Does Terrorism Still Spread Fear to ASEAN's Financial Market?

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Abstract

The research aimed to examine the financial markets' responses to terrorist attacks in Southeast Asia. Market reactions were a reflection of public sentiment. The market reaction was calculated using the stock index indicator and the currency exchange rate of the country relative to the US Dollar. The research employed a paired test to compare the period prior to and following the terrorist attack. The research used Wilcoxon Test to examine 38 terrorist attacks across four Southeast Asian nations: Indonesia, Thailand, Philippines, and Malaysia. The research concludes that the stock index exhibits both normal and abnormal returns between pre-incident and post-incident periods. Post-incident returns are higher than pre-incident returns. Stockholders are not required to sell their existing holdings in response to a terrorist attack. Between pre-incident and post-incident investors who do not invest in the capital or money markets, the foreign exchange market does not exhibit significant changes. Investors can profit by purchasing stock or foreign currency on the day of the incident or one day afterwards and selling it three days later.

Keywords: abnormal return, fear, stock exchange, terrorism

Introduction

Since the World Trade Center attack on September 11, 2001, ASEAN countries have been concerned about terrorist attacks by separatist movements within ASEAN (Sudirman & Sari, 2017). Terrorist attacks in ASEAN countries vary greatly from independence movements to terrorists. Terrorism is a form of transnational crime with random patterns that has evolved over time through regional expansion (Wibisono & Kusumasomantri, 2020). Terrorism has begun to spread throughout Southeast Asia, particularly among ASEAN member countries,

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instilling fear in the populace (Winarto & Sudirman, 2021). Since the 9/11 attacks, Southeast Asian countries have witnessed the Bali Bombing attacks in 2002 and 2005, as well as terrorism attacks in Marawi, the Philippines, and a series of other terrorist attacks (Wicaksana, 2019).

The ASEAN member states have embraced deradicalism in their fight against terrorism (Hamzani et al., 2020). ASEAN countries are also deradicalizing by embracing terrorist perpetrators, both terror attacks and independence movements. ASEAN and South Asian countries have collaborated on counter-terrorism measures, such as Thailand's South-South cooperation with India (Cogan & Mishra, 2021). Indonesia takes preventive, pre-emptive, and repressive measures in Southeast Asia's fight against terrorism (Astari & Afrizal, 2017). ASEAN, as a regional organization, plays a critical role in Southeast Asia's fight against terrorism (Yahzunka, Siswoyo, & Ali, 2018). Cooperation between ASEAN countries in combating terrorism faces obstacles, most notably those related to each member country's sovereignty (Bangun, 2019; Darajati & Syafei, 2019). Figure 1 illustrates the relationship and impact of terrorism.

The capital market and money market will react when a terrorist attack occurs. Terror attacks aim to have a negative impact or scare investors. Therefore, investors will feel that the government is not ready until a terror attack occurs. Terror attacks will also cause fear in society.

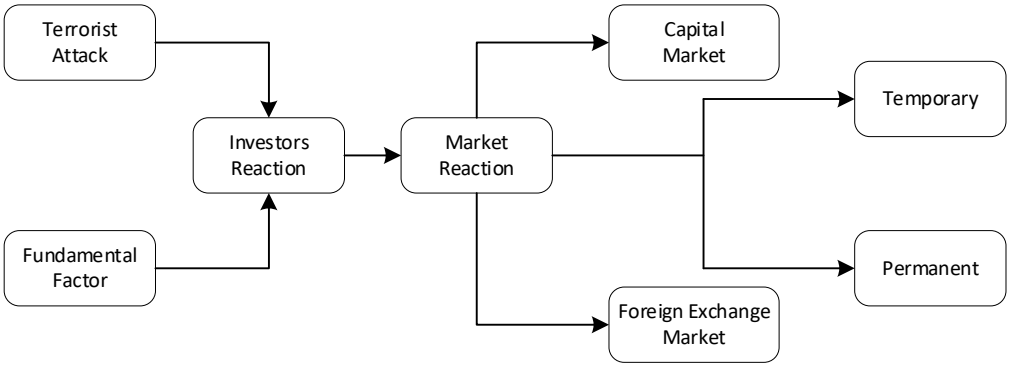

Figure 1 The Relationship and Impact of Terrorism

Literature Review

The financial industry has been impacted by terrorism attacks (Ahmad et al., 2022). The financial industry is a part of society. Numerous events have demonstrated the financial industry's impact on the economy. Foreign exchange rates have been impacted by ASEAN's election results. The foreign exchange rate against the United States Dollar reacted negatively to the results of Malaysia's 13th election. Singapore's elections in 2013 and 2015 prompted a positive reaction in the foreign exchange market. The Philippines' election result, which favored Duterte, resulted in a depreciation of the peso (Chong, 2020).

The Indonesian capital market, particularly the pharmaceutical industry, reacted similarly before and after the first COVID-19 case was announced. However, the market demonstrated an additional average transaction prior to and following the initial case announcement (Saputra, Pulungan, & Subiyanto, 2021). This research is based on the findings of Fauziah and Venusita (2021). The announcement of a COVID-19-related lockdown has had little effect on abnormal returns in Indonesia, Singapore, Malaysia, and Thailand (Fauziah & Venusita, 2021). Events associated with the COVID-19 pandemic have an effect on the capital market's abnormal returns (Yulianti & Siregar, 2018; Susianti and Rahmawati, 2020). According to another study, the COVID-19 pandemic has no effect on PT. Telkom's stock trading volume or abnormal return (Anggraeni, Handini, & Wulandari, 2021). Kusnandar and Bintari (2020) discover differences in abnormal returns as a result of the COVID-19 pandemic's changes in transaction times.

The Indonesian Stock Exchange had a negative reaction to Donald Trump's election as President of the United States. This adverse reaction occurred in the stocks of multinational corporations (Christopher & Layyinaturrobaniyah, 2019). Indonesia's inefficient capital market is easily swayed by macroeconomic and political conditions (Sevriana & Febrian, 2021).

Apart from macroeconomic events, microeconomic events such as corporate actions also have an effect on the stock performance of a company. Within ten days of the dividend distribution announcement, the abnormal return on shares is affected (Hariyanto & Murhadi, 2021). Share prices fluctuate in response to corporate actions that may have an effect on the company's performance. Corporate actions include financial reporting and dividend distribution (Yonatan, Kasim, & Bidin, 2017). Changes in controlling shareholders as a result of mergers and acquisitions, the payment of dividends, changes in company management, primarily corporate entities such as directors, and the splitting of nominal value shares (Pangesti, 2019; Yuhendri & Azizah, 2019; Utami, 2017), and corporate developments have an effect on the stock price. These are micro-company events. Capital markets in developed and developing countries have different characteristics. The Kuala Lumpur Stock Exchange is more responsive to political events than capital markets in developing countries (Zafar et al., 2016).

The research is unique that it establishes a link between terrorist attacks and public reactions via the capital market index and foreign exchange rates. Numerous studies have been conducted to establish a link between terrorist attacks. Recent research with an emphasis on ASEAN and the short-term impact is uncommon. The research assists the government as policymakers and investors in profiting from stock and currency markets. The research questions whether the public still fears and reacts to terrorist attacks. The composite stock price index and foreign exchange rates are used to gauge public sentiment.

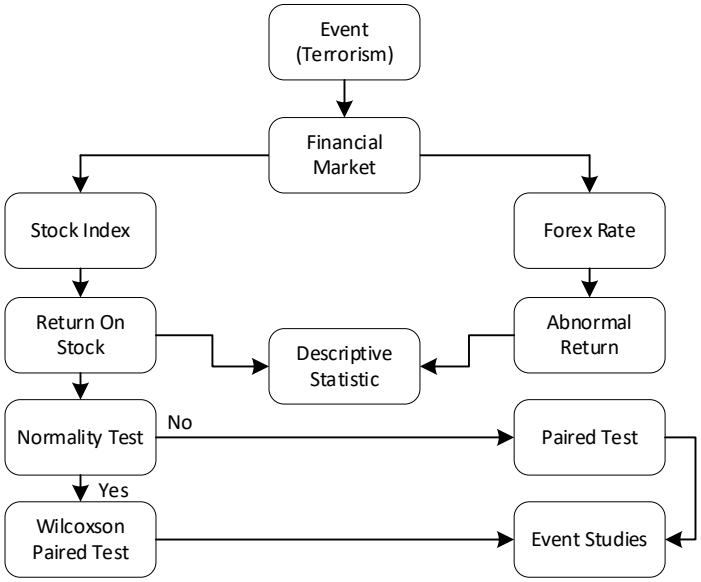

Figure 2 The Research Framework of Event Studies

This research begins with the collection of data on terrorist attacks and then indexes stock prices and foreign exchange rates according to the incident and the time period covered by the study. The stock price index on each exchange and the exchange rate are compared to foreign currency exchange rates in the research. The United States Dollar (USD) is the primary foreign currency used. Return and abnormal return are calculated using existing data. If the return and abnormal return pass the Shapiro-Wilk test, the Paired T-Test is performed. If it fails the Shapiro-Wilk test for normality, the Wilcoxon Paired Test is used. Each of these tests will be validated against the three test scenarios. As a result, the total number of scenarios tested is six, with two data parameters multiplied by three scenarios. The research framework is illustrated in Figure 2.

Research Methodology

The research aims to examine the effects of terrorism on financial markets, both capital markets and money markets. This research uses the event study method. Event studies compare before and after a terrorist attack.

Hypotheses are made by comparing the conditions of the capital market and money market before and after the event with odd days to avoid close dates due to holidays, in addition to the effect of information dissemination. Capital market and money market transactions require a time difference of two days or spot from the event or three days from the event.

Figure 3 shows the conceptual framework of this research. The research aims to determine how people's reactions are reflected by the capital market in the capital market and

foreign exchange rates. The research wants to determine whether there is an abnormal return in 3 short-term time frames from these two variables. The time being tested is D-1 (one day before the event) with D+1 (one day after the event), D-3 (three days before the event) with D+3 (three days after the event), and D-7 (seven days before the event) with D+7 (seven days after the event). This brevity is consistent with research conducted by Arif (2017), Hadhek, Halfaoui, and Lafi (2019), and Tavor and Teitler-Regev (2019). According to the studies, the abnormal return occurred rapidly.

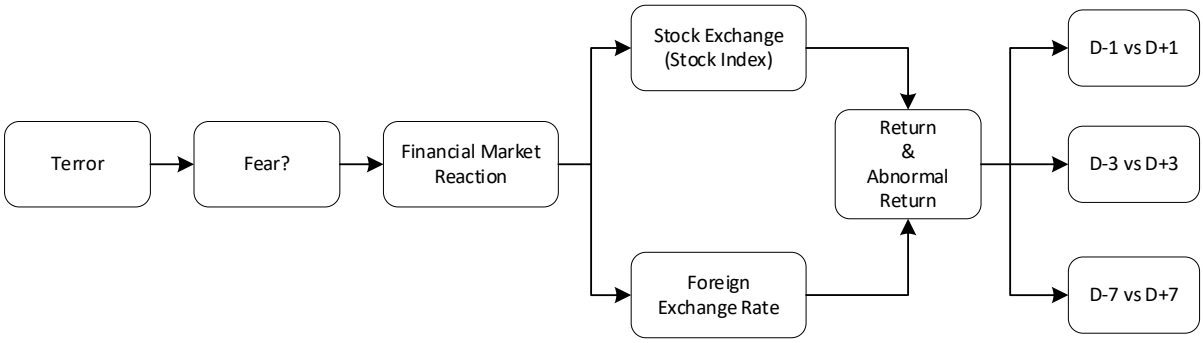

Figure 3 The Conceptual Framework of Event Studies

The research measures reactions to terrorist attacks using two variables: 1) the stock price index and 2) the foreign exchange rate. The two parameters are determined in three scenarios: 1) one day before and one day after the terrorist attack, 2) three days before and three days after, and 3) seven days before and seven days after.

The capital market is a venue for the exchange of valuable securities between sellers and buyers. Everyone has access to information in the capital market, both sellers and buyers. According to the news, the investment decision will be made by the seller and the buyer. The investment decisions of both the buyer and seller will have an effect on the share price. The stock price of a company will react to an event in proportion to how quickly an investor decides. On the basis of this explanation, the research hypothesis occurs to be:

H_1 : There are no significant differences in Share Prices pre-terrorist and post-terrorist attack.

Every developing country requires external financing. Foreign investors can invest in the stock market. Through stock exchanges, foreign investors purchase shares in domestic companies. For investment purposes, foreign investors convert foreign currency to local currency. On the other hand, when investors sell their shares, they will convert their local currency into foreign currency. Foreign investors operate on a global scale. Stock sales and purchases can occur very quickly. Investors' reactions to terrorist attacks can be seen in the local currency exchange rates relative to foreign currencies. The research hypothesis is:

H_2 : There are no significant differences in Currency Exchange rates pre-terrorist and post-terrorist attack.

The research tests the short-term effects from 3 to 15 days. This test supports research from Arif (2017), Hadhek et al. (2019), and Tavor and Teitler-Regev (2019). Their research shows that an abnormal return to an event occurs in the short term.

The research makes use of paired testing. The test examines an incident that occurs by examining the period immediately preceding and following the incident. The Wilcoxson test is used in this research as a parametric test.

The Wilcoxon Signed Rank Test is a non-parametric test for non-normal data. If the sample passes the normality test, the paired T-Test is used. The Shapiro-Wilk test is used to determine normality in this research.

The Wilcoxon test has several requirements, one of which is that the variable being tested must be ordinal or interval/ratio data scale. The normality test does not apply to variable data. The variable is composed of two paired categories, namely before and after. Paired is the subject as a data source for a single observation or event. Foreign exchange rates and stock indices are analyzed prior to and following a terrorist attack. The stock market index before and after a terrorist attack. This index is identical prior to and following the incident. The research examines the short-term consequences of a terrorist attack using three timeframe scenarios. D-7 and D+7 are the two research scenarios; D-3 and D+3 are the two research scenarios; and D-1 and D+1 are the two research scenarios. These are the three observational periods. The return estimation period, also known as the D-120 event day estimation period. Figure 4 explains the event research in more details.

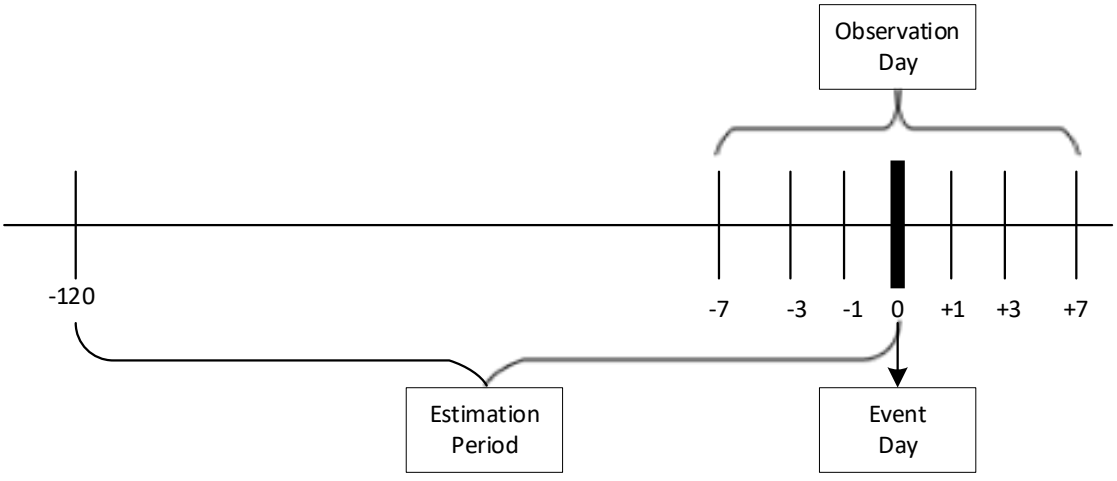

Figure 4 Time Frame of Event Studies Research

The return on an investment in a stock is comprised of the share price appreciation and dividends. The research makes use of stock return data. Stock returns are calculated by comparing the performance of these shares to the previous period. The current stock return is calculated by subtracting the current share price (Pt) from the previous period or investment period (Pt-1). This difference is expressed as an absolute value in the local currency. The

percentage return value is calculated by dividing the stock return by the previous period (Pt-1). Return (Rt) is calculated as:

$$R_t = \frac{P_t - P_{t-1}}{P_{t-1}} \quad (1)$$

where:

Rt = Return

P_t = Share price in period t

P_{t-1} = Share price at the time of observation

To calculate the daily rate of return, the return is divided by the number of research days to obtain an average daily rate of return. The formula is:

$$Average\ R_{t\,n} = \frac{R_t}{n} \quad (2)$$

where:

Rt = Stock return in period t (%)

N = Observation period (days)

An abnormal return on investment is an unusual rate of return or a rate of return under unfavorable conditions. The abnormal return is the difference between the return obtained and the expected return. This formula describes the formula for the abnormal return.

$$Abnormal\ Return_{i.t} = Average\ R_{i.t} - Average\ E\ (R_{i.t}) \quad (3)$$

where:

Abnormal Return = abnormal return for stock i at event t (day t)

Average Rt = the average (actual) return on stock i on day t

Average E (Ri.t) = average (actual) return on stock i on day t

The expected return or expected return is the anticipated rate of return over the observation period. The obtained return value is reduced by the price position during the observation period and then divided by the observation period in days. The formula is:

$$Average\ E(R_{i.n.t}) = \frac{\left(\frac{(P_t - P_n)}{P_n}\right)}{n} \quad (4)$$

where:

Pt = Share price i in period t

Pn = Share price i in period n (estimation)

N = Estimation period (days)

Time period estimated to determine whether any reaction occurs prior to the information leak. The average return is calculated by comparing the prices of stocks or foreign currency prior to and following an event. By contrast, the average expected return compares post-event stock or foreign exchange rates to the period under normal conditions. 120 days prior to the incident, typical conditions are used. Simultaneously, information leakage has no effect on the average return. The average return is determined by comparing the period immediately preceding and immediately following the event. If information is leaked, there is no change in the period following the event, whereas the estimation period is 120 days prior to the event.

The research examines exchange rates and stock indexes using data collected from various terrorist attacks in four ASEAN countries totaling 38 terrorist attacks. The specifics are listed in Table 1. The research spans the years 2000-2021. Criteria for terrorist attacks are based on news of terrorist attacks and carried out by groups that cause fear in the community and are announced by the government.

Table 1 Terrorist Events in South East Asia

No.	Date	Location	Country	Casualities (Dead)
1	1-Aug-00	Embassy / Public Area	Indonesia	2
2	13-Sep-00	Stock Exchange / Public Area	Indonesia	10
3	24-Dec-00	Church	Indonesia	16
4	30-Dec-00	Public Area	Philippine	14
5	22-Jul-01	Church	Indonesia	5
6	12-Oct-02	Restaurant and Bar / Public Area	Indonesia	202
7	27-Apr-03	Airport / Public Area	Indonesia	-
8	5-Aug-03	Hotel / Public Area	Indonesia	11
9	9-Sep-04	Embasssy / Public Area	Indonesia	5
10	15-Feb-05	Public Area	Philippine	11
11	1-Oct-05	Restaurant and Bar / Public Area	Indonesia	22
12	31-Dec-05	Market / Public Area	Indonesia	8
13	17-Jul-09	Hotel / Public Area	Indonesia	9
14	25-Jan-11	Bus / Public Area	Philippine	2
15	25-Sep-11	Church	Indonesia	1
16	9-Jun-13	Police Office	Indonesia	1
17	9-Oct-14	Restaurant and Bar	Malaysia	-
18	17-Aug-15	Temple	Thailand	22
19	14-Jan-16	Public Area	Indonesia	8
20	5-Jul-16	Police Office	Indonesia	1
21	28-Aug-16	Church	Indonesia	-
22	13-Nov-16	Church	Indonesia	1
23	22-May-17	Public Area	Thailand	-

Table 1 Terrorist Events in South East Asia
(continued)

No.	Date	Location	Country	Casualities (Dead)
24	24-May-17	Residence Area	Indonesia	5
25	8-May-18	Police Office	Indonesia	1
26	13-May-18	Church	Indonesia	15
27	16-May-18	Police (Mako Brimob)	Indonesia	6
28	27-Jan-19	Church	Philippine	23
29	2-Aug-19	Public Area	Thailand	-
30	10-Oct-19	Public Area	Indonesia	1
31	13-Nov-19	Police Office (Wiranto)	Indonesia	6
32	9-Feb-20	Public Area	Thailand	26
33	9-Feb-20	Public Area	Thailand	1
34	14-Feb-20	Public Area	Thailand	2
35	17-Mar-20	Government Office	Thailand	-
36	24-Aug-20	Military Camp	Philippine	14
37	28-Mar-21	Church	Indonesia	2
38	31-Mar-21	Police Office	Indonesia	1

Source: research results

Table 2 Data Explanation

No.	Incident	Explanation
1.	If the research day is due on a holiday	Data are collected on the following business days
2.	The terrorist attack is based on the day the incident occurred	If a terrorist attack occurs at midnight, it is based on the hour of the incident, even though the financial market is closed at that time.
3.	If a terrorist attack occurs for more than one day in one event	The terrorist attack is calculated based on the first day of the incident.

Investing.com and Yahoo Finance provide index and rate data. Several of the exchange rates are derived from data provided by each country's central bank. Table 2 provides context for the data. Terrorist attacks are used based on the date or time of the incident. If a terrorist attack occurs during the night, the applicable day is the date of the incident. Table 3 contains information about the research parameters. The exchange rate and stock index data are derived from the respective country's index. Table 4 details the index for each country.

Table 3 Data Source

No.	Variable	Description	Source
1	Terrorist Attack	Terrorist attacks with casualties	Ourworldindata.org/terrorism
2	Foreign Exchange/United States Dollar	Exchange rate of a country's currency against the United States Dollar	Yahoo Finance; Investing.com; bi.go.id
3	Stock Index	A composite stock price index of a country's stock exchange	Yahoo Finance; Investing.com

Table 4 Data Proxy

No.	Variable	Index	Currency
1.	Indonesia	IHSG (Indonesia Composite Index)	United State Dollar (USD) / Rupiah
2.	Thailand	SET Index (Stock Exchange Thailand)	USD / Bath
3.	Philippines	PSEI (Philippine Stock Exchange Index)	USD / Peso
4.	Malaysia	FTSE Bursa Malaysia KLCI	USD / Ringgit

Analysis

The research analyze 38 terrorist attacks in ASEAN. These terrorist attacks took place in four of ASEAN's most developed countries: Indonesia, the Philippines, Thailand, and Malaysia. The bombing attack in Bali II had the effect of lowering the study's most comprehensive composite stock price index by 18.57% - 22.55%. It was compared to the previous day's composite stock price index. This is also evident in the return on abnormal return calculation. Although the Bali Bombing II claimed fewer lives than the Bali Bombing I, its psychological toll was greater.

The Bali Bombing II incident, on the other hand, demonstrated the quickest recovery rate of 29.60%. This recovery has outperformed the previous recession. On D+7, this recovery occurred. On 1 October 2005, the second Bali bombing occurred. 22 people were killed in the Bali Bombing II. Over 200 people were killed in the Bali Bombing. Although the Bali Bombing II incident claimed fewer lives, it had a more severe impact on the community. A rapid recovery occurred in abnormal returns as well, with the composite stock price index recovering 29% on D+1, 11% on D+3, and 5% on D+7. The data are summarized in Table 5.

Table 5 Descriptive Data

	N	Minimum	Maximum	Mean	Std. Deviation
PRE 1 INDX	38	-0.2255	0.0147	-0.016068	0.0398934
PRE 3 INDX	38	-0.1867	0.0242	-0.020195	0.0410027
PRE 7 INDX	38	-0.2099	0.0383	-0.031200	0.0616420
POST 1 INDX	38	-0.0700	0.2960	0.008979	0.0517693
POST 3 INDX	38	-0.0380	0.3173	0.017529	0.0581176
POST 7 INDX	38	-0.0764	0.3192	0.014987	0.0684035
AR PRE 1 INDX	38	-0.2235	0.0152	-0.015518	0.0391427
AR PRE 3 INDX	38	-0.0603	0.0054	-0.006179	0.0123712
AR PRE 7 INDX	38	-0.0261	0.0051	-0.003905	0.0070906
AR POST 1 INDX	38	-0.0690	0.2980	0.008261	0.0518719
AR POST 3 INDX	38	-0.0120	0.1077	0.005163	0.0192927
AR POST 7 INDX	38	-0.0101	0.0476	0.001305	0.0092107
PRE 1 FX	38	-0.0300	0.0290	0.000026	0.0080990
PRE 3 FX	38	-0.0200	0.0250	0.000132	0.0092156
PRE 7 FX	38	-0.0360	0.0243	-0.000976	0.0141369
POST 1 FX	38	-0.0200	0.0970	0.003711	0.0168329
POST 3 FX	38	-0.0200	0.0970	0.005789	0.0180167
POST 7 FX	38	-0.0200	0.1280	0.006658	0.0238229
AR PRE 1 FX	38	-0.0330	0.0294	-0.001008	0.0092457
AR PRE 3 FX	38	-0.0090	0.0084	-0.000087	0.0034754
AR PRE 7 FX	38	-0.0040	0.0046	0.000192	0.0018738
AR POST 1 FX	38	-0.0250	0.0984	0.002318	0.0179126
AR POST 3 FX	38	-0.0090	0.0332	0.001663	0.0065061
AR POST 7 FX	38	-0.0030	0.0190	0.001050	0.0035756
Valid N (listwise)	38				

Note:
Pre : Before Event
Post : After Event
Indx : Stock Index
FX : Foreign Exchange
AR : Abnormal Return
1, 3, 7 : 1 Day, 3 Days or 7 Days

Differences in Share Prices Pre-Terrorist and Post-Terrorist Attack

For investors seeking to profit from their investment, it is recommended that new investors purchase shares on D+1 or one day after the event and sell on the third day following the D+3. Out of the 38 events, 23 have a higher return index than the post-event index, 11 have a lower return index, and four have the same return index. After one day, the average daily return is 0.8%, while after three days, the average daily return is 1.7%. Meanwhile, the abnormal return produces no discernible results.

The Wilcoxon test demonstrates that the condition following the incident is superior to the condition prior to the incident. All events demonstrate that the pre-incident generates an average return, which is more remarkable than an average abnormal return. This indicates that, on average, pre-incident recovery has recovered and is superior to post-incident recovery.

Table 6 Wilcoxon Rank Test

No.	Event	Negative Rank (<)	Mean Rank	Positive Rank (>)	Mean Rank	Ties (=)
1	POST7INDX - PRE7INDX	16	14.25	22	23.32	0
2	POST3INDX - PRE3INDX	11	15.55	27	21.11	0
3	POST1INDX - PRE1INDX	10	16.45	26	19.29	0
4	ARPOST7INDX - ARPRE7INDX	16	14.53	22	23.11	0
5	ARPOST3INDX - ARPRE3INDX	11	14.86	27	21.39	0
6	ARPOST1INDX - ARPRE1INDX	10	16.50	26	19.27	0
7	POST7FX - PRE7FX	14	17.75	23	19.76	1
8	POST3FX - PRE3FX	12	14.17	19	17.16	7
9	POST1FX - PRE1FX	7	8.14	11	10.36	20
10	ARPOST7FX - ARPRE7FX	13	13.77	17	16.82	8
11	ARPOST3FX - ARPRE3FX	15	17.47	21	19.24	2
12	ARPOST1FX - ARPRE1FX	14	15.82	17	16.15	7

Note:
Pre : Before Event
Post : After Event
Indx : Stock Index
FX : Foreign Exchange
AR : Abnormal Return
1, 3, 7 : 1 Day, 3 Days, and 7 Days

The Shapiro-Wilk test is then used to determine the normality of the calculated return and abnormal return data. If (>0.05), the data is considered to be normal. If (0.05), the data are non-normal. Only D-7 for foreign currency satisfies the normality requirement based on available data. Meanwhile, D+7 remains abnormal. This indicates that the existing data do not

meet the requirements for normality. Thus, the parametric test with the Wilcoxon test is used to evaluate this data, as described in Table 6.

Table 7 Normality Test

	Shapiro-Wilk			
	Statistic	**df**	**Sig.**	**Normality**
PRE 1 INDX	0.480	38	0.000	No
PRE 3 INDX	0.689	38	0.000	No
PRE 7 INDX	0.785	38	0.000	No
POST 1 INDX	0.488	38	0.000	No
POST 3 INDX	0.600	38	0.000	No
POST 7 INDX	0.713	38	0.000	No
AR PRE 1 INDX	0.461	38	0.000	No
AR PRE 3 INDX	0.646	38	0.000	No
AR PRE 7 INDX	0.808	38	0.000	No
AR POST 1 INDX	0.466	38	0.000	No
AR POST 3 INDX	0.558	38	0.000	No
AR POST 7 INDX	0.664	38	0.000	No
PRE 1 FX	0.595	38	0.000	No
PRE 3 FX	0.857	38	0.000	No
PRE 7 FX	0.955	38	0.126	Yes
POST 1 FX	0.440	38	0.000	No
POST 3 FX	0.597	38	0.000	No
POST 7 FX	0.609	38	0.000	No
AR PRE 1 FX	0.746	38	0.000	No
AR PRE 3 FX	0.899	38	0.002	No
AR PRE 7 FX	0.924	38	0.013	No
AR POST 1 FX	0.558	38	0.000	No
AR POST 3 FX	0.682	38	0.000	No
AR POST 7 FX	0.630	38	0.000	No

Note:
Pre : Before Event
Post : After Event
Indx : Stock Index
FX : Foreign Exchange
AR : Abnormal Return
1, 3, 7 : 1 Day, 3 Days, and 7 Days

According to the Wilcoxon test results in Table 7 and Table 8, all pre- and post-incidents for the return index and abnormal return index indicate a statistically significant change. For events D-1 with D+1 and D-3 with D+3, there is a significant shift with 1%. When D-7 is combined with D+7, a significant 5%. The results of the test indicate that the index has a higher positive rank than a lower negative rank. This demonstrates that post-events generate higher rates of return and abnormal returns than pre-events.

There is no significant change between pre-incidents and post-incidents for the three test scenarios for exchange rate return and foreign exchange abnormal return. Post-incident shows positive results, where it has better returns and abnormal returns than pre-incident.

The Wilcoxon test result indicates that there is a higher rate of return post-incident than pre-incident of a terrorist attack. The stock index is the only significant difference.

Table 8 Wilcoxon Test Results

	Return Index		Abnormal Return Index		Return Foreign Exchange	Abnormal Return Foreign Exchange
Post 7 vs Pre 7	-2.067	**	-2.001	**	-1.554	-1.101
Post 3 vs Pre 3	-2.893	***	-3.002	***	-1.529	-1.116
Post 1 vs Pre 1	-2.647	***	-2.639	***	-1.247	-0.519

Note:
*) Significant on 10%
**) Significant on 5%
***) Significant on 1%
Pre : Before Event
Post : After Event
Indx : Stock Index
1, 3, 7 : 1 Day, 3 Days and 7 Days

According to the Shapiro Wilk test, only pre-7 for the index (D-7) demonstrates that the data are normal. However, because the index's post-7 (D+7) value is abnormal, the special tests for D-7 and D+7 are omitted.

Table 9 Wilcoxon Rank Test Results (2)

No.	Event	Negative Rank (<)	Mean Rank	Positive Rank (>)	Mean Rank	Ties (=)
1	POST1INDX - POST7INDX	21	18.90	16	19.13	1
2	POST1INDX - POST3INDX	23	19.39	11	13.55	4
3	ARPOST1INDX - ARPOST7INDX	15	17.83	22	19.80	1
4	ARPOST1INDX - ARPOST3INDX	18	20.11	19	17.95	1
5	POST1FX - POST7FX	20	14.60	9	15.89	9
6	POST1FX - POST3FX	16	11.69	6	11.00	16
7	ARPOST1FX - ARPOST7FX	18	19.81	19	18.24	1
8	ARPOST1FX - ARPOST3FX	21	19.00	15	17.80	2

Note:
Pre : Before Event
Post : After Event
Indx : Stock Index
FX : Foreign Exchange
AR : Abnormal Return
1, 3, 7 : 1 Day, 3 Days or 7 Days

On index and exchange rates, the research tests returns and abnormal returns to events (D+1). The results indicate that the positive rank is three times more remarkable than the negative rank (Table 9). The positive rank denotes that post-one-day (D+1) and abnormal returns are greater than D + 3 and D+7. Negative rank refers to a three-day (D+3) or seven-day (D+7) post-event with a higher return and abnormal return than a one-day post-event (D+1).

The Wilcoxon test, as seen in Table 10, indicates that stock index returns after three days (D+3) and one day (D+1) are statistically significant. For foreign exchange rates, returns, and abnormal returns, significant results are obtained when comparing events occurring within one day to events occurring within three days. This statistically significant result indicates a negative outcome. These findings indicate a sizable $\alpha<5\%$.

Table 10 Wilcoxon Test Results (2)

	Return Index		**Abnormal Return Index**	**Return Foreign Exchange**		**Abnormal Return Foreign Exchange**	
Post 1 vs Post 3	-2.539	**	-0.158	-1.966	**	-1.037	**
Post 1 vs Post 7	-0.686		-1.267	-1.613		-0.075	

Note:
Pre : Before Event
Post : After Event
Indx : Stock Index
FX : Foreign Exchange
AR : Abnormal Return
1, 3, 7 : 1 Day, 3 Days and 7 Days
**) Significant on 5%

There is a significant difference between post-incident and pre-incident stock returns and abnormal returns. The results of the return and abnormal return indicate that the positive rank is greater than the negative rank. The return has a positive rank, and the post-incident abnormal return is greater than both the pre-incident and abnormal returns. Thus, an investor can earn a higher profit if he can maintain his investment based on the above-mentioned test results. In as many as 150 of 228 events, the post-incident return is greater than the pre-incident return, or by 65.78%. The capital market is a free market, and intervention by the authorities will be difficult.

The findings are in contrast to those of Fauzial and Venusita (2021), Saputra et al. (2021), Anggraeni et al. (2021). Earlier research concludes that there was no difference in stock market returns. The research discovered a greater difference over a specified time period. The research is unique in that it includes an explanation for the difference in time or day.

Return and abnormal return have no discernible effect on currency exchange rates. Foreign exchange markets are regulated by the appropriate authorities. The central bank may intervene in the currency market by purchasing or selling currencies in response to market conditions.

Differences in Currency Exchange Rates Pre-Terrorist and Post-Terrorist Attack

Investors interested in foreign exchange, returns, and abnormal returns one day after an event (D+1) with a return three days after the event (D+3) demonstrate significant results. Return and abnormal return post-event demonstrate greater results than pre-incident in up to 37 of 76 events. At D+1, the return on foreign currency is 0.37%, while at D+3, it is 0.57%. Meanwhile, the abnormal return on D+1 is 0.23%, and the abnormal return on D+3 is 0.167%. Previous research indicates that there is a 3 to 15-day difference in the foreign exchange rate between before and after an event (Arif, 2017; Hadhek et al., 2019; Tavor & Teitler-Regev, 2019). This research is unique in that it is conducted over a short period of time and includes days that demonstrate changes in returns. This has not been demonstrated in prior research. This research focuses on the capital and financial markets of Southeast Asia's major countries. This research will benefit investors interested in investing in one of the world's fastest growing regions, accounting for approximately 5% of the global population. The research demonstrates that terrorist attacks have only a transient impact on investor behavior. Investors' fundamental confidence in Southeast Asian countries must be strong. Terrorist attacks have only a transient impact, not a permanent one. In general, only three to five days after a terrorist attack do things return to normal.

Conclusion

The capital market responds to terrorist attacks, whereas the money market, particularly the foreign exchange market, does not. This is quantified through the return and abnormal return on stock indexes and foreign exchange rates relative to the US Dollar. This reaction, however, is only temporary. After three to seven days, the stock index and currency exchange rate will return to their pre-attack levels. The stock index will generate a higher return than it did prior to the incident. The public has confidence and trust in the state's ability to resolve the terrorism problem. A second attack on the precise location, on the other hand, will have a greater effect than the first. The second attacks include a second church bombing, a second Bali bombing, and a second Jakarta hotel attack. Investors can earn a profit by purchasing shares or foreign currency after the incident occurs and then selling it three days later. The investor will earn a profit. The research has limitations in terms of the types of events analyzed. The investigation is limited to incidents occurring within a country and makes no distinction between major city incidents and attack types. Additional research can be conducted to determine the type of terrorist attack and its location by analyzing the government's actions in providing security to society in ASEAN countries. Another method is conducting a survey to ascertain the public's reaction.

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