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A Survey of Methods Used by Malaysian Brokerage Firm Investment Analysts to Appraise Investments in Ordinary Shares

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ABSTRAK

Kajian ini menjelaskan kaedah-kaedah yang digunakan oleh penganalis pelaburan yang bertugas dengan firma-firma broker di seluruh negara untuk menilai saham syarikat yang tersenarai. Lima puluh tujuh para analis pelaburan di sampel dan maklumat diperolehi melalui soal-selidik dan diikuti dengan temuramah untuk mendapatkan penjelasan yang terperinci. Penemuan kajian menunjukan para analis menggunakan lebih dari satu kaedah untuk menilai saham dan keadah analisis fundamental lebih kerap digunakan. Para analis juga menggunakan jangkamasa tiga tahun untuk membuat ramalan keuntungan dan perolehan, lebih mementingkan perolehan perakaunan dari aliran tunai, merujuk kepada banyak punca maklumat sungguhpun maklumat kewangan syarikat yang tersirat dalam penyata kewangan yang telah diaudit diutamakan. Maklumat kualitatif diperolehi melalui lawatan ke syarikat dan perbincangan dengan pihak pengurusan syarikat. Pada keseluruhan, sungguhpun penemuan kajian tidak menampilkan satu kaedah penilaian yang khusus, ramai para analis minat terhadap kaedah nisbah harga-perolehan sebagai kaedah untuk menilai saham syarikat yang tersenarai.

ABSTRACT

This study provides a broad description of the methods used by investment analysts attached to brokerage houses in Malaysia to appraise investments in the ordinary shares of companies. Fifty-seven investment analysts were sampled from all the brokerage houses in Malaysia and a mail questionnaire method was used to solicit the required information. The findings suggest that the sampled analysts used a combination of methods to assess the value of shares, though the emphasis is on the fundamental analysis. They use a three-year earnings forecast period, prefer accrual earnings to cashflows and use a variety of sources of information with the emphasis on financial information from audited financial statements, substantiated by qualitative information gathered through company visits. In general, though the findings are inconclusive regarding the most common methods used for share price valuation, the inclination is towards the earnings multiplier approach.

INTRODUCTION

Investment analysts perform three information-related activities: (i) private information search, that is they search for information that is not publicly available; (ii) prospective analysis, which allows them to analyse, process, and interpret information for the purposes of prediction, and (iii) retrospective analysis, where they interpret the events after-the-fact. Generally, investment analysts may be categorized into two groups, either as portfolio managers who invest in their own right or as information intermediaries who act as advisers to institutional and individual investors. Portfolio managers use the information gathered from their own appraisal to maximize portfolio returns subject to some acceptable level of risk. On the other hand, information intermediaries provide share appraisal information to third parties, and consequently they compete with other analysts in gathering, interpreting and disseminating financial information. Information intermediaries are usually expected to be more specialized in their acquisition and analysis of information than portfolio managers because of their role in the provision of information to third parties such as other investment analysts and individuals who manage portfolios (Arnold and Moizer 1984b). To fulfil the need for specialized information by their clients, intermediaries inevitably spend more time and conduct more detailed research than portfolio managers.

Portfolio managers spend time monitoring the composition of their portfolios, organizing

the trading of securities and ensuring that changes in their clients' preferences have been reflected in the portfolios. The differences in the role of portfolio managers and information intermediaries suggest that the procedures followed, the information required, the depth and the time spent on analysis differ, implying that they are a heterogeneous group.

Investment analysis involves determining the levels of risk and expected return of either individual or group of financial assets before deciding on the most profitable opportunities available subject to budget constraints. Investment analysts usually try to identify mispriced assets such as shares using fundamental analysis and determine the timing of trade using technical and beta analysis. The competition among the investment analysts to gather, analyse and disseminate information inevitably leads to market efficiency, that is the prices of shares reflect all available information on the shares. Overall, the literature (Latham 1985) indicates that the capital markets are fairly efficient to numerous information sets though there are pockets of inefficiencies as markets are economically but not perfectly efficient. The role of investment analysts in maintaining informational efficiency in the capital market is important in terms of continuously providing the essential information to be reflected in the share prices.

Investment analysts with insight can indeed transform public information into valuable knowledge for their clients. To form useful insights they need to solicit timely information from company management, investment banking contacts and others who are close to the source of information. This network helps them to solicit information from a common database concerning the general economic and firm outlook and most current analysis tools employed. The literature (Groth *et al.* 1979; Givoly and Lakonishok 1984) suggests that brokerage houses and investment advisory services do provide valuable investment advice to their clients. The clients were reported to earn positive abnormal risk-adjusted compared to readers of more widely disseminated information.

This study attempted to provide a broad description of the methods used by investment analysts attached to brokerage houses in Malaysia to appraise investments in the ordinary shares of companies. Specifically, the following objectives were identified: to gather details of procedures adopted in appraising ordinary shares; to identify the types and accuracy of forecasts used; to investigate the sources, use and importance of financial information in making decisions; and to ascertain the extent to which discussions with company management feature in the analysts' decision-making processes.

REVIEW OF LITERATURE

Arnolds and Moizer (1984a) studied the appraisal methods used by UK investment analysts and concluded that the primary analysis techniques used were fundamental analysis and technical analysis; beta analysis was hardly used at all. Many analysts forecast some aspects of the performance of the company or its shares such as like earnings per share, pre-tax profit, dividends and price-earnings ratio. The most influential sources of information are the company's financial statements and its interim results as well as discussions with the personnel of the company being appraised. Despite the perceived influence of information provided by management, most analysts appear to be sceptical about management opinions.

Arnold and Moizer (1984b) extended their study of UK investment analysts by categorizing them into two groups, portfolio managers and information intermediaries. They found that although there is significant difference between the level of detail and frequency of analysis undertaken by the two groups, there is no significant difference in their approach to share appraisal. Information intermediaries made greater use of some information sources and more frequently discussed with company management whilst portfolio managers relied more on other investment analysts as a source of information. Their attitudes towards the criticisms of company annual accounts differ, probably due to their different objectives.

Brown *et al.* (1987) examined the relationship between financial analysts' forecasts superiority and the firm's information environment. They concluded that the ex ante financial analysts' forecasts superiority is positively related to firm size and the extent of agreement among analysts regarding the firm's future earnings numbers.

Bhaskar and Morris (1984) examined the accuracy of profit forecasts published in the circulars of British stockbrokers, and identified

several key variables which were expected to have an impact on forecast accuracy. The analysts' forecasts out-performed those produced by simple prediction models, implying that professional analysts tend to underestimate future profits for the periods under review.

Bjerring *et al.* (1983) evaluated the recommendations of a Canadian brokerage house by using a number of techniques. The results reveal that an investor following the recommendations would have achieved significantly positive abnormal returns, even after allowing for transactions cost. The recommendations were not "immediately" reflected in market prices.

Forbes and Skerratt (1992) examined the evidence relating to the quality of investment analysts' earnings forecasts. They exploited a new data source which is able to identify the precise day when the analysts revised their forecasts and concluded that UK analysts' earnings forecasts are not fully anticipated by the market.

Givoly and Lakonishok (1984) provided evidence that investors used analysts' forecasts as a reasonable proxy for the unobservable expected earnings. The dispersion of analysts' forecasts seems to be an important measure of risk, shadowing traditional measure such as beta and return variability.

Groth *et al.* (1979) suggested that the brokerage house's recommendations to its individual customers were genuinely valuable in selection rather than market timing, even after allowing for transactions' costs and risk.

In their comprehensive survey of UK investment analysts, Lee and Tweedie (1981) concluded that of the many sources of available financial information the annual and interim financial reports were extensively used, particularly the traditional profit and loss account and the balance sheet. However, respondents understood specific reporting practices and least understood the principles. Company visits were generally regarded in the range of considerable to moderate influence on investment decisions. They reported that firms analysed and verified available financial information speedily.

In general, the literature suggests that the most influential financial information sources are the annual profit and loss account, balance sheet and the interim results. Also of importance are the discussions with company personnel, the chairman's statement and the statement of source and application of funds.

There are significant differences between the behaviour of portfolio managers and information intermediaries. Portfolio managers undertake relatively brief analysis and analyse less frequently than information intermediaries, though a similar approach is used to appraise shares.

There is also evidence that the market response to forecasts of analysts based in a brokerage firm is less sensitive than that of independent analysts. This suggests that the market may regard broker firm analysts as constrained by agency problems, which reduces the reliability of their forecasts of a client company's earnings.

Analysts predict earnings more accurately than mechanical models, and management forecasting performances are not superior to those of analysts for companies where both management and analyst forecasts are available.

DATA AND METHODOLOGY

There are a number of methods that might be applied to investigate the behaviour of investment analysts and the procedures they use in appraising ordinary shares of companies, such as postal questionnaire surveys, structured and unstructured interviews, "laboratory" experiments, and structured and unstructured observations. Each has its own strengths and weaknesses, and no single method is likely to be completely successful. In this study, a postal questionnaire survey was used to obtain the relevant research information from investment analysts who work with the securities firms in Malaysia. This approach allows the researcher to reach a geographically dispersed sample at a relatively low cost compared with personal interviews and telephone surveys. In addition, a mail questionnaire can be filled out whenever the respondent has time. Thus, there is a better chance that respondents will take time to think about their replies and perhaps collect facts that they may not recall accurately, which is crucial for collection of qualitative data. The questionnaire was supplemented by interviews when necessary to ensure the accuracy and relevancy of the information obtained. Although the role of investment analysts as portfolio managers is somewhat different from that of information intermediaries, this study did not

differentiate their appraisal methods by their different role.

Fifty-seven investment analysts based in all the brokerage houses in Malaysia were sampled. Each respondent was asked to provide general information about the nature of his job before he was asked for more detailed information on seven general areas relating to the procedures followed in making recommendations for buying or selling of shares for listed companies. Information was sought on various aspects such as the features of the respondent's working environment; the frequency of the three methods of investment appraisal used and their perceived usefulness; the application of fundamental analysis; experience with forecasting techniques; sources, importance and interpretation of information that may influence the investments appraisal; the procedures followed when recommending buying, holding or selling and the respondent's discussions with the company management to formalize decisions.

RESULTS

Of the 58 securities firms throughout Malaysia, 15 did not maintain a Research Department and neither employed any investment analysts to advise their clients nor conducted analysis to make investment decisions (if any advice was given it was solely based on gut feelings). Of the remaining 43 firms, 63% replied to the questionnaires sent to them. Only 19% were female respondents.

Analyst's Working Environment

The main characteristics of an average investment analyst's working environment are summarized in Table 1. On average, the analyst was a male working in an organization which employed just over five analysts and had spent just over three years working as an analyst. The analyst devoted about 84% of his working week to the analysis of Malaysian equities and analysed about 45 companies on a regular basis and a further 58 each year on an irregular basis.

Investment Appraisal Methods

There are a variety of techniques used by analysts to estimate the value of shares. Table 2 reveals that the primary share appraisal technique used by the respondents is the fundamental analysis followed by technical analysis; beta analysis is hardly used at all. On average, most analysts used more than one method. More than 90% of the respondents almost always used fundamental analysis, 70% used technical analysis and 19% used beta analysis. This also implies that technical analysis is used as a supplementary tool by most of those who use fundamental analysis as the main tool. Beta analysis is not a popular method, probably due to the analyst's lack of knowledge on how to apply this tool, the ineffectiveness of this method in emerging share markets such as the Kuala Lumpur Stock Exchange, which is characterized by high volatility, thin trading and a relatively informationally inefficient market compared to the developed markets where this technique is well adopted.

The other informal appraisal method common among investment analysts is 'gut feeling'. These analysts usually do not conduct any formal investment research and analysis to help them and their clients make investment decisions. They generate revenue for their

TABLE 1
Features of the analyst's working environment

	Mean Response	Standard Error
Number of analysts employed	5.4	0.33
Number of years spent as an investment analyst	3.3	0.41
Percentage of working week spent analysing Malaysian equities	84.3	4.92
Number of companies analysed regularly	44.7	7.03
Number of companies analysed each year on an irregular basis	58.5	11.52

TABLE 2
Frequency of use of methods of investment appraisal

	Almost always (96-100%)	Usually (66-95%)	Sometimes (36-65%)	Seldom (6-35%)	Hardly ever (0-5%)	Average* (%)
Fundamental analysis	26	0	1	0	0	96.2
Technical analysis	7	12	4	4	0	71.7
Beta analysis	0	1	6	5	15	19.4
"Gut feeling"	13	0	0	0	0	98.0

*Responses are summarized as means, based on the midpoints of each frequency interval

TABLE 3
Perceived usefulness of methods of investment appraisal

(5 point scale: 1 = extremely useful to 5 = of no use)

	Mean Response	Standard Error
Fundamental analysis	1.1	0.07
Technical analysis	2.1	0.17
Beta analysis	3.8	0.19

employers mainly through the execution of customers' orders for securities purchases and sales. They usually charge a lower rate of commission and capitalize on larger market share, which do not desire any information input. A quarter of the sampled brokerage firms throughout Malaysia are in this category. However, due to the competitive nature of the business most firms in this category have expressed the desire to set up a proper research department to meet the increasing demand for information service as a long-term strategy for survival.

The extent to which each share appraisal technique is used is consistent with its perceived usefulness, as shown in Table 3. All respondents viewed fundamental analysis as either 'extremely useful' or 'very useful' whilst the equivalent percentage for technical analysis was 70% and only 11% for beta analysis.

Factors Considered in fundamental analysis

The factors considered by investment analysts in using fundamental analysis are summarized in Tables 4 and 5. When appraising a share by the use of fundamental analysis, analysts consider an average of about five years' financial results. Findings in Table 4 suggest that various financial ratios, the estimate of 'true' value of the price-earnings ratio and the estimate of the market value by applying price-earnings ratio to a forecast of next year's earnings were three most important features of the analysts' approach.

Ninety per cent of respondents estimated various financial ratios almost all the time when conducting fundamental analysis to help them anticipate future conditions and predict the company's future earnings and dividends. Ratios generally show the relationship between financial statement accounts, which is critical to the successful application of the fundamental analysis.

Over 85% of analysts 'almost always' or 'usually' attempt to estimate what a company's present price-earnings ratio should be, based upon their evaluation of the past and future earnings of the company. In addition, 80% of respondents used the estimated price-earnings ratio to estimate the company's market value. The discounted cash flow technique (net present value) and the company's net asset value are also important whilst the estimate of future

TABLE 4
Factors considered in fundamental analysis

	Almost always (96-100%)	Usually (66-95%)	Sometimes (36-65%)	Seldom (6-35%)	Hardly ever (0-5%)	Average* (%)
Various financial ratios	17	8	1	1	0	88.2
Estimate of 'true' value of PER	16	7	2	1	1	83.5
Estimate of market value by applying PER to a forecast of next year's earnings	17	7	2	0	1	86.4
Estimate of future dividend yield	8	1	10	8	0	56.8
Estimate of NPV of future cash flows	5	10	12	0	0	70.4
Company's net asset value	9	3	15	0	0	69.7

*Responses are summarized as means, based on the midpoints of each frequency interval

TABLE 5
Fundamental analysis: frequency of use of alternative asset valuation bases

	Usually	Sometimes	Seldom
Historical cost balance sheet value	16	8	3
Value adjusted for current cost of fixed assets and stock	8	14	5
Value adjusted for general purchasing power changes	2	9	16
Value on realization	5	13	9

dividend yield was only used infrequently. In general, all the respondents followed the same procedure to predict company's share price by looking at the overall view of a share and examining the factors that affect the value of the share.

More than 65% of respondents emphasized the earnings, compared to the market value, essentially the estimation of two key numbers: the normalized earnings per share and the price-earnings ratio. For both the normalized earnings per share and the price-earnings ratio, the growth rate and pattern of earnings and dividends are crucial. If they knew the present level of earnings and the growth rate to be experienced over the next period, the earnings for the next period could be estimated with a high degree of accuracy. By the same token, the central determinant of the price-earnings ratio is the expected earnings growth for the future.

The results shown in Table 4 indicate that 74% of respondents used the discounted cash flow technique and cash flow analysis. Measuring a company's cash flow is a good way to estimate its economic income and the present value of an equity share's free cash flow provides a good estimate of its intrinsic value. In estimating a share's intrinsic value, many factors are evaluated subjectively and the three such factors identified

are the financial strength of the company (52%), managerial style (63%) and industry factors (37%).

Financial strength of the company includes the intrinsic value of the company, the liquidity, operating profitability, gearing capacity and a healthy balance sheet. Whereas management style includes quality of management (management growth potentials, namely has strong management), growth of the company and its production capacity (the nature of the business; its operations; viability and credibility of current on going projects and prospective, future projects). The industry factors comprise the degree of competition especially from firms in the similar industry, expected outlook on the related industry, future market conditions and environmental factors.

Table 5 shows that the most popular base for asset valuation is the historical cost in the balance sheet relative to current cost, realizable value and general price level. It could be that if enough information is available and well understood by users on current cost, realizable value and general price level, the base for asset valuation may change.

Forecasts of Analysts

When appraising ordinary shares many analysts forecast some aspects of the performance of the company or of its shares. Findings in Table 6 indicate that the average forecast period is 2-3 years and 85% of respondents felt that this length of period is sufficient to give investors confidence regarding the performance and future prospects of the company. A longer period is considered to diminish the degree of forecasts accuracy.

Respondents suggested that earnings are almost always an important input when making investment decisions. Among all the respondents who prepare forecasts 'almost always' forecast pre-tax profit (100%), earnings per share (100%) and price-earnings ratio (100%). Subsequently, the forecasting of post-tax profit (96%) and pre-interest profit (96%) are 'almost always' or 'usually' conducted. This is consistent with the previous description of the importance of price-earnings ratios in share valuation. Among the remaining factors, ratio of turnover to capital employed (only 63%) is of least important but dividends (82%) are a relatively important factor. The forecasts of dividends together with earnings provide an estimate of the company's future dividend cover and consequently the prediction of risk and growth which are important in determination of the company's appropriate price-earning ratio. The importance of the accounting earnings numbers relative to cash flow forecasts suggests that the appraisal methods

Table 6
Features of analysts' forecasts

	Mean Response	Standard Error
How many months ahead are forecast	26.8	1.67
How often each of the following factors is forecast:*(%)		
Turnover (sales)	93.6	2.06
Pre-interest profit	94.3	2.00
Pre-tax profit	98.0	0.00
Post-tax profit	95.6	1.85
Cash flows	85.8	3.26
Dividends	82.4	4.24
Earnings per share	98.0	0.00
Ratio of turnover to capital employed	63.3	6.19
Return on capital employed	79.6	4.26
Price-earnings ratio	98.0	0.00
Market value of the share	83.7	5.39

*Responses were given under five categories from 'almost always (96-100%')' to 'hardly ever 0-5%', identical to those shown in Tables 1, 3, and 7. The mean responses shown above are based on the midpoints of each frequency interval.

are biased towards accrual based earnings rather than cash flows.

Sources of Information

Analysts utilize various sources of information to help them make an informed investment decision. Seventeen possible sources of information were identified and are listed in Table 7. The findings reveal that the most important source of information is the company's annual and interim financial statements, essentially the profit and loss account and balance sheet. The other sources considered important are the statistical and information services, government industry statistics, company personnel, source and application of funds, and financial press (items with an average score of below 2). The remaining sources of information were all ranked as being of considerable to moderate importance for investment decisions with the sole exception of employee newsletters. Such newsletters are seldom sources of primary information, but invariably repeat, in a simplified form, data available in companies' annual reports to shareholders, which explains the relative lack of interest in employee newsletters.

Malaysian analysts spent more time and effort in analysing quantitative than of qualitative data. The popularity of numerical data and statistical analysis is probably due to the tangibility of the numbers and the easier interpretation and measurement of quantitative data than subjective factors. Moreover, it is readily available and considered a cheap source of information; some are even available free on a subscription basis. More important is that users can obtain accurate information on virtually all phases of the security business from the statistical and information services. The publications on industry statistics are oriented towards the national economy and the effects of its cycles and fluctuations upon various industries. Such information is extremely useful to the analysts in predicting the impact of future movements of the economy on security prices.

Among the qualitative information recognized as important was that obtained from discussions with company personnel, which

TABLE 7
Influence of various sources of information

(5 point scale: 1 = vital influence to 5 = no influence)

	Mean Response	Standard Error	Rank	Lee and Tweedie Rank*
Company's annual report:				
Chairman's statement	2.52	0.23	14	4
Directors' report	2.70	0.21	16	9
Balance sheet	1.48	0.15	3	1
Profit and loss account	1.44	0.14	2	1
Source and application of funds	1.81	0.19	7	7
Current cost data	2.07	0.21	11	10
Value added statement	2.26	0.22	12	-
Unqualified audit report	2.48	0.18	13	-
Qualified audit report	2.00	0.19	9	-
Quarterly and half-yearly results	1.41	0.12	1	3
Employee newsletters	3.81	0.21	17	11
Government industry statistics	1.74	0.14	5	-
Statistical and information services	1.70	0.15	4	8
Financial press	1.89	0.17	8	6
Trade journals	2.04	0.18	10	-
Company personnel	1.78	0.17	6	5
Other investment analysts	2.56	0.14	15	-

*Source: Lee and Tweedie (1981), Tables 39, 45 and 51. No entry indicates information not included in Lee and Tweedie study

revealed information for verification purposes and was not always readily available in published form at the point of discussion.

The source and application of funds statement has significant influence on the investment appraisal because it shows the sensitivity of the available cash flows to the company's business operations and helps plan the required financing and debt servicing capability for additional investments.

Financial press reports provide a good source of background information for analysts seeking to assess a company's prospects as they reveal the current information on earnings, which is important in ascertaining the expected future performance. In addition, the financial press is used to ascertain any 'hidden' (sometimes termed 'surprising') information about companies; that is, previously undisclosed information of immediate interest. These are the probable reasons why many respondents scan sources of information other than annual reports.

Other sources of information utilized by analysts to appraise investment in ordinary shares are chart trends, published information by or about the company, latest news from Kuala Lumpur Stock Exchange (KLSE) circulars or KLSE announcements, newspaper cuttings, library, company prospectus, competitors, customers, and perhaps their own experience in the sector. In general, all information sources are useful as stocks are information sensitive.

It is also interesting to know how the available information is interpreted and used in making decisions. First, the credibility of the information is determined before it is analysed and interpreted in relation to the company's growth and profitability, expected future earnings and consequently a pro-forma earnings per share and price-earnings ratio are determined and compared with the current market determined ratios, historical trend, and the average ratios of other companies in the sector and the competitors. Besides the quantitative information, analysts use their own judgement based on their knowledge of the industry and discussions with those 'in the know' about the company and the industry to arrive at a decision on the potential profitability of the shares.

Overall, the reported financial information in annual reports is considered the most important source of information in appraising shares of listed companies because of the expected reliability of the audited statements about company operations, contains important financial data and provides a basis of past performance to forecast future performance.

Investment Appraisal

The common practice of predicting a company's share price at some time in the future involves estimating earnings for the current year and applying an 'appropriate' price-earnings ratio to the estimated earnings in order to predict future market price. Comparison between predicted market price and current market price then determines the worthiness of the share from the investment's perspective. The differences observed were in the area of estimating earnings. Most respondents used the common approach to the selection of an appropriate price-earnings ratio, considering the view of the company taken by the market over the preceding few years (29%) and the company's balance sheet (26%). Other factors considered were the industry average (which involved the comparison between particular company and the average of other similar companies in the industry), historical price-earnings ratio of the company, liquidity position, gearing ratio and growth prospects. Surprisingly, only 7% of respondents considered prospective earnings, quality of earnings, riskiness and peer comparison as important variables for selection of an appropriate price-earnings ratio.

A majority of the respondents (over 80%) agreed that market sentiment is affected by the 'quality' of the company's earnings. The quality is measured in terms of stability of the earnings stream and hence lower risk. Companies with quality earnings will consistently get high ratings and the positive market sentiment will ensure a high share price. Companies with low quality earnings will have lower share price and a lower price-earnings ratio.

A majority of the analysts (85%) also examined the previous and current price-earnings ratios of the firm under consideration and of other firms of similar size and business, mainly for benchmarking purposes to assess relative performance of other industry players (valuation to the competition). Many analysts made judgements about the likely future price-earnings ratio for the firm being evaluated based on the forecasted future price-earnings ratio (normally two-year forecast). This method provides some form of future valuation of the

share which is then compared to the current share price. For instance, underpriced shares would suggest poor management, laggard industry while overpriced shares would suggest a fast-growth share and/or manipulation by insiders.

It should be noted that the analyst's forecasted price earnings ratio may differ significantly from the market's perspective. Over 60% of respondents agreed, suggesting that the difference could be due to differences in the information used, for example, the analyst's estimation is based on the fundamental factors such as earnings prospects and growth rate whereas market price-earnings ratio is estimated based on market sentiments and investors' expectations of the future earnings of the company. The difference could also be due to manipulation of accounting information, inefficiency on the part of the market or wrong evaluation of company as well as different opinions.

More than half of the respondents used price-earnings ratio (PER) to estimate the company's market value and compared it to historical company PER, market PER and industry PER. Subsequently, 8 out of 27 respondents used discounted cash flow valuation (i.e., net present value) and cash flow analysis. Typically, asset backing such as net asset valuation (for a property-based company), net tangible assets (look at revised net tangible assets; revised suggests that the analyst made a revaluation of the company) and market asset value remained a considerable element in estimating the company's market value.

Most analysts seem to prefer a microeconomic rather than macroeconomic approach in appraising company shares. The latter approach requires extensive efforts in terms of collection and interpretation of the information, and a wide prospective sometimes may not be applicable to certain industries or companies.

The findings discussed in this section imply that the procedures for estimating earnings varied considerably between analysts depending upon whether the analyst is an 'analytical' or 'artistic' type. An analytical analyst conducts a detailed analysis of the available financial information on the company and verifies the credibility of the available information through reliable sources such as the company's management. An artistic analyst, on the other hand, follows no systematic forecasting procedures and does not consider many micro and macro variables other than annual reports and refined gut feelings based on discussions with company officials.

Discussions with Company Management

Two-thirds of the respondents (67%) discussed the company's financial performance with its management 1-3 times a year and 29% of them arranged more frequent visits. Company visits are also arranged when a major development occurs in the company. Besides meeting with the company management, 89% of analysts who declared that their organizations conducted company visits also met and discussed relevant matters with other officials during such visits.

Company visits are conducted to ascertain the quality of management, to examine the validity and accuracy of the forecasts, estimates and assumptions made, to review the progress of on-going and new projects, and to confirm the company's proposed business projects' state of affairs and the future plans of the company. The overall aim of a visit could, therefore, be deemed to be an aid to the interpretation of the company's financial results by the construction of a frame of reference of future expectations. Table 8 shows the frequency of thirteen items of information that are provided by company management during discussions.

It is interesting to note that the effects of the general economic climate were perceived to be the most frequently (80%) mentioned item by the company management during discussions, followed by long-term objectives and plans (79%), outlook of demand for the company's products (74%) and details of changes in product range (71%). Only a few respondents sought information on costs and margins data (42%), and changes in key personnel (45%) during company visits. Most of the information solicited from company management was not given on a voluntary basis as management provided information only to the questions asked by analyst.

In essence, 52% of the respondents declared that they did discuss the investment decisions with company management in their decision-making processes. Of these, 67% ultimately followed their own predictions after the discussions (they were sceptical of management's opinions). Another 18% of respondents tended

TABLE 8
Frequency of provision of information by company management

	Almost always (96-100%)	Usually (66-95%)	Sometimes (36-65%)	Seldom (6-35%)	Hardly ever (0-5%)	Average* (%)
Details of changes in product range	6	13	4	4	0	71.1
Details of research and development projects	0	12	10	3	2	56.9
Long-term objectives and plans	11	8	8	0	0	78.7
Changes in key personnel	1	6	10	5	5	4.5
Reasons for past trading performance	8	9	7	0	3	69.2
Reasons for balance sheet changes	6	8	10	3	0	66.6
Management comments on analyst's own forecasts	4	8	12	2	1	62.4
Data on costs and margins	3	8	9	7	0	42.0
Outlook of demand for the company's products	10	11	3	3	0	74.0
Current labour situation						
Effects of the general economic climate	8 11	8 10	8 3	2 3	1 0	69.5 80.6
Plans for future capital investment	8	14	5	0	0	62.2
Information on competitors	4	6	13	3	1	53.1

*Responses are summarized as means, based on the midpoints of each frequency interval.

to follow the company management predictions, whilst the remaining 15% stated that both parties' predictions were taken into considerations. Specifically, a majority of these respondents (74%) declared that the earnings forecasts used by them were often the result of the discussions between the two parties. Besides meeting the company management, they (89%) also met with other company officials to obtain extra information about the company.

Comparison with Lee and Tweedie's Study

The findings of this study are compared to those of a similar study in the United Kingdom by Lee and Tweedie (1981), who used a prepared questionnaire to interview 136 senior investment analysts of financial institutions and 61 analysts of brokerage firms. The rankings from these studies (shown in Table 7) are remarkably similar. In both cases the most influential information sources were the interim results, annual profit and loss account and balance sheet. Similarly, the discussions with company personnel, the statement of source and application of funds and financial press were also considered important sources of information while the employee newsletters were considered the least important.

CONCLUSION

Most analysts almost always use fundamental analysis in appraising shares even when other techniques are used. Fundamentalists usually provide their clients with a wealth of details, which is believed to give the client the psychological satisfaction that they are getting 'value for their money'. Technical analysis is also used by analysts, but to a lesser extent than fundamental analysis; beta analysis is hardly used at all. Fundamental analysis and technicalanalysis complement each other in the

sense that the former identifing the mispriced share while the latter suggests when to trade on the share. Beta analysis is primarily used by a few analysts for evaluation of portfolio management performance.

Although much less popular than fundamental analysis, technical analysis is used at least sometimes by a vast majority of investment analysts. Assuming the market is fairly informationally efficient, stock prices will follow a random-walk and technical analysis will not be able to help generate profitable investment opportunities. However, technical analysis is still popular with investors, probably because of the belief in the economic viability of the tool as markets are only economically and not perfectly efficient. As analysts and investors compete to exploit their common knowledge of a stock's price history, they necessarily drive stock prices to levels where expected rates of return are commensurate with risk, or what is commonly known as 'fairly priced'.

It is interesting to note that although fundamental and technical analysis are perceived to be the principal techniques used by Malaysian brokerage firm investment analysts, a vast majority still practise the gut feeling technique and provide brokerage services to their clients without conducting analysis of relevant information.

Some fundamental factors were forecasted by analysts and essentially the three most important variables of the analysts' approach were the use of various financial ratios, the estimate of 'true' value of the price-earnings ratio and the estimate of the market value by applying price-earnings ratio to a forecast of next year's earnings. The procedures for estimating earnings, however, varied between analysts, which makes it difficult to conduct a comparative analysis.

On average, investment analysts forecast for two or at most three years ahead. This relatively short period is regarded as reliable compared to the normal period of five years, which is often considered too long for any reliable estimates. The three most frequently forecasted variables of analysis are the pre-tax profit, earnings per share and price-earnings ratio, consistent with the perceived importance of the price-earnings ratio in share evaluation.

Most analysts used accounting based earnings rather than cash flows to estimate the expected value of a share. They did not view the assessment and prediction of cash flows and some analysts were ignorant about discounted cash flow techniques. A majority of analysts in this study can be classified as 'analytical analysts' who usually conduct a detailed analysis and base their conclusion primarily on this analysis. The others can be considered 'artistic analysts' who under take minimal analysis and base their decisions primarily on their uninformed judgement.

Investment analysts made considerable use of many sources of available financial information. The most commonly mentioned sources were interim and annual financial reports, particularly, the profit and loss account and the balance sheet. This implies that audited financial statements play a prominent role in appraisal of share values.

Company visits were made by most analysts to assess the quality of the company's management and future prospects of the company. Contrary to expectations, most analysts regarded these visits as relatively unimportant, ranking them only sixth in influence behind annual reports and other sources of financial information. The most frequently discussed issues were the effects of the change in economic climate on the company's performance, long-term objectives and plans, outlook of demand for the company's products, and details of changes in product range. This information is considered important for verification and investment decision within the analysts' organizations. Generally, company management provides information on an involuntary basis, that is only providing answers to questions asked by respondents.

From the efficient market theory point of view, it is possible that even though the market reacts quickly and in the right direction to new information the resulting prices might still be far off the true value, creating pockets of economically exploitable inefficiencies. Second, even if market prices are set according to the share valuation models recommended in the literature, only a few analysts use those models. Consequently, the institutional investors by whom the analysts are employed or the clients to whom they make recommendations may be missing opportunities to make gains or to avoid losses when new information becomes available.

In conclusion, the findings of this study provide some insights into the methods used by

investment analysts in brokerage firms in Malaysia to appraise the value of ordinary shares. However, the findings are inconclusive on the issue of how recommendations regarding a particular share are arrived at. This requires direct observation, structured interviews and questionnaires for clarification purposes, which is the subject matter of on-going research.

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