

**THE PRESENTATION OF GRAPHS IN ANNUAL REPORTS:
THE CASE OF THE KLSE CORPORATE AWARDS WINNERS**

**MUHAMMAD SYAHIR ABD. WAHAB
MOHD. AMIR MAT SAMSUDIN**

UNIVERSITI UTARA MALAYSIA

2005

PENAKUAN TANGGUNGJAWAB (DISCLAIMER)

Kami, dengan ini, mengaku bertanggungjawab di atas ketepatan semua pandangan, komen teknikal, laporan fakta, data, gambarajah, ilustrasi, dan gambar foto yang telah diutarakan di dalam laporan ini. Kami bertanggungjawab sepenuhnya bahawa bahan yang diserahkan ini telah disemak dari aspek hakcipta dan hak keempunyaan. Universiti Utara Malaysia tidak bertanggung terhadap ketepatan mana-mana komen, laporan, dan maklumat teknikal dan fakta lain, dan terhadap tuntutan hakcipta dan juga hak keempunyaan.

We are responsible for the accuracy of all opinion, technical comment, factual report, data, figures, illustrations and photographs in the article. We bear full responsibility for the checking whether material submitted is subject to copyright or ownership rights. UUM does not accept any liability for the accuracy of such comment, report and other technical and factual information and the copyright or ownership rights claims.

Ketua Penyelidik:

Tandatangan

Nama: Muhammad Syahir Abd. Wahab

Ahli:

Tandatangan

Nama: Mohd. Amir Mat Samsudin

ACKNOWLEDGEMENT

We thank the Faculty of Accountancy, Universiti Utara Malaysia for the financial support.

Muhammad Syahir Abd. Wahab
Mohd. Amir Mat Samsudin

December 2005

ABSTRAK

Graf yang mengelirukan boleh disebabkan ketiadaan pengetahuan, kelalaian atau niat untuk menggunakan pengurusan impresi oleh penyedia laporan tahunan. Graf-graf tersebut mengurangkan keberkesanan komunikasi walaupun tidak diuji secara empirikal. Malangnya, penggunaan graf tersebut kelihatan meluas disebabkan banyak pihak (sebagai contoh pengguna, juruaudit dan penyedia laporan tahunan) tidak sedar tentang potensi penyimpangan terhadap standad pembinaan. Tujuan kajian ini adalah untuk mengenalpasti samada laporan tahunan Bursa Saham Kuala Lumpur (BSKL, sekarang dikenali sebagai Bursa Malaysia) pemenang-pemenang Anugerah Korporat mempunyai graf yang tidak konsisten dengan menilai ketepatan graf berdasarkan garis panduan untuk grafik yang baik seperti yang dicadangkan oleh literatur-literatur sebelum ini dan '*graph discrepancy index*' (GDI), juga dikenali sebagai menyimpangan pengukuran graf (sebahagian daripada pengurusan impresi). Kaedah yang digunakan adalah adaptasi garis panduan grafik yang dibangunkan oleh Schmid dan Schmid (1979), Tufte (1983), Jarett dan Babad (1988), Canadian Institute of Certified Accountant (CICA) (1993), Jarett (1993), dan kemudian diaplikasikan oleh Frownfelter-Lohrke dan Fulkerson (2001). GDI dikira menggunakan '*variant of Tufte's (1983) lie factor*'. Setahu kami, ini adalah kajian pertama di Malaysia untuk menyelidik persembahan graf dalam laporan tahunan bagi syarikat yang menerima anugerah bagi laporan tahunan mereka. Didapati bahawa 95% syarikat dalam sampel kami menggunakan graf yang mana memasukkan kebanyakan pembolehubah-pembolehubah kewangan yang menunjukkan lebih penyimpangan terlebih nyata (min +61.78%) berbanding terkurang nyata (min -45.79%) yang material dan kebanyakan graf mengikut garis panduan yang dicadangkan.

ABSTRACT

Misleading graphs could be the result of annual report preparers' ignorance, carelessness, or intention to use impression management. The graphs impair the communication effectiveness, even though this has not been tested empirically. Unfortunately, the use of the graphs appears to be widespread due to many parties (for example users, auditors, and preparers of annual reports) not familiar with the potential abuses of construction standards. The aim of this study is to determine whether annual reports by the Kuala Lumpur Stock Exchange (KLSE, now known as Bursa Malaysia) Corporate Awards winners contain inconsistent graphs by assessing graph accuracy based on the guidelines for good graphics as set forth in previous literature and graph discrepancy index (GDI), also known as graph measurement distortion (part of impression management). The methodology used is an adaptation of the graphical guidelines developed by Schmid and Schmid (1979), Tufte (1983), Jarett and Babad (1988), Canadian Institute of Certified Accountant (CICA) (1993), Jarett (1993), and subsequently applied by Frownfelter-Lohrke and Fulkerson (2001). The GDI was calculated using a variant of Tufte's (1983) lie factor. As far as we are aware, this is the first study in Malaysia to investigate the graph presentation in annual reports of companies that had received awards for their annual reports. It was discovered that 95% of companies in our sample used graphs, which included most of the key financial variables (KFVs) graphs, that exhibited more material overstatement (mean +61.78%) than understatement distortion (mean -45.79%), and many graphs conform to the suggested graph guidelines.

TABLE OF CONTENTS

CONTENTS	PAGE
ABSTRAK	iv
ABSTRACT	v
LIST OF TABLES	vii
1. STATEMENT OF THE PROBLEM	1
2. OBJECTIVES OF THE STUDY	3
3. SIGNIFICANCE AND MOTIVATION OF THE STUDY	4
4. LITERATURE REVIEW	
The Potential Benefits of Graphs	7
Impression Management	9
Previous Study on Graphical Presentation	10
Kuala Lumpur Stock Exchange Corporate Awards	15
5. RESEARCH METHODOLOGY	
Sample Selection	17
Analysis	20
6. RESULTS AND DISCUSSIONS	
Descriptive Analysis	23
Measurement Distortion-Graph Discrepancy Index (GDI)	28
Conformation with Guidelines for Good Graphics	32
7. LIMITATIONS AND FUTURE RESEARCH	36
8. CONCLUSION	37
REFERENCES	39

LIST OF TABLES

	PAGE
Table 1: The KLSE Corporate Awards	16
Table 2: The KLSE Corporate Awards Recipients for 2003	18
Table 3: Deficiencies and Remedies in the Preparation of Graphics	21
Table 4: The Incidence of Graph Usage	27
Table 5: Summaries of the Types and Mean Number of Graphs Use in Annual Reports	28
Table 6: Summaries of Key Financial Variables Graphs in Annual Reports	28
Table 7: Descriptive Results on Measurement Distortion (GDI)	32
Table 8: Frequency Distribution of GDI Scores of Individual KFVs	32
Table 9: Avoidance of Common Graphic Deficiencies	34

1.0 Statement of the Problem

Today, many companies are making intensive use of graphs in their annual reports to present financial information. Graphs are often an integral part of the communication package for information presentation to users of annual report (Courtis, 1997). According to Squiers (1989, p. 218), 40% of shareholders spend only five minutes or less looking at annual reports. In such situations, information or messages portrayed in colourful, prominently presented graphs are likely to attract reader attention and interest (Beattie & Jones, 1997).

Findings of graph research are consistent with predictions of positive accounting theory as was suggested that the financial accounting process is not free from bias (Watts & Zimmerman, 1986). If constructed appropriately, graphs have the potential to enhance the communication process (Beattie & Jones, 1994) otherwise measurement distortion can mislead users of annual reports (Taylor & Anderson, 1986). Effective communication via graphs relies on them being constructed properly (Mather, Ramsay, & Steen, 2000). For example, improperly constructed graphs significantly influenced loan officer perception towards a corporate performance (Steinbart, 1989).

Research by Beattie and Jones (1997) showed that 92 % of leading United States (US) and 80 % of leading United Kingdom (UK) large listed companies used graphs which are

colourful, eye-catching, and used as part of the impression management process. In addition, a great deal of time and money was invested in the production of annual reports (Beattie & Jones, 1993). According to Johnson, Rice, and Roemmich (1980), many companies were focused on making their annual reports as flashy and eye-catching as possible. For example, 65% (58 companies) of the sample explicitly acknowledged the hiring of a graphic design company. Companies realised that the design and visual impact of their annual reports could have a major impact towards corporate images with the public. Courtis (1997) added that the selection of graphical techniques was based on the available graphics software, a subjective assessment, or both, in order to create the best visual impact. Modern graphics software offers many different graph styles. According to Mansfield (1992), *“you don’t even have to fully understand the different types of chart: You just choose the one that looks best”*.

While a good deal of research on the graphical presentation in annual reports has taken place overseas, there has to date been little research on these issues in Malaysia. For the past decade or so, evidence has demonstrated that impression management occurs, motivated by management desire to present a self-serving view of corporate performance. One aspect of impression management that is receiving growing attention is the manipulation of financial graphics (Beattie & Jones, 2000a). The voluntary disclosure of financial graphs gives management a freedom to control this part of corporate agenda and thus enhances the potential of impression management. Even though graphs offer the potential to improve communication of accounting information to users, the preparers of

annual reports can easily manipulate the graphs for their own interest (Beattie & Jones, 2002).

2.0 Objectives of the Study

The main objective of this study is primarily to extend the understanding of measurement distortion as a part of impression management in graphical reporting practices in the Malaysian accounting environment. Specifically, the research objectives are:

1. To investigate the extent of use of graphs, the types of graphs and types of information that companies present graphically in the KLSE Award winners' annual reports.
2. To measure the distortion of graphs by using the graph discrepancy index (GDI) calculated using a variant of Tufte's (1983) lie factor.
3. To study the non-conformation with the principles of graph presentation with regard to measurement distortion based on guidelines for good graphics, as developed by Schmid and Schmid (1979), Tufte (1983), Jarett and Babad (1988), CICA (1993), Jarett (1993), and subsequently applied by Frownfelter-Lohrke and Fulkerson (2001).

3.0 Significance and Motivation of the Study

Investors are placing increased emphasis on corporate governance and disclosure practices. The Asian financial crisis had shown that a lack of transparency affected the behaviour of markets and aggregated the crisis. The trend in financial reporting is towards enhanced openness and transparency (Beattie & Jones, 1993). According to Mather et al. (2000), capital market forces exert pressure on companies engaged in capital raising to voluntarily disclose the optimal amount of information. Due to the fact that presentation of graphs in annual reports are voluntary, this scenario allows preparers of the annual reports to control the disclosure process and thus provide them with the enhanced opportunity to manipulate the financial messages sent to users. In addition, the primary motivation for including graphs arises from the intention of the corporate entity to improve its chances of winning an award of excellence for external reporting. Such an award would enhance the corporate image of the prizewinner with expected benefits such as higher sales revenue and improved marketability of the company's share (Courtis, 1997).

There are a few numbers of external financial reporting organisations that have recognised the important role of graph presentation in annual reports. For example, CICA encourages the use of graphics as a way of helping investors to understand complex financial data (CICA, 1993). Meanwhile, the Australian Corporation Acts (Australian Corporations Law, 1996) had accepted that graphic arrangement in annual reports could present the financial information in a clear, concise, and well-designed way. The UK

Accounting Standards Board (ASB) (2000) had issued a discussion paper that recognises graphs as a powerful medium of communication. There are five recommendations regarding the use of graphs in annual reports, including selectivity, measurement distortion, the need for simple 2-dimensional formats, and the need for related commentary to be located adjacent to the graphs (ASB, 2000). Global Reporting Initiative (GRI) (2000) also issued a guideline on sustainability reporting that commented on the value of graphs in reports, but showed concern on the importance of neutrality in presentation. Recently, The Securities and Exchange Commission (SEC) in the US proposed a rule that required registered investment companies to file quarterly reports that graphically depict the portfolio holding to provide better information about fund costs, investment, and performance to shareholders (Silfen & Sperry, 2004).

Currently there is no specific guideline or professional auditing requirement with respect to graphs and this issue is currently not addressed by accounting standards, particularly in Malaysia. This study was conducted to provide a comprehensive examination of graphs presented in the KLSE Corporate Awards winners' annual reports, thereby providing the kind of evidence and insight that will be necessary to justify and develop Malaysian graphical standards. This study also focused on the graph presentation in annual reports of companies that received awards for their annual reports. Other local studies focused on graph presentation in annual reports by Malaysian companies listed at the KLSE Main Board (Shamharir, Md.-Suhaimi, & Nurwati, 2000), 54 non-financial Malaysian public listed companies (Mohd.-Diah & Azhar, 2001), 29 Malaysian finance companies (Nor'Aishah, Taufiq, & Narimah, 2004), and 100 component stocks of the KLSE

Composite Index (Ram.-Al.-Jaffri, 2004). Thus, this study provided a different dimension in terms of companies studied. By documenting evidence of manipulation in graph presentation, particularly in terms of graph construction and design as suggested by Schmid and Schmid (1979), Tufte (1983), Jarett and Babad (1988), CICA (1993) and Jarett (1993), this study contributes to the financial reporting disclosure literature.

Also, the findings of this study may have an important policy implication since graphs have been chosen as important means by which many companies or in this respect the KLSE Corporate Award winners to communicate the financial activities and position. This setting was chosen because there is evidence that show the KLSE Corporate Awards playing an important role in promoting good corporate reporting and to ensure that voluntary information disclosed by these companies should have representational faithfulness. The information must also be verifiable and neutral in order to present information which is reliable and valid to user.

Lack of a regulatory framework stipulating what graphical information can be included in a company's annual report and how they are presented is rather surprising. This is unfortunate since companies spend substantial resources to make certain that information presented to readers is effective (Green, Kirk, & Rankin, 1992).

Therefore, it is strongly believed that there is a need to develop specific guidelines that would assist various parties, such as users of annual reports in general, preparers of

annual reports, auditors, and regulators (for example Bursa Malaysia) to review graphs which deal with reporting and disclosure issues.

4.0 Literature Review

4.1 The Potential Benefits of Graphs

The use of graphs in the accounting context is for data analysis and to communicate financial information to various stakeholders. Graphs comprise of four standard components such as background, framework, specifier, and labels (Kosslyn, 1989). The major types of graph include line, horizontal bar/vertical column, pictorial, and pie. Based on Cartesian coordinate axes, line, bar and column graphs have two arithmetic scales. For time series data, line and column graphs (but not bar graphs) are considered suitable. To portray categories (in the case of single scale), bar graphs are commonly chosen. Pictorial graphs use iconic symbols to portray numerical quantities. The pie graph, or more commonly known as the pie chart, is a circle subdivided into segments and it is an alternative to the bar graph to portray categories. The most popular variables or key financial variables (KFVs) graphed are sales, earnings/profits, earning per share (EPS), and dividend per share (DPS) (Beattie & Jones, 1992; 1994; 2000a; 2000b).

The graph is an alternative for companies to present financial information, in place of the traditional alphanumeric table and continuous narrative text format (Beattie & Jones, 2001). There are many communication advantages by using graphs. Firstly, graphs are superior to tables in low complexity tasks which do not involve substantial information processing (Bolcher, Moffie, & Zmud, 1986; De Sanctis & Jarvenpaa, 1989; Carey & White; 1991). Graphs are more user-friendly when compared to tables (Beattie & Jones, 1997). Second, when colour, shading, and dimension are used, graphs are more likely to be noticed (Thibadoux, Cooper, & Greenberg, 1986), easy to remember and recall (Beattie & Jones, 2001), and increase the accuracy of conveying messages (Beattie & Jones, 2002). Curtis (1997) explained that graphs are able to attract and hold attention, enhance understanding, and highlight trends and relationships. Thirdly, data is readily retrievable (Wainer, 1992) and the likelihood of information overload is reduced (Curtis, 1997). Fourthly, graphs also aid and facilitate in making decisions (Brown, 1992).

Graphs are particularly effective in the communication process because they exploit basic human perceptual and cognitive ability (Beattie & Jones, 1993). In order to fully exploit the communicative potential of graphs, an understanding of basic principles of graph construction and design is essential. Effective communication requires that the graph does not violate *acceptability principles* at any level (Beattie & Jones, 1997). If the principles of graphs construction are not complied with, graphs may distort the comprehension of information. Modern graphic visual impacts should not be over employed, which consequently make data difficult to interpret and understand.

4.2 Impression Management

Alternative presentational formats (for example, formats other than tabular financial statements such as pictures and graphs) are also used for impression management (Steinbart, 1989; Beattie & Jones, 1992; Mather et al., 1996). Impression management means the management selects the information to display and presents this information (for example, using graphs) in order to enhance corporate achievement. According to Beattie and Jones (1999), there is a lack of understanding of graphical principles by designers and the deliberate attempt by designers or management to manage impressions. Annual reports become just one mechanism by which public relation experts exploit the corporate image and brand name.

Beattie and Jones (2000a) identified two major types of impression management with regard to graph presentation. Firstly, the management can choose whether to display (or just as importantly, not to display) financial information using graph, which is termed selectivity. For example, the management selects graphs to highlight variables where performance has increased over the year, but not to display those variables where performance has decreased. However, for this study, selectivity was not tested. Secondly, graphs that exhibit measurement distortion. The basic underlying principle is that physical measurement of the graph should be in direct proportion to the numerical values that they represent. In addition, measurement distortion also includes graphical devices such as a non-zero axis or a broken axis that causes the rate of change in trend lines to appear greater than is actually warranted, which is the main concern of this research. To

test measurement distortion towards graphs presented in the KLSE Corporate Award winners' annual reports, the guidelines for good graphics and graph discrepancy index (GDI) were used. The guidelines and GDI will be explained later in the methodology section.

4.3 Previous Study on Graphical Presentation

Previous studies such as in the US, UK, Australia, Canada, Hong Kong, and even Malaysia had found that there was an extensive use of graphs in annual reports and there were frequent and systematic incidences of both incorrectly constructed graphs and material measurement distortion.

4.3.1 Overseas Studies

Johnson et al. (1980), conducted a survey sample that consisted of 50 annual reports taken at random from the Fortune 500 list of companies between 1977 and 1978. The annual reports contained a total of 423 graphs and 29.5% (125 out of 423) or almost a third of the graphs were constructed incorrectly. Steinbart (1989) evaluated the graphs included in 319 annual reports of major corporations. However, only 8% of the annual reports contained at least one graph that presented data in a manner likely to create a significantly more favourable impression of corporate performance. Beattie and Jones

(1992) concluded that a total of 142 graphs (30% of KFVs) showed material discrepancies and 74% of large UK companies used these graphs. They added that measurement distortion is significant and graphs were not fulfilling their potential for enhancing effective communication. In the same year, Green et al. (1992) conducted a survey of some 117 Irish semi-state sector and public limited companies and found that approximately 54% of the sample used graphs in their annual report. Beattie and Jones (1993) noticed that many companies broke fundamental rules of graph design and construction. Furthermore, CICA (1993) surveyed 200 Canadian annual reports and found that 83% of companies used graphs – the most popular information graphed being sales or revenue (90% of companies); earning, income, or profit (89%); shareholder equity (62%); and assets (62%).

A study by Beattie and Jones (1994) investigated the nature and extent of graph usage of the top 50 UK Charities and found that 74% of the charities used graphs, and the most frequently graphed variables included single period analyses of total income, total expenditure, and direct charitable expenditure. A large number of pie graphs were found to have not conformed to the recommended principles of pie graph construction. The measurement distortion in segmental graphs revealed a significant number of materially distorted individual segments and evidence of aggregate graph distortion. Two years after that, Mather et al. (1996) conducted a research on top 150 Australian Stock Exchange listed companies by market capitalisation. 80% of entities in the sample included graphs of some variables in their annual report (for example, turnover, profit, EPS, dividend). Overall, they also found that graphs of KFVs presented 29.7% were classed as distorted

(exaggeration 15.5% and understatement 14.2%). Beattie and Jones (1997) found that graphs were widely used in annual reports by 78 US companies (92%) and 80% in UK. 24% of the graphs were materially distorted in both the US (43 out of 183) and the UK (40 out of 166). Meanwhile, Curtis (1997) carried out two surveys regarding presentation of graphs in annual reports by examining data from Hong Kong (140 annual reports from 1992 to 1993 and 114 annual reports from 1994 to 1995) and found that the construction techniques used in approximately half of all graphs violated sound principles and therefore were misleading. A year after those surveys, Frownfelter-Lohrke and Fulkerson (1998) discovered that among 2010 analysed graphs, 43% (869) exhibited trend lines which were materially exaggerated. Overall, 68% of the graph trend lines were materially distorted with the mean overstatement (302%) being significantly greater than mean understatement (19.4%). Furthermore, Beattie and Jones (1999) found that in total, 89 companies used 833 graphs and 34% of Australian KFVs exhibited material measurement distortion.

Beattie and Jones (2000a) found that the use of graphs was very high, ranging from 92% (46 of 50) of Australian companies to 82% (41 out of 50) of UK companies. Distortions were generally in favour of the company (for example, graphical trends were exaggerated rather than understated) and exhibited measurement distortion. The results of the study by Mather et al. (2000) showed the mean level of distortion for 200 graphs, 63% of graphs distorted at 5% level and 183 graphs in prospectus were classified as favourably or unfavourably distorted using Tufte's +5% and -5% cut-off levels. Frownfelter-Lohrke and Fulkerson (2001) had further examined a sample of 270 annual reports and 79% of

them contained graphics. Both US and non-US companies listed in two major US stock-exchanges failed to comply with many of the guidelines for good graphics as set forth in literature. Overall, most notably, graph discrepancy indices revealed that financial graphs contained within US reports were on average 81% materially distorted and for non-US samples, the average distortion was 173%. Beattie and Jones (2001) found that amongst companies across six countries (Australia, France, Germany, Netherlands, UK, and US), 263 of them (88%) included graphs in their annual report. Beattie and Jones (2002) conducted a study using an experimental approach to discover whether observed levels of measurement distortion are likely to affect the user perceptions of a company's financial performance. The result of the study showed that users with lower level of financial understanding appear to be the most at risk of being misled by distorted graphs.

4.3.2 Local Context Studies

To the knowledge of the authors, in local context, there are four unpublished studies on graphical presentations: Shamharir et al. (2000), Mohd.-Diah and Azhar (2001), Nor' Aishah et al. (2004), and Ram.-Al.-Jaffri (2004).

Shamharir et al. (2000) studied the distortion of graphs in annual reports of 130 Malaysian companies listed on the KLSE Main Board in the year 1997 by using the GDI and found that 70% of these companies used graphs. The most frequently graphed variables were sales, income, EPS and DPS, all of which represented 39% of all graphs.

They found that most of the companies were more likely to include graphs in annual reports when the company exhibited good performance rather than bad performance, and favourable distortion of graphs was significantly more likely than unfavourable distortion. As for Mohd.-Diah and Azhar (2001), they investigated the incidence of graph use and the trend of their disclosure by 54 non-financial Malaysian public listed companies which produced 162 annual reports for the years 1974, 1984, and 1994. The results showed that incidence of graphs used by Malaysian companies are between low to average levels (15% to 59%). They also found that companies with high levels of profit tended to use more graphs in their annual reports as compared to companies with low profit levels.

Nor'Aishah et al. (2004) examined the use of graphs in annual reports of 29 Malaysian finance companies from the years 2000 to 2002. It was evidenced that the number of graphs presented was decreasing yearly and it was concluded that there was a considerable degree of distortions in graphs presented in the annual reports. Meanwhile, Ram.-Al.-Jaffri (2004) observed the use and abuse of graphs in annual reports of 100 component stocks of the KLSE Composite Index for the year 2001. The results revealed that there was greater use of graphs by Malaysian companies over time. He concluded that due to the fact that the number of unfavourable misrepresentations was slightly lower than the number of favourable misrepresentations, this would suggest that there is a considerable lack of understanding of graphical principles by designers. Related to this, it could be concluded that not all favourable discrepancies are deliberate attempts by

companies to manage impression as it could possibly be due to the naivety of the graph designers.

4.4 Kuala Lumpur Stock Exchange Corporate Awards

The KLSE Corporate Awards were introduced in 2000 with the objectives of recognising companies that have shown excellent corporate conduct in complying with the KLSE's Listing Requirements and high standards of corporate governance, disclosure, and transparency attached with proactive investor relation efforts. This award serves to recognise the level of corporate disclosure in annual reports by Main Board, Second Board, and MESDAQ Market companies. It is fully sponsored by the Bursa Malaysia and has been awarding companies in Malaysia for best annual report practice since 2000 based two main criteria – corporate governance and corporate disclosure. One of the general criterion set by the Bursa Malaysia committee is a voluntary disclosure, such as, reconciliation of profit after tax and shareholders' funds prepared based on Financial Reporting Standards (FRS) to corresponding figures prepared under International Accounting Standards.

The KLSE Corporate Awards of 2003 had seen the following awards presented, with the provision that the companies had met the minimum adjudication criteria for each category of awards.

Table 1: The KLSE Corporate Awards

Award	Details
KLSE Corporate Excellence Awards 2003	<p>Presented to the most outstanding companies in terms of overall exemplary corporate conduct. The following Excellence Awards were presented for 2003:</p> <p>Main Board (To the top two companies) Second Board (To the top two companies)</p>
KLSE Corporate Sectoral Awards 2003	<p>These are sector-specific awards whereby separate awards will be presented for the sectors on both the Main Board and Second Board of the KLSE. (Recipients of the KLSE Corporate Excellence Awards 2003 are not eligible to receive the KLSE Corporate Sectoral Awards 2003). Sectoral Awards presented for 2003 were for the following categories:</p> <p>Main Board</p> <ul style="list-style-type: none"> • Consumer Products • Industrial Products • Construction • Trading/Services • Hotels • Finance and Closed-End Fund • Property and Trusts • Plantation • Mining • Infrastructure Project Companies • Technology <p>Second Board</p> <ul style="list-style-type: none"> • Consumer Products • Industrial Products • Construction/Property/Plantation • Trading/Services • Technology

Table 1: (continued)

Award	Details
KLSE Corporate Merit Awards 2003	In recognition of companies which have demonstrated exemplary corporate conduct, the KLSE Corporate Merit Awards were also presented to the Main Board and Second Board companies. The Merit Awards recipients comprised of the next two highest scoring companies in each sector, after the determination of the KLSE Corporate Excellence Awards and KLSE Corporate Sectoral Awards winners, provided these companies have met the minimum adjudication criteria.
KLSE Corporate Award for MESDAQ Market	Presented to the MESDAQ Market company, which had met the minimum adjudication criteria.
Best Corporate Disclosure in Annual Report Awards	This is a new category of award, which serves to recognise the level of corporate disclosure in annual reports by listed companies.

(Source: Bursa Malaysia, 2003)

5.0 Research Methodology

5.1 Sample Selection

This study covered the KLSE Corporate Award winners' annual reports for the year 2003.

The awards included the KLSE Corporate Excellence Awards, the KLSE Corporate Sectoral Awards, the KLSE Corporate Merit Awards, the Best Corporate Disclosure in Annual Report Awards for Main Board and Second Board companies, and the KLSE

Corporate Award for MESDAQ Market (Table 2). According to Bursa Malaysia (2003), the total number of awards recipients were 40 companies. Thus, the present study took all of these recipients' annual reports and they were analysed.

Table 2: The KLSE Corporate Awards Recipients for 2003

AWARD	MAIN BOARD	SECOND BOARD
KLSE Corporate Excellence Awards	Public Bank Berhad AIC Corporation Berhad	Pharmaniaga Berhad SEG International Berhad
KLSE Corporate Sectoral Awards		
Consumer Products	British American Tobacco (M) Berhad UMW Holdings Berhad (Merit Award) Carlsberg Brewery Malaysia Berhad (Merit Award)	Khind Holdings Berhad Hunza Consolidation Berhad (Merit Award)
Industrial Products	Petronas Gas Berhad Top Glove Corporation Berhad (Merit Award) Tractors Malaysia Holdings Berhad (Merit Award)	Tien Wah Press Holdings Malaysian AE Models Holdings Berhad (Merit Award) Wong Engineering Corporation Berhad (Merit Award)
Construction	Road Builder (M) Holdings Berhad IJM Corporation Berhad (Merit Award) Gamuda Berhad (Merit Award).	
Trading/Services	Telekom Malaysia Berhad Genting Berhad (Merit Award) Malaysia International Shipping Corporation Berhad (Merit Award)	PJI Holdings Berhad Nationwide Express Courier Services Berhad (Merit Award)

Table 2: (continued)

AWARD	MAIN BOARD	SECOND BOARD
Finance & Closed-End Fund	Malayan Banking Berhad AMMB Holdings Berhad (Merit Award) Commerce Asset-Holding Berhad (Merit Award)	
Property & Trusts	Island & Peninsular Berhad Sunrise Berhad (Merit Award) SP Setia Berhad (Merit Award)	
Plantation	Golden Hope Plantations Kumpulan Guthrie Berhad (Merit Award) Guthrie Ropel Berhad (Merit Award)	
Infrastructure Project Companies	Puncak Niaga Holdings Berhad	
Technology	Computer Systems Advisers (M) Berhad Unisem (M) Berhad (Merit Award]	Industronics Berhad
Hotels	Shangri-La Hotels (Malaysia) Berhad	
Mining	Malaysia Mining Corporation Berhad	
Construction/Property/Plantation		Kumpulan Jetson Berhad Ahmad Zaki Resources Berhad (Merit Award)
Best Corporate Disclosure in Annual Report Awards	Public Bank Berhad	Pharmaniaga Berhad

(Note: No recipient for KLSE Corporate Award for MESDAQ Market in 2003)

(Source: Bursa Malaysia, 2003)

5.2 Analysis

In order to analyse cases where no conformation with the principles of graph presentation with regard to measurement distortion, the measurement was firstly based on the guidelines for good graphs, as set forth in previous literature, and secondly, the GDI. Since the most popular variables or KfVs graphed are sales, earnings or profits, earning per share (EPS), and dividend per share (DPS) (Beattie & Jones, 1992, 1994, 2000a, 2000b), the analyses focused on KfV graphs as well as other related financial graphs such as the shareholder's fund (ShF), which were labeled as minor KfVs. In addition, the GDI is only for bar/column, line, combination line-bar, and stacked bar/column graphs (Frownfelter-Lohrke & Fulkerson, 2001)

5.2.1 Guidelines for Good Graphics

At present, there are no specific guidelines about presentation of graphs in annual reports. However, studies by Schmid and Schmid (1979), Tufte (1983), Jarett and Babad (1988), CICA (1993), and Jarett (1993) all support the development of graphical guidelines in order to exploit the communication advantages of graphs and avoid presenting misleading graphs to users. As mentioned earlier, misleading or distorted graphs could impair communication effectiveness. According to Anderson (1983), the agreed upon criteria whether or not a particular graph will be effective in communicating information,

including the accounting results, are reliability, understandability, and ability to attract and hold attention.

Therefore, to test whether the graphs presented in annual reports of the KLSE Corporate Award winners conform or not in terms of basic construction and design, the guidelines used by Frownfelter-Lohrke and Fulkerson (2001) were replicated in this study. The guidelines are summarised as follows:

Table 3: Deficiencies and Remedies in the Preparation of Graphics

Deficiency	Remedy
Inadequate chart titles and labels	There should be clear, detailed and thorough labeling to defeat graphical distortion and ambiguity. All explanations of the data should be written on the graphic itself. Important events in the data should be labeled (Jarett, 1993; Tufte, 1983).
No numerical labels	All financial data should be depicted as elements on the graphic statements and the numbers shown so that they can be footed to the absolute totals. The numbers should be located at the end of the horizontal bars and relatively small in size and separated from the bar. Data should not be placed inside the bar (Jarett, 1993).
Obtrusive backgrounds; no clearly defined borders	The background should be unobtrusive (i.e., off-white). Highly patterned, brightly coloured or pictorial backgrounds may distract the reader from the information that the graphic is attempting to convey. The borders or shape of the graph should not detract from the content (Jarett, 1993; Tufte, 1983).
Optical illusions	It is important to show data variation, not design variation. Three-dimensional displays are usually not appropriate and can distort a reader's view of graphic (Tufte, 1983).
Inappropriate colour	A maximum of six colours (including black and white) should be used, with a legend to identify the meaning of the colours used in the graph (Jarett & Babad, 1988).

Table 3: (continued)

Deficiency	Remedy
Trendy visual effects	Tufte (1983) urged the minimisation of the data-ink ratio and chartjunk. Chartjunk is all unnecessary decoration and drawing on a graphic. Graphics should be as simply designed as possible, while showing all of the data necessary for decisions.
Missing, obscure, or multiple zero baselines and/or data markers that do not begin at a zero baseline	Scales should begin at zero. Scales should never be broken because this can cause the reader to misinterpret changes in the data across the graph. If the zero baseline is omitted or broken, unimportant changes can be magnified (CICA, 1993).
Multiple scales on the vertical axis	Misinterpretation is likely when there are multiple scales on a graph. It is difficult to isolate and interpret the two effect sizes correctly (CICA, 1993).
Time series data portrayed in reverse order	When time series are shown in reverse order it is difficult to perceive the trend line appropriately (CICA, 1993).
Exaggerated width of data markers or spaces	Bars should be of uniform width and evenly spaced. The bars should be neither disproportionately long and narrow nor short and wide. The relative width of the space between the data markers is believed to affect the visual impression conveyed (Tufte, 1983).

5.2.2 Graphs Discrepancy Index (GDI)

Measurement distortion is calculated using a variant of Tufte's (1983) lie factor – a Graph Discrepancy Index (GDI). The GDI is a measure of the extent to which a graph distorts the underlying financial numbers, and it is expressed as follows:

$$\text{Graph Discrepancy Index} = (a/b - 1) \times 100\%$$

where a is the percentage change in centimetres as depicted in the graph, i.e.,

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

and b is the percentage change in data.

No distortion gives a zero index score. Positive or negative values of the index show the exaggeration or understatement of the graphed trend line. Exaggerations of positive trend lines and understatements of negative ones are favourable to companies, whereas exaggerations of negative trend lines and understatements of positive ones are unfavourable to a company. Tufte (1983) argued that GDI values greater than +5% or less than -5% indicate that the graph is materially distorted.

6.0 Results and Discussions

6.1 Descriptive Analysis

The incidence of graph use across awards is presented in Table 4. 95% (38 out of 40 companies) that constitute the KLSE Corporate Award winners provide at least one graph which may or may not be a KFV in their annual reports. The scenario is not surprising considering that all these companies are corporate winners and they tend to disclose more

information using graphs to impress users of annual report. Also, this finding is higher when comparison is made across six countries, as studied by Beattie and Jones (2000a). To be more exact, the results are as follows: US (90%), UK (82%), Australia (92%), France (88%), Germany (84%), and Netherlands (90%). It is also higher than those from the three other studies conducted in the Malaysian setting. Shamharir et al. (2000) found that 70% of companies analysed use graphs in their annual reports, Mohd.-Diah and Azhar (2001) discovered the incidence of graphs use were between 15% to 59%, and Ram.-Al.-Jaffri (2004) revealed that 79% of Malaysia's leading companies use graphs extensively.

In total, from the 38 companies that use 460 graphs, the average of 12.1 graphs per company was observed (while the mean number of graphs across all companies being 11.5). In the case of two variables that were graphed together (for example DPS and EPS), each variable was encoded or weighted at 0.5 each. As shown in Table 4, the most popular graph type is the column graph. A total of 239.5 out of 460 graphs (52.1%) were presented in form of a column graph, which is a similar finding with the Australian study by Beattie and Jones (1999) and the Hong Kong study by Curtis (1997). The next popular graph is the pie chart (18.5%) followed by the bar graph (14.3%).

At any rate, as shown in Table 4, the KLSE Corporate Excellence Award winners use the most graphs (mean of 16.8 graphs), followed by the KLSE Corporate Sectoral Award winners for Plantation (mean of 15.8 graphs), and then for Financed and Closed-End Fund (mean of 13.4 graphs). Hotel and Infrastructure Project Company winners use the

least number of graphs with mean 1 and 0.8 respectively. It is also interesting to find that two companies (out of 40) did not employ any graphs in their annual reports. They were companies in Consumer Products and Trading/Services of the KLSE Corporate Sectoral Awards category. On the other hand, all companies in other award categories disclosed graphs in their annual report.

The vast majority of companies (95%) graphed at least one of the four generic KFVs identified by Beattie and Jones (1992): Sales, Profit, EPS and DPS or in other words, all companies that employed graphs have at least one KfV presented. This finding is consistent with previous local and overseas studies. For example, companies from Australia, France, UK, and the US graphed all the four generic KFVs in their annual reports (Beattie & Jones, 2000a). However, according to Beattie and Jones (2000b), the financial variables that are considered to be of key importance are likely to vary from country to country because of different financial reporting practices and it would be inappropriate to impose a same set of financial variables. For instance, Return on Capital Expenditure (ROCE) was a KfV only in the US, and cash flow in France and Netherlands, but DPS was not graphed by German and Dutch companies (Beattie & Jones, 2000a). It was discovered that the shareholder's fund variable (ShF) (termed in this report as a minor KfV) was observed to be important in the Malaysia context and thus was analysed.

The most commonly graphed KfV is profit (41.5 of the total number of graphs). No standard profit measure was graphed, with many companies graphing several alternative

definitions (Beattie & Jones, 1999). Some companies graphed either profit after tax or before tax and some graphed both. The next popular KFV graph is sales (32.5 graphs) followed by EPS (23.5 graphs) and ShF (21 graphs). Therefore, this reinforces findings by Beattie and Jones (2000a), where earning (or profit), sales, and EPS were the most popular KFVs across the six aforementioned countries studied. In addition, DPS was a less popular graph among the awards winners (7.5 graphs), but it was particularly popular in Australia (Beattie & Jones, 1999). It was deduced that the award winners graphed more of ShF graphs instead of DPS because they may have the intention to show that most of the company assets were financed by contribution from owners and retained earnings would be reinvested into the company for future growth. Another interesting finding is the high percentage of non-KFVs (73% of total graphs) disclosed by the award winners. Among the popular non-KFVs graphed were employees and productivity, share price and trade volume, and total assets. However, there is a need for future research to clarify the issue of high percentage non-KFVs graphs reported by the award winners in their annual reports. Table 5 and 6 presents the summaries of what was shown in Table 4.

Table 4: The Incidence of Graph Usage

Awards	Total	With Graph	(%)	Types						Mean	Key Financial Variable Graphs					Non-KFVs	At least one KFVs	% Non-KFVs
				Column	Bar	Line	Pie	Other	Total		Sales	Profit	EPS	DPS	ShF			
KLSE Corporate Excellence Awards	4	4	100	32.5	23	14.5	14	0	84	16.8	3	4	2	0	4	71	4	85
KLSE Corporate Sectoral Awards:																		
Consumer Products	5	4	80	20	0	4	1	0	25	5	4	5	4	1	3	8	4	32
Industrial Products	6	6	100	22	9	1	2	0	34	6.8	6	7	4	2	3	12	6	35
Construction	3	3	100	12.5	8	2.5	9	0	32	6.4	2	3	3	0	2	22	3	69
Trading/Services	5	4	80	20.5	0	4.5	9	15	49	9.8	2	5	3	0	1	38	4	78
Finance & Closed-End Fund	3	3	100	27.5	0	7.5	32	0	67	13.4	2	4	0	0	3	58	3	87
Property & Trusts	3	3	100	14.5	0	0.5	4	6	25	5	3	3	2	1	2	14	3	56
Plantation	3	3	100	59	0	9	11	0	79	15.8	3	3	3	3	1	66	3	84
Infrastructure Project Companies	1	1	100	3.5	0	0.5	0	0	4	0.8	1	1	0	0	0	2	1	50
Technology	3	3	100	16.5	0	0.5	3	0	20	4	3	3	2	0	0	12	3	60
Hotels	1	1	100	3	2	0	0	0	5	1	0.5	0.5	0.5	0.5	0	3	1	60
Mining	1	1	100	4	24	0	0	0	28	5.6	1	1	0	0	0	26	1	93
Construction/Property/Plantation	2	2	100	4	0	0	0	4	8	1.6	2	2	0	0	2	2	2	25
Best Corporate Disclosure in Annual Report Awards	2	2	100	14.5	23	8.5	10	0	56	11.2	1	2	1	0	2	50	2	89
Total	40	38		239.5	66	44.5	85	25	460	12.1	32.5	41.5	23.5	7.5	21	334	38	73

Table 5: Summaries of the Types and Mean Number of Graphs Use in Annual Reports

Types of Graphs	No. of graphs	%
Column	239.5	52.1
Bar	66	14.3
Line	44.5	9.7
Pie	85	18.5
Other	25	5.4
Total	460	100
Mean number of graphs	No. of graphs	
For all companies (n=40)	11.5	
For companies using graph only (n=38)	12.1	

Table 6: Summaries of Key Financial Variables Graphs in Annual Reports

Variable graphed	Companies (n=40)	
	No.	%
Any variable (either KFVs or non-KFVs)	38	95
At least one key financial variable (KFV)	38	95
	KFVs (n=126)	
	No.	%
<i>Specific key financial variable (KFV):</i>		
Sales	32.5	25.8
Profit	41.5	32.9
Earnings per share (EPS)	23.5	18.7
Dividends per share (DPS)	7.5	6.0
Shareholder's fund (ShF)	21	16.7

6.2 Measurement Distortion-Graph Discrepancy Index (GDI)

Measurement distortion was concerned with to what extent graphs in annual reports of the KLSE award winners faithfully represent the underlying data. Previous literature had utilised the GDI index to calculate measurement distortion for each KFV graph. Based on

Tufte (1983) and consistent with Beattie and Jones (1992), values of GDI greater than 5% and lower than -5% are considered material while GDI values among -5 to 5 were considered immaterial (GDI of zero% indicates that the graph has been properly constructed). So, we consider distortions based on the same assumption.

For example, a company's profits rise from RM10m to RM20m 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%.

This was calculated using:

$$\text{Graph Discrepancy Index} = (a/b - 1) \times 100\%$$

where a is the percentage change in centimeters as depicted in the graph, i.e.,

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

and b is the percentage change in data.

Thus for the above example:

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

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

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

A positive value means the financial graph overstated (exaggerated) the data trend. For negative values, the graph would have understated the trend. In other words, 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.

A total of 124 KFV graphs were analysed. Even though the total of KFVs graphs is 126, only 124 could be measured using protractor. Table 7 shows the descriptive results of measurement distortion while Table 8 shows among others, the frequency distribution of GDI scores of individual KFVs. As shown in Table 7, the presence of slight difference between material overstatement and understatement discrepancies for specific KFVs could be observed. Nevertheless, variable graphs of sales, profit, and DPS were found likely to be overstated while graphs of EPS and ShF were likely to be understated. The political cost hypothesis may explain why several incidences of understating the profit graphs exist, as documented in prior empirical research on value added statement (Deegan & Hallam, 1991), disclosures by statutory authorities (Lim & McKinnon, 1993), and disclosures in pursuit of reporting excellence awards (Deegan & Carroll, 1993).

Also, 75 graphs (either material overstatement discrepancy or material understatement discrepancy) or up to 60% of 124 KFVs graphs exhibited material distortion discrepancy

in annual reports of the KLSE award winners for the year 2003. Mean GDI score and mean material GDI score for KFV graphs are +5.02% and +15.99% respectively. With respect to the absolute value, this finding (mean GDI) was higher when compared to Australia (+1%) and Netherlands (+3%), but lower as compared to France (+36%), Germany (-13%), UK (+86%), and the US (+30%), (Beattie & Jones, 2000a).

Taken overall, there was a considerable degree of distortion in graphs presented in annual reports. In terms of the number of graphs, it seemed to be balanced between overstatement (38 graphs) and understatement (37 graphs). For the mean material overstated and understated discrepancy, this study found that graphs of KFVs are more likely to be overstated (+61.78%) than understated (-45.79%). This was consistent with the findings by Ram.-Al-Jaffri (2004) (mean material overstatement and understatement were +46.8 and -37.8 respectively) in relation to graphs in annual reports of companies in Malaysia, where overstatement was more common than understatement.

On the basis of findings so far, it could be said that a high percentage of the KLSE Awards winners' KFV graphs (more than 50%) provided measurement distortion (in terms of GDI) in the annual reports of the companies concerned. However, whether these distortions were due to naivety of designers or were a deliberate attempt to manage impression is unclear and further research towards graphic designers will be necessary to clarify this issue.

Table 7: Descriptive Results on Measurement Distortion (GDI)

Graph Discrepancy Index (GDI)	Sales No.	Profit No.	EPS No.	DPS No.	ShF No.	Total No. %	
Material overstatement discrepancy	11	14	4	3	6	38	30.65
Material understatement discrepancy	10	11	6	2	8	37	29.84
No material discrepancy	9	17	14	2	7	49	39.52
Total	30	42	24	7	21	124	100
Mean material overstatement	68.82	91.74	13.44	9.11	37.53	61.78	
Mean material understatement	-26.53	-37.91	-139.61	-17.17	-17.48	-45.79	

Table 8: Frequency Distribution of GDI Scores of Individual KFVs

Graph Discrepancy Index (GDI) %, classed as overstatement (+) and understatement (-)	Sales No.	Profit No.	EPS No.	DPS No.	ShF No.	Total No. %	
< -50	1	4	4			9	7.26
-50 < GDI < -25	2	3		1	2	8	6.45
-25 < GDI < -10	5	2	1		4	12	9.68
-10 < GDI < -5	2	2	1	1	2	8	6.45
-5 < GDI < 0	6	10	6		5	27	21.77
0 < GDI < 5	3	7	8	2	2	22	17.74
5 < GDI < 10	2	3	1	2	3	11	8.87
10 < GDI < 25	6	2	3	1	2	14	11.29
25 < GDI < 50	1	2				3	2.42
50 < GDI < 100	1	2				3	2.42
100 < GDI	1	5			1	7	5.65
Total	30	42	24	7	21	124	100
Mean GDI score (n=124)	5.02						
Mean material GDI score (n=75)	15.99						

6.3 Conformation with Guidelines for Good Graphics

It is desirable that graphs conform to guidelines for good graphical presentation. In this section we identify and discuss some of possible deficiencies that exist by using a checklist developed by Frownfelter-Lohrke and Fulkerson (2001). Our sample contains 124 KFV graphs and they were analysed. Table 9 provides an overview of these findings.

As Table 9 shows, KfV graphs reported in the annual reports were typically prepared with adequate titles, labels, and clearly defined borders. We also discovered the majority of graphs avoided optical illusion or three dimensional characteristics (72.8%). From further observation, 93.1% of graphs featured six or fewer colours (only 6.9% more than six colours), however, most graphs did not have a legend (60%). Almost 80% of the graphs avoided trendy visual effects and did not place any data inside the graphs.

More than 80% of the graphs had scale and all of them used continuous scale (none of them broken). Nearly half or 47% of the graph scales did not begin at zero and this can cause the reader to misinterpret changes in the data across the graphs. About 20% of graphs showed time series in reverse order while most of bar graphs had uniform width and were evenly spaced (93.5%).

The results found are consistent with the study by Frownfelter-Lohrke and Fulkerson (2001), except for important events labeling and legend features. In their study, they found that more than half (53%) of the graphs analysed had inadequate labeling for important events (this study found only 2% of graphs labeled important events) and more than 60% featured legends (this study found only 31.2% featured legends). Taken overall, the descriptive results did not support the anecdotal evidence that many graphs (only KfVs in this case) in annual reports do not conform to guidelines for good graphics (Frownfelter-Lohrke & Fulkerson, 2001).

Even though the results showed most of the KFV graphs in the sample conform to the guidelines, it is suggested that it may be appropriate to educate annual report preparers regarding graph construction. This is due to the considerable percentage of non-conformity with some elements of the guidelines, for instance, in terms of optical illusion or three dimensional characteristics (27%), no legend featured (31.2%), trendy visual effects (23.8%), scale did not begin at zero (47%), and time series data portrayed in reverse order (19.4%).

Table 9: Avoidance of Common Graphic Deficiencies

Item	Total
ALL GRAPHS	
Inadequate chart titles and labels	
Is the graphic detailed and labeled?	
Yes	92.6%
No	7.4%
Are important events labeled?	
Yes	98%
No	2%
No numerical labels	
Are there numbers?	
Yes	100%
No	0%
Obtrusive backgrounds	
What colour is the background of the graph?	
White	47.2%
Gray	14.4%
Yellow	5.6%
Beige/Ivory	13.6%
Black	0%
Other colors	19.2%
Picture	0%
Are there clearly defined borders?	
Yes	90.6%
No	9.4%

Table 9: (continued)

Item	Total
Optical illusions	
Is it three-dimensional?	
Yes	27.2%
No	72.8%
Inappropriate use of colour	
How many colours are in the graph?	
<6	93.1%
>6	6.9%
Is there a legend?	
Yes	31.2%
No	68.8%
Trendy visual effects	
Are there any data inside the graph?	
Yes	23.8%
No	76.2%
ALL GRAPHS EXCEPT PIE OR PROPORTIONAL GRAPHS	
Missing, obscure, or multiple zero baselines and/or data markers that do not begin at a zero baseline	
Is the scale continuous or broken?	
Continuous	100%
Broken	0%
Is there a scale?	
Yes	82.2%
No	17.8%
Does the scale begin at zero?	
Yes	53%
No	47%
Multiple scales on the vertical axis	
Is there a single scale or multiple scales?	
Single	95.7%
Multiple	4.3%
Time series data portrayed in reverse order	
Is the data on the graph in sequential or reversed sequential order?	
Sequential	80.6%
Reversed	19.4%
Exaggerated width of data markers or spaces	
Are the bars of uniform width and evenly spaced?	
Yes	93.5%
No	6.5%

7.0 Limitations and Future Research

There is a need to highlight the limitations of this study and thus validate its findings and conclusion. First, the sample studied consisted of the 40 companies that received the KLSE Corporate Awards for their annual reports. This means the study was not concerned with other companies and thus had to settle for a relatively small sample. This study also did not consider the non-winners as a controlled group to be compared to. Therefore, further study could include other award winners or even non-winners in their sample.

Along with this limitation, another limitation of this study is concerned with its focus on just one aspect of graphical manipulation, which is the measurement distortion with the exclusion of the selectivity issue. Future research could perhaps detect the possible cases of selectivity to provide a more complete scenario of whether or not companies in Malaysia (in this case, the KLSE Corporate Award winners) implement impression management over graph presentation. Also, such a study could be more useful if the focus is not just on KFV graphs, but also on the non-KFV graphs. In addition, this study is limited by the number of years of data available and collected for evaluation (only awards recipients for the year 2003). In conclusion, more knowledge of the use and misuse of graphs in annual reports can help promote and inform the development of international or specifically local standards regarding graphical presentation in annual reports.

8.0 Conclusion

Based on an analysis of the 2003 annual reports of 40 KLSE Corporate Award winners, this paper documented the incidence of graph use and forms of graph measurement distortion (based on basic graph construction and GDI). 95% of companies used graphs, with the mean number of graphs across all companies being 11.5 (12.1 across only graph-using companies). Sales, profit, EPS, DPS, and ShF were the most commonly graphed financial variables, with 90% of companies graphing at least one such variable. This is not surprising considering that all these companies are corporate winners and they tend to disclose more information using graphs to impress users of the annual reports. Another interesting finding is the high percentage of non-KFVs (73% of total graphs) disclosed by the award winners, but future research is needed to clarify this issue.

According to our findings, departures from established principles of graph design and construction were noted. Most of KfV graphs in our sample exhibited more material overstatement (mean of +61.78%) than understatement distortions (mean of -45.79%). Regarding basic graph construction, it was observed that many graphs conformed to suggested graphs guidelines, but it is suggest that it would be appropriate to educate annual report preparers regarding graph construction, due to the considerable percentage of non-conformity with some elements of the guidelines (for example optical illusion, no legend featured, trendy visual effects, scale did not begin at zero, and time series data portrayed in reverse order).

These findings are consistent with the view and opinions of prior studies in the US, UK, Australia, Hong Kong, Canada, and Malaysia, that graphs are subject to impression management (in terms of GDI and some graphical devices) due to the nature of presentation being voluntary and this issue is currently not addressed by accounting standards. Therefore, management of the companies has the freedom to control this part of corporate agenda and perhaps enhance the potential of such abuses.

Even though there was evidence that showed the KLSE Corporate Awards playing an important role in promoting good corporate reporting, it has to be ensured that voluntary information disclosed by these companies should have representational faithfulness. It must also be verifiable and neutral in order to present information which is reliable and valid to user, and the limit departures from established principles of graph design and construction, as was noted to have happened to the award winners (in terms of GDI and some graphical devices). It could have been the result of annual report preparers' ignorance, carelessness, or perhaps intention to use impression management (further research is needed to clarify this issue). It is hoped that the findings of this study may have an important policy implication since graphs have been chosen as important means by which many companies, or in this respect, the KLSE Corporate Award winners to communicate their financial activities and position.

REFERENCES

- Accounting Standards Board (ASB) (2000). *Year-end financial reports improving communication*, Discussion Paper, February, Accounting Standard Board, London.
- Anderson, A. (1983). *Graphing financial information: How accountants can use graphs to communicate*, New York: National Association of Accountants.
- Australian Corporations Law (1996). *Corporation Act (Cth)*, Australia: Commonwealth of Australia.
- Beattie, V. & Jones, M.J. (1992). The use and abuse of graphs in annual reports: Theoretical framework and empirical study, *Accounting and Business Research*, 22(88), pp. 291-303.
- Beattie, V. & Jones, M.J. (1993). Graphs in annual reports: Benefits or pitfalls, *Management Accounting*, 71(6), p. 38.
- Beattie, V. & Jones, M.J. (1994). An empirical study of graphical format choices in charity annual reports, *Financial Accountability and Management*, 10(3), pp. 215-236.
- 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), pp. 33-68.
- Beattie, V. & Jones, M.J. (1999). Australian financial graphs: An empirical study, *Abacus*, 35(1), pp. 46-76.
- Beattie, V. & Jones, M.J. (2000a). Impression management: The case of inter-country financial graphs, *Journal of Accounting, Auditing, and Taxation*, 9(2), pp. 159-83.
- Beattie, V. & Jones, M.J. (2000b). Changing graph use in annual reports: A time series analysis, *Contemporary Accounting Research*, 17(2), pp. 213-226.
- Beattie, V. & Jones, M.J. (2001). A six-country comparison of the use of graphs in annual reports, *The International Journal of Accounting*, 36(1), pp. 195-222.
- Beattie, V. & Jones, M.J. (2002). Measurement distortion of graphs in corporate reports: an experimental study, *Accounting, Auditing, and Accountability Journal*, 15(4), pp.546-564.

- Blocher, F., Moffie, R.P., & Zmud, R.W. (1986). Report format and task complexity: Intersection in risk judgments, *Accounting, Organizations, and Society*, 11(6), pp. 457-470.
- Brown, P.A. (1992). The relationship between graphic aids in a business report and decision – making and cognitive style of a report reader, *The Delta Pi Epsilon Journal*, 34(2), pp. 63-76.
- Bursa Malaysia (2003). *KLSE Corporate Award Winners*. Retrieved January 15, 2005, from <http://www.bursamalaysia.com/website/listing/corpawards>.
- Canadian Institute of Certified Accountant (CICA) (1993). *Using Ratios and Graphics in Financial Reporting*. Toronto: CICA.
- Carey, J.M., & White, E.H. (1991). The effects of graphical versus numerical response on the accuracy of graph – based forecasts, *Journal of Management*, 17(1), pp. 77-96.
- Courtis, J.K. (1997). Corporate annual report graphical communication in Hong Kong: Effective of misleading?, *Journal of Business Communication*, 34(3), pp. 269-288.
- Deegan, C. & Hallam, A., (1991). The Voluntary Presentation of Value Added Statements in Australia: A Political Cost Perspective, *Accounting and Finance*, 31(1), pp. 1-21.
- Deegan, C. & Carroll, G., (1993). An Analysis of Incentives for Australian Firms to Apply for Reporting Excellence Awards, *Accounting and Business Research*, 23(2), pp. 219-227.
- DeSantics, G. & Jarvenpaa, S.L. (1989). Graphical investigation of accounting data for financial forecasting: An experimental investigation, *Accounting, Organizations, and Society*, 14(4/6), pp. 509-525.
- Frownfelter-Lohrke, C. & Fulkerson, C.L. (1998). Linking the incidence and quality of graphics in annual reports to corporate performance: An international comparison, *Advances in Accounting Information Systems*, 6(A1), pp. 129-151.
- 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), pp. 337-358.
- Global Reporting Initiative (GRI) (2000). *Sustainability reporting guidelines on economic, environmental, and social performance*. Boston, INA: GRI.
- Green, P., Kirk, R., & Rankin, C. (1992). Graphs: The use and abuse, *Certified Accountant*, November, p. 34.

- Jarett, I. (1993). *Computer graphics and reporting financial data*. New York: John Wiley.
- Jarett, I. & Babad, Y. (1988). *Financial graphics: Communications for the 1990's: The need for financial graphic standards*. Illinois CPA Society: Chicago.
- Johnson, J.R., Rice, R.R., & Roemmick, R.A. (1980). Picture that lie: The abuse of graphs in annual reports, *Management Accounting*, 62(4 - October), pp. 50-56.
- Kosslyn, S.M. (1989). Understanding charts and graphs, *Applied Cognitive Psychology*, 3(3), pp. 185-226.
- Lim, S. & McKinnon. J. (1993). Voluntary Disclosure by NSW Statutory Authorities: The Influence of Political Visibility, *Journal of Accounting and Public Policy*, 12, pp. 189-216.
- Mansfield, S. (1992). Putting on a show, *Personal Computer Magazine*, April, pp. 132-59.
- Mather, P., Ramsay, A., & Serry A. (1996). The use and representational faithfulness of graphs in annual reports: Australian evidence, *Australian Accounting Review*, 6(2), pp. 21-30.
- 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), pp. 65-83.
- Mohd.-Diah, H. & Azhar, A.R. (2001). *The Use of Graphical Information in Annual Reports of Malaysian Companies: A Longitudinal Study*., unpublished research done with school grant, School of Accountancy, Universiti Utara Malaysia, Sintok.
- Nor'Aishah, Taufiq & Narimah .(2004). *The Presentation of Graphs in Annual Reports of Malaysian Finance Companies*, unpublished research, Faculty of Economic and Management, University Putra Malaysia, Serdang.
- Ram.-Al.-Jaffri, S. (2004). *Malaysian Financial Graphs: An Empirical Study*, unpublished research done for the submitting master project, Faculty of Accountancy, Universiti Utara Malaysia, Sintok.
- Schmid, C. & Schmid, S. (1979). *Handbook of graphic presentation*. New York: Ronald Press, John Wiley.
- Shamharir, A., Md.-Suhaimi, M.S., & Nurwati A.Z. (2000). *Disclosure of Graphical Information in Annual Reports: A Preliminary Study of The KLSE Listed Companies*,

unpublished research done with school grant, School of Accountancy, Universiti Utara Malaysia, Sintok.

Silfen, G. & Sperry, T.D. (2004). New and improved reports for fund shareholders, *The Investment Lawyer*, 11(6), pp. 1-4.

Squires, C. (1989). The Corporate Year in Pictures. In R. Bolton (Ed.), *Contest of Meaning*. Cambridge, MA: Massachusetts Institute of Technology, pp. 207-218.

Steinbart, P.J. (1989). The auditor's responsibility for the accuracy of graphs in annual reports: Some evidence of the need for additional guidance, *Accounting Horizons*, 3(3), pp. 60-70.

Taylor, B.G. & Anderson L.K. (1986). Misleading graphs guidelines for the accountant, *Journal of Accountancy*, 162(4), pp. 126-135.

Thibadoux, G., Cooper, W.D., & Greenberg, I.S. (1986). Flowcharts and graphics, *CPA Journal*, 56(3), pp. 12-23.

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

Wainer, H. (1992). Understanding Graphs and Tables, *Educational Researcher*, 21(1), pp. 14-23.

Watts, R. & Zimmerman, J.L. (1986). *Positive Accounting Theory*. Englewood Cliffs: Prentice Hall.