





# “Do COVID-19 containment policies influence equity market returns? Evidence from the ASEAN-5”

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# DO COVID-19 CONTAINMENT POLICIES INFLUENCE EQUITY MARKET RETURNS? EVIDENCE FROM THE ASEAN-5

## Abstract

This study investigates the short- and long-term effects of the COVID-19 pandemic on ASEAN-5 stock markets, Malaysia, Indonesia, Singapore, Thailand, and the Philippines, emphasizing differences between cyclical and non-cyclical sectors. It aims to evaluate how effectively these emerging markets are handling pandemic-related information in a context of extreme uncertainty. The study employs the event study and Buy-and-Hold Abnormal Return (BHAR) methodologies for the year 2020. The finding indicates asymmetric market responses across the ASEAN-5. In the short term, Malaysia (-0.56%), Indonesia (-8.35%), and Singapore (-0.42%) experienced significant declines in cumulative abnormal returns (CAR) (-1,1). Long-term results for 1 to 6 months show gradual recovery in Malaysia (6.97%), Indonesia (5.13%), and Singapore (7.65%). Sectoral analysis reveals that Malaysia's financial sector (FIN) posted CAR of three days (-1.68%) ( $p < 0.01$ ) and five days (-3.18%) ( $p < 0.10$ ). Next comes Indonesia's cyclical sector, the transportation sector's three-day (-9.40%) and five-day (21.91%) CAR (both  $p < 0.01$ ). For Singapore's mineral resources (MR), the two-day (-1.74%) and seven-day (-2.91%) CARs are statistically significant at least at 10%. In the Philippines, the sectoral reaction was -0.94% to -2.44% over two and seven days for the financial (FIN) sector; in Thailand, the financial (FIN) and utilities (UTI) sectors had CAR of -2.26% over three days and -4.58% over three days, respectively. These findings support the semi-strong form of market efficiency, indicating temporary deviations in behavior. The paper provides a comprehensive review of market efficiency in systemic crises and new insights into sector resilience and policy-driven economic recovery in developing countries.

**Keywords** COVID-19, 5-policies, ASEAN-5, abnormal returns

**JEL Classification** G14, G53

## INTRODUCTION

The COVID-19 pandemic constitutes one of the most severe exogenous shocks to global financial markets in recent years. Following the World Health Organization's declaration of COVID-19 as a pandemic in March 2020, stock markets worldwide experienced unprecedented volatility, heightened uncertainty, and substantial disruptions in investor sentiment. In emerging economies, these effects were particularly pronounced due to differences in financial market development, institutional resilience, and policy responses to the financial market disruptions. Within Southeast Asia, the ASEAN-5 countries, namely, Malaysia, Indonesia, Singapore, Thailand, and the Philippines implemented diverse containment policies and economic stimulus measures, resulting in heterogeneous market reactions across countries and industries.

A growing body of literature has examined the impact of COVID-19 on stock market performance. Previous studies document significant negative abnormal returns following pandemic-related announcements in various markets. For example, Herwany et al. (2021) reported substantial declines in Indonesian stock returns immediately after

the outbreak announcement, particularly within the financial sector. Adnan (2022) found significant negative reactions across several Asian stock markets following the WHO pandemic declaration, while Zhang et al. (2023) documented severe market downturns among Regional Comprehensive Economic Partnership (RCEP) member countries. At the sectoral level, Naidu and Ranjeeni (2021) revealed considerable variation in industry responses, with sectors such as energy, industrials, and information technology being more adversely affected than defensive sectors such as consumer staples.

Although these studies provide important insights into the market consequences of the pandemic, several research gaps remain. First, most existing studies focus primarily on short-term market reactions surrounding major COVID-19 announcements, while limited attention has been given to the persistence of abnormal returns over longer investment horizons. Second, prior research has largely examined individual countries or broader international samples, providing limited evidence specifically for ASEAN-5 stock markets. Third, while sectoral heterogeneity has been explored in selected markets, there remains insufficient understanding of how cyclical and non-cyclical industries within ASEAN-5 responded differently to the pandemic. Finally, empirical evidence regarding whether ASEAN-5 stock markets behaved consistently with the semi-strong form of the Efficient Market Hypothesis (EMH) during periods of extreme uncertainty remains inconclusive.

To address these gaps, this study investigates both short-term and long-term stock market responses to COVID-19 announcements in ASEAN-5 countries. Using event study methodology and Buy-and-Hold Abnormal Returns (BHAR), the study aims to: (1) assess the immediate impact of COVID-19 announcements on ASEAN-5 stock markets; (2) evaluate the long-term persistence of abnormal returns following the event; and (3) examine sectoral differences between cyclical and non-cyclical industries.

This study contributes to the literature in several ways. First, it extends existing COVID-19 research by examining both short- and long-term market performance on ASEAN-5 stock markets. Second, the study contributes to the market efficiency literature by evaluating whether ASEAN-5 stock markets exhibit behaviour consistent with the semi-strong form of the Efficient Market Hypothesis under extreme uncertainty. Third, by comparing cyclical and non-cyclical sectors, the study offers a more nuanced understanding of sectoral resilience and vulnerability under COVID-19 pandemic conditions. Finally, the findings provide practical implications for investors, policymakers, and regulators seeking to strengthen financial market resilience and policy-driven economic recovery in developing countries. The remainder of the paper is structured as follows. Section 1 provides a literature review and proposed hypotheses. Section 2 explains methodology. Section 3 discusses empirical results, and the last section concludes the paper.

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## 1. LITERATURE REVIEW AND HYPOTHESES

The Efficient Market Hypothesis (EMH) provides the principal theoretical foundation for examining market reactions to exogenous shocks such as the COVID-19 pandemic. According to Fama (1970), an efficient market is one in which security prices “fully reflect” all available information, implying that investors cannot systematically earn abnormal returns once information becomes publicly known. Under the semi-strong form of efficiency, publicly disclosed events, including pandemic announcements, should be rapidly and unbiasedly incorporated into stock prices (Chen et al., 2020; Dang Ngoc et al.,

2021). Consequently, the persistence of statistically significant abnormal returns beyond the announcement date would indicate delayed information assimilation and, therefore, a deviation from market efficiency.

Subsequent refinements of the EMH framework recognize that market anomalies may emerge in both directions. Fama (1998) argued that overreaction and underreaction are equally probable and often reflect chance outcomes rather than systematic inefficiencies. Empirical investigations of long-term abnormal returns frequently yield mixed evidence, with both positive and negative post-event performance documented across markets. In

this regard, Ledwani et al. (2021) and Naidu and Ranjeeni (2021) demonstrate that long-horizon abnormal returns following COVID-19 announcements vary across countries and sectors, thereby aligning with the proposition that market anomalies may not necessarily contradict efficiency but may reflect temporary behavioral adjustments.

Empirical evidence employing Buy-and-Hold Abnormal Returns (BHAR) offers important insights into long-run performance following the pandemic shock. Ledwani et al. (2021) conducted a comparative analysis of G7 and BRICS equity markets and documented sharply negative abnormal returns during the early event window (30–44 days), with Canada (–30%) and Brazil (–40%) experiencing the steepest declines. These findings reflect heightened investor uncertainty and panic-driven selling during the initial outbreak phase. However, in the subsequent 45–59-day window, most markets, excluding Japan and China, began to exhibit statistically significant positive abnormal returns, indicating early signs of recovery. By the 75–89-day period, all G7 and BRICS markets recorded positive and significant returns, largely attributed to expansive fiscal stimulus, monetary easing, and coordinated policy interventions. Notably, G7 markets demonstrated more synchronized and resilient recovery patterns compared with BRICS economies, suggesting stronger institutional capacity and deeper financial integration.

Complementary sectoral analysis by Naidu and Ranjeeni (2021) in the Australian context reveals heterogeneity in industry-level responses. During the initial event window (–37, 12), sectors such as energy, industrials, and information technology experienced negative abnormal returns, while the financial sector displayed marginal gains. In later windows, (–19, 12) and (0, 12), negative abnormal returns persisted across most industries, with consumer staples emerging as a defensive sector generating small but positive returns. The authors interpret these results as indicative of investor underreaction to pandemic-related risks, thereby suggesting short-term informational inefficiencies.

Collectively, long-run evidence underscores that while markets initially reacted sharply and negatively to COVID-19, corrective adjustments and policy responses facilitated subsequent recovery.

The mixed trajectory of abnormal returns across markets and time horizons reflects both behavioral dynamics and structural differences in economic resilience.

### 1.1. Empirical evidence for short-term performance

The five studies collectively provide valuable insights into how different national and regional stock markets reacted to the COVID-19 pandemic (Ramelli, & Wagner, 2020), highlighting variations in market efficiency, sectoral sensitivity, and investor behavior during the crisis (Dreman & Lufkin, 2000). Naidu and Ranjeeni (2021) examined 478 Australian firms and found that market returns turned significantly negative (–0.95%) on 24 February 2020. Six major sectors, including consumer discretionary, healthcare, industrials, IT, real estate, and utilities, recorded negative returns between –2.35% and –0.40% across short event windows. The energy sector was uniquely affected later (+10 days, –9.07%). They concluded that pandemic-related fear triggered volatility, especially in transportation, energy, and travel industries, demonstrating a strong link between COVID-19 news and market instability.

In the Indonesian context, Herwany et al. (2021) analyzed 572 listed firms and identified immediate negative cumulative abnormal returns (CARs) following the outbreak announcement. The financial sector experienced the most substantial decline (CARs between –3.13% and –3.39%), reflecting concerns regarding credit risk, liquidity constraints, and macroeconomic instability. Conversely, consumer goods and mining sectors exhibited relative resilience, suggesting differentiated investor expectations across industries. Adnan (2022) extended the analysis to twelve Asian capital markets and documented significant negative reactions following the World Health Organization's pandemic declaration on 11 March 2020. Malaysia (–1.2%), Indonesia (–2%), and Vietnam (–3.25%) registered marked declines, whereas Singapore, Japan, and China exhibited statistically insignificant responses. The author attributes these heterogeneous reactions to varying degrees of regional contagion and financial co-integration, implying that stronger cross-market linkages amplified vulnerability.

Similarly, Zhang et al. (2023) investigated stock markets within the Regional Comprehensive Economic Partnership (RCEP) bloc and reported severe declines around the pandemic declaration, including Indonesia (−14.3%), Thailand (−11.4%), Malaysia (−7.7%), and Singapore (−6.4%). Developed RCEP members demonstrated faster recovery following coordinated global policy interventions, including U.S. Federal Reserve stimulus measures in April 2020. The study concludes that developed markets exhibited greater informational efficiency and absorptive capacity, whereas emerging markets adjusted more gradually. Finally, Meryn and Imelda (2023), focusing on the ASEAN-5, observed no statistically significant abnormal returns immediately surrounding the WHO announcement. Market reactions emerged only between day +2 and +4, indicating delayed information processing. This pattern is broadly consistent with the semi-strong form of market efficiency in emerging markets, where information diffusion may occur with slight temporal lags.

Given this theoretical argument and earlier evidence, the study examines the short-term and long-term stock market reactions to major COVID-19 announcements within the selected market context, to evaluate whether abnormal returns persist beyond the event window, and to determine the extent to which observed return dynamics are consistent with the semi-strong form of the Efficient Market Hypothesis.

Thus, three hypotheses were formulated in the course of this study:

- H1: COVID-19 announcement events generate statistically significant abnormal returns within the short-term event window on ASEAN stock markets.*
- H2: Long-term buy-and-hold abnormal returns following COVID-19 announcements are not systematically positive or negative, reflecting correction mechanisms consistent with market efficiency.*
- H3: The magnitude of abnormal returns differs significantly across industry sectors during the COVID-19 event period.*

This study contributes to a deeper understanding of how ASEAN-5 markets incorporate pandemic-related information, providing empirical evidence on the extent of market efficiency and behavioral deviations under crisis conditions.

## 2. METHODOLOGY

### 2.1. Sample selection

The sample selected to measure long-term performance includes firms from ASEAN-5, covering the 2020 event period (0), March 11, 2020. The daily and monthly Prices Index (PI) data were used, covering the three months before the declaration of the COVID-19 pandemic by the WHO and the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 6<sup>th</sup>, 12<sup>th</sup>, 24<sup>th</sup>, and 36<sup>th</sup> months after the cease date of the Public Health Emergency of International Concern (PHEIC). The PI data were derived from the Refinitiv-Thompson DataStream, entailing 19 sectors. Abnormal returns were estimated using two methods, namely CARs and BHARs. The study measured price performance against five benchmarks, namely: the FTSE Emas Index (Malaysia), Straits Times Index-Singapore (STI), the Philippine Stock Exchange Index-Philippines (PSI), the Stock Exchange of Thailand-Bangkok (SET), and Indonesia Stock Exchange-Indonesia (IDX) (Barber & Lyon, 1997).

### 2.2. Short-run performance

This study used the event study methodology as employed in past inquiries (Brown & Warner, 1985; Bradley et al., 1983; MacKinlay, 1997; Yeung et al., 2020; Ishak, Shahar, et al., 2022). The market model was utilized for measuring abnormal market reactions before the COVID-19 return announcements. Firstly, each company's daily raw returns as well as the market index were calculated from day −200 until day +60. To capture the effect of market reactions towards the COVID-19 announcements, a 121-day event window was used, encompassing 60 pre-event days, the event day, and 60 post-event days. The estimation period began at day −200 to day −61, before the event's announcement date. As recommended by MacKinlay (1997), instead of a specified period of interest, a wider time interval for events was used so that market reactions before the official announcement

date could be captured. To measure the cumulative abnormal return (CAR), the normal return, which denotes the expected return in the case of a non-event, had to be calculated first, utilizing the market model approach (MacKinlay, 1997). The market portfolio consisted of FBMEMAS, STI, PSI, SET, and IDX.

### 2.3. Long-run performance

In long-term event studies, two key elements must be noted, namely the methodology for estimating returns and the benchmarks for measuring normal returns (Fama, 1998; Barber & Lyon, 1997; Bessler & Thies, 2007; Pontiff & Woodgate, 2008). To this end, the return index (RI) and price index (PI) were used in this study to measure the returns. The use of BHAR entails compounding of short-term returns to attain long-run buy-and-hold returns, comparable to the realizable returns for investments held over the long run. Hence, BHAR was suggested by Barber and Lyon (1997) and Ishak et al. (2020) for measuring long-run performance.

Two critical issues should be considered in employing long-term event studies: (a) the methodology used to estimate returns and (b) the benchmarks employed to measure normal returns (Fama, 1998; Barber & Lyon, 1997; Bessler & Thies, 2007; Pontiff & Woodgate, 2008). There are two popular approaches to estimating long-run performance: buy-and-hold returns (BHAR) and cumulative abnormal returns (CAR). Almost all studies apply BHAR to detect long-run abnormal returns (Ledwani et al., 2021; Naidu & Ranjeeni, 2021). Barber and Lyon (1997) argue that CAR is a biased predictor of long-run buy-and-hold abnormal returns. Besides, CAR also ignores the effect of monthly compounding. Additionally, by using BHAR, short-term returns are compounded to obtain long-run buy-and-hold returns, which are the returns that investors get if they hold the investments over a long period of time. Therefore, Barber and Lyon (1997) suggest using BHAR to detect long-run performance. Buy-and-hold abnormal return (BHAR) refers to the abnormal return that an investor gains from holding on to the investment over a period. If an investor holds a stock for three years, the BHAR represents the total adjusted return the investor receives over those three years.

## 3. RESULT AND DISCUSSION

### 3.1. Short-term performance for market index

Table 1 reports the Cumulative Average Abnormal Returns (CAAR) for ASEAN-5 stock markets across multiple event windows (-60, 60), (-1, 1), (-3, 1), (-5, 1), and (0, 1), capturing both short-term and longer-term market reactions to COVID-19-related shocks. The results reveal varied abnormal return patterns, reflecting differences in sectoral sensitivity, market resilience, and investor sentiment across the region. Short-term windows (-1, 1), (-3, 1), and (-5, 1) highlight immediate market responses to the outbreak and early containment measures. Malaysia, Indonesia, and the Philippines recorded significant negative abnormal returns, indicating adverse investor reactions to abrupt economic disruptions. These findings underscore the uneven impact of the pandemic across cyclical and non-cyclical sectors and point to varying degrees of market efficiency and policy effectiveness among ASEAN-5 economies.

In Malaysia, CAARs of -0.56% (-1, 1) and -2.62% (-3, 1), significant at the 5% and 1% levels, respectively, indicate a sharp decline in market performance. These results reflect investor concerns over cyclical sectors such as manufacturing, energy, and consumer discretionary amid global demand shocks and early Movement Control Orders (MCOs), which disrupted production and intensified bearish sentiment. Indonesia recorded the most severe short-term market reactions among ASEAN-5, with CAARs of -8.35% (-1, 1), -19.36% (-3, 1), and -16.86% (-5, 1), all significant at the 1% level. The steep declines highlight Indonesia's vulnerability, driven by its reliance on commodity exports and disruptions in industrial output. These findings support Ashraf (2020), who noted that emerging markets responded more negatively to rising COVID-19 cases due to weaker institutional and fiscal resilience. The Philippines also experienced notable short-term declines, with CAARs of -1.04% (-3, 1) and -1.70% (-5, 1), both significant at the 5% level. Investor anxiety was particularly pronounced in tourism, manufacturing, and construction sectors, which were heavily affected by lockdowns. A delayed and limited initial policy response further contributed to market uncertainty and slowed recovery.

In contrast, Singapore and Thailand exhibited relatively muted or statistically insignificant short-term market reactions. Singapore's CAARs of  $-0.42\%$   $(-1, 1)$  and  $-0.67\%$   $(0, 1)$ , though modest, were statistically significant, indicating a swift but limited adjustment to pandemic-related information. This resilience may be attributed to Singapore's strong financial infrastructure, effective public health response, and the dominance of non-cyclical sectors such as telecommunications, healthcare, and consumer staples. Thailand's CAARs ranged from  $0.29\%$  to  $0.71\%$  across short-term windows, but none were statistically significant. This suggests either a preemptive investor response to anticipated economic disruptions or the stabilizing effect of early policy measures, including tourism recovery incentives, which may have tempered initial market volatility.

### 3.2. Short-term performance by sector (cyclical and non-cyclical)

Table A1 (Appendix) presents the Cumulative Abnormal Returns (CARs) for cyclical and non-cyclical sectors across ASEAN-5 markets during the COVID-19 pandemic, using event windows  $(-1, 1)$ ,  $(-3, 1)$ ,  $(-5, 1)$ , and  $(0, 1)$ . The results reveal substantial cross-country and cross-sector heterogeneity, underscoring the asymmetric impact of the pandemic based on structural composition, sectoral exposure, and policy context. Consistent with crisis literature (Baker et al., 2020; Mazur et al., 2021), cyclical sectors are more sensitive to economic fluctuations, experiencing pronounced

negative abnormal returns. In contrast, non-cyclical sectors such as healthcare, utilities, and technology showed greater resilience, with some even posting positive returns. From the perspective of Market Efficiency Theory (Fama, 1970; 1998), these findings suggest partial semi-strong form efficiency across ASEAN-5 markets. While some sectors and economies rapidly incorporated pandemic-related information into prices, others exhibited delayed or exaggerated responses, influenced by behavioral biases and institutional differences. The variability in CARs highlights temporary deviations from efficiency driven by uneven information assimilation and market structure.

#### 3.2.1. Sectoral performance in Malaysia

In Malaysia, most cyclical sectors recorded negative abnormal returns, indicating a short-term deviation from informational efficiency as investor reactions were driven more by uncertainty than fundamentals. The financial sector (FIN) posted CARs of three days  $-1.68\%$  ( $p < 0.01$ ) and five days  $-3.18\%$  ( $p < 0.10$ ), reflecting concerns over liquidity and credit risk. Under the Efficient Market Hypothesis (EMH), such risks should be promptly priced in; however, the persistence of negative CARs suggests partial inefficiency and underreaction to fiscal and monetary interventions. In contrast, the healthcare (HC) and industrial & commercial services (IND) sectors showed positive three-day CARs,  $3.08\%$  and  $0.31\%$ , respectively, indicating efficient price discovery in industries where investors anticipated pandemic-driven growth.

**Table 1.** CAR results among ASEAN-5 countries

Country/Caar	$(-60, 60)$	$(-1, 1)$	$(-3, 1)$	$(-5, 1)$	$(0, 1)$
Malaysia	$-4.11\%$ (0.08)**	$-0.56\%$ (0.03)**	$-2.62\%$ (0.00)** *	$-2.53\%$ (0.00)** *	$-0.42\%$ (0.05)**
Thailand	$4.19\%$ (0.12)	$0.29\%$ (0.58)	$0.66\%$ (0.34)	$0.71\%$ (0.41)	$0.59\%$ (0.30)
Indonesia	$-$ $30.03\%$ (0.00)***	$-8.35\%$ (0.00)** *	$-19.36\%$ (0.00)** *	$-16.86\%$ (0.00)** *	$-9.60\%$ (0.00)***
Singapore	$-0.57\%$ (0.65)	$-0.42\%$ (0.01)** *	$-0.60\%$ (0.23)	$-0.89\%$ (0.04)**	$-0.67\%$ (0.01)***
Philippines	$-5.68\%$ (0.20)	$-0.49\%$ (0.42)	$-1.04\%$ (0.04)**	$-1.70\%$ (0.02)**	$-0.81\%$ (0.08)*

Note: \*\*\*, \*\*, and \* denote significance at 1%, 5%, and 10% levels, respectively.

### 3.2.2. Sectoral dynamics in Indonesia

Indonesia exhibited the most pronounced signs of short-term market inefficiency, particularly in cyclical sectors such as transportation (TRANS), financials (FIN), and energy (ENGY). The transportation sector's CAR of three-days  $-9.40\%$  and five-days  $-21.91\%$  (both  $p < 0.01$ ) suggests investor overreaction and delayed adjustment to government interventions. This volatility reflects a temporary departure from semi-strong market efficiency, where uneven information diffusion and sentiment-driven trading overshadowed rational pricing.

### 3.2.3. Sectoral reaction in Singapore

Singapore's market response largely aligns with semi-strong form efficiency, consistent with its advanced financial infrastructure and transparent information environment. Declines in mineral resources (MR) with CAR of two days  $-1.74\%$  and seven days  $-2.91\%$  reflect rational, information-driven adjustments to trade disruptions. The swift stabilization of returns and low volatility in defensive sectors suggest that public information regarding policy measures and macroeconomic resilience was efficiently priced in.

### 3.2.4. Sectoral response in the Philippines

The Philippine market exhibited partial efficiency, with modest yet persistent declines across most cyclical sectors as argued by Ofreneo, (2020). Two-day and seven-day CARs for financials (FIN), ranging from  $-0.94\%$  to  $-2.44\%$ , suggest a gradual incorporation of pandemic-related information, indicative of delayed adjustment typical of emerging markets. Limited market depth and lower liquidity likely contributed to slower information processing and short-term inefficiencies.

### 3.2.5. Sectoral reaction in Thailand

Thailand's mixed results underscore the conditional nature of market efficiency in ASEAN economies. Cyclical sectors such as financial (FIN) and utilities (UTI) recorded negative three-day ( $-2.26\%$ ) and three-day ( $-4.58\%$ ) CARs, respectively, reflecting initial inefficiencies driven by abrupt information shocks and high exposure to

tourism and oil price volatility. In contrast, energy (ENGY) and telecommunication (TS) sectors posted strong positive CAR of three days ( $8.59\%$ ) and two days ( $4.08\%$ ), indicating rapid and rational pricing of increased demand for digitalization and automation. These sectoral contrasts suggest that while some Thai industries overreacted to crisis news as mentioned by Tantrakarnapa et al. (2020), others efficiently incorporated growth expectations, consistent with the concept of adaptive efficiency markets' ability to regain rational pricing as information clarity improves. This supports Fama's (1998) view that market anomalies are often transient and self-correcting.

At the sectoral level, the ASEAN-5 demonstrated nuanced reactions consistent with varying degrees of market efficiency and investor rationality. Financial services, real estate, and consumer non-cyclical sectors exhibited relative resilience throughout the pandemic. In the real estate sector, performance stability stemmed from four main drivers: (1) competitive investment yields ( $4.5\%$ – $10\%$ ), (2) sustained infrastructure initiatives in Indonesia and Singapore, particularly in transit-oriented and industrial estate projects, (3) tax incentives and cost-reduction policies in Malaysia, and (4) ultra-low interest rates in Thailand ( $0.5\%$ ), which enhanced purchasing power and investment attractiveness. These reflect rational capital reallocation consistent with semi-strong efficiency, as investors integrated policy and macroeconomic information into pricing decisions. The consumer non-cyclical (CNC) sector performed robustly due to sustained demand for essential goods such as food and healthcare, demonstrating its defensive nature during systemic crises. Similarly, the financial sector benefited from loan moratoriums and liquidity support policies, which preserved asset quality and stabilized investor expectations. Moreover, Islamic unit trust funds in Malaysia and Indonesia provided effective hedging mechanisms, illustrating rational diversification strategies in line with market efficiency principles. However, the persistence of short-term volatility in cyclical sectors such as energy and consumer discretionary indicates behavioral deviations including overreaction, anchoring, and confirmation bias as investors responded disproportionately to negative news and uncertainty.

### 3.2.6. Long-term effect on market index

Based on Table 2, Malaysia experienced modest short-term gains, peaking at 6.97% within six months, followed by a reversal into negative territory in the medium term. This trajectory suggests a temporary deviation from market efficiency, where initial investor optimism driven by policy interventions and expectations of a swift recovery was later corrected as economic realities, particularly in cyclical sectors like tourism and manufacturing, became evident. Under the Efficient Market Hypothesis (EMH), asset prices should immediately reflect all available information. However, the delayed adjustment in Malaysia's returns indicates gradual information assimilation, consistent with semi-strong form efficiency typical of emerging markets. This pattern highlights the influence of structural and informational constraints on market responsiveness during periods of heightened uncertainty.

Thailand experienced mostly negative returns beyond the initial month, declining to -3.01% at the 36-month mark. This sustained weakness reflects the dominance of cyclical sectors, particularly tourism, which remained constrained by prolonged travel restrictions and global demand shocks. The gradual downward adjustment suggests that while short-term information was efficiently priced, longer-term expectations were revised as structural vulnerabilities became more apparent. This behavior aligns with the adaptive

interpretation of the Efficient Market Hypothesis (EMH) (Lo, 2004), where markets evolve toward efficiency as information and investor learning accumulate over time.

Indonesia, by contrast, showed consistent short-term gains, with statistically significant Buy-and-Hold Abnormal Returns (BHARs) of 3.88% and 3.90% at two and three months, respectively. These gains reflect rational pricing under the semi-strong form of EMH, driven by investor confidence in domestic consumption and commodity exports sectors less sensitive to global shocks. However, the subsequent decline in long-term returns suggests a correction of initial optimism as structural economic constraints became more evident. This transition from short-term overreaction to long-term normalization supports Fama's (1998) view that market anomalies tend to self-correct over time, restoring efficiency.

Singapore recorded strong short-term gains, peaking at 12.89% at three months, reflecting high responsiveness to policy stimulus and early optimism about economic recovery. However, long-term returns declined sharply to -24.98% at 24 months, indicating a post-stimulus correction as cyclical sectors particularly finance and trade faced headwinds from the global slowdown.

This trajectory illustrates transitory inefficiencies in an otherwise efficient market, where initial price adjustments may overshoot due to positive senti-

**Table 2.** Long-run abnormal return (buy-and-hold return)

Country (Bhar)	-1	1	1 to 2	1 to 3	1 to 6	1 to 12	1 to 24	1 to 36
Malaysia	-1.08% (0.12)	1.29% (0.18)	0.51% (0.65)	0.18% (0.94)	6.97% (0.02) **	3.93% (0.08) *	-3.50% (0.10)	2.0% (0.25)
Thailand	1.96% (0.09) *	-1.39% (0.33)	-0.26% (0.86)	0.90% (0.62)	1.95% (0.40)	-0.84% (0.87)	-2.51% (0.62)	-3.01% (0.45)
Indonesia	-0.67% (0.21)	3.08% (0.00) ***	3.88% (0.00) ***	3.90% (0.01) ***	5.13% (0.02) **	5.79% (0.19)	-1.54% (0.88)	5.87% (0.72)
Singapore	10.66% (0.00) ***	7.65% (0.00) ***	10.25% (0.00) ***	12.89% (0.00) ***	7.93% (0.01) ***	-10.35% (0.08) *	-24.98% (0.00) ***	- (0.00) ***
Philippines	1.06% (0.60)	-2.65% (0.02) **	-3.26% (0.00) ***	-2.0% (0.03) **	-1.97% (0.23)	1.71% (0.41)	-1.69% (0.57)	2.89% (0.45)

Note: \*\*\*, \*\*, and \* denote significance at 1%, 5%, and 10% levels, respectively.

ment, followed by corrections as more complete information becomes available. Despite this volatility, Singapore's overall market behavior remains consistent with semi-strong form efficiency, characterized by rational responses to both stimulus-driven optimism and subsequent economic challenges.

The Philippines displayed negative Buy-and-Hold Abnormal Returns (BHARs) in the early recovery phase (−3.26% at two months), followed by a modest positive return of 2.89% at 36 months. This pattern suggests a delayed but adaptive efficiency response. Initial inefficiencies likely stemmed from limited market depth and slower information diffusion, characteristics typical of smaller emerging markets. Over time, as information regarding sectoral recovery particularly in telecommunications and utilities was gradually assimilated, prices adjusted upward. This correction process reflects the semi-strong form of the Efficient Market Hypothesis (EMH), where market participants eventually align valuations with fundamental information, albeit with a lag.

### 3.3. Long-term performance by sector (cyclical and non-cyclical)

#### 3.3.1. Pre-COVID-19

Table A2 (Appendix) presents a sectoral analysis of Buy-and-Hold Abnormal Returns (BHAR) across the ASEAN-5 Malaysia, Indonesia, Singapore, Thailand, and the Philippines offering a nuanced view of market behavior before and after the COVID-19 pandemic. The pre-pandemic period, represented by windows such as “−1”, “−12 to −1”, and “−24 to −1”, generally reflects stable or positive performance across several sectors, indicating strong investor confidence and steady economic conditions. For example, Malaysia's healthcare (HC) sector posted significant BHARs of 16.14%, 47.55%, and 43.27% across the three pre-event windows, highlighting robust sectoral growth. Indonesia's industrial (IND) sector also performed well, with BHARs of 7.63% (“−1”) and 13.14% (“−12 to −1”), while Singapore's transportation (TRANS) and real estate (REITS) sectors recorded notable gains. These trends suggest that both cyclical and non-cyclical sectors were performing steadily prior to the pandemic, with markets reflecting a high degree of confidence and efficiency in pricing sectoral fundamentals.

#### 3.3.2. Post-COVID-19

In contrast, the post-COVID-19 period, represented by windows “1”, “1 to 12”, “1 to 24”, and “1 to 36”, reveals a more volatile and divergent sectoral landscape across ASEAN-5 markets. In Malaysia, the healthcare (HC) sector surged with BHARs of 64.53% at month “1” and 80.47% at “1 to 12”, reflecting a pandemic-driven investment boom. However, sectors such as energy (ENGY) and retail (RTS) experienced sharp declines, with BHARs of −9.68% and −12.23%, respectively. Indonesia showed resilience in industrials (IND) and technology (TECH), with long-term BHARs of 61.24% and 33.12% at “1 to 36”. In contrast, its basic materials (BM) sector suffered a dramatic drop of −68.80%, highlighting sector-specific vulnerabilities. Singapore presented a mixed picture: while consumer non-cyclicals (CNC) and healthcare (HC) remained positive, transportation (TRANS) and real estate (REITS) posted significant long-term declines, with BHARs of −53.35% and −46.51%, respectively. Thailand and the Philippines followed similar patterns. Initial post-pandemic shocks led to negative returns in most cyclical sectors, but gradual recovery was observed in select non-cyclical areas such as telecommunications (TS) and technology (TECH). These trends underscore the uneven impact of the pandemic across sectors and countries, shaped by structural composition, policy responses, and investor sentiment.

Over the long term, both countries (Malaysia and Indonesia) demonstrated positive returns up to twelve months post-outbreak, indicating a gradual return to informational efficiency. Malaysia's recovery was supported by substantial government stimulus packages aimed at business continuity and employment, while Indonesia's rebound reflected the impact of tax incentives and fiscal measures targeting key sectors such as manufacturing and services (Devi et al., 2020). These patterns illustrate adaptive efficiency (Lo, 2004), where markets learn and correct initial overreactions as new information is processed and investor sentiment stabilizes.

Current attitude of the investor towards a company, sector, or financial market, reflected via buying and selling activities.

## CONCLUSION

This study provides a comprehensive analysis of cyclical sector performance within the ASEAN-5 stock indices, examining both the immediate and long-term effects of the COVID-19 pandemic. By evaluating sectoral responses across different time horizons, the study offers valuable insights into how market dynamics evolved under crisis conditions. Additionally, the study explores the role of government interventions and investor behavior (Bloomfield, 2010), in shaping sectoral outcomes, contributing to a more nuanced understanding of the factors influencing market performance during the pandemic. These findings enhance the broader discourse on financial resilience and adaptive efficiency in emerging Southeast Asian economies.

The results indicate asymmetric market responses across the ASEAN-5. In the short term, Indonesia, Thailand, Singapore, and the Philippines recorded modest positive returns, whereas Malaysia experienced significant declines. Long-term results show gradual recovery in Malaysia and Indonesia, delayed adjustment in the Philippines, and post-stimulus corrections in Singapore and Thailand. Sectoral analysis reveals that non-cyclical sectors, particularly healthcare, utilities, and technology, exhibited strong resilience, while cyclical sectors such as energy, transportation, and financials experienced steep declines, which is consistent with the study by Ishak and Jiun (2021). These findings collectively support the semi-strong form of market efficiency, with evidence of temporary behavioral deviations. This indicates that ASEAN financial markets are slow to adapt to external shocks. In other words, investors react to market shocks gradually, giving the real sector more time to adjust.

## AUTHOR CONTRIBUTIONS

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Formal analysis: Norhamiza Ishak.

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## DATA AVAILABILITY

The authors confirm that all data generated or analyzed during this study are included in this published article. Furthermore, secondary sources and data supporting the results of this study were all publicly available at the time of submission.

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## APPENDIX A

**Table A1.** CAR assessment results in different sectors among ASEAN-5 countries

	MALAYSIA	INDONESIA	SINGAPORE	PHILLIPPINES	THAILAND
<b>TRANSPORT (TRANS)</b>					
CAR (-1,1)	-0.82% (0.70)		-0.66% (0.20)		
CAR (-3, 1)	-5.78% (0.02)**		-1.58% (0.12)		
CAR (-5, 1)	-6.32% (0.02)**		-1.64% (0.09)*		
CAR (0, 1)	-1.08% (0.49)		-0.83% (0.19)		
<b>FINANCIAL (FIN)</b>					
CAR (-1,1)	-1.68% (0.00)***	-9.40% (0.01)***	-0.79% (0.37)	-0.65% (0.55)	-2.26% (0.01)***
CAR (-3, 1)	-3.18% (0.06)*	-21.91% (0.00)***	-0.41% (0.78)	-0.92% (0.16)	-2.19% (0.21)
CAR (-5, 1)	-2.60% (0.07)*	-18.82% (0.00)***	-0.96% (0.50)	-1.30% (0.16)	-2.77% (0.18)
CAR (0, 1)	-2.77% (0.00)***	-10.24% (0.00)***	-0.83% (0.43)	-0.95% (0.32)	-1.92% (0.01)***
<b>BASIC MATERIAL (BM)</b>					
CAR (-1,1)				-0.51% (0.51)	
CAR (-3, 1)				-1.49% (0.06)*	
CAR (-5, 1)				-2.44% (0.03)**	
CAR (0, 1)				-0.94% (0.02)**	
<b>CYCLICAL CONSUMER SERVICE (CCS)</b>					
CAR (-1,1)		-10.37% (0.00)***			
CAR (-3, 1)		21.95% (0.00)***			
CAR (-5, 1)		-19.85% (0.01)***			
CAR (0, 1)		-11.23% (0.00)***			
<b>CYCLICAL CONSUMER PRODUCTS (CCP)</b>					
CAR (-1,1)	-2.03% (0.01)***				
CAR (-3, 1)	-3.52% (0.01)***				
CAR (-5, 1)	-3.98% (0.01)***				
CAR (0, 1)	-1.73% (0.01)***				
<b>MINERAL RESOURCES (MR)</b>					
CAR (-1,1)		-10.78% (0.11)	-1.36% (0.05)**		
CAR (-3, 1)		-23.19% (0.04)**	-3.10% (0.03)**		
CAR (-5, 1)		-20.22% (0.06)*	-2.91 (0.02)**		
CAR (0, 1)		-12.73% (0.08)*	-1.74% (0.02)**		
<b>CONSUMER CYCLICALS (CC)</b>					
CAR (-1,1)					2.38% (0.40)
CAR (-3, 1)					4.82% (0.03)**
CAR (-5, 1)					5.71% (0.00)***
CAR (0, 1)					1.34% (0.44)
<b>INDUSTRIAL &amp; COMMERCIAL SERVICES (I&amp;CS)</b>					
CAR (-1,1)	0.31% (0.04)**	-9.45% (0.11)			
CAR (-3, 1)	-2.92% (0.05)**	-23.68% (0.02)**			
CAR (-5, 1)	-1.00% (0.06)*	-21.17% (0.03)**			
CAR (0, 1)	0.30% (0.13)	-11.56% (0.08)*			
<b>ENERGY (ENGY)</b>					
CAR (-1,1)	2.04% (0.13)		-7.91% (0.00)***		8.59% (0.00)***
CAR (-3, 1)	-10.77% (0.01)***		-20.49% (0.00)***		-8.74% (0.00)***
CAR (-5, 1)	-10.75% (0.01)***		-17.73% (0.00)***		-13.19% (0.00)***
CAR (0, 1)	1.57% (0.13)		-9.88% (0.00)***		8.85% (0.00)***
<b>CONSUMER NON-CYCLICALS (CNC)</b>					
CAR (-1,1)	-1.48% (0.04)**				
CAR (-3, 1)	-4.26% (0.00)***				
CAR (-5, 1)	-4.84% (0.00)***				
CAR (0, 1)	-0.65% (0.25)				

**Table A1 (cont.).** CAR assessment results in different sectors among ASEAN-5 countries

	MALAYSIA	INDONESIA	SINGAPORE	PHILLIPPINES	THAILAND
<b>HEALTHCARE (HC)</b>					
CAR (-1,1)	3.08% (0.01)***				
CAR (-3, 1)	9.48% (0.00)***				
CAR (-5, 1)	10.81% (0.00)***				
CAR (0, 1)	3.85% (0.00)***				
<b>REAL ESTATE (REITs)</b>					
CAR (-1,1)	-2.13% (0.04)**	-7.94% (0.00)***			-1.55% (0.13)
CAR (-3, 1)	-4.12% (0.00)**	-16.82% (0.00)***			3.84% (0.00)***
CAR (-5, 1)	-3.96% (0.00)***	-14.95% (0.00)***			4.96% (0.00)***
CAR (0, 1)	-1.75% (0.02)**	-8.94% (0.00)***			-1.27% (0.19)
<b>RETAILERS (RTS)</b>					
CAR (-1,1)		-6.73% (0.03)**			
CAR (-3, 1)		-14.45% (0.00)***			
CAR (-5, 1)		-11.26% (0.03)**			
CAR (0, 1)		-6.92% (0.03)**			
<b>TECHNOLOGY (TECH)</b>					
CAR (-1,1)	-1.42% (0.07)**				
CAR (-3, 1)	-3.14% (0.13)				
CAR (-5, 1)	-3.66% (0.11)				
CAR (0, 1)	-1.32% (0.11)				
<b>UTILITIES (UTI)</b>					
CAR (-1,1)			-1.25% (0.16)		-4.58% (0.02)**
CAR (-3, 1)			-3.05% (0.01)***		1.03% (0.66)
CAR (-5, 1)			-2.95% (0.00)***		2.73% (0.28)
CAR (0, 1)			-2.04% (0.01)***		-4.12% (0.02)**
<b>TELECOMMUNICATION (TS)</b>					
CAR (-1,1)					2.98% (0.09)*
CAR (-3, 1)					7.94% (0.12)
CAR (-5, 1)					6.78% (0.15)
CAR (0, 1)					4.08% (0.05)**
<b>SOFTWARE &amp; IT SERVICE (S&amp;ITS)</b>					
CAR (-1,1)					2.12% (0.15)
CAR (-3, 1)					4.34% (0.08)*
CAR (-5, 1)					4.02% (0.10)
CAR (0, 1)					2.38% (0.09)*

*Notes:* Transportation sectors (freight & logistics services, passenger transportation services, and transport infrastructure, financials are banking & investment services, investment banking & investment services, investment banking & brokerage services, investment management & fund operators, diversified investment services, financial & commodity market operators & service providers), basic material (chemicals-commodity, agriculture, specialty, diversified), cyclical consumer services (hotels & entertainment services, restaurant & bars, casino & gaming, leisure & recreation, media & publishing), cyclical consumer products (textiles & apparel, homebuilding & construction supplies, household goods, leisure product), mineral resources (metals & mining, and construction materials), consumer cyclicals (automobiles & auto parts), industrial & commercial services (construction & engineering, diversified industrial goods wholesale, professional & commercial services), energy (fossil fuels, oil & gas, oil & gas related equipment and services), consumer non-cyclicals (food & beverages, food & tobacco, fishing & farming), healthcare (healthcare services & equipment, healthcare providers & services), real estate (real estate operation, residential & commercial REITs), insurance (multiline insurance & brokers, property & casualty insurance, life & health insurance and reinsurance), industrial (aerospace & defense, machinery, tools, heavy vehicles, trains & ships, heavy machinery & vehicles, electrical components & equipment, heavy electrical equipment, shipbuilding), retailers (department store, specialty retailers-auto vehicles, parts & service retailers, apparel & accessories retailers, computer & electronics retailers and miscellaneous specialty retailers), technology (semiconductors & semiconductor equipment, communication & networking, electronic equipment & parts, office equipment, computers, phones & household electronics and integrated hardware & software), utilities (electric utilities, natural gas utilities, water & related utilities and multiline utilities), telecommunication service (integrated telecommunications services and wireless telecommunications services), and software & IT service (IT services & consulting, software and online service). \*\*\*, \*\*, and \* denote significance at 1%, 5%, and 10% levels, respectively.

**Table A2.** BHAR results in different sectors among ASEAN-5 countries

	MALAYSIA	INDONESIA	SINGAPORE	PHILLIPPINES	THAILAND
<b>TRANSPORT (TRANS)</b>					
-1	-5.75% (0.17)		10.42% (0.07)*		0.54% (0.93)
-12 to -1	1.76% (0.70)		29.71% (0.04)**		7.36% (0.57)
-24 to -1	5.96% (0.30)		28.59% (0.06)*		8.32% (0.55)
1	-1.33% (0.30)		1.93% (0.35)		1.64% (0.59)
1 to 12	0.32% (0.96)		-27.14% (0.00)***		-2.42% (0.78)
1 to 24	-5.54% (0.36)		-36.05% (0.00)***		-9.36% (0.39)
1 to 36	3.99% (0.15)		-53.35% (0.00) ***		-9.57% (0.36)
<b>FINANCIAL (FIN)</b>					
-1	-0.19% (0.95)	0.44% (0.01)***	4.25% (0.36)	-2.39% (0.00)***	
-12 to -1	-1.16% (0.85)	4.77% (0.01)***	11.94% (0.33)	-0.94% (0.12)	
-24 to -1	4.647% (0.55)	9.27% (0.01)***	10.30% (0.41)	-7.72% (0.02)**	
1	-5.68% (0.00)***	2.01% (0.00) ***	1.95% (0.07)*	-3.73% (0.02)**	
1 to 12	-1.01% (0.81)	16.84% (0.00)***	8.05% (0.43)	7.85% (0.00) ***	
1 to 24	10.80% (0.22)	31.43% (0.00)***	1.96% (0.90)	13.52% (0.00) ***	
1 to 36	15.07% (0.03) **	41.42% (0.00) ***	-5.87% (0.78)	43.54% (0.00) ***	
<b>BASIC MATERIAL (BM)</b>					
-1	1.91% (0.70)				-3.42% (0.19)
-12 to -1	3.87% (0.70)				-12.47% (0.19)
-24 to -1	10.84% (0.35)				-17.18% (0.18)
1	-1.81% (0.36)				2.66% (0.25)
1 to 12	29.79% (0.14)				28.19% (0.18)
1 to 24	53.38% (0.08)*				1.46% (0.68)
1 to 36	27.69% (0.16)				-6.62% (0.20)
<b>CYCLICAL CONSUMER SERVICE (CCS)</b>					
-1	-1.46% (0.83)	0.01% (0.18)		-10.59% (0.07)*	-2.58% (0.74)
-12 to -1	2.25% (0.83)	-4.92% (0.24)		-20.12% (0.08)*	-2.91% (0.83)
-24 to -1	5.76% (0.69)	-24.85% (0.03)**		-20.64% (0.06)*	0.43% (0.98)
1	-5.79% (0.00)***	3.59% (0.28)		-12.93% (0.11)	-2.22% (0.31)
1 to 12	-6.30% (0.31)	-5.94% (0.20)		-4.57% (0.32)	-1.76% (0.85)
1 to 24	-7.50% (0.26)	-22.09% (0.11)		-9.28% (0.35)	7.64% (0.62)
1 to 36	2.19% (0.76)	-68.80% (0.01)***		-4.90 (0.66)	17.39% (0.26)
<b>CYCLICAL CONSUMER PRODUCTS (CCP)</b>					
-1	-2.4% (0.55)		7.05% (0.13)		2.90% (0.84)
-12 to -1	1.16% (0.84)		18.24% (0.12)		-8.43% (0.50)
-24 to -1	6.54% (0.42)		29.29 % (0.00)***		-8.59% (0.50)
1	-3.35% (0.01)***		3.59% (0.00)***		0.66% (0.87)
1 to 12	-6.47% (0.04)**		-20.09% (0.05)**		-0.39% (0.99)
1 to 24	-7.55% (0.01)***		-33.66% (0.00)***		18.98% (0.50)
1 to 36	-2.01% (0.04) **		-39.72% (0.03) **		18.50% (0.36)
<b>MINERAL RESOURCES (MR)</b>					
-1	3.03% (0.63)	-3.96% (0.23)			2.21% (0.60)
-12 to -1	11.55% (0.14)	6.15% (0.28%)			7.87% (0.25)
-24 to -1	18.70% (0.07)*	0.35% (0.94)			8.45% (0.27)
1	-5.18% (0.00)***	10.09% (0.06)*			0.85% (0.71)
1 to 12	17.98% (0.60)	59.49% (0.29)			2.36% (0.80)
1 to 24	20.14% (0.63)	93.51% (0.42)			-12.66% (0.16)
1 to 36	23.18% (0.49)	46.25% (0.56)			-15.27% (0.02) **
<b>CONSUMER CYCLICALS (CC)</b>					
-1					-3.39% (0.59)
-12 to -1					-9.51% (0.50)

**Table A2 (cont.).** BHAR results in different sectors among ASEAN-5 countries

	MALAYSIA	INDONESIA	SINGAPORE	PHILLIPPINES	THAILAND
-24 to -1					-7.03% (0.55)
1					-0.59% (0.95)
1 to 12					-6.92% (0.70)
1 to 24					-25.45% (0.13)
1 to 36					-22.64% (0.15)
<b>INDUSTRIAL &amp; COMMERCIAL SERVICES (I&amp;CS)</b>					
-1	-1.75% (0.75)	-2.14% (0.17)	52.10% (0.27)		3.20% (0.38)
-12 to -1	5.03% (0.45)	27.87% (0.13)	80.31% (0.14)		5.68% (0.44)
-24 to -1	3.27% (0.80)	34.59% (0.09)*	85.43% (0.11)		12.15% (0.18)
1	4.76% (0.29)	2.80% (0.25)	39.32% (0.38)		-1.67% (0.16)
1 to 12	-4.80% (0.60)	17.22% (0.37)	-1.77% (0.96)		-15.37% (0.12)
1 to 24	-11.59% (0.08)*	43.33% (0.03)**	-11.34% (0.77)		-3.31% (0.84)
1 to 36	-3.07% (0.42)	61.24% (0.17)	-32.26% (0.44)		2.74% (0.87)
<b>ENERGY (ENGY)</b>					
-1	-8.89% (0.06)*	-1.95% (0.48)			0.50% (0.92)
-12 to -1	-3.97% (0.45)	14.93% (0.07)*			5.08% (0.58)
-24 to -1	0.08% (0.10)	-25.50% (0.02)**			3.91% (0.70)
1	9.61% (0.02) **	1.23% (0.38)			-0.42% (0.72)
1 to 12	-9.68% (0.00)***	0.03% (0.99)			2.64% (0.83)
1 to 24	-18.41% (0.11)	74.89% (0.00)***			-12.39% (0.17)
1 to 36	-5.72% (0.41)	2.23% (0.00)***			-16.82% (0.02) **
<b>CONSUMER NON-CYCLICALS (CNC)</b>					
-1	0.97% (0.42)	-1.96% (0.18)	25.44% (0.33)		3.21% (0.45)
-12 to -1	4.35% (0.08)*	8.30% (0.24)	39.19% (0.24)		-12.15% (0.46)
-24 to -1	12.14% (0.01)***	8.87% (0.03)**	47.77% (0.13)		-11.05% (0.46)
1	2.59% (0.21)	3.40% (0.57)	28.55% (0.21)		-17.45% (0.46)
1 to 12	-7.73% (0.06)*	2.55% (0.84)	31.81% (0.14)		-21.91% (0.43)
1 to 24	-1.88% (0.73)	-47.61% (0.00)***	8.84% (0.61)		-26.86% (0.36)
1 to 36	-2.58% (0.31)		-14.30% (0.42)		-28.46% (0.28)
<b>HEALTHCARE (HC)</b>					
-1	16.14% (0.01)***				-2.55% (0.59)
-12 to -1	47.55% (0.01)***				-3.90% (0.66)
-24 to -1	43.27% (0.00)***				-3.89% (0.75)
1	64.53% (0.00)***				1.17% (0.62)
1 to 12	80.47% (0.00)***				63.47% (0.45)
1 to 24	-37.08% (0.00)***				69.76% (0.35)
1 to 36	-51.85% (0.00)***				61.77% (0.11)
<b>REAL ESTATE (REITS)</b>					
-1	-7.38% (0.02)**	1.90% (0.00)***	4.40% (0.01)***		-3.88% (0.03)**
-12 to -1	-2.77% (0.42)	-22.76% (0.01)***	2.06% (0.43)		-2.80% (0.47)
-24 to -1	1.75% (0.80)	-30.03% (0.01)***	12.50% (0.03)**		0.98% (0.88)
1	-0.31% (0.83)	2.57% (0.09)*	3.47% (0.05)**		-0.17% (0.43)
1 to 12	-5.42% (0.09)*	4.13% (0.54)	6.21% (0.74)		-10.94% (0.15)
1 to 24	-12.13% (0.06)*	42.88% (0.01)***	-24.34% (0.00)***		-1.28% (0.91)
1 to 36	1.60% (0.75)	52.88% (0.00)***	-46.51% (0.00)		-1.28% (0.91)
<b>INSURANCE (INS)</b>					
-1	-3.93% (0.63)				
-12 to -1	5.86% (0.48)				
-24 to -1	13.94% (0.17)				

**Table A2 (cont.).** BHAR results in different sectors among ASEAN-5 countries

	MALAYSIA	INDONESIA	SINGAPORE	PHILLIPPINES	THAILAND
1	-4.40% (0.00)***				
1 to 12	-11.51% (0.00)***				
1 to 24	-15.56% (0.00)***				
1 to 36	-6.20% (0.15)				
<b>INDUSTRIAL (IND)</b>					
-1			7.67% (0.58)		
-12 to -1			0.09% (0.99)		
-24 to -1			10.21% (0.70)		
1			2.44% (0.42)		
1 to 12			-21.97% (0.38)		
1 to 24			-43.85% (0.04)**		
1 to 36			-58.36% (0.09) *		
<b>RETAILERS (RTS)</b>					
-1	-1.58% (0.90)	7.63% (0.05)**			
-12 to -1	3.08% (0.85)	13.14% (0.28)			
-24 to -1	9.00% (0.67)	-12.34% (0.66)			
1	-6.08% (0.05)**	3.79% (0.08)*			
1 to 12	-12.23% (0.05)**	12.39% (0.16)			
1 to 24	-12.52% (0.06)*	39.52% (0.27)			
1 to 36	-12.80% (0.19)	45.87% (0.31)			
<b>TECHNOLOGY (TECH)</b>					
-1	-4.93% (0.17)		-1.92% (0.06)*		
-12 to -1	3.10% (0.32)		-4.22% (0.02)**		
-24 to -1	5.82% (0.37)		0.51% (0.27)		
1	-2.80% (0.05)**		4.94% (0.01)**		
1 to 12	51.76% (0.15)		8.37% (0.66)		
1 to 24	31.87% (0.22)		-13.04% (0.69)		
1 to 36	33.12% (0.16)		2.22% (0.93)		
<b>UTILITIES (UTI)</b>					
-1	6.65% (0.01)***			8.20% (0.00)***	
-12 to -1	12.48% (0.03)**			-3.84% (0.06)*	
-24 to -1	13.62% (0.18)			1.62% (0.07)*	
1	-2.98% (0.05)**			2.48% (0.00)***	
1 to 12	-18.15% (0.00)***			7.72% (0.38)	
1 to 24	-20.33% (0.01)***			17.65% (0.01) ***	
1 to 36	-6.67% (0.15)			-4.90% (0.66)	
<b>TELECOMMUNICATION (TS)</b>					
-1					7.78% (0.35)
-12 to -1					19.15% (0.10)
-24 to -1					16.98% (0.21)
1					-0.90% (0.73)
1 to 12					-5.46% (0.82)
1 to 24					14.79% (0.70)
1 to 36					15.77% (0.64)
<b>SOFTWARE &amp; IT SERVICE (S&amp;ITS)</b>					
-1					10.51% (0.03) **
-12 to -1					20.49% (0.03) **
-24 to -1					23.01% (0.03) **
1					-2.01% (0.04) **

	MALAYSIA	INDONESIA	SINGAPORE	PHILLIPPINES	THAILAND
1 to 12					-14.33% (0.03) **
1 to 24					-19.73% (0.05) **
1 to 36					-6.30% (0.54)

*Notes:* Transportation sectors (freight & logistics services, passenger transportation services, and transport infrastructure), financials (banking & investment services, investment banking & investment services, investment banking & brokerage services, investment management & fund operators, diversified investment services, financial & commodity market operators & service providers), basic material (chemicals-commodity, agriculture, specialty, diversified), cyclical consumer service (hotels & entertainment services, restaurant & bars, casino & gaming, leisure & recreation, media & publishing), cyclical consumer products (textiles & apparel, homebuilding & construction supplies, household goods, leisure products), mineral resources (metals & mining, and construction materials), consumer cyclicals (automobiles & auto parts), industrial & commercial services (construction & engineering, diversified industrial goods wholesale, professional & commercial services), energy (fossil fuels, oil & gas, oil & gas related equipment and services), consumer non-cyclicals (food & beverages, food & tobacco, fishing & farming), healthcare (healthcare services & equipment, healthcare providers & services), real estate (real estate operation, residential & commercial REITs), insurance (multiline insurance & brokers, property & casualty insurance, life & health insurance and reinsurance), industrial (aerospace & defense, machinery, tools, heavy vehicles, trains & ships, heavy machinery & vehicles, electrical components & equipment, heavy electrical equipment, shipbuilding), retailers (department store, specialty retailers-auto vehicles, parts & service retailers, apparel & accessories retailers, computer & electronics retailers and miscellaneous specialty retailers), technology (semiconductors & semiconductor equipment, communication & networking, electronic equipment & parts, office equipment, computers, phones & household electronics and integrated hardware & software), utilities (electric utilities, natural gas utilities, water & related utilities and multiline utilities), telecommunication service (integrated telecommunications services and wireless telecommunications services) and software & IT service (IT services & consulting, software and online service). \*\*\*, \*\*, and \* denote significance at 1%, 5%, and 10% levels, respectively.