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Accounting Manipulation of Financially Distressed Firms: Malaysian Evidence

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ABSTRACT

Firms approaching deterioration in financial performance may make income-increasing accounting choices in an attempt to survive what is probably deemed by the management as a temporary bad period. This study attempts to empirically examine real activities-based earnings manipulation among financially troubled firms in Malaysia over the years prior and after being officially designated as a "financially distressed firm." The study detects real activities manipulation by investigating patterns in cash flow from operations (CFO), discretionary expenses, and production costs. Results reveal that CFO and discretionary expenses are unusually low for the years preceding the official designation as a financially distressed firm. This evidence suggests that distressed firms temporarily increase sales and reduce discretionary expenditures to improve reported margins. Moreover, having likely exhausted the opportunities for accounting manipulation, distressed firms manipulate real activities, such as sales and discretionary expenditures, highly aggressively in the years after being identified as a financially distressed firm. This study contributes to literature by going beyond the examination of abnormal accruals derived from accruals models to gain insight into the measurement of operational elements of income rather than the implementation effects of the accounting system.

Contribution/Originality: This study contributes to the body of knowledge by going beyond the evaluation of abnormal accruals produced from accruals models to get

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insight into the measurement of operational elements of revenue as opposed to the implementation effects of the accounting system by using the real earnings management method.

1. Introduction

Extensive research such as by Durana et al. (2021), Lisboa (2019), Cabán-García (2009), Rosner (2003) and Saleh and Ahmed (2005) have analyzed accrual-based earnings management in ex-post bankrupt firms. However, accrual-based earnings management techniques are not the only tools available to managers to manipulate accounting numbers. A review of the current literature on earnings management reveals that managers are shifting away from accrual-based earnings management techniques to real transaction-based earnings management techniques, a phenomenon often referred to as "real activities manipulation" or "real earnings management." This shift is due to accrual manipulation possibly being restricted in an environment with high-quality corporate regulation and national-level agency mechanisms; thus, managers presumably perceive the risks and costs of detection to be higher than the benefits (Ghazali et al., 2019; Ghazali, Shafie & Mohd Sanusi, 2015; Cohen, Dey & Lys, 2008). According to existing literature (Choi et al., 2021; Srivastava, 2019; Muljono & Kim, 2018; Roychowdhury, 2006), firms facing pending financial distress are unlikely to rely solely on accruals manipulation.

Relying solely on accruals management entails a risk because the realized year-end shortfall between non-manipulated earnings and the desired threshold can exceed the actual amount by which the value is manipulated. In this event and when the reported income falls below the threshold, real activities cannot be manipulated at the year end. Consistently, Graham et al.'s (2005) survey found that (a) financial executives attach a high importance to meeting the earnings targets, such as zero earnings, previous period's earnings, and analyst forecasts, and (b) these executives are willing to manipulate real activities to meet these targets even though the manipulation potentially reduces the firm's value. The use of debt also has implications for earnings management. In a recent study of Malaysia firms, Kazemian et al. (2017) suggest that leverage can affect the financial situation condition of a firm which would influence the choice of accounting policy selected by the management to manipulate earnings. Violating debt covenants leads to firms being penalised by lenders by means of higher cost of debt (Dichev & Skinner, 2002; Dyreng et al., 2020). Therefore, firms with more debt have a greater pressure to manage earnings to avoid violation of debt covenants.

This study investigates real activities manipulation by financially troubled companies in the years before being officially designated as financially distressed firms and the following years. In Malaysia, when a company trigger any of the criteria pursuant to Practice Note 17 (PN17) of the listing requirement of Bursa Malaysia, the company is said to be reprimanded under the PN17 list as a financially distressed company. When designated as distressed, the company must undergo several exercises to regularize its status as a healthy listed company within one or two years (from the date that the company was identified as a PN17 company); failing to do so will result in suspension from the trading list securities, de-listing from the trading market, or both. The PN17 criteria, by which companies are classified into distress and non-distress, are not unique to Malaysia. Other countries, such as the US, have similar criteria as specify in Chapter 11 under the US Bankruptcy Code. Chapter 11 is a situation in which financially

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distressed firms are identified and allowed to reorganize their operations while negotiating with their creditors on the future of their business. Thus, the real activities manipulation as a possible chance of survival for distressed firms is expected to be pronounced in the years before and after being officially designated as a financially distressed firm.

Following the study which was pioneered by Roychowdhury (2006, p. 337), real activities management is defined "as departures from normal operational practices, motivated by managers' desire to mislead at least some stakeholders into believing certain financial reporting goals have been met in the normal course of operations". This study detects real activities manipulation by investigating patterns in cash flow from operations (CFO), discretionary expenses, and production costs, and deviations from the normal levels are termed abnormal CFO, abnormal discretionary expenses, and abnormal production costs, respectively. Therefore, the current study replicates similar investigations from the perspective of financially distress firms. Imposing all the data availability requirement, the research sample yields 4,130 firm-years over the period of 2001 to 2011, including matched samples of 295 distressed firms and 295 non-distressed firms. The selection of the period is to reflect the Asian financial crisis in 1997/1998 and the great recession that occurred during the late 2000s.

CFO and discretionary expenses are unusually low among the distressed firms prior to being officially designated as "financially distressed firms." This evidence suggests that distressed firms temporarily increase sales while reducing discretionary expenditures to improve reported margins. This finding is consistent with evidence of sales manipulation using examples such as unusual discounts, extension to credit terms, and premature and/or fictitious sale recognition, among others. However, these desperate actions taken by distressed firms also lead to low cash inflow over the life of the sale and are unsustainable because the boosted sales resulting from these policies are likely to vanish when the firms re-establish the old polices. The results therefore suggest that sales manipulation activities lead to lower CFO than sales. This finding is in agreement with other studies conducted in developed countries, such as the works by Roychowdhury (2006) and Zhu et al. (2013), and in Malaysia, such as the studies by Ghazali et al. (2019), Saleh, Iskandar, and Rahmat (2005) and Selahudin, Zakaria, Mohd-Sanusi, and Budsaratragoon (2014). Moreover, the findings show that, having likely exhausted the opportunities for accruals manipulation, distressed firms manipulate sales and discretionary expenditures highly aggressively in the years after being officially designated as "distressed firms."

This study contributes to the literature on earnings management by presenting evidence on the management of real activities among distressed firms over the years before and after financial distress, which has received minimal attention to date. As the third largest country and the richest country in terms of GDP per capital value in Southeast Asia, Malaysia possesses strong industrialized market economy. Poor management of earnings and severe accounting manipulation will severely affect the financial market of the industry in Malaysia. This study will provide further understanding on the real transaction-based earnings manipulation techniques (rather than accruals management). This work recognizes limitations in the extent to which companies may engage in accruals manipulation owing to the reversing nature of accruals, constraints of accounting standards, auditor and regulatory scrutiny, and other agency mechanisms (Graham, Harvey, & Rajgopal, 2005).

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The next section discusses the literature review and hypothesis development. This study develops the hypotheses based on cross-sectional variation in real activities manipulation. The following section identifies firms that are likely to engage in real activities manipulation, discusses the data and estimation models, and presents descriptive statistics. Results are discussed in the next section while the last section discusses the implications of the evidence in this study and the areas for further research.

2. Literature Review

There are two school of thoughts specifying on how firms manage its earnings behavior prior to financial distress. The first thought is in the opinion that managers of financially deteriorating firms act on behalf of shareholders and report high earnings to conceal their poor performance and avoid the costs of being financially distressed. In such cases, the short-term survival of the firms is the managers' primary concern (which does not necessarily imply self-interested manipulation). In this regard, García Lara et al. (2009) and Campa et al. (2014) provided evidence that firms use income-increasing earnings manipulation practices to avoid or delay the negative and usually irreversible effects of financial distress. The later perceive that the managers of financially troubled firms may manipulate earnings upward motivated by self-interest. For example, managers may attempt to avoid management turnover during the distressed period or temporarily inflate the market price to increase their compensation or gain from cashing stock-based compensation holdings (Charitou et al., 2007). Accordingly, income-increasing accounting options may be adopted prior to financial distress by managers either out of self-interest motivation or as a short-term survival strategy. Recently, in September 2015, Toshiba Corporation was found guilty of overstating its earnings as much as USD 2 billion over a seven-year accounting period, leading to the resignation of its CEO and President of Toshiba Corporation, Hisao Tanaka, and causing financial damage for the investors (Addady, 2015).

Nonetheless, several studies have shown that managers do not always attempt to conceal their poor performance by undertaking an upward earnings management strategy. An earlier study by DeFond and Jiambalvo (1994) found that 29% of firms with debt covenant violations had a turnover of management in the year of violation. Thus, earnings-decreasing behavior may be selected by the new management following management change (turnover) as part of a wide strategy to blame the "old" management for the distressed firm condition and as a signal of their willingness to cope with the financial problems (Ghazali et al., 2015; DeAngelo et al., 1994). Second, earnings-decreasing behavior may be selected by existing managers acting in self-interest to reduce the market price temporarily to increase their own gains from a subsequent management buyout (Ayash & Rastad, 2021; Perry & Williams, 1994).

Finally, the management of distressed firms may engage in earnings-decreasing behavior and implement conservative accounting practices to obtain concessions from labor unions and subsidies from the government (Jacoby, Li & Liu, 2019). In line with this, using a sample of 859 U.S. bankruptcy-filing firms over the period 1986–2004, Charitou, Lambertides, and Trigeorgis (2007) examined the earnings behavior of managers during the distressed period by looking at sources of abnormal accruals prior to the bankruptcy-filing year. The results showed that managers of highly distressed firms shift earnings downward prior to the bankruptcy filing. Similarly, a more recent study by Rudiawarni and Budianto (2022) using listed firms in the Indonesia Stock Exchange as the research

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sample, found that firms tend to perform more earnings management activities at the stage of deteriorating financial conditions before bankruptcy or liquidation.

Financial distress can be represented by several situations. Financial distress is usually determined in terms of failure, default, solvency, and bankruptcy, depending on the underlying methodology and objectives of the studies. In Malaysia, particularly, firms that are in financial distress is often associated with the status of PN17. PN17 stands for PN17/2005 and is issued by the Malaysian Stock Exchange (Bursa Malaysia). Bursa Malaysia classifies listed companies with financial problems under the PN17 list and differentiates them from other healthy firms to protect the rights of current and potential investors. Bursa Malaysia has established certain criteria by which all listed firms are monitored for compliance with regulations linked to accounting figures and ratios. If a Malaysian listed issuer triggers any one or more of the following prescribed criteria (for additional information see Pursuant to paragraphs 8.04(2) of the Listing Requirements on Bursa Malaysia website), the company must be classified as a PN17 company. Some of the criteria include funds less than 25% of the total paid-up capital, winding up of several subsidiaries and associated companies, and receipt of adverse opinions from auditors.

As a consequence of being listed under PN17, a Malaysian company must immediately disclose the following: the fact that the company has been listed under PN17, its obligations under PN17, and a plan for "regularization." In the event that the company fails to comply with the obligations to regularize its condition, all of its listed securities will be suspended from trading on the next market day after five market days from the date of notification of suspension, and de-listing procedures must be taken against the company. Therefore, being designated as a PN17 company is extremely costly for a listed firm. The costs may motivate the managers of financially deteriorating companies to engage in earnings management in an attempt to avoid being identified as a financially distressed firm. This discussion leads to the following hypothesis:

H1*: Firms engage in real activities manipulation prior to being officially designated as a "financially distressed firm."*

One practice of packing the financial statement is by managing accruals with no direct cash flow consequences. According to Dechow and Skinner (2000), managers use accrual-based earnings management techniques to provide flexibility within the accounting rules to mask the true economic performance. Examples include under-provisioning of bad debts and delay in writing off assets. However, accrual-based earnings management techniques are not the only tools available to managers to manipulate earnings (Gunny, 2010). Recent studies (Muljono & Kim, 2018; Li, Rider, & Moore, 2009; Cohen et al., 2014) have documented that accrual-based earnings management decreases. Managers presumably perceive the risks and costs of detection to be higher than the benefits of managing earnings in a heightened regulatory environment (Li et al., 2009). Moreover, accrual-based earnings management is limited due to the reversing effect of accrual manipulation (Gunny, 2010). The balance sheet accumulates previous decisions, thereby placing constraints to the number of consecutive years when over-optimism can be exerted without committing GAAP violations (Barton & Simko, 2002). Therefore, managers are unlikely to rely on accrual-based techniques to manage earnings if the results of operations will be insufficient to meet the earnings targets; however, managers may manipulate actual transactions, such as sales, discretionary expenses, and production costs, to achieve the desired accounting result.

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Managers may attempt to temporarily increase sales during the years by offering price discounts or lenient credit terms. However, this decision by the managers directly influences the following year's cash flow because the increased sales volumes as a result of the discounts or lenient credit terms are likely to vanish when the firm re-establishes the old prices. Furthermore, the cash flow per sale and net discounts from the additional sales will be low as margins decline. Consequently, sales management activities lead to lower CFO and higher production costs than the normal levels given the sales level. This discussion leads to the following sub-hypothesis:

H1A: *Firms exhibit lower CFO than the normal levels given the sales level prior to being officially designated as a "financially distressed firm."*

In addition, firms may increase earnings by reducing discretionary expenditures (Sun, 2013). This approach is most likely to happen when such expenses do not generate immediate income. Literature has documented that R&D spending is significantly less when the ability to report positive or increasing income in the current period is jeopardized (Gunny, 2015; Osma, 2008; Ali & Kamardin, 2018). Trejo-Pech et al. (2015) found that firms reduce spending on R&D toward the end of their tenure to increase short-term earnings. Ge and Kim (2014) also found consistent evidence with the reduction in R&D to meet earnings targets. If managers reduce discretionary expenditures to meet earnings targets, then unusually low R&D expenses should be observed. Therefore, this study proposes the following sub-hypothesis:

H1B: *Firms exhibit lower discretionary expenses than the normal levels given the sales level prior to being officially designated as a "financially distressed firm."*

Managers of manufacturing companies manage earnings upward through overproduction (Roychowdhury, 2006; Campa et al., 2014). Manufacturing firms can produce more goods than necessary to meet the expected demand. With high production levels, fixed overhead costs are spread over a large number of units, thereby lowering the fixed costs per unit. As long as the reduction in fixed costs per unit is not offset by any increase in marginal cost per unit, the total cost per unit declines. This result implies low reported cost of goods sold (COGS), and the firm reports improved operating margins. However, the firm incurs production and holding costs on over-produced items that are not recovered in the same period through sales. As a result, overproduction leads to abnormally higher production costs than sales. Accordingly, the next sub-hypothesis is proposed as follows:

H1C*: *Manufacturing firms exhibit higher production costs than what is normal given the sales level prior to being officially designated as a "financially distressed firm."

As discussed earlier, Malaysian firms that trigger any of the criteria pursuant to PN17 of the Bursa Malaysia Listing Requirements are allegedly reprimanded under the PN17 list as financially distressed firms. When announced as a PN17 firm, the company has to undergo several exercises to comply with the requirements; failing to do so will result in being de-listed from the market. Therefore, having likely exhausted its opportunities for a successful accounting manipulation, including real transaction manipulation in the years before PN17, a Malaysian firm that has already fallen under the PN17 list will engage in real activities manipulation highly aggressively in the years after the fact to

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improve its financial statements, facilitate the re-regularization process, and eventually avoid being de-listed. This discussion leads to the following hypothesis:

H2**:** *Firms engage in real activities manipulation highly aggressively after being officially designated as a "financially distressed firm."*

The hypothesis above can be extended into three sub-hypotheses as follows:

H2A: *Firms exhibit lower CFO than the normal levels given the sales level after being officially designated as a "financially distressed firm."*

H2B: *Firms exhibit lower discretionary expenses than the normal levels given the sales level after being officially designated as a "financially distressed firm."*

H2C: *Manufacturing firms exhibit higher production costs than the normal levels given the sales level after being officially designated as a "financially distressed firm."*

3. Methodology

3.1. Sample Selection

This study collects a sample on all distressed firms in the Malaysian Stock Exchange between 2001 and 2011 with sufficient data available to calculate the variables for every firm-year. Data on the distressed companies used in the analysis are based on the financial information of the respective companies 4 years prior to being identified as a distressed firm and 2 years thereafter. From the same database, a control sample of non-distressed companies is also extracted. Firms are matched based on the industry in which they operate and years for five industries, namely, "Industrial," "Consumer Services," "Consumer Goods," "Basic Materials," and "Technology," based on the Malaysian Stock Exchange classification. After excluding banks and financial institutions, the sample is composed of 295 distressed firms and 295 non-distressed firms over a 7-year period for a total of 4,130 firm-year observations. The summary of the number of industries held under the PN17 criteria since 2001 and included in this study is depicted in Table 1.

Table 1: Distribution of Sample Based on Industry

Industry	No. of Distressed Firms	No. of Non-distressed Firms	%
Industrial	122	122	40%
Consumer Goods	67	67	23%
Consumer Services	46	46	16%
Basic Materials	28	28	10%
Technology	32	32	11%
Total	295	295	100%

3.2. Measurement of Variables

In this study, financial distress as the independent variable is a dummy variable; 1 is given for distressed firms, and 0 is given for the control group of healthy firms. The three attributes of real activities management, namely, sales manipulation, discretionary expenses, and production cost manipulation, are the dependent variables. Specifically,

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the current study focuses on the patterns in sales, discretionary expenditures, and overproduction in detecting the real activities management. Based on the definition by Dechow et al. (1998) and Roychowdhury (2006), CFO is regarded in this study as a linear function of sales and change in sales in the current period. Therefore, deviation in sales from the normal level is reflected in the CFO. Based on this definition, the sales manipulation is estimated using the following cross-sectional regression (1), separately for each of the five industries identified, to calculate the normal level of cash flow given by reported sales.

$$\frac{CFO_{it}}{A_{it-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{it-1}}\right) + \beta_1\left(\frac{S_{it}}{A_{it-1}}\right) + \beta_2\left(\frac{\Delta s_t}{A_{it-1}}\right) + \varepsilon_{it}, \quad (1)$$

where,

CFO_{it} = actual cash flow.
A_{it} = total assets at the end of peri
t.
S_{it} = sales during period
ΔS_{it} = $S_{it-}S_{it-1}$

For every firm-year, abnormal CFO is the actual CFO minus the "normal" CFO calculated using estimated coefficients from the corresponding industry year model and the firm-year's sales and lagged assets.

Under the simplified assumptions by Roychowdhury (2006), discretionary expenses should also be expressed as a linear function of contemporaneous sales; therefore, the relevant regression is

$$\frac{DISEXP_{it}}{A_{it-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{it-1}}\right) + \beta_1\left(\frac{S_{it}}{A_{it-1}}\right) + \varepsilon_{it}, \quad (2)$$

where,

$DISEXP_{it}$ = discretionary expenses
period *t*.
A_{it} = total assets at the end of peri
t.
S_{it} = sales during period
ΔS_{it} = $S_{it-}S_{it-1}$

$DISEXP_{it}$ = discretionary expenses in period *t*.

Adopting the definition of Roychowdhury (2006), production costs are defined as the COGS and the change in inventory during the period. Therefore, the model for normal COGS is estimated as

$$\frac{PROD_{it}}{A_{it-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{it-1}}\right) + \beta_1\left(\frac{S_{it}}{A_{it-1}}\right) + \beta_2\left(\frac{\Delta s_{it}}{A_{it-1}}\right) + +\beta_3\left(\frac{\Delta s_{it-1}}{A_{it-1}}\right) + \varepsilon_{it}, \quad (3)$$

where,

$DISEXP_{it}$ = discretionary expenses
period *t*.

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A_{it} = total assets at the end of peri
t.
S_{it} = sales during period
ΔS_{it} = $S_{it-}S_{it-1}$

$PROD_{it} = COGS_{it} + \Delta INV_{it}$
$PROD_{it}$ = Production costs in the period *t*.
$COGS_{it}$ = Cost of goods sold in the period *t*.
ΔINV_{it} = change in the inventories in the period *t*.

3.3. Empirical Research Models

H1 and H2 argue that distressed Malaysian firms engage in real activities management before and after being officially designated as "financially distressed firms," respectively. If the distressed firm-years boost sales temporarily, then their CFO will be affected adversely. Consequently, the abnormal CFO for these firm-years, calculated using the industry-year model described in the section above, should be negative compared with the rest of the sample. In testing this finding, the current study uses the following regression:

$$Y_{it} = \alpha + \beta_1(PN17)_{it} + \beta_2(SIZE)_{it} + \beta_3(MTB)_{it} + \beta_4(NET\ INCOME)_{it} + \varepsilon_i \quad (4)$$

where,

Y_{it} = Abnormal CFO, abnormal production costs, or abnormal discretionary expenses (alternatively) for company *i* in year *t*.
$PN17_{it}$ = Indicator variable capturing financial distress. $PN\ 17_{it}$ is alternatively set to 1 for firm-years belonging to distressed firms and 0 if otherwise.
$SIZE_{it}$ = Natural logarithm of the market value of equity of company *i* as at the end of year *t-1*.
MTB_{it} = Market-to-book value of equity of company *i* at the end of year *t-1*.
$NET\ INCOME_{it}$ = Net income of company *i* for year *t*, scaled by opening total assets.
ε_{it} = Stochastic disturbance term.
$\alpha, \beta_1, \beta_2, \beta_3\ and\ \beta_4$ = Regression parameters.

In this case, the dependent variable Y_{it} is an abnormal CFO for company *i* in year *t*. The same regression is also estimated with abnormal production costs and abnormal discretionary expenses as dependent variables. In controlling systematic variation in abnormal CFO, production costs, and discretionary expenses with growth opportunities and size, the regression includes three control variables, namely, growth, size, and net income. The pace of development in firms should be controlled because a company may experience pressure to maintain or exceed the anticipated growth rates in times of rapid growth (Habbash, 2010). The pressure to achieve a targeted rate of growth, or alternatively to mask downturns, may create an incentive for the management to engage in earnings management (Carcello, Hollingsworth, & Klein, 2006).

In addition, the size of firms is controlled because several researchers (such as Barton & Simko, 2002; Degeorge, Ding, Jeanjean, & Stolowy, 2013; Llukani, 2013) have suggested that firm size influences earnings management. Several reasons are provided. First, financial statements of large companies are audited by licensed external experts or large

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audit companies. This process may prevent management opportunistic behaviors that lead to the distortion in financial results. Second, large companies usually possess greater reputation in the market than smaller firms possess; therefore, these companies must consider the costs of lost reputation, which are higher than those of smaller firms (Llukani, 2013).

Finally, this study controls the net income or return on assets (ROA) because this quantity is an accounting-based measure to control the firm's performance. ROA is the prevalent accounting-based measure used in many previous studies related to firm performance (such as Campa et al., 2014; Kim & Sohn, 2013; Roychowdhury, 2006). ROA is an indicator of the ability of the management to efficiently utilize corporate resources. In accordance with agency theory, managers tend to misappropriate assets, thereby causing low returns available for shareholders. Moreover, ROA is closely tied to compensation plans and is highly correlated with other accounting performance measures, such as return on equity (Gul, Tsui, & Dhaliwal, 2006). Therefore, the net income figure in this study is scaled by lagged total assets, which is similar to ROA.

4. Result

Table 2 presents the descriptive statistics comparing the distressed firms to the non-distressed ones. The mean market value of distressed firm-years, that is, approximately RM 275.32 million, is nearly one-third of the mean for non-distressed firm-years at RM 774.37 million. Interestingly, the mean total assets (RM 173.12 million) of the suspect firm-years are not lower than the full sample mean (RM 116.41 million); thus, the suspect firm-years show significantly lower mean ratio of market value of equity to book value of equity than the overall sample (0.95 versus 2.14), indicative of a sharp stock price devaluation among distressed firms.

Table 2: Descriptive Statistics

Variables	Distressed Firm-Years		Non- Distressed Firm-Years		Difference In			
	Mean	Median	Mean	Median	Means	(T-Test)	Median	(Z-Test)
MVE ($ millions)	275.32	61.12	774.37	183.62	−499.05**	−6.65	−122.5**	−6.33
MVE/BE	0.95	0.68	2.14	1.86	−1.19**	−3.51	−1.18	−4.12
T-Assets ($ millions)	173.12	43.2	116.41	42.12	56.71**	−9.54	1.08**	−8.35
Sales ($ millions)	371.26	44.26	879.42	98.14	−508.16*	−3.42	−53.82*	−2.54
IBEL ($ millions)	−11.2	-3.41	76.02	20.1	-87.22**	-16.02	−23.5**	−14.12
CFO ($ millions)	22.57	10.45	66.28	17.15	64.71	-4.25	−43.7**	−6.07
Accruals ($millions)	−32.17	−10.08	−17.9	−3.72	−14.27**	−23.01	−6.36**	−19.25
Sales/A (%)	3.16	2.14	7.55	4.33	−4.39	−.98	−2.19	−.75
IBEL/A (%)	−1.09	−1.04	3.32	2.65	4.41*	−1.32	3.68*	−1.41
CFO/A (%)	1.59	0.5	3.47	4.64	−1.81	−6.11	5.14	−4.31
Production costs/A (%)	55.26	34.7	44.39	35.00	10.87**	−3.46	−0.3**	−1.24
DISEXP/A (%)	17.34	4.1	33.41	7.13	−16.07	−.06	−3.03	−1.23

*Significant at the 10% level. ** Significant at the 5% level.

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The mean-scaled CFO of 1.59% for distressed firm-years is considerably lower than 3.47% for non-distressed firm-years. The mean-scaled discretionary expenses of the distressed firm (17.34 of total assets) are significantly lower than the mean for the non-distressed firms (33.41%). By contrast, the mean production costs scaled by the total assets are large for distressed firm-years (55.26% and 44.39%, respectively) and insignificantly different. In the aggregate, several alarming indicators distinguish distressed firm-years from non-distressed ones. These statistics are preliminarily consistent with the first research hypothesis, that is, Malaysian distressed firms exhibit lower CFO and discretionary expenditure than those of non-distressed firms.

The sample period spans across 2001–2011. PN17 firm-years are said to be reprimanded under the PN17 list as financial distress companies. All descriptive statistics except for production costs are reported for the full sample of 4.130 firm-years. Data on production costs are available for a sub-sample of 1,120 firm-years.

Table 3 presents the correlations between several variables. Income before extraordinary items is correlated positively with CFO (4%) and accruals (13%). Consistent with prior studies, accruals and CFO as a percentage of the total assets exhibit a strong negative correlation with a correlation coefficient of −53%. The correlations between the total and abnormal levels of various variables are usually positive. The correlation coefficient between abnormal production costs and abnormal discretionary expenses is positive (7%). This positive value is probably due to managers engaging in activities, thereby leading to abnormally high production costs while increasing discretionary expenses, with the common goal of reporting high earnings.

Table 3: Correlation

Variables	Sales/A	IBEL/A	CFO/A	Accruals/A	PROD/A	DISEXP/A	Ab-CFO	Ab-PROD	Ab-DISEXP
IBEL/A	0.250**	1							
CFO/A	0.124**	0.042*	1						
Accruals/A	0.208**	0.137**	−0.530**	1					
PROD/A	−0.014	0.410**	0.10	0.026	1				
DISEXP/A	0.134**	0.030	−0.056*	−0.118**	−0.102**	1			
Ab-CFO	0.024	−0.048*	0.497**	−0.263**	0.010	0.024	1		
Ab-PROD	−0.003	0.187**	−0.016	−0.043	−0.135**	0.079**	0.041	1	
Ab-DISEXP	−0.063	−0.066**	0.015	0.010	0.013	−0.049	−0.010	0.07	1

*Significant at the 10% level. ** Significant at the 5% level.

5. Discussion

5.1. Findings on Real Activities Management Prior to Financial Distress

H1 predicts that firms engage in real activities management prior to being officially designated as "financially distressed firms." In testing this hypothesis, this study compares abnormal CFO, abnormal discretionary expenses, and abnormal production costs as proxies of real activities management among the distressed firm-years (over the four years before falling under the PN17 list) with non-distressed firm-years. Distressed firm-years undertake activities that adversely affect their CFO. This study tests the hypothesis by use of the following regression model:

$$Y_{it} = \alpha + \beta_1(PN17)_{it} + \beta_2(SIZE)_{it} + \beta_3(MTB)_{it} + \beta_4(NET\ INCOME)_{it} + \varepsilon_{it}. \quad (5)$$

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In this case, the dependent variable Y_{it} is the abnormal CFO for company *i* in year *t*. The same regression is also estimated with abnormal production costs and abnormal discretionary expenses as the dependent variables. PN17 is an indicator variable that is set to 1 if firm-years belong to distressed firms and 0 if otherwise. In controlling systematic variation in abnormal CFO, discretionary expenses, and production costs with growth opportunities and size, this study follows prior studies (such as Roychowdhury, 2006; Campa et al., 2014) and includes three control variables: SIZE, MTB, and NET INCOME. SIZE is the logarithm of the market value of equity at the beginning of the year. MTB (market-to-book ratio) is the ratio of market value of equity to the book value of equity. NET INCOME is scaled by lagged total assets and is thus similar to ROA.

The first two columns in Table 4 provide evidence on H1A and H1B, respectively. H1A proposes that firms exhibit lower CFO than the normal levels given the sales level prior to being officially designated as a "financially distressed firm." The results in Table 4 demonstrate that, when the dependent variable in regression (4) is an abnormal CFO, the coefficient on PN17 is considerably negative (−0.274) and significant at the 5% level. This figure shows that distressed firm-years present abnormal CFO that is lower than the average of 27% of sales compared with that of the non-distressed firm-years. The result is consistent with evidence of sales manipulation. Sales manipulation occurs when managers attempt to temporarily boost sales by accelerating their timing and generating additional unsustainable sales through increased price discounts or additional lenient credit terms. Such discounts and lenient credit terms will temporarily increase the sales volumes, but the increased sales are likely to disappear once the firm reverts to old prices. As a result, temporarily increased sales lead to abnormally lower CFO than sales. The findings are consistent with those of Roychowdhury (2006) and Campa et al. (2014), who reported that sales management activities lead to lower current-period CFO than the normal levels given the sales level.

Table 4: Real Activities Management before Financial Distress

Variables	Abnormal CFO	Abnormal Discretionary Expenses	Abnormal Production Costs
Intercept	0.164** (2.51)	−0.045** (−1.73)	0.346** (8.25)
PN17	−0.274** (−5.07)	−0.031* (−0.28)	0.034 (1.43)
SIZE	−0.018* (−1.37)	−0.032** (−2.04)	0.025 (1.65)
MTB	−0.14* (−2.36)	−0.04* (−1.85)	0.012* (1.32)
NET INCOME	−0.232** (−2.36)	0.05** (3.45)	−0.028** (−1.44)
Adj. R2	0.26	0.34	0.13
F statistics	3.7167	8.144	6.520
Prob. (F-statistics)	0.000	0.000	0.000

*Significant at the 10% level. **Significant at the 5% level.

This table reports the result of the ordinary least square regression over the period of 11 years from 2001 to 2011. The total sample includes 2,700 observations. T-statistics (in parentheses below the coefficients) are calculated using standard errors clustered by firm. The regressions being estimated are of the following form:

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$$Y_{it} = \alpha + \beta_1(PN17)_{it} + \beta_2(SIZE)_{it} + \beta_3(MTB)_{it} + \beta_4(NET\ INCOME)_{it} \quad (6)$$

Each column presents the result of the regression above for a different dependent variable, with the variable name appearing at the top of the respective column. The adjusted *R*2 obtained in this model is fairly comparable with those in similar studies, such as those by Campa et al. (2014) and Tabassum et al. (2015). The variable description is presented in Appendix A.

H1B predicts that firms exhibit lower discretionary expenses than the normal levels given the sales level prior to being officially designated as a "financially distressed firm." Table 4 shows that, when the dependent variable in the regression above is the abnormal discretionary expenses, the coefficient of PN17 is negative (−0.031) as predicted and significant at the 10% level. The figure illustrates that distressed firms possess abnormal discretionary expenses that are lower on average by 3% of sales compared with those of non-distressed firms. This finding suggests that financially troubled firms facing financial distress boost earnings via reduction in discretionary expenditures, such as R&D, advertising, selling, general, and administrative expenses, especially when such expenditures do not generate an immediate income. If the outlays on discretionary expenditures are generally in the form of cash, then reduction in such expenditures will lower cash outflows and positively affect the CFO in the current period, possibly at the risk of low cash flows in the future.

Consistently, several other studies have provided evidence that managers cut discretionary spending to achieve earnings targets. Baber et al. (1991) provided evidence that R&D spending is significantly low when spending jeopardizes the ability to report positive or increasing income in the current period. Similarly, Bens et al. (2003) showed that managers cut R&D and capital expenditure when faced with earnings per share dilution owing to stock option exercises.

In addition, H1C predicts that manufacturing firms exhibit high production costs than the normal levels given the sales level prior to being officially designated as a "financially distressed firm." Thus, the coefficient of abnormal production on PN17 should be positive. In testing this hypothesis, regression (4) is re-estimated using Y_{it} equivalent to abnormal production costs. The results indicate that, when the dependent variable is the abnormal production costs, the coefficient on PN17 is positive but insignificant (0.034). This result is inconsistent with the findings of Campa et al. (2014), who found that Spanish firms produce more goods than necessary prior to bankruptcy in an attempt to decline the fixed costs per unit and report low COGS, thereby leading to improved operating earnings. These different results may be due to the different markets and corporate governance regimes in which these studies are based. In developing countries, such as Malaysia, firms are family-controlled (Saleh, Iskandar, & Rahmat, 2005) and involve several family members on their boards, thereby rendering temporary changes in the production level to improve operating earnings difficult for managers. Previous evidence has suggested that family companies produce higher quality earnings than those of non-family companies (Wang, 2006). Family companies are likely to enjoy capital market consequences of enhanced earnings and disclosure quality unlike non-family companies (Chen et al., 2008). Another plausible explanation for the opposite findings of this study is that firms facing PN17 are likely to violate their debt covenants; therefore, financing for further production becomes extremely challenging if not impossible.

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Overall, the findings in Table 4 suggest that firms structure their actual transactions, such as sales and discretionary expenses, during the years prior to financial distress to avoid their costs. Entering the distressed list can be costly. A distressed company may lose customers, valuable suppliers, and key employees and may have to forego profitable projects because of costly external financing. In this regard, Purnanandam (2008) documented that distressed companies lose significant market share to healthy counterparts in industry downturns. Moreover, a distressed company is likely to violate its debt covenants; consequently, creditors and lenders will suffer. Accordingly, managers are expected to feel under pressure and are motivated to make decisions aimed at avoiding or postponing financial distress, such as through manipulation of earnings that disguise the actual financial performance of a company.

5.2. Findings on Real Activities Management After Financial Distress

This section reports on whether distressed Malaysian firms engage in real activities manipulation highly aggressively after being officially designated as a "financially distressed firm." In testing this hypothesis, this study compares abnormal CFO, abnormal discretionary expenses, and abnormal production costs as proxies for real activities management among the distressed firm-years (over the two years after falling under the PN17 list) with non-distressed firm-years. The results are shown in Table 5.

Table 5: Real Activities Management after Financial Distress

Variables	Abnormal CFO	Abnormal Discretionary Expenses	Abnormal Production Costs
Intercept	−0.18**	0.756**	0.103*
	(−1.12)	(3.69)	(1.49)
PN17	−0.30**	−0.426**	−0.078
	(−2.71)	(−3.18)	(−0.56)
SIZE	−0.028*	−0.127**	0.046*
	(−1.21)	(−3.80)	(1.22)
MTB	−0.126**	0.031	−0.156**
	(−3.84)	(0.68)	(−3.41)
NET INCOME	−0.186**	−0.196*	0.019
	(−4.56)	(−0.71)	(0.06)
Adj. R2	0.28	0.31	0.083
F statistics	4.7235	7.126	0.520
Prob. (F-statistics)	0.000	0.000	0.341

*Significant at the 10% level. **Significant at the 5% level.

This table reports the result of the ordinary least square regression over the 2 years after the firms fall under the PN17 list over the period of 2001 to 2011. The total sample includes 1,180 observations. T-statistics (in parentheses below the coefficients) are calculated using standard errors clustered by firms. The regressions being estimated are in the following form:

$$Y_{it} = \alpha + \beta_1(PN17)_{it} + \beta_2(SIZE)_{it} + \beta_3(MTB)_{it} + \beta_4(NET\ INCOME)_{it} + \varepsilon_{it}. \quad (7)$$

Each column presents the result of the regression above for a different dependent variable, with the variable names appearing at the top of the respective column. The variable description is presented in Appendix A.

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H2A predicts that distressed Malaysian firms exhibit lower CFO than the normal levels given the sales level after being officially designated as a "financially distressed firm." Accordingly, the coefficients of abnormal CFO and abnormal discretionary expenses on PN17 for the years after being designated as PN17 firms should be negative. In testing these hypotheses, this study re-estimates regression (4). When abnormal CFO is the dependent variable in the regression above, the coefficient of PN17 is negative (−0.30) and significant at the 5% level. Similarly, when Y_{it} is set to abnormal discretionary expenses, the coefficient on PN17 firms is considerably negative (−0.42) and significant at the 5% level. The figures show that real activities manipulation is more aggressively pronounced over the years after PN17 than the years before PN 17. This finding is clearly observed by comparing the coefficients on PN17 for years before falling under the PN17 list and after being included in the list. The first column in Table 5 indicates that PN17 firm-years present abnormal CFO that is low with an average of −27 of sales before falling under the PN17 list, increasing to −30% (first column in Table 5) after being designated as a PN17 firm. Similarly, the coefficient of abnormal discretionary expenditures on PN17 sharply increases from −3% for the years before PN17 to −42% in the years after.

These results suggest that distressed firms in a desperate action significantly minimize their discretionary expenditures; by contrast, firms maximize earnings through sales manipulation in an attempt to improve their financial statements and facilitate their regularization process in Bursa Malaysia. This finding is consistent with evidence suggesting that, likely having exhausted their opportunities for a successful accounting manipulation, firms with a high probability of bankruptcy manipulate real operations highly aggressively in an attempt to inflate earnings (García Lara et al., 2009).

The findings in Table 5 are also consistent with positive accounting theory. Under positive accounting theory, the intention of firms is to maximize their prospects for survival (Dechow et al., 1998); thus, firms make income-increasing choices by the time they face deteriorating financial performance. On this basis, Beneish et al. (2012) examined the association between the quality of accounting earnings numbers and factors, such as debt covenant violation, which is a popular proxy for financial distress. They found evidence that companies approaching covenant violation engage in income-increasing accounting to loosen their debt constraints. Therefore, fear of de-listing can drive distressed Malaysian firms to engage in income-increasing accounting, such as structuring real transactions.

The third column in Table 5 provides evidence supporting H2C. The results indicate that, when the dependent variable in regression (4) is the abnormal production costs, the coefficient of PN17 is negative (−0.07) but insignificant. By contrast, H2C predicts that the coefficient of abnormal production on PN17 should be positive. The possible reasons for this result have been discussed earlier.

5.3. Control Variables

This section discusses the results for the control variables in Table 4 and Table 5. The results are handled together because the tables contain the same control variables and show significantly similar results. The coefficients of the control variables in Table 4 display conformity with prior expectations. The coefficients of SIZE are significant and negative. Kim, Liu, and Rhee (2003) argued three explanations for the negative association between managerial opportunistic behaviors and firm size. First, the size of a firm is related to its internal control system. Large companies may use more sophisticated

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internal control systems and employ more competent internal auditors than those of small companies. Second, large firms are usually audited by auditors from large auditing firms. Large auditing firms tend to employ experienced auditors, who in turn can help prevent earnings misrepresentation. Third, large firms consider the reputation costs when engaging in earnings management. However, several studies have indicated otherwise; according to Barton and Simko (2002) and Myers and Skinner (2007), large firms are more likely to manage earnings than do small firms because they face more pressure than that of small firms. Furthermore, large firms possess much room to maneuver given the wide range of accounting treatments available (Kim et al., 2003).

The coefficients of MTB are also negative and significant, suggesting that market value is derived from the market's expectations of earnings quality. When firms engage in earnings management, their earnings' figures may not be a true and fair reflection of firm performance. As a result, earnings management may result in a decline in the value-relevance of earnings and thus the market value of the firms. In this case, Marquardt and Wiedman (2004) found that the reliability of accounting earnings may affect the relevance to the market in determining firm value. The earnings figure is susceptible to manipulation, which may reduce its reliability and thus its usefulness in the valuation process.

Regarding the relationship between net income (NET INCOME) and the real activities management attributes, the results show that net income is negatively related to abnormal CFO and abnormal production costs. This finding is consistent with the notion that net income negatively influences the magnitude of the sales management, thereby leading to lower CFO than sales. These results are also consistent with prior studies that found firms with a strong performance are less likely to manage earnings because they are already performing well (Tabassum et al., 2015).

6. Conclusion

The overall results complement the existing literature on earnings management in several ways. First, the results document evidence that is consistent with real activities manipulation during the years before and after financial distress. In the previous literature on earnings management among financially troubled firms, the focus has mostly been limited to accrual manipulation over the years prior to financial distress. This study's findings show that Malaysian distressed firms are willing to use sales manipulation and reduction in discretionary expenditures prior to being designated as "financially distressed firms." In addition, Malaysian distressed firms manipulate real operations, such as sales and discretionary expenditures, highly aggressively in the years after being designated as "financially distressed firms" in an attempt to regularize themselves in Bursa Malaysia and avoid delisting.

This research demonstrates the impact of financial distress of publicly listed firms in Malaysia by measuring the real earnings management. This work can aid firms to mitigate the effects of the financial distress and to evaluate the efficacy of corporate governance mechanisms. The results can benefit the investors, financial managers, and professionals in devising strategies for prudent financial management and promote high corporate governance best practices. The corporate governance mechanisms need continuous effort to increase the information asymmetry and enforce legal shareholder protection (Al-Jaifi, 2017).

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As a developing country, Malaysia has been actively improving its corporate governance framework and capital securities regulations. For example, in recent years, Malaysian regulators have introduced the new revised Malaysian Codes of Corporate Governance 2016, new Companies Act 2016, and Financial Services Act 2013 to protect the interest of shareholders and investors interest (MCCG, 2016; CCM, 2016). How developing countries, such as Malaysia, protect its investors from high earnings management, assets misappropriation, and abuse of power, should be understood. However, past studies (that is, Abdul Rahman, & Haneem Mohamed Ali, 2006; Peng, Wang, & Jiang, 2008; Peng, Sun, Pinkham, & Chen, 2009; Al-Jaifi 2017) have found that the level of institutional development in emerging economies is relatively low and that the extent of institutions environments matter in the context of corporate governance.

The findings of this study provide evidence that financially troubled firms use real transactions-based earnings management techniques before and after financial distress. However, several areas regarding distressed firms that can be relevant to financial distress and the occurrence of earnings management have yet to be covered by this study. One possible avenue for future research is to examine whether financially troubled companies succeed in avoiding financial distress through real transactions-based earnings management techniques. In particular, whether structuring real transactions helps firms avoid being officially designated as "financially distressed firms" should be studied.

Another prospective area for future research is to investigate real activities management by financially distressed companies via the examination of specific management actions (such as timing of non-current asset sales) rather than relying on the Roychowdhury (2006) models. The reason is that the models of abnormal cash flows from operations and abnormal discretionary expenditure suffer from generic limitations. One of these problems is the assumption that the processes of generating normal cash flows from operations and discretionary expenditure are homogeneous across the estimation sample.

The value of the results of this study is limited by the accuracy of real activities management measures. Most studies in the literature on real activities management, including this study, use real activities management measures developed by Roychowdhury (2006). However, in a recent study, Cohen et al. (2014) obtained evidence that the real activities management measures developed by Roychowdhury (2006) are miss-specified, in that their Type I error rates differ from nominal significance levels; however, this work failed to offer a well-specified alternative on the measurement of abnormal real activities. Thus, further research can investigate real earnings management by companies classified as financially distressed via the examination of specific management actions (such as curtailing expenditure on research and development and timing of non-current asset sales) rather than relying on the Roychowdhury (2006) model.

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