. This is calculated using market equity. At first sight it might appear that no account of size has been taken in this research as neither market equity nor either of the other two commonly used methods namely book equity and turnover have been used to adjust for size. It can be argued, however that some of the independent variables do in an unorthodox way take size into account by reducing the variables to an amount per employee (an example of this is profit per employee) which goes some way to standardising for size.

CHAPTER TWELVE THE RESULTS

12.1 INTRODUCTION

MODEL SPECIFICATION

The theory discussed in the previous chapters' leads to the regression equation

$$\hat{Y} = \alpha + b_1 x_1 + b_2 x_2 + b_3 x_3 + b_4 x_4 + b_5 x_5 + \varepsilon$$

where		
	$x_1 =$	the male % of the workforce
	$x_2 =$	the % of the workforce with an education to degree or degree equivalent level
*	$x_3 =$	Profit per employee
	$x_4 =$	Sick pay per employee
	$x_5 =$	Average age of workforce
mean	$\varepsilon =$	Error term assumed to be normally distributed with zero and constant standard deviation
and	$Y =$	The share price in pence (standardised to £1 shares) less the book value of the net tangible assets (per £1 share)

Profit = Profit after tax, minority interest and preference dividends but before extraordinary items.

It is this equation (using the classical approach) which will be tested to see if the hypothesis can be validated mathematically.

Model Estimation (see Appendix E for results)

On running the regression the following results were obtained (to three decimal places)

$$\hat{Y} = -5571.788 + 26.854\, x_1 + 129.126\, x_2 + 0.143\, x_3 + 22.666\, x_4 + 81.178\, x_5$$

$$(-2.293) \quad (2.193) \quad\quad (1.248) \quad\quad (2.308) \quad (2.692) \quad\quad (1.654)$$

Adj R Square = .445   D.F. = 17   F = 4.523

Figures in brackets represent the t ratios

and it is these results together with their related statistics, which will be examined in this chapter.

12.2   THE REGRESSION COEFFICIENTS (b)

The true regression equation is theoretical in nature and the quantified version of this is more correctly called the estimated regression equation. This represents the "best guess" of the true regression equation and therefore the "best guess" of the true regression coefficients. These regressional coefficients show the change in the predicted value Y due to a change in X, for linear regression models this relationship is constant and equals the slope coefficient.

Regression coefficients express the unique contribution each independent variable makes to the dependent variable, all other variables being held constant. They show the change in the dependent variable for each unit change in the independent variable and it is therefore important that the units of measurement are clearly defined.

Although regression coefficients determine how much weight is given to each of the independent variables they do not show how important that independent variable is. It is the BETA values that do this and these will be examined in the next section.

Running the regression for this research produced the following regression coefficients (to three decimal places)

$X_1 = +$ 26.854

$X_2 = +129.126$

$X_3 = + \quad 0.143$

$X_4 = + \quad 22.666$

$X_5 = + \quad 81.178$

and it is these coefficients which will now be examined.

X_1 - The Male % of the Workforce

This regression coefficient indicates that a change of one percentage point in the male workforce percentage will affect the "share price" by 26.854p. A one percentage point increase resulting in an increase in the "share price" and vice versa.

No attempt has been made in this research to establish why the percentage of males in the workforce is important, although it is possible to speculate on reasons for this. The type of product could have a bearing on the type of labour required as it can be argued that certain types of production are more "suitable" to males/females. It might also be the case that females have traditionally done administrative jobs as opposed to production jobs and this might account for the difference.

From the above it can be seen that although the initial statement that a one percentage point change in the workforce will affect the "share price" by 26.854p is true it must be treated with caution as it may well be the case that there is a critical level beyond which the situation would reverse if, for example, females equate to administration; or there may be large differences between industries where production is more suitable to one sex rather than

the other.

X_2 - The Percentage of Workforce With An Education to Degree or Degree Equivalent Level

A one percentage point increase in this variable will increase the share price by 129.126p and vice versa. Here again, however caution is required as there might well be a critical level after which there is deterioration. It might well be the case that increasing the level of education indefinitely does not continue to increase the "share price".

X_3 - Profit Per Employee

The profit referred to here is the profit after tax, minority interest and preference dividends but before extraordinary items.

A £1 change in this variable will result in a 0.143p change in the share price. This appears to be a very small change but it should be remembered that this variable is larger than any of the other independent variables. It ranged from £137 to £10581 whereas the value of each of the other independent variables is much smaller, being under 100 in all cases.

X_4 - Sick Pay Per Employee

A £1 increase in this variable will result in a 22.666p increase in the "share price". At first sight this appears to be a problem as sick pay is being used in an attempt to measure how healthy the workforce is and logically it might be expected that employees that are not healthy would tend to reduce not increase the share price.

This kind of finding is not, however, new. In the Michigan Business Review, January 1969 Likert R et al was arguing against results, which indicated that poor employee attitudes were associated with high productivity. They argued that a lead time should be incorporated into the analysis. The general argument is that short term gains can be obtained from an "unhappy" workforce but that over time this will become counterproductive. It is possible to use the same type of argument with regard to sick pay.

Another possibility is that the surrogate that is being used is not measuring health but is in fact measuring welfare. That is to say that it is measuring the fact that firms are prepared to "allow" their employees to take sick leave and have a positive policy which enables employees to have adequate sick leave where necessary.

As with the arguments in the Michigan Business Review (1969) mentioned above there are no definite or easy answers to this problem and for this reason this independent variable should be viewed with extreme caution.

X_5 - Average Age of Workforce

This variable is attempting to measure experience and shows that a 1 year increase in the average age of the workforce will mean an 81.178p increase in the share price and vice versa. Again, however, it can be argued that there could very well be an optimum figure beyond which the above statement would not hold true, so that here again caution is required.

12.3 STANDARDIZED REGRESSION COEFFICIENTS - (BETA WEIGHTS)

Econometricians do not normally use BETA WEIGHTS as they are used when equations are being "manipulated" which is not of direct interest to the classical econometrician. They are, however, produced by the computer software being used in this research (SPSS) and for the sake of completeness will be discussed briefly.

In the previous section it was stated that large regression coefficients do not indicate importance. This is because they are derived from different units of measurement that cannot be directly compared with each other. In order to overcome this they are standardised by multiplying each regression coefficient by the standard deviation of the relevant independent variable divided by the standard deviation of the dependent variable.

Once this has been done the results can be compared to see which of the independent variables is the most important factor in relation to the dependent variable (beta weights show how many standard deviation units the dependent variable will change when there is a one unit change in the independent variable). It should be remembered that beta weights only give an indication of importance as can be seen from the following quotations

> "They are also affected by the correlations of the independent variables and do not in any absolute sense reflect the importance of the various independent variables".
>
> (Marija J Norusis 1983 p 167)

> "The higher the beta of an independent variable is in absolute value, the more important it is thought to be in explaining the movements in the dependent variable. Unfortunately, beta coefficients are deficient in the presence of multicollinearity ......"

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For information the beta weights in this research are

Table 12.1

Male	.383693
Education	.223925
Vigour (Profit)	.385829
Health	.438741
Age	.320790

Beta Weights

12.4 MULTICOLLINEARITY

In multiple regression equation there is an assumption that there are no linear relationships between the independent variables and before proceeding to look at some of the regression statistics this assumption will be examined and tested.

Multicollinearity arises when independent variables behave as if there is a linear relationship (either positive or negative) between them. When this occurs the variables act together, in many ways like a single variable and it is difficult to separate out the individual effects. This creates three problems.

1)   Unrealistically high standard errors are generated which can be sufficiently large to cause the statistic to be mistakenly interpreted as showing that there is no relationship between an independent variable and a dependent variable when in fact one exists (It can cause the τ statistic to be smaller than the critical τ statistic).

2)   It makes the replication of results difficult. This is because multicollinearity is a sample phenomenon as well as a theoretical one and severe multicollinearity can change from sample to sample depending on the characteristics of the sample.

3)   A minor change in the model that would normally have very small effects can generate grossly different results when there is multicollinearity present.

There are several ways of detecting multicollinearity, some of which will be discussed below.

1)   Compute the correlation coefficient looking for high coefficients as this would indicate multicollinearity. There is a problem, however, as the

relationships may not be simple but may occur when groups of independent variables correlate to other independent variables.

2) Examine the R^2 statistic and the τ statistic. A high R^2 with low τ statistics will indicate multicollinearity.

3) Examine the F statistic and the τ statistics. A high F statistic and low τ statistic will indicate multicollinearity.

4) Run a tolerance test on the data.

This test shows

"the proportion of variability in an independent variable not explained by the other independent variables. It is calculated as $1-R^2_i$ where R^2_i is the squared multiple correlation when the ith independent variable is considered the dependent variable and the regression equation between it and the other independent variables is calculated".

(Marija J Norusis 1988 p 176)

If the tolerance test is close to zero then the chances of multicollinearity are high, if close to one, multicolliniarity is unlikely.

5) Run a V.I.F test (Variance Inflation Factors). The V.I.F test is the reciprocal of the tolerance test and therefore a high V.I.F. indicates high multicollinearity.

Statistics on muticolliniarity, produced by the last two tests above are not automatically given by SPSS but are available and have been obtained. The results are as follows:

Table 12.2

	Tolerance	V.I.F	
Male	.824391	1.213	
Education	.784627	1.274	
Vigour	.903029	1.107	
Health	.950397	1.052	
Age	.671072	1.490	

Results of V.I.F. and Tolerance tests

There is no agreement as to cut off values for multicollinearity but it can be seen from the above that none of the tolerance tests is close to zero suggesting that multicollinearity is unlikely. As the V.I.F. is the reciprocal of the tolerance test it also confirms the unlikelyhood of multicollinearity. Studenmund (1992) argues that severe multicollinearity should be suspected if the V.I.F. is greater than 5 or greater than 10 (the most frequently used values). This shows the extent to which there is disagreement about the cut off value but as can be seen from the figures above the highest V.I.F. in this research is 1.490 well below the lowest of the two cut off values used as benchmarks.

12.5   HETEROSCEDASTICITY AND AUTOCORRELATION

The data was then tested to see that a problem did not arise due to Heteroscedasticity i.e. the data was tested to see that it was homoscedastic (the disturbance terms all having the "same" variance). This was done by plotting the standardized residuals against the predicted values using SPSS. the resulting graph is shown below and indicates that the data does not suffer from heteroscedasticity (See Appendix F).

Table 12.3

```
3 -              -
  I              I        Symbols
  I              I        Max N
  I              I
2 -       .      -
  I              I        .    1.0
  I      .       I        :    2.0
  I              I
1 -     . .      -
  I        .   . I
  I      .       I
0 -      . :     -
  I        :.    I
  I        : .   I
-1 -        . . .    -
  I         .  ..    I
  I              I
-2 -              -
  I              I
  I              I
-3 -              -
Out  -2  -1   0   1   2   3 Out
```
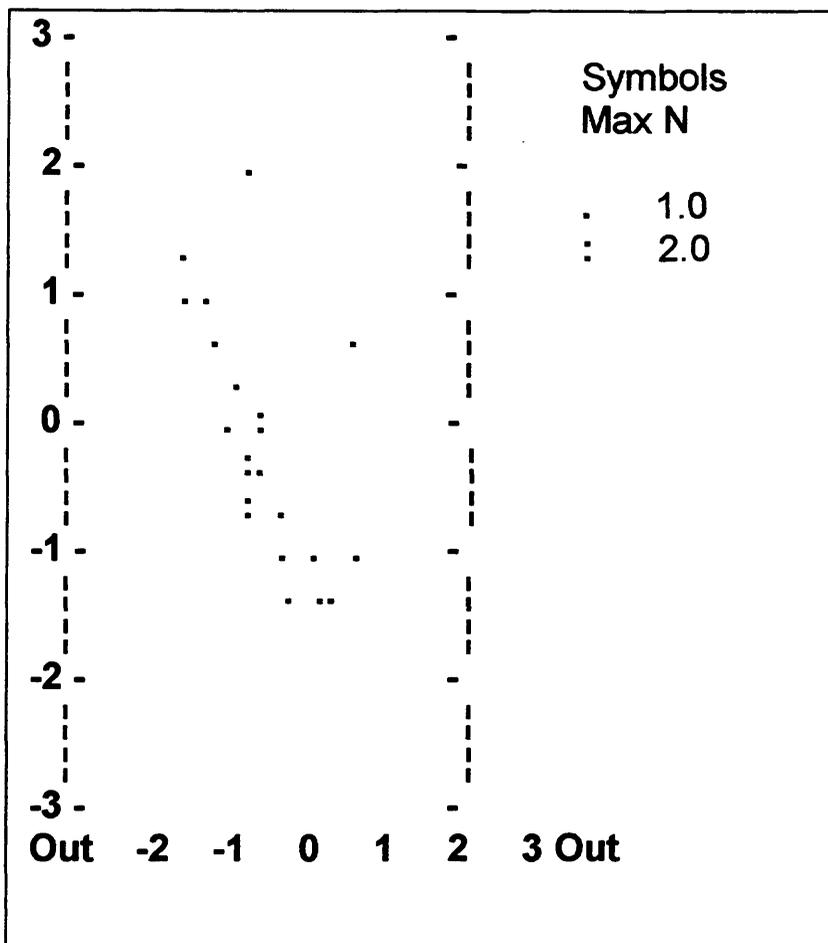
Plot of Standardised residuals against predicted values.

It does, however, raise another problem as the data does appear as if it might suffer from autocorrelation, a problem more normally associated with time

series data, as the order of the observation appears to have some meaning, positive residuals being followed by positive residuals and negative residuals by negative residuals.

Gujurati (1988) has defined autocorrelation as

> "correlation between members of series of observations ordered in time [as in time series data] or space [as in cross sectional data]"

> (Gujurati 1988 pp 353/4)

This quotation clearly states that cross sectional data can suffer from autocorrelation and as there is some indication that it might be present in this data, the possibility requires examination.

A Durbin-Watson test was therefore carried out and a d statistic of 1.67392 was obtained (see Appendix G). This would seem to indicate following McLagan (1973) that there was no serious autocorrelation as he argues that

> "Generally if the Durban-Watson Statistic is between 1.5 and 2.5 there is no serious autocorrelation in a regression equation".
> (McLagan 1973 p 43)

The critical values of the Durban-Watson test statistics dl & du were then checked at the 10% and 5% levels of significance, using a two tail test.

At 10%   dl = 0.90   du = 1.92

At 5%   dl = 0.80   du = 1.80

It can be seen from the above that the results are inconclusive the decision rule being if dl $\leq$ d $\leq$ du results are inconclusive and this is the case in this instance.

A possible explanation for the apparent autocorrelation shown in the graph could be that in order to obtain sufficient cases to continue with this research 3 SIC Codes which originally were going to be dealt with separately have been amalgamated and any difference between these have not been adjusted for in the equation. In order to test for this the predicted and residual values were calculated for the SIC codes namely:-

Sic Code 3   Metal Goods Eng. and Vehicle Industries

Sic Code 4   Other Manufacturing Industries

Sic Code 6   Distribution, Hotels and Catering, Repairs

with the results which appear on the following page.

<u>Table 12.4</u>

Sic Code	Predicted	Residual
3	1116.25	- 941.25
3	841.61	- 751.61
3	557.96	- 397.96
3	965.15	- 585.15
3	90.79	- 15.79
3	- 286.48	883.48
3	1707.74	- 714.74
3	1862.49	- 863.49
3	1304.87	- 668.87
4	- 580.00	823.00
4	3520.26	2199.74
4	1515.16	- 982.16
4	623.91	- 205.91
4	5.40	547.60
4	534.60	- 473.60
4	487.39	- 378.39
4	544.97	98.03
6	323.85	1013.15
6	- 382.13	709.13
6	402.02	338.98
6	437.46	- 202.96
6	1953.58	527.42
6	548.63	41.37

Residual values by SIC code

From the above it can be seen that

for S.I.C. Code 3   9 cases produce 8 negative and 1 positive residuals
for S.I.C. Code 4   8 cases produce 4 negative and 4 positive residuals
For S.I.C. Code 6   <u>6</u> cases produce 1 negative and 5 positive residuals
                23
                ==

In other words S.I.C. Code 3 is tending to produce negative residuals, SIC Code 4 both negative and positive residuals and SIC Code 6 positive residuals and this might account for the apparent autocorrelation shown in the graph.

From the above it appears that both the slope and the intercept of the equation may differ for the three s.i.c. codes. In order to test for test for this dummy variables can be included in the equation. This test however requires a relatively large number of degrees of freedom. In this research after placing the dummy variables in the equation, only five degrees of freedom remain which is not sufficient to run this statistical test. An examination of table 12.4, however, shows as has already been stated, a strong pattern emerging between s.i.c. codes and this is an area for further research.

12.6 THE τ - STATISTIC

The τ - STATISTIC usually tests whether a particular regression coefficient is significantly different from zero when the form of the test is

$$\tau k = \frac{\hat{\beta k}}{SE\,(\beta k)}$$

When $\hat{\beta k}$ $\quad$ = the estimated regression coefficient of the kth variable

$SE\,(\hat{\beta k})$ $\quad$ = the estimated standard error of βk

In other words it is the estimated coefficient divided by the estimate of its standard error. A high τ-statistics indicates that it is unlikely that there is no relationship between the dependent and independent variables. This means that it is desirable to have a large + or - τ-statistic for each independent variable.

One way of using τ-statistic is to set a critical τ value thus specifying the level of significance and hence the level of type I errors that the researcher wishes to use as a cut off.

NB there are both type I and type II errors

Table 12.5

	NULL TRUE	**NULL FALSE**
REJECT NULL	TYPE I ERROR	,
ACCEPT NULL	,	TYPE II ERROR

Effect of Type 1 and Type 2 Errors on Null Hypothesis

It should be remembered that by reducing the chances of making a type I error (by using a more stringent level of significance) the chances of making a type II error are increased. This means that a 1% level of significance is not "better" that a 5% level of significance as reducing the chance of a type I error has increased the chance of a type II error. The level of significance can also be expressed as a level of confidence, a 5% level of significance being equal to a 95% level of confidence. Researchers do not have to choose a level of significance but can instead use the statistics descriptively, stating the highest degree of confidence possible for any given estimated regression coefficient.

Before proceeding to look at the results it is important to state what the τ-statistic does not test.

It does not test

    1)   Theoretical validity

    2)   Importance

or   3)   Entire populations (it tests only a sample of the population)

SPSS prints out two statistics, the τ values and their probabilities (SIG T) which for this research were as follows (using a two sided τ-test)

Table 12.6

	T	SIG T
Male	2.193	0.0425
Education	1.248	0.2288
Vigour	2.308	0.0339
Health	2.692	0.0154
Age	1.654	0.1165
(Constant)	-2.293	0.0349

T and SIG T Values

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As can be seen from the above, three of the independent variables namely Male (4.25%) Vigour (3.39%) and Health (1.54%) are significant at the 5% level and less. This means that on 5% of occasions we are likely to make a type 1 error and say that the null hypothesis (no relationship between dependent and independent variable) should be rejected when in fact it is true. The remaining variables are age at 11.65% and education at 22.88%. With regard to the first of these, age, (at a significance level of 11.65%) it is worth pointing out that although 5% and 1% significance levels are probably the most common, a 10% level, to which this result is close is not abnormal. It can be argued, however, that a 5% significance level is probably the most commonly used followed by a 1% significance level a 10% significance level, is also used. J. J. Foster for example has stated that

> "You may well ask why we use 5%; and the answer is that it is merely convention. We could use 10% (.10), 1% (.01) .5% (.005)".
>
> (Foster 1993 p 256)

Education is significant at 22.88% and as such is outside the "normally used" significance levels but as has already been pointed out the τ-statistic does not test theoretical validity. If the classical approach was not being used the significance level for education would mean that it could be dropped from the regression without increasing (substantially) the standard error of the regression and if the "best equation" was being sought the τ-statistic would indicate that education should be dropped from the equation.

This research however is based on theory and as has been shown in Chapter 4 the human capital literature in economics as well as the human resource accounting literature argues that education is an important characteristic and this argument remains valid even though education is not statistically

significant, in this research. Therefore, because education is a theoretically valid characteristic, even though not a statistically significant one it should remain as part of the regression equation.

12.7 THE F TEST OF OVERALL SIGNIFICANCE

The F Test can be thought of as a global test designed to assess the overall fit of the regression. It is testing to see whether the fit of the equation is significantly better than that provided using the mean alone. This test is a direct function of R^2 which means that the larger the R^2 the larger the $\overline{F}$ ratio. It differs from R^2 and R^2 in the sense that while these two measures provide an assessment of the overall degree of fit of an equation they don't provide a formal hypothesis test of the level of significance of the overall fit.

Formally the F test is the ratio of the explained sum of squares (ESS) to the residual sum of squares (RSS) adjusted for the number of independent variables (K) and the number of observations in the sample (n)

$$F = \frac{ESS/K}{RSS/(n-k-1)}$$

With only one independent variable the F test and t -test will give identical answers (Studenmund 1992). As with the t-test researchers do not have to set a critical F Value but can instead use the statistics descriptively.

The F statistics, produced using SPSS, for this research are as follows

F= 4.52279

SIGNIF F = 0.0084

This means that the overall significance of the regression is better than 1% and this implies that the independent variables are useful in explaining the variation in the dependent variable.

12.8   THE COEFFICIENT OF MULTIPLE CORRELATION (R) AND THE COEFFICIENT OF MULTIPLE DETERMINATION (R^2)

In a linear model with 2 variables the measure of association between these variables is r, the coefficient of correlation. Where as in this research, there are more than 2 variables then it is R, the coefficient of multiple correlation, that measures the degree of association between the dependent variable and the joint independent variables. It is calculated by taking the $\sqrt{R^2}$ and is therefore always taken as a positive figure (with a range from zero to 1) whereas the coefficient of correlation r can be either positive or negative and can range from -1 to +1. A 1 indicates perfect (linear) correlation and zero indicates no (linear) correlation. It can be argued, however, that R is of little importance as R^2 is a more meaningful statistic which indicates how well the model "performs" R^2 being a measure of "goodness of fit" a high R^2 is often seen as a "good fit" (Kennedy 1979). The coefficient of correlation on the other hand means co-movement rather than explanatory power and it measures how the variables move together.

The coefficient of multiple determinant (R^2) is the proportion of the variation in the dependent variable which is explained by the variation in the independent variables (assuming a linear relationship). In order to calculate this, the total variation in the dependent variable is broken down into two parts, the explained variation and the unexplained variation.

In order for this breakdown to be valid there are three conditions which must be satisfied

1)   The estimation must be the OLS estimator

2)   The relationship must be linear

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3)   The relationship being estimated must include a constant or intercept term (see Kennedy 1979 p 25)

If the above hold as they do in this research, then the total variation of the dependent variable about its mean called SST (Total Sum of Squares) can be calculated by $\Sigma(Y-\overline{Y})^2$, the explained variation SSR (Regression Sum of Squares) by $\Sigma(\hat{Y}-\overline{Y})^2$ and the unexplained variation SSE (Error Sum of Squares) by $\Sigma(Y-\hat{Y})^2$.

R^2 can then be calculated as either

$$R^2 = \frac{SSR}{SST}$$

or $$R^2 = 1- \frac{SSE}{SST}$$

It follows from the above that the closer the estimated Y ($\cdot$) is to Y the better the fit of the equation or in other words high R^2 occur when data points lie near an estimated regression line.

From what has been said it might be supposed that a search should be made for the highest R^2 but this would lead to too many variables being added to the equation. The reason for this is that adding variables to an equation can never cause R^2 to fall only to rise. This can be corrected by taking account of the degree of freedom and calculating an adjusted R^2 which as Kennedy (1979) has pointed out is used by practically all researchers in place of the unadjusted R^2. The unadjusted R^2 is of limited use to researchers.

The coefficient of multiple correlation (R) and the coefficient of multiple

determination (R^2) calculated for this research are

Multiple R   .75555

R Square   .57086

Multiple R is a measure of how closely associated the true value of Y is with the points on the regression line 1 being equal to a perfect fit. It is however, dangerous to use this figure as an indication of goodness of fit as it tends to give a misleading picture. A multiple R of .6 for example could erroneously be interpreted as providing a reasonable fit whereas in reality it only explains 36% of the variation in the dependent variable. The multiple R in this research is .75555 and therefore explains 57% of the variation in the dependent variable and it can be argued that using the percentage of variance explained (R^2) is a preferred measure.

This research has an R^2 of .57086 which is stating that 57.086% of the variation in the dependent variable is explained by the variation in the independent variables. It should be stressed that this figure is a measure of fit not predictive ability and that in fact the R^2 will generally overstate the regression equations predictive ability.

Arguments have already been put forward stating that both of the above measures have little use in practice as most econometricians prefer to use the adjusted R^2 that will be examined next.

12.9 THE ADJUSTED R^2 $(\overline{R}^2)$

The R^2 can be increased in value simply by adding more independent variables, even if the additional variables are totally irrelevant. This means that by adding additional variables the regression will always show a better (or equal) fit as measured by R^2. The solution to this problem is to adjust the R^2 for the degrees of freedom so reducing the likelihood that increases in value of the coefficient of multiple determination arise simply because of the increase in the number of independent variables. When this adjustment is made it becomes possible for the coefficient of multiple determination to fall when the additional explanatory power of the addition variable is more than compensated for by the adjustment process. In fact one indication that an independent variable is irrelevant (in statistical terms) is if the adjusted R^2 falls when it is included. This does not of course imply that the variable is not theoretically important. Because of the above advantages it can be argued that most researchers use the adjusted R^2 in preference to the R^2.

The adjusted R^2 in this research is 44.464% which compares with an R^2 of 57.086. This would arguably still be considered by most researchers to indicates a reasonable measure of fit as 44.464 of the variation in the dependent variable is explained by the variation in the independent variables. As in the previous section it must be stressed that this is a measure of fit and not predictive ability.

12.10 THE STANDARD ERROR OF THE REGRESSION AND THE

STANDARD ERROR OF THE COEFFICIENTS

The standard error of regression is a measure of how close the fitted values, calculated for the sample, are to the actual values and it provides information about the predictive power of the model. For this purpose it is desirable to have a standard error of regression that is as small as possible although it must be remembered that the size of the standard error of regression on its own is not important, it is its size relative to the mean of the dependent variable that is important. The larger the distance from the mean the greater the standard error will be. Another point worthy of note is that the prediction of dependent variable values far from the mean will have a much greater probability of being incorrect.

It can be seen from the above that the smaller the ratio of the standard error of regression to the mean (of the dependent variable) the greater is the predictive power of the model. The predictive power can be assessed as follows

IN 67% of the historic observations, the estimate is within ±1 Standard Error of The Actual.

IN 95% of the historic observation, the estimate is within ±2 Standard errors Of the Actual.

IN 99% of the historic observation, the estimate is within ±3 Standard Errors of the Actual

(See D L McLagan 1973 p 40)

The standard error of regression in this research is 894.485 and the mean of the dependent variable is 786.804 and it can be seen from these figures that the model is of "no use" for predictive purposes.

The standard error of the coefficient gives an estimate of the range in which the coefficient may actually be. It is "related" to the t-statistic and indicates how significant each independent variable is in explaining the dependent variable. If the standard error of the coefficient is small relative to the estimated coefficient then the variables are statistically significant and vice versa.

The standard error of the coefficient in this research is

Male   12.247

Education   103.433

Vigour   0.062

Health   8.420

Age   49.081

and as has been explained above these figures can be used to gauge how significant each independent variable is in explaining the dependent variable. As this has already been discussed in the more "formal" t-statistic no further discussion is necessary.

12.11 THE ADJUSTED DATA SET

For reasons explained in the previous chapter, two cases were excluded from the data set and the regression was rerun to see if the model still held. In this section the new regression results will be compared with the original result (which remain the focus of this research) and the main statistics will be examined.

Model Estimation

Original

$\hat{Y}$ = - 5571.788 + 26.854 X1 + 129.126 X2 + 0.143 X3 + 22.666 X4 + 81.178 X5

(-2.293)   (2.193)   (1.248)   (2.308)   (2.692)   (1.654)

ADJ R Square = .445   D.F. = 17   F = 4.523

Adjusted

$\hat{Y}$ = -6658.873 + 31.708 X1 + 208.132 X2 + 0.117 X3 + 22.488 X4+ 97.549 X5

(-2.588)   (2.451)   (1.773)   (1.780)   (2.603)   (1.914)

ADJ R Square = .475   D.F. = 15   F = 4.614

Figures in brackets represent the t ratio

where

X1 =   The male % of the workforce

X2 =   The % of the workforce with an education to degree or degree equivalent level

X3 = Profit per employee

(When profit equals, profit after tax, minority interest and preference dividends but before extraordinary items)

X4 = Sick pay per employee.

X5 = Average age of workforce

and $\hat{Y}$ = the estimated share price in pence (Standardised to £1 shares) less
the book value of the net tangible assets (per £1 share)

The regression coefficients are as follows

Table 12.7

	ORIGINAL	ADJUSTED
X1	26.854	31.709
X2	129.126	208.132
X3	0.143	0.117
X4	22.666	22.488
X5	81.178	97.549

Regression Co-efficient

And the constant has changed from -5571.788 to -6658.873. It can be seen
that the signs have remained constant and the related statistics will now be
examined to see if the model remains valid.

The Beta Weights give an indication as to which of the independent variables
are the most important and the results are

Table 12.8

	Original	Ranking	Adjusted	Ranking
Male	.383693	3	.446599	1
Education	.223925	5	.332550	4
Vigour	.385829	2	.311551	5
Health	.438741	1	.433588	2
Age	.320790	4	.386906	3

Beta Weightings of Independent Variables

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These results are somewhat disappointing showing as they do a change in the importance of male and vigour (if these were excluded the other three would maintain their rankings). The reason for this shift is not immediately obvious but will become more apparent when some of the other statistics are examined.

The tolerance and V.I.F. tests for multicollinearity yield

Table 12.9

| | TOLERANCE | | V.I.F | |
	ORIGINAL	ADJUSTED	ORIGINAL	ADJUSTED
Male	.824391	.791405	1.213	1.264
Education	.748627	.745459	1,274	1.341
Vigour (Profit)	.903029	.857671	1.107	1.166
Health	.950397	.946913	1.052	1.056
Age	.671072	.643104	1.490	1.555

Tolerance and V.I.F. Tests

And confirm the previous findings that the presence of multicollinearity is unlikely.

The t-Statistic gives the following results

Table 12.10

| | T | | SIG T | |
	ORIGINAL	ADJUSTED	ORIGINAL	ADJUSTED
Male	2.193	2.451	0.0425	.0270
Education	1.248	1.772	0.2288	.0968
Vigour	2.308	1.780	0.0339	.0953
Health	2.692	2.603	0.0154	.0200
Age	1.654	1.914	0.1165	.0748
Constant	-2.293	-2.588	0.0349	.0206

T and SIG T Results

and as can be seen from the above of the three original independent variables which were significant at the 5% level (male, vigour and health) two (male and health) remain significant at this level while the other (vigour) moves from its original significance level of 3.39% to 9.53%. Both of the remaining variables have reduced their significance levels, age from 11.65% to 7.48% and education from 22.88% to 9.68%. It can be seen from the above that all of the variables are significant at the 10% level and two at the 5% and in general terms it can be argued that the model is still supporting the original hypothesis.

When the Beta Weights were examined it was found that some rankings had changed and now it can be seen that some of the significance levels have altered quite sharply. The reason for this is not multicollinearity as tests have shown that multicollinearity is unlikely. On examination of the raw data however, it can be seen that the ranges of the data differ greatly and it is this that is causing the volatility. One example (which had caused "problem" in both tests) is vigour. This is because the data ranges from £137 to £10,581 with all the other independent variables being under 100 at the same time the coefficient for vigour is 0.143 (0.117 adjusted) which is very low relative to the other coefficients and it is this spread in the range of both the data and the coefficient which is causing the volatility.

The F-Test gives the following statistics

Table 12.11

F		SIGNIF F	
ORIGINAL	ADJUSTED	ORIGINAL	ADJUSTED
4.52279	4.61435	.0084	.0095

F Test results

and it can be seen that although there has been a slight movement in the significance it is still significant at the 1% level implying that using the adjusted data the independent variables are still seen to be useful in explaining the variation in the dependent variable.

The adjusted R^2 for this research is

Table 12.12

Original	Adjusted
44.464%	47.468%

R^2 Statistics

which means that the adjusted data shows a slight "improvement" in the measure of fit as now 47.468% of the variation in the dependent variable is explained by the variation in the independent variable.

The standard error of the regression is as follows

Table 12.13

Original	Adjusted
894.485	898.433

Standard Error of regression

and it can be seen that there is very little change here confirming the finding of the original results that the model cannot be used for predictive purposes.

12.12 SUMMARY

This section set out to examine a reduced data set which had been adjusted to remove companies which had had significant events reported between the date used for the share price and the accounting year end that was chosen for this research. From the results obtained and the above discussion it can be argued that in general terms the model still holds.

CHAPTER THIRTEEN - THE EFFECT OF LAYOFFS ON THE FIRMS SHARE PRICE

13.1 INTRODUCTION

This research assumes a stock of human resources is required by a firm and that as physical assets become less important in many firms, due to the rise of technology, human resources become more important and therefore deserve some attention. Writers such as Grant (1998), Collis and Montgomery (1995), Mahoney and Pandan (1992), Collis (1991) and Haltinager (1984) have explicitly and/or implicitly referred to this stock for example

> "Identifying and appraising the stock of human capital is....."
>
> (Grant 1998 p117)

> "....its accumulated resource (or factor) stocks........"
>
> (Collis 1991 p 50)

> "This motivation for long-term worker-firm attachments makes for interesting interaction between stock adjustments (permanent layoffs and new hires)....."
>
> (Haltwinger 1984 p 525)

One way of examining this concept is by way of an event study, using layoffs. It can be argued that layoffs can occur for different reasons and therefore different market reactions to these announcements might be expected.

> "If the sample is dominated by pure efficiency-motivated cost cuts, we expect stock prices to rise (on average)........If the sample is dominated by cost cuts that arise from decreased demand, we expect stock prices to decline (on average)."
>
> (Lin & Razeff 1993 p 31)

However as Faber and Hallock (1999) point out when discussing the suggestion that stock prices increase around the time of job loss announcements.

There is

> "......a growing body of empirical work that finds fairly consistent
> negative reactions of stock prices to announcements of reductions
> in the labor force (RIFs)."
>
> (Faber and Hallock 1999 p1)

This chapter will examine the behaviour of share prices, around the time when

layoffs are announced.   It will divide the layoffs into those reported as being

due to reductions in demand and those reported as being due to an attempt at

improving efficiency.   From what has already been said it would seem

reasonable to hypothesis that, ignoring for the moment Faber and Hallock ,

1999, layoffs that are reported as being for efficiency reasons would result in

an increase in the share price, whilst those that are reported as being due to a

decrease in demand would result in a reduction in the share price.

Elayan et al (1998) examine the efficiency hypothesis and the declining

investment opportunities hypothesis and find that layoff announcements

reveal negative information about a firm

> "...perhaps indicating that the firm has fewer investment or growth
> opportunities...."
>
> (Elanan et al 1998 p 348)

going on to argue

> "Firms which rely more heavily on human capital are more sensitive
> to an alteration in human capital and are more adversely affected
> by layoff announcements....."
>
> (Elayan et al 1998 p 349)

and
> "a negative market reaction to layoff announcements does not
> necessarily imply that the layoff is an ineffective method to increase the
> efficiency of the firms"
>
> (Elayan et al 1998 p 336)

From these last quotations it is possible to argue that at least part of the explanation for the negative returns might be the reduction in stock of human resources, and that this is in line with the Faber & Hallock 1999 quotation given previously in this section.

13.2 DATA COLLECTION

The layoff announcements were obtained using a data base, PROQUEST NEWSPAPERS, for the period January 1992 to June 1999 inclusive. This information was split into two categories depending on whether the layoffs had been reported as being due to a reduction in
demand or for reasons of efficiency. Another data base, SEQUENCER, was used to obtain the daily share prices which were gathered for sixty days before and sixty days after the date that the event was first announced in the press (ie., 121 days share price were obtained for each company).

At the same time the FT-SE 100 ALL SHARE INDEX information was obtained for the same period. This resulted in a total sample size of forty three companies which consisted of nineteen companies which had announced that they were laying people off because of reduced demand for their product/s and twenty four companies which announced that they were laying people off in order to increase efficiency.

13.3 <u>METHODOLOGY</u>

In line with the normal practice in event studies the abnormal returns were measured for fifty nine days before the reported event and sixty days after the event taking the day of the announcement as day zero. The formula for this is

$$AR.i.t. = Ri.t. - ERi.t.$$

where   Ri.t.   = the daily return on security
i. on day t and is defined as

$$R\,i.t. = \frac{P\,i.t - P\,i.t - 1}{P\,i.t. - 1}$$

(P i.t   being the closing price of security i. at time t.)
and ER i.t.   = the daily return of the market (calculated in the same manner as R i.t.

and when AR = the abnormal return.

From this a daily average abnormal return was calculated for fifty nine days before the announcement, day zero (the date the announcement was first published) and sixty days after the announcement. The formula for this being

$$AAR\,t = \frac{\sum_{i=1}^{n} ARi.t.}{n}$$

where AARt = the average abnormal return on stock at time t

And   n   = the number of securities in the sample

From.this the cumulative average abnormal return was calculated (CAAR) as was the standard deviation (σAARt) and from this a t- stastic was calculated using the formula:

$$t = \frac{AARt}{\sigma AARt \Big/ \sqrt{n}}$$

To test whether AARt is significantly different from zero.

The result of these calculations can be seen in the following tables numbered 13.1 and 13.2.

Table 13.1 The behaviour of share prices around the announcement date: DEMAND

Day	AAR	CAAR	StdDev	t Test	+ve	Zero	-ve	Total
-59	0.0041	0.0041	0.0263	0.6773	7	2	10	19
-58	-0.0124	-0.0083	0.0316	-1.7066	7	1	11	19
-57	0.0039	-0.0044	0.0166	1.0136	9	0	10	19
-56	0.0050	0.0006	0.0164	1.3331	10	0	9	19
-55	-0.0021	-0.0015	0.0299	-0.3063	10	1	8	19
-54	0.0044	0.0029	0.0183	1.0430	9	1	9	19
-53	0.0014	0.0043	0.0147	0.4241	11	0	8	19
-52	-0.0277	-0.0234	0.1014	-1.1912	9	1	9	19
-51	0.0069	-0.0165	0.0259	1.1607	9	2	8	19
-50	0.0015	-0.0151	0.0149	0.4280	8	1	10	19
-49	-0.0011	-0.0162	0.0242	-0.2032	7	0	12	19
-48	0.0000	-0.0161	0.0177	0.0117	7	0	12	19
-47	-0.0001	-0.0163	0.0275	-0.0173	9	1	9	19
-46	0.0081	-0.0082	0.0299	1.1781	12	0	7	19
-45	0.0095	0.0013	0.0253	1.6395	11	0	8	19
-44	-0.0030	-0.0016	0.0178	-0.7294	5	1	13	19
-43	-0.0074	-0.0090	0.0213	-1.5120	9	1	9	19
-42	-0.0174	-0.0264	0.0450	-1.6886	3	1	15	19
-41	-0.0046	-0.0310	0.0252	-0.7898	9	1	9	19
-40	0.0002	-0.0308	0.0153	0.0468	12	0	7	19
-39	0.0082	-0.0227	0.0236	1.5034	14	0	5	19
-38	0.0026	-0.0201	0.0184	0.6077	14	0	5	19
-37	0.0048	-0.0154	0.0220	0.9436	6	1	12	19
-36	-0.0024	-0.0178	0.0249	-0.4210	9	1	9	19
-35	0.0013	-0.0165	0.0158	0.3494	12	0	7	19
-34	-0.0115	-0.0280	0.0135	-3.7108	4	0	15	19
-33	0.0012	-0.0269	0.0218	0.2369	11	0	8	19
-32	0.0040	-0.0229	0.0224	0.7719	10	0	9	19
-31	-0.0003	-0.0232	0.0231	-0.0622	9	0	10	19
-30	-0.0040	-0.0272	0.0126	-1.3727	8	1	10	19
-29	-0.0077	-0.0349	0.0241	-1.3904	7	0	12	19
-28	0.0042	-0.0307	0.0147	1.2403	11	1	7	19
-27	-0.0053	-0.0360	0.0190	-1.2052	9	1	9	19
-26	0.0015	-0.0344	0.0202	0.3312	11	2	6	19
-25	0.0085	-0.0260	0.0186	1.9891	12	1	6	19
-24	-0.0040	-0.0300	0.0109	-1.5967	7	1	11	19
-23	-0.0013	-0.0313	0.0201	-0.2840	7	3	9	19
-22	0.0020	-0.0293	0.0196	0.4377	8	1	10	19
-21	0.0000	-0.0293	0.0160	-0.0119	9	0	10	19
-20	0.0000	-0.0294	0.0158	-0.0123	10	0	9	19
-19	-0.0017	-0.0310	0.0241	-0.2998	9	2	8	19
-18	0.0014	-0.0296	0.0150	0.4184	12	0	7	19
-17	-0.0040	-0.0336	0.0175	-1.0050	8	0	11	19
-16	-0.0016	-0.0352	0.0259	-0.2643	9	0	10	19
-15	-0.0032	-0.0384	0.0174	-0.8013	6	1	12	19
-14	0.0019	-0.0365	0.0213	0.3864	9	1	9	19
-13	-0.0033	-0.0398	0.0232	-0.6162	7	0	12	19
-12	-0.0064	-0.0462	0.0180	-1.5619	6	1	12	19
-11	-0.0036	-0.0498	0.0293	-0.5319	9	0	10	19
-10	0.0046	-0.0453	0.0205	0.9731	10	2	7	19
-9	-0.0112	-0.0565	0.0321	-1.5191	7	1	11	19

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Table 13.1 DEMAND Continued

Day	AAR	CAAR	StdDev	t Test	+ve	Zero	-ve	Total
-8	0.0113	-0.0452	0.0192	2.5563	14	0	5	19
-7	-0.0047	-0.0499	0.0167	-1.2295	10	0	9	19
-6	0.0032	-0.0467	0.0191	0.7400	10	0	9	19
-5	0.0029	-0.0438	0.0147	0.8544	7	0	12	19
-4	-0.0061	-0.0499	0.0192	-1.3906	9	0	10	19
-3	-0.0016	-0.0515	0.0167	-0.4242	8	1	10	19
-2	-0.0077	-0.0592	0.0210	-1.5957	9	0	10	19
-1	0.0187	-0.0406	0.0691	1.1764	15	0	4	19
0	-0.0007	-0.0412	0.0214	-0.1372	9	0	10	19
1	-0.0020	-0.0432	0.0178	-0.4876	8	0	11	19
2	-0.0096	-0.0528	0.0232	-1.7926	5	0	14	19
3	-0.0052	-0.0579	0.0190	-1.1877	6	0	13	19
4	0.0109	-0.0470	0.0261	1.8243	12	0	7	19
5	0.0070	-0.0400	0.0267	1.1490	10	1	8	19
6	0.0075	-0.0325	0.0249	1.3157	11	1	7	19
7	0.0075	-0.0250	0.0136	2.3957	14	0	5	19
8	0.0031	-0.0219	0.0145	0.9330	12	0	7	19
9	0.0060	-0.0160	0.0226	1.1552	10	0	9	19
10	0.0029	-0.0131	0.0295	0.4276	8	1	10	19
11	0.0021	-0.0110	0.0172	0.5278	12	0	7	19
12	-0.0061	-0.0170	0.0290	-0.9099	8	1	10	19
13	0.0022	-0.0149	0.0169	0.5586	12	2	5	19
14	-0.0049	-0.0198	0.0107	-2.0210	6	1	12	19
15	0.0056	-0.0142	0.0147	1.6624	12	1	6	19
16	0.0016	-0.0126	0.0114	0.6163	12	1	6	19
17	-0.0015	-0.0141	0.0178	-0.3713	9	0	10	19
18	-0.0005	-0.0146	0.0181	-0.1108	9	1	9	19
19	0.0063	-0.0083	0.0180	1.5195	10	1	8	19
20	-0.0034	-0.0116	0.0278	-0.5245	7	2	10	19
21	0.0031	-0.0085	0.0191	0.7190	10	1	8	19
22	0.0028	-0.0057	0.0156	0.7908	10	0	9	19
23	0.0036	-0.0020	0.0198	0.7969	10	0	9	19
24	0.0066	0.0046	0.0123	2.3509	12	0	7	19
25	0.0007	0.0053	0.0136	0.2162	9	1	9	19
26	-0.0034	0.0019	0.0093	-1.5792	5	2	12	19
27	0.0000	0.0019	0.0168	0.0033	9	0	10	19
28	0.0014	0.0034	0.0140	0.4491	9	1	9	19
29	0.0044	0.0078	0.0168	1.1437	9	1	9	19
30	-0.0045	0.0033	0.0155	-1.2588	4	3	12	19
31	0.0005	0.0038	0.0318	0.0745	8	2	9	19
32	-0.0040	-0.0001	0.0272	-0.6349	8	0	11	19
33	-0.0023	-0.0024	0.0176	-0.5623	9	0	10	19
34	0.0042	0.0018	0.0205	0.8890	9	2	8	19
35	0.0001	0.0019	0.0137	0.0476	10	1	8	19
36	-0.0021	-0.0002	0.0212	-0.4324	5	1	13	19
37	-0.0076	-0.0078	0.0217	-1.5217	5	1	13	19
38	0.0028	-0.0050	0.0183	0.6570	9	1	9	19
39	-0.0020	-0.0070	0.0220	-0.3958	11	1	7	19
40	0.0011	-0.0059	0.0265	0.1882	10	0	9	19
41	0.0057	-0.0001	0.0251	0.9957	9	1	9	19
42	-0.0078	-0.0079	0.0138	-2.4701	6	0	13	19

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Table 13.1 DEMAND Continued

Day	AAR	CAAR	StdDev	t Test	+ve	Zero	-ve	Total
43	0.0063	-0.0017	0.0179	1.5226	11	0	8	19
44	0.0031	0.0014	0.0292	0.4636	13	0	6	19
45	0.0011	0.0025	0.0184	0.2506	10	0	9	19
46	0.0008	0.0033	0.0186	0.1893	12	0	7	19
47	0.0019	0.0052	0.0134	0.6259	12	1	6	19
48	0.0021	0.0073	0.0162	0.5617	12	2	5	19
49	0.0086	0.0160	0.0152	2.4831	12	1	6	19
50	0.0023	0.0183	0.0194	0.5149	10	1	8	19
51	0.0034	0.0216	0.0173	0.8481	12	0	7	19
52	0.0017	0.0233	0.0179	0.4052	7	0	12	19
53	-0.0014	0.0219	0.0101	-0.5863	8	1	10	19
54	-0.0006	0.0213	0.0229	-0.1132	11	0	8	19
55	0.0050	0.0263	0.0225	0.9590	9	0	10	19
56	-0.0005	0.0258	0.0160	-0.1356	8	2	9	19
57	-0.0055	0.0203	0.0215	-1.1079	7	0	12	19
58	0.0012	0.0215	0.0196	0.2725	7	1	11	19
59	-0.0020	0.0195	0.0133	-0.6611	7	1	11	19
60	-0.0044	0.0151	0.0207	-0.9313	7	0	12	19

Table 13.2 The behaviour of share prices around the announcement date: EFFICIENCY

Day	AAR	CAAR	StdDev	t Test	+ve	Zero	-ve	Total
-59	0.0035	0.0035	0.0178	0.9540	13	3	8	24
-58	-0.0021	0.0013	0.0155	-0.6774	10	2	12	24
-57	-0.0014	-0.0001	0.0131	-0.5338	10	1	13	24
-56	-0.0027	-0.0028	0.0159	-0.8385	7	1	16	24
-55	0.0031	0.0002	0.0188	0.7986	11	3	10	24
-54	-0.0012	-0.0010	0.0168	-0.3467	9	1	14	24
-53	-0.0016	-0.0026	0.0128	-0.6082	9	0	15	24
-52	-0.0015	-0.0040	0.0143	-0.5030	9	0	15	24
-51	0.0010	-0.0031	0.0175	0.2725	9	0	15	24
-50	0.0014	-0.0016	0.0168	0.4092	15	0	9	24
-49	0.0002	-0.0014	0.0145	0.0789	10	1	13	24
-48	-0.0010	-0.0024	0.0135	-0.3649	11	1	12	24
-47	0.0045	0.0021	0.0161	1.3617	16	0	8	24
-46	0.0023	0.0043	0.0158	0.7105	13	0	11	24
-45	-0.0022	0.0022	0.0156	-0.6768	7	1	16	24
-44	0.0001	0.0022	0.0178	0.0167	11	1	12	24
-43	-0.0025	-0.0002	0.0153	-0.7860	7	1	16	24
-42	0.0015	0.0013	0.0141	0.5204	12	2	10	24
-41	0.0025	0.0038	0.0140	0.8720	15	0	9	24
-40	0.0002	0.0039	0.0126	0.0607	10	1	13	24
-39	-0.0004	0.0035	0.0128	-0.1675	10	0	14	24
-38	0.0003	0.0038	0.0117	0.1245	13	1	10	24
-37	-0.0005	0.0033	0.0123	-0.1878	10	0	14	24
-36	0.0011	0.0044	0.0145	0.3542	13	1	10	24
-35	-0.0018	0.0026	0.0157	-0.5527	11	0	13	24
-34	-0.0033	-0.0007	0.0154	-1.0538	9	0	15	24
-33	-0.0004	-0.0011	0.0161	-0.1186	14	1	9	24
-32	0.0011	0.0000	0.0254	0.2143	12	1	11	24
-31	0.0033	0.0033	0.0239	0.6847	15	1	8	24
-30	0.0000	0.0033	0.0123	-0.0055	13	1	10	24
-29	-0.0004	0.0029	0.0137	-0.1347	12	0	12	24
-28	0.0003	0.0033	0.0153	0.0990	11	0	13	24
-27	0.0031	0.0063	0.0144	1.0491	11	2	11	24
-26	-0.0008	0.0055	0.0140	-0.2912	11	1	12	24
-25	0.0008	0.0063	0.0146	0.2794	13	0	11	24
-24	-0.0027	0.0036	0.0149	-0.8945	9	0	15	24
-23	-0.0033	0.0004	0.0160	-0.9950	11	0	13	24
-22	-0.0018	-0.0014	0.0161	-0.5347	10	0	14	24
-21	0.0017	0.0003	0.0181	0.4693	15	0	9	24
-20	0.0025	0.0029	0.0199	0.6259	12	1	11	24
-19	-0.0048	-0.0019	0.0164	-1.4369	8	0	16	24
-18	-0.0011	-0.0030	0.0146	-0.3599	12	0	12	24
-17	-0.0004	-0.0034	0.0130	-0.1382	10	0	14	24
-16	-0.0005	-0.0038	0.0114	-0.2008	10	0	14	24
-15	-0.0014	-0.0052	0.0123	-0.5528	7	2	15	24
-14	-0.0001	-0.0054	0.0134	-0.0457	9	2	13	24
-13	0.0029	-0.0025	0.0134	1.0416	18	0	6	24
-12	0.0008	-0.0017	0.0136	0.2894	11	0	13	24
-11	0.0024	0.0007	0.0121	0.9609	15	1	8	24
-10	0.0007	0.0014	0.0118	0.3095	11	2	11	24
-9	0.0003	0.0018	0.0145	0.1172	12	0	12	24

Table 13.2 EFFICIENCY Continued

Day	AAR	CAAR	StdDev	t Test	+ve	Zero	-ve	Total
-8	0.0009	0.0027	0.0157	0.2814	14	0	10	24
-7	-0.0031	-0.0004	0.0177	-0.8538	10	0	14	24
-6	-0.0026	-0.0030	0.0170	-0.7522	15	0	9	24
-5	-0.0003	-0.0033	0.0117	-0.1304	10	0	14	24
-4	0.0000	-0.0034	0.0106	-0.0102	9	0	15	24
-3	-0.0030	-0.0064	0.0114	-1.2965	9	0	15	24
-2	-0.0009	-0.0073	0.0271	-0.1648	11	0	13	24
-1	0.0046	-0.0027	0.0311	0.7239	9	0	15	24
0	-0.0014	-0.0041	0.0223	-0.3152	11	1	12	24
1	-0.0004	-0.0045	0.0196	-0.0904	11	0	13	24
2	-0.0044	-0.0089	0.0164	-1.3095	6	0	18	24
3	0.0007	-0.0082	0.0206	0.1661	13	0	11	24
4	-0.0021	-0.0102	0.0227	-0.4423	13	0	11	24
5	0.0025	-0.0077	0.0152	0.8082	12	1	11	24
6	-0.0007	-0.0084	0.0115	-0.2913	9	0	15	24
7	-0.0004	-0.0088	0.0122	-0.1648	7	1	16	24
8	-0.0025	-0.0113	0.0138	-0.8839	11	1	12	24
9	0.0007	-0.0106	0.0227	0.1535	11	0	13	24
10	0.0072	-0.0034	0.0257	1.3656	14	1	9	24
11	0.0032	-0.0002	0.0202	0.7846	14	1	9	24
12	0.0002	0.0000	0.0145	0.0580	13	1	10	24
13	-0.0027	-0.0027	0.0126	-1.0574	7	1	16	24
14	0.0007	-0.0020	0.0132	0.2570	12	2	10	24
15	0.0018	-0.0002	0.0148	0.6057	9	2	13	24
16	0.0014	0.0012	0.0145	0.4663	12	0	12	24
17	-0.0011	0.0000	0.0157	-0.3542	8	1	15	24
18	-0.0021	-0.0020	0.0176	-0.5743	11	1	12	24
19	-0.0010	-0.0030	0.0169	-0.2970	16	1	7	24
20	-0.0015	-0.0046	0.0146	-0.5212	7	2	15	24
21	-0.0030	-0.0076	0.0123	-1.2058	8	2	14	24
22	-0.0054	-0.0130	0.0135	-1.9681	5	1	18	24
23	-0.0024	-0.0155	0.0125	-0.9608	7	0	17	24
24	0.0000	-0.0155	0.0118	-0.0061	14	0	10	24
25	-0.0023	-0.0178	0.0139	-0.8245	9	1	14	24
26	0.0002	-0.0176	0.0139	0.0750	9	2	13	24
27	0.0000	-0.0176	0.0153	0.0107	11	2	11	24
28	-0.0011	-0.0187	0.0151	-0.3575	12	1	11	24
29	-0.0012	-0.0199	0.0129	-0.4721	10	1	13	24
30	0.0029	-0.0170	0.0156	0.9158	15	1	8	24
31	0.0041	-0.0129	0.0202	1.0026	14	0	10	24
32	0.0013	-0.0115	0.0193	0.3393	12	0	12	24
33	0.0015	-0.0100	0.0142	0.5221	13	0	11	24
34	0.0001	-0.0099	0.0156	0.0313	12	2	10	24
35	0.0011	-0.0089	0.0181	0.2844	10	4	10	24
36	0.0007	-0.0082	0.0174	0.1922	11	1	12	24
37	0.0022	-0.0060	0.0160	0.6662	13	0	11	24
38	0.0043	-0.0018	0.0135	1.5506	15	1	8	24
39	0.0020	0.0002	0.0120	0.8107	14	1	9	24
40	-0.0009	-0.0007	0.0119	-0.3756	8	2	14	24
41	0.0019	0.0012	0.0134	0.6763	14	3	7	24
42	-0.0036	-0.0024	0.0128	-1.3648	11	1	12	24

Table 13.2 EFICIENCY Continued

Day	AAR	CAAR	StdDev	t Test	+ve	Zero	-ve	Total
43	-0.0035	-0.0059	0.0123	-1.3976	7	2	15	24
44	-0.0014	-0.0073	0.0154	-0.4457	8	1	15	24
45	0.0002	-0.0071	0.0154	0.0754	13	1	10	24
46	0.0009	-0.0061	0.0127	0.3655	12	0	12	24
47	-0.0030	-0.0092	0.0145	-1.0206	8	1	15	24
48	-0.0022	-0.0114	0.0190	-0.5765	7	0	17	24
49	-0.0029	-0.0143	0.0179	-0.7849	10	0	14	24
50	-0.0038	-0.0180	0.0137	-1.3561	8	1	15	24
51	-0.0019	-0.0200	0.0120	-0.7775	10	0	14	24
52	-0.0034	-0.0233	0.0121	-1.3529	6	2	16	24
53	-0.0028	-0.0261	0.0169	-0.8226	6	1	17	24
54	-0.0005	-0.0266	0.0186	-0.1291	9	2	13	24
55	0.0025	-0.0242	0.0360	0.3334	13	2	9	24
56	-0.0067	-0.0309	0.0376	-0.8707	9	0	15	24
57	-0.0031	-0.0339	0.0280	-0.5346	14	0	10	24
58	0.0002	-0.0337	0.0264	0.0367	11	0	13	24
59	0.0019	-0.0319	0.0192	0.4776	11	0	13	24
60	0.0008	-0.0311	0.0171	0.2178	10	1	13	24

13. 4 RESULTS

Table one and two above show the results of the calculations the former showing how the market reacted when a reduction in demand was the reported reason for the layoffs and the latter showing the market reaction when increased efficiency is the reported reason for the layoffs.

DEMAND

This data shows that the CAAR became negative on day - 44 and remained negative up to and including day + 23. This might suggest that the market is anticipating the companies problems prior to the layoffs and is acting accordingly. This view is further strengthened by looking at the AAR and CAAR's around the announcement period. If the focus is now turned to the eleven day event window (- 5 to + 5) the three day event window (-1 to +1) and the one day event window (0) the following results are obtained.

CAAR   -5 to + 5 = +0.0067
                  -1 to + 1 = +0.0160
       Event day =   - 0.0007

This suggests that by the event day the market had on average decided the level for these companies.   In the other event windows positive abnormal returns are being made and this is especially true of the day before the announcement day which may tend towards a tentative conclusion that the market overreacts some time prior to the event and then starts to adjust. In all this, however, the event date is crucial and might in part be a reason why day - 1 has such a comparatively large positive AAR (+0.0187). The event date has been taken as the date it was first reported in the press but in most cases

the actual announcement will have been made the day before and might have affected that days stock prices if reported early enough. It would seem reasonable to argue that if the company had 'good news' it would report this as soon as possible and that this might account for the relatively large positive AAR in day -1.

EFFICIENCY

This data as might be expected gives more mixed results than the demand data. It shows that the CAAR becomes negative on day - 7 and remained negative until day + 11. Prior to this it had been negative on day - 19 remaining negative up to and including day - 12. The AAR's for the intervening period being

DAY	AAR
-11	0 . 0024
-10	0. 0007
- 9	0. 0003
- 8	0. 0009

In general the CAAR's for layoffs due to efficiency are small and therefore the relatively small positive AAR's listed above have had the effect of changing the sign. The reason for these positive AAR's is not known for certain but there does tend to be a mixture of positive and negative AAR's even when the CAAR's as happened with demand, remains constantly negative. This is understandable if one subscribes to the idea that there is an over-reaction to news which is later corrected as more information becomes available and that also additional ' bad news ' may leak out.

If we look at the eleven day event window (-5   +5) the three day event window (-1   +1) and the one day event window (0) the following results are obtained.

CAAR   -5 to +5   = -0.0047

           -1 to +1   = +0.0028

           Event day = -0.0014

As with the demand data day -1 has a relatively large positive AAR (0.0046) and the argument that 'good news' gets to the market early and affects the share price the day before the announcement in the press.   The CAAR's for the event windows listed above could as with demand be viewed as part of the adjustment process the impact of the original event occurring some time prior to the events announcement.

It can be argued that if the layoffs are going to increase the overall efficiency of the firm and therefore the profitability of the firm the markets reaction should be to increase the firms share price over and above that of the FT - SE 100 ALL SHARE INDEX and that positive AAR's leading to positive CAAR's could be expected.

An examination of the data, however, does not support this

CAAR	DAY	
	-59 to +60	-0.0311
	-50 to +50	-0.0149
	-40 to +40	-0.0045
	-30 to +30	-0.0203
	-20 to +20	-0.0049
	-10 to +10	-0.0041

CAAR	DAY	
	-59 to day 0	-0.0041
	-50 to day 0	-0.0010
	-40 to day 0	-0.0079
	-30 to day 0	-0.0074
	-20 to day 0	-0.0044
	-10 to day 0	-0.0048
	0 to day +10	+0.0007
	0 to day +20	+0.0005
	0 to day +30	+0.0129
	0 to day +40	+0.0034
	0 to day +50	+0.0139
	0 to day +60	+0.0270

It can be seen that using six different event windows either side of the event date the results are consistently negative. When these windows are subdivided to show the position prior to the event and after the event, the results prior to the event are consistently negative. The results after the event, however, are mixed although the negative results are larger than the positive results.

This does not support the hypothesis that share prices will 'rise' when layoffs are made to increase efficiency but support the findings echoed by Faber & Hallock (1999)

> "These suggestions persist despite a growing body of empirical work
> that finds fairly consistent negative reactions of stock prices to
> announcements of reductions in the labour force (RIF's)"
>
> (Faber & Hallock 1999 p1)

One possible explanation for the reduction in share price might be that the market is reacting to the reduction in the firms overall capacity ie the companies are reducing their trading base. This of course would tie into the idea of the market 'valuing' the human resources within a company.

Other explanations, however, can not be ruled out for example it may be the case that the published reason for the layoffs, efficiency, is either not true or only partially true and the market may be seeing through this. Notwithstanding this, however, the majority of evidence suggests that layoffs are associated with negative returns which can be used to support the reduction in capacity argument.

Before coming to a conclusion in this chapter the event windows that have been used in the discussion on the efficiency data will be calculated for the demand data so that they can be compared.

CAAR	DAY	
	-59 to +60	+0.0151
	-50 to +50	+0.0348
	-40 to +40	+0.0251
	-30 to +30	+0.0265
	-20 to +20	+0.0177
	-10 to +10	+0.0367

CAAR	DAY	
	-59 to day 0	-0.0412
	-50 to day 0	-0.0247
	-40 to day 0	-0.0102
	-30 to day 0	-0.0180
	-20 to day 0	-0.0119
	-10 to day 0	+0.0086
Day	0 to +10	+0.0281
Day	0 to +20	+0.0296
Day	0 to +30	+0.0445
Day	0 to +40	+0.0353
Day	0 to +50	+0.0595
Day	0 to +60	+0.0563

Comparing the above CAAR's with those for the event windows for efficiency it can be seen that both become negative well before the event date (with the exception of -10 to Day 0 for demand they are all negative).

The layoffs due to demand figures then start to become strong positive whereas the efficiency figures do not give such a clear picture, after the event date.

13. 5 CONCLUSION

Splitting the layoffs into those which were claimed to be for reasons of efficiency and those which were due to reduced demand did not produce the positive movement in share price anticipated for efficiency, but along with most other research into layoffs produced negative CAAR results prior to the event day.   This implies that poor reactions to layoff announcements should be expected and that the market will anticipate these layoffs quite early. Because events have been anticipated there is little movement on the event day itself although the day before had shown relatively high AAR's in both cases.   As has already been explained this could possibly be due to the timing of when events are reported 'good news' being reported early and therefore affecting the share price the day before the defined event day.

The market does however seem to be sensitive to layoffs and as Raj and Forsyth (1999) have argued there may be a link between the negative reaction to layoffs and the fact that the firm is reducing its human assets which may have an effect on the firms ability to perform in the future.

It must also be remembered that the market makes its own judgement on why layoffs are occurring and therefore does not necessarily take the published reasons as necessarily the reason for the layoffs.   In spite of the uncertainty it can be argued that at least some of the negative results could be explained by the reduction in human resources and the subsequent loss of capacity.

CHAPTER FOURTEEN   CONCLUSION AND FURTHER RESEARCH

14.1 GENERAL

It has been argued in this research that employees are an important variable in a firm but that they are poorly reported upon with labour often being treated erroneously as a free good. This means that the stewardship of the firm is not properly recorded as employees form part of the stewardship function being part of the "wealth" of the entity.

From the above it follows that it could well be helpful to have additional indicators in accounts which would indicate the benefit of good employment decisions. Indeed if firms are seen as having social responsibilities then it can be argued that profit is no longer the sole or even necessarily the main indication of performance and that information on employees is under these circumstances essential. It can also be argued that firms have a duty to society as a whole and that under such circumstances a wider informational base is required with profit no longer being seen as a sufficient expression of success. Indeed in todays fast moving environment with an ever increasing use of technology and the change of emphasis to knowledge based industries it may well be in a firm's own interest to have more information on their employees.

The literature on Human Resource Accounting and The Human Capital Literature in economics was then examined and it was decided, for reasons given in chapters nine and ten, to use the Human Capital Literature and the characteristics traditionally used in this literature together with the efficient market hypothesis to arrive at a theory which said that there ought to be a

relationship between employee characteristics and "share price". This is because employees are part of the wealth of the firm and therefore the value to a firm of good employees (characteristics) should be reflected in the value of the firm. The theory depends of course on markets being efficient and this was therefore discussed in the chapter six and a conclusion was reached that markets were in a general sense efficient with share prices broadly representing underlying events.

The next chapter gave details of how the research was carried out and was followed by the chapter which gave the results. These results showed that there was a linear relationship between the chosen characteristics and the (adjusted) share price and further statistical tests showed that multicollinearity was unlikely and the variables were significant 3 at 5% or less, 1 at just over 10% and the last at just over 20%. The F test of overall significance showed better than 1% implying that the independent variables used were helpful when trying to explain the variation in the dependent variable while the adjusted R^2 at 44.464% arguably indicates a reasonable measure of fit.

When the standard error of the regression was examined it was found to be large relative to the mean of the dependent variable and therefore although a linear relationship exists as results differ greatly from the mean no useful predictions can be made. This result is disappointing as it means that the results of this research cannot realistically be used for predictive or reporting purposes.

For reasons explained in the previous chapter the data set was adjusted and the regression rerun. On examination it was found that in general terms the results of the original data set still held.

The results of this research have tended to confirm that there is a linear relationship between employee characteristics and the "share price" supporting the view that underlying events are encapsulated in the share price. It has not been possible, however, to obtain a predictive model with the data available for this research although as will be explained later future research may be able to overcome this problem.

In order to test whether employers were regarded as resources of a firm layoffs were examined and it was found that regardless of the reason for the layoffs (layoffs for efficiency could be expected to increase the share price) the share price fell which tends to support the idea that employees are seen as resources of a firm.

One point that became apparent in doing this research is that there is a lack of data publicly available on employee characteristics. The companies have this data or can obtain it with a minimum of effort but experience with this research has shown that many companies are unwilling to divulge information beyond that which is required by the law or other regulations. Any further research in this area must bear this in mind as it is a major stumbling block and cultivating contacts which can facilitate the process of getting the raw data should be well worth the effort and indeed might well be essential as a prerequisite of carrying this research further.

In summary this research has shown that there is a linear relationship between the dependent variable and the independent variables, used in this model. The model has a reasonable measure of fit with an adjusted R^2 of 44.464% but, unfortunately it is not a good predictive model as results differ widely from the mean.

14.2 FURTHER RESEARCH

This research has concentrated on the relatively well defined characteristics suggested by the Human Capital Literature. These characteristics are the characteristics possessed by individuals and are at a high level of aggregation. It is possible to disaggregate some of these variables and the effect of doing this could be examined although it must be admitted that there could well be problems in obtaining the information, which in the main is neither publicly available nor willingly disclosed information.

The efficient market literature often classifies companies according to their size, using each company's asset base or turnover. This has not been done in this research nor could it have been done, as there were not sufficient cases in the data set. If more cases could be obtained the effect of size on the model would be an interesting extension to this research. Another possibility which might provide more cases is to look at publicly available information to see if a restricted model could be built which because of information is readily available would automatically generate more cases so enabling the size effect, if any, to be examined.

Researchers often group companies according to the type of business that they are in using for example the standard industrial classification code (S.I.C. code). Initially it was intended to use this classification in this research but the process requires a greater number of cases than could be obtained. If more cases could be obtained the effect on the model could be examined or as mentioned in the preceding paragraph if publicly available information could be used, in a restricted model, the effect of classifying the companies according to their type of business could be investigated.

Book values, for assets, have been used in his research and have been justified by pointing out that there is a body of research, namely book to market research, which has found a link between book values and the market price of share. It would be interesting to see the effect of using market values for the assets, although obtaining this information would be difficult.

Why book values (for assets) have a relationship to the firms share price would be another line of research which could be followed. It is difficult, however, to see how this could be done although the problem remains an interesting one.

In this research cases that involved "loss" making companies were eliminated on the ground that there was arguably a different decision making process being used with regard to these companies using the argument of short termism cited previously; certainly no linear model could be found when these companies were included. Research into the decision making process would, therefore, be useful in an attempt to establish whether different models were being used when companies were or had been making "losses".

A related area to the above is the area of cash flow. It would be interesting to see whether and to what extent present and past negative can flows have an impact on the decision making process and hence on the share price.

In this research the value added element of the share price was used. Further research could be directed towards finding a model which showed a direct relationship to the published share price.

Cross sectional analysis has been used in this project and further research could use time series analysis to examine the effect of the model over time.

This research is unique in the sense that it has attempted to tackle an area where no similar research has been published in the past. It has arrived at some specific conclusions but as can be seen from the above there is much more research that can be done in this area.

APPENDIX A

QUESTIONNAIRE

1. Company's Name

2. Company's Year End in 1992

DAY	MONTH

3. Number of Employees (at 1992 Year End)   TOTAL [ ] MALE [ ] FEMALE [ ]

4. Average Age of Employees (at 1992 Year End)   TOTAL [ ] MALE [ ] FEMALE [ ]

5. Number of Employees with

    A Degree or Higher Degree   TOTAL [ ] MALE [ ] FEMALE [ ]

    An Equivalent Professional Qualification   TOTAL [ ] MALE [ ] FEMALE [ ]

    A Technical Qualification   TOTAL [ ] MALE [ ] FEMALE [ ]

    Skilled Employees   TOTAL [ ] MALE [ ] FEMALE [ ]

NB

A. Please account for employees only once in Question 5 in the first category for which they are eligible.

B. The difference between the total of the employees accounted for in Question 5 and the total number of employees shown in Question 3 will be assumed to be unskilled employees. If this is not correct please give details below

Details: _____

6. Statutory Sick Pay Year Ended 5 April 1992   £ [   ]
    (From Return to Revenue)

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the
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METROPOLITAN
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Sir Kenneth Green MA LLD

Faculty of
Management and Business

Department of
Accounting and Finance

Aytoun Building
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Telephone 061-247

3770

(direct line)
Facsimile 061-247 6303

KW/JE

Dear

Following our recent telephone conversation, I have pleasure in
enclosing a copy of the Questionnaire together with a reply paid
envelope.

May I take this opportunity of thanking you for taking part in
this research programme.

Yours sincerely

Ken Wayte
Senior Lecturer

289

KW/JE

Some weeks ago you kindly agreed to fill in a small questionnaire,
which was duly sent to you, and which would enable my research
which has been undertaken over the past two years, to continue.

I am now in a position to proceed to the next stage of my research
providing I receive sufficient replies. For this reason I am
writing to ask if it is now possible for you to complete the
questionnaire. If there are problems with some of the questions
would you please complete as much as possible and return the
questionnaire to me.

For your convenience another copy of the questionnaire is enclosed,
together with a reply paid envelope.

Yours sincerely

Ken Wayte
Senior Lecturer

290

KW/JE

Date as postmark

Dear

In order to enable me to continue with my research I still require a small number of questionnaires, in addition to those that I have already received.

Two years work on this project has already been done and certainly from my point of view, having to abort it or drastically change direction for want of a few replies is disastrous, to say the least.

I am, therefore, writing to you once again to ask if you would be so kind as to complete the small questionnaire. In the event of there being some questions that you are unable to answer would you please return it with as many questions answered as possible.

If you are unwilling to answer the questionnaire would you please return it so that an assessment of the overall position can be made.

For your convenience a copy of the questionnaire is enclosed, together with a reply paid envelope.

Yours sincerely

291

K Wayte
Senior Lecturer

SPSS/PC+

* * * * MULTIPLE REGRES.SION * * * *

Equation Number 1   Dependent Variable..   PRICE

Block Number 1. Method: Enter
VIG   HEALTH   EDU   AGE   MALE

SPSS/PC+

* * * * MULTIPLE REGRES.SION * * * *

Equation Number 1   Dependent Variable..   PRICE

Variable(s) Entered on Step Number
1..   MALE
2..   EDU   education
3..   VIG   vigour
4.   HEALTH
5..   AGE

SPSS/PC+

* * * * MULTIPLE REGRES.SION * * * *

Equation Number 1   Dependent Variable..   PRICE

Multiple R   .75555
R Square   .57086
Adjusted R Square   .44464
Standard Error   894.48475

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	5	18093482.98750	3618696.59750
Residual	17	13601750.38207	800102.96365

F =   4.52279   Signif F = .0084

SPSS/PC+

Equation Number 1   Dependent Variable.. PRICE

————————————————————Variables in the Equation————————————————————

Variable T	B	SE B	Beta	Tolerance	VIF
MALE 2.193	26.853785	12.247017	.383693	.824391	1.213
EDU 1.248	129.126424	103.432575	.223925	.784627	1.274
VIG 2.308	.142720	.061847	.385829	.903029	1.107
HEALTH 2.692	22.666102	8.419610	.438741	.950397	1.052
AGE 1.654	81.178319	49.080648	.320790	.671072	1.490
(Constant) 2.293	-5571.788237	2429.747259			-

SPSS/PC+

**** M U L T I P L E   R E G R E S S I O N ****

Equation Number 1   Dependent Variable.. PRICE

———— in ————

Variable	Sig T
MALE	.0425
EDU	.2288
VIG	.0339
HEALTH	.0154
AGE	.1165
(Constant)	.0349

SPSS/PC+ The Statistical Package for IBM PC

**** M U L T I P L E   R E G R E S S I O N ****

Equation Number 1   Dependent Variable..   PRIGE
Block Number 1. Method: Enter
  VIG   HEALTH EDU   AGE   MALE

SPSS/PC+

**** M U L T I P L E   R E G R E S S I O N ****

Equation Number 1   Dependent Variable..   PRICE

Variable(s)   Entered on Step Number
  I.   MALE
  2..   EDU   education
  3.   VIG   vigour
  4.   HEALTH
  5.   AGE

SPSS/PC+

**** M U L T I P L E   R E G R E S S I O N ****

Equation Number 1   Dependent Variable..   PRICE

Multiple R   .75555
R Square   .57086
Adjusted R Square   .44464

Standard Error   894.48475

Analysis of Variance
                    DF   Sum of Squares   Mean Square
Regression   5   18093482.98750
      3618696.59750
Residual   17   13601750.38207
800102.96365

F =   4.52279   Signif F = .0084

**** M U L T I P L E   R E G R E S S I O N ****

Equation Number 1   Dependent Variable..   PRICE

-----------------------------Variables in the Equation----------------------------

Variable	B	SE B	Beta	T	Sig T
MALE	26.853785	12.247017	.383693	2.193	.0425
EDU	129.126424	103.432575	.223925	1.248	.2288
VIG	.142720	.061847	.385829	2.308	.0339
HEALTH	22.666102	8.419610	.438741	2.692	.0154
AGE	81.178319	49.080648	.320790	1.654	.1165
(Constant)	-5571.788237	2429.747259		-2.293	.0349

**** M U L T I P L E   R E G R E S S I O N ****

Equation Number 1   Dependent Variable..   PRICE

Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	-580.0006	3520.2646	786.8043	906.8798	23
*ZPRED	-1.5072	3.0141	.0000	1.0000	23
*SEPRED	213.5697	712.8806	434.1936	145.3154	23
*ADJPRED	-1440.0103	2580.2524	650.6072	1026.7997	23
*RESID -	982.1615	2199.7354	.0000	786.2960	23
*ZRESID	-1.0980	2.4592	.0000	.8790	23
*SRESID	-1.2883	3.4914	.0576	1.1520	23
*DRESID	-1587.2526	33.9082	136.1971	1400.4122	23
*SDRESID	-1.3158	6.3680	.1899	1.6176	23
*MAHAL	.2976	13.0171	4.7826	3.7122	23
*COOK D	.0000	2.0635	.1825	.4647	23
*LEVER	.0135	.5917	.2174	.1687	23

Total Cases =   23

SPSS/PC+

Standardized Scatterplot
Across - *PRED   Down - *SRESID

insert graph

SPSS/PC

**** M U L T I P L E   R E G R E S S I O N ****

Equation Number 1   Dependent Variable..   PRICE

Block Number I. Method: Enter
VIG   HEALTH   EDU   AGE   MALE

SPSS/PC+

**** M U L T I P L E   R E G R E S S I O N ***:r

Equation Number 1.   Dependent Variable..   PRICE

Variable(s) Entered on Step Number
    1·   MALE
    2..   EDU   education
    3-   VIG   vigour
    4.   HEALTH
    5   AGE

SPSS/PC+

**** M U L T I P L E   R E G R E S S I O N ****
Equation Number 1   Dependent Variable..   PRICE

Multiple R   .75555
R Square   .57086
Adjusted R Square   .44464
Standard Error   894.48475

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	5	18093482.98750	3618696.59750
Residual	17	13601750.38207	800102.96365

F =   4.52279   Signif F = .0084

SPSS/PC+

**** M U L T I P L E   R E G R E S S I O N ****

Equation Number 1   Dependent Variable..
PRICE

-------------------------------Variables in the Equation-------------------------------

Variable	B	SE B	Beta	T	Sig T
MALE	26.853785	12.247017	.383693	2.193	.0425
EDU	129.126424	103.432575	.223925	1.248	.2288
VIG	.142720	.061847	.385829	2.308	.0339
HEALTH	22.666102	8.419610	.438741	2.692	.0154
AGE	81.178319	49.080648	.320790	1.654	.1165
(Constant)	-5571.788237	2429.747259		-2.293	.0349

SPSS/PC+

**** M U L T I P L E   R E G R E S S I O N ****

Equation Number 1   Dependent Variable..   PRICE

Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	-580.0006	3520.2646	786.8043	906.8798	23
*RESID	-982.1615	2199.7354	.0000	786.2960	23
*ZPRED	-1.5072	3.0141	.0000	1.0000	23
*ZRESID	-1.0980	2.4592	.0000	.8790	23

Total Cases =   23

Durbin-Watson Test =   1.67392

SPSS/PC+

* * * * M U L T I P L E   R E G R E S S I O N * * * *

Equation Number 1   Dependent Variable..   PRICE

Block Number 1. Method: Enter
 VIG   HEALTH EDU   AGE   MALE

SPSS/PC+

* * * * M U L T I P L E   R E G R E S S I O N * * * *

Equation Number 1   Dependent Variable..   PRICE

Variable(s)   Entered on Step Number
 1..   MALE
 2..   EDU   education
 3..   HEALTH
 4..   VIG   vigour
 5..   AGE

SPSS/PC+

* * * * M U L T I P L E   R E G R E S S I O N * * * *

Equation Number 1   Dependent Variable..   PRICE

Multiple R   .77846
R Square   .60601
Adjusted R Square   .47468
Standard Error   898.43297

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	5	18623110.63117	3724622.12623
Residual	15	12107727.03549	807181.80237

F =   4.61435   Signif F = .0095

SPSS/PC+

300

**** MULTIPLE REGRESSION ****

Equation Number 1   Dependent Variable..   PRICE

----------------------------Variables in the Equation ----------------------------

Variable T	B	SE B	Beta	Tolerance	VIF
MALE 2.451	31.709066	12.934940	.446599	.791405	1.264
EDU 1.773	208.131839	117.481173	.332550	.745459	1.341
HEALTH 2.603	22.488341	8.638198	.433588	.946913	1.056
VIG 1.780	.117423	.065957	.311551	.857671	1.166
AGE 1.914	97.548845	50.953588	.386906	.643104	1.555
(Constant) 2.588	-6658.873365	2573.387753			-

SPSS/PC+

**** MULTIPLE REGRESSION ****

Equation Number 1   Dependent Variable..   PRICE

--------in--------

Variable	Sig T
MALE	.0270
EDU	.0968
HEALTH	.0200
VIG	.0953
AGE	.0748
(Constant)	.0206

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