FEATURE ARTICLE

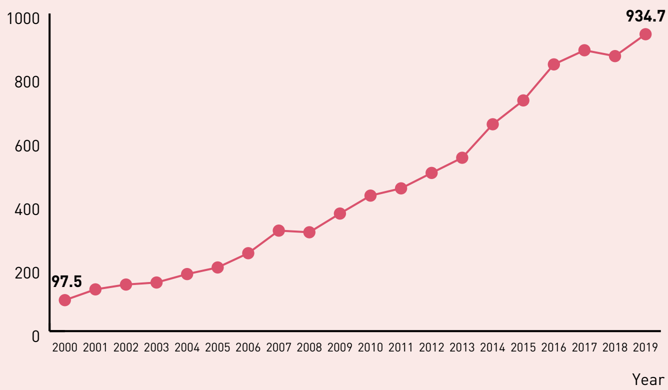
IMPACT OF DIRECT INVESTMENT ABROAD ON FIRM-LEVEL OUTCOMES OF SINGAPORE-BASED FIRMS

INTRODUCTION

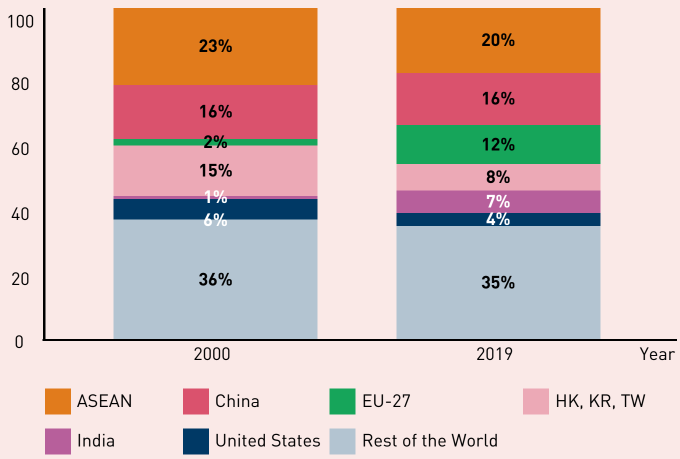
Singapore's Direct Investment Abroad (DIA) refers to an investment where a Singapore entity owns 10 per cent or more of the voting power of an overseas enterprise. Singapore's DIA consists of direct equity investment in overseas enterprises and inter-company lending between the Singapore entities and the overseas enterprises.

Singapore's DIA stock has grown rapidly, from S$97.5 billion in 2000 to S$934.7 billion in 2019, with the ASEAN economies and China being key destinations of investment. As such, this article examines the impact of a firm's direct investments abroad on its operations in Singapore.

Singapore's DIA Stock (S$, billion)



Singapore's DIA stock by Destination (%)



Percentages may not sum to 100% due to rounding

FINDINGS

Finding 1

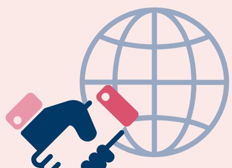
Overseas investments by Singapore-based firms have a positive effect on their revenue, profits, value-added and employment in Singapore.

Positive effect on revenue, profits, VA and employment from overseas investment

Finding 2

Firms engaging in overseas investment for the first time and firms with an established overseas presence both benefit from investment abroad.

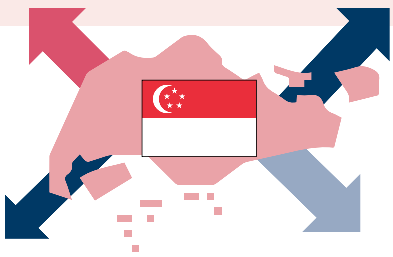
Firms investing overseas for the first time



Firms with an established overseas presence

POLICY TAKEAWAY

Overall, the study's findings provide support to continuing efforts to encourage more Singapore firms to expand beyond the Singapore market, including those considering investing abroad for the first time.



EXECUTIVE SUMMARY

- Singapore's stock of Direct Investment Abroad (DIA) grew significantly from S$97.5 billion in 2000 to S$934.7 billion in 2019, reflecting in part the result of the Government's ongoing efforts to encourage Singapore-based firms to expand overseas. A key impetus for these efforts is the recognition that Singapore has a small domestic market. Another reason is the belief that expansion abroad improves the outcomes of firms' operations domestically, which in turn generates broader benefits for the Singapore economy.

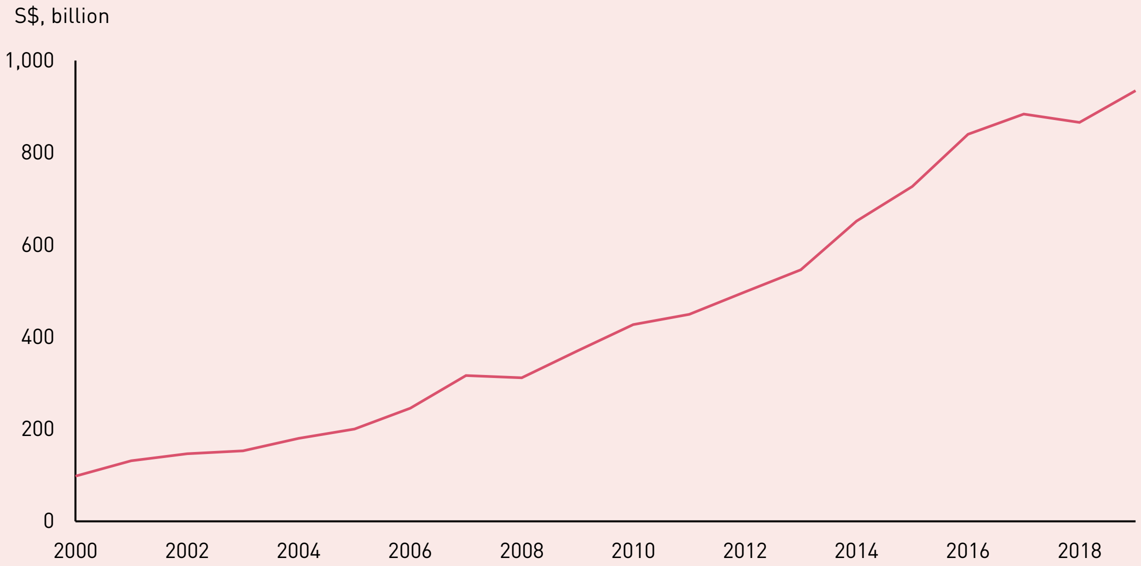
- This article examines the impact of investments abroad on firm-level outcomes in Singapore. Our findings suggest that overseas investments by Singapore-based firms have a positive impact on their operations in Singapore (i.e., the home country). On average, an increase in a Singapore-based firm's DIA stock leads to higher revenue, profits, value-added and employment for its operations in Singapore. In addition, our study finds that these benefits accrue to firms regardless of whether they are investing overseas for the first time or have an established presence abroad. Our findings thus support continuing efforts by the Government to encourage more Singapore firms to expand beyond the domestic market.

The views expressed in this paper are solely those of the authors and do not necessarily reflect those of the Ministry of Trade and Industry, the Department of Statistics Singapore, Enterprise Singapore or the Government of Singapore.[1]

INTRODUCTION

Between 2000 and 2019, Singapore's stock of Direct Investment Abroad (DIA)[2] grew rapidly from S$97.5 billion to S$934.7 billion, representing a compound annual growth rate (CAGR) of 12.6 per cent (Exhibit 1).

Exhibit 1: Singapore's DIA stock, 2000-2019



Source: Department of Statistics Singapore (DOS)

1 We would like to thank Yong Yik Wei, Dr Andy Feng and Alphonsus Gomez for their useful suggestions and comments, as well as the Department of Statistics, particularly Leon Tay, for the invaluable statistical support. We are also grateful to Enterprise Singapore for their inputs to this article. All errors belong to the authors.

2 Singapore's DIA refers to an investment where a Singapore entity owns 10 per cent or more of the voting power of an overseas enterprise. Singapore's DIA consists of direct equity investment in overseas enterprises and inter-company lending between the Singapore entities and the overseas enterprises.

The largest destinations for Singapore's DIA are the Association of Southeast Asian Nations (ASEAN) economies[3], China and the European Union (EU)[4]. Specifically, of Singapore's DIA stock in 2019, 20 per cent was in ASEAN, 16 per cent in China, and 12 per cent in the EU. Other major destinations for Singapore's DIA stock include the NIE-3 economies[5] (8 per cent in 2019), India (7 per cent in 2019) and the United States (4 per cent in 2019).

The strong growth in Singapore's DIA stock in a wide range of countries over the years reflects in part the result of ongoing efforts by the Government to encourage more Singapore-based firms to expand overseas. A key impetus for doing so is the recognition that Singapore has a small domestic market. Another reason is the belief that expansion abroad improves the outcomes of firms' operations domestically, which in turn generates broader benefits for the Singapore economy.

To the best of our knowledge, there has not been any empirical study on the impact of investing abroad on the firm-level outcomes of Singapore-based firms. This study thus attempts to examine this issue using firm-level data.

The rest of the article is organised as follows. We first review the literature relating to the relationship between overseas investments and the outcomes of the investing firm in the home country. We then describe the data and methodology employed for our study, before reporting our findings. The final section concludes.

LITERATURE REVIEW

In theory, a firm's overseas investments and its domestic operations can be either substitutes or complements. The overseas operations of a firm are substitutes if an expansion abroad is accompanied by a reduction in its domestic activities. By contrast, an overseas investment is complementary if it increases the firm's sales opportunities within the overseas market that are then fulfilled from its operations in the home country (e.g., via exports produced in the home country), or if it leads to the need for more functional support from the firm's operations in the home country for the international operations, such as the provision of legal and financial professional services support from the home country.

The empirical literature suggests that overseas expansion is generally complementary, and thus has a positive impact on the investing firm's domestic operations. Yamashita and Fukao (2008) studied the outcomes of Japanese manufacturing multinational corporations (MNCs) and found a small positive relationship between their foreign affiliates' employment and revenue, and the home employment of the parent firm in Japan. Specifically, they found an elasticity of 0.01 between employment in the overseas subsidiary and the home employment of the parent firm in Japan, and a similar elasticity between the overseas subsidiary's revenue and the parent firm's home employment. Similarly, Hanson et al. (2003) found that an increase in the revenue of the overseas subsidiaries of US MNCs led to a small increase in the parent firm's labour demand in the US.

Notwithstanding the generally positive relationship between overseas investments and the domestic (i.e., home country) operations of firms, the effect of overseas investments on the investing firm's outcomes in the home country may differ by investment destination. For example, Liu and Ni (2018) found that investments in Asian economies by Japanese manufacturing firms had a positive impact on domestic job creation in Japan, but the impact on domestic job creation was negative for their investments in Europe or North America.

DATA AND EMPIRICAL METHODOLOGY

To estimate the impact of DIA on firm-level outcomes in Singapore, our study utilises longitudinal data on firms' revenue, profits, value-added (VA), employment and DIA stock from the Department of Statistics (DOS) over the period of 2010 to 2018.

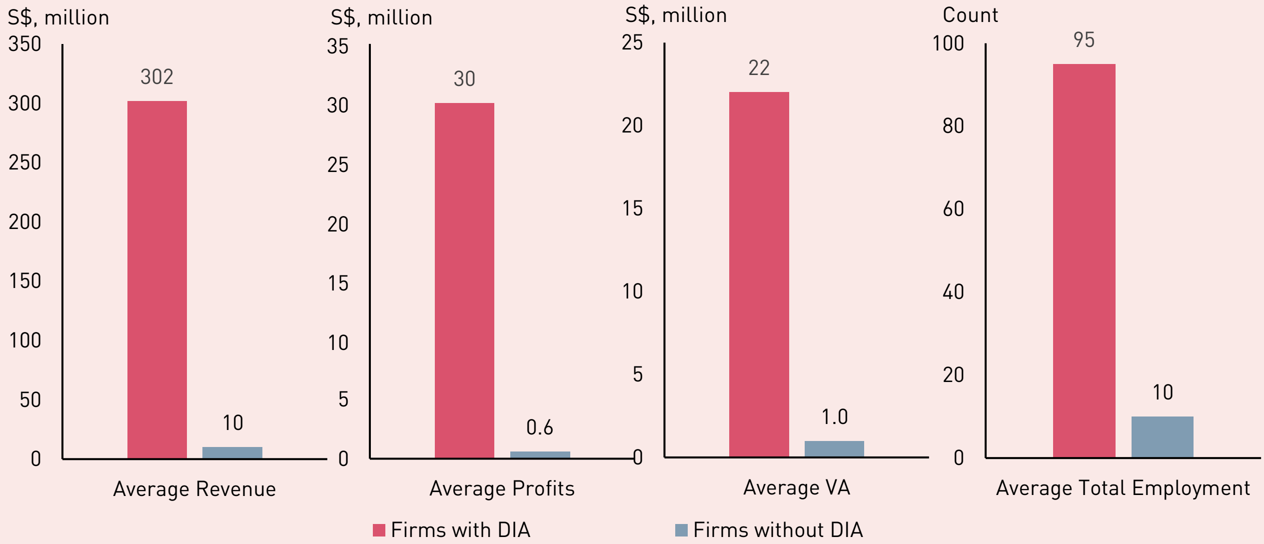
The data shows that on average, firms with DIA stock have substantially higher revenue, profits, VA and total employment in Singapore than firms that do not invest abroad (Exhibit 2). On average, the revenue and profits of firms with DIA stock are more than 30 times that of firms without DIA stock. Firms with DIA stock also employ about 10 times as many employees as firms without DIA stock on average.

3 *Apart from Singapore, ASEAN comprises Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Thailand and Vietnam.*

4 *This refers to Singapore's DIA stock in the European Union (EU-27), which comprises Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain and Sweden. However, for the regression analyses in subsequent sections of the paper covering the period of 2010-2018, the EU refers to EU-28, which includes the aforementioned economies, as well as the United Kingdom. The United Kingdom accounted for 6 per cent of Singapore's DIA stock in 2019.*

5 *The NIE-3 economies comprise Hong Kong, South Korea and Taiwan.*

Exhibit 2: Firms with DIA Stock and Firms Without DIA Stock, Average Sizes Over 2010-2018



Source: Department of Statistics Singapore (DOS)

However, these differences may not reflect the causal impact of investing abroad and may instead be due to other unobserved characteristics of the firms such as their risk appetite and access to financing. For example, firms that invest abroad may have greater risk appetite or access to financing compared to those that do not invest abroad. If these characteristics are positively correlated with their revenue, profits, VA or employment, the better outcomes observed for firms that invest abroad may be due to these characteristics rather than their overseas investments. To overcome such selection biases, we narrow our analysis sample to include only firms with positive DIA stock for at least one year over the period of 2010 to 2018.

We then perform fixed-effects regressions on the analysis sample to estimate the impact of DIA on the investing firms' outcomes in Singapore. The fixed-effects regressions control for the time-invariant observable and unobservable characteristics of firms in order to isolate the causal impact of DIA on their outcomes. Our main regression specification is as follows:

$$\log Y_{it} = \beta_1 \log \mathit{DIAStock}_{it} + \alpha_i + d_t + \varepsilon_{it} \qquad (1)$$

Where:

- Y_{it} refers to the Revenue, Profits, VA or Total Employment of firm i in year t recorded in Singapore;
- $\mathit{DIAStock}_{it}$ refers to the DIA stock of firm i in year t;
- α_i denotes firm fixed effects;
- d_t denotes year fixed effects;
- ε_{it} is the error term that captures the unobservable factors that affect Y_{it}.

The coefficient of interest (β_1) measures the average percentage change in revenue, profits, VA or total employment of the investing firm given a one per cent increase in its DIA stock. A positive and statistically significant β_1 would support the hypothesis that a firm's overseas investments and its operations in Singapore are complementary.

We adopt a second regression specification to examine whether the impact of a firm's overseas investments on its outcomes in Singapore differs by investment destination. For this regression specification, each firm's DIA stock is partitioned into separate variables measuring its DIA stock in ASEAN, China, EU-28 (which includes the United Kingdom), India, the NIE-3 economies, the US and the Rest of the World. Specifically, the regression specification used is as follows:

$$\log Y_{it} = \sum_{n=1}^{destinations} \beta_n \log \mathit{DIAStock\ to\ destination}_{it} + \alpha_i + d_t + \varepsilon_{it} \qquad (2)$$

Where:

- $\mathit{DIAStock\ to\ destination}_{it}$ refers to the DIA stock of firm i in year t in ASEAN, China, EU-28, India, the NIE-3 economies, the US, or the Rest of the World

Finally, we perform a third regression to examine if the outcomes from overseas investments differ for firms engaging in DIA for the first time compared to established firms with existing overseas investments. In this regression specification, a statistically significant β_2 would support the hypothesis that the effects of investing abroad are different for first-time investors compared to established ones:

$$\log Y_{it} = \beta_1 \log DIAStock_{it} + \beta_2 \log DIAStock_{it} \times firsttimeDIA_{it} + \alpha_i + d_t + \varepsilon_{it} \quad (3)$$

Where:

- $firsttimeDIA_{it}$ = 1 when firm i is engaging in DIA for the first time in our sample period in time t, and = 0 otherwise

RESULTS

Our findings suggest that overseas investments by Singapore-based firms lead to positive and statistically significant effects on their operations in Singapore (Exhibit 3).

Specifically, on average, a one per cent increase in a Singapore-based firm's DIA stock leads to a 0.03 per cent increase in its revenue, a 0.02 per cent increase in its profits and a 0.02 per cent increase in its VA in Singapore. In dollar terms, a S$100 increase in a firm's DIA stock results in a S$6.09 increase in its revenue, a S$0.40 increase in its profits, and a S$0.29 increase in its VA in Singapore. Meanwhile, a one per cent increase in the firm's DIA stock leads to a 0.01 per cent increase in its employment in Singapore.[6] It should be noted that these benefits are on top of other returns (such as overseas revenue) that may accrue to the firm from its overseas investments.

Exhibit 3: Effects of DIA on Firms' Outcomes in Singapore

Dependent Variable	β_1	Estimated dollar impact of a S$100 increase in DIA stock, for an average-sized firm with DIA stock
Revenue	0.03***	S$6.09
Profits	0.02***	S$0.40
VA	0.02***	S$0.29
Employment	0.01***	-

*** Statistically significant at the 1% level

Next, we examine the relationship between DIA stock and firm-level outcomes for investments by Singapore-based firms in different overseas economies (Exhibit 4). In general, we find that overseas investments by Singapore firms across our key investment markets have a positive and statistically significant effect on their operations in Singapore. Gains are also seen for investments in the Rest of the World, indicating returns for firms which have ventured beyond our traditional investment markets to other economies.

Exhibit 4: Effects of DIA on Firms' Outcomes in Singapore, by Investment Destination

Dependent Variable	β_{ASEAN}	β_{CHINA}	$\beta_{EU\text{-}28}$	β_{INDIA}	$\beta_{NIE\text{-}3}$	β_{US}	β_{ROTW}
Revenue	0.02***	0.02***	0.02***	n.s.	0.01*	n.s.	0.02***
Profits	0.01***	n.s.	0.02***	0.02***	n.s.	n.s.	0.01*
VA	0.01***	0.01***	n.s.	0.01***	0.01**	0.02***	0.01***
Employment	0.01***	0.005***	n.s.	0.01***	0.01***	0.01***	0.01***

* Statistically significant at the 10% level. ** Statistically significant at the 5% level. *** Statistically significant at the 1% level. n.s. indicates no statistically significant relationship between the particular dependent variable and DIA stock in the investment destination

6 *As a robustness check to ensure that these results are not driven by restructuring or a reorganisation of activities within the company, we conduct the same analysis at the company group level. We find similar results. Specifically, a S$100 increase in the company group's DIA stock is associated with a S$8.99 increase in its revenue, a S$0.67 increase in its profits and a S$0.37 increase in its VA in Singapore.*

Finally, we examine if the firm-level outcomes from overseas investments differ between firms engaging in DIA for the first time and firms with existing overseas investments (Exhibit 5). Our results show that for revenue, profits and VA, there are no significant differences in the benefits from overseas investments that accrue to the two types of firms. The only difference arises for employment, where firms with an established overseas presence were found to benefit more than firms investing overseas for the first time. Overall, the results suggest that overseas investments are beneficial for the domestic operations of both firms investing abroad for the first time as well as those with an established overseas presence.[7]

Exhibit 5: Effects of DIA on Firms' Outcomes in Singapore, by First-Time Investor Status

Dependent Variable	β_1 (for firms with existing DIA stock)	β_2 (incremental difference for firms engaging in DIA for the first time)
Revenue	0.03***	n.s.
Profits	0.02***	n.s.
VA	0.02***	n.s.
Employment	0.01***	-0.01**

*** Statistically significant at the 1% level. ** Statistically significant at the 5% level. n.s. indicates no significant relationship for the particular dependent variable

CONCLUSION

In summary, our study finds that overseas investments by Singapore-based firms have a positive impact on their operations in Singapore, in terms of revenue, profits, VA and employment. We also find that these benefits accrue to firms regardless of whether they are investing overseas for the first time or have an established presence abroad. These benefits are also likely to come on top of other returns (such as overseas revenue) that may accrue to firms from their overseas investments.

The study's findings support continuing efforts by agencies such as Enterprise Singapore to encourage more Singapore firms to expand beyond the Singapore market, including those considering investing abroad for the first time. While the ongoing COVID-19 pandemic has made it more challenging for firms to expand overseas, helping our firms seize opportunities globally remains an important long-term strategy. The Government will continue to support firms in their internationalisation journey through financing schemes, talent development programmes, and market facilitation programmes.

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7 *For firms investing abroad for the first time, the total impact of their DIA stock is the sum of β_1 and β_2.*

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