

# CORPORATE SPIN-OFFS AND SHAREHOLDERS' VALUE: EVIDENCE FROM SINGAPORE

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## ABSTRACT

*A Parent company occasionally spins off a wholly owned subsidiary or division, if it helps improve operational efficiency, reduce information asymmetry, reduce tax liability, and improve corporate governance. Therefore, it is suggested that corporate spin-offs create shareholders' value. It is also suggested that spin-off decisions may result in redistribution of wealth from debt holders to shareholders, because a part of the total assets of parent company are transferred to a newly incorporated independent company that replaces the wholly owned subsidiary or division. This study examines the value effect of 25 such corporate spin-off events that occurred in Singapore. Results show that parent shareholders gain about 15.73 percent value after spin-offs. Of which, 6.62 percent gain occurs in spin-off stocks while the remaining 9.11 percent occurs in parent stocks. The finding is consistent with the argument that corporate spin-offs have economic benefits to help increase shareholders' value. It is also found that total spin-off value gain is significantly correlated with the debt asset ratio of parent firms, which sheds light on the possibility of wealth redistribution from the bondholders to shareholders due to change in parent capital structure after spin-off.*

**JEL:** G14

**KEYWORDS:** Spin-offs, Shareholder Value, Parent Stock, Spin-off Stock, and Divestiture.

## INTRODUCTION

Corporations occasionally require restructuring their entity through merging with other corporations, acquiring other firms, and divesting certain divisions or subsidiaries. Shareholder value increases after mergers and acquisitions because of synergy and better governance, which is well documented in literature [for example, Block, (1968) Mandelker (1974), Eckbo (1992), Conn and Connell (1990), Healy *et. al.* (1992), Jayaraman *et. al.* (2004), Kruse, *et. al.* (2007) and Bris *et. al.* (2008)]. Corporate divestiture by disposition of a unit of business through spin-off or sell-off is occasionally undertaken if the business unit does not perform well or becomes less important for core business activities, while it is worth more if the unit can be operated as a separate entity or sold off at a good price. It is documented that such corporate divestitures have a positive effect on the shareholders value due to removal of diseconomies, increase in efficiency, and paying more attention to core business [Rosenfeld (1984), Tehranian *et. al.* (1987), Comment and Jarrell (1995), Borde *et. al.* (1998), Mulherin and Boone (2000), Dittmar and Shivdasani (2003), and Coakley *et. al.* 2008 are among many studies]. While the corporate divestiture can be implemented in many different ways, the spin-off is considered as an important divestiture method as a part of corporate restructuring.

Spin-offs involve separation of a subsidiary or division from its parent company by creating an independent company where the parent shareholders retain a proportionate equity interest. There is neither dilution of equity nor transfer of ownership from the current shareholders, and involve no cash transaction. The primary consequence of spin-off is that the asset base of the parent company declines and the spun-off company becomes a separate decision-making entity with the assets received from the parent. The original shareholders still control both the parent and the spun-off firms, but debt holders cease to have any claim on the spun-off's assets and earning. This paper examines whether corporate restructuring through spin-off of a subsidiary or division can help increase shareholders' value.

It is understandable that corporations may spin off a business unit that is not performing well or not vital

to the company's core business if the business unit can operate effectively as a separate entity; hence, shareholders may be benefited. They can also benefit from spinning off a subsidiary, which arises from agency problem between the shareholders and bondholders. After restructuring, the shareholders receive proportionate stakes in the parent and spun-off entities, but the debtholders retain claim only on the parent assets and earning. Although the assets of spun-off entity are transferred from the parent firm, the bondholders' stakes in the transferred assets are ceased but shareholders' stakes are retained. Thereby, shareholders may benefit through the redistribution of bondholders' value. The present evidence on spin-offs effect on shareholders' value is mostly available from developed markets, particularly from the US and Europe, and those studies largely focused on the value addition due to the removal of diseconomies and increase in operating efficiency. This study examines the corporate spin-offs effect on shareholders' value in Singapore, a newly developed country in Asia, with a focus on the possibility of value redistribution from the bondholders. We are motivated to study this market because all spin-off proposals pass through stringent legal process, and no subsidiary can separate from its parent if it contributes more than 50 percent of the parent's operating profit.

This study examines the value effect of 25 corporate spin-off events occurred in Singapore during 1975-2005. Results show that parent shareholders gain about 15.73 percent value after spin-offs. Of which, 6.62 percent gain occurs in spin-off stocks while the remaining 9.11 percent in parent stocks. The finding is consistent with the argument that corporate spin-offs have economic benefits to help increase shareholders' value. It is also found that spin-off value gain is significantly correlated with the debt asset ratio of parent firms, which sheds light on the possibility of wealth redistribution from bondholders to shareholders due to changes in parent capital structure after spin-off. The rest of paper is organized in five more sections. The literature review is presented in Section 2. Hypotheses are constructed in Section 3. Methodology is described in Section 3. Sample characteristics are stated in Section 4. Results and discussions are presented in sections 5. Conclusion is given in Section 6.

## LITERATURE REVIEW

There is documented evidence that shareholders' value does increase following the announcement of corporate spin-offs. For example, Hite and Owers (1983), Miles and Rosenfeld (1983), Schipper and Smith (1983), Kudla and McInish (1988), Seifert and Rubin (1989), Vjih (1994) Johnson *et. al.* (1996), Cusatis *et. al.* (1993 and 1994), and Krishnaswami and Subramaniam (1999), Huson and MacKinnon (2003), and Veld and Veld-Merkoulova (2004) are among the many other studies that examined the effects of corporate spin-offs. Of these all studies used the US data, except Veld and Veld-Merkoulova (2004) who use European data. Corporate spin-offs events are also found in the major Asian markets, like Japan and Singapore. However, these spin-offs are yet to be adequately examined by academic researchers. There are two studies worthy of mention that examine Japanese and Singapore spin-offs. Ito (1995) found that Japanese firms use spin-offs as a corporate instrument to achieve growth, but did not examine market reaction to spin-off announcements. Koh *et. al.* (2005) found that share value significantly increases in the Singapore market following the announcement of different types of corporate divestures events including spin-offs.

Researchers conclude that shareholders' value increases following spin-off events may occur for a variety reasons. For example, Schipper and Smith (1983) suggest that spin-offs reduce diseconomies and inefficiency of excessive diversity while achieving operational efficiency through more focused business. Krishnaswami and Subramaniam (1999) suggested that spin-offs mitigate information asymmetry about profitability and operating efficiency of different subsidiaries. Gertner *et. al.* (2002) and Ahn and Denis (2004) found that subsidiary spin-offs improve the efficiency of capital allocation. Goolsbee and Maydew (2002) and Veld and Veld-Merkoulova (2004) found that spin-offs provide tax benefits to shareholders when the IRS allows corporations to account for non-taxable spin-off transaction

by considering the allocation of proportionate spun-off shares to the parent shareholders as stock dividends. Qian and Sudarsanam (2007) found that spin-offs create shareholder value by enhancing corporate governance and mitigating agency problems in European markets. From the above studies it appears that spin-offs of a subsidiary may create value due to (i) reduction of operational diseconomies and inefficiency, (ii) reduction of information asymmetry, (iii) reduction of tax liability, and (iv) improvement of corporate governance in restructured parent and spun-off firms.

Researchers also argued that shareholder value increases after spin-offs may also occur due to wealth redistribution from the bondholders to shareholders due to agency problem between them. Galai and Masulis (1976) showed that a portion of the parent bondholders' collateral is removed through spin-off since it takes away a part of the parent's assets to create a legally independent firm where the parent shareholders receive proportionate stake. Therefore, bondholders' value is declined as their default risk increases in the parent firm after spin-off, whereas shareholders enjoy the full benefit from the spun-off firm. This is possible because non-existence of complete and perfect capital market allows the shareholders to expropriate bondholder value (Miller, 1977). Similarly, Myers (1977) suggested that firms with risky debts might reject positive net present value investments, since some of the investment benefits could accrue to the bondholders leaving the shareholders with less wealth. Hence, they could by-pass the bondholders and parent bankruptcy by undertaking the project through a spin-off company (Hennessy, 2000). The wealth redistribution hypothesis though suggested long ago, earlier empirical studies gave less attention to it. So far, Maxwell and Rao (2003) provide evidence consistent with wealth redistribution hypothesis as discussed above. They found that bondholders suffer a significant negative abnormal return during the month of the spin-off announcement, and this is related to the loss of collaterals in the parent firm.

Although the above literature suggest that corporate spin-off is a value addition event for the shareholders, sometimes it may be opposite, particularly when the spin-off process is a fundamentally inefficient method of distributing stock to the people who may not necessarily want it (Constantinos and Norman, 1992). However, the mainstream academic research found that on average corporate divestitures by spin-offs create shareholder value. If any corporate spin-off destroys shareholders value then such proposal would not get approval at the shareholders general meeting.

## HYPOTHESES

Literature reviews suggest that corporate shareholders' value can be increased due to the benefits of spin-off decision and wealth redistribution from the bondholders to shareholders. Prior empirical studies documented using data from developed markets that shareholders' value gain occurs after the spin-off decision, but it is import to examine whether similar shareholders' value gain also occurs in emerging markets. This is because legal framework and market structure may not be similar in all countries.

For example, spin-offs in Singapore generally results out of corporate restructuring of parent firms under sections 211-216 of the Companies Act. Section 6 of Listing Manual of the Stock Exchange of Singapore (SES), currently renamed as Singapore Exchange (SGX), governs the listing of spin-off stocks. According to these regulations, separation of a subsidiary or division that requires transfer of parent assets to a newly created spun-off firm goes through a vetting process conducted by the higher court before the implementation of spin-off decision. In addition, a subsidiary cannot be listed on SES as a separate entity after spin-off if it accounts for more than 50 percent of the parent's profit. These legislations seem to safeguard the interests of stakeholders. Hence, the Singapore spin-offs that passed through stringent legal process may provide genuine spin-off benefits, and value destruction is unlikely. Therefore, the first hypothesis is formulated as follows

H1: *Corporate spin-offs in Singapore will yield abnormal returns in the parent share prices around the period of announcement.*

The spin off benefits will not only occur in parent firms but also occur in the spun-off subsidiaries that are converted into new entities. Since the subsidiary that was not able to perform well under the parent control will now be able to perform well, as it becomes a separate decision making entity. However, the spin-off shares may be underpriced when they are allocated to the parent shareholders. Underpricing of spin-off stocks may be required as uncertainty remains about the success of spun-off firm as an independent entity listed on the exchange. However, new listing underpricing is a common phenomenon in almost all stocks markets (Ljungqvist, A., 2006). Aftermarket price correction generally occurs, but owners of the newly listed stocks can have net value gain from new listings. Therefore, the second hypothesis is formulated as follows:

H2: *Spin-off stocks in Singapore will yield abnormal initial returns after their listing on the exchange.*

If the above two hypotheses are accepted then it can be suggested that shareholders gain value both in the parent and spin-off firms. Thereby, the combined value of the parent and spin-off stocks would be greater than the value of parent stock alone before the spin-off decision. This means corporate spin-offs in Singapore adds value for the shareholders.

## METHODOLOGY

This study examines changes in shareholders' value after spin-off decision. This can be determined by examining stock price behavior around the spin-off event using standard 'event study' methodology. In Singapore, the process of spin-offs takes several months (often more than one year) to complete following the press announcement. This is because the spin-off decision can be implemented after arrival of court's vetting report and approval of the spin-off proposal in shareholders' general meeting. Afterwards, the spun-off company can apply for listing on the exchange and trading of stocks starts after listing approval. Therefore, spin-off is not a single announcement event but it contains a series of events. Hence, the parent stock return is examined around the period of (a) spin-off announcement, (b) spin-off completion/*ex-date* and (c) listing of spin-off stocks using a wider window period covering the three events. The relevant announcement dates, *ex-dates* and spin-off listing dates are identified from the announcement clips maintained at the Stock Exchange of Singapore.

Parent stocks returns around the three spin-off events are examined over a long period starting from 10 months before the announcement through to 10 months after the spin-off stock listing. Since a wider window is used to cover the three events, the abnormal returns over the period are estimated using monthly data. Abnormal returns are also estimated using daily and weekly data around the specific events (announcement, *ex-date* and listing) using a narrower window to take a close view of the impact of each event. However, the analysis is provided based on the wider window results using monthly data. Next, the initial excess return is calculated to examine the listing day market performance of spin-off stock. The aftermarket performance is also examined up to 10 months from spin-off stock listing. Finally, total change in the shareholders' value is estimated by combining the value changes occurring both in the parent and spun-off subsidiary over the test window period.

*Test Models:* Abnormal returns of parent stocks are estimated using the market model as follows:

$$AR_t = \frac{1}{N} \sum_{i=1}^N (R_{it} - \hat{\alpha} - \hat{\beta}_i R_{mt}) \quad (1)$$

Where,  $AR_t$  is abnormal return of the parent stock portfolio at event time period  $t$ ;  $R_{it}$  is return of stock  $i$  at event time  $t$ ;  $R_m$  is market return at time  $t$ ;  $\alpha_i$  is intercept of the market model;  $\beta_i$  is systematic risk of stock  $i$ ; and  $N$  is number of stocks.

In the above model, the market return ( $R_m$ ) is calculated based on Strait Times Index (STI Index). The STI index includes large and active firms only. The constituent stocks of this index account for about two-thirds of the total market capitalization in Singapore. In estimating the model parameters, the stock and market returns are transformed into log-returns because of their statistical properties (Fama, 1976). This may provide the best estimates of true parameters. The parameters are estimated over -60 to -3 months relative to the spin-off announcement date using monthly data, and corrected for thin-trading effect using Scholes and William (1977) method. Finally, cumulative abnormal returns for the parent firms are calculated as:

$$CAR_t = \sum_{t=-r}^{t=+s} AR_t \quad (2)$$

Where,  $CAR_t$  is cumulative abnormal return for the parent stocks portfolio at the event time period  $t$ , which starts from  $t = -r$  until  $t = +s$  and  $AR_t$  is defined above.

The average initial return of spin-off stocks in excess of market return (henceforth initial excess return) is calculated as follows:

$$IER_t = \frac{1}{N} \sum_{i=1}^N (IR_{it} - R_{mt}) \quad (3)$$

Where,  $IER_t$  is market adjusted initial excess return of the spin-off stock portfolio at event time  $t$ ;  $IR_{it}$  is the initial return of spin-off stock  $i$  at time  $t$  calculated as  $(P_{it} - P_{io})/P_{io}$  [ $P_{it}$  is closing price on the first day of trading and  $P_{io}$  is issue price of spin-off stock  $i$ ];  $R_{mt}$  is market return for the corresponding event period  $t$ .

Performances of spin-off stocks in aftermarket periods are measured using the mean-adjusted return method. It is difficult to estimate the systematic risk ( $\beta$ ) of newly listed spin-off stocks as no historical price data are available. Therefore, the market model that adjusts for risks (as in Equation 1) cannot be applied here. Instead, the mean-adjusted or market-adjusted return models can be used to estimate the returns of stocks. Brown and Warner (1980 and 1985) found that the mean-adjusted model works like other models if events are not clustered. Therefore, average aftermarket abnormal return of the spin-off stocks portfolio is calculated using the mean-adjusted return model:

$$AMAR_t = \frac{1}{N} \sum_{i=1}^N [R_{it} - E(R_{it})] \quad (4)$$

Where,  $AMAR_t$  is aftermarket abnormal return of the spin-off stocks at event time  $t$ ;  $R_{it}$  is the return of stock  $i$  at event time  $t$ ;  $E(R_{it})$  is expected return of spin-off stock  $i$  at event time  $t$ , which is the mean return calculated over a comparison period. The comparison period is from the month +4 to month +10 relative to the day of spin-off listing.  $N$  is the number of stocks in the spin-off portfolio. Finally, the aftermarket cumulative abnormal return of spin-off stocks is calculated as follows:

$$AMCAR_t = \sum_{t=1}^{t=+s} AMAR_t \quad (5)$$

Where,  $AMCAR_t$  is after market cumulative abnormal return for event time  $t = 1$  until  $t = +s$ ; and  $AMAR_t$  is defined above.

*Test Statistics:* The parametric and non-parametric test statistics are calculated to find the significance of abnormal return of both parent and spin-off portfolios. The cross-sectional *t-statistics* are calculated by using the standard deviation of abnormal returns. The Wilcoxon Signed Rank Test (non-parametric test) is applied as a counterpart *t-test* to overcome the small population problem. Moreover, *t-test* suggested in Brown and Warner (1980) is applied to test the significance of cumulative abnormal returns over selected intervals.

## SAMPLE CHARACTERISTICS

A total of 80 major corporate restructuring cases occurred in Singapore during January 1975 to December 2005. Only 25 cases were identified as pure spin-off events where both the parent and spin-off companies are simultaneously listed on the exchange following the spin-off event. For a spin-off to be included in the sample set, the parent stocks must have trading records over at least 30 months before the spin-off listing. This is required for the calculation of parameters  $\alpha$  and  $\beta$ . Hence, a total of 50 firms were selected to construct the two portfolios of parent and spin-off firms with 25 firms in each portfolio. The required information was gathered from Company Handbook, SES Journal, SES Fact Book, and Daily Financial News. All these documents are available at Singapore Stock Exchange. However, the daily price data of the stocks of two portfolios were collected from SES database. Later, weekly and monthly-adjusted price data sets were constructed to calculate returns.

*Characteristics of Parent and Spin-off Firms:* The distribution shows that 25 spin-off cases occurred over the sample period (1975-2005) and the yearly distribution was fairly uniform. The average assets size of the parent firms was S\$1,374 million and debt-asset ratio was 0.57. The spin-off firms were relatively smaller than the parents because of regulations. The mean size of spin-off firms relative to the size of the parent was 0.237. The length of the spin-off process ranged from as low as 62 days to a high of 479 days with an average of 229 days. Fifteen spin-off stocks became listed and started trading within an average of 18 days from spin-off *ex-date*, nine stocks were listed and started trading immediately after the *ex-date*, and one stock was already listed before the spin-off. Most of the parent stocks were thinly-traded with a mean trading frequency of 72.8 percent. The average unadjusted beta (1.18) of the parent stock portfolio was lower than the corrected Scholes-William beta (1.27) suggesting a downward bias due to non-synchronous effect on the systematic risk of the portfolio stocks.

## EMPIRICAL FINDINGS

### Performance of Parent Stocks

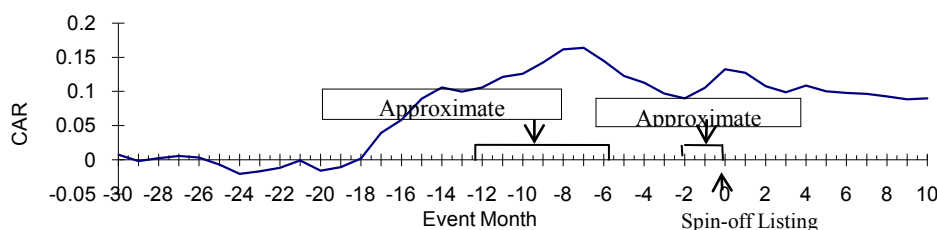
Figure 1 shows the general trend of risk-adjusted monthly CAR of 25 parent stocks around the spin-off announcement, *ex-date*, and listing periods over a time span of -30 months to +10 months relative to the spin-off listing (final event of spin-off process). Table 1 reports the risk-adjusted monthly ARs and CAR of the parent stocks over the same period covering the three spin-off events. In Figure 1, the CAR line moved without much change over the period of -30 to -18 months. After the event month -18, CAR increased significantly until the month -7. This behavior may reflect the effect of spin-off announcement, because most spin-off announcements came out during this period. After month -7, CAR declined until month -2 which may reflect uncertainty on the outcome of court vetting on spin-off proposal. However, uncertainty of spin-off implementation resolves on the *ex-date* when shareholders approve the spin-off proposal following court's decision.

Findings show that CAR started to increase from month -2, which may indicate *ex-date* effect due to uncertainty resolution. The increasing trend of CAR is continued until the event month 0, which may be due to upcoming spin-off listing on the market. Since the interval between the *ex-date* and the spin-off listing/first trading day is short, it is difficult to separate the *ex-date* effect from the listing effect. Only 15 firms went to *ex-date* before the spin-off listing date. The average duration between the *ex-date* and listing date is 18 days with a maximum of 71 days.

During the post-listing period of +1 to +10 months, CAR declined slowly due to possible price correction after spin-off listing, but it never came down to the pre-announcement period level. This indicates that the spin-off effect is mostly captured around the announcement period and increase in parent value took place following the spin-off event. The evidence therefore lends support to Hypothesis 1. A part of the value

gained after the spin-off announcement seemed to be lost in the post-announcement period. This could be due to uncertainty of successful spin-off materialization through a lengthy court vetting process. The lost value is mostly re-captured around the *ex-date* and listing date when the uncertainty is resolved and spin-off eventuates.

Figure 1: Risk Adjusted Monthly Cumulative Abnormal Return Around Announcement, Ex-date, and Spin-off



This figure shows the general trend of monthly cumulative risk-adjusted abnormal return of the parent firms over a long window period from 30 months prior to spin-off listing on the exchange to 10 months following the listing. The long window period covers three events related to spin-offs, namely the announcement of spin-off, completion of spin-off (*ex-date*), and listing of spun off subsidiary on the exchange.

Table 1 shows that, over -30 to +10 months relative to spin-off listing, 13 ARs are statistically significant in parametric tests and 14 ARs are significant in non-parametric tests. The significant ARs are clustered around the three periods (i) over -18 to -15 months (indicating anticipation of information about spin-off announcement), (ii) over -11 to -7 months (indicating possible effect of announcement), and (iii) over -1 to 0 months (indicating possible effect of *ex-date* and spin-off listing). Most of the ARs over -18 to 0 months are positive but not significant. In the post-listing period over +1 to +10 months, 8 ARs are negative and 2 ARs (for months +4 and +10) are positive. All these ARs are insignificant except the one in month +2. In non-parametric test, 3 ARs are significant.

Results show that CAR over the period of -30 to -19 months is only -1.08 percent, which is not significant. Next over the period of -20 to -8 months, CAR increased to 17.45 percent, which is significant at less than the 1 percent level. This indicates significant value increase for the parent stocks after spin-off announcements. In the following period of -7 to -2 months, the CAR drops to -7.36 percent that is significant at less than 1 percent level. This indicates value loss due to post-announcement uncertainty until the outcome of spin-off court vetting is known. The CAR over the period of -1 to 0 months is 4.26 percent, which significant at less than the 1 percent level. This indicates value increase around the period of *ex-date* and spin-off stock listing because of materializing the spin-off decision. It is difficult to distinguish the *ex-date* value gain from the listing period value gain at this stage. The AR of 2.73 percent (significant at less than 1 percent level) on the listing month 0 may be attributed to spin-off listing effect on the parent stock. During the post-listing period of +1 to +10 months, CAR drops to -4.30 percent that is significant at 10 percent level. This indicates the value loss after transfer of subsidiary assets from the parent to spin-off firm. Nevertheless, the CAR over the entire period of -30 to +10 months is found to be 8.97 percent, which is significant at 5 percent level. This indicates the total value increase due to three spin-off events. Therefore, the findings generally accept hypothesis 1 by documenting that parent stockholders gained about nine percent of value from the spin-off.

### Robustness Checks

The study examines the effect of three spin-off events (announcement, *ex-date*, and spin-off listing) separately using both monthly and weekly data to check robustness of the earlier findings that used a wider window covering the three events together. Panel A of Table 2 shows the CAR of parent stocks

over selected intervals around the individual event starting from 10 months before announcement through to 10 months after the spin-off listing.

Table 1: The Performance of Parent Stocks over Announcement, ex-date, and Spin-off Listing Periods

Panel A:						
Event Month	AR	t statistics	Number of Positive AR	Wilcoxon z Score	CAR	
-30	0.0078	0.601	16	0.991	0.0078	
-29	-0.0096	-0.641	10	-0.732	-0.0018	
-28	0.0045	0.357	13	0.151	0.0027	
-27	0.0030	0.302	11	0.346	0.0057	
-26	-0.0023	-0.137	13	0.118	0.0034	
-25	-0.0105	-0.822	6	-1.608	-0.0071	
-24	-0.0135	-0.962	11	-0.701	-0.0206	
-23	0.0041	0.398	11	0.501	-0.0165	
-22	0.0051	0.525	10	0.031	-0.0114	
-21	0.0106	0.568	12	0.232	-0.0008	
-20	-0.0149	-1.127	11	-0.901	-0.0157	
-19	0.0049	0.351	9	-0.181	-0.0108	
-18	0.0130	1.897*	15	1.962**	0.0022	
-17	0.0371	2.575**	14	2.456**	0.0393	
-16	0.0191	1.846*	13	1.655*	0.0584	
-15	0.0312	2.854***	19	2.538**	0.0896	
-14	0.0160	0.914	16	1.657*	0.1056	
-13	-0.0059	-0.381	10	-0.810	0.0997	
-12	0.0062	0.422	8	0.201	0.1059	
-11	0.0153	2.379**	18	2.765***	0.1212	
-10	0.0049	1.889*	17	2.177**	0.1261	
-9	0.0160	-1.994*	9	0.516	0.1421	
-8	0.0192	3.162***	22	3.321***	0.1613	
-7	0.0024	2.222**	18	2.457**	0.1637	
-6	-0.0189	-0.047	11	-0.016	0.1448	
-5	-0.0221	-1.932*	6	-1.743*	0.1227	
-4	-0.0100	0.003	13	0.215	0.1127	
-3	-0.0156	-1.261	11	-0.1609	0.0971	
-2	-0.0070	-0.549	12	-0.608	0.0901	
-1	0.0153	2.056**	20	2.475**	0.1054	
0	0.0273	2.836***	19	3.156***	0.1327	
1	-0.0055	-0.242	10	-0.798	0.1272	
2	-0.0196	-1.907*	7	-1.867*	0.1076	
3	-0.0086	-0.987	9	-0.741	0.0990	
4	0.0098	0.851	15	0.799	0.1088	
5	-0.0086	-0.652	12	-0.247	0.1002	
6	-0.0022	-1.041	8	-1.891*	0.0980	
7	-0.0013	-0.586	10	-0.584	0.0967	
8	-0.0040	-1.521	9	-1.233	0.0927	
9	-0.0040	-1.036	6	-1.461	0.0887	
10	0.0010	1.568	13	1.890*	0.0897	

Panel B: Significance of CAR over Selected Intervals		
Month intervals	CAR	t statistics
-30 to -19	-0.0108	-0.518
-20 to -8	0.1745	4.363***
-7 to -2	-0.0736	-3.255***
-1 to 0	0.0426	3.550***
1 to +10	-0.0430	-1.801*
-30 to +10	0.0897	2.167**

Panel A presents the monthly risk-adjusted abnormal return (AR) and cumulative abnormal returns (CAR) of 25 parent firms along with their respective parametric t-statistics and non-parametric Wilcoxon z score. The event months from -11 to -7 are identified as the period around spin-off announcements, while the event months -2 and -1 are identified as the period of spin-off completion (ex-date) and the event month 0 is considered as spin-off listing month. The Panel B presents the CAR in selected interval of time. The level of significance is denoted in asterisks, e.g., \*\*\*, \*\*, and \* indicate significance at 1, 5, and 10 percent levels



Parent shareholders earn about 8.84 percent CAR (t value is 2.714) over the span of period from -10 to -1 month prior to spin-off announcement. The abnormal return on the spin-off announcement month is 3.08 percent (t value is 2.541). Therefore, parent stockholders earn a total of 11.92 percent CAR by the end of announcement month. This finding affirms the acceptance of hypothesis 1. After spin-off announcement, investors need to wait an average of 229 days for implementation of the decision, which creates uncertainty on spin-off materialization. Therefore, they incur 3.11 percent CAR loss over the period from one month after announcement through to one month before the *ex-date*. However, they earn 2.57 percent abnormal return on the *ex-date*, as uncertainty resolves. A further 2.03 percent CAR increase occurs over the period between *ex-date* and spin-off listing day. This identifies recapture of lost value after spin-off materialization. The parent shareholders incur 4.30 percent CAR loss over the next 10 months possibly due to transfer of subsidiary assets. The weekly results in Panel B of Table 2 provides a closer picture of spin-off value effects around the three events, which are largely similar to the results based on monthly data. Finally, both results (using monthly and weekly data) show that spin-off in Singapore yields abnormal return for parent shareholders not only around the announcement period but also around the period of *ex-date* and spin-off listing.

### Performance of Spin-off Stocks

Table 3 shows that spin-off stocks earn on average about 37.12 percent initial excess return (hereafter IER) with a minimum of -0.2 percent and maximum of 198 percent. The average IER is significant at the

Table 2: Value Effect of Spin-offs on the Parent Stocks around the Announcement, Ex-date, and Spin-off Listing Periods

Panel A: Risk-adjusted monthly CAR		
Month intervals	CAR	t statistics
AD-10 to AD-1	0.0884	2.714**
AD	0.0308	2.541**
AD+1 to ExD-1	-0.0311	-3.114***
ExD	0.0257	3.336***
ExD+1 to LD	0.0203	1.772*
LD+1 to LD+10	-0.0430	-1.801*

Panel B: Risk-adjusted weekly CAR		
Week intervals	CAR	t statistics
AD-15 to AD-1	0.0504	2.401**
AD	0.0201	2.508**
AD+1 to ExD-1	-0.0298	-1.861*
ExD	0.0244	2.235**
ExD+1 to LD-1	0.0198	1.685
LD	0.0194	2.260**
LD+1 to LD+15	-0.0238	-2.374**

*This Table presents the value effect of spin-off decision around three event dates separately: namely, announcement of spin-off, completion of spin-off process, and listing of newly created spun-off company. The Panel A provides value effects based on monthly cumulative abnormal return (CAR) while the Panel B provides the same based on weekly CAR. The abbreviation of AD, ExD, and LD refer to the announcement date, ex-date, and listing date respectively. In ten cases, the length of interval between ex-date and listing/first trading date is zero. CAR over this period is therefore calculated for the remaining fifteen parent stocks. The length of monthly and weekly holding periods however also varies from the case to case depending on actual length of the interval. The level of significance is denoted in asterisks, e.g., \*\*\*, \*\*, and \* indicate significance at 1, 5, and 10 percent levels.*

1 percent level in both t-test and signed rank test. The statistical distribution shows a maximum of nine spin-off listings yield IERs between 31 and 45 percent, followed by five yields between 16 and 30 percent and four between 46 and 60 percent. As a whole, 24 spin-off listings yield positive initial returns on the listing day. It appears that spin-off stocks, which have history with their listed parents, are underpriced since uncertainty remains about the success of spun-off subsidiary as independent entity. In addition, market overreaction towards the new listings may partially contribute to spin-off initial under pricing.

Therefore, having a proportionate stake in spin-off firms, parent shareholders gain about 37 percent value on the first day of the spin-off trading. This initial value gain is far larger than 4.3 percent value loss in the old parent firms during post spin-off period. Therefore, this study accepts the hypothesis 2 that spin-off stocks in Singapore yield abnormal initial returns after their listing on the exchange. The findings in Panel A of Table 4 show that market price of spin-off stocks are corrected downward in the aftermarket periods, posting eight negative monthly AMARs over 10 months following the listing day. However, most of these AMARs are insignificant, except those of the month +2 and +5. The findings in Panel B of Table 4 show that the spin-off stock prices are corrected towards downward to a great extent over the period of two months (about 9 weeks) after start of trading. After two months following the spin-off listing, the AMCAR stands at -9.46 percent that is significant at 5 percent level. The AMCAR further decreases to -11.67 percent over the following three months period ended on +5 Month. The aftermarket loss in value is partially recovered over the subsequent five months period ended on +10 Month. The AMCAR finally stands at -9.17 percent, which is significant at 10 percent. The weekly results in Table 5 below also reveal a similar performance of the spin-off stocks in the aftermarket period.

Total Effect on Shareholders' Value

Table 5 summarizes the initial and aftermarket value effect of a spin-off on the shareholders' value at the spin-off firm level. On the first day of spin-off trading, stockholders gain an initial excess return of 37.12 percent. In aftermarket periods, however, the gain in value due to market overreaction has been corrected.

Table 3: Market-Adjusted Initial Excess Return of Spin-off Stocks

Panel A: Distribution of Initial Excess Returns (IER)			
Interval of IER		Number of firms	
less than 0.15		2	
0.16 to 0.30		5	
0.31 to 0.45		9	
0.46 to 0.60		4	
0.61 to 0.75		2	
0.76 to 0.90		1	
0.91 to 1.00		0	
1.01 and above		2	
Total		25	

Panel B: Summary Statistics of IER			
Mean	: 0.3712	t value	: 3.637***
Median	: 0.3455	Wilcoxon z score	: 4.341***
St. Deviation	□□0.5101	No. of positive IER	: 24
Minimum	: -0.002		
Maximum	: 1.98		

*This table presents the distribution of market-adjusted initial excess return from investment in newly created spin-off stocks, measuring the level of spin-off underpricing. The market-adjusted initial excess return is computed because no historical price data are available to estimate the systematic risk parameter of the newly created spin-off firms. The level of significance is denoted in asterisks, e.g., \*\*\*, \*\*, and \* indicate significance at 1, 5, and 10 percent levels.*

The aftermarket cumulative abnormal returns (AMCAR), over the periods from +1 to +30 days, +1 to +15 weeks, and +1 to +10 months are respectively -5.99 percent, -11.03 percent and -0.0917 percent. The overreaction effect appears to be corrected within 2 to 3 months following the spin-off listing. Therefore, the net value gain of the spin-off stocks stands at respectively 31.13 percent, 26.09 percent and 27.95 percent on the 30th day, 15th week and 10th month from the first day of listing/trading. These findings reaffirm the hypothesis 2 that spin-off stocks in Singapore yield abnormal initial returns after their listing on the exchange, and a larger part of the initial value gain is sustained over the long term period up to 10 months following listing.

The acceptance of hypotheses 1 and 2, based on empirical results, suggest that parent shareholders gain value both in the parent and spin-off firms. Therefore, after spin-off materialization, total value of parent

and spin-off firms is greater than the value of undivided parent firm before the spin-off. Results in Table 6 show that shareholders gain about 15.73 percent adjusted value over the period from 10 months before to 10 months after spin-off materialization. Of the 15.73 percent total adjusted value gain, about 6.62 percent gain occurs in spin-off stocks while the remaining 9.11 percent occurs in parent stocks. The value effects based on daily and weekly returns also show similar findings. The total adjusted value effects based on daily and weekly returns are about 15.12 and 14.23 percent respectively.

Table 4: Aftermarket Performance of Spin-off Stocks (Using Monthly Data)

Panel A: Monthly Aftermarket Abnormal Return (AMAR) and Cumulative Abnormal Return (AMCAR)					
Event Months	AMAR	t stat for AMAR	Number of Positive ER	Wilcoxon z Score	AMCAR
1	-0.0205	-0.512	10	-1.372	-0.0205
2	-0.0741	-3.857***	5	-3.291***	-0.0946
3	-0.0096	-0.602	12	-0.505	-0.1041
4	-0.0021	-0.095	13	-0.337	-0.1062
5	-0.0105	-0.929	8	-1.754*	-0.1167
6	0.0218	1.690	15	1.601	-0.0949
7	-0.0108	-0.673	9	-0.817	-0.1057
8	0.03307	1.657	16	1.442	-0.0726
9	-0.0017	-0.124	10	0.0721	-0.0743
10	-0.0174	-1.221	11	-1.105	-0.0917

Panel B: Significance of AMCAR over Selected intervals		
Month Intervals	AMCAR	t Statistics
1 to 2	-0.0946	-2.260**
1 to 5	-0.1167	-1.870*
1 to 10	-0.0917	-1.810*

The Panel A presents the monthly aftermarket abnormal return (AMAR) and aftermarket cumulative abnormal returns (AMCAR) of 25 spin-off firms along with their respective parametric t-statistics and non-parametric Wilcoxon z score. The Panel B presents the AMCAR in selected interval of time over a period of 10 months in aftermarket. The level of significance is denoted in asterisks, e.g., \*\*\*, \*\*, and \* indicate significance at 1, 5, and 10 percent levels.

Table 5: Initial and Aftermarket Value Gain in Spin-off Stocks

Interval from Listing Date	IER/ AMCAR	t Statistics	Net Gain in Value <sup>c</sup>
0 (First Trading Day)	0.3712 <sup>a</sup>	3.637***	0.3712
+1 to +30 Day	-0.0599 <sup>b</sup>	-2.251**	0.3113
+1 to +15 Week	-0.1103 <sup>b</sup>	-2.654**	0.2609
+1 to +10 Months	-0.0917 <sup>b</sup>	-1.810*	0.2795

This table presents the net value gain in spin-off stocks during the period from the first day of market trading to 10 months in aftermarket. The net value gain is computed by aftermarket cumulative abnormal return (AMCAR) from the Initial Excess Return (IER). The level of significance is denoted in asterisks, e.g., \*\*\*, \*\*, and \* indicate significance at 1, 5, and 10 percent levels.

Table 6: Total Spin-off Value Effect on Parent and Spin-off Stocks

STOCKS	Value Effect Measured by Cumulative Abnormal Returns		
	Days AD-30 to LD+30	Weeks AD-15 to LD+15	Months AD-10 to LD+10
Parent Stocks	0.0774	0.0805	0.0911
Spin-off Stocks	0.3113	0.2609	0.2797
Total Value Gain (Unadjusted)	0.3887	0.3414	0.3708
Spin-off stocks (adjusted) <sup>a</sup>	0.0738	0.0618	0.0662
Total Value gain (adjusted) <sup>b</sup>	0.1512	0.1423	0.1573

This table shows the total shareholders' value increase in both parent and spin-off firms because of separation between the parent and subsidiary. The average value of spin-off assets that are transferred from parent firms is about 23.7% of total parent assets. Therefore, value effect on the spin-off stocks are adjusted to parent equivalent level. (e.g., 0.3113 X 0.237 = 0.0738). The adjusted total value gain is computed by combining the value gain in parent stocks with the adjusted value gain in spin-off stocks.

Spin-off Effects and Parent Debts

The results presented above document shareholders' value increase in the Singapore market following spin-off events, which is consistent with the literature that suggests a value increase occurs due to the spin-offs economic benefits. The shareholders value may also increase due to wealth redistribution effect. This is because a portion of the debtholders' collateral in parent firm is removed through separation of a subsidiary/division, and a spin-off firm is created to take control of the removed parent assets. In the spin-off firm, parent shareholders receive a proportionate ownership while debtholders lose their claim on the assets that are transferred to the spin-off firm. Therefore, the value of parent debt reduces due to debtholders' risk increase after reduction of collateral. Since debts of parents firms in Singapore are not usually publicly traded, a test of bond value behavior using listed bond returns is not possible. Therefore, this study indirectly examines the wealth redistribution effect of spin-off.

If transfer of assets from parent firms to spin-off firms could result in stockholders' value increase at the cost of debtholders' value, then a positive relationship can be expected between the parent debt-asset ratio and shareholders' value gain. Table 7 reports Pearson's rank correlation coefficient between the parents' debt asset ratio (DAR) after spin-off materialization and cumulative abnormal returns of the parent and spin-off stocks. It is found that correlation between the parent DAR ratio and parent CAR is about 0.465, which is significant at 5 percent level. This may shed indirect light on the possibility of wealth redistribution from bondholders to shareholders due to changes in the parent capital structure following spin-off materialization. It is also found that parent capital structure has no significant effect on the spin-off value *per se*. This may suggest that spin-off value *per se* largely depends on the economic benefits of separating subsidiary business operation from parent control. Finally, correlation coefficient between the parent DAR and total value gain in the parent and spin-off firm together is found to be 0.361 that is significant at 10 percent level. In conclusion, the study documents the value effect of corporate spin-offs in Singapore that supports spin-off value effect theories and evidence from developed markets, but does not rule out the possibility of wealth redistribution from the debtholders to shareholders.

Table 7: Correlation between the Parent Debt Asset Ratio (DAR) and Cumulative Abnormal Returns of Parent and Spin-off Stocks

Cumulative Abnormal Returns	Pearson's Rank Correlation <input type="checkbox"/>
Parent (AD-10 to LD+10 months)	0.465
Spin-off (0 to +10 months)	0.308
Total Cumulative Abnormal Returns of both Parent and Spin-off stocks	0.361

*This table reports the level of correlation between the parent capital structures (debt-asset ratio) with the value increase in both parent and spin-off firms. The evidence tends to lend some support for the wealth redistribution hypothesis discussed in the paper. The estimated Pearson's rank correlations ( $\rho$ ) are found to be statistically significant as the critical values of  $\rho$  ( $n=25$ ) are lower than estimated correlation.*

**CONCLUSIONS**

Corporate spin-offs involves separation of a subsidiary/division from its parent by converting it into an independent firm. As a part of the restructuring the business operations of parent firm, the assets of spin-off subsidiary/division are transferred to a newly created firm known as 'spin-off company'. The parent shareholders receive proportionate ownership stakes in the spin-off company, but debtholders lose their claim on the assets transferred to this company. The mainstream literature suggests that a subsidiary spin-off creates value due to (i) reduction of operational diseconomies and inefficiency, (ii) reduction of information asymmetry, (iii) reduction of tax liability, and (iv) improvement of corporate governance in restructured parent and spin-off companies. Corporate spin-offs may also help increase shareholders' value due to redistribution of wealth from the debtholders to shareholders. This is because assets of the subsidiary/division are transferred to a newly incorporated company where the parent bondholders have no claim on the assets and earnings. A good number of studies provide evidence of a shareholders' value

increase after spin-offs. Most of available evidence are from the developed markets, which tend to support different economic value effects from spin-offs. Moreover, these studies largely examine only the parent share value after the announcements of spin-offs. The total value effects on the parent and spin-off shares together remains yet out of research focus. Therefore, this study put documents new evidence on spin-off value effects in the Singapore market, which is a major emerging market in South East Asia.

The study utilized a total of 25 corporate spin-offs occurred in Singapore over the period of 1975 to 2005. The effect of spin-offs has been examined over a window period from 10 months before announcement through to 10 after the spin-off listing. A longer test window is needed because implementation of spin-off takes an average of 229 days from the day of announcement, and the period has to cover a sequence of three events related to spin-off: (i) spin-off announcement, (ii) spin-off ex-date, and (iii) spin-off listing. The study results show that parent shareholders gain about 15.73 percent adjusted value over the test period. Of the 15.73 percent total adjusted value gain, about 6.62 percent gain occurs in spin-off stocks while the remaining 9.11 percent occurs in parent stocks. The finding is consistent with the argument that corporate spin-offs have economic benefits that help increase in shareholders' value. It is also found that total spin-off value gain is significantly correlated with the debt asset ratios of the parent firms, which sheds light on the possibility of wealth redistribution from the bondholders to shareholders due to change in the parent capital structure after spin-off event.

The paper concludes that corporate spin-offs have a value effect in the Singapore market as is found earlier in the developed markets. While the spin-off value addition could be the result of several economic benefits accruing from separation of a subsidiary/division from its parent company, the redistribution of wealth from debtholders to shareholders cannot be ruled out. Finally, readers should take note of some inevitable limitations, e.g., relatively small size though it covers entire population and use of a wider test window may somewhat affect the results due to other factors though efforts are given to clean up data.

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