

THE INCIDENCE AND QUALITY OF FINANCIAL GRAPHICS IN INDONESIAN IPO PROSPECTUSES

Dezie L. Warganegara

Accounting & Finance Department - BINUS Business School
Bina Nusantara University, Jakarta, Indonesia

Yanthi R.I. Hutagaol

R&D Division - BINUS Business School
Bina Nusantara University, Jakarta, Indonesia

Tjut F. Bachrumsyah

Accounting & Finance Department- BINUS Business School
Bina Nusantara University, Jakarta, Indonesia

Abstract

The purpose of this study was to investigate the selectivity and the quality of financial graphs in Indonesian IPO prospectuses. The first hypothesis of this study related to the intensiveness in the use of the graphs with the profitability of the IPO firms, while the second hypothesis associated the distortion in the graphs' constructions with the intention to show financial performance in a more favorable way. Content analysis was used to investigate the relationship between the intensiveness in the use of the graphs and the profitability. The distortion in the graphs' constructions was detected using the Relative Graph Discrepancy (RGD) index. This study found that there was no evidence more profitable firms using graphs more intensively in their IPO prospectuses. With regards to distortion, it was found that IPO firms tended to exaggerate their performance depicted on the financial graphs in their prospectuses.

Key words: distortion, financial graphs, IPO prospectus, selectivity

Companies may use several formats, such as tabular, narrative, photographic, and graphic, in presenting information to stakeholders. Graphical presentation offers companies a better alternative for presenting financial information to the other formats (Beattie & Jones, 2001). Graphics are a

more effective communication tool between preparers and users because it offers a 'universal language' and is useful in bridging language, education, and culture barriers and thus increases speed in the decision-making processes (Frownfelter-Lohrke & Fulkerson, 2001; Uyar,

Korespondensi dengan Penulis:

Dezie L. Warganegara: Telp.+62 21 534 5830; Fax.+62 21 530 0244

E-mail: dezie@binus.edu

2009). The phenomenon is so apparent that from the earliest studies to the latest studies in the field such as Taylor & Anderson (1986), Steinbart (1989), Uyar (2009), and Dilla & Janvrin (2010) they have concurred that the inclusion of graphs tends to make good performance more salient and the absence of graphs in a company document may be perceived to conceal poor performance.

There exist strong economic and social incentives for company report preparers to display self-serving behavior (Beattie & Jones, 2008). This self-serving behavior may lead toward earnings management and impression management. While self-serving-behavior is reflected in earnings management through the choice of accounting methods, impression management deals with the choice of report contents and formats to manipulate impressions regarding the well-being of companies. The voluntary nature of graphical presentation coupled with the absence of a definitive regulation of graph usage provides flexibility to be creative in the construction of the graphs and enhances the potential for managing the impression of report readers. (Beattie & Jones, 2000; Arunachalam et al., 2002).

The objective of this study is to investigate the use and the abuse of graphs in Indonesian IPO prospectuses. A prospectus is both a primary promotional document for an IPO firm and the main source of public information for investors (Daily et al., 2005). The scarcity of information about the issuer forces investors to rely heavily on the prospectus that may contain information that is summarized in the forms of financial statements and graphs. The samples of this study were all companies that went public from 2005 to 2009 in the Indonesia Stock Exchange (the IDX). The first hypothesis of this study relates the intensiveness in the use of the graphs with profitability of the firms. The second hypothesis associates the distortion in the graph constructions with the intention to show a firm's performance in a more favorable way.

To date, there has been no systematic study on the topic for Indonesian IPO companies. Mather et al. (2000) conducted the only study on the topic in Australia. Unlike in Mather et al., (2000) that used the Graph Discrepancy Index (GDI), however, this study used the Relative Graph Discrepancy (RGD) index, which is a new and more powerful measure of distortions in graphs (Mather et al., 2005; Beatty & Jones, 2008). Besides that there are several studies that support the development of this topic, such as the ones that used annual reports by Beattie & Jones (1992) for British companies, Mather et al. (1996) and Beattie & Jones (1999) for Australian companies, Pennington & Tuttle (2008) for American companies, Beattie & Jones (1997) for American and British companies, Frownfelter-Lohrke & Fulkerson (2001) for American and non-American companies, Courtis (1997) for Hong Kong-based companies, and Uyar (2009) for Turkish companies. All of the aforementioned studies suggest that graphs are used to better highlight the performance of firms and graph distortion is carried out to mislead users into incorrect conclusions about underlying financial data.

This study, however, finds no evidence for the relationship between the presence of profitability graphs in the prospectuses of companies in the sample and the performance of companies. The intensity of well-performing companies in the use of graphs is comparable with that of badly-performing companies. With regard to the second hypothesis, it is found that in constructing financial graphs for their prospectuses, Indonesian IPO firms are more likely to distort the graphs to have their performance look more favorable.

The remainder of this paper is organized as follows. Section two contains the literature review, while section three discusses the data and methodology. Section four reports the empirical results and the final section offers the conclusions of this study.

The Incidence and Quality of Financial Graphics in Indonesian IPO Prospectuses

Dezie L. Warganegara, Yanthi R.I. Hutagaol, & Tjut F. Bachrumsyah

Financial Graphs

William Playfair introduced graphs around 200 years ago (Beattie & Jones, 1992). Since then companies use graphs, as an alternative to tables, photographic, and continuous narrative text formats, to display information. Readers find that graphs are more attractive than the other formats (Beattie & Jones, 1997, 2001). Superiority of graphs to the other format is due to the ease in preparing, reading, understanding, remembering, and eye-catching (Beattie & Jones, 2008; Frownfelter-Lohrke & Fulkerson, 2001; Pennington & Tuttle, 2008; Osahon, 2008; Uyar, 2009).

Frownfelter-Lohrke & Fulkerson (2001) and Pennington & Tuttle (2008) argued that graphs are useful for displaying numeric information in summarized form to get a holistic view of the data, reducing time and assisting in memory recall. They are particularly good at conveying trend information, patterns and highlighting anomalies (Beattie & Jones, 2008). They simplify complex quantitative data, and provide immediate insight into performance. Consequently, data relationships are easier to conceptualize and remember so that not only sophisticated users can digest graphs but also unsophisticated users (Beattie & Jones, 2008). In financial reporting, graphs can capture a company's performance by highlighting a few key performance indicators over time (Beattie & Jones, 2008). Given the ease of understanding, Uyar (2009) argued that graphs increase the speed of decision-making, and managers prefer them to tabular and narrative formats. As a result, shareholders would understand a company's performance faster when using graphs compared to the other formats. Besides that, graphs are eye-catching since they can be visually enhanced by the use of color and special effects (Beattie & Jones, 2008).

IPO Prospectuses

A prospectus is the main medium to communicate information about an IPO firm. Aharony

et al. (1993) argued that IPO processes have greater uncertainty about the market clearing price of the offering and greater reliance on the prospectus for information about the firm. Teoh et al. (1998) noted that there is almost no news media coverage of firms in the years before an IPO and the scarcity of information about the issuer forces investors to rely heavily on the prospectus. Based on regulation number IX.C.2 of the Indonesia Security Exchange Commission (*BAPEPAM-LK*), a prospectus must include all details and material facts regarding the public offering from the issuer. In addition, the regulation also states that a firm's prospectus must prominently feature the firm's performance measures. A prospectus may contain one to three years of financial statements and present several graphs. Information contained in prospectuses is found to be useful and affects the decisions of investors (Mather et al., 2000).

According to Daily et al., (2005), previous studies on IPOs have suggested the efficacy of a prospectus as a signal. Prospectuses meet a key principle of signaling theory, which is observable and known in advance of the decision. Besides sending signals to potential investors, prospectuses also effectively signal firm value to investment bankers, thereby influencing the initial offering price spread as well as the ultimate price at which the stock is offered on the first day of trading (Daily et al., 2005). The prospectus is therefore an important communication between the company and potential investors. Meanwhile, investors come from a range of backgrounds. Their ability to read financial reports is varied and therefore may rely on graphs as an alternative to understand the prospect in investing in IPO shares.

HYPOTHESIS DEVELOPMENT

A prospectus is both a primary promotional document for the IPO and the main source of public information for investors (Aharony et al., 1993; Daily et al., 2005). The scarcity of information about

the issuer forces investors to rely heavily on the prospectus. Investors come from diverse backgrounds. Their ability to read financial reports and understand sophisticated business terms are varied so that they may seek a less complicated alternative to get the information on IPO firms. Financial graphs offer companies a better alternative for presenting financial information than the other formats (Frownfelter-Lohrke & Fulkerson, 2001; Beattie & Jones, 2008; Osahon, 2008; Pennington & Tuttle, 2008; Uyar, 2009).

Given the ease of understanding a graph gives to readers, any improvement in company's performance would likely be detectable by readers quickly, thus increase in the speed of users' decision-making process. On the other hand, tabular/textual information would be rather hard for readers to understand. Companies with low performance may want to obfuscate by giving complex explanations about company's performance using table and texts. The absence of graphs, therefore, tends to conceal poor performance, while companies including graphs in their company reports tend to make their good performance more salient to users (Dilla & Janvrin, 2010). In addition, Uyar (2009) suggests that managers prefer graphs to the other formats because of the ease and the flexibility that they allow preparers.

Some studies have been conducted regarding the use of graphs and their relationship to the company's performances. Steinbart (1989) initially found that US companies are more likely to include graphs of key financial variables such as sales/turnover, profits, EPS and DPS on annual reports when financial performances have increased. Follow-up studies on annual reports by Beattie & Jones (1992) for British companies, Mather, Ramsay & Serry (1996) and Beattie & Jones (1999) for Australian companies, Pennington & Tuttle (2008) for American companies, Beattie & Jones (1997) for British and American companies, Frownfelter-Lohrke & Fulkerson (2001) for Ameri-

can and non-American companies, Courtis (1997) for Hong Kong-based Companies, and Uyar (2009) for Turkish companies indicate that graph usage is positively related to corporate performance. The only study to date on IPO prospectuses by Mather et al. (2000) also yields a similar conclusion. It is argued, therefore, that companies with good performance tend to use more graphs, while companies with poor performance prefer to use tables or long complex textual explanation that may obfuscate the truth from readers. Consistent with the explanation above, this study formally tests the first hypothesis expressed in the alternate form as follows:

H₁: there is a positive relationship between the intensiveness in the use of financial graphs in the IPO prospectuses and the financial performance of IPO companies.

Financial graphs used in company documents are points of interests given the flexibility they allow preparers and their accessibility and ease of understanding to users. Financial graphs are able to quickly give an overall view of firm financial performance to investors. Effective communication of information using graphs, however, depends on the qualities of graphs being constructed (Tufte, 1983). There are six commonly used guidelines for the proper presentation of quantitative information in graphical form formulated by Tufte (1983). These rules need to be followed in order to achieve unbiased and accurate graphs. The first principle states: *"the magnitude of change depicted graphically should be directly proportional to the numerical change in the data"*. If this principle is violated, graphs will be distorted and may mislead readers because they are not faithfully representing the underlying data. (Mather et al., 1996).

Previous studies in the field have recognized the existence of strong economic and social incentives for report preparers to display self-serving behaviour (Beattie & Jones, 2008). A company goes public to raise funds to finance growth or to re-

The Incidence and Quality of Financial Graphics in Indonesian IPO Prospectuses

Dezie L. Warganegara, Yanthi R.I. Hutagaol, & Tjut F. Bachrumsyah

balance their financial structure. The amount raised depends mainly on the IPO shares prices as a reflection of potential investors' responses towards the company's future financial performances. Accordingly, issuers of IPOs want to obtain the highest possible price for their shares because their economic and social well-being is directly affected by the price that is set in the IPO (Friedlan, 1994). As a result, a company's managers have incentives and motivations to impress potential investors by exaggerating the performance of their company.

The voluntary nature of graphical presentation markedly enhances the potential for impression management (Beattie & Jones, 2000) and results in management control of corporate reporting agenda and formats. According to Arunachalam et al. (2002) preparers of graphs have tendencies to manage the viewer's impressions. Beattie & Jones (2008) indicated that graphs can lead readers to conclusions that do not reflect the underlying financial data. Furthermore, the absence of definitive regulation may give some room for managers to be self-serving in the construction of the graphs. Therefore, when graphs are constructed, preparers will be more likely to distort their graphs in favorable ways than in unfavorable ones. Previous studies both in western and non-western countries on annual reports and prospectuses yield similar results in that self-serving behavior of graph preparers are reflected in the constructions of financial graphs (Beattie & Jones, 2008). Accordingly, this study formally tests the second hypothesis expressed in the alternate form as follows:

H₂: the exaggeration of the company's performance depicted on financial graphs is more likely to occur than an understatement of the company's performance.

DATA AND METHODOLOGY

The initial sample of this research included all of the companies that went public from 2005 to

2009. The list of IPO firms during that period was found in the IDX Statistics. The main data source for this study was financial graphs in Indonesia IPO prospectuses. The IDX Financial Database contained prospectuses from 2005 to 2009. There were 74 firms that went public during the period. Of these 74 IPO firms, the authors could not obtain a prospectus for Duta Graha Indah which went public in 2007. The final sample of this study, therefore, included 73 IPO firms' prospectuses.

As in previous studies, this study only focused the analysis on key financial variable (KFV) graphs. Key financial variables (KFV) graphed in annual reports were usually turnover/sales, profitability, EPS, and DPS (Steinbart, 1989; Beattie & Jones, 1992, 1994, 2000). Mather *et al.*, (2000) found that only 0.3% of Australian IPO prospectuses contained both EPS and DPS graphs. The Indonesian prospectuses collected for this current study, on the other hand, had no EPS and DPS graphs available. Besides the unavailability of EPS and DPS graphs, all of the Indonesian IPO prospectuses in the sample also did not have any turnover graphs. Due to the limitation of graph types in the Indonesian prospectuses, the KFV graph in this study was limited to only profitability graphs.

In differentiating the performance of the companies, this study used the changes in annual net income depicted from the first to the last column of the profitability graphs. The companies that had increased annual net income were categorized as 'good companies'. On the other hand, the 'bad companies' category was populated with companies that had decreasing annual net income. Consistent with prior studies, the *chi-square test* between the use of profitability graphs and the classifications of the IPO companies (as good or bad companies) was used to test the association between the presence of profitability graphs and the company's performance.

For testing hypothesis 2 regarding the graph distortion, this study used a measurement called

the Relative Graph Discrepancy (RGD) index to estimate the distortion of each profitability graph in the prospectuses (Mather *et al.*, 2005). The formula for estimating RGD is as follows:

$$\text{Relative graph discrepancy} = \frac{g2 - g3}{g3}$$

where:

$g1$ = height of first column

$g2$ = height of last column

$g3$ = correct height of last column,

that is equal to: $\frac{g1}{d1} * d2$

$d1$ = value of first data point

$d2$ = value of last data point

The second hypothesis is about the relationship between favorable/unfavorable graph distortions and profitability. The trend of profitability, defined as either an increasing or decreasing trend, was used to classify whether a company is a good or bad company. The graphical distortion was determined to be favorable when the RGD value for increasing profitability trend (good) companies is more than 0 because of the exaggerated increase of the profitability in the graph. On the other hand, the distortion is unfavorable when the RGD value for increasing profitability trend (good) companies is less than 0, since it understates the increase of profitability in the graph.

In contrast, the distortion is determined to be favorable when the RGD value for decreasing profitability trend (bad) companies is less than 0 because of the understatement in the decrease of the profitability in the graph. On the other hand, the distortion is unfavorable when the RGD value for decreasing profitability trend (bad) companies is more than 0, since it exaggerates the decrease of profitability in the graph.

Mather *et al.* (2005) note that the cut off point for material distortion is when a RGD of a graph is bigger than the absolute value of 2.5%. Accordingly, any RGD that has absolute value less than 2.5% is dropped from the sample of this

study. The requirement resulted in 4 RGDs for bad companies and 45 RGDs for good companies. Consequently, the second hypothesis was tested on these 49 RGDs. As in previous studies, this study used *the binomial test* to check whether a favorable graph distortion is more likely than an unfavorable graph distortion.

RESULT AND DISCUSSIONS

As mentioned earlier the financial graphs analyzed in this study came from 73 prospectuses of the firms that went public from 2005 to 2009. The first and the second columns of Table 1 show the IPO year and the number of the firms that went public each year. The busiest year during the period was year 2007 with 21 IPOs followed by 19 IPOs in 2008. On the other hand, the slowest year was 2005 with 8 IPOs and the next slowest year was 2006 with 12 IPOs. Of these 73 prospectuses, 66 (88%) of them used either financial or non-financial graphs for presenting information to their readers. This finding was higher than what Mather *et al.* (2000) found in their Australian study that only 28% of Australian IPO prospectuses contained any graphs (financial or non-financial). Table 1 shows that the maximum uses of graphs in prospectuses was 100% and can be found in 2008 and 2009 prospectuses, while the minimum users of graphs were 2006 and 2007 prospectuses with 75% and 76% uses respectively. With regard to profitability graph, a KFV graph, there were a total of 45 of 73 (62%) prospectuses that had at least one profitability graph.

Table 2 below shows the numbers and percentages of certain types of graphs found in the prospectuses. An observation on the graphics contained within the prospectuses reveals that there were 463 graphs in total which could be found in these 73 prospectuses. It means that the average number of graphs per prospectus was 6.34 (7.23 if only considering prospectuses that contained graphs). For comparison, Mather *et al.* (2000) found

The Incidence and Quality of Financial Graphics in Indonesian IPO Prospectuses

Dezie L. Warganegara, Yanthi R.I. Hutagaol, & Tjut F. Bachrumsyah

Table 1. Use of Graphs in 73 Prospectuses

IPO Year	Prospectuses	Any Graph (Financial or Non-Financial)		At Least One Financial/Profitability Graph	
		No	%	No	%
2005	8	7	88	7	88
2006	12	9	75	6	50
2007	21	16	76	8	38
2008	19	19	100	14	74
2009	13	13	100	10	77
Total	73	64	88	45	62

that there were 1.2 graphs per Australian prospectus (4.25 if only consider prospectuses that contained graphs).

Of these 463 graphs, there were 71 graphs (15%) which were profitability graphs and 392 graphs (85%) were other types of graphs. In contrast, Mather et al. (2000) found that only 29% of Australian IPO prospectuses contained any KFV graph that included turnover, profit, EPS and DPS. If only profitability graphs were considered, Mather et al. (2000) found around 10% of Australian prospectuses contained them. Combining data from Table 1 and Table 2 yields information showed that these 71 profitability graphs were taken from 45 prospectuses. The results from the first hypothesis testing in this study, consequently, were based on these 71 profitability graphs of those 45 prospectuses.

Table 2. Number of Graphs in 73 Prospectuses

Graphs	No	%
Profitability	71	15
Others	392	85
Total	463	100

Table 3 shows the number and the proportion of graphs by type. The table also contains the number and the proportion of the prospectuses that contain each type of graph. Beattie and Jones (1992) and Mather et al. (2000) noted that column graphs were by far the most frequently used type for communicating financial data to stakeholders

in firms' documents. It can be seen in Table 3 that column graphs are indeed the most common type used in Indonesia IPO prospectuses. 83% of the total 73 prospectuses and 76% of the total 463 graphs in the sample used this type of graph for depicting company information. Furthermore, all profitability graphs found in the prospectuses were constructed in the form of column graphs. On the other hand, line and pie graphs constituted some 11% and 8% of the total 463 graphs that can be found in 27% and 18% of the total 73 prospectuses in the sample respectively. Mather et al. (2000) found that 59% of graphs in Australian prospectuses were constructed in column graph format. In addition, they found that 19% and 21% of Australian prospectuses contained line and pie graphs respectively.

Table 3. Graph Types

Types of Graphs	Number of Graphs (%)	Number of Prospectuses (%)
Column	354 (76)	61 (83)
Line	52 (11)	20 (27)
Pie	37 (8)	13 (18)
Others	20 (4)	11 (15)
Total 463 graphs in 73 Prospectuses		

Table 4 contains information regarding the use of financial graphs in the Indonesia IPO prospectuses. The IPO firms are classified based on their performance either as good or bad companies. As mentioned earlier, a company is considered as a good (or bad) company if it has a posi-

tive (or negative) change in its annual net income during the period depicted from the first to the last column of the profitability graphs.

Table 4 also reveals that 12 of 14 (86%) bad companies used graphs compared with 52 of 59 (88%) good companies. The intensity of graph usage, therefore, was relatively similar between good companies and bad companies. Similarly, the absence of graph usage was also relatively comparable between good companies and bad companies. For bad companies there were 2 out of 9 prospectuses (22%) which did not have graphs and for good companies it was 19% (12 of 64) of prospectuses which did not have graphs.

Table 4. Presence of Any Graphs Vs Company Performance

Company Category	Presence of Any Graphs in Prospectus		Total Companies
	No	Yes	
Bad	2	12	14
Good	7	52	59
Total	9	64	73

As mentioned earlier, there were a total of 71 profitability graphs in 45 prospectuses. It was found that the number of profitability graphs for each prospectus varied from 1 to 3. Table 5 shows more detailed information regarding these 71 profitability graphs for the bad and good companies in the sample. It can be seen in Table 5 that the bad companies had 10 profitability graphs that could be found in their 8 prospectuses. Since there were 14 bad companies in the sample it means that there were 6 bad companies' prospectuses which did not contain profitability graphs in their prospectuses. Similarly, there were 59 good companies but only 37 of them used profitability graphs in their prospectuses. The prospectuses of these 37 companies contained 61 profitability graphs. Therefore, the average use of profitability graphs in good and bad companies' prospectuses was 1.69

and 1.25 graph per prospectus respectively. Finally, the average use of profitability graphs for both bad and good companies per prospectus was 1.58 graphs.

Table 5. Profitability Graphs Vs Company Performance

Company Category	Number of Profitability Graphs	Total Prospectuses	Average Number of Profitability Graphs per Prospectus
Bad	10	8	1.25
Good	61	37	1.64
TOTAL	71	45	1.58

Table 6 shows the result of the *chi-squared test* for the first hypothesis that there is a positive relationship between the presence of profitability graphs and the performance of the company. Company performance was treated as a categorical variable where companies were categorized as good (or bad) companies if they had an increase (or a decrease) in annual net income. As mentioned earlier, the number of profitability graphs for each prospectus varied from 1 to 3. Some companies presented more than one profitability graph in their prospectus (e.g. gross profit, operating profit & net profit). From 45 companies that used profitability graphs in their prospectuses, 28 companies (6 bad companies & 22 good companies) used only 1 profitability graph, 8 companies (2 bad companies & 6 good companies) employed 2 profitability graphs, and 9 companies (0 bad companies & 9 good companies) utilized 3 profitability graphs in their prospectuses.

Compared with the sub-total of bad and good companies, 75% (6 of 8) of bad companies and 60% (22 of 37) of good companies employed 1 profitability graphs, 25% (2 of 8) bad companies and 16% (6 of 37) of good companies utilized 2 profitability graphs, and 0% of bad companies and 24% (9 of 37) of good companies had 3 profitability graphs in their prospectuses. Therefore, good

The Incidence and Quality of Financial Graphics in Indonesian IPO Prospectuses

Dezie L. Warganegara, Yanthi R.I. Hutagaol, & Tjut F. Bachrumsyah

companies used more graphs in only 1 of the 3 occasions. The results of the test showed that the *chi-squared statistic* was 2.49 and the *p-value* was 0.29. Therefore, there was no evidence in the sample that good companies used more profitability graphs than did bad companies.

Table 6. Chi-Square Test of Independence

Number of Profitability Graphs in Each Prospectus	Types and Number of Companies		Total
	Bad	Good	
1	6	22	28
2	2	6	8
3	0	9	9
Total	8	37	45
Chi-Square Statistics (P-value)	2.49 (0.29)		

The finding in this study that good companies did not use more profitability graphs than did bad companies is in contrast with Mather *et al.* (2000) that inclusion of graphs of any key financial variable in IPO prospectuses is more likely for good companies. The finding was also not in line with previous studies that used annual reports e.g. Steinbart (1989) and Beattie and Jones (1992). There was, however, one graph usage study that had similar findings that there was no difference of graph usage in both groups, in the study that was conducted by Mather *et al.* (1996) on annual reports.

As discussed earlier, graphs are an important communication tool between preparers and the users. They are particularly attractive given the flexibility that they allow preparers and for their user-friendliness. Given the ease of understanding graphs give to readers, any improvement in a company's performance would be quickly detectable by readers or more salient to users. On the other hand, the absence of graphs tends to conceal poor performance (Dilla and Janvrin, 2010;

Steinbart, 1989; Beattie and Jones, 1992). A company with low/bad performance may want to misdirect readers by giving complex textual explanation about its performance using tables and texts that blurs readers understanding (Beattie and Jones, 2000; Dilla and Janvrin, 2010). The finding of this study, that there is no difference in the use of graphs between good and bad companies, implies that the decision to use graphs to convey financial information is based on other considerations.

Managers of Indonesia IPO companies may simply be accustomed to depicting important financial information on graphs regardless of their financial performance. This behavior causes bad and good companies to use graphs in similar intensiveness. In addition, IPO companies hire underwriters and other consultants to provide advice on IPO processes that include document preparation (Gibbins *et al.*, 1990). Industry norms in voluntary disclosure such as graph usage may be transmitted from one prospectus to another prospectus through these underwriters and consultants.

Table 7. Parameters of RGDs

Parameter	RGD (%)
Mean	16.45
Median	4.46
Standard Deviation	57.74
Maximum	315.38
Minimum	-93.12

As mentioned earlier, this study used RGD to measure distortion. An RGD value equal to 0 represents a correctly constructed graph. However, this study only included a RGD bigger than the absolute value of 2.5% as evidence for significant distortion in the sample as proposed by Mather *et al.* (2005). Consequently, there were fewer graphs available, 4 RGDs for bad companies and 45 RGDs for good companies, for testing the second hypothesis that the favorable effect of

performance portrayed on graph is more likely used than the unfavorable effect.

The parameters of RGDs used to test hypothesis 2 can be seen on Table 7. The table shows that the mean of RGDs is 16.45% and the median is 4.46%. On average, therefore, IPO firms overstated their underlying financial data in their graph construction. However, it does not mean that IPO firms distorted their graphs favorably since the sample consisted of both good and bad companies. The overstatement of underlying financial data in graph constructions can cause good firms to look better as well as bad firms to look worse.

Magnitude wise, the mean was almost 4 times as high as the median. Similarly, the standard deviation of 57.74% was almost 4 times as high as the mean. Judging from the huge difference between the mean, the median, and the standard deviation, it can also be said the magnitude of the overstatement in the graph constructions was much higher than the understatement. The phenomena can also be inferred from the difference between the maximum and the minimum RGDs. The maximum RGD is 315.38% and the minimum RGD is -93.12%, which means that the magnitude of the maximum RGD was also more than four times that of the minimum RGD.

In testing the hypothesis, it was defined that the RGD value was more (or less) than 0 for good (or bad) companies to be classified as a favorable distortion. On the other hand, an RGD value less (or more) than 0 for good (or bad) companies was classified as an unfavorable distortion. Table 8 shows the occurrence of favorable and unfavorable distortions in the graphs. The table shows that the IPO companies more frequently distorted the graphs in favorable ways than unfavorable ways. The evidence of exaggeration can be seen in Table 8 that 65% (32 of 49) distorted the graphs so that they showed a higher increase in profit or less of a decrease in profit. On the other hand, only 35% (17 of 49) of the profitability graphs were distorted in unfavorable ways such that they showed less

increase in profit or a higher decrease in profit. The results of the binomial test on RGDs confirmed the notion that favorable graph distortion was more likely employed by the IPO companies than unfavorable distortion in their prospectuses. The p-value of the test was 0.046, which was significant at the 5% level.

Table 8. Binomial Test on Favorable and Unfavorable Distortions

Distortion	No. Graphs	Proportion	<i>p-value</i>
Favorable	32	0.65	0.046
Unfavorable	17	0.35	

These results are in line with previous related study that also measured distortion of KFV graphs in prospectus. Mather et al. (2000) found unfavorable distortion was more likely than favorable distortion in Australian IPO prospectus. Other prior related studies that used annual reports, as opposed to IPO prospectuses, such as in Beattie & Jones (1992) and in Mather et al. (1996) also found the same results such that in graph construction, favorable distortions were more likely than unfavorable ones.

Quality communication of information using graphs depends on the graph being constructed accurately. Distortion is concerned with the extent to which the graphs in prospectuses faithfully represent the underlying data (Mather et al., 1996; 2000). Certain rules need to be followed in order to achieve unbiased and accurate graphs. The measure of graph distortion is based on Tufte's first principle: "the magnitude of change depicted graphically should be directly proportional to the numerical change in the data". However, financial reporting researchers have recognized the existence of strong economic and social incentives for report preparers to display self-serving behaviour (Beattie & Jones, 2000). The voluntary nature of graphical presentation markedly enhances the potential for impression management (Beattie & Jones, 2008). The voluntary nature means

that management can control this part of the reporting agenda. According to Arunachalam et al. (2002), previous literatures suggest that preparers of graphs believe that they can design graphs to manage the viewer's impressions. In addition, the possibility that management will use graphical presentation for impression management or to be creative in the construction of the graphs is enhanced by the absence of regulation regarding graph use in IPO prospectuses.

CONCLUSION AND SUGGESTION

Conclusion

The first purpose of this study was to investigate the positive relationship between the presence of key financial variables (KFV) on graphs and the company performance that was presented. Due to the limitations of graph type in the prospectuses, the KFV in this study were defined as profitability graphs. This study also investigated the distortion in graphs presented regarding whether favorable representations were more likely than unfavorable. The study used the Relative Graph Discrepancy (RGD) to measure graph distortion.

This study found no evidence for the association between the presence of key financial variables in graphs in the prospectuses of companies in the sample and the performance of companies. The result of the *chi-squared test* on the association was not significant at the conventional levels. Therefore, the intensity of good performing companies in the use of graphs was comparable with that of bad performing companies. With regard to the way the firm's performance is portrayed on the graph, favorable distortion occurs more frequently than unfavorable distortion. The result of the *binomial test* on the graphs' RGDs shows that this tendency was significant at the 5% level. It is concluded, therefore, that managers of Indonesian IPO companies do not use the performance of their companies in their decision to employ graphs because they want to use graphs to exaggerate that performance such that well-perform-

ing companies look better and badly-performing companies look less bad.

Suggestion

Financial graph is the integral part of financial reports and should be prepared by Finance or Accounting department. Some units in companies, such as Marketing or Public Relation, might be the ones which are assigned to prepare the graphs. By nature, these departments have different agenda and objectives from Finance or Accounting department do. It is imperative that management should assign a unit that understands the importance of financial graphs in the decision making process of investors. Accounting or finance department, therefore, should be the one that prepares or at least supervises the development of financial graphs on companies' formal documents. Besides the importance of the developing party, the quality of financial graphs also depends on its quality control process. For instance, external auditors should go beyond only conducting the review process on the graphs. Any graphs that will be received by investors must be treated as an audit object and go through audit process just like any other general audience financial document such as financial reports.

This current study uses IPO prospectus as a source of documents for finding samples of financial graphs. The studies on the field mostly use Annual Report as the document source. The use of IPO prospectus in this study is meant to be the extension of the original studies. Since the study on the use and abuse of financial graphs is relatively new in Indonesia, future studies in the field can still be directed to investigate financial graph quality in Annual Reports. In addition, future studies should also be directed to investigate the quality of the graphs published in companies' websites. Public companies in Indonesia are required to have their own websites and this medium can also be used by companies as a platform in displaying financial graphs. Investigating alternative media for

releasing information will bring more understanding regarding the use and the quality of financial graphs of companies in Indonesia.

REFERENCES

- Aharony, J., Jane-Lin, C., & Loeb, M.P. 1993. Initial Public Offerings, Accounting Choices, and Earnings Management. *Contemporary Accounting Research*, 10(1): 61-81.
- Arunachalam, V., Pei, B. K., & Steinbart, P. J. 2002. Impression Management with Graphs: Effects on Choices. *Journal of Information Systems*, 16(2): 183-202.
- BAPEPAM-LK. 1996. *Peraturan Nomor IX.C.2: Pedoman Mengenai Bentuk dan Isi Prospektus dalam Rangka Penawaran Umum*.
- 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): 291-303.
- Beattie, V. & Jones, M. J. 2001. A Six-country Comparison of the Use of Graphs in Annual Reports. *The International Journal of Accounting*, 36(2): 195-222.
- Beattie, V. & Jones, M. J. 2000. Impression Management: The Case of Inter-country Financial Graphs. *Journal of International Accounting, Auditing, and Taxation*, 9(2): 159-183.
- Beattie, V. & Jones, M. J. 1999. Australian Financial Graphs: An Empirical Study. *Abacus*, 35(1): 46-76.
- 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. 2008. Corporate Reporting using Graphs: A Review and Synthesis. *Journal of Accounting Literature*, 27: 71-110.
- Courtis, J. K. 1997. Corporate Annual Report Graphical Communication in Hong Kong: Effective or Misleading? *The Journal of Business Communication*, 34(3): 269-288.
- Daily, C.M., Certo, S. T., & Dalton, D. R. 2005. Investment Bankers and IPO Pricing: Does Prospectus Information Matter? *Journal of Business Venturing*, 20(1): 93-111.
- Dilla, W. N., & Janvrin, D.J. 2010. Voluntary Disclosure in Annual Reports: Association between Magnitude and Direction of Change in Corporate Financial Performance and Graph Use. *Accounting Horizons*, 24(2): 257-278.
- Friedlan, J. M. 1994. Accounting Choices of Issuers of Initial Public Offerings. *Contemporary Accounting Research*, 11(1): 1-32.
- 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): 337-358.
- Gibbins, M., Richardson, A., & Waterhouse, J. 1990. The Management of Corporate Financial Disclosure: Opportunism, Ritualism, Policies and Processes. *Journal of Accounting Research*, 28(1): 121-143.
- 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.
- Mather, D., Mather, P., & Ramsay, A. 2005. An Investigation into the Measurement of Graph Distortion in Financial Reports. *Accounting and Business Research*, 35(2): 147-159.
- Osahon, O. K. 2008. The Effect of Information Visualization on Financial Reports. *Master Thesis* (Unpublished). Hanken School of Economics.
- 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): 60-70.
- Taylor, B. G. & Anderson, L. K. 1986. Misleading Graphs: Guidelines for the Accountant. *Journal of Accountancy*, October: 126-135.
- Teoh, S.H., Welch, I., & Wong, T.J. 1998. Earnings Management and the Long-run Market Performance of Initial Public Offerings. *The Journal of Finance*, 53(6): 1935-1974.
- Uyar, A. 2009. An Analysis of Graphic Disclosure in Annual Reports: The Case of Turkey. *Managerial Auditing Journal*, 24(5): 423-444.