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| RESEARCH ARTICLE

The Impact of Spin-Off Announcement Toward Stock Performance: Evidence from Global Telecommunication Companies

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| ABSTRACT
This study aims to give telecommunication companies insight into how markets react toward spin-off announcements as one of the considerations for whether to spin-off or continue to be a vertically integrated telecommunication company. Analysis method is based on a prior study by measuring the announcement effect using event study methodology. The novelty of this study is that the scope is global, and it focuses on spin-off announcements on telecommunication companies. This study shows empirical evidence of the spin-off announcement effect based on a sample of 50 spin-off events from telecommunication companies based in 20 countries spreading over six continents. It shows mixed results between negative and positive Average Abnormal Returns (AAR) around the spin-off events, with the majority of the Average Abnormal Returns (AAR) being negative. It also shows that the Cumulative Average Abnormal Return (CAAR) in the 20 trading days post-event window after spin-off announcement is negative. Recent spin-offs do not exhibit the same significant Cumulative Average Abnormal Return (CAAR) behavior as the past one. The result of this study is also consistent with the semi strong efficient market hypothesis.

| KEYWORDS
Event study, Average Abnormal Return (AAR), Cumulative Average Abnormal Return (CAAR), spin-off

| ARTICLE INFORMATION
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1. Introduction

Divestiture dominated telecommunication companies' deal value between Q1 2019 and Q1 2024, where infrastructure, mobile, and fixed divestment contribute to a total of 59% of telecommunication companies' global deal value (Fidler & Blum, 2024). Integrated telecommunication companies are starting or considering separation as a response to financial and market pressure required as a result of the dramatic increase in infrastructure funding required for the development of 5G and FTTH (Grundin et al., 2022). (Grundin et al., 2022) also outline that in general, there are five ways of value creation of structural separation which are regulatory relief resulting by increases in retail competition, greater addressable market because of the demand aggregation, cheaper access to capital due to improvement in financing option, sharpened management focus, and better suited for 5G because 5G likely brought increased in network sharing.

Several recent studies on spin-off impact conclude that there is mostly a positive impact of spin-off announcement. Study from (Gupta et al., 2022) on 221 spin-off announcement samples from Indian companies during 2003 to 2020 conclude the highest Cumulative Average Abnormal Return of 2.64% for (+1, +5) interval. Study from (Owers & Sergi, 2021) on 249 spin-off announcement samples from USA companies from 2007 to 2017 conclude that there is a large monetary value increment of almost 100 billion USD for the stockholder of the firm performing divestment. A study done by (Aggarwal & Garg, 2019) on 76 spin-off announcement samples from Indian companies during 2010-2016 concluded that there is a significant positive impact on

shareholder wealth. The highest Cumulative Abnormal Return is on day +1. Study from (Chai et al., 2018) on 87 spin-off announcement samples from Australian companies during 1999-2013 conclude Cumulative Abnormal Return of 2.93% over 3-day event window that is significant at 1% level. Table 1 summarizes List of recent previous studies.

Table 1. List of recent previous studies

Author	Sample size	Sample country	Sample period	Window	Finding
(Gupta et al., 2022)	221	India	2003-2020	240 days of Estimation window. 21 days of event window	Cumulative Average Abnormal Return of 2.64% for (+1, +5) interval.
(Owers & Sergi, 2021)	249	USA	2007-2017	255 days of estimation window. 61 days of event window.	There is a large monetary value increment of almost 100 billion USD for the stockholder of the firm performing divestment.
(Aggarwal & Garg, 2019)	76	India	2010-2016	256 of Estimation window. 71 days of event window	There is a significant positive impact on shareholder wealth. The highest Cumulative Abnormal Return is on day +1.
(Chai et al., 2018)	87	Australia	1999-2013	242 days of estimation window. 21 days of event window	Cumulative Abnormal Return of 2.93% over 3-day event window that is significant at 1% level.

This study aims to examine the effect of the spin-off announcement on telecommunication companies globally. The benefit of this study is to give insight to telecommunication companies on how markets react to spin-off announcements as one of consideration whether to spin-off or continue to be a vertically integrated telecommunication company. Global scope is considered because as a capital-intensive industry (KPMG, 2015), there is limited sample of telecommunication companies in single country. The novelty of this study is that it provides insight on industry specific impact of spin-off announcement with a global scope based on sample from 20 countries spreading in six continents.

2. Literature Review

2.1 Divestiture

Based on (Gole & Hilger, 2008), corporate divestiture is when a company sell stock or assets of a business such as the sale of individual products or product lines to divisions or subsidiaries. Divestiture decision generally made based on organizational strategic planning or portfolio assessment. Corporate divestiture should be seen as reflection of the company strategy to reposition or restructure organization, not only be seen as a transaction to sale business that is not wanted or to generate cash. Generally, there are four rational of divestiture:

1. Selling well-performing unit that is nonstrategic. Superior financial performance does not necessarily equate to strategic fit. Selling a well-performing unit requires discipline from management because superior performance could block the decision to divest, although there is a lack of strategic fit.
2. Selling underperforming units that cause consolidated growth and profitability to be diluted. The targeted unit might not be aligned with the market anymore and not be a candidate for investment which might cause a downward spiral of deteriorating performance, lack of investment, and poor performance.
3. Raising cash by selling units that are profitable. Organization might sell the unit to generate cash that is usually used for debt payment, financial position restructuring, or generation of operating cash.
4. Selling unit that causes the parent's entire company to be undervalued by the market.

Several literatures explain the type of divestiture. Based on (Feldman & McGrath, 2016), divestitures are classified into two main modes which are spin-off and sell-off. In spin-off, the parent firm issues a share of the business unit that could be a subsidiary or a division of the parent company to existing shareholders on a pro-rata basis therefore new publicly traded firm is created. In sell-

off, the parent firm sells the business unit to another firm. (Chen & Guo, 2005) explain three types of divestiture option which are selloff, spin-off, and equity carve-out. Sell-off means selling the unit to a third party. Spin-off means distributing the subsidiary shares to existing shareholders. Equity carve-out means selling the share of the new subsidiary in the IPO.

(Cristo & Falk, 2006) explained several factors that could lead to a successful spin-off and carve out. Divestiture is where the parent company using related diversification strategy has a lower failure rate compared to single business strategy or unrelated diversification strategy. Divestiture conducted by larger parents has a lower failure rate. Five reasons for successful divestiture are undervaluation of a unit, gaining access to capital market, underperforming unit, strategy, and expansion. Three reasons for divestiture that increase in failure are merger/acquisition, pay back debt to parent, and focus/pure play.

2.2 Spin-off

Based on (Ross et al., 2019), spin off is where the parent company turn division into a separate entity. It distributes the shares in that entity to the parent company's stockholders. Generally, there are four reasons for spin-off:

1. Increase corporate focus.
2. It will be easier for investors to value the parent and subsidiaries after spinning off because the SEC requires additional information to be shared (if the company is publicly traded).
3. The managers in the new subsidiaries that are given stock compensation will be able to better see the direct correlation between the new subsidiary's performance and its stock price as opposed to when it was a small division in the parent company.
4. Generally, tax consequences from a spin-off are better than from a sale because the parent company receives no cash.

2.3 Event Study

According to (MacKinlay, 1997), Event study measure the effects of a specific event on the value of a firm. It has many applications and has been applied to events such as mergers and acquisitions, earning announcement, etc. A general flow of analysis exists but there is no unique structure. Below is general flow of the analysis:

1. Define the targeted event and identify examination period.
2. Determine selection criteria. Criteria could be based on data availability, such as choosing a publicly listed company.
3. Calculate abnormal return which is the actual the actual return of the security minus normal return in that event window. There are two methods to model normal return. The first method is the constant mean return model that assumes the mean return is constant. The second method is the market model that assumes a stable linear relation between market return and security return.
4. Create a testing framework for abnormal return. Define null hypothesis and techniques for aggregating individual firm abnormal return.

2.3 Efficient Market Hypothesis

Based on (Ross et al., 2019), efficient capital market means that stock prices is a full reflection of available information about the underlying value of the stock. The price of shares would immediately adjust to new information. There are several implications of the efficient market hypothesis (EMH) which are:

1. Investors should only expect to get a normal rate of return because information is reflected in the price immediately. The price adjust before investor has time to trade on it so awareness of information when it is released does no good to investor.
2. When selling securities, firms should expect to receive fair value for the securities they sell, which means the price is the present value.
3. There are several possible adjustments to the stock price. Efficient market adjusts directly to new information with no further price changes. In an inefficient market, there might be overreaction or slow response.

Based on (Ross et al., 2019), Andrei Shleifer argue there are three conditions that cause market efficiency which are rational investors, independent deviations from rationality, and arbitrage. Rational investors would not wait before trading new prices, they adjust estimates in a rational way. There is an equal amount of irrationally optimistic and irrationally pessimistic that would make price rise consistent with market efficiency, so market efficiency needs irrationalities that offsetting each other, not rational individuals. Market would be efficient if it were dominated by Arbitrage professionals that is generating profit by simultaneously buy and sell different but substitute securities.

Based on (Ross et al., 2019), There are several different types of efficiency. Capital markets with weak form of efficiency fully incorporate information about past prices. The weak form of efficiency follows a random walk where price today is equal to the sum of last observed price plus expected return of the stock plus random component. Cyclical patterns tend to be eliminated by investor behavior. Capital market with semi strong form efficiency incorporates all publicly available information and historical

price information. Price should change immediately upon public announcement in semi strong form efficient that would eliminate change for abnormal return. Capital markets with strong form efficiency incorporate all information, both public and private information.

3. Methodology

List of Telecommunication companies that have done spin-off is captured using Revinitiv Eikon Deal Screener. The list includes only completed spinoff deals which the target immediate parent is a public company in Wireless Telecommunications Services and Integrated Telecommunications Services M&A TRBC (The Refinitv Business Classification) Industry category. There are several filters which are Deal Type, Public Status, M&A TRBC Industry, Deal status. Deal Type include Spinoffs. Public Status includes Public. M&A TRBC Industry includes Wireless Telecommunications Services and Integrated Telecommunications Services. Deal Status include Unconditional and completed.

The list is further filtered by the availability of historical data in Revinitiv. The criteria include having data for the estimation period in trading day -270 until trading day -21, data for pre-event in trading day -20 until trading day -1, data for event day in trading day 0, and data for post event in trading day +1 until trading day +20. Duplicated data is also filtered out. Table 2 explains entries found with each of subsequent filters.

Table 2. Entries found with each of subsequent filters.
Source: Author analysis based on Refinitiv Eikon

Filters Applied	**Entries Found**
Deal Type	5391
Deal Type and Public Status	4343
Deal Type, Public Status, and M&A TRBC Industry	207
Deal Type, Public Status, M&A TRBC Industry, and Deal Status	124
Deal Type, Public Status, M&A TRBC Industry, Deal Status, Availability of data from trading day -270 to trading day +20, and non-duplicated data	50

Sample ranging from Asia, Europe, North America, South America, Oceania, and Africa that makes it cover almost all seven continents with the exception of Antarctica. Table 3 explains the sample distribution.

Table 3. Sample distribution
Source: Author analysis using Microsoft Copilot

Continent	Country	Number of samples
Asia	China (Mainland)	1
	Hong Kong	1
	India	1
	Japan	1
	South Korea	1
Europe	Austria	1
	France	1
	Germany	1
	Greece	1
	Italy	1
	Netherlands	1
	Portugal	1
	Spain	1
	Sweden	1
	United Kingdom	4
North America	Mexico	5
	United States	21
South America	Brazil	4
Oceania	Australia	1
Africa	South Africa	1
Total		**50**

Analysis is performed using the event study method as outlined in (MacKinlay, 1997) and (Obi et al., 2023). Author follows example as outlined (MacKinlay, 1997) by choosing 250 trading days of estimation period (from trading day -271 to trading day -21) and 41 trading days of event window that consist of 20 trading days of pre-event period (from trading day -20 to trading day -1), 1 trading day of event day (trading day 0), and 20 trading days of post-event period (from trading day +1 to trading day +20). Constant Mean Return Model is used due to data availability constraints. Constant Mean Return model often gives similar results with the sophisticated model because the variance of the abnormal return is not reduced with the more sophisticated model (MacKinlay, 1997). For each of the stock, P_t, the actual return on a single day is calculated as

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

Where P_t is the current price and P_{t-1} is the previous day price. For each day of a single stock, Abnormal return (AR_t) is calculated based on (Obi et al., 2023) as

$$AR_t = R_t - \bar{R}_t$$

Where $\bar{R}_t$ is the mean return calculated during the 250 trading days of the estimation period.

To aggregate the abnormal return of all stock that is the subject of analysis, for each day, the Average Abnormal Return (AAR_t) is calculated based on (MacKinlay, 1997) as

$$AAR_t = \frac{1}{N}\sum_{i=1}^{N} AR_t$$

Cumulative Average Abnormal Return ($CAAR$) is calculated based on (MacKinlay, 1997) as

$$CAAR\ (t1, t2) = \sum_{i=t1}^{t2} AAR_t$$

Significance test is performed to both and Cumulative Average Abnormal Return (CAAR) using parametric test method outlined in (Nguyen & Wolf, 2023). Because there are several firms under the study, abnormal return (AR) is alternatively expressed as average abnormal return (AAR) and cumulative abnormal return is alternatively expressed as cumulative average abnormal return (CAAR) (Nguyen & Wolf, 2023). Classic test statistic is calculated based on (Nguyen & Wolf, 2023) as

$$t_{CAAR} = \frac{CAAR}{\sqrt{m}\, S_n}$$

Where m is the window length that is equal to T2 − T1 and ${S_n}^2$ is the sample variance of the abnormal returns during the estimation window which is calculated based on (Nguyen & Wolf, 2023) as

$${S_n}^2 = \frac{1}{n-K} \sum_{t=T_0+1}^{T_0+n} {AR_t}^2$$

K is the number of parameter used to compute abnormal return, for constant-mean model K=1 (Nguyen & Wolf, 2023).

Then, the test statistic result is compared to the critical value from t-distribution with the associated degree of freedom to determine whether the abnormal return is significantly different from zero (Müller, n.d.). The degree of freedom is determined by M-K where M is the length of the estimation window and K is the degree of freedom of the applied model (Müller, n.d.). In this case M is 250 and K is 1, therefore the degree of freedom is 249. The critical value for several significance level associated with 249 degree of freedom is calculated using Student t-Value Calculator in (ttable.org, n.d.) as shown in table 4. The critical value is used to determine whether the null hypothesis is rejected, or the null hypothesis is failed to be rejected. The null hypothesis and alternative hypothesis is shown in table 5 based on based on (Nguyen & Wolf, 2023).

Table 4. Critical value for various significance level
Source: (ttable.org, n.d.)

Significance level	Critical Value
0.01	2.5957
0.05	1.9695
0.1	1.651

Table 5. Null and alternative hypothesis
Source: (Nguyen & Wolf, 2023)

Null hypothesis	Alternative hypothesis
CAAR=0	CAAR≠ 0

The method could also be used to test the significance of Average Abnormal Return (AAR) since it is the Cumulative Average Abnormal Return (CAAR) with an event window of one day.

4. Results and Discussion

4.1 Descriptive Statistics of the Average Abnormal Returns (AAR) during the Event Window

Figure 1 shows Average Abnormal Return during the event window that consists of 41 data points where each day data point is aggregated from the abnormal return of 50 samples. Descriptive statistics of the Average abnormal returns are shown in table 6. Average abnormal return data is analyzed with several normality tests as shown in table 7. Result shows that P-value is higher than 0.05, that suggests that the data does not deviate from the normal distribution (DATAtab Team, 2024). Quantile-Quantile plot in figure 2 generally follow straight line y=x that indicates the sample distribution is like the theoretical one (Frost, n.d.).

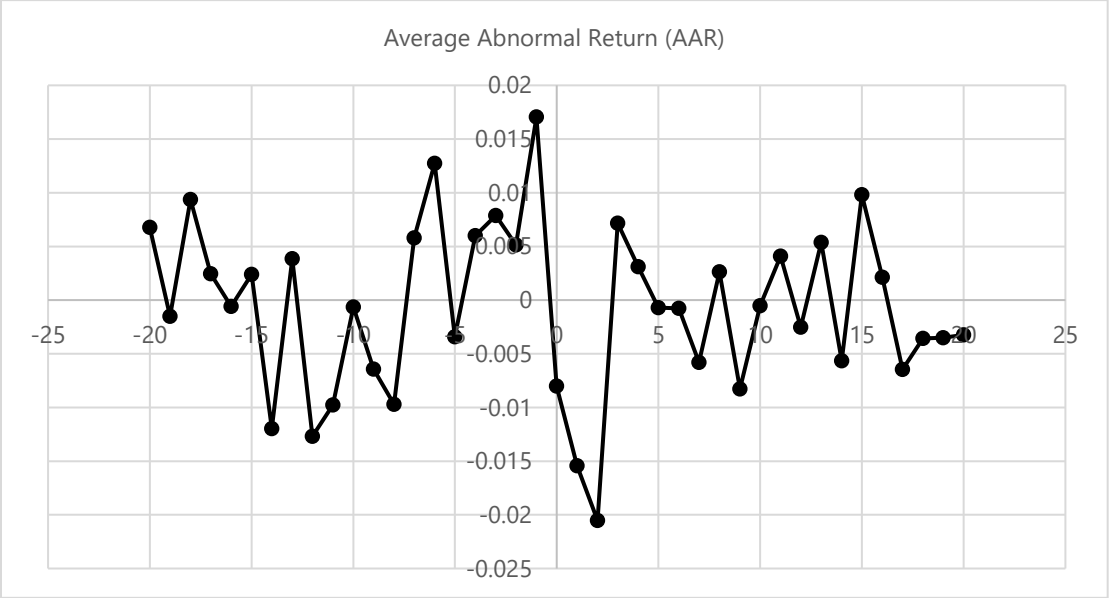

Figure 1. Average Abnormal Return (AAR) from all samples
Source: Author analysis

Table 6. Descriptive statistics of the Average Abnormal Returns (AAR)
Source: DATAtab (DATAtab Team, 2024)

	Average Abnormal Return
n	41
Mean	-0.001
Median	-0.001
Std. Deviation	0.008
Minimum	-0.021
Maximum	0.017

Table 7. Normality test of the Average Abnormal Returns (AAR)
Source: DATAtab (DATAtab Team, 2024)

	Statistics	**p**
Kolmogorov-Smirnov	0.079	.942
Kolmogorov-Smirnov (Lilliefors Corr.)	0.079	.756
Shapiro-Wilk	0.993	.996
Anderson-Darling	0.158	.952

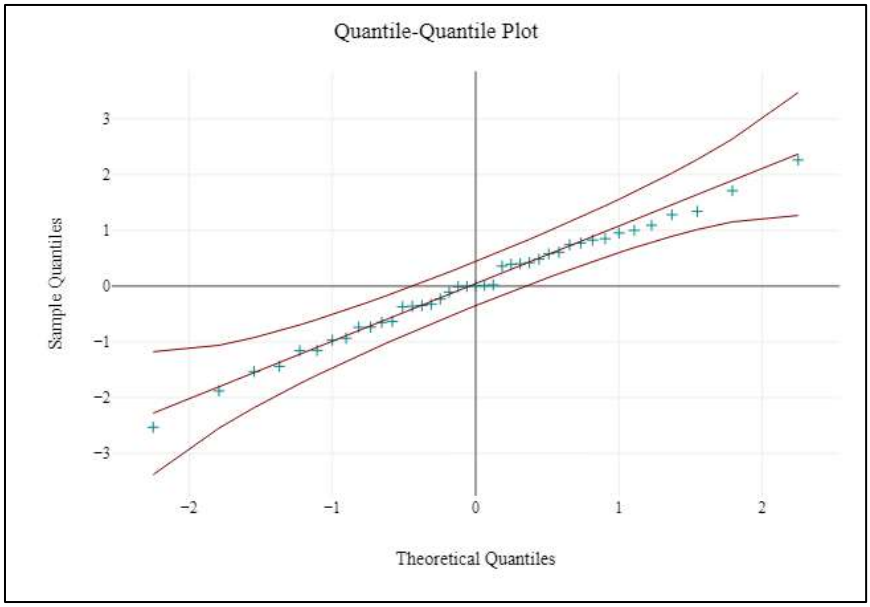

Figure 2 Quantile-Quantile plot of the Average Abnormal Returns (AAR)
Source: DATAtab (DATAtab Team, 2024)

4.1 Average Abnormal Return (AAR)

Assuming normal distribution, significance test is performed on Average Abnormal Return (AAR) using parametric test method outlined in (Nguyen & Wolf, 2023). The advantage of performing significance test on the Average Abnormal Return (AAR) is that it enable us to assess the impact of an event of the specific point in time of the security return (Müller, n.d.). It is observed that there is Average Abnormal Return (AAR) that is significant at 1% significance level on trading day -1, trading day +1, and trading day +2 indicating that there are abnormal returns around the event day. Among the significant Average Abnormal Return (AAR), There are mixed result between negative and positive return. Table 8 shows Average Abnormal Return (AAR) aggregated from all samples.

However, significance testing on the Average Abnormal Return (AAR) does not consider cumulative effect on longer period therefore significance testing of the Cumulative Average Abnormal Return (CAAR) is also performed in the next section.

Table 8. Average Abnormal Return (AAR) from all samples
Source: Author analysis

Trading Day	Average Abnormal Return	t-statistic	Interpretation
-20	0.006783155	1.32552418	Not Significant
-19	-0.001521475	-0.29731773	Not Significant
-18	0.009358914	1.82886387	Significant at 10% significance level
-17	0.002447723	0.47831955	Not Significant
-16	-0.000579557	-0.11325365	Not Significant
-15	0.002393912	0.46780426	Not Significant
-14	-0.01196745	-2.3386086	Significant at 5% significance level
-13	0.003847556	0.75186679	Not Significant
-12	-0.01270066	-2.48188813	Significant at 5% significance level
-11	-0.009768529	-1.90890846	Significant at 10% significance level
-10	-0.000637049	-0.12448844	Not Significant
-9	-0.006444053	-1.2592588	Not Significant
-8	-0.009720741	-1.89956987	Significant at 10% significance level
-7	0.005792186	1.13187481	Not Significant

-6	0.012730458	2.48771112	Significant at 5% significance level
-5	-0.003409054	-0.66617719	Not Significant
-4	0.005984184	1.16939407	Not Significant
-3	0.007875026	1.53889117	Not Significant
-2	0.00513254	1.00297076	Not Significant
-1	0.017050958	3.33199785	Significant at 1% significance level
0	-0.008017987	-1.56682774	Not Significant
1	-0.015426466	-3.01454924	Significant at 1% significance level
2	-0.020530539	-4.0119571	Significant at 1% significance level
3	0.007157367	1.3986506	Not Significant
4	0.003106206	0.60699658	Not Significant
5	-0.000717062	-0.1401241	Not Significant
6	-0.000776035	-0.15164817	Not Significant
7	-0.005789903	-1.13142867	Not Significant
8	0.002621	0.51218033	Not Significant
9	-0.008277732	-1.61758571	Not Significant
10	-0.000514529	-0.10054621	Not Significant
11	0.004078942	0.79708292	Not Significant
12	-0.00251146	-0.49077466	Not Significant
13	0.005372046	1.04977363	Not Significant
14	-0.005665982	-1.10721292	Not Significant
15	0.00982376	1.9197014	Significant at 10% significance level
16	0.002125389	0.41533105	Not Significant
17	-0.006472288	-1.2647765	Not Significant
18	-0.003582009	-0.69997517	Not Significant
19	-0.003516984	-0.68726822	Not Significant
20	-0.00324471	-0.6340621	Not Significant

4.3 Cumulative Average Abnormal Return (CAAR)

Assuming normal distribution, significance test is performed on the Cumulative Average Abnormal Return (CAAR) using parametric test method outlined in (Nguyen & Wolf, 2023). Significance testing on the Cumulative Average Abnormal Return (CAAR) is generally more robust than significance testing on the Average Abnormal Return (AAR) because it considers the overall impact of the event rather than focusing on individual abnormal return. Table 9 below shows the Cumulative Average Abnormal Return (CAAR) of Pre-event, Post-event, and Total event window and Average Abnormal Return (AAR) for event day. The table is based on observation of 50 spin-off events during the 1991-2023 period. It is observed that there is Cumulative Average Abnormal Return (CAAR) at 10% significance level on the post-event window. Cumulative Average Abnormal Return (CAAR) on the post-event window is negative.

Table 9. Cumulative Average Abnormal Return (CAAR) from all samples
Source: Author analysis

Window	Window length	CAAR/AAR	t-statistic	Interpretation
Pre-event	20	0.022648045	0.98962724	Not Significant
Event day	1	-0.008017987	-1.566827739	Not Significant
Post-event	20	-0.042740988	-1.867606971	Significant at 10% significance level
Total	41	-0.02811093	-0.857905025	Not Significant

Author also classifies the observation based on several period which are 2020-2023, 2010-2019, 2000-2009, and 1990-1999. There are 5 samples during 1 January 2020 to 31 December 2023 period. It is observed that there is significant Average Abnormal Return (AAR) during the event day at 1% significance level. However Cumulative Average Abnormal Return (CAAR) during pre-event, post-event, and total window is not statistically significant. Average Abnormal Return (AAR) during the event day is positive. Table 10 shows Cumulative Average Abnormal Return (CAAR) from 2020-2023 period.

Table 10. Cumulative Average Abnormal Return (CAAR) from 2020-2023 period samples
Source: Author analysis

Window	Window length	CAAR/AAR	t-statistic	Interpretation
Pre-event	20	0.0141933	0.620189371	Not Significant
Event day	1	0.019022321	3.717229966	Significant at 1% significance level
Post-event	20	-0.003539953	-0.154681534	Not Significant
Total	41	0.029675668	0.905658564	Not Significant

There are 11 samples during 1 January 2010 to 31 December 2019 period. It is observed that there is significant Cumulative Average Abnormal Return (CAAR) during pre-event at 5% significance level and during post-event at 10% significance level. There is a significant Average Abnormal Return (AAR) during the event day at 1% significance level. Cumulative Average Abnormal Return (CAAR) during pre-event is negative, whereas Cumulative Average Abnormal Return (CAAR) during post-event is positive. Average Abnormal Return (AAR) during the event day is positive. Table 11 shows Average Abnormal Return (CAAR) from 2010-2019 period samples.

Table 11. Cumulative Average Abnormal Return (CAAR) from 2010-2019 period samples
Source: Author analysis

Window	Window length	CAAR/AAR	t-statistic	Interpretation
Pre-event	20	-0.055288293	-2.415873028	Significant at 5% significance level
Event day	1	0.032554659	6.361639734	Significant at 1% significance level
Post-event	20	0.040871084	1.785899756	Significant at 10% significance level
Total	41	0.01813745	0.553528791	Not Significant

There are 22 samples during 1 January 2000 to 31 December 2009 period. It is observed that there is significant Cumulative Average Abnormal Return (CAAR) during pre-event at 5% significance level and during post-event at 1% significance level. There is a

significant Average Abnormal Return (AAR) during the event day at 1% significance level. Cumulative Average Abnormal Return (CAAR) during pre-event is positive, whereas Cumulative Average Abnormal Return (CAAR) during post-event is negative. Average Abnormal Return (AAR) during the event day is negative. Table 12 shows Cumulative Average Abnormal Return (CAAR) from 2000-2009 period samples.

Table 12. Cumulative Average Abnormal Return (CAAR) from 2000-2009 period samples
Source: Author analysis

Window	Window length	CAAR/AAR	t-statistic	Interpretation
Pre-event	20	0.047220571	2.063346462	Significant at 5% significance level
Event day	1	-0.018104121	-3.537800626	Significant at 1% significance level
Post-event	20	-0.066025594	-2.885049318	Significant at 1% significance level
Total	41	-0.036909144	-1.126413801	Not Significant

There are 12 samples from 1 January 1990 to 31 December 1999 period. It is observed that there is a significant Cumulative Average Abnormal Return (CAAR) during pre-event at 5% significance level and during post-event with 1% significance level. There is significant Cumulative Average Abnormal Return (CAAR) during total window at 5% significance level. There is a significant Average Abnormal Return (AAR) during the event day at 1% significance level. Cumulative Average Abnormal Return (CAAR) during pre-event is positive, whereas Cumulative Average Abnormal Return (CAAR) during post-event and total window is negative. Average Abnormal Return (AAR) during the event day is negative. Table 13 shows Cumulative Average Abnormal Return (CAAR) from 1990-1999 period samples.

Table 13. Cumulative Average Abnormal Return (CAAR) from 1990-1999 period samples
Source: Author analysis

Window	Window length	CAAR/AAR	t-statistic	Interpretation
Pre-event	20	0.052562867	2.296783022	Significant at 5% significance level
Event day	1	-0.037985128	-7.422830006	Significant at 1% significance level
Post-event	20	-0.093030709	-4.065062765	Significant at 1% significance level
Total	41	-0.07845297	-2.39427143	Significant at 5% significance level

4.3 Efficient Market Hypothesis

Figure 3 shows the graph Cumulative Average Abnormal Return (CAAR) from all samples from day -20 to day 20. There is a jump of Cumulative Average Abnormal Return (CAAR) before the event. There is a little movement in Cumulative Average Abnormal Return (CAAR) after the event that indicates the announcement is fully incorporated into the stock price. This pattern is consistent with market efficiency especially the semi strong form (Ross et al., 2019).

If the data is broken down into several periods which are 2020-2023, 2010-2019, 2000-2009, and 1990-1999, a similar pattern is observed except for 2010-2019 period as shown in figure 4, 5, 6, and 7 respectively. Older periods which are 2000-2009 and 1990-1999 period seem to exhibit the pattern of semi strong form more prominently.

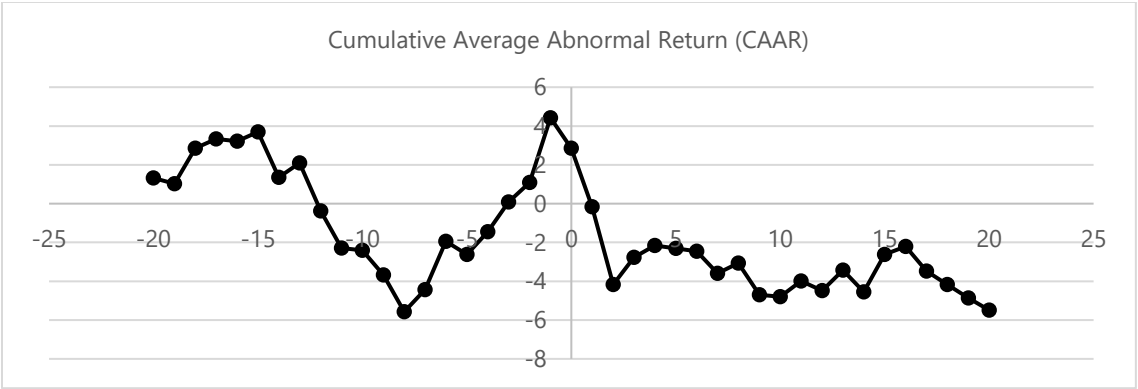

Figure 3. Cumulative Average Abnormal Return (CAAR) from all samples
Source: Author analysis

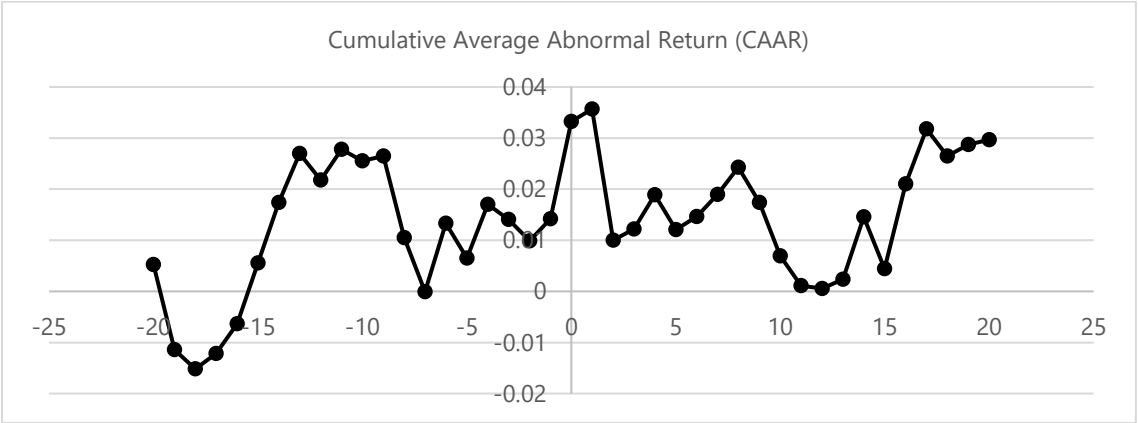

Figure 4. Cumulative Average Abnormal Return (CAAR) from 2020-2023 period samples
Source: Author analysis

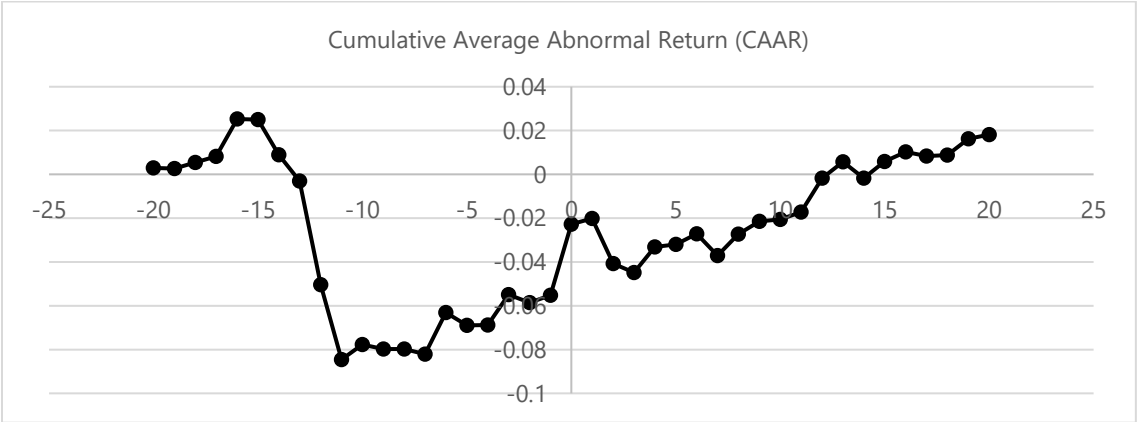

Figure 5. Cumulative Average Abnormal Return (CAAR) from 2010-2019 period samples
Source: Author analysis

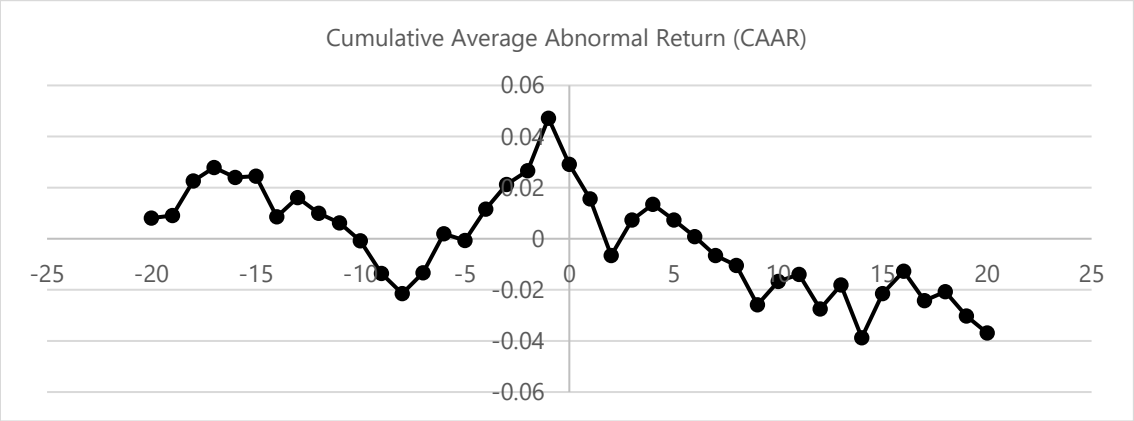

Figure 6. Cumulative Average Abnormal Return (CAAR) from 2000-2009 period samples
Source: Author analysis

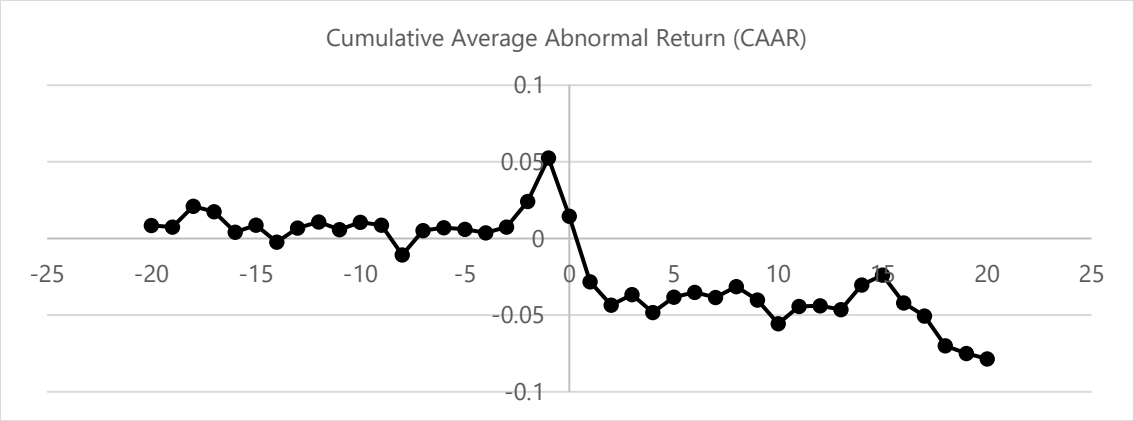

Figure 7. Cumulative Average Abnormal Return (CAAR) from 1990-1999 period samples
Source: Author analysis

5. Conclusion

This study shows empirical evidence of the spin-off announcement effect based on a sample of 50 spin-off events from telecommunication companies based in 20 countries spreading over six continents. It shows mixed results between negative and positive Average Abnormal Returns (AAR) around the spin-off events with the majority of the Average Abnormal Returns (AAR) being negative. It also shows that the Cumulative Average Abnormal Return (CAAR) in the 20 days post-event window after spin-off announcement is negative. Recent spin-offs do not exhibit the same significant Cumulative Average Abnormal Return (CAAR) behavior as the past one. Older spin-offs in 2010-2019, 2000-2009, and 1990-1999 periods show significant Cumulative Average Abnormal Return (CAAR) in pre-event, event day, and post event. Recent spin-offs in 2020-2023 period show significant Cumulative Average Abnormal Return (CAAR) only on event day. The result of this study is also consistent with the semi strong efficient market hypothesis. It is important to note that a significant portion of the sample of this study comes from United States based companies. Long term impact of spin-offs would be a useful subject for further analysis.

Managers should approach spin-off decision making very carefully since spin-off is a complex process, especially when it might not yield the expected increase in shareholder value in the short term. Based on (Al-Saad & Abdallah, 2015) Spin-off involve several phases which are pre-separation phase, transition phase, reorganization phase. During the pre-separation phase, the parent company validates business opportunities, seeks capital, and builds spin-off teams. During the separation phase, the spun-off company becomes a separate entity. During the post-separation phase, the spun-off company starts to work independently.

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