



UNIVERSITI PUTRA MALAYSIA

**DETERMINANTS OF PRICE-EARNING RATIO OF LISTED
COMPANIES ON THE KUALA LUMPUR
STOCK EXCHANGE**

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GSM 2001 10

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**BY
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**Thesis Submitted in Partial Fulfilment of the Requirement for the
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Abstract of thesis to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Master of Science.

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In general, investors refer to price-earning ratio to select their investments in stock so as to maximise the returns on their investments. In developed countries, studies carried out to examine the relationship between price-earning ratio and earnings growth, risk, return on equity along with other factors do suggest that there are still uncertainties as to the extent these factors affect price-earning ratio. Therefore, the objective of this thesis is to investigate the degree of correlation of the following ten determinants namely return on equity, effective tax rate, foreign ownership, dividend payout ratio, leverage, reserves, book value of assets, standard deviation, earning growth and dividend growth with price-earning ratio. The study examined forty KLSE Main Board Companies over a period of five years from 1992-1996.

The study examined two different regression models, the time-series multiple regression model and the cross-sectional multiple regression model. The first model examined the relationship of price earning ratio and the explanatory variables over the five years study period. The second model looked at the ability of explanatory variables to explain the



differences in price earning ratio with other firms in the industry sample used. The theory of hypothesis testing and the ordinary least square method was used to test the models.

The results of the two regressions carried out concluded that only three significant determinants were found to affect price-earning ratio which were return on equity, book value of assets and reserves. Return on equity and reserves were found to be inversely related to price-earning ratio whereas book value of assets, on the other hand, has a positive or direct relationship with price-earning ratio. Previous studies in developed countries also confirm that these are the three variables that explain to a larger extent the variation in the price-earning ratio.



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PENENTU-PENENTU NISBAH HARGA PEROLEHAN BAGI SYARIKAT-SYARIKAT YANG TERSENARAI DI BURSA SAHAM KUALA LUMPUR

Oleh

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Secara umumnya, para pelabur merujuk kepada nisbah harga perolehan untuk membuat pemilihan dalam pelaburan saham untuk memaksimumkan pulangan atas pelaburan. Di negara-negara membangun, kajian yang telah dijalankan untuk menguji hubungan diantara nisbah harga perolehan dan pertumbuhan perolehan, risiko, pulangan atas ekuiti berserta faktor-faktor lain, menunjukkan bahawa masih terdapat ketidakpastian tentang sejauh mana faktor-faktor tersebut memberi kesan kepada nisbah harga perolehan. Oleh itu, objektif disertasi ini ialah untuk menyelidiki darjah korelasi sepuluh faktor penentu iaitu pulangan atas ekuiti, kadar cukai efektif, pegangan saham asing, nisbah bayar keluar dividen, keumpulan, rizab, nilai buku aset, standard deviasi, pertumbuhan perolehan dan pertumbuhan dividen dengan nisbah harga perolehan. Kajian ini meneliti empat puluh buah syarikat Papan Utama di Bursa Saham Kuala Lumpur bagi tempoh lima tahun bermula 1992 sehingga 1996.

Kajian ini meneliti dua modal regresi yang berlainan, masa seris lipat ganda regresi modal dan keratan lintang lipat ganda regresi modal. Modal pertama menguji hubungan diantara nisbah harga perolehan penerangan untuk tempoh kajian selama lima tahun. Modal kedua meneliti keupayaan pembolehubah penerangan untuk menerangkan pembezaan dalam nisbah harga perolehan dengan syarikat-syarikat lain didalam contoh industri yang

digunakan. Teori ujian hipotesis dan kuasa dua terkecil biasa digunakan untuk menguji modal-modal tersebut.

Keputusan dari dua regresi yang dijalankan memberi kesimpulan bahawa hanya tiga faktor penentu signifikan yang ditemui memberi kesan kepada nisbah harga perolehan iaitu, pulangan atas ekuiti dan rizab didapati mempunyai hubungan yang songsang dengan nisbah harga perolehan, manakala nilai buku aset pula, mempunyai hubungan positif atau langsung dengan nisbah harga perolehan. Kajian-kajian sebelum ini di negara-negara membangun juga mengenalpasti bahawa tiga pemboleh ubah di atas memberi penerangan yang luas rangkumannya mengenai variasi didalam nisbah harga perolehan.

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CHAPTER 1

1 INTRODUCTION

1.1 Background

"A statistic which is perhaps the most widely used measure of the cheapness or richness of an equity investment is the price earning ratio (PE). It is used cross-sectionally to assess comparative values across particular sectors of the market and as an assessment of the valuation of the aggregate market." (Kane, 1996)

During World War II, the sign "Danger UXB" was a familiar one to London residents. UXB stood for "unexploded bomb" Looking at current price earning ratios, perhaps global share markets should carry the same warning. Compared to both recent and long term history it is obvious that world price earning ratios are very high even if based on prospective earnings and not on historic earnings i.e. markets seem closer to a "sell" than to a "buy".

The use of price earning ratio as a stock valuation model has spawned several contradicting investment theories among academics. There is a school of thought in investment circles that investors should search for "value" shares (Arnold, 1998). There are different attributes of an undervalued share, one of that is a share with a price which is a low multiple of earnings per share. Traditionally, several empirical studies provide evidence, which indicates that shares with a low price-earning ratio have been an indication of above profit potential or abnormal return. Basu (1977) on the effectiveness of the price earning ratio as a valuation measure for common stock has shown that diversified portfolios of stock with low price earning ratios are more likely to outperform the market than the stock with high price earning ratios. These results represent the inefficiency argument.

On the other hand, the argument that the price earning ratio is efficient and will only change with news of changes in economic and business conditions owes its genesis to an exercise undertaken by Fama (1970,1971), the Efficient Capital Market Hypothesis. The efficient market protagonists have countered the new evidence of inefficiency by saying that the supposed outperformers are more risky than the average share and therefore an efficient market should permit them to give higher returns (Arnold, 1998). Lakonishok (1993) examined this and found that low PER shares are actually less risky than the average. Therefore there is a long-standing debate among investors as to whether the price-earning ratio is an efficient multiple of earning.

Investors believe that price earning ratios are indicators of the future investment performance of security (Basu, 1977). Success in investments, if it is not to be due to chance is largely a function of the ability to predict price changes. The importance of predicting price changes has led to scores of studies carried out in the last decade aimed at discovering the determinants of price change from price ratios such as price earning ratio.

The price-earning ratio is the most widely used summary measure of the potential performance of a stock. The importance of the price earning ratio for the average investor has led naturally to the question of what factors determine the price earning ratio.

1.2 Understanding price earning ratio

Price earning ratio is a part of everyday vocabulary of stock market investors. The price-earning ratio shows how much investors are willing to pay per dollar of reported profits, thus making it a very useful tool for investment.

There have been great changes over the years in the market's view of what is a reasonable multiple of earnings to place on share prices. The historic PER model and the prospective PER model are defined by the crude and the sophisticated use of these models by analysts. The historic price earning ratio model used by some analysts to make comparisons between firms do not make explicit the considerations hidden in the analysis. For example,

the analysts have a view of an appropriate price earning multiple for a firm based on current prevailing price earning ratio for other firms in the same industry. This analysis through comparisons lacks intellectual rigour and is unrealistic. Firstly, the assumption that the comparable companies are correctly priced is a bold one and secondly it fails to provide a framework for the analysts to test the important implicit input assumptions. For example, the growth rate expected in earnings in each of the companies, or the difference in required rate of return given the different risk levels of each. These shortcomings are overcome by using the prospective price earning ratio models, which is forward looking with respect to risk as well as growth.

The prospective PER model was developed using the infinite dividend growth model, as they are both dependants on the key variables of growth (in dividends or earnings) and the required rate of return. It is known as prospective PER because it uses next year's earnings rather than historic earnings. In this more complete model, the appropriate multiple of earnings for a share, rises as the growth rate goes up and falls as the required rate of return increases. The payout ratio incorporated in the model is more complicated. If this payout ratio is raised it will not necessarily increase the PER because of the impact on growth, the reason being if more of the earnings are paid out less financial resources is being invested in projects within the business which may cause future growth to decline.

The price earning is probably the best-known market value barometer. A company's earnings are linked to its stock's value because earnings provide the financial fuel for expansion and for paying cash dividend to shareholders. Nevertheless, the dividend yield measures a stock's annual dividend payment as a percentage of its current price. The dividend yield can be thought of as the level of the current income that investors are willing to accept per investment dollar. It is viewed as an important value indicator.

Price earning ratio tells us how investors are valuing stock based on its growth prospects.

Markese (1990) categorises price earning that analysts rely on most often into:

- a) **Trailing price earning ratio:** A stock's current price divided by the company's reported earning per share for the most recent four quarters.
- b) **Current price earning ratio:** A stock's current price divided by the sum of earning per share for the most recent two quarters plus analyst's estimates of earnings per share for the next two quarters.
- c) **Projected price earning ratio:** A stock's current price divided by analyst's forecasts of earnings per share for the next four quarters.
- d) **The market price earning ratio:** The price – earning ratio of the average stock in Standard & Poor's 500 stock index or in the S&P index of 400 large industrial companies.
- e) **The industry price earning ratio.** The average price earning ratio of stock in the same industry as the company being analysed.
- f) **The stock's historical price earning ratio:** A stock's typical price earning in the past. For each year, the stock's average price is divided by its earning for that year, and then those price earnings are averaged.

With the market propensity to focus on the future, it can appear to provide strange valuations if historic relationships are examined. Therefore, the prospective model can be used to explain the perverse behaviour of stock markets. For example, if there is good economic news of a rise in industrial output or a fall in unemployment, the stock market often falls. The market likes the increase in earnings that such news implies, but this effect is often outweighed by the effects of the next stage.

An economy growing at a fast pace is vulnerable to rises in inflation and the market will anticipate rises in interest rates to reflect this. Thus, the risk free rate of return and the rest of the security market line are pushed upward. The return required on shares, will rise and this will have a depressing effect on share prices.

1.3 Problem Statement

Investors often refer to price earning ratio to select their investment in stock having the objective to maximise the returns on investment. In the case of common stock, returns that investors are entitled to receive are the net earnings of the firms. This market value ratio relates to the firms stock price to its earnings. The reason for investors using price earnings model as a measure of stocks investment potential is for the basic concept that the value of any investment is present value of future returns.

A number of studies on this subject have been recorded in developed countries examining the relation between price earning ratios and earnings growth, risk return and accounting treatment. The interesting outcome of these studies is the differing views people have held concerning factors affecting price earning ratio. On the effects of earnings growth on price earning ratio, studies carried out by Fairfield (1994) and Constand (1991) concluded that price earning ratios are positively related to changes in earnings growth, whilst other authors such as Beaver and Morse (1978) concluded that earnings growth and price earning ratios are essentially unrelated after two years.

On the effects of returns on price earning ratio, research findings by Basu (1977) and Francis (1968) have indicated that average annual rates of return decline as one moves from low price earning to high price earning. This was contradicted by a study carried out by Goodman and John (1983) who revealed that returns moved directly with price earning magnitude.

These previous papers suggest that there are contradictory and mixed opinions about the factors related to changes in price earning ratios.

1.4 Objective of the study

1.4.1 Overall objective

Overall, the objective of this study is to examine the determinant factors of price-earning ratio in the local stock market.

1.4.2 Specific Objective

The specific objective of the study is to ascertain the significance of the following factors categorised into three groups as determinant variables of price-earning ratios:

1. The relationship between return variables namely return on equity, dividend payout ratio, risk and price earning ratio.
2. The relationship between growth variables namely total assets, earning growth, dividend growth, reserves, effective tax rate and price earning ratio.
3. The relationship between capital structure variables namely leverage, foreign shareholding and price earning ratio.

1.5 Significance of the study

The significance of this study was to address the two related questions pertaining to the volatility of price-earning ratio changes. They are if these factors under this study affect price-earning ratio and to what extent. This analysis will provide investment analysts and individual investors explanations for the differing price-earning ratios.

1.6 Structure of the study

The approach taken in this paper is as follows:

First, the paper starts off with an introductory chapter that comprises of background information, the understanding of price earning ratio, the problem statement, and the objectives of the study and lastly the significance of the study.

The second chapter discusses literature review which is discussed under three sections; studies on price earning ratio and the growth in earnings per share, studies on price earnings ratio and returns and studies on other factors affecting price earning ratio.

This will then be followed by data and methodology in the third chapter which comprises of the data base and sample selection, theoretical framework and theoretical model, model development and hypothesis and as well as factors not examined in this study.

The fourth chapter comprises of results and data analysis and the final chapter gives the conclusion of the study together with the limitations and recommendations.

CHAPTER 2

2 LITERATURE REVIEW

As mentioned earlier, price earnings ratio is of considerable interest to investors yet little is known about the relative factors which are believed to influence its value (Beaver and Morse, 1978).For the purpose of this study, the literature on price earnings ratio is reviewed under three sections, as follows:-

1. Price earnings ratio and the growth in earnings per share;
2. Price earnings ratio and returns; and
3. Other factors affecting price earnings ratio.

2.1 Price earnings ratio and growth in earnings per share

A study by Beaver and Morse (1978) on “What Determined Price Earnings Ratio” found that earnings growth and risk appears to explain little of the persisting price earning ratio differences. The authors examined the behaviour of price earning ratio and explored the ability of earnings growth and risk to explain price earning ratio differences across the portfolio of stocks.

In the above research, the authors defined earnings growth as the percentage change in the years earnings per share relative to the previous year. Each year's stocks were ranked according to price earnings ratio and 25 portfolios of stocks were formed. Portfolio 1 comprises of stocks with the highest price earning ratios and portfolio 25 comprises of stocks with the lowest price earning ratios. Median price earning ratio in the year of formation was correlated to the median earnings growth in the year of and subsequent to formation. The negative correlation implied that stocks with relatively low earnings growth during the year tend to have relatively high price earnings ratio. Strong correlation between price earnings ratio and earnings growth was obtained in the year subsequent to a

portfolio formation. Market participant's perception of the transitory nature of earnings was confirmed by actual earnings behaviour. In the second year after formation, growth in earnings per share is essentially uncorrelated to price earning ratio.

In general, the pattern behaved as if market participants, in determining the prices cannot forecast growth beyond two years. The prices of the stocks in portfolio one did not change proportionately with their earnings as a result their price earning ratios were relatively high. Similarly, the stocks in portfolio twenty-five experienced a price change that on average was less than twenty-six per cent and their P/E ratios were relatively low. This implies a price formation process whereby participants view changes in earnings as containing a transitory element.

It was concluded on comparing the P/E analysis with the growth analysis, that some of the initial dissipation of the P/E ratio in the first three years after formation can be explained by differential growth in earnings. Beyond that, there clearly exists a P/E differential that cannot be explained by differential earnings growth. The study concluded that other factors such as differences in accounting method and P/E ratio information not "fully reflected" in security prices in as rapid a manner as postulated by the semi-strong form of the EMH, affected the persisting differences in P/E ratio. It was found that P/E ratio of a portfolio of firms using accelerated depreciation were greater than the P/E ratios of a portfolio of firms using straight line depreciation holding other factors constant being risk and growth.

Studies by Fairfield (1994) on "P/E, P/B and Present Value of Future Dividend" concluded that price earnings ratio correlate positively with growth in earnings. The results of the study indicated that different P/E combinations are associated with distinct patterns of future profitability. To test the model, data was obtained from the Standard Statistics Corporation's Annual Industrial Compustat Tapes and a sample size of 22,741 were used representing data from 1970 through 1984. Firms were sorted into three groups: large, medium and small based on current P/Es. From the analysis it was significant that growth in future earnings differs across the three P/E groups. The high P/E