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THE EX-DIVIDEND DAY STOCK PRICE BEHAVIOR

Case study: FTSE 100 of the London Stock Exchange

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ABSTRACT

In this thesis, we have analyzed the ex-dividend stock price behavior in the London Stock Exchange to see if the stock prices really drop by the same amount as the dividend on the ex-dividend day. Our sample data covers 80 FTSE100 companies of the London stock exchange for the period 2001 to 2006.

To answer the research question: *Do returns on the London Stock Exchange act in accordance with the efficient market hypothesis on the ex-dividend day?* We used a deductive approach and test four hypothesis. The study was carried out by comparing the actual value of the raw price ratio, market adjusted price ratio, raw price drop and market adjusted price drop to their theoretical values. The difference was tested for significance using the one sample t-test. The results showed that there are significant differences in the observed figures from their theoretical or expected values.

The observed raw price ratio is higher than the expected value of 1, implying that the stock price on the ex-dividend day drops by an amount that is lower than the dividend paid. Similarly, the market adjusted raw price ratio is also higher than the expected value of 1. The raw price drop and market adjusted price drop are lower than the dividend yield, indicating again that the stock price drops by an amount that is lower than the dividend paid.

Our results indicated that the null hypotheses stated are rejected since the drop in the stock prices is not equal to the amount of the dividend on the ex-dividend day.

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1. **INTRODUCTION**

In this chapter we want to give the reader information about the problem background, research question and the purpose of study. Also, we present the limitation of the research and the chapter disposition that gives the general outline of the study.

1.1 Problem Background

During the last decades, the importance of financial markets to private owners has grown increasingly. Today, many people are involved in the investment of stocks to a larger extent than it was done in the past. This is as a result of a change in technology for example, new forms of media like the internet is easily accessible to majority of people, and also organized markets that have sprung up such as the London Stock Exchange where to access information as regards stock prices is now relatively cheap to get and process. Hence, it is obvious to see that security markets today are more efficient than in the last decades. It is in this light of relatively low-cost of information and active security analysis that the concept of efficient capital markets has been developed (Steven L. et al, 2002).

An efficient capital market is a market in which the prices of stocks fully reflect available information (Ross et al, 2002). Haugen (2001) in his book gives four characteristics that can be examined to know whether a market is efficient or not.

Firstly, stock prices should be able to respond quickly and accurately to the receipt of new information that is significant for valuation. The "new information" gotten is term an *event* and in examining such events, researchers are conducting an event study.

Secondly, the changes expected in asset returns from one period to the next must be related to changes in the level of risk-free interest rate and changes in the risk premium associated with the security. Returns not related to the above factors should be unpredictable.

Furthermore, signs of market efficiency can be observed through examining the characteristics of current investments. It should be impossible to differentiate between profitable and unprofitable investments in the future (profitable meaning that the returns are greater than you expected, given the risk).

Finally, another way to detect signs of market efficiency is to separate expect investors from those who are not, by doing this we should be unable to find any significant difference on average between the two groups. In other words, differences between groups should be due to chance.

However, we have few cases where market inefficiency can occur. The first case occurs when there is a price difference in the same security between two different markets. Also, when there exist a difference in the drop in price of stock and the amount of a company's dividend on the ex-dividend day. If this situation occurs, it will lead to an arbitrage opportunity on this ex-dividend day. On the ex-dividend day, a purchaser of stock has no right to a stock's current dividend (Ross et al, 2002). The ex-dividend day effect deals with the issue that the prices of stocks are different from the normal yield around the ex-dividend day. Many authors like Elton & Gruber (1970), Kalay (1982), Claesson (1987), De Ridder & Sörensson (1995), Alm et al (1999), Nikolas et al (2006), etc have carryout studies to find out whether or not the drop in the prices of stocks is the same as the dividend amount between the last day of purchasing the stock and the first day when the purchaser has no right to the dividend and came out with conflicting results. We called this a study on the ex-dividend day effect. To sum it all, the authors have chosen to focus their research efforts towards understanding the following research question.

1.2   Research Question

Do returns on the London Stock Exchange act in accordance with the efficient market hypothesis on the ex-dividend day?

1.3   Purpose of the Study

The purpose of this thesis is to examine the behavior of ex-dividend day stock price of the London Stock market during the years 2001 to 2006 and to see if there are abnormal returns or not on stocks on the ex-dividend day.   The data will be collected and examine on London stocks that are listed on the London's Stock Exchange using FTSE 100, during this five years period to see if the stock prices really drops by the same amount as the dividend on the ex-dividend day. Hence, our focus is to see whether the returns on the London Stock Exchange act in accordance with the efficient market hypothesis on this particular event.

1.4   Limitation

It is of prime importance to determine the scope of research by asking yourself the following questions: What do I really want to examine? What are the precise characteristics of the entity in question? Or what exact features make this topic different from other subjects? (Eneroth, 1984). Having the above questions in mind, the authors want to clarify the scope of research.

The study done in this thesis seeks to examine if stock prices really drops by the same amount as the dividend on the ex-dividend day. We have chosen 80 companies that are listed on the FTSE 100 of the London Stock Exchange during a period of five years from 2001 to 2006. FTSE 100 is made up of highly performance firm, it is seen as a measuring rod of success in the British economy, and it is known to be a leading share index in Europe. A joint venture between the London Stock Exchange and the Financial Times came out with an independent company known as the FTSE Group which maintains the FTSE 100 index representing about 80% of the UK share market (Moles and Terry, 1997).

1.5   Disposition

Chapter 1:   Introduction

In this chapter we introduce the research question, the purpose and limitation of study.

Chapter 2:   Methodology

It consists of choice of subject, our perspective and preconceptions. It also captures key subjects like research method, underlying philosophy, and scientific approach. Finally, we provide source criticism and the collection of material.

Chapter 3:   Theoretical framework

This chapter contains the theoretical framework, which is divided into two phases. The first phase deals with the efficient market hypothesis. The second phase discusses dividends, methods of cash payment, ex-dividend day effect, clientele effect, hypothesis testing, the possibility of making error and the dividend signal.

Chapter 4:   Making It Real

This chapter gives a brief background of the London Stock Exchange, our model specification and the sample data.

Chapter 5:   Empirical findings and Analysis

Here the empirical findings will be compared with the theoretical framework.

Chapter 6:   Concluding Remarks

Here we will give the conclusion of the study, credibility criteria and suggestions for further studies.

2. METHODOLOGY

The purpose of this chapter is to present the methodological choices of this thesis. I.e. the choice of subject, perspective, preconceptions and also discuss our views as regards the underlying philosophy and scientific approach. The method of research we have used will also be a subject of discussion. And in the end of this chapter we will present the literature sources, and the source criticism

2.1 Choice of Subject

The process of choosing a topic to write a thesis is not all that easy. This is because the topic needs to be useful and interesting both for the researchers and all readers. As students studying Accounting and Finance at Umeå School of Business, we have gathered considerable amount of knowledge as regards the theoretical background in finance, particularly in corporate finance and Investment. We found these courses so motivating especially the topic efficient market hypothesis.

Pondering on the word, market efficiency, we have been brainstorming on how efficient the market can be and if any flaw really exists. If the market is efficient, all available new information must be incorporated instantly in the stock prices. With this in mind, we ask ourselves if market efficiency really exist on the ex-dividend day.

This topic had been investigated before using the New York Stock Exchange. But due to the fact that each market may have some peculiarity, and also the fact that, earlier studies carried out on this same topic gave different conclusions and differences, we decided to investigate the phenomenon using the FTSE 100 companies of the London Stock Exchange. Even though the London stock exchange is also an active and large market like the New York Stock Exchange, not withstanding, we felt it necessary to investigate the ex-dividend day effect by looking at how the prices behave in the London stock exchange market as of today.

2.2 Perspective

The word perspective is known to be the starting point of any research. It guides the researcher where the problem is and how to approach and interpret reality (Lundal and Skärvad, 1999).

Reality affects research using its form and well based opinion, therefore the choice of perspective makes it easier to really define what reality is, and hence increases the level of meaning of the research (Patel and Tebelius, 1987).

This thesis is written using the observer's perspective and in particular, we focus on how price behaves on the ex-dividend day. Why we chose the observer's perspective is so as to have a neutral standpoint. We don't pick up the bias of any active player in the London Stock Exchange such as a rational investor that would have loved a more efficient market to minimize fluctuations of his return or a speculator that would have loved a more inefficient market to make use of arbitrage opportunities in his short sales.

2.3 Preconceptions

Ejvegård in his book says that, it is of prime importance to strive towards objectivism when writing a thesis. But at times it seems hard since it is difficult to discover ones bias and preconceived ideas (Ejvegård, 2003).

Each person at one point in time is affected by his or her preconceptions developed from social background, education and life experiences. And it is of prime importance to consider it when writing a scientific paper, because the way we think, see and react towards the subject matter will be affected by our preconceptions, and hence will influence the outcome of the work. Clarifying these preconceptions at the start of the study will help the researcher to be aware of how he/she will interprets the findings and how the outcome can be influenced (Gustavsson, 1992).

Both of us are business administration students. Zillah did her Bachelors degree in Banking and Finance and later on worked for one year in a Bank as an accountant. Aspiring to get more knowledge, she traveled to Sweden to do a Master program in Accounting and Finance. Kenneth also did his Bachelors degree in Finance and worked for a year with finances in a secondary school. Both of us have been interested in the stock market during the time of our studies. We got to know about efficient market hypothesis during the first course-corporate finance and later on we began brain storming if actually this efficient market hypothesis is correct for every situation.

We want to say that, our preconceptions and how it might affect this study have been critically thought of. Henceforth, we make an effort to work with an open mind in this thesis and to use our preconceptions in a positive way.

2.4   Underlying philosophy

These concepts Ontology and Epistemology are two philosophical underpinnings that are interlinked to determine a research methodology. Epistemology deals with the study of science, knowledge, model and testability i.e. what we identify as the truth, while Ontology deals with science or study of being (Muller, 2005). Ontological choices are frequently illustrated as a dichotomy of two extremes, usually called phenomenology and positivism (Muller, 2005).

To positivist, they try to explain and depict their surroundings and later on seek what is universal or typical (Johansson-Lindfors, 1993). In Positivistic research, hypothesis is gotten from existing theories, usually in the form of postulated causal linkages between entities, which are later submitted for empirical tests (Bryman, 1998). It also depends on unified scientific methods that are valid for all forms of analysis or domain of research. It looks for regularities and causal relationships through a reduction process, by separating the whole into smaller bits and pieces and studies each part by itself, until it becomes easier to

understand and explain (Muller, 2005). The critique against positivism is that, they rely so much on existing theory that limits the definition of the research (Bunge, 1998) and secondly they are criticize for keeping older theories and not coming out with new ones. (Feyerabend, 1975).

On the other hand, a devotee of Phenomenology believes that, the complexity of social science is difficult to be captured with positivistic methodologies. They prefer a more holistic view, which is different from the reductionist view of positivists (Muller, 2005). They believe that scientists should study only phenomena and the related human experience (Bunge, 1998) in order to understand and explain the reason why people have diverse experiences and meanings (Easterby-Smith et al, 1991). Phenomenalism is criticized for the fact that, in extremes situation it can lead to research where the validity is questionable and renders the work not useful for all practical purposes (Symons, 1996).

We have chosen a predominantly positivistic approach to obtain our results. Since our goal is to examine if stock prices really drops by the same amount as the dividend on the ex-dividend day. What this implies is that we intend to test an existing theory- The efficient market hypothesis. We therefore use this existing theory to postulate four hypotheses:
- The expected value of raw price ratio = 1;
- The expected value of the Market adjusted price ratio = 1;
- The expected value of the raw price drop = dividend yield; and
- The expected value of the market adjusted raw price drop = dividend yield

The above hypotheses are subjected to empirical test. We do not believe that a phenomenological approach will be best for our study since we do not hope to study any phenomena in order to settle on a new theory.

2.5   Scientific Approach

Inductive and deductive are two main research methods that are used when a study has to be conducted. Deductive approach is used when the problem issue can be gotten from theory. Here researchers use existing theory for hypothesis testing. Data is gathered through observations, surveys, questionnaires, interviews etc and the analysis of data is done using statistical methods like multivariate data analysis techniques. This research method aims at developing theory through accepting or rejecting hypothesis (Muller, 2005). A deductive approach is usually use under a positivistic ontological stance (Johansson-Lindfors, 1993).

Inductive approach on the other hand seeks to understand new or unknown phenomena. The gathering of data is through interviews, diary methods and observation. Theory often follows data and this type of approach is difficult to imitate (Muller, 2005). According to Johansson-Lindfors an inductive research is taken from studies with phenomenological stands. However, a good number of research contains a combination of both inductive and deductive approach, which is called an adductive approach (Halvorsen, 1992).

When using a positivistic scientific ideal together with a deductive approach the goal is to test existing theories, which is what will be done in this study (Lundahl & Skärvad, 1992). A question as to whether a market behaves in an efficient was using the ex-dividend day effect, comes from an existing theory- the efficient market hypothesis.

A deductive approach is found suitable for this thesis, so the interpretation used here has been treated objectively, which corresponds to the deductive approach. This is quite okay as it follows our positivistic ontological stance. We will be using statistical methods with the aid of SPSS software in analyzing our data. Again an inductive approach is not suitable since we don't aim at understanding a new phenomena.

2.6   Research Method

A scientific research can be done using a qualitative or a quantitative method. Quantitative research involves the gathering of data with the sole aim of testing a theory, giving mostly summary information on many characteristics, having short interviews (1-20 minutes), and the person conducting the interview is passive, using large sample size (over 50), and results are often based on objective interpretations (Muller, 2005). This research method is closely link to the positivistic scientific ideal that bases its inquiry on large amount of data to enable deduction of statistically controlled truth (Cassel, Symon 1994).

Qualitative data is gathered with the aim of finding out hidden motivations and values, and benefiting from deeper understanding from information regarding a few characteristics. It involves small samples (1 to 50) and the results are subjective, involves long interviews, and the interviewer is active and also highly skilled (Muller, 2005).

Since we aim to find out if the market is efficient or not, we think it is appropriate to use data such as stock prices and dividend amount to do our findings. To us, qualitative data is not appropriate in this our study since we would be limited to small data, but a quantitative study, which we have chosen, gives us the chance to gather a larger sample of data that will be easier to describe reality more objectively.

2.7   Hypothesis Testing.

It involves a process of finding out if a given hypothesis is true or not. When carrying out a hypothesis test, we have four steps that are involved (Kohler, 1994).
-   Formulating two opposing hypothesis
-   Selecting a test statistic
-   Deriving a decision rule

- Taking a sample, computing the test statistic and confronting it with the decision rule.

1) Formulating two opposing hypothesis

Usually, the first step is to formulate the two opposing hypothesis. H_o stands for the null hypothesis, which describes the normal case of what people have long conceived to be true. It is a statement that assumes to be true unless you have statistical evidence to disprove it. H_l stands for the alternative hypothesis, which is the opposite of the null hypothesis. It takes into account all the statements that are not covered by H_o.

2) Selecting a test statistic

A test statistic is calculated from a simple random sample that is gotten from a population of interest in the hypothesis test, which is used to formulate the probable truth (Kohler, 1994). A T-value or T-ratio can be use to test for significance. We use a one sample t-test to test the null hypothesis.

3) Deriving a decision rule

The decision rule helps us to know the circumstances under which a null hypothesis can either be rejected or accepted. When the null hypothesis is rejected automatically the alternative hypothesis is accepted (A.D. Aczel 1993). Parameters like the number of observations, standard deviation and the confidence interval is considered when deriving the decision rule. To avoid the error of rejecting what is true a significance level is set up and it is represented as α. It can take values such as 0.01, 0.05 or .10. Probability of (α) can be written as:

α =Probability (Reject H_o /Accept H_o)

Whatever value you place on α will determine the decision rule you will have to use when rejecting the null hypothesis. When carrying out a statistical hypothesis test, the decision rule used could for example be made up of comparing the calculated t-value with the value, which clearly demarcates the

region of rejection and acceptance.   The null hypothesis is not accepted with significance α when the t-value is found in the area of rejection.   The area of rejection is made in a way that the parameter to be investigated has a chance α to end up in the rejection area if the null hypothesis is true (Alm et al, 1999).

4)   Taking a sample, computing the test statistic and confronting it with the decision rule.

The last stage involves selecting a simple random sample of the size of the population of your choice. Then compute the actual value of the test statistic and confront the findings with the decision rules (Anderson et al, 1999).

2.8   The Possibility of Making an Error.

In the context of statistical hypothesis testing, there are two types of errors that can happen. These are called type 1 and type ll errors.

Type I error (α) is the probability of rejecting H_o when it is found to be true (usually 0.5, also 0.1 or .001) (Hair et al, 2003). Kohler mentions that rejecting a null hypothesis that appears to be true is equal to α, the significance level of the test.   On the other hand, the probability of avoiding a type I error when null hypothesis is found to be true is 1- α which is the confidence level of the test.

Type ll error (β) is the probability of failing to reject H_o when it is found to be false. It also follows that the probability of avoiding type ll error when null hypothesis is found to be false is equal to 1- β (Hair et al, 2003).

2.9 Collection of Literature Sources

After clearly stating the purpose and methodology, we need to focus on how the theory will be retrieve in order to form the theoretical frame of reference.   To maintain a degree of credibility and openness, we will describe our search

pattern.

The theoretical information is gotten from scientific articles and other literary sources. The university search engine ALBUM was used to get useful literatures. Also, articles were found using Libris and databases using the Umeå University library's homepage. Some of the search words that we used are: Anomalies, Ex-dividend day, ex-dividend effect, efficient market hypothesis, Market efficiency, EMH, event study, efficiency and dividend. We used some of the words as entries by themselves (e.g. efficient) and also in amalgamation with each other (e.g. efficient market hypothesis).

As regards the credibility criteria on the above search results, it will be mention in the concluding remarks in the last chapter. The empirical data will be discussed in chapter four.

2.10 Criticism of literature sources

Hartman, S.G. (1993), says that it is important for every researcher to evaluate material independence, how recent the material is, to check if it does not carry a false view and how close to the source the data was collected. In order to get material independence in the theoretical framework, we did all to be selective in our choice of literature and tried to use first source information.

Most of the authors in books and articles that we found are well known researchers within the financial world. They have been doing a lot of publications. Examples like Professor Fama and Stephen Ross are well known publishers in the field of finance. We did all to see that our sources were properly cited. To be sure our articles did not carry a false view, some of the articles were gotten from highly rated journals like Journals of Finance, and most of the articles we used were between 1970 and 2003. We also used older books and articles since they contain relevant information that we needed.

To a greater extend we are confident with our sources since we could get what we wanted for our study. With this good foundation and background, we move on with the study.

3.   THEORETICAL FRAMEWORK

In this section we present the theoretical framework that is divided into two sections. The first phase deals with the efficient Market Hypothesis while the second phase focus on dividends, clientele effect, dividend signal and the hypothesis testing etc.

3.1   Market Efficiency

The word Efficient means something that performs well, or someone who is competent and resourceful. When talking about the market, the word efficient refers to how fast the market prices change when new information is released. Thus an efficient market is one in which the prices of the stocks fully reflect available information. But in the case where information needs to take some time to go through the market and be evaluated leading to a slow adjustment of price in question, we say the market is inefficient (Haugen, 2001).

Efficient market hypothesis has its root from the assumption of the existence of a perfect capital market. For the perfect capital market to hold, the following assumptions must be in place. These are; firstly no taxes and secondly all investors must have the same information, also there should be complete contracting possibilities i.e. no agency cost link with stock ownership. Fourthly, no transaction cost both for individuals buying and selling securities, and for firms issuing and repurchasing shares, and finally the market should be complete (Marseguerra, 1998). These assumptions leave a reader to wonder if there is a perfect capital market. This is because in the real world the assumptions are not true since there are taxes, agency cost, and transaction cost. If efficient market hypothesis has its roots from the assumption of a perfect capital market, is this hypothesis true? Or is there a degree of efficiency of the market?

What is the extent to which the stock market is efficient? From this question, it can be inferred that market efficiency is not a "true or false" issue. Market efficiency can be rated from the top as researchers will call it strong form efficiency and to the bottom as inefficient. A clear way of assessing it is by

exploring what information, as a fraction of all the available information is used when deciding on the security price (Elton et al, 1995). Ross (2002) divided the efficient market hypothesis into three different forms, weak form of efficiency, semi-strong form and the strong form of efficiency. These different forms of market efficiency can be represented diagrammatically as can be seen below:
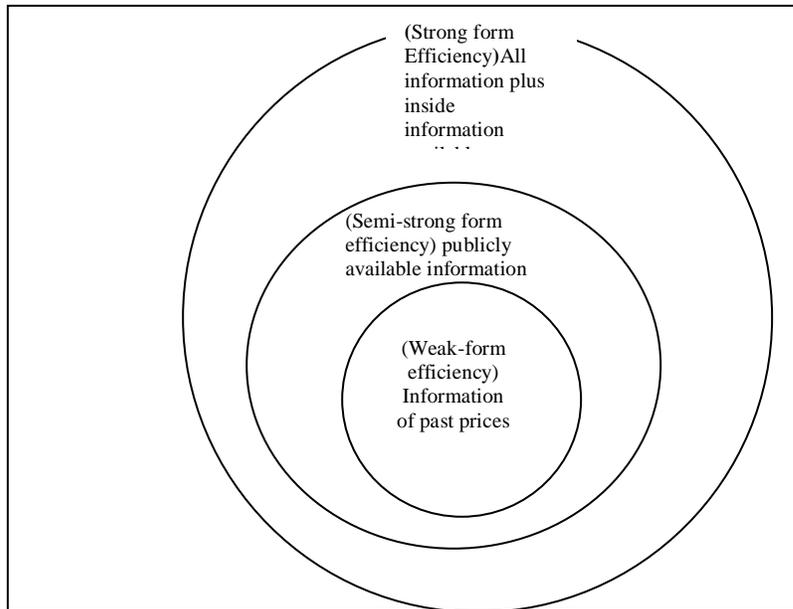
Fig 1. A subset of accessible information for a given stock
Source: Ross, 2002, p. 347

3.1.1 Weak Form Efficiency

The weak form of efficiency states that, the stock prices should reflect any information of past prices. It is so far the weakest form of efficiency since in the finance market it is very easy to get information about historic prices. The information may include a phenomenon such as seasonal patterns but does not use any other information like earnings, forecasts and merger announcement etc (Haugen, 2001). We argue that this form of efficiency will not be effective for a rational investor. Just having past prices as information to predict future prices could result in error. All available information goes beyond past prices and so

investors will prefer to consider other information like future earnings forecast, and future major political events.

Haugen in his book gives an example where prices are known to drop in the last trading day of the year and rise again on the first trading day of the next year. With this type of pattern is easier for traders to discover it. And they will put in all effort to buy the stocks before closing on the last day. With this type of behavior it becomes difficult to predict future stock prices by analyzing historic prices (Haugen, 2001).

3.1.2 Semi-Strong Form of Efficiency

In this type of efficiency, prices reflect all publicly available information. It includes information such as yearly reports, reports from competing companies, press releases etc. Here, when a company releases new information about the market or industry, asset prices will immediately adjust to the new information given. Ross gives an example: Just picture an investor who plans to buy an asset but later on decides to wait till the company releases its latest earnings report. If earnings become better than what was expected in the market, the prices of stock will rise automatically eliminating profit opportunity (Ross, 2002). Semi-strong form market efficiency in our opinion is an appropriate degree of market efficiency. It gets between the two extreme of weak and strong-form of efficiency. Atleast, all publicly available information should be reflected in a stock price.

3.1.3 Strong-Form of Efficiency

It states that all information, including insider information, information about historic prices and all publicly available information should fully be reflected in a security's price. Investors who receive such information will asses it to know if is possible to buy or sell the security based on their findings. And with this action, the price of stocks will be affected causing an adjustment that reflects the new

inside information (Haugen, 2001). We believe that if this type of efficiency is achieved, profits will be minimized for most companies. This is because given the availability of insiders' information, the public will not be willing to pay for high marginal profits to the companies.

Elton in his book says that, there exists another side to the strong form of efficiency. And this concerns information that is available to actors in managerial positions. If a manager have access to any new information just before it is release, and can easily interpret this information, the manager will still not make a profit with the most extreme form of efficient market hypothesis. It is good to note that this is just a theoretical case and there is no proof to support this scenario in practice (Elton, 1995).

This thesis is based on the semi-strong form market efficiency since we use cum-dividend price and the ex-day price. We do not limit ourselves to the availability of historic prices, which already dismissing the weak form market efficiency. Also we face difficulties to believe in the strong form market efficiency since we think that a manager could use inside information to make profits which contradicts the assumption behind the strong-form of efficiency.

3.2 Dividends

The word dividend is a taxable payment that a company's board of directors declares and gives to its shareholders out of the company's retained earnings. It acts as a motivation to own stock in a company that is stable even though they might not be experiencing so much growth (Cory J., 2002). However we will see later that not every investor is interested in dividend. There are many companies that have a no dividend policy, yet there still have shareholders and interested prospective shareholders. We quickly point out here that some shareholders are just interested in trading with shares for profit, not dividend.

Dividend can be paid out in different forms such as cash (cash dividend), stock

(stock dividend) or other property. But the most popular ones are cash and stock dividend. Below Cory J. (2002) discussed the three types of dividend:

- *Cash dividend* is money paid out to stockholders out of company's profits. Cory gives an example where an investor who is known to own 100 shares in a given company and this Company has made quite some good sales. Because of the good sales, the company agrees to pay dividend to its stockholders 0f $0.10 per share. I.e. the owner of the 100 shares will receive a check of $10 from the company. Most public companies usually pay cash dividend four times a year. Some company's after paying the regular cash dividend will also pay an extra cash dividend such as the example given above.

- Another type of dividend we have is the *stock dividend*. Here dividend is paid out in the form of additional shares not in cash. For example, in the case where a company decides to issue dividend but have no cash at hand to give but have enough stocks to pay everyone, he will issue a dividend of 0.05 new shares for every 100 shares that each investor owns. But in the case of any fractional shares left over, the dividend will be paid in cash since stocks can't be traded fractionally.

- The third type of dividend issue is the *property dividend*. It involves a physical transfer of a tangible asset from the company to its investors. Here money or stock is not pay out, the company looks for something physical to pay like property. A hamburger restaurant may decide to give hamburgers to its investors being property dividend paid

We will focus on cash dividend on our thesis since it affects the actual stock price and makes the value of the firm to differentiate. In UK the common dividend procedure is to pay out dividends on a quarterly base. In other markets like in Sweden it is paid once a year while in the US it is paid four times a year (Alm et

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al, 1999).

Before the payment of cash dividend, the board of directors must have declared the dividends already. The board members have the full right to determine the amount that is to be paid out in the form of a dividend and the amount that is to be ploughed back into the business. The payment of cash dividend causes a decrease in total stockholders' equity (Alm et al, 1999)

3.2.1 Dates of Cash Dividend Payment

Firms encounter four dates in the process of paying out dividend. These include: Declaration date, Ex-dividend date, Date of record and Date of payment as discussed below (Cory J., 2002):

- *Declaration date* is the date when the board of directors announces to the market as well as to the shareholders that there will be a payment of dividend by the company. Once dividend has been announced, the company is free to make payment legally.

- *Ex-date or Ex-dividend date* is known as the second business day before the date of record. If a dividend paying stock is bought one day before the ex-dividend day, the original investor is still liable to have the dividend, but if bought on the ex-dividend date you won't be able to get a dividend payment. Also, the same goes for the selling of stocks. To sell a stock and still get the dividend that has been announced, it needs to be sold on or after the ex-dividend day. For example as illustrated below by Cory, if a stock is bought on the ex-dividend date (Tuesday as seen in the table 1 below), it will not be possible for the buyer to receive any dividend since you have just two days before the date of record so your name will not have been registered in the company's record book until Friday. So in order to buy the stock and receive dividend, it must be bought on Monday (why because the stock will be trading alongside the dividend a term we

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call cum-dividend).   In the case where you want to sell the stock and receive a dividend, it must be sold on or after Tuesday, which is the 2nd as seen in table 1 below:

Ex-Dividend Date   Date of Record

Monday	Tuesday	Wednesday	Thursday	Friday
1st	2nd	3rd	4th	5th

Table 1: Dates of cash Dividend payment. *Source Cory J., (2002)*

- *Date of record* –On this date the company checks its records to know the present shareholders i.e. those who will be paid dividend. For an investor to be qualified for the dividend payment, he must be listed as a holder of record and if not no dividend will be pay to him.

- *Date of payment (payable date)* - is the actual date that the company mails to its stockholders the dividend. It usual takes some time for the dividend to be paid out after the record date in order to be sure all those entitled to it receives it.

3.2.2 Ex-Dividend Day Effect

The ex-dividend day is very important. Investors who buy stocks before the ex-dividend day receives a current dividend, while if another investor buys the stocks on or after the ex-dividend day, he will not be able to get the dividend. If a company pays out dividend, automatically there is a fall in the price of the stocks because cash has been sent out. This implies same to what happens on the ex-dividend date where the price of stock falls.   This drop in price indicates

efficiency, not inefficiency, since the market attaches much value to cash dividend (Ross et al, 2002).

The effect of dividend on the security price can be gotten by taking the difference in price between the cum-dividend day and the ex-dividend day. In the situation of a perfect market, the size of the fall in security price between the two days will be affected by, and corresponds to the dividend amount, if all things are equal. We call this the ex-dividend day effect (Alm et al, 1999).

This ex-dividend day has been a subject of debate among many researchers not the ex-dividend day effect. Claesson Kerstin only discovered the ex-day effect in 1987. She looked at the efficiency on the Stockholm Stock Exchange. Her findings resulted to an average dividend yield of 4.25% gotten by dividing dividend with the price on the cum-dividend day. On the ex-date the average price fell to 4.18%. Price to dividend ratio was 0.984, which is the same as the excess return of 0.07% (1-0.984) x 4.25% when compared with the average daily return. The price of the stock drop on the ex-dividend day was almost exactly the same as the dividend given out. Further she concluded that, it is a good method to use since it is made up of an equally weighted portfolio of the stocks that had once had an ex-day during the time measured (Claesson, 1987). Lakonishok (1986) used the same method like Claesson to calculate the effect of price on the ex-day. The price of stock on the day prior the ex-day is divided by the price fall on the ex-day as well as the dividend. Later they got the average on each of the measures where a ratio between the two numbers was formed.

Grinblatt et al (1984) carried out a study about the ex-day effects. To them, they concluded that it seems impossible to earn abnormal profits in an efficient market by simpling trading on the announcement that is made as regards the payment of dividend. Their study was done during the years 1967-1976 and they based their findings around the ex-dividend day using both the NYSE and the AMEX market. They came out with the results that abnormal profits are link to the ex-dividend

day.

Earlier researchers like Elton and Gruber based their research mostly on the clientele effect and also identifying the investor's marginal tax rate. In their opinion, what makes the difference between a fall in the price of stock and the dividend yield is the investor's marginal tax rate. Their data was made up of all the companies that pay dividend on the NYSE between the period April 1966 to March 1967 and did trade on the prior day and on the ex-dividend day. They came out with a ratio $(P_2-P_1)/D$. P_2 stands for the closing price before the ex-day, P_1 stands for closing price on the ex-day. Using the above formula, they came out with a ratio that is 0.7767 when only the raw data was used for the whole sample. They felt that using the closing price on the ex-day is some how bias so they derived another means to adjust the bias. They added a variable called P_x, which is gotten by subtracting average market movement from P_1. To get the average market movement, they looked at the return on all stocks on the ex-dividend day that paid dividend and later on calculated an average on the returns. Their results as regards the adjusted ratio $(P_2-P_X)/D$ were 0.7868. To them, they found this result to be better because stocks with a low dividend rate are given higher weights than shares with high dividend.

But other researchers like Kalay, (1982) say that it is difficult to know the difference using the marginal tax rate since many variables are ignored.

Nikolaos et al (2006) did a study on the ex-dividend day stock price behaviour in the Chinese stock market. His sample data included all companies in the A-shares from January 1996 to December 1998. His main goal was to examine if the prices of stocks on the ex-dividend day falls by an amount that is the same as the dividend paid. His sample was made up of 317 observations where 267 are taxable observations and 50 are non-taxable. He came out with a model both for the taxable and non-taxable cash dividend.

For the non-taxable cash dividend he tested four hypotheses which included the

raw price ratio (RPR), Market adjusted price ratio (MAPR), raw price drop (RPD) and the Market adjusted price drop (MAPD). The theoretical and observed median and mean values for RPR, MAPR, RPD, MAPD were presented and also the standard deviation. A table containing the summary statistics of mean, median and standard deviation in relation to dividend yield was illustrated. The differences that occurred as regards the means from their corresponding theoretical values where tested using the t-test. The mean (median) for RPR was 2.065 (1.90) while the t-statistics regarding the mean was 1.875, indicating that the observed mean value for RPR was greater than the theoretical value at 0.10 level of significance. For the MAPR the mean (median) was 1.580 (0.947) while the t-statistic results was 1.07 (0.743) indicating that the observed values was not statistically different from the theoretical value of 1.00 at any level of significance. For the RPD the mean (median) was 0.011 (0.010) while the theoretical value was 0.008. The p-value was 0.898 (0.364) indicating that there was no difference between the theoretical and observed values. For MAPD the mean (median) was 0.009 (0.007) while the p-value indicated no difference. He concluded by saying that the hypothesis tested could not be rejected. Meaning that the findings as regards the non-taxable stocks indicated that prices on the ex-day falls by the same amount which is not different from the dividend that is paid Nikolaos et al (2006).

For the taxable sample, his results showed that the prices of stocks falls the same as the dividend paid.

Another researcher who investigated on this topic if stock prices really drops by the same amount as the dividend on the ex-dividend day was Alm. Alm in his paper investigated the above topic with other sub-topic as regards arbitrage possibilities. Since our topic is based on the first topic he investigated, we want to compare our own findings with his. His sample data was made up of Swedish companies that are listed on the Stockholm Stock Exchange who have paid dividend between 1994-1998. He looked at the difference as regards the prices

of stock before the ex-day and also the prices of stock on the ex-dividend and compared their difference to the dividend amount being paid. He had 837 observations using more than 30 companies. He came out with a model where he calculated the ratio between the drop in price of stock and the amount of dividend paid out for each share. Lateron, an average was calculated for all the stocks inorder to determine the average price drop per sek that was paid out in the form of cash dividend. He did a t-test in order to test the null hypothesis . And after carryout the study, he came out with the conclusion that the price of stock on average are less than the dividend paid out (Alm et al, 1999)

3.2.3 Clientele Effect

Elton et al (1970) says that if the holder of stock sells it stocks before the ex-day, he will not be entitled to the already declared dividend. But if the stocks are sold on the ex-day he maintains the dividend but should note that he has to sell it at a very low price because of the dividend he has to retain.

Furthermore, he says that a company's stock price will change in relation to the demands of investors following a reaction to dividend, other policy and tax that affects the company.   This theory states that investors pay attention to different company policies in such that when the policy of the company changes, they will also adjust their stock holdings. Because of this changes, the price of the stock will move. For example imagine a company that has just pay out a huge amount of dividend which has attracted investors whose main goal is to get stock with a high dividend payout. In the case where this company wants to decrease its dividend, most of the investors will leave the company and go to another one that pays a higher dividend. By so doing, there will be a drop in the company's share price (Elton et al, 1970).

On the other hand ,some school of thoughts argues that, the fall in stock price is not equal to the dividend amount when tax has to be considered. In a situation where the dividend amount is taxed higher than the capital gains, investors in

different tax brackets will want another payout policies. Also, investors with high marginal tax rate will prefer stocks with low payout ratio citerus paribus (Brennan, 1970). But Kalay in his article says that this fact has no concrete argument, since many researchers have done a lot of studies and no result has shown that, those who earn high will prefer stocks that have a low dividend yield over the high ones(Kalay, 1982).

Ross et al, (2002) in his book shows us the relationship between a clientele's marginal tax rate and choice of stocks. Table 2 below shows that if an investor's marginal tax rate is high, he will prefer a low dividend yield.

Group	Stocks
Individuals in high tax-brackets	Zero-to-low-payout stocks
Individuals in low tax brackets	Low-to-medium-payout stocks
Tax-free institutions	Medium-payout stocks
Corporations	High-payout stocks

Table 2: Clientele effect. Source: Ross, Westerfield, Jaffe,(2002). "Corporate Finance, pp. 515.

Furthermore, M. Blume and Lewellen carried out a survey, which shows investors with a high marginal tax brackets will prefer to buy stocks that have low-dividend and vice-versa. (M. Blume, 1974, W. Lewellen 1978). This is illustrated below in table 3

Decile	Dividend Yield (% per annum)	Marginal Tax Rate (%)
1	7.9%	36%
2	5.4	35
3	4.4	38
4	3.5	39
5	2.7	38
6	1.8	41
7	0.6	40
8	0.0	41
9	0.0	42
10	0.0	41

Table 3: Dividend Yield versus Marginal Tax Rate. Source: Lewellen et al (1978)."Some direct evidence on the Dividend clientele Phenomenon", *Journal of Finance* **33, pp.5**

3.2.4 Dividend as a Signal

The signaling theory estimates that an unexpected increase in dividend is link to positive excess returns (Bhattacharya, S., 1979). Empirically, it has been discovered that if the present dividend is high, the price of the firm's stock will also increase and vice versa (Ross et al, 2002). Asquith and Mullins (1983) estimated that the price of stock rises about 3% preceding the declaration of dividend initiations. While Healy and Palepu (1988) and Michealy, Thaler and Womack (1995) said that the prices of stock drops about 7% preceding the declaration of dividend omissions. Some other writers say that firms don't like to reduce dividend, but will increase dividend only when there is a rise in future earnings and cash flow expectation so that dividend will not be reduced later (Ross et al, 2002).

However, when dividend is increase, it acts as a signal to the market how well the firm is operating and this can create an expectation on how prosperous the firm can be in the future i.e. future performance (Ross et al, 2002).

In UK, dividends are announced at the same time as earnings, which makes it hard to separate the signal effect from the dividend effect (Marsh, 1992).

Following the market efficiency hypothesis, the above two effects are separated because the market takes immediate action to announcement and incorporates the effects on the same day (Ross et al, 2002).

3.2.5 Trading Volume around the ex-dividend day

Green (1980) says in his article that there is an increase in trading volume on the ex-dividend period than on the normal period's cause investors prefer to trade more so as to minimise tax rate. For example, investors of the high-tax bracket who prefer capital gains to dividends will sell their shares on the last cum-dividend day and purchase shares the first day after the ex-day. In Uk, in order to maintain a minimum holding period of one month, short-term investors will create abnormal trading volumes in shares in a period of 30 days surrounding the ex-day (Meziane, 1999).

An important word introduced during the discussion of Ex-date is the cum-dividend. As mentioned above, this is when a stock is trading together with the dividend. If an investor buys a stock during the cum-dividend date, the buyer is entitled to the dividend. On the other hand, the buyer of a stock is not entitle to dividend if he/she buys the stocks on or after the ex-dividend day. We do not investigate the clientele effect but felt it is necessary for any reader of this thesis to understand that the clientele effect and ex-dividend day effect could be use to study market efficiency. We argue that dividend as a signal is closely related to the clientele effect since it is the changes in companies' policy surrounding dividend that sends out signal to the public. Our analysis will focus on the ex-dividend day effect; in particular, our base will be to see if stock price of the last cum dividend day is equivalent to the stock price on the ex-dividend day plus the dividend. Based on this, four ratios will be develop and subjected to empirical testing.

4.   MAKING IT REAL

This chapter will present the methods that have been used, how the sample was made and data processed. Also, the statistical theory and methods we have used.

4.1   Background Information of the London Stock Exchange

The London Stock Exchange (LSE) has its origin from the trading activities at New Jonathan's Coffee House in the 17th century. In 1970, it fully became a stock market integrating all regional exchanges in the United Kingdom being a major Stock Exchange of Ireland and Great Britain. It then had its name being changed to International Stock Exchange of the United Kingdom and Ireland (ISE) after the Big Bang in 1986. This stock exchange is regulated by the Securities and Futures Authority organization that is under the control of the Securities and Investments Board (Moles and Terry, 1997).

The London Stock Exchange incorporates two markets; the main market which is quote-driven, and a market for small companies stocks including unlisted securities market, the Bulletin Board and the Alternative Investments Market. After the Big Bang, the London Stock Exchange was restricted to cash instruments thus the options Market became part of the London International Financial Futures and Options Exchange, which is the major securities derivatives exchange in the United Kingdom (Moles and Terry, 1997).

The FTSE 100 was formed on 3rd January 1984 to be an index for the most highly capitalized markets on the London Stock Exchange. The FTSE Group sets a list of requirements companies must comply with in order to be listed in the FTSE100. These requirements incorporate standards on sterling-denominated price on SETS, nationality test, free float and liquidity. Trading runs from 8 am to 4:29pm and closing values are recorded at 4:36pm (Moles and Terry, 1997).

Since FTSE 100 is made up of highly performance firm, it is seen as a measuring rod of success in the British economy, and it is known to be a leading share

index in Europe. A joint venture between the London Stock Exchange and the Financial Times came out with an independent company known as the FTSE Group which maintains the FTSE 100 index representing about 80% of the UK share market (Moles and Terry, 1997).

4.2 Model Specification

This study is going to adopt the research model that has been used in analyzing stock price behaviour in the Chinese stock market (Nikolaos et al, 2006). This method compares the theoretical value of the raw price ratio (the ratio of the drop in value of the stock to the dividend paid), market adjusted price ratio, raw price drop and market adjusted price drop to the observed values and later on tests for significance of any observed differences. According to Finance theory, in well segmented capital markets, where there are no arbitrage opportunities, this ratio should be equivalent to unity. The hypothesis that has been tested by most studies is whether the observed value is actually equal to one. Using a level of significance of 5% the hypothesis is either rejected or not rejected based on applying t-tests to test for the significance of any differences.

This study is aimed at examining if stock prices really drop by the same amount as the dividend on the ex-dividend day. Consider a shareholder who decides to keep his stock on the last cum dividend day. His/her wealth on the ex-dividend day from holding one share of stock will constitute its price (P_{t0}) plus the amount of the dividend (D), which he is entitled to receive on the stock. Assuming that capital markets are well segmented implying that there are no arbitrage opportunities, this price should not be different from the share price that the seller received on the last cum date (P_{t-1}). Everything being equal, this price can be expressed by the following expression:

$$P_{t-1} = P_{t0} + D \qquad\qquad\qquad (1)$$

If we subtract Pt_0 from both sides of equation (1) and divide both sides by D, it

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gives us the raw price ratio, RPR. This is shown in equation (2) below:

$$RPR = \frac{P_{t-1} - P_{t0}}{D} = \left(\frac{P_{t0} + D - P_{t0}}{D} \right) = 1 \qquad (2)$$

Assuming that the drop in share price is equivalent to the dividend paid, which is consistent with finance theory, the expected value of the raw price ratio E (RPR) should be equal to unity. Since this value is subject to market influences between the two days, it is necessary to provide a market adjusted price ratio (MAPR). This can be done by discounting the price on the ex-dividend day by the daily market return. This leads us to equation 3 below.

$$MAPR = \frac{P_{t-1} - \left(P_{t0} / (1 + r_m) \right)}{D} \qquad (3)$$

Where r_m is the return on the market index, approximated by the corresponding stock index (the FTSE100 in our case). In like manner to the case of the RPR, the expected value of the market adjusted price ratio E(MAPR) is equal to unity. The price difference shown in equation 2 can also be expressed in terms of the price on the last cum day. This variable is known in the literature as the raw price drop (RPD).

$$RPD = \frac{P_{t-1} - P_{t0}}{P_{t-1}} = \frac{D}{Pt_{-1}} \qquad (4)$$

We can observe from equation 4 that the term on the right hand side of the equation is equivalent to the dividend yield on the stock. Therefore in a perfect capital market, where there are no arbitrage opportunities, the expected value of the raw price drop E(RPD) should be equivalent to the dividend yield. In like manner, the market adjusted price drop ratio (MAPD) can be calculated as follows:

$$MAPD = \frac{\left[Pt - 1 - \left(P_0 / (1 + r_m) \right) \right]}{Pt_{-1}} \qquad (5)$$

Just like the raw price drop in equation 4 above, the theoretical value of MAPD equals the dividend yield. To sum up, the following hypotheses will be tested in the study:

$H_{1,}$ i: The expected value of RPR, E(RPR) = 1;

$H_{1,}$ ii: The expected value of the Market adjusted price ratio E(MAPR) = 1;

$H_{2,}$ i: The expected value of the raw price drop E(RPD) = dividend yield; and

$H_{2,}$ ii: The expected value of the market adjusted raw price drop E(MAPD) = dividend yield

Where as calculated mathematically above:

- **Raw Price Ratio (RPR)** is the drop in share price expressed as a fraction of the difference between the cum-dividend price and the ex-dividend price all over the actual dividend paid. Under normal circumstances, that is, where there are no arbitrage opportunities and where the market efficiency hypothesis is assumed to be true, the theoretical value of the raw price ratio should be equal to 1.

- **Market Adjusted Price Ratio (MAPR)** is the difference between the cum-dividend price and the market adjusted ex-dividend price expressed as a fraction of the actual dividend. Similarly under perfect capital markets, the theoretical or expected value of the market adjusted raw price ratio is equal to 1.

- **Raw Price Drop (RPD)** is the difference between the cum-dividend price and the ex-dividend price expressed as a fraction of the cum-dividend price. In perfect capital markets, the hypothesized value of the raw price drop is equivalent to the dividend yield.

- **Market Adjusted Price Drop (MAPD)** is the difference between the cum-dividend price and the market adjusted price expressed as a fraction of the cum-dividend price. Also, under perfect capital markets, the market adjusted price drop is equivalent to the dividend yield.

4.3 Sample Data.

The sample data covers the FTSE100 shares of the London stock exchange for the period 2001 to 2006. Data for the cash dividend per share, dividend yield, market return, cum dividend price, and ex-dividend price for the FTSE100 companies was downloaded from the Thomson DataStream database. We intended to observe the data on a quarterly base but data stream could not provide some of the data on a quarterly basis. As a result, the data could only be observed on a yearly basis. The Thomson DataStream database contains data on almost all stock indices in the world including, stocks, bonds, and other securities.

Dividends are paid on a quarterly basis in the United Kingdom (Alm et al, 1999) To this effect, the dividend for the last quarter was declared on the 30 of September, thus stock prices observed on this day was considered to be the cum dividend prices. Also, the 31st of December was considered as the ex-dividend day thus making stock prices observed on this day to be the ex-dividend prices. Some of the companies were eliminated for the following reasons: figures that were observed in a currency other than the Great British Pound, companies that had no data for dividends and companies that had very high or low figures for any of the required data. Of our 100 companies in the FTSE100 of the London Stock Exchange, 20 companies were therefore eliminated for the above reasons thus resulting in a final sample of 80 companies.

5) EMPIRICAL FINDINGS AND ANALYSIS

In this chapter, the empirical findings and analysis has been combine to enable the reader to easily follow up the work. Our sample test for the four hypotheses is illustrated here with the results.

5.1 Descriptive Statistics

Variable	Years	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Cum Dividend Price	6	424.29	485.90	910.19	654.8673	154.94307	24007.356
Dividend Yield	6	1.71	2.73	4.44	3.4066	.61075	.373
Dividend Per Share	6	5.39	17.96	23.36	19.8521	2.25012	5.063
Raw Price Ratio	6	1.69	1.02	2.71	2.2553	.61716	.381
Raw Price Drop	6	.04	.04	.08	.0682	.01533	.000
Observed Price Drop	6	41.50	18.64	60.14	45.3376	15.04323	226.299
Market Adjusted Price Ratio	6	4.09	2.79	6.89	5.0873	1.39232	1.939
Market Adjusted Price Drop	6	.07	.10	.18	.1533	.02599	.001
Valid Number of years	6						

Table 4. Descriptive Statistics. (SPSS print-out).

Table 4 above presents descriptive statistics for the observed values of the cum dividend price, dividend yield, cash dividend, raw price ratio, observed price drop, market adjusted price ratio and market adjusted price drop. As can be seen, the mean values for raw price ratio and Market adjusted price ratio are 2.2553 and 5.0873 respectively. These figures appear to be significantly different from their theoretical or hypothesized value of 1 (as can be seen in Table 5 below) although the difference for the market adjusted price ratio is also very high. The standard deviation measures how far the observed value is from the mean value. For the raw price ratio and the market adjusted price ratio the standard deviation is .61716 and 1.39232 respectively (As seen in Table 4 above).

Also, the observed mean values for the raw price drop and market adjusted price drop are .0682 and .1533 respectively (As seen in Table 4 above). These figures are also significantly different from their hypothesized value which should be the

dividend yield (As seen in Table 5 below). The standard deviations for these figures are .01533 and .02599 for the raw price drop and market adjusted price drop respectively (As seen in Table 4 above). We can conclude from Table 4 and 5, that all the observed values for our parameters of interest are different from their theoretical values.

Variable	Observed value	Theoretical value	Difference
Raw Price Ratio	2.2553	1.0	1,2553
Market adjusted price ratio	5.0873	1.0	4,0873
Raw price drop	.0682	3	-2,93176
Market Adjusted Price drop	.1533	3	-2,84669

Table 5: Differences between the observed and theoretical values.

To draw final conclusions, this study will now test for the significance of this difference in the following paragraph.

5.2   Statistical Tests and results

Table 6: Sample t-test for the Raw Price Ratio (RPR)

Raw Price Ratio	Test Value = 1					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
	4,982	5	,004	1,25531	,6076	1,9030

Table 7: Sample t-test for the Market Adjusted Price Ratio (MAPR)

Market Adjusted Price Ratio	Test Value = 1					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
	7,191	5	,001	4,08729	2,6261	5,5484

Table 8: Sample t-test for the Raw Price Drop (RPD)

Raw Price Drop	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
	-468,430	5	,000	-2,93176	-2,9478	-2,9157

Table 9: Sample t-test for the Market Adjusted Price Drop (MAPD)

Market Adjusted Price Drop	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
	-268,336	5	,000	-2,84669	-2,8740	-2,8194

Tables 6 through 9 present results for t-tests carried out to test for significance in the differences of the observed raw price ratio, raw price drop, market adjusted raw price ratio and market adjusted price drop from their expected or hypothesized values. The observed value for the raw price ratio is 2.2553 representing a mean difference of 1,25531 from its theoretical value of 1. The t-statistic for the raw price ratio is 4,982. The t-test shown in table 6 gives results in a p-value of .004, which indicates that it is less than that 5%. By so doing we will be more than 95% confident that we are not making a type 1 error, that is

rejecting the null hypothesis when it is true. This implies that the mean difference of 1,25531 is statistically significant at both the 5% and 10% levels of significance. We therefore reject the first hypothesis, which states that the expected value of the raw price ratio is 1.

Similarly, the market adjusted price ratio exhibits a t-statistic of 7.191 as seen in table 7, a mean difference of 4,08729 and a probability or p-value of .001, which again is an indication that the mean difference is statistically significant at both the 5% and 10% levels of significance. We again reject the second hypothesis, which states that the expected value of the market adjusted price ratio should be 1. Looking at the observed raw price drop and market adjusted price drop, the t-statistic for the raw price drop is -468,430 as seen in table 8, its mean difference is -2.93176 and p-value is .000% implying that the mean difference is statistically significant at the 5% and 10% levels of significance. Finally the mean difference of the Market adjusted price drop is -2,84669 as seen in table 9 while the t-statistic is -268,336 and the p-value or probability is .000% again implying that the mean difference is statistically significant at both the 5% and 10% levels of significance. We therefore reject the 3rd and 4th hypothesis, which states that the observed price drop and market adjusted price drop should be equivalent to the dividend yield.

6) **CONCLUSIONS, CREDIBILITY CRITERIA AND SUGGESTIONS TO**

FURTHER STUDIES

In this chapter, we discussed the concluding remarks. Further, the credibility will be discussed to find out if we have accomplished the planned goal of this thesis. Lastly, we will present some few suggestions for further studies.

6.1   Concluding Remarks

In this study, we aimed at studying the movement of ex-dividend day stock price behaviour for the FTSE100 stock index for the period 2001 to 2006. The study was carried out by comparing the actual value of the raw price ratio, market adjusted price ratio, raw price drop and market adjusted price drop to their theoretical values. The difference was tested for significance using the one sample t-test. The results showed that there are significant differences in the observed figures from their theoretical or expected values.

The observed raw price ratio is higher than the expected value of 1, implying that the stock price on the ex-dividend day drops by an amount that is higher than the dividend paid. Similarly, the market adjusted raw price ratio is also higher than the expected value of 1. The raw price drop and market adjusted price drop are lower than the dividend yield, indicating again that the stock price drops by an amount that is less than the dividend paid. The study is inconsistent with the findings by Nikolas et al (2006), who studied the ex-dividend day stock price behaviour in the SHSE and SZSE indices of the Chinese Stock Exchange using a similar method but consistent with Alm et al (1999) who carry out a study using the Stockholm stock exchange where his findings showed that the stock price drop on average is less than the dividend been paid out.

6.2   Credibility Criteria

The credibility criteria is very important in a study but should be discussed in relation to the chosen scientific method. When talking about validity, reliability, and generalization, we feel that the right credibility for this thesis has been met.

6.2.1 Validity

Validity questions if an instrument measure what it is supposed to measures? (Easterby-Smith et al, 1991). Another definition for validity says that, it relies on if the information gathered on the topic to be studied is enough to discover qualities that could be tested in the theory. Furthermore, validity is when there is theoretical saturation. And this is achieved only when sufficient information has been gathered in such a way that bringing in more information would not be of any importance (Johansson-Lindfors, 1993).

Looking at the topic we have just studied, the information regarding the dividend amount, dividend yield, ex-dividend date and the stock prices are facts that are collected from sources that are by themselves reliable and valid such as the Thompson DataStream. The model used in this thesis has been used before by other writers in their research work like Nikolas et al (2006), who wrote about the ex-dividend day stock price behaviour in the Chinese stock market. We therefore believe our work has a high degree of validity.

6.2.2 Reliability

According to Easterby-Smith et al (1991), the word reliability means: Will the measure give the same outcome on different occasions (assuming there is no real adjustment in what is to be measured)? Or if this study is to be done again, will it give the same results? If the answer is yes, then the study could be considered reliable.

The data we have used has not been typed manually. We got the data from databases were we just simply did but cut and paste in the SPSS software for analysis which saved us from entering the wrong words, figures such as ex-dividend amount and cash dividend. The London Stock Exchange and the DataStream we used to get the data are themselves reliable in such a way that, if someone needs to repeat the work, the material is available and easy to get. With this we are confident that the results we have gathered are gotten from

reliable sources. The theoretical background of the work are taken from sources that are also trustworthy such as articles from highly rated journal like the Journal of Finance and some books written by well known researchers.

We believe that if another person takes on this work to redo using the same data and start from the same basis, he or she will have the same results. We therefore conclude the study is reliable.

6.2.3 Generalization

The truth criterion generalization seeks to know how possible it is for the sample results to be applied to a larger population. As discussed in the earlier, we have selected the FTSE 100 index for our analysis. Of the 100 companies in the FTSE 100, we used 80 companies in our analysis based on the availability of the information we needed. Using 80% of the companies is a large data that is relevant for generalization on the FTSE 100 index.

6.3 Suggestions to Further Studies

This study was carried out using only the FTSE100 index on the London Stock Exchange. And the results we have gotten may be affected by the choice of our stocks as well as the market index. The London Stock Exchange comprises of other stock indices, such as the FTSE250, FTSE350 and FTSE All shares. It could be desirable to conduct another study covering the other indices of the London Stock exchange.

Secondly, a study could be made by comparing between the London stocks which are cross-listed on US stock markets and stocks listed in London to see if there are any differences between the stock price reactions on the ex-dividend day.

Thirdly, a study could be made by carrying out different statistical methods using the same data to find out if the results look different depending on what method is used.

Finally, a study could be done by making a comparison between the different markets that exist on the London Stock Exchange.

7) References

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