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IMPRESSION MANAGEMENT: THE CASE OF MALAYSIAN FINANCIAL GRAPHS

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ABSTRACT

This study investigates the use and abuse of graphs in the annual reports of 100 component stocks of the Kuala Lumpur Stock Exchange (KLSE) (now, Bursa Malaysia) Composite Index for the year 2001. It is found that 79% of companies use graphs and that 8.1 is the mean number of graphs per graph-using companies. The most commonly graphed financial variables are sales, profit, EPS and DPS. Column and bar graph types are more popular than line and pie graphs for both KFVs (Key Financial Variables) and non-KFVs. Column and bar graphs account for 98% of KFVs and 75% of all graphs. However, line and pie graphs are more likely found for the non-KFVs than the KFVs. Though there is widespread use of graphs by Malaysian companies, available evidence point to the direction that Malaysian companies are not quite sophisticated users of graphs as their counterparts in the western developed countries such as the United States and Britain. This is especially clear when it concerns impression management practices of selectivity and measurement distortion where the evidence is moderately supportive of studies overseas. This is perhaps expected considering the fact that the Malaysian stock market is not as strong as those in the United States and Britain.

Keywords: *Company Annual Reports; financial graphs; impression management; Malaysia.*

ABSTRAK

Kajian ini menyelidik kegunaan dan penyimpangan penggunaan graf dalam laporan tahunan bagi 100 komponen stok yang membentuk Indeks Komposit Kuala Lumpur (sekarang, Bursa Malaysia) bagi tahun 2001. Hasil kajian menunjukkan 79% daripada syarikat tersebut telah menggunakan graf dan

8.1 adalah jumlah min graf bagi syarikat yang menggunakan graf. Item pemboleh ubah kewangan yang paling banyak digrafkan ialah jualan, untung, pendapatan sesaham (EPS) dan dividen sesaham (DPS). Graf kolum dan bar merupakan jenis graf yang paling popular digunakan berbanding graf garis dan pie bagi pemboleh ubah kewangan utama (KFVs) dan pemboleh ubah bukan kewangan utama (non-KFVs). Kedua-kedua graf tersebut merangkumi 98% daripada graf KFVs dan 75% untuk keseluruhan graf. Walau bagaimanapun, graf garis dan pie lebih banyak digunakan untuk graf bukan KFVs berbanding graf KFVs. Walaupun penggunaan graf begitu meluas oleh syarikat-syarikat di Malaysia, hasil kajian menunjukkan syarikat-syarikat ini belum boleh dikatakan pengguna yang sofistikated jika dibandingkan dengan syarikat-syarikat di negara-negara maju seperti United States dan Britain. Ini jelas ditunjukkan terutamanya apabila merujuk kepada praktis pengurusan impressi pemilihan dan penyimpangan pengukuran yang mana buktinya adalah sederhana dalam menyokong hasil-hasil kajian di luar negara. Hal ini mungkin boleh dijangkakan kerana pasaran saham di Malaysia tidak semaju pasaran saham di United States dan Britain.

Kata kunci: *Laporan Tahunan Syarikat; graf kewangan; pengurusan impressi; Malaysia.*

INTRODUCTION

Annual reports are the primary way by which financial information about a company is communicated to external parties (Firth, 1979; Samuels, 1993; Pava & Epstein, 1993; and Botosan, 1997). These external users would use the financial information for several reasons such as to assess a company's financial performance and to review the potential for growth in company's value (Pijper, 1993; Pava & Epstein, 1993). Thus, it is important that the quality of annual reports is assured. Failure to do so could lead to severe repercussions. This is proven with the occurrence of the Asian financial crisis of 1997-1998 that would not have perhaps taken place if Asian companies were to be more concerned on the need for adequate disclosures (Aggrawal, 1999; Zhang, 2000; Steidler, 2001; Agami, 2002; and Kung, 2002).

However, providing adequate disclosure is not sufficient. This is because companies need also to distance themselves from practicing impression management (Neu, 1991) in their annual reports. This means that companies are to avoid manipulating the measurement and disclosure of accounting numbers and the content and syntax of

accounting narratives or of presentational formats such as graphs and pictures. Beattie and Jones (2000a) describe the former as accounting number management and the latter as presentation management.

The use of graphs in annual reports is an appropriate way of displaying numerical data to enable users to see the performance trends of a company (Beattie & Jones, 1999). However, under impression management, the management attempts to create the schema of trustworthy management. Stated Beattie and Jones (1999): "Financial graphs display selected information and present information in set ways to legitimize to the user of the annual reports the management's right to run the company."

Numerous studies have been conducted on financial graphs in annual reports in many part of the Western world – in the United States (Johnson, Rice & Roemmick,1980; Steinbart, 1989), in the Britain (Beattie & Jones, 1992), in Ireland (Green, Kirk & Rankin, 1992), in Canada (Canadian Institute of Certified Accountant, 1993), and in Australia (Mather, Ramsay & Serry, 1996; and Beattie & Jones, 1999). In addition, there are so far two comparatives studies – Beattie & Jones (1997) and Beattie and Jones (2000a) – and two more which are concerned with the use of graphs in documents other than annual reports: Mather, Ramsay & Steen, (2000) (IPO prospectus) and Houghton and Smith (2003) (corporate take over documents).

An extensive search of the literature has shown that only one study was conducted outside the context of the developed western countries. That is, Courtis (1997) for Hong Kong. Overall, studies conducted overseas have found evidence of a significant use and abuse of graphs in annual reports and other formal documents. So, it may be appropriate to ask whether the same situation is abound in the context of a developing country such as Malaysia. The answer is particularly relevant considering selectivity in the use of graphs and distortion in the construction of graphs could lead to sub-optimal decisions by users of financial information (Taylor & Anderson, 1986; Beattie & Jones, 1992).The remainder of this paper is organized into six sections, followed by a conclusion: in second section, the relevant literature on the use and abuse of graphs in annual reports are reviewed. Theoretical assumptions and hypotheses development are developed in section three. The discussion of research method and presentation of results are in the fourth and fifth sections, respectively. The sixth section provides discussion of the results.

LITERATURE REVIEW

There exists widespread evidence that corporate annual reports are used for impression management (Schipper, 1989; Aerts, 1994; Graves, Flesher & Jordon, 1996; and Beattie & Jones, 2000a). The conduct of impression management tactics comprised of accounting numbers management and presentational management (Beattie & Jones, 2000a). The former involves basic manipulation of the measurement and disclosure of accounting numbers. The latter which includes the manipulation of presentational formats such as graphs or pictures may in turn be divided into two categories: firstly the management has the option whether or not to provide financial information using graphs (i.e., selectivity); and secondly, the management may prepare graphs that display measurement distortion.

Specifically, when it concerns selectivity, it means that management might highlight variables where performance has increased over the year, but not to display those variables where performance has decreased. Thus, management has the freedom in selecting graphs to strengthen the impression of annual performance that they wish to convey. As for measurement distortion, it would mean that the physical measurements of the graphs are made to be *not* in direct proportion to the numerical values that they represent. An example of measurement distortion is when a graph's axes are correctly drawn, but they are misrepresenting the underlying data. Another example takes place through graphical devices such as a non-zero axis or a broken axis, which cause the rate of change in trend lines to appear greater than is actually warranted.

Beattie and Jones (1999) mention that besides selectivity and measurement distortion, there are two other forms of graphical manipulation. These are orientational distortion and presentational enhancement. The former occurs when the slope parameter diverges from 45°, the optimum for communicative effectiveness. As for the latter, it occurs when judicious presentational techniques generate a more flattering view of the results than is warranted by the underlying data (e.g., use of arrowheads at the top of columns).

There exists empirical evidence of such impression management practices for graphical presentation in annual reports. In the United States, Steinbart (1989) conducted a study on 319 *Fortune* 500 annual reports for 1986, and he discoverd that 26% of all graphs overstated time trends by more than 10% – with the majority of distortions being in the company's favour. They also found that companies with good

news (an increase in income) compare to companies that report bad news (a decline in net income) were more likely to include graphs of sales, income or dividends in their annual reports. They concluded that 80% of the annual reports that were examined contained at least one graph that present the data in a manner likely to create a significantly more favorable impression of corporate performance than was warranted by the information in the financial statements.

As for Beattie and Jones (1992), their study on 240 British listed companies' annual reports for 1989 has found that companies with *good* performance are significantly more likely to use financial graphs. Also, material measurement distortions occured in 30% of these graphs, with the underlying numerical data being exaggerated by an average of 10.7%.

For the study on 117 Irish companies' annual reports, Green *et al.* (1992) have found evidence of selectivity and material measurement distortion. Graphs usage in annual reports of Irish companies were found to be significantly related to good performance with regard to the particular item graphed. In other words, graphs tend to be used selectively to highlight those areas where performance has increased. Their study has also highlighted a number of material discrepancies between the reported figures and the graphical presentations. However, it notices no systematic favorable measurement bias.

As for Mather *et al.* (1996), their study on Australian companies' annual reports has found mixed results when they replicated Beattie and Jones (1992) hypotheses concerning selectivity and distortion, while presentational enhancement and orientation distortion were not explored. First, on selectivity, they found no significant relationships between the inclusion of graphs and company performance for the top 50 companies. However, for the next 100 companies, they did find some significant relationships for five out of nine tests. Second, on distortion, they found that distorted graphs of any of key financial variables (KFVs) are significantly more likely to present performance favorably than unfavorably.

In their study of graphical presentations of 176 Unites States and British companies, Beattie and Jones (1997) document significant selectivity in both countries and some evidence of measurement distortion and presentational enhancement. In regard to the inclusion of *at least one* KFV graphs, United States companies are significantly more likely to include *at least one* KFV graph when EPS has increased than when EPS has decreased over the current year. For the presence or absence of a

particular KFV graph, British companies are significantly more likely to include an EPS graph when EPS has increased rather than decreased. Meanwhile, for the incidence of measurement distortion, they found that 24% of graphs were materially distorted in both the United States (43 out of 182 graphs) and the British (40 out of 166 graphs).

As mentioned earlier, Courtis (1997) carry out research on graphical information for 364 listed Hong Kong companies' annual reports which are divided into two samples: 140 annual reports for 1992-1993 and 114 annual reports for 1994-1995. In a study which was concerned with graphs' violation of the principles and techniques of graph design while selectivity and measurement distortion were not explored, he had found that for the second survey the construction techniques used in approximately half of all graphs violate sound principles and were, therefore, misleading. That is, of the 578 graphs appearing in the 114 annual reports, 52% violate one or more guidelines for construction and labeling of chart graphics. And of the 116 companies using chart graphics in their annual reports, 72% provide at least one misleading graph.

Finally, Beattie and Jones (2000b) in their study on annual reports of 137 top British companies issued over a five-year period from 1988 to 1992 where the attempt was to find whether graph used was dependent on companies' performance, they have found that management decision to use KFV graphs were associated positively with companies' performance measures - at both the aggregate and individual levels. They concluded that financial graphs in corporate annual reports were used to manage favorably the reader's impression of companies' performance, and thus there is a reporting bias.

THEORETICAL FRAMEWORK

The content of communication between companies and their various stakeholders has been the subject of considerable research (for example, Gibbins *et al.*, 1990; Graves *et al.*, 1996; and Preston *et al.*, 1996). When it concerns communication between management and shareholders, the aim on the part of the former is to legitimize their action and convince shareholders that the company is being run competently and efficiently. In other words, management has the incentive to present its companies' performance in the best possible light, potentially resulting in biased financial reporting.

In particular, when it concerns accounting narratives, management is systematically found to enhance positive, but to downplay negative

news (Deegan & Gordon, 1996 in relation to environmental disclosures in annual reports). As for the use and abuse of photographs, studies have shown that photographs are used to present the corporate image in as favorable a light as possible (McKinstry, 1996, Graves *et al.*, 1996 and Preston *et al.*, 1996). When it concerns the graphical presentational format of accounting information, as succinctly stated by Beattie and Jones (1999), it would "...allow preparers to judiciously select and manipulate the financial message conveyed..." The former would mean that the graphs presented may lead to the emergence of a desire partial view of corporate financial performance. As for the latter on the manipulation financial messages, it comes about through three different types of distortion: measurement, orientation and presentational enhancement. The first which is measurement distortion and which has been pointed out earlier leads to the kind of graphs where the physical measures have failed to be directly proportional to the underlying numerical values (Tufte, 1983). Most of the researchers in graph studies have used Graph Discrepancy Index (GDI) to calculate the measurement distortion (for example Steinbart, 1989; Beattie & Jones, 1992; Mather *et al.*, 1996, 2000).

As for the orientation distortion, the angle of the graph's trend line (slope parameter) has diverged from 45° leading to cases where readers drawing inferences which are not explicitly present (Simcox, 1984). In other words, there emerges inaccurate and biased judgments to the advantage of graphs prepared. And when it concerns the final type of distortion which is the presentational enhancement of graphs, the design strategies implemented are intended to either enhance or obscure the underlying data. In other words, manipulation takes place in regard to the four standard components of graphical disclosures: background, framework, specifier and labels (Kosslyn, 1989). In short, there emerges a situation that is a far cry from efficient graphs decoding where each element is presented and located in the conventional position.

All in all, managers of companies have economic incentives to present the underlying information disclosed in annual reports in the most favorable light possible. Their practices of impression management are concerned with the selection of information to display and the presention of this information in order to enhance corporate achievements. The outcome is biased selection of variables to graph (selectivity) and/or incorrect construction of graphs (distortion). Both selectivity in the use of graphs and distortion in the construction of graphs could lead to sub-optimal decisions by users of financial information (Taylor & Anderson, 1986; Beattie & Jones, 1992).

Hypotheses Development

A number of studies on financial graphs in countries such as the United States, Britain and Australia have documented the use and abuse of graphs in annual reports. They have found instances of selectivity, measurement and orientation distortions and presentational enhancement. A key aspect of most of these studies is the empirical documentation of selectivity and measurement distortion in graphical presentations. Following their works, the present study focuses on these two main issues too. In total, this study is concerned with four hypotheses. The following describes the development of each of the hypotheses.

Selectivity

Selectivity in graphical presentations leads to a situation where an incomplete view of corporate financial performance is provided in annual reports. Companies are being selective in regard to whether or not to use graph and/or which variables are graphed. Normally, selectivity is concerned with the decision to include a graph (or variable) with an eye towards companies' performance. In studies conducted in the United States, Britain and Australia, strong evidence of selectivity has been found to exist.

Steinbart (1989) finds that companies in the United States are more likely to include graphs of key variables when profit has increased. As for Beattie and Jones (1992), they find that graphs of key financial variables (sales, profit, earnings per share and dividends per share) are significantly more likely to be included in the annual reports of British companies with *good*, rather than *bad* performance. They classify performance as *good* or *bad* on the basis of a directional change in both EPS (a general performance indicator) and the specific financial variables being tested.

In their latter study comparing the United States and British companies, Beattie and Jones (1997) have again found selectivity in graph usage – with the British exhibits greater selectivity. Finally, in their Australian study, Beattie and Jones (1999) have found statistical evidence that graphs are included in annual reports when they produce a favorable, rather than unfavorable, view of corporate performance. In particular, the presence of at least one of the four KFVs graphs (i.e., one out of sales, profit, EPS or DPS) is more strongly associated with the respective five-year profit and sales trends than with the respective one-year performance trend of sales, profit and EPS.

Another Australian study by Mather *et al.* (1996) that replicated Beattie and Jones (1992) methodology has however found mixed results on the selectivity hypothesis. This is because Mather *et al.* (1996) detected no significant relationships between the inclusions of graphs and company performance, in terms of either the whole sample or the top fifty companies. But for the next hundred ranked companies, they did find some significant relationships for five out of nine tests. It needs to be noted too that unlike Beattie and Jones (1992) they neither use EPS as the directional performance indictor nor measure performance over five years. When Green *et al.* (1992) replicated Beattie and Jones (1992) for a study on 117 Irish semi-state sector and public limited companies, they, unlike Mather *et al.* (1996) for the Australian study, have found evidence of selectivity. In other words, graphs tended to be used selectively to highlight those areas where performance had improved.

Given the findings of the various studies on selectivity of graphical presentations, it may be hypothesized that similar findings may be expected for the 100 companies constituting the KLSE (now, Bursa Malaysia) Composite Index in 2001. In particular, these findings may be separated into two categories: first, the presence or absence of *at least one* of the four KFV graphs (i.e., one out of sales, profit, EPS or DPS) is related with the respective favorable or unfavorable (i.e., increase or decrease) trend of companies performance measured by general performance indicator sales, profit before tax and EPS – over the directional change of both one year and five years. The concept of *at least one* KFV is pertinent because studies show that key financial variables tend to be viewed as a group (Beattie & Jones, 2000a). Because of this interdependency, there tends to be an *all or nothing* approach to presenting KFV graphs. Thus, an annual report may have a sales graph, even if sales performance is down if earnings performance is up.

As for the second category, the presence or absence of individual KFV graphs (sales, profit, EPS and DPS) may be said to relate with the respective favorable or unfavorable trend of companies performance measured in the specific KFVs – over the directional change of both one year and five years. In other words, the presence or absence of a particular KFV is also matched against the performance trend in that particular KFV (for example, DPS variable against DPS trend). All in all, these two separate consideration leads to the following respective hypotheses:

H1: Graphs of *at least one* KFV are more likely to be included in the annual reports of companies with *favorable* rather than *unfavorable* performance, where performance is measured in terms of a general performance indicator.

H2: Graphs of specific individual KFVs are more likely to be included in the annual reports of companies with *favorable* rather than *unfavorable* performance, where performance is measured in terms of the specific KFVs graphed.

Measurement Distortion

Measurement distortion is distinctly different from orientation distortion. Measurement distortion arises from incorrect graphic construction, whereas orientation distortion arises when the construction of the graph, though technically accurate, does not facilitate the accuracy of judgments based upon it. Either, neither, or both forms of distortion may be present in individual graphs. In the present study the focus is on measurement distortion that is measured using Tufte's (1983) Graph Discrepancy Index (GDI) (discussed in the next section). The GDI has been used in many prior academic accounting studies into graph construction (see Steinbart, 1989; Beattie &Jones, 1992; and Mather *et al.*, 1996).

By applying GDI in a study of 319 companies from the *Fortune* 500, Steinbart (1989) has found that measurement distortion in graphs of key financial variables (identified as sales, profits and dividends) on the average exaggerate the magnitude of change by around 11 per cent. An absolute distortion of more than 10% is also found in approximately 26% of the graphs of key financial variables in the sample, with overstatement and understatement being equally prevalent.

As for Beattie and Jones (1992) for British companies, they have found that 30% of graphs of key financial variables (which include EPS as well as the three variables used by Steinbart) are distorted. Beattie and Jones (1992) also detected that favorable distortion (overstatement of a positive trend or understatement of a negative trend) is significantly more likely than unfavorable distortion (understatement of a positive trend or overstatement of a negative trend). When Beattie and Jones (1997) compared the graphical reporting practices of 176 leading United States and British companies, they confirmed their earlier findings (Beattie & Jones, 1992) and those of Steinbart (1989) on measurement distortion.

In the Australian context, Mather *et al.* (1996) who replicated Beattie and Jones (1992) have found results that were consistent with previous United States and British findings. In other words, distorted graphs of any of the key financial variables are significantly more likely to present

performance favorably than unfavorably. In particular, Mather *et al.* (1996) detected 29.7% of graphs of key financial variables to be distorted (mean distortion +16.4% GDI), with exaggeration being very slightly more prevalent than understatement.

Later, in another Australian study of top 100 companies listed at the Australian Stock Exchange for 1991, Beattie and Jones (1999) discovered that material measurement distortion in 34% of all KFV graphs and favorable, rather than unfavorable, distortions predominated in terms of both the absolute number of distortions and magnitude of distortion. That is, out of 146 KFV graphs, they discovered fifty instances of measurement distortion: thirty-one favorable and nineteen unfavorable. Beattie and Jones (1999) also claimed that there is no certainty as to whether the distortion found is due to the exuberance and statistical naivety of designers or deliberate attempt on their part to manage impression. When Green *et al.* (1992) replicated Beattie and Jones (1992) for the context of Ireland, they found evidence of measurement distortion. However, they did not detect any systematic favorable measurement bias.

On the basis of these findings, it may be said that measurement distortion will lead to a better picture of the companies' performance and that this type of distortion may be found more in annual reports of companies with bad rather than good performance. Thus, the following hypotheses are to be tested in the present study using the Malaysian data:

H3: Material measurement distortion is likely to give a more, rather than a less, favorable portrayal of the company's performance.

H4: Favorable measurement distortion is more likely to occur in the annual reports of companies with *unfavorable* rather than *favorable* performance, where performance is measured in terms of the variable graphed.

RESEARCH METHOD

This section highlights the research approach adopted in order to achieve the objectives of the study. It is divided into the following sub-sections: the first is on sample selection; the second discusses the data collection methods employed; and finally the third section describes the Graph Discrepancy Index (GDI) for the measurement of graphical distortions.

Sample Selection

The sample of this study consists of 100 leading Malaysian companies listed in the Kuala Lumpur Stock Exchange (KLSE) for the year 2001. These are the companies whose share performance is used to calculate the KLSE Composite Index. The index is supposed to serve as an indicator of the performance of the Malaysian stock market and the economy. Thus, the companies chosen from the Main Board of the exchange to form the index have to go through rigorous screening. Among the factors considered are market capitalization, business activities and trading volume.

The fact that these companies are chosen from among hundreds listed at the KLSE provided the picture that they play a significant role not only in the Exchange but also in the nation's economy as a whole. Accordingly, their financial reporting practices should be of utmost importance to those involved in the stock market and others concerned with the nation's economic well being. As graphical presentations in the annual reports are part and parcel of their financial reporting practices, this study considers no other groups of companies to be the most appropriate for an in-depth analysis of the use and abuse of graphs.

In choosing this sample of leading companies, this study has taken a step similar to those who studied graphical presentations in annual reports in other parts of the world. These included for the United States, Johnson *et al.* (1980) and Steinbart (1989) with 50 and 319 *Fortune* companies, respectively; for Britain, Beattie and Jones (1992) with over 240 large companies; and for Australia, Mather *et al.* (1996) and Beattie and Jones (1999) with over 143 top and 100 leading listed companies, respectively.

Data Collection Method

The KLSE website (www.klse.com.my) is the main location to source for the annual reports of the 100 leading companies mentioned earlier. In cases where there is a failure of downloading the annual reports from KLSE website, efforts are undertaken to locate the annual reports at Universiti Utara Malaysia' library. From each annual report, the followings are collected:

1. Companies' name
2. Types of graph (classified as bar, graph, line or pie chart)
3. Amounts and performance trend over one- and five-year periods of general performance indicators (sales, profit, and earnings per share)

4. Graphs of the four key financial variables (KFVs) – sales, profit, earnings per share, and dividend per share

Graph Discrepancy Index (GDI)

There are six principles for graphical integrity and hence fair presentation of data in graphs in annual reports (Tufte, 1983). The first principle says that the physical representation of the numbers on the graphs needs to be directly proportionate to the numerical values being portrayed (Tufte, 1983). GDI is a way of measuring the misrepresentation of the underlying numerical data when they are presented as graphs.

Numerous studies of measurement distortion in graphs have used a graph discrepancy index (Johnson *et al.*, 1980; Steinbart, 1989; Beattie & Jones, 1992, 1997, 1999, 2000a, b; Mather *et al.*, 1996, 2000; and Frownfelter-Lohrke & Fulkerson, 2001). Based upon the work of Tufte (1983), Taylor and Anderson (1986) and Steinbart (1989) produce the graph discrepancy index which is calculated as follows:

$$GDI = [(a/b)-1] \times 100\%$$

where

a = percentage change (in cms) depicted in graph, i.e.

$$\frac{\text{height of last change} - \text{height of first column}}{\text{height of first column}} \times 100\%$$

b = percentage of changes in the data.

So, for example, a company's profits rise from RM 10m to RM 20m over a five year period, and this is portrayed in a column graph with the height of the column in year 1 being 5cm and the height of the year 5 column being 10.5cm, then the graph discrepancy index is +10%:

$$GDI = [(110/100)-1] \times 100\% = 10\%$$

where

$$a = [(10.5-5)/5] \times 100\% = 110$$

$$b = [(20-10)/10] \times 100\% = 100$$

A GDI of zero percent indicates that the graph has been properly constructed. In other words, there is no measurement distortion. Tufte (1983) has argued that GDI values greater than +5% or less than –5% indicate that the graphs are materially distorted. The present study concurs. A positive value means the financial graph exaggerates the data trend. As for a negative value, it means the graph has understated the trend. In another way of saying, positive (negative) values indicate

the percentage by which the trend in the data is exaggerated (understated) by the graph. Thus, it is viewed that distortions in excess of 5% show substantial distortion, far beyond minor inaccuracies in plotting. In ascertaining as to whether the distortion is favorable (i.e. flattering) or unfavorable, users of annual reports need to be concern with two things: first, the nature of financial variable – where higher values are always considered as *better* than the lower value; and second, the direction of the trend line.

All in all, when there is an exaggeration of upward/positive trend and understatement of downward/negative trend, the image or picture provided is favorable to the companies. On the other hand, an understatement of upward/positive trend and exaggeration of downward/negative trend shall lead to an unfavorable picture of the companies' performance. In annual reports in recent years, as noted by Beattie and Jones (2001), it is more usual to find upward rather than downward trends in financial variables such as sales, profit, EPS and DPS.

In providing the descriptive results, the study differentiates between raw GDI (RAWGDI) and adjusted GDI (ADJGDI) – the latter being GDI adjusted to take into account favorable and unfavorable trends. Thus, for example, if the raw GDI is positive and the performance trend is downward (i.e., unfavorable), leading to a situation of graphs exaggerating the negative financial trend, then the sign of the GDI is reversed (i.e. adjusted GDI is negative) depicting the exaggeration of a negative financial situation.

Finally, in testing out whether measurement distortion is associated with the favorable portrayal of companies' performance (H3), the following is calculated:

$$\text{Adjusted GDI ratio} = \frac{\text{number of material favorable adjusted GDIs}}{\text{total number of material adjusted GDIs}}$$

RESULTS

The discussion of the results is separated into four sections: the first on incidence of graph use; the second on distribution of graphs by type; the third on selectivity in key financial variable (KFV) graphical displays; and lastly the fourth on measurement distortion.

Incidence of Graph Use

The incidence of graph use across industries is presented in Table 1. 79% of the 100 index link counters that constitute the KLSE Composite Index provide at least one graph – which may or may not be KFV. The number with at least one graph that is not KFV is however very small: two companies where one is from industrial sector trading/services and the other is from plantation industry. This means 77% of companies have graphed for *at least one* of the four KFVs: sales, profit, EPS and DPS.

In total, from the 79 companies that use 637 graphs, the average is 8.1 per company. As shown in Table 1, the most popular graph type is column graph.[1] A total of 366 (or 57%) out of 637 graphs come in the form of column graph. The next popular graph is bar which accounts for 18% of the total number of graphs. The most commonly graphed KFV is profit (a total of 73 companies or 73% of the total companies) followed by sales (62% of companies). See also Table 1a and 1b for summaries of what appear in Table 1.

Distribution of Graphs By Type

As shown in Table 2, column graph is particularly popular for the KFVs especially profit and DPS (over 80%). As for the bar graphs together with the column graphs, they account for 98% of the KFVs (80% column plus 18% bar graphs) and 75% of all graphs (57% column plus 18% bar graphs). Both bar and column graphs together are also more popular than the other two graphs for the non-KFVs (63% of its total or 45% column plus 18% bar graphs). However, for line and pie graphs, they are more likely found for the non-KFVs than the KFVs (37% non-KFVs versus 2 per cent KFVs).

Also, for every two non-KFVs, there is one KFV. In other words, just around a third of all graphs are KFVs. To be more exact, it is 33.87% (215.75 total KFVs divide by 637 total graphs). Profit, sales, EPS and DPS account for 33.49% (72.25 total number of profit graphs divide by 215.75 total number of KFVs), 29.08% (62.75 total number of sales graphs divide by 215.75 total number of KFVs), 19.23% (41.50 total number of EPS graphs divide by 215.75 total number of KFVs) and 18.19% (39.25 total number of DPS divide by 215.75 total number of KFVs), respectively of the total number of KFV graphs.

Table 1
The Incidence of Graph Use

Industries	Total	With Graph	(%)	Types of graphs*					Mean	Key Variable Graphs				At least one KFV**
				Column	Bar	Line	Pie	Total		Sales	Profit	EPS	DPS	
Trading/services	31	24	77	122	38	28	23	211	6.8	18	22	12	12	23
Industrial prod.	16	15	94	60	24	12	11	107	6.7	14	13	10	6	15
Finance	13	10	77	62	27	20	4	113	8.7	2	9	2	5	10
Properties	12	7	58	28	7	5	6	46	3.8	7	7	5	4	7
Consumer prod.	11	10	91	40	15	8	5	68	6.2	10	10	6	7	10
Construction	7	5	71	23	0	9	8	40	5.7	4	5	5	2	5
Plantation	4	3	75	11	0	2	5	18	4.5	2	2	0	1	2
Infra. Projects	3	3	100	10	5	6	3	24	8.0	3	3	0	2	3
Technology	2	2	100	10	0	-	-	10	5.0	2	2	0	1	2
Hotel	1	0	0	-	-	-	-	-	-	-	-	-	-	-
Total	100	79		366	116	90	65	637	8.1	62	73	40	40	77

Note : 1. * for number of graphs
2. ** for number of companies

Table 1a
Summaries of the Types and Mean Number of Graphs Use in Annual Reports

Types of graphs	No. of graphs	%
Column	366	57
Bar	116	18
Line	90	14
Pie	65	11
Total	637	100

Mean number of graphs	No. of graphs
For all companies (n=100)	6.37
For graph using companies only (n=79)	8.06

Table 1b
Summaries of Keys Variable Graphs in Annual Reports

Variable graphed	Companies (n=100) No.	%
Any variable (either KFV or non-KFV)	79	79
At lease one key financial variable (KFV)	77	77
Specific key financial variable (KFV):		
Sales	62	62
Profit	73	73
Earnings per share (EPS)	40	40
Dividends per share (DPS)	40	40

Table 2
Distribution of All Graphs Type

Type of graph	Sales		Profit		EPS		DPS		Total KFVs		Total Non-KFVs Graphs		Total Graphs	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Column	48.75	78	58.25	81	32.50	79	32.25	83	171.75	80	194.25	45	366	57
Bar	12	18	12	17	9	21	7	17	40	18	76	18	116	18
Line	1	2	1	1	-	-	-	-	2	1	88	22	90	14
Pie	1	2	1	1	-	-	-	-	2	1	63	15	65	11
Total	62.75	100	72.25	100	41.50	100	39.25	100	215.75	100	421.25	100	637	100

Chi-square tests is used to test both H1 and H2 on whether KFV graphs are more likely to be included in the annual reports of companies with *favorable* rather than *unfavorable* financial performance. The presence or absence of *at least one* of the four KFV graphs (H1) as well as the presence or absence of each individual KFV graphs (H2) are investigated – over both one-year and five-year periods of directional change of general and specific financial variables.

For H1, there are six tests covering directional change in three general performance indicators (sales, profit and EPS). Thus, for example, a test is done to see whether the presence or absence of *at least one* of the four KFV graphs is associated with an increase or a decrease in the profit trend over one year or five years. As for H2, there are eight tests to measure the directional change in the specific KFV against the presence or absence of that particular KFV. Thus, for example, a test is conducted to see whether the presence or absence of a sales graph is associated with an increase or a decrease in the sales trend over either one year or five years.

Table 3 reports the results for tests conducted for H1. At the 1% significant level, no significant association is found between the inclusion of *at least one* KFV graph and the one-year and five-year sales, profit and EPS trends. However, significant associations are found between the inclusion of *at least one* KFV graph and one-year and five-year sales trends when tests are done at the 10% level (two out of six associations tested). In other words, the presence of *at least one* of the KFVs is more likely when there are increasing rather than decreasing trend over one year and five years for general performance indicator sales.

Turning to individual variables, which is the concern of H2, it is found that the presence of specific individual KFVs is not associated at the 10% level with an increase or a decrease in the one year and five years specific KFV trends. See Table 4. All in all, statistical evidence is moderately supportive of H1 and it is not supportive at all for H2.

Table 3

Cross-Tabulation and Tests of the Relationship between the Presence of at least one KFV Graph and Directional Performance Indicators

Presence of graph	Directional change for companies using graphs			Chi-square Test statistic (corrected for continuity)	Level of significance (two-tailed)
	Increase	Decrease	Total		
A. Over current year					
Sales	51	28	79	6.696	0.010*
Profit	46	33	79	2.139	0.144
EPS	43	36	79	0.620	0.431
B. Over five years					
Sales	50	29	79	5.582	0.018*
Profit	40	39	79	0.013	0.910
EPS	39	40	79	0.013	0.910

* *Significance at the 0.10 level.*

Table 4

Cross-Tabulation and Tests of the Relationship between the Presence of Specific KFV Graph and Directional Performance Indicators

Presence of graph	Directional change for companies using graphs			Chi-square test statistic (corrected for continuity)	Level of significance (two-tailed)
	Increase	Decrease	Total		
A. Over current year					
Sales	51	28	79	0.074	0.786
Profit	46	33	79	0.000	0.996
EPS	43	36	79	1.142	0.285
DPS	50	29	79	1.039	0.308
B. Over five years					
Sales	50	29	79	0.022	0.883
Profit	40	39	79	0.154	0.695
EPS	39	40	79	0.000	1.000
DPS	46	33	79	2.144	0.143

** *Correlation is significant at 0.01 level* (2-tailed)

Measurement Distortion

By using the GDI to calculate the measurement distortion for each of the KFV graphs (where distortions greater than 5% in absolute terms are considered material), it is found that out of the 215 KFV graphs for the one-year trend, there are 170 instances (80%) of material distortions. That is, 87 material favorable discrepancies plus 83 material unfavorable discrepancies – leaving 45 KFV graphs (20%) that are without material distortions. See Table 5, see also Table 5a which shows

the frequency distribution of adjusted GDI scores of individual KFVs whose respective total values are shown in Table 5. This Table 5a is thus providing the detail picture for the scores of each of the KFVs which could not be accommodated in Table 5. In the case of Sales graphs for example, Table 5 merely shows a total of 62 discrepancies. Now, with Table 5a, it can be seen where this comes from on several ranges of adjusted GDI scores.

Table 5
Incidence of Measurement Distortion in KFV Graphs for One-Year Period

Adjusted Graph Discrepancy Index (Adjusted GDI)	Sales	Profit	EPS	DPS	Total	
	No.	No.	No.	No.	No.	%
Material favorable discrepancy	29	25	14	19	87	41
Material un favorable discrepancy	21	28	17	17	83	39
No material discrepancy	12	20	9	4	45	20
Total	62	73	40	40	215	100
Mean mat. favorable discrepancy (Adjusted GDI)	33.2	12.2	26.0	34.1		26.4
Mean mat. unfavorable discrepancy (Adjusted GDI)	14.3	16.9	10.0	9.96		12.8
Mean material exaggeration (Raw GDI)	+47.3	+50.7	+39.2	+50.1		+46.8
Mean material understatement (Raw GDI)	-25.1	-45.1	-37.3	-43.9		-37.8

Table 5a
Frequency Distribution of Adjusted Graph Discrepancy Index Scores in KFV Graphs for One-Year Period

Adjusted Graph Discrepancy Index [Adjusted GDI %, classed as favorable (+) and unfavorable (-)]		Sales	Profit	EPS	DPS	Total	
		No.	No.	No.	No.	No.	%
Adjusted GDI <	-50	5	15	3	3	26	13
-50 < Adjusted GDI <	-25	6	3	2	3	14	8
-25 < Adjusted GDI <	-10	2	7	2	4	15	8
-10 < Adjusted GDI <	-5	8	2	6	4	20	10
-5 < Adjusted GDI <	0	3	7	6	1	17	7
0 < Adjusted GDI <	5	9	11	3	5	28	13
5 < Adjusted GDI <	10	3	6	8	4	21	9
10 < Adjusted GDI <	25	3	2	2	3	10	4
25 < Adjusted GDI <	5	6	6	1	3	16	7
50 < Adjusted GDI <	100	8	6	5	2	21	9
100 < Adjusted GDI		9	8	2	8	27	12
Total		**62**	**73**	**40**	**40**	**215**	**100**
Mean adjusted GDI score						+13.47	
Mean material adjusted GDI score (n = 170)						+36.29	

When the five-year trend is the focus, there is a 3% reduction of material distortions when comparison is made with the corresponding finding of the one year trend. See Table 6. That is, from a total of 206 KFV graphs, there are 137 instances (70 material favorable discrepancies plus 67 material unfavorable discrepancies) or 77% of material distortions. As in Table 5a, Table 6a shows the frequency distribution of adjusted GDI scores of individual KFVs whose respective total values are shown in Table 6.

Table 6
Incidence of Measurement Distortion in KFV Graphs for Five-Year Period

Adjusted Graph Discrepancy Index (Adjusted GDI)	Sales No.	Profit No.	EPS No.	DPS No.	Total No.	Total %
Material favorable discrepancy	20	21	16	13	70	34
Material unfavorable discrepancy	16	29	9	13	67	33
No material discrepancy	21	22	14	12	69	33
Total	57	72	39	38	206	100
Mean mat. favorable discrepancy (Adjusted GDI)	12.0	6.2	16.3	39.0		13.3
Mean mat. unfavorable discrepancy (Adjusted GDI)	11.5	9.6	6.5	8.2		9.3
Mean material exaggeration (Raw GDI)	+26.4	+24.4	+34.9	+49.0		+32.3
Mean material understatement (Raw GDI)	-21.4	-29.8	-25.6	-17.6		-24.9

Table 6a
Frequency Distribution of Adjusted Graph Discrepancy Index Scores in KFV Graphs for Five-Year Period

Adjusted Graph Discrepancy Index [Adjusted GDI %, classed as favorable (+) and unfavorable (-)]			Sales No.	Profit No.	EPS No.	DPS No.	Total No.	Total %
	Adjusted GDI <	-50	4	9	3	2	18	9
-50	< Adjusted GDI <	-25	4	4	0	2	10	5
-25	< Adjusted GDI <	-10	6	10	3	6	25	12
-10	< Adjusted GDI <	-5	2	6	3	3	14	7
-5	< Adjusted GDI <	0	10	12	7	5	34	17
0	< Adjusted GDI <	5	11	10	7	7	35	17
5	< Adjusted GDI <	10	5	6	5	3	19	9
10	< Adjusted GDI <	25	6	6	5	0	17	8
25	< Adjusted GDI <	5	3	2	2	0	7	3
50	< Adjusted GDI <	100	6	6	3	10	25	12
100	< Adjusted GDI		-	1	1	-	2	1
Total			57	72	39	38	206	100
Mean adjusted GDI score							+2.89	
Mean material adjusted GDI score (n = 137)							+4.23	

As can been seen in Table 5 too, for the one-year trend, except for sales, the other KFVs are more or less as likely to be favorably presented as they are unfavorably presented. When the five-year trend is considered, DPS is the only KFV where it is likely to be favorably presented as it is unfavorably presented. (See Table 6). Sales and EPS are more likely to be favorably presented whereas profit is more likely to be unfavorably presented.

Also, two KFVs (profit and EPS) for the one year trend and one KFV (profit) for five-year trend provide the greater absolute number of unfavorable compared to favorable discrepancy (Tables 5 and 6). These are counter-intuitive results. In other words, these findings are not as expected. Nevertheless, for EPS the magnitude of the favorable discrepancies is two and a half times of that of unfavorable discrepancy (26% versus 10 %) (Table 5). As for profit, for both one- and five-year trends (see Tables 5 and 6), the magnitudes of the unfavorable discrepancies are higher compared to the magnitudes of favorable discrepancies (16.9% versus 12.2% and 9.6% versus 6.2%, respectively).

All in all, for the one current year period as shown in Table 5, the mean material favorable discrepancy is more than twice the mean material unfavorable discrepancy (26.4% versus 12.8%). Thus, with 80% of Malaysian KFVs exhibit material measurement distortion, favorable, rather than unfavorable, distortions predominate in terms of both the absolute number of distortions (87 versus 83 instances) and magnitude of distortions (26.4% versus 12.8%).

As for the five-year trend, the mean material favorable discrepancy is 13.3% compared to 9.3% for the mean material unfavorable discrepancy (see Table 6). Similar to the finding for the one-year trend, with 77% of Malaysian KFVs exhibiting material measurement distortion for the five-year trend, favorable, rather than unfavorable, distortions also predominate in terms of the absolute number of distortions (77 versus 67 instances) and magnitude of distortion (13.3% versus 9.3%).

On the basis of the findings so far, it may be said that a high percentage of Malaysian KFVs provide measurement distortion in the annual reports of the companies concerned. The distortion is material in value, and it provides favorable picture of the companies' performance that is not found by the underlying data. However, the results from the binomial test conducted for H3 (that measurement distortion is likely to give a more, rather than a less, favorable portrayal of a company's performance) are not significant for both one-year and five-year trends at 10% significant level (Tables 7 and 8). In other words, H3 is not supported - on each of the 10 one-tailed tests related to the number of

material distortions for each KFV (i.e., sales, profit, EPS and DPS) and the total number of material distortions pooled across all four KFVs over the two time periods.

Table7
Test on the Directionality of Adjusted GDI scores of KFV Graphs Over One-Year Period

KFV	Total Adjusted GDI (mat. fav.dis + mat. unfav. dis)	Ratio (material fav/ total adjusted GDI)	Overall mean	Asymp. Sig. (one-tailed)
Sales	50	0.58	+18.63	0.161
Profit	53	0.46	- 0.86	0.342
EPS	31	0.45	- 6.60	0.360
DPS	36	0.53	+26.61	0.434
Total Adjusted GDI	170	0.54	+8.64	0.194

Table 8
Test on the Directionality of Adjusted GDI scores of KFV Graphs Over Five-Year Period

KFV	Total Adjusted GDI (mat. fav.dis + mat. unfav. dis)	Ratio (material fav/total adjusted GDI)	Overall mean	Asymp. Sig. (one-tailed)
Sales	36	0.56	+4.28	0.309
Profit	50	0.42	-11.26	0.161
EPS	25	0.64	+6.96	0.115
DPS	26	0.50	+27.62	1.000
Total Adjusted GDI	137	0.51	+3.84	0.432

As for H4 (that favorable measurement distortion is more likely to occur in companies with unfavorable rather than favorable performance, where performance is measured in terms of the variable graphed), it is found that out of 8 chi-square tests (four for each one- and five-year trends), two provide significant results at the 10% significant level and one at the 1% significant level (see Table 9). The two are five-year sales and DPS trends. As for the one which is significant at the 1% level, it is the one-year profit trend. Thus, H4 is only partly supported.

Table 9
Result of the Relationship between the Favorable Measurement Distortion of KFV and Companies' Performance

Presence of Graph	Performance Indicator	Chi-square test statistic (corrected for continuity)	Level of (two-tailed) significant
Sales	one-year sales trend	0.000	1.000
	five-year sales trend	2.909	0.088*
Profit	one-year profit trend	13.632	0.001***
	five-year profit trend	0.243	0.622
EPS	one-year EPS trend	3.946	0.139
	five-year EPS trend	1.000	0.317
DPS	one-year DPS trend	1.667	0.197
	five-year DPS trend	6.250	0.012*

** Significance at the 0.10 level. *** Significant at the 0.01 level.*

DISCUSSION

From the results of data analysis, it may be said that graphs are used widely in the 100 component stocks of the Kuala Lumpur Composite Index and that to some extent they are subject to impression management. In particular, on the use of graphs, it is found that over three-fourth (79%) of Malaysia's leading companies use graphs extensively. This finding is the same as that found by Frownfelter-Lohrke and Fulkerson (2001) in their study over 74 companies (from 12 countries) which are listed at the two major stock exchanges in the United States. This is also exactly the result found for the United States (Steinbart, 1989) and Britain (Beattie & Jones, 1992) in two earlier studies. However, when a comparison is made with the more current year data for the United States and Britain – Beattie and Jones (1997) – the Malaysian finding of graph usage is lower when compared to 92% for the United States and 80% for Britain. The same may be said when a comparison is made with the findings of not just the United States (90%) and Britain (82%), but also those of Australia (92%), France (88%) and Germany (84%) as found in Beattie and Jones (2001). Also the Malaysian finding is lower when compared to the findings for Australia: Mather *et al.* (1996) (83%) and Beattie and Jones (1999) (89%). And it is also lower when the Malaysian finding is compared to that of Canada (83%) (CICA, 1993). However, when comparison is made with those of Irish (54%) (Green *et al.*, 1992) and Hong Kong (38% for the first sample, 35% for the second sample) (Courtis, 1997), the Malaysian finding is certainly much higher.

When it concerns the subject of the mean number of graphs per graph-using company, to a large extent the finding is in the same direction as that over the use of graphs. Thus, when the Malaysian finding is compared to the others, the value (8.1) is lower to those found for the United States, Canada and Australia. For the United States, Steinbart (1989) and Beattie & Jones (1997) have found the values to be 10.0 and 14.2, respectively. As for Canada and Australia the values are 10.1 (CICA, 1993) and 10.5 (Beattie & Jones, 1999). When the Malaysian finding is compared to the British findings, the former is higher compared to that coming from an earlier British study (Beattie & Jones, 1992) (7.5), but lower when comparison is made with that from the later study (Beattie & Jones, 1997) (9.7). It is perhaps important to note that the two British studies use 1989 (Beattie & Jones, 1992) and 1990 (Beattie & Jones, 1997) data which are more than a decade old data compared to the present Malaysian study. For the more recent studies involving British companies, the mean number of graphs per graph-using company is not reported (Beattie & Jones, 2000a; 2001b). Finally, when a comparison is made with the finding from Irish (Green *et al.*, 1992) and Hong Kong (Courtis, 1997) studies, where the values are 8.0 and 5.2, respectively, the Malaysia's finding is certainly higher.

All in all, although it may be said that graphs are used widely in the 100 index link counters of the KLSE, these companies have failed to show as much sophistication in regard to the percentage of companies using graphs and the mean number of graphs per graph-using company as their counterparts in the United States, Britain, Australia and Canada. It is just when compared to companies in Ireland and Hong Kong that the Malaysian companies provided better results.

Nonetheless, on the subject of the KFVs graphs, there is a broad consistency with some of the overseas' findings. Specifically, the presence of KFV graphs amounted to a third of the total number of graphs for the Malaysian finding is not so much different to those found for the United States (27.5%) (Steinbart, 1989)[1], Britain (30.7%) (Beattie & Jones, 1992) and Hong Kong (34.8%) (Courtis, 1997)[2]. A rather large gap between the Malaysian finding and those others from overseas can be seen however when a comparison is made with the two studies covering more than one country: Beattie and Jones (1997) (19.15%); Beattie and Jones (2000a) (21.79%). The same can be said when a comparison is made with the more recent Australian study (Beattie and Jones, 1999) (18.0%).

When attempts are made to compare the findings for the most popular type of graph, there is no easy conclusion to make. The same may be said in regard to the most popular graph type for the KFVs. This is

because many studies (for example, Steinbart, 1989; Beattie and Jones, 1997; and Frownfelter-Lohrke & Fulkerson, 2001) did not differentiate between the bar and column graphs as followed in this study and that of Beattie and Jones (1999). Most of these studies use only bar graph to denote both bar and column graphs. There is also one study (Beattie & Jones, 1992) that disregarded the use of the term bar graph and instead used solely the term column graph to mean both bar and column graph types.

Therefore, only easy comparison can be made with the findings of Beattie and Jones (1999) for their Australian study and perhaps also those of Courtis (1997) for his Hong Kong study. Specifically, the most popular graph type for the KFVs and non-KFVs combined is column graph: while the finding for present study is 57 per cent, Beattie and Jones (1999) have made a finding of 55%. When it concerns Courtis (1997) where the focus is on KFV graphs, his findings on the most popular graph type is also column for both 1992-1993 and 1994-1995 samples: 67% and 58%, respectively.

However, while the present study discovers column graph to be particularly popular for DPS and profit, Beattie and Jones (1999) have found column graphs are particularly popular for KFV sales and DPS. As for Courtis (1997), the two KFVs where column graph to be particularly popular are sales and profits. As in Beattie and Jones (1999), the present study has found that more line and pie graphs are displayed for the non-KFV variables than they are for the KFV variables. All in all, as in Beattie and Jones (1999), the present study has found that column and bar graph types are more popular than line and pie graphs. It is perhaps worth noting too that Courtis (1997) unlike other studies on graphical presentations has more than four types of graphs discussed (other than column, bar, line and pie) which he categorized under the heading *other* in one case and *area filled* in the other.

All in all, although to a very good extent there is consistency in the findings over the use of KFV graphs when a comparison is made between the result of this study and those others coming from overseas, not much may be said concerning the most popular graph type for the KFVs and non-KFVs combined and the most popular graph type for the KFVs in particular. This is due to the fact that with the exception of Beattie and Jones (1999) and Courtis (1997), most studies have failed to account for column graphs separately from the bar graphs.

In regard to impression management practices of selectivity and measurement distortion, it is found that Malaysian companies are to some extent selective in their use of graphs (H1) and that to some extent

too they use graphs that are materially distorted (H4). On selectivity, statistical evidence has supported the idea that graphs of *at least one* of the four KFVs are included in annual reports when they display a favorable, rather than an unfavorable, picture of companies' performance measured by the general performance indicator sales over one year and five years. This particular finding is in support of others found by Steinbart (1989), Beattie and Jones (1992, 1997, 1999) and Green *et al.* (1992).

As for measurement distortion, it can safely be said that it is common in Malaysian graphs for each of the one- and five-year trends. For the one-year trend, 80% of all graphs are materially distorted. As for the five-year trend, 77% of all graphs are materially distorted. Statistically, however, material distortions are *not* found to be more likely to give a more favorable view of the firm than is warranted. So, this finding is supportive of Beattie and Jones (2000a) in their study of six countries when the statistical test is done at the level of individual countries. But, this evidence is not supportive of the prior findings of so many other studies such as Steinbart (1989), Beattie and Jones (1992, 1997, 1999), Green *et al.* (1992) and Mather *et al.* (1996).

Also, statistically, favorable measurement distortion is more likely to occur in the annual reports of companies with *unfavorable* rather than *favorable* performance measured in terms of the financial variable graphs. This evidence is the opposite of Beattie and Jones (1992, 1999). Beattie and Jones (1992, p. 300) explain the reason for the lack of significance by saying that companies with poor performance are less likely to use graphs. Thus, in the Malaysian case, it may be said that the companies would still use graphs in cases of unfavorable performance – but these graphs would understate such cases.

Overall, with the findings showing weak evidence of selectivity and measurement distortion, it is perhaps safe to say that local companies are not inclined towards impression management of financial graphs. This may be explained by the fact that the Malaysian stock market is not that competitive when compared to the United States and British stock markets. As a result, there is not much inducement for the Malaysian companies to practice impression management in graphical presentations. Therefore, it is not surprising to find that there is little evidence that graphs are used to promote the presentation of companies' performance so as to enhance good news, while downplaying bad news. It is also safe to say that due to the fact that the number of *unfavorable* misrepresentation is just slightly lower than the number of *favorable* misrepresentation for both one year and five year trends, there is perhaps a lack of understanding of graphical principles by designers.

CONCLUSION

Graphs in annual reports are an important visual device which can be used by companies to influence users' perceptions. In other words, management could use graphs in convincing annual report users that they are doing a good job in running the company. However, the use of graphs among the wide array of media and strategies to manage impression does not seem to be the case when it concerns the sampled Malaysian companies. This is because though 79% of companies use graphs and 8.1 is the mean number of graphs across all the graph-using companies, there is weak evidence on selectivity and measurement distortion.

Thus, there is no evidence for example that (a) graphs of specific individual KFVs are more likely to be included in the annual reports of companies with favorable rather than unfavorable performance (where performance is measured in terms of the specific KFVs graphed) and that (b) material measurement distortion is likely to give a more, rather than a less, favorable portrayal of the company's performance. In fact, when it concerns (a) graphs of *at least one* KFV are more likely to be included in the annual reports of companies with *favorable* rather than *unfavorable* performance (where performance is measured in terms of a general performance indicator) and that (b) favorable measurement distortion is more likely to occur in the annual reports of companies with *unfavorable* rather than *favorable* performance (where performance is measured in terms of the variable graphed), the few relationships found are only significant at the 10% level. It is only in one case where the relationship is significant at 1% level.

These findings regarding impression management have thus failed to give strong support to prior studies over the use of financial graphs in Western developed stock markets. This very fact plus others such as on the lower percentage of companies using graphs and the lower mean number of graphs per graph-using company and the presence of a slight difference between material favorable and unfavorable discrepancies mean that much efforts on graphical displays by interested parties in Malaysia (i.e., prepares, users, regulators, auditors) should be on (a) the use of more graphs in annual reports and (b) the clear understanding and proper application of the principles of graph design and construction. For the latter, see for example Tufte (1983), Cleveland and McGill (1987), Kosslyn (1989), and Hollands and Spence (1992). Thus, there is not perhaps much need for scarce resources to be

invested over efforts to eradicate the few graphical misrepresentations done for the purpose of managing impression.

Nonetheless, there is a need to highlight the limitations of this study and thus its findings and conclusions. First, the sample studied consists of the 100 component stocks of the KLSE Composite Index for 2001. This means the study does not concern with over 500 companies that were also listed at the KLSE then. Thus, while on the one hand the sample selected is probably appropriate considering the fact that they contribute on a larger scale to the well-being of the Malaysia's economy and thus compared to others are expected to use more graphs in the annual reports, on the other hand the study is lacking in external validity since the results could hardly be generalized to those which do not constitute the KLSE Composite Index. Therefore, there is a need for further study which includes in the samples other listed and non-listed companies.

Besides limitation on the aspect of sampled companies, another limitation of the study is concerned with its focus on just two aspects of graphical manipulation – selectivity and measurement distortion – to the exclusion of the other two: orientation distortion and presentational enhancement. Thus, there is a need for further study to detect the possible cases of orientation distortion and presentational enhancement to provide a more complete picture of whether or not companies in Malaysia implement management impression over graphical displays. Such study could be much more useful if the focus is not only on KFV graphs, but also on non-KFV graphs.

Finally, the understanding regarding impression management practices over graphical displays in Malaysia would be much more complete if further study is concerned with documents other than annual reports such as corporate takeover documents and prospectus issued by companies making their initial public offering (IPO) of shares to the Malaysian stock market.

All in all, there is still a lot that could be discovered in the field of graphical presentations in Malaysia. Though the present study leads to the understanding that companies in Malaysia are not yet sophisticated in graph usage and that not much concern should be placed over deliberate attempts of companies in graphical manipulations, a more conclusive evidence generalized to others which are not component stocks of the KLSE Composite Index can only be made after further study is conducted.

END NOTES

1. Bar graphs are presented horizontally; column graphs vertically.
2. He takes into account sales, income and dividend but excludes EPS in accounting for the most commonly graphed variables.
3. This is the finding for the first sample of 1992-1993. However, for the second sample of 1994-1995, he has found a *dramatic* increase to 70.9%.

APPENDIX
Sample firms

1. Affin Holdings Berhad
2. Aluminium Company of Malaysia Bhd.
3. AMMB Holdings Berhad Berhad
4. Amway Malaysia Holdings
5. Arab Malaysian Development Berhad
6. Bandar Raya Development Berhad
7. Berjaya Sports Toto Berhad
8. British America Tobacco (Malaysia)
9. Chemical Company of Malaysia Berhad
10. Commerce Asset Holdings Berhad
11. Computer System Advisers (M) Berhad
12. Country Heights Holdings Berhad
13. Courth Mamouth Berhad
14. Dailog Berhad
15. Daiman Development Berhad
16. Digi Com Berhad
17. DNP Holdings Berhad
18. Europlus Berhad
19. Gamuda Berhad
20. Genting Berhad
21. Globetronics Tech Berhad
22. Golden Hope Plantation Berhad
23. Guiness Anchor Berhad
24. Hap Seng Consolidated Berhad
25. Hong Leong Bank Berhad
26. Hong Leong Properties Berhad
27. Hume Industries (M) Berhad
28. IGB Corporation Berhad
29. IJM Corporation Berhad
30. IOI Corporation Berhad
31. Jaya Tiasa Holdings Berhad
32. John Hancock Life Insurance (M) Berhad
33. Johor Port Berhad
34. KianJoo Can Factory Berhad
35. Kim Hin Industry Berhad
36. Kuala Lumpur Kepong Berhad
37. Kulim (M) Berhad
38. Kumpulan Emas Berhad
39. Kumpulan Guthrie Berhad
40. Leader Universal Holding Berhad
41. Lingkaran Trans Kota Holding Berhad
42. Lingui Development Berhad
43. MAA Holdings Berhad
44. Magnum Corpooration Berhad
45. Malakoff Berhad
46. Malayan Cement Berhad
47. Malayan United Industries Berhad
48. Malayan Banking Berhad
49. Malaysia International Shipping Corp.
50. Malaysia Mining Corporation
51. Malaysia National Reinsurance Berhad
52. Malaysia Airline Systems Berhad

52. Malaysia Airline Systems Berhad
53. Malaysia Airport Holding Berhad
54. Malaysia Industrial Development Finance Berhad
55. Malaysia Oxygen Berhad
56. Malaysian Pacific Industries Berhad
57. MAXIS Communications Berhad
58. Mesiniaga Berhad
59. MNI Holdings Berhad
60. Mulpha International Berhad
61. NCB Holdings Berhad
62. Nestle (M) Berhad
63. New Straits Times Press (M) Berhad
64. Nikko Electronics Berhad
65. Nylex (M) Berhad
66. Oriental Holdings Berhad
67. Padiberas National Berhad
68. Palmco Holdings Berhad
69. Perusahaan Otomobil Nasional Berhad
70. Petronas Gas Berhad
71. Petronas Dagangan Berhad
72. PLUS Expressway Berhad
73. POS Malaysia Services Holdings Bhd
74. PPB Group Berhad
75. Public Bank Berhad
76. Puncak Niaga Holdings Berhad
77. Ramatex Berhad
78. RHB Capital Berhad
79. Road Builders (M) Berhad
80. Sarawak Enterprise Corporation Berhad
81. Selangor Properties Berhad
82. Selangor Dredging Berhad
83. Shangri-La Hotels (M) Berhad
84. Shell Refining Berhad
85. Sime Darby Berhad
86. SP Setia Berhad
87. Star Publication Berhad
88. TA Enterprise Berhad
89. Tan Chong Motor Holdings Berhad
90. Tanjong PLC
91. Telekom Malaysia Berhad
92. Tenaga Nasional Berhad
93. Time Engineering Berhad
94. Tradewinds M Berhad
95. UDA Holdings Bhd
96. UMW Holdings Bhd
97. WTK Holdings Bhd
98. United Engineers M Bhd
99. Yeo Hiap Seng
100. YTL Corporation Bhd

REFERENCES

Aerts, W. (1994). On the use of accounting logic as an explanatory category in narrative accounting Disclosures. *Accounting, Organizations and Society, 19,* (4/5), 337-53.

Agami, A. M. (2002). The role that foreign acquisitions of asian companies played in the recovery of the asian financial crisis. *Multinational Business Review, 10,* (1), 11-21.

Aggrawal, R. (1999). Assessing the recent asian economic crises: The role of virtuous and vicious cycles. *Journal of World Business, 34,* (4), 392-408.

Beattie, V. & Jones, M. J. (1992). The use and abuse of graphs in annual reports: A theoretical framework and empirical study. *Accounting and Business Research, 22,* (88), 291-303.

Beattie, V. & Jones M. J. (1997). A comparative study of the use of financial graphs in the corporate annual reports of major U.S and U.K companies. *Journal of International Financial Management and Accounting, 8,* (1), 33-68.

Beattie, V. & Jones, M. J. (1999). Australian financial graphs: An Empirical study. *Abacus, 35,* (1), 46-76.

Beattie, V. & Jones, M. J. (2000a). Impression management: The case of inter-country financial graphs. *Journal of International Accounting, Auditing and Taxation,* 9, (2), 159-83.

Beattie, V. & Jones, M. J. (2000b). changing graph use in annual reports: A time series analysis, *Contemporary Accounting Research, 17,* (2), 213-26.

Beattie, V. & Jones, M. J. (2001). A six-country comparison of the use of graphs in annual reports. *International Journal of Accounting, 36,* (1), 195-222.

Botosan, C. A. (1997). Disclosure level and the cost of equity capital. *The Accounting Review,* 72, (3), 323-49.

Canadian Institute of Certified Accountant (CICA). (1993). Using Ratios and Graphics in Financial Reporting. Toronto: CICA.

Cleveland, W. S. & McGill, R. (1987). Graphical perception: The visual decoding of quantitative information on graphical displays of data. *Journal of the Royal Statistical Society, 150,* (3), 192-229.

Courtis, J. K. (1997). Corporate annual report graphical communication in Hong Kong: Effective or misleading? *The Journal of Business Communication,* 34, (3), 269-88.

Deegan, C. & Gordon, B. (1996). A study of environmental disclosure practices of Australian companies", *Accounting and Business Research, 26,* (3), 187-199.

Firth, M. (1979). The impact of size, stock market listing and auditors on voluntary disclosure in corporate annual reports. *Accounting and Business Research, 9,* (36), 273-80.

Frownfelter-Lohrke, C. & Fulkerson, C. L. (2001). The Incidence and quality of graphics in annual reports: An international comparison. *The Journal of Business Communication, 38,* (3), 337-58.

Gibbins, M., Richardson, A. & Waterhouse, J. (1990). The management of corporate financial disclosure: Opportunism, ritualism, policies and processes. *Journal of Accounting Research, 28,* (1), 121-43.

Graves, O. F., Flesher, D. L, & Jordon, R. E. (1996). Pictures and the bottom line: The television episteminology of U.S. annual reports. *Accounting, Organization and Society, 21,* (1), 57-88.

Green, P., Kirk, R. & Rankin, C. (1992). Graphs: The use and abuse, *Certified Accountant,* November, 34.

Hollands, J. G. & Spence, I. (1992). Judgements of change and proportion in graphical perception. *Human Factors, 34,* (3), 313-334.

Houghton, K. & Smith, S. (2003). *Accounting information: Explaining the use of graphs in corporate takeovers.* Paper presented at the School of Accountancy, Universiti Utara Malaysia, Jitra, August 18.

Johnson, J. R., Rice, R. R. & Roemmick, R. A. (1980). Pictures that lie: The abuse of graphs in annual reports. *Management Accounting,* October, 50-56.

Kosslyn, S. M. (1989). Understanding charts and graphs. *Applied Cognitive Psychology, 3,* (3), 185-226.

Kung, F. H. (2002). The rationalization of regulatory internationalization. *Law and Policy in International Business, 33,* (3), 443-480.

Mather, P., Ramsay, A. & Serry, A. (1996). The use and representational faithfulness of graphs in annual reports: Australian evidence. *Australian Accounting Review, 6,* (2), 56-63.

Mather, P., Ramsay, A. & Steen, A. (2000). The use and representational faithfulness of graphs in Australian IPO prospectuses. *Accounting, Auditing and Accountability Journal,* 13, (1), 65-83.

McKinstry, S. (1996). Designing the annual reports of Burton Plc from 1930 to 1994. *Accounting, Organizations and Society, 21,* (1), 89-111.

Neu, D. (1991). Trust, impression management and the auditing profession. *Critical Perspectives on Accounting, 2,* (3), 295-313.

Pava, M. L. & Epstein, M. J. (1993). *The Shareholder's Use of Annual Corporate Reports.* London: JAI Press Inc.

Pijper, T. (1993). *Creative Accounting: The Effectiveness of Financial Reporting in the UK.* BasingStroke: MacMillan.

Preston, A. M., Wright, C. & Young, J. J. (1996). Imag(in)ing annual reports. *Accounting, Organizations and Society, 21,* (1), 113-137.

Samuels, J. M. (1993). International accounting standards in the third world: A syntheses of six articles. *Research in Third World Accounting, 2,* (3), 19-25.

Schipper, K. (1989). Commentary on earnings management. *Accounting Horizons, 3,* (4), 91-102.

Simcox, W. A. (1984). A method for pragmatic communication in graphic displays. *Human Factors, 26,* (4), 483-487.

Smith, L. M. & Bain, C. E. (1987). Computer graphics for today's accountant. *CPA Journal, 57,* 18-35.

Steidler, P. F. (2001). Corporate governance standards: The worldwide push to quality. *AFP Exchange, 21,* (4), 36-39.

Taylor, B. G. & Anderson L. K. (1986). Misleading graphs: Guidelines for the accountant. *Journal of Accountancy, 162,* (4), 126-35.

Tufte, E. R. (1983). *The Visual Display of Quantitative Information.* Cheshire, CT: Graphics Press.

Zhang, M. (2000). What have we learned from the 'Tequila Effect' and asian currency crisis. *Multinational Business Review, 8,* (2), 64-69.