BOMB ATTACKS AND EARNINGS MANAGEMENT: EVIDENCE FROM INDONESIA

Jauza Azaria Rachmawati
Universitas Indonesia

Desi Adhariani♣
Universitas Indonesia

ABSTRACT

This study examines how companies manage their earnings under the pressure of bomb attacks, especially focusing on three major bomb attacks in Indonesia: the Bali Bombing I, Bali Bombing II, and Mega Kuningan Bombing. The research was conducted by examining accrual-based earnings management before and after the attacks. The findings show that bombings encourage managers to manage earnings (measured by the absolute value of discretionary accruals). However, a separate study of Mega Kuningan Bombing shows that this effect was not significant. Although the attacks occurred several years ago, the lessons learned still show an impact on the accounting aspect. This study contributes to the literature on earnings management as a consequence of terrorism.

Keywords: Bali bombing I; Bali bombing II; Earnings management; Indonesia; Mega Kuningan bombing

1. INTRODUCTION

The 21st century has witnessed several acts of terrorism, where specific nations or groups have been attacked. The most horrendous form of terrorist attack and that which destabilizes the economy of an independent country is a bomb attack. This is exemplified by the bomb attacks in Madrid on March 11, 2004; London on July 07, 2005; and Istanbul on July 27, 2008. Indonesia has also witnessed several bomb attacks in recent times, and three of the most notorious bomb attacks are the Bali Bombing I in 2002, Bali Bombing II in 2005, and Mega Kuningan Bombing in 2009.

Generally, bomb attacks cause huge losses. Aside from injuries and fatalities, these attacks cause economic loss as well (Sandler & Enders, 2008). In the context of the United States, Jackson (2008) observed the movement of Dow Jones Industrial average following terrorist attacks, which reflect responses in the stock market during the period of uncertainty brought on by fear and shock. The movement is depicted in Table 1.

♣ Corresponding author: Department of Accounting, Faculty of Economics and Business, Universitas Indonesia, Kampus UI Depok, Jawa Barat, 16424, Indonesia. Tel: +62 21 786 3558 Email: desi.adhariani@ui.ac.id

Similar to foreign countries, Indonesia was not free from various terrorist attacks, some of which have claimed many victims from civil society. From 2001 to 2014, more than 300 large-scale terrorist assaults have been recorded.[*] Based on the number of victims and economic losses incurred, the three largest attacks are the Bali Bombing I, Bali Bombing II, and Mega Kuningan Bombing. The Bali Bombing I occurred at a tourist center of Kuta, Bali, on October 12, 2002. The attack left 202 people dead and 209 injured. The victims were nationals of various countries, namely, Australia, Indonesia, England, United States, Sweden, and Denmark. The Bali Bombing II took place in Jimbaran, Kuta, Bali, on October 1, 2005. This attack left 20 people dead and 196 wounded. The third bombing, the Mega Kuningan Bombing, occurred at the JW Marriot and Ritz Carlton hotels, located at the Mega Kuningan area, DKI Jakarta, on July 17, 2009. This attack left 9 died and 53 injured.

The impact of terrorist attacks is similar to that of other major disasters, such as floods, landslides, or fires (Looney, 2002). In the unlikely event of a terrorist attack, besides fatalities, the country's economy is also affected. Kollias et al. (2011) stated that the impact of terrorist attacks on the economy can be twofold: direct and indirect. The direct economic effects of a terrorist attack include damage to buildings and infrastructure (Looney, 2002), whereas indirect economic impacts include a degraded macroeconomic performance (Guzhva & Pagiavlas, 2004); decreased revenues of several industries, especially aviation and tourism industries (Looney, 2002); and a shaken capital market due to increased uncertainty and market volatility (Johnston & Nedelescu, 2005).

In line with Looney's (2002) explanation, Chesney et al. (2011) concluded that some industries are most sensitive to the increasing terrorist attacks. These industries include the insurance, travel, aircraft, tourism, oil and gas, and banking. Of these, Chesney et al. (2011) claim that the travel, tourism, and aircraft industries suffer the most negative impacts of terrorist attacks. The impact results from a decline in tourists visits, both domestic and foreign. This causes fewer visitors at tourist locations and falling revenues in corporate earnings. The decline in the number of tourists also results in reduced aircraft users and other modes of transportation, resulting in a drop in income for the aircraft industry as well. Similarly, companies engaged in travel or travel services also face a decline. In addition to these industries, Raby (2003) suggested that other industries, such as restaurants, accommodation, and postal services, are also affected by terrorist attacks.

In summary, as a short-term effect, bomb attacks cause the loss of facilities and infrastructure, whereas in the medium term, bomb attacks can affect the performance of companies in certain sectors. Companies badly affected by terrorist attacks, particularly bombings, are those in the transportation sector, as well as those in the hotel, restaurant, and tourism sector (Looney, 2002; Raby, 2003; Chesney, Reshetar, & Karaman, 2011). The declining performance of these companies is a direct consequence of the restlessness and distrust in the security system of victim countries among both domestic and foreign citizens. Fewer people would want to visit public places, such as tourist sites, or use public transportation. This impact can be seen from the figures provided by the Central Bureau of National Statistics (Badan Pusat Statistik Nasional) during the years when the Bali Bombing I, Bali Bombing II, and Bom Mega Kuningan occurred. The Bali Bombing I in 2002 resulted in about 11.25% decline in foreign tourists, whereas the Bali Bombing II in 2005 resulted in a decline of approximately 6%. In contrast, the Mega Kuningan Bombing in 2009 noted

---

[*] Global Terrorism Database

an increase in foreign tourists by about 1.4%; however, this increase was not as high as those in the previous years: 13% and 13.24% in in 2007 and 2008, respectively.

Such decreases in the performance of companies in the transportation sector, as well as those in the hotel, restaurant, and tourism sector, would disappoint the various stakeholders, particularly investors. This could even lead to disinvestment by major stakeholders, which would be very detrimental to the companies. Managers who realize this typically offset the declining performance through earnings management. In fact, according to a study conducted by Iatidris (2012), bomb attacks in Madrid in Spain are likely to increase the scope of earnings management in the leisure industry and the insurance industry. In the case of a bomb attack, managers can choose one of two earnings management methods: either inflating the profit to offset the loss or inflating the loss to increase the possibility of an increase in earnings in the following years.

Earnings management may affect stakeholders as managers can manipulate financial statements to meet their expectations. In turn, this can lead stakeholders to make incorrect performance assessments (Ronen & Yaari, 2008). Specifically, this method can disrupt the process of decision making by stakeholders, leading to incorrect decision making (Bergstresser & Philippon, 2006; Ali & Zhang, 2015; Core 2017).

Meanwhile, Indonesia has become a target for bomb attacks several times. It is widely assumed that the companies in Indonesia may have engaged in earnings management during the years of the bomb attacks, just as companies in Turkey and Spain likely did. This possibility is also supported by the fact that Indonesia is a code-law country that generally does not have a good investor protection mechanism and accounting quality regulations (Iatridis, 2012). To prove this, the current study intends to test whether Bali Bombing I, Bali Bombing II, and Mega Kuningan Bombing would increase earnings management in the transportation sector, as well as the hotel, restaurant, and tourism sector. To achieve this, the present study tested the effect of bomb attacks on annual financial statements before and in the years of the attacks.

2. LITERATURE REVIEW

2.1. *Terrorism and its Effects*

The term "terrorism" was first used during the 1789–1799 French Revolution (Munson, 2008). At that time, the term "terrorism" (French: *le terreur*) referred to the efforts of the new regime in gathering strength to suppress their opponents who were supporters of the old regime (Mubarok, 2010).

Firmansyah (2011) classified terrorism into four categories based on purpose: irrational terrorism, criminal terrorism, political terrorism, and state terrorism. Irrational terrorism is a form of terrorism, whose purpose cannot be accepted by common sense, such as self-sacrificing or madness. Criminal terrorism intends to achieve a group's interests, such as those of a religious group or belief group. Political terrorism has a political purpose, such as subverting the legal government or overhauling its political structure. This form of terrorism was common during the World Wars when many countries fought for their independence. The fourth form, state terrorism, is usually inflicted by a government or the ruler of a country upon its people to create political

stability, strengthen its power, and protect the economic interests of the elite. The present study focuses on criminal terrorism.

Terrorist attacks result not only in human casualties but also economic losses. Looney (2002) stated that the economic impact of terrorist attacks can vary by nature and period. Based on the nature of an attack, the economic impact can be categorized into direct and indirect impacts. Based on the period of attack, the economic losses can be classified into immediate, short-term, medium-term, and long-term impacts. The immediate and short-term direct impacts of terrorist attacks can be seen easily immediately after the attack. These include damages to buildings, offices, and infrastructure and the subsequent costs of clearing operations (Gold, 2004; Kunreuther et al., 2003). Short-term indirect impacts can usually be felt from the change in the Gross Domestic Product of a country or region that has experienced terrorist attacks, such as bomb attacks (Guzha & Pagiavlas, 2004; Kunreuther et al., 2003). Other short-term consequences reflect on the financial markets, such as the negative impact on stock prices (Arif & Suleman, 2017; Apergis & Apergis, 2017) and exchange rates (Narayan et.al., 2017).

Meanwhile, medium- and long-term impacts are usually indirect (Looney, 2002). Medium-term impacts can be felt by some companies, such as those engaged in the transportation sector and the hotel, restaurant, and tourism sector. Terror attacks evoke fear in both domestic and foreign tourists in visiting tourist sites or using public transportation in these areas. In turn, a decline in the number of tourists reduces companies' earnings and lowers its financial performance.

A decline in the number of tourists also occurred during the years of the Bali Bombing I (2002), Bali Bombing II (2005), and Mega Kuningan Bombing (2009). The Bali Bombing I resulted in travel warnings being issued by some countries, such as Australia, the U.S., and some in Europe. This led to a drastic decline in the number of foreign tourists—from 5,033,400 in 2001 to 4,467,021 in 2002, or a decrease of 11.25%. Similarly, due to the Bali Bombing II, there was a significant decline in the number of foreign tourists—from 5,321,165 in 2004 to 5,002,101 in 2005, or a decrease of 6%. In contrast to both attacks, the Mega Kuningan Bombing did not see a decrease in the number of foreign tourists; instead, there was an increase of 1.4%; however, this increase was not as much as those in the two previous years. In 2007, the number of foreign tourists increased by 13% from the previous year and in 2008, 13.24% from 2007.[†] This phenomenon, in the aftermath of the Mega Kuningan Bombing, might be attributed to the adjustments made by economic agents in their expectations of the impact of the attack by constant proportion of previous discrepancy, as predicted by adaptive expectations theory. After several attacks, people learn from their experiences, and subsequent attacks may not have as significant an impact as the previous ones.

2.2.   *Earnings Management*

As the event changes the earnings pattern expected in certain industries, adaptive expectations theory can also be used to explain the impact of terrorism on earnings management. According to the adaptive forecasting hypothesis (Givoly, 1985), expectations are revised to incorporate the portion of the most recent forecast error that is considered permanent. In the case of a terrorist

---

[†] Downloaded data from Badan Pusat Statistik Nasional on June 15, 2015

attack, companies might try to fulfill the expectations from market participants (i.e., investors and analysts) by engaging in earnings management practices.

Scott (2012) defined earnings management as the choices made by managers associated with the accounting rules, or real actions that can affect earnings to achieve certain profit reporting purposes. Meanwhile, managers based on the interest maximization of companies are likely to engage in opportunistic earnings management (Schipper, 2001). According to Godfrey (2010), when in the opportunistic form, earnings management can lead to fraud. Earnings management also results in an inefficient market resulting from the increased information asymmetry between the management and shareholders. Ronen and Yaari (2008) stated that managements engage in earnings management to mislead multiple stakeholders about a company's actual economic performance. Stallworth and Digregorio (2004) explain that the main motivation of earnings management is the perceived pressure management to achieve profit targets.

Scott (2012) explains the various factors that lead to earnings management. These are discussed below.

1.   Bonus

Watts (1977) studied the relationship between earnings management and management bonuses. Healy (1985) further examined this relationship in 250 of the largest industrial companies in the United States in 1980, and concluded that bonuses or compensations that are given based on company profits encouraged managers to choose accounting procedures and accruals to maximize the value of their bonuses. Bergstresser and Philippon (2006) also proved that firms that apply compensation to management based on firm stock value have a higher tendency to apply earnings management accruals. Cornett et al. (2008) witnessed similar results in their research examining a company's financial statements in the S&P 100 Index from 1994 to 2003. They found that earnings management using discretionary accruals is heavily influenced by incentives to management.

2.   Debt Contracts

Sweeney (1994) found that companies with debt contracts tend to engage in earnings management by increasing revenue. This is because a company tries to meet the covenant of a debt contract that usually requires companies to meet certain revenue standards (De-Fond & Jiambalvo, 1994) and avoid the risk of sanctions that do not meet the conventions (Gupta et al., 2008).

3.   Investor Expectations and Maintaining Reputation

Research conducted by Skinner and Sloan (2002) from 1984 to 1996 showed that companies that fail to meet earnings expectations of investors tend to show declining share values. Unfulfilled investor expectations also resulted in a decline of the company's reputation.

4.   Initial Public Offerings

According to Scott (2012), earnings management tends to be carried out by newly listed companies following initial public offerings (IPO). This is because the initial stock price of the company when conducting the IPO will be based on the company's earnings.

Earnings management in the form of choices in accounting rules include the options of depreciation methods, use of discretionary accrual, and so on, whereas real action means setting profits by arranging transactions or activities of the company directly as the procurement of sales price, levels of production, and so on. Earnings management using discretionary accruals is often referred to as accrual-based earnings management, whereas earnings management by setting transactions is often referred to as real earnings management. The present study further examines on accrual-based earnings management only.

Accrual-based earnings can be measured by dividing the total accruals into discretionary and nondiscretionary ones (Dechow, Sloan, & Sweeney, 1995). Discretionary accruals are those that can be set, whereas nondiscretionary accruals cannot be set by managers (Scott, 2012). Accrual-based earnings management can be measured with the value of discretionary accruals; thus, researchers have to separate the nondiscretionary accruals from total accruals. To do so, many researchers have built models to measure nondiscretionary accruals and separate them from total accruals. Some well-known models are the Healy model (1985), DeAngelo model (1986), and Jones model (1991). Of these, the Jones model (1991) has been further developed by many other researchers, such as Kasznik (1999) and Kothari, Leone, and Wasley (2005).

For example, Kothari et al. (2005) modified the Jones model by using return on asset as an additional explanatory variable in the measurement of nondiscretionary accruals. Using this model, researchers can identify nondiscretionary accruals and use the residuals as the measurement of earnings management. The present study uses the Kothari model to measure earnings management, as this can increase the explanatory power of the Jones model and reduce errors in calculating discretionary accruals (Kothari et al., 2005).

Several recent studies on earnings management have also employed the Kothari model to measure nondiscretionary accruals, and then examined the association between earnings management and several phenomena. For example, Kouki (2018) investigated the effect of investor protection on earnings management before and after IFRS adoption in Germany, France, and Belgium, and found that investor protection better explains earnings management in the post-IFRS periods. Elghuweel et al. (2017) examined the impact of corporate and Islamic governance mechanisms on earnings management in Oman, and found that better-governed corporations and greater commitment toward application of Islamic beliefs and values tend to less significantly engage in earnings management. In the Kenyan and Tanzanian contexts, different results were obtained by Waweru and Prot (2018), who stated that corporate governance mechanism may not have constrained EM in eastern Africa. Liu et al. (2018) examined institutional blockholders' influence on corporate earnings management in the Korean market, and found that they preclude the opportunistic financial reporting and hence decrease the potential of earnings management.

The present study is expected to enhance the literature on earnings management, especially in terms of the determinants from pressures faced by companies in specific sectors due to terrorist activities or bomb attacks. The contribution of this study can be found in its analysis of the impact of terrorist attacks on company fundamentals and reported financial numbers in the context of a developing country, the findings on which complement those of previous studies conducted in developed countries.

3. RESEARCH METHOD

The present study argues that bomb attacks lead to declines in the performance of the transportation sector companies, as well as those in the hotel, restaurant, and tourism sector. Although such attacks might affect other sectors as well, these specific sectors are directly affected by the loss of the sense of safety and security, which underlies these businesses. This decline also reflects in the companies' financial statements. Managers are under pressure to report good performance to avoid any further costs or losses resulting from a decline in performance (Aboody & Kasznik, 2000). Facing a decline in performance consequent to a bomb attack, managers of the affected companies are compelled to report earnings that are not in accordance with the actual conditions; in other words, they are compelled to earnings management (Iatridis, 2012). This strategy can be achieved by inflating the profits to cover losses due to a bomb attack or inflating the losses to make the profitability of earnings growth next year bigger. From these explanations, the present study aims to prove the hypothesis that bomb attacks in Indonesia (Bali Bombing I, Bali Bombing II, and Mega Kuningan Bombing) increase earnings management in the transportation sector, as well as in the hotel, restaurant, and tourism sector. Thus, we present the following hypothesis:

H1: Bomb attacks are likely to increase the scope of earnings management among companies in the transportation sector and hotel, restaurant, and tourism sector.

When companies indirectly experience the adverse effects of bomb attacks, companies that still have high cash flow or high profitability are not likely to engage in earnings management. Cash flow and profitability are parts of performance measurement, such that if either cash flow or profitability is high, managers are less motivated to manipulate financial statements. In the Iatidris study (2012) on the effect of the terrorist attacks in Madrid and Istanbul, high cash flow decreased earnings management. The study also proved that, after the terrorist attack in Istanbul, companies with high profitability did not increase earnings management. Otherwise, the lower the cash flow and profitability after terrorist attacks, the more companies are compelled to resort to earnings management. The second hypothesis of the present study includes two parts. Part A states that cash flow likely weakens the effect of bomb attacks on earnings management, and Part B states that profitability likely weakens the effect of bomb attacks on earnings management.

H2a: Cash flow is likely to weaken the increasing effect of bomb attacks on earnings management.

H2b: Profitability is likely to weaken the increasing effect of bomb attacks on earnings management.

To test these hypotheses, the present study used the research design presented in Figure 1 below.

The research design used earnings management as a dependent variable and bomb attacks as an independent variable. Earnings management was used as an absolute value of discretionary accrual, because earnings management can be done by increasing and decreasing the profit. The Bali Bombing I, Bali Bombing II, and Mega Kuningan Bombing were the bomb attacks used as independent variables.

Accrual earnings management in the present study was measured by separating the discretionary accruals using the Kothari model (2005). This has been proven to increase the significance level of the Jones model (1991). The Kothari model (2005) is given by

Model 1

$$AC_{i,t} = a_0 \left(\frac{1}{A_{i,t-1}} \right) + a_1 \left(\Delta REV_{i,t} - \Delta REC_{i,t} \right) + a_2 \, PPE_{i,t} + a_3 \, ROA_t + e_{i,t,} \qquad [1]$$

where $AC_{i,t}$ is the total accruals in the year, scaled by lagged total assets, in which total accruals equal the year-to-year change in noncash current assets minus current liabilities, excluding short-term debt, minus depreciation; $A_{i,t-1}$ is the lagged total assets; $\Delta REV_{i,t}$ is the change in revenues in year t, scaled by lagged total assets; $\Delta REC_{i,t}$ is the change in receivables in year t, scaled by lagged total assets; $PPE_{i,t}$ is the property, plant, and equipment in year t, scaled by lagged total assets; ROA_t is the return on asset in year t, scaled by lagged total assets, where return on asset equals net asset before extraordinary items divided by total asset; and $e_{i,t}$ is the error.

The present study used cash flow and profitability as moderating variables. Both variables are predicted to weaken the relationship between bomb attacks and earnings management. In addition to these variables, researchers added two control variables: company size and leverage. As described in the previous section, large-scale companies tend to avoid or have difficulty in performing earnings management; thus, they are negatively related to earnings management. On the basis of the debt-covenant hypothesis in the previous section, companies with large debts strive to meet the debt covenants to avoid sanctions or other costs. Thus, high leverage is predicted to positively affect earnings management.

To conduct the present study, these variables are arranged into the following models:

Model 2

$$ADAC_{i,t} = a_0 + a_1 \, P_{i,t} + a_2 \, PxOCF_{i,t} + a_3 \, PxNPM_{i,t} + a_4 \, OCF_{i,t} + a_5 \, NPM_{i,t} +$$
$$a_6 \, LEV_{i,t} + a_7 \, LNTA_{i,t} + e_{i,t,} \qquad [2]$$

where $ADAC_{i,t}$ reflects the absolute value of discretionary accruals in year t, where discretionary accruals equal error or residual from model 1; $P_{i,t}$ reflects the period in dummy variable, with $P_{i,t} = 1$ for financial report in the period after a bomb attack and $P_{i,t} = 0$ for financial report in the period before the bomb attack; $P \times OCF_{i,t}$ reflects the effect of cash flow on the relationship of the bomb attack and earnings management, which is measured by multiplying dummy variable P and operating cash flow divided by total assets in year t; and $P \times NPM_{i,t}$ reflects the effect of profitability on the relationship of the bomb attack and earnings management that is measured by multiplying dummy variable P and net profit margin in year t (net profit divided by net revenues). In addition, $OCF_{i,t}$ reflects cash flow that is measured by dividing operating cash flow by total asset in year t; $NPM_{i,t}$ reflects the profitability that is measured by net profit margin, which equals net profit divided by net revenues in year t; $LEV_{i,t}$ reflects the company's leverage that is measured by dividing total liabilities to total equity in year t; $LNTA_{i,t}$ reflects the company's size that is measured by the natural logarithm of total assets in year t; and $e_{i,t}$ is the error.

Models 1 and 2 assume that the data are normally distributed. We run the normality test with results presented in the next section. The present study was conducted thrice, which included (1) a study on the Bali Bombing I by using companies' financial data from the year prior to and at the time of Bali Bombing I; (2) a study on the Bali Bombing II by using companies' financial data from the year prior to and at the time of Bali Bombing II; and (3) a study on the Mega Kuningan Bombing by using companies' financial data from the year prior to and at the time of Mega Kuningan Bombing. Samples were taken by using the judgment sampling method based on the ability of elements to provide certain information. The criteria used in the sampling of the companies are as follows:

1. Listed on the Indonesia Stock Exchange in the year prior to and at the time of bomb attacks in 2001 and 2002, 2004 and 2005, or 2008 and 2009;
2. Belonging to the transportation sector or the hotel, restaurant, and tourism sector (each sector has to have more than five examined listed companies);
3. Having normal equity value (positive) as companies experiencing losses might exhibit a different behavior toward earnings management and in anticipating the effect of a bomb attack; and
4. Issuing financial statements in 2001 and 2002, 2004 and 2005, or 2008 and 2009.

This study is based on the Iatidris study (2012). However, the fundamental differences between the present study and the cited study can be found in the examined sectors, countries, and period of financial statements. In the Iatidris study, the examined companies are from the leisure, insurance, and banking sectors in Spain, the UK, and Turkey, whereas the present study examined companies in the transportation sector, as well as those in the hotel, restaurant, and tourism sectors, in Indonesia. In the Iatidris study, data are taken from four financial statements before and after the attacks, whereas the present study only examines annual financial statements before and after the attacks. This is due to the lack of quarterly financial statements, particularly in the years of the Bali Bombing I and Bali Bombing II. Moreover, data from the Central Bureau of National Statistics show the effect on tourism on an annual basis.

This study consisted of more than one company and more than one period (period before and after attack), so that the data needed to test the hypothesis of this study were classified as panel data and tested by panel model. Panel models can be divided into three: Pooled Least Square (PLS) model, Fixed Effect model, and Random Effect model. From an econometric point of view, the selection of the most appropriate panel model can be done using three tests: the Chow Test, the Langrange Multiplier Test, and the Hausman Test. The selection of panel models was carried out for the combined testing of all three events and for the testing of each event (Bali Bomb I, Bali Bomb II, and Mega Kuningan Bomb). Hence, in total, four separate panel model selections were carried out.

4. RESULTS AND DISCUSSION

Sample selection included 25 companies to test the Bali Bombing I, 28 companies to test the Bali Bombing II, and 42 companies to test the Mega Kuningan Bombing. The samples consisted of 20 companies in the transportation sector and 26 companies in the hotel, restaurant, and tourism sector. The present study was carried out by examining annual financial statements before and after the bomb attacks; thus, two financial statements were needed for each company. In total, 190

financial statements were studied to examine the relationship between bomb attacks and earnings management simultaneously. Table 1 shows the statistics descriptive of simultaneous study in those 190 financial statements, and Table 2 shows the statistics descriptive of the separate study of each bomb attack.

Table 2 shows that the average of ADAC is close to the standard deviation, which means that the values of discretionary accruals are evenly distributed. This also means that earnings management in the examined companies varied and a relationship can be observed from the data. Evenly distributed data can also be seen in the operating cash flow (OCF), net profit margin (NPM), total assets, and leverage (LEV). Table 2 shows that the values of discretionary accruals are also evenly distributed, except those under the Bali Bombing II. This also means that earnings management in the examined companies varies, and that there is a relationship that can be observed from the data.

The data taken are panel data because they consist of more than one period. By using the Chow test and the Lagrange Multiplier Test, researchers concluded that all four tests should use the PLS model. We conducted an econometric test of the classic assumptions, the results of which indicate that the data on testing Bali Bombing I and Bali Bombing II meet the classic assumptions, but they also point to the heteroscedasticity in the data used to test the financial results caused by the Mega Kuningan Bombing and bomb attacks simultaneously. Thus, a robust method is needed to run the model for both tests.

Prior to running the regression test, we also performed the normality test. Normality assumptions are met if the residual of the model has a normal distribution. For that reason, the researcher looks at the distribution graph of each residual test of the association of bomb attack incident with earnings management. Figure 2a shows the residual distribution of the bomb attack model (combined) test model with earnings management practice. Figures 2b–d show the residual distribution of the Bali Bombing I, Bali Bombing II and Mega Kuningan Bombing association with their earnings management practices, respectively. These figures indicate that the residue has been normally distributed following a linear line.

The results for separate bomb attack are presented below.

In a separate bomb attack study shown in Table 3, the results for the Bali Bombing I show a significant increase in the scope of accrual earnings management. Similar results are also shown in the test of the Bali Bombing II. In both the tests, it could not be proven that cash flow or profitability affects the relationship between Bali Bombing I or Bali Bombing II and earnings management. Unlike these results, the results of the test on Mega Kuningan Bombing show that this attack does not significantly affect earnings management; however, in this test, profitability weakens the relationship between bomb attacks and earnings management. The result of the test on Mega Kuningan Bombing can be attributed to the effect of the global economic crisis, which led companies to manage their earnings in 2008 more than they did in 2009. Some experts also considered that the impact of Mega Kuningan Bombing in 2009 was not as huge as the impact of the global economic crisis.

5. CONCLUSIONS AND LIMITATIONS

Conclusions drawn from the present study show that large-scale bomb attacks in Indonesia generally increase the earnings management of companies in the transportation sector and in the hotel, restaurant, and tourism sector. However, the test on the Mega Kuningan Bombing shows a different result. Specifically, the result indicated that this attack did not significantly affect the earnings management of companies in the transportation sector and in the hotel, restaurant, and tourism sector. It can be the result of other events that also affected earnings management in the year before or after the attack, which is the global economic crisis—something that might have led the companies to manage their earnings in 2008. This could be because market participants have learned the lesson from previous events, hence reducing the pressure on companies to engage in earnings management to maintain the level of earnings.

We can infer from the conclusions that auditors are expected to be vigilant in auditing companies in the transportation sector and in the hotel, restaurant, and tourism sector, in the years when the bombing attacks occurred. This recommendation also applies to investors and analysts reading financial statements of those companies in the years of the bombing.

The present study chose bomb attacks that claimed several victims, caused substantial losses, and garnered international attention. Further studies can use other classifications in choosing a bomb attack or terrorist attacks. Studies in other sectors, such as insurance or banking, can also be conducted. The researchers recommend the use of four quarterly financial statements before and after the attacks for further study. Its purpose is to capture thoroughly all the effects that lead to earnings management due to bomb attacks. Further studiers can also use other models, such as the Jones model and the Kaznik model, which are developed models, to measure earnings management.

The effects of other events on earnings management, such as the impact of crises in 2008–2009 due to the subprime mortgage issue in the U.S, are also not explored in this study. Together with the bomb attack, the impact might be greater than that found in this study, which provide an opportunity for more comprehensive investigations in future research.

REFERENCES

Aboody, D., & Kasznik, R. (2000). CEO stock option awards and the timing of corporate voluntary disclosures. *Journal of Accounting and Economics*, 73–100.

Ali, A., & Zhang, W. (2015). CEO tenure and earnings management. *Journal of Accounting and Economics*, *59*(1), 60–79.

Arif, I., & Suleman, T. (2017). Terrorism and stock market linkages: An empirical study from a front-line state. *Global Business Review*, *18*(2), 365–378.

Apergis, E., & Apergis, N. (2017). The impact of 11/13 Paris terrorist attacks on stock prices: evidence from the international defence industry. *Applied Economics Letters*, *24*(1), 45–48.

Bergstresser, D. & Philippon, T. (2006). CEO incentives and earnings management. *Journal of Financial Economics, 80*, 511–529.

Chesney, M., Reshetar, G., & Karaman, M. (2011). The impact of terrorism on financial markets: An empirical study. *Journal of Banking & Finance*, 253–267.

Core, J. E. (2017). Discussion of "Optimal Conservatism with Earnings Manipulation." *Contemporary Accounting Research*, *34*(1), 285–291.

DeAngelo, L. (1986). Accounting number as market evaluation substitutes: A study of management buyouts of public shareholders. *The Accounting Review, 61*, 400–420.

Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting earnings management. *The Accounting Review*, *70*, 193–225.

Elghuweel, M. I., Ntim, C. G., Opong, K. K., & Avison, L. (2017). Corporate governance, Islamic governance and earnings management in Oman: A new empirical insights from a behavioural theoretical framework. *Journal of Accounting in Emerging Economies*, *7*(2), 190–224.

Firmansyah, H. (2011). Upaya Penanggulangan Tindak Pidana Terorisme di Indonesia [Efforts to overcome terrorism in Indonesia.]. *Mimbar Hukum*, *23*(2), 237–429.

Givoly, D. (1985). The formation of earnings expectations. *Accounting Review*, 372–386.

Gold, D. (2004). *Economics of terrorism*. Columbia University Press.

Guzha V. S., & Pagiavlas N. (2004). US commercial airline performance after September 11, 2001: Decomposing the effect of the terrorist attack from macroeconomic influences. *Journal of Air Transport Management*, *10*, 327–332.

Healey, P. M. (1985). The effect of bonus schemes on accounting decisions. *Journal of Accounting and Economics, 7*, 85–107.

Iatridis, G. (2012). Terrorist attacks and company financial numbers: Evidence on earnings management and value relevance from Madrid, London and Istanbul. *Research in International Business and Finance*, 204–220.

Jackson, O. A. (2008). The impact of the 9/11 terrorist attacks on the US economy. *Journal of 9/11 Studies*, *20*, 1–27.

Jones, J. (1991). Earnings management during import relief investigation. *Journal of Accounting Research, 29*, 193–228.

Kasznik, R. (1999). On the association between voluntary disclosure and earnings management. *Journal of Accounting Research, 37*(1), 57–81.

Kothari, S., Leone, A. J., & Wasley, C. E. (2005). Performance matched discretionary accruals measures. *Journal of Accounting and Economics*, 163–197.

Kouki, A. (2018). Mandatory IFRS adoption, investor protection and earnings management: A data analysis of Germany, France and Belgium listed companies. *International Journal of Accounting & Information Management*, *26*(1), 187–204.

Kunreuther, H., & Geoffrey H. (2003). Interdependent security. *Journal of Risk and Uncertainty, 26*, 231–249.

Liu, C., Chung, C. Y., Sul, H. K., & Wang, K. (2018). Does hometown advantage matter? The case of institutional blockholder monitoring on earnings management in Korea. *Journal of International Business Studies*, *49*(2), 196–221.

Looney, R. (2002). Economic costs to the United States stemming from the 9/11 attacks. *Strategic Insight*, *1*(6).

Mubarok, M. (2010). *Stigmatisasi Pemberitaan Terorisme di Media Massa* [*Stigmatization of terrorism news in mass media*] (Master's thesis). Universitas Diponegoro, Semarang.

Munson, Z. (2008). Terrorism. *Contexts*, *7*(4), 78–79.

Narayan, P. K., Narayan, S., Khademalomoom, S., & Phan, D. H. B. (2017), do terrorist attacks impact exchange rate behavior? New international evidence. *Economic Inquiry*, 56, 547–561. doi:10.1111/ecin.12447.

Raby, G. (2003). *The cost of terrorism and the benefits of Cooperating to Combat Terrorism.* Speech presented at APEC Seniors Official Meeting, Chiang Rai, Thailand.

Ronen, J., & Yaari, V. (2008). Definition of earnings management. *Earnings Management*, 25–38.

Sandler, T., & Enders, W. (2008). Economic consequences of terrorism in developed and developing countries. In P. Keefer & N. Loayza (Eds.), *Terrorism, economic development, and political openness* (1st ed.) (pp. 17–47). New York: Cambridge University Press.

Scott, W. R. (2012). *Financial Accounting Theory* (6th ed.). Toronto: Pearson Canada.

Sweeney, A. P. (1994). Debt-covenant violations and managers accounting responses. *Journal of Accounting and Economics*, 281–308.

Waweru, N. M., & Prot, N. P. (2018). Corporate governance compliance and accrual earnings management in eastern Africa: Evidence from Kenya and Tanzania. *Managerial Auditing Journal*, *33*(2), 171–191.

APPENDIX

Table 1: Aftermath of Selected Terrorist Events involving U.S. interests: Percent Change in Dow Jones Industrial Average

Event date	Event	First trading day	After the fifth trading day	After 252 trading days (a typical year)*
Sept. 16, 1920*	Wall Street bombings kill 40	0.92%	0.16%	−22.33%
Sept. 5, 1972	Terrorists kill 12 at Munich Olympics	−0.07%	−1.55%	−7.11%
Oct. 7, 1985	Achille Lauro hijackers kill one	−0.33%	0.84%	33.52%
Dec. 21, 1988	Scotland Pan Am bombing kills 270	−0.07%	0.02%	24.45%
Feb. 26, 1993	World Trade Center bombing kills six	0.17%	1.00%	15.65%
Apr. 19, 1995	Oklahoma City bombing kills 168	0.68%	2.90%	34.48%
Aug. 7, 1998	U.S. embassy bombings in Tanzania and Kenya kill 225	0.24%	−1.38%	24.91%
Sept. 11, 2001	Terrorist attacks in the U.S. kill approximately 3000	−7.13%	−14.26%	−12.76%
Oct. 12, 2002	Bali, Indonesia, bombings kill 202	0.35%	6.01%	24.38%
Mar. 11, 2004	Madrid bombings kill more than 190	−1.64%	0.03%	5.93%

*In 1920, stocks were traded on Saturdays. Therefore, a 252-trading day period was less than a year.
Source: Jackson (2008)

Table 2: Statistical Descriptive: Bomb Attacks and Earnings Management

Variable	Mean	Median	Standard Deviation	Minimum	Maximum
ADAC	0.1116	0.0763	0.1254	0.0005	0.9814
OCF	0.0686	0.0698	0.1206	−0.7428	0.4150
NPM	0.0248	0.0255	0.1589	−0,2598	0.3649
Total Assets (Rp)	1.06E + 11	6.07E + 08	7.18E + 11	7,253,000	7.90859E + 12
LEV	2.3800	1.1717	4.8992	0.0038	54.7026
PxOCF	0.0286	0	0.1010	−0.7428	0.4150
PxNPM	0.0160	0	0.1176	−0.2598	0.3649

Table 3: Statistical Descriptive: Bomb Attacks (separately) and Earnings Management

Variable	Mean	Median	Standard Deviation	Minimum	Maximum
1. Bali Bombing I					
ADAC	0.1726	0.1154	0.1840	0.0114	0.9814
OCF	0.0500	0.0704	0.1530	−0.7428	0.31507
NPM	−0.2495	0.0320	1.5642	−10.2038	2.0790
Total Assets (Rp)	1.36E + 11	3.8E + 08	5.88994E + 11	7,253,000	3.29E + 12
LEV	2.3585	1.2144	3.3716	0.0215	21.0646
PxOCF	0.0136	−0.2190	0.0136	−0.2190	0.0136
PxNPM	−0.2190	0	1.5016	−10.2038	0.8078
2. Bali Bombing II					
ADAC	0.0743	0.0711	0.0488	0.0010	0.1846
OCF	0.0750	0.0909	0.1165	−0.3630	0.3075
NPM	−0.1016	0.0100	0.7274	−3.9064	2.3716
Total Assets (Rp)	2.28E + 11	6,37E + 08	1.2E + 12	64,143,000	7.91E + 12
LEV	2.9822	1.0025	7.4794	0.0391	54.7026
PxOCF	0.0375	0	0.0772	−0.1849	0.2623
PxNPM	0.0169	0	0.2775	−1.8496	0.4765
3. Mega Kuningan Bombing					
ADAC	0.1000	0.0687	0,1044	0,0005	0,7386
OCF	0.0753	0.0660	0,1002	−0,3743	0,4150
NPM	0.0111	0.0334	0,2021	−0,6209	0,6423
Total Assets (Rp)	6.92E + 09	7.54E + 08	2,33E + 10	13.597.550	1,31E + 11
LEV	1.9914	1.2555	3,2366	0,0038	22,2496
PxOCF	0.0306	0	0,0865	−0,3743	0,4150
PxNPM	0.0082	0	0,1699	−0,6209	0,6423

Table 4: Bomb Attacks (separately) and Earnings Management

Variable	Prediction	Coefficient	P-value
1. Bali Bombing I			
Cons		8.5166	0.051
P	+	0.1129	0.0100***
OCF	-	0.2093	0.2515
NPM	-	−0.0788	0.3555
LNTA	-	−0.0139	0.2105
LEV	+	0.0032	0.3915
PxOCF	-	0.0832	0.2395
PxNPM	-	−0.0311	0.1220
R-squared = 0.3853			
F-stat = 0.0030			
Observation = 50			
2. Bali Bombing II			
Cons		−.6808	0.338
P	+	0.0216	0.0470**
OCF	-	0.0347	0.3100
NPM	-	0.0108	0.0535*
LNTA	-	0.0011	0.3555
LEV	+	0.0053	0.0515*
PxOCF	-	−0.0646	0.2695
PXNPM	-	0.0094	0.3250
R-squared = 0.2248			
F-stat = 0.0762			
Observation = 56			
3. Mega Kuningan Bombing			
Cons		−1.0509	0.068
P	+	−0.0008	0.4915
OCF	-	−0.7544	0.0008***
NPM	-	0.3511	0.0000***
LNTA	-	−0.0061	0.2385
LEV	+	0.0027	0.4130
PxOCF	-	0.2554	0.2575
PXNPM	-	−0.3191	0.0045***
R-squared = 0.2224			
F-stat = 0.0033			
Observation = 84			

*** statistical significance at 1% level ($\alpha = 1\%$)

** statistical significance at 5% level ($\alpha = 5\%$)

* statistical significance at 10% level ($\alpha = 10\%$)
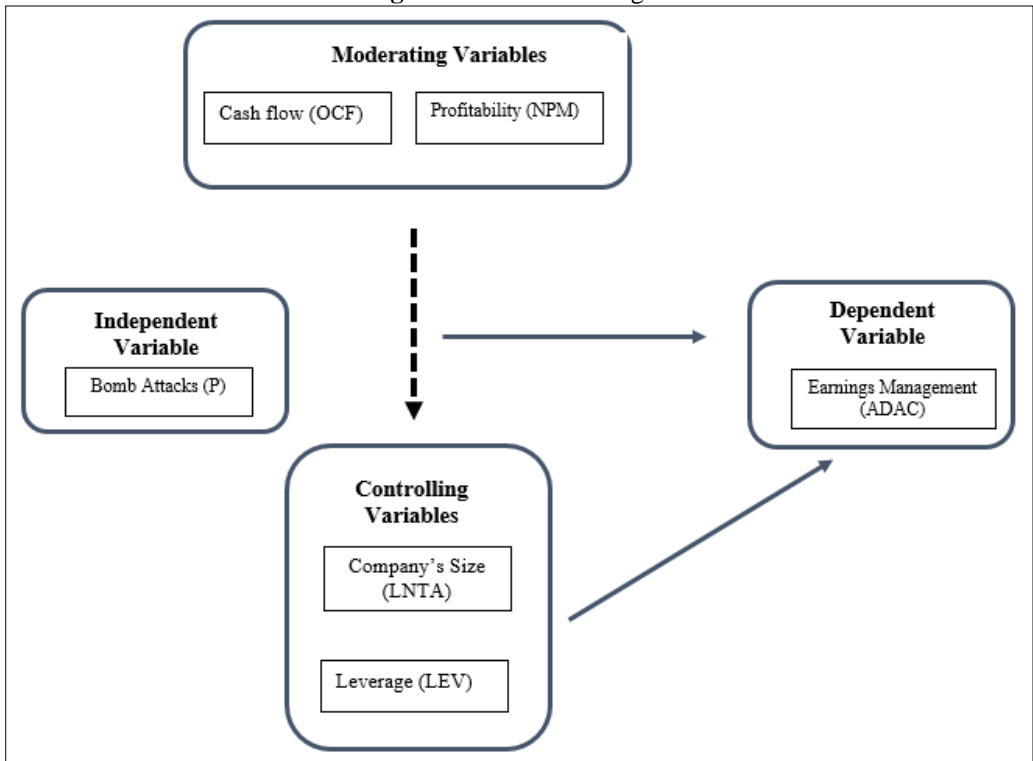
Figure 1: Research Design

Bomb Attacks and Earnings Management: Evidence from Indonesia

Figure 2: Normality Test

Figure 2a: Combined data

Figure 2c: Bali Bombing II

Figure 2b: Bali Bombing I

Figure 2d: Mega Kuningan Bombing