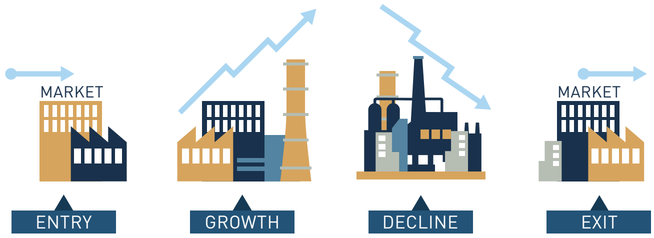
BOX ARTICLE 1.1

Employment Dynamics of Firms in Singapore: Young Firms vs. Older Firms

INTRODUCTION

Business dynamism – the process of birth, growth, decline and exit of firms – is an important aspect of a healthy economy. In this article, we examine the growth dynamics of firms by the age-employment size dimensions and take a closer look at the process of employment creation and destruction by firms of different ages through the lenses of the entry, growth and exit of these firms.



FINDINGS

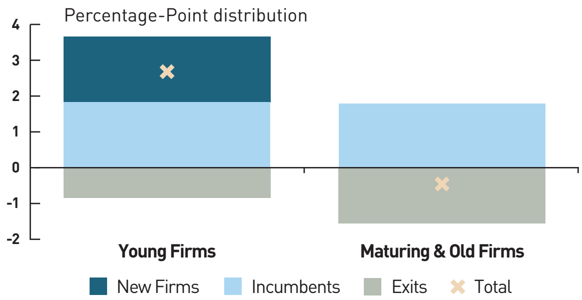
FINDING 1

Young firms were more likely than old firms to transit out of their initial size category after a five-year period. Notably, young firms were more likely than old firms to transit to a larger employment size category, with a small proportion growing significantly to large or very large employment size categories after five years.

FINDING 2

Decomposing the average annual net employment change over the 2009-2016 period, we find that young firms contributed more than maturing and old firms to net job creation. Breaking down the contribution of young firms further to understand the contribution of new firms (i.e., entrant firms) and incumbent young firms that were expanding, we find that the entry of new firms accounted for a significant portion of the young firms' contribution to net job creation during the period.

Decomposition Of Average Annual Net Employment Change By Firm Age And Firm Type Over The 2009-2016 Period



FINDING 3

We find that a sizeable portion of the jobs created by new firms in Singapore have been in industries that have average monthly earnings that were higher than that of the overall economy for the 2009-2016 period, such as other services, wholesale trade, manufacturing, information & communications and finance & insurance.

POLICY TAKEAWAY

In view of the importance of young firms in employment creation, the Government will continue to be mindful of the need to create and maintain conditions that are conducive for firms to enter and grow. At the same time, the Government will continue its efforts to help workers who may be affected by firm exits so that they can enter new and better jobs. These include providing support to help Singaporeans stay relevant through the SkillsFuture programme, and helping displaced workers to plug skills gaps and re-enter employment through the Adapt & Grow initiative.

The economic literature suggests that business dynamism – the process of birth, growth, decline and exit of firms – is an important aspect of a healthy economy. This dynamism is a feature of market economies such as the United States where the high pace of job and worker reallocation has been important for productivity growth and job creation (Decker et al., 2014).

In this article, we examine the growth dynamics of firms by the age-employment size dimensions.[1,2] In particular, we take a closer look at the process of employment creation and destruction by firms of different ages through the lenses of the entry, growth and exit of these firms. We also explore the contribution of young and older firms to aggregate net employment creation in the Singapore economy.

For the purpose of this article, we adopt the firm age and employment size categories described in Exhibits 1A and 1B respectively.

Exhibit 1A: Categories for Firm Age

Age Category	Age (in years)
New firms	0
Young	0-5
Maturing	6-10
Old	>10

Exhibit 1B: Categories for Firm Size

Size Category	No. of Employees
Micro	1-10
Small	11-50
Medium	51-100
Large	101-200
Very Large	>200

Young firms account for a significant share of total firm count in the Singapore corporate landscape

We first provide an overview of Singapore's corporate landscape along the age dimension. Over the 2009-2016 period, young firms accounted for a substantial proportion of total firm count in Singapore, but contributed the least to the overall stock of employment. Specifically, while 39 per cent of all firms in Singapore were young firms (Exhibit 2A), they only accounted for 17 per cent of total employment in Singapore (Exhibit 2B), implying that young firms were smaller on average as compared to their maturing and old counterparts in terms of employment size.[3] This was similarly observed in OECD countries, where 37 per cent of all firms were young firms but they only accounted for 21 per cent of total employment (Criscuolo et al., 2014).[4] In terms of revenue size, young firms in Singapore also tended to have lower revenue than their maturing and old counterparts. Specifically, young firms were on average around four times smaller than old firms in terms of revenue size over the 2009-2016 period (Exhibit 2C).

1 *Firms in this study refer to all business entities, i.e., companies, partnerships, limited liability partnerships, limited partnerships, and sole proprietorships.*
2 *The relationship between firm churn (i.e., the pace of entry and exit of firms) and productivity growth has been studied by Gwee et al. (2016) for Singapore's manufacturing sector. Specifically, the authors found that firm churn and worker reallocation effects contributed positively to the manufacturing sector's productivity growth over the 2009-2013 period.*
3 *Over the 2009-2016 period, the average employment size of young firms was 8, while that for maturing firms and old firms were 15 and 31 respectively.*
4 *Data on OECD countries was obtained from OECD and the data covers the manufacturing, construction and non-financial services sectors. The percentage of young firms and their employment contribution in OECD countries is computed as the average across all available years and countries where data is available. The period covered is 2001-2011 for Belgium, Finland, Hungary, the Netherlands, the United Kingdom and the United States; 2001-2010 for Austria, Brazil, Spain, Italy, Luxembourg, Norway and Sweden; 2001-2009 for Japan and New Zealand; 2001-2007 for France; and 2006-2011 for Portugal.*

Exhibit 2A: Distribution of Firms by Age, 2009-2016

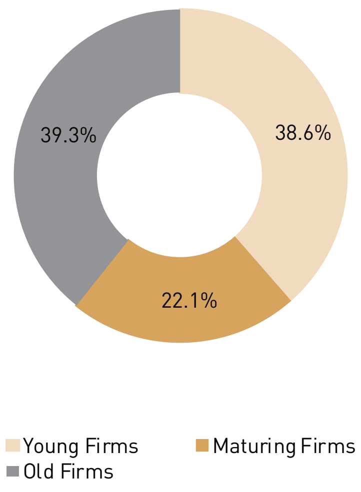


Exhibit 2B: Distribution of Employment by Firm Age, 2009-2016

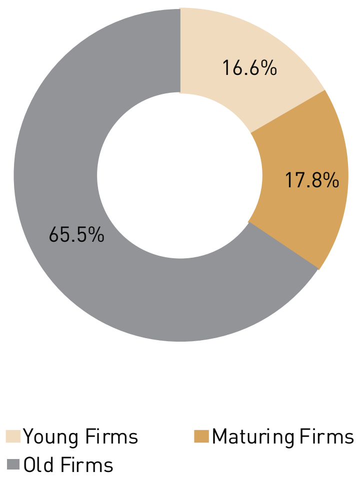
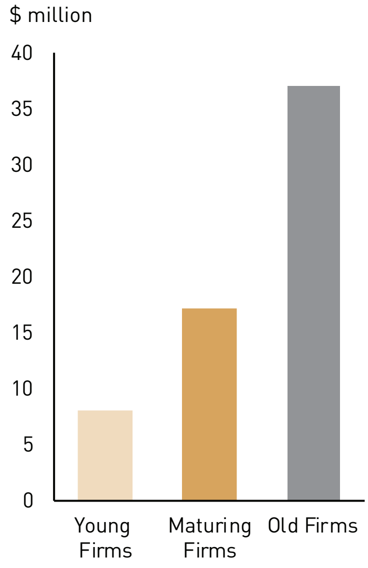


Exhibit 2C: Average Revenue by Firm Age, 2009-2016



Source: Department of Statistics (DOS)
Notes: Data may not add up to 100% due to rounding.

Young firms are more likely than their old counterparts to grow in employment size

We next turn our attention to the growth dynamics of firms in Singapore to see how firms of different ages and employment sizes transit across employment size categories over time. In particular, we focus on the growth dynamics of young and old firms, as these constituted the two largest groups of firms.[5]

To do so, we construct transition matrices that show how the 2011 cohort of young and old firms of different employment sizes transit across employment size categories over a five-year period (Exhibits 3A and 3B). The salient observations are as follows:

- Among both young and old firms, firms tended to remain in their initial employment size category at the end of the five-year period, as seen from the high shares in the diagonals of the transition matrices.

- However, comparing young and old firms, young firms were more likely than the old firms to transit out of their initial size category after a five-year period (i.e., the shares in the diagonal for young firms were lower than that for old firms). For instance, 43 per cent of young micro firms remained as micro firms after five years (Exhibit 3A), whereas 68 per cent of old micro firms remained in the same size category over the same period (Exhibit 3B).

- Young firms also had a much higher likelihood of exit after five years relative to old firms, especially in the case of micro and small firms. This is not surprising as the business model and financial conditions of firms tend to be less stable in the initial years after formation.

- Among the firms that survived, young firms were more likely than old firms to transit to a larger employment size category[6], with a small proportion growing significantly to large or very large employment size categories (i.e., beyond 100 workers) after five years.

5 *The observations are similar if we compare young firms and maturing firms.*
6 *Across all initial employment size categories for the 2011 cohort of firms, 9.3 per cent of young firms were found to have grown into a larger employment size category after a period of five years, while only 5.5 per cent of old firms managed to grow into a larger employment size category at the end of five years.*

Exhibit 3A: Five-year Transition Matrix of Young Firms, 2011 Cohort

		Size in 2016					Exit
		Micro	Small	Medium	Large	Very Large	
Size in 2011	Micro	42.9%	8.7%	0.5%	0.1%	0.1%	47.8%
	Small	14.7%	48.3%	6.0%	1.6%	0.4%	29.0%
	Medium	5.2%	24.7%	33.7%	14.7%	3.3%	18.4%
	Large	4.4%	8.8%	19.5%	30.7%	19.9%	16.7%
	Very Large	3.8%	3.8%	1.3%	12.1%	69.4%	9.6%

Source: DOS
Notes: 'Exit' firms include firms that had ceased operations by 2016 or had no employment in 2016. The data in each row may not add up to 100% due to rounding.

Exhibit 3B: Five-year Transition Matrix of Old Firms, 2011 Cohort

		Size in 2016					Exit
		Micro	Small	Medium	Large	Very Large	
Size in 2011	Micro	67.9%	4.8%	0.1%	0.0%	0.0%	27.2%
	Small	16.4%	66.0%	4.4%	0.4%	0.1%	12.7%
	Medium	2.8%	23.7%	50.6%	12.8%	1.5%	8.6%
	Large	2.3%	5.6%	20.3%	50.6%	13.9%	7.4%
	Very Large	1.0%	1.9%	3.0%	10.6%	78.4%	5.0%

Source: DOS
Notes: 'Exit' firms include firms that had ceased operations by 2016 or had no employment in 2016. The data in each row may not add up to 100% due to rounding.

Young firms contribute significantly to net employment creation in the economy...

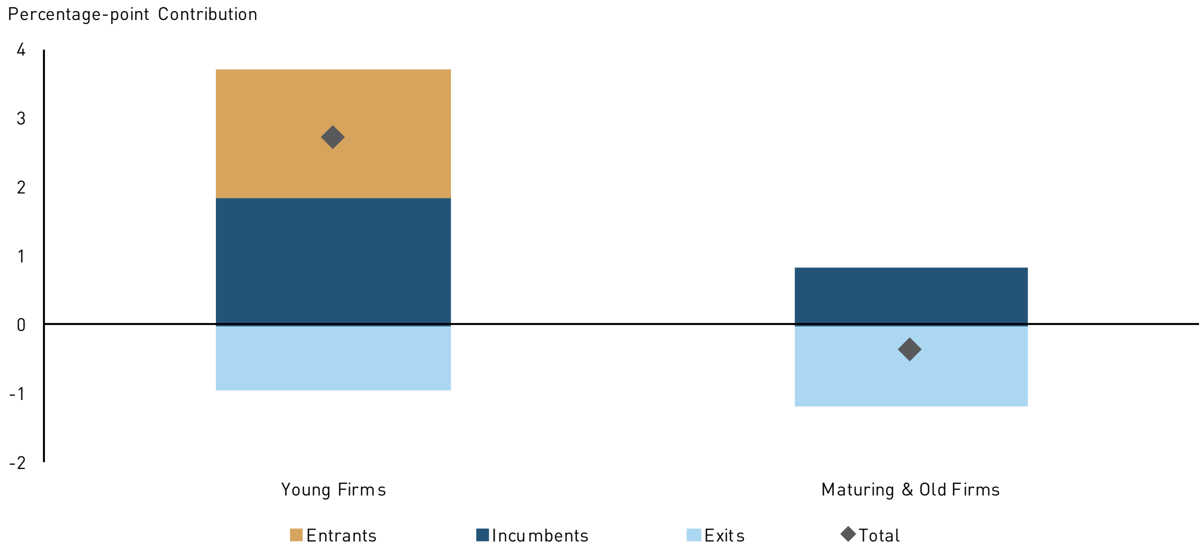
In this section, we examine the contribution of young firms to net job creation in Singapore vis-à-vis that of maturing and old firms. Between 2009 and 2016, total employment growth in Singapore averaged 2.3 per cent per annum. Decomposing the average annual net employment change over this period to obtain the contribution of firms in different age categories (Exhibit 4), we find the following:

- Young firms contributed more than maturing and old firms to net job creation. Specifically, young firms contributed 2.7 percentage-points (pp) to the average annual net employment growth of 2.3 per cent over this period, while the combined contribution of maturing and old firms was slightly negative, at -0.4pp.

- Breaking down the contribution of young firms further to understand the contribution of new firms (i.e., entrant firms) and incumbent young firms that were expanding, we find that the entry of new firms accounted for a significant portion (nearly half) of the young firms' contribution to net job creation during the period.

- In line with our earlier finding that young firms that survived were more likely than old firms to transit to a larger employment size category, we also find that young incumbent firms (1.8pp) contributed more than maturing and old incumbent firms (0.8pp) to average annual net employment growth over this period.

Exhibit 4: Average Annual Total Employment Change by Age and Firm Type, 2009-2016

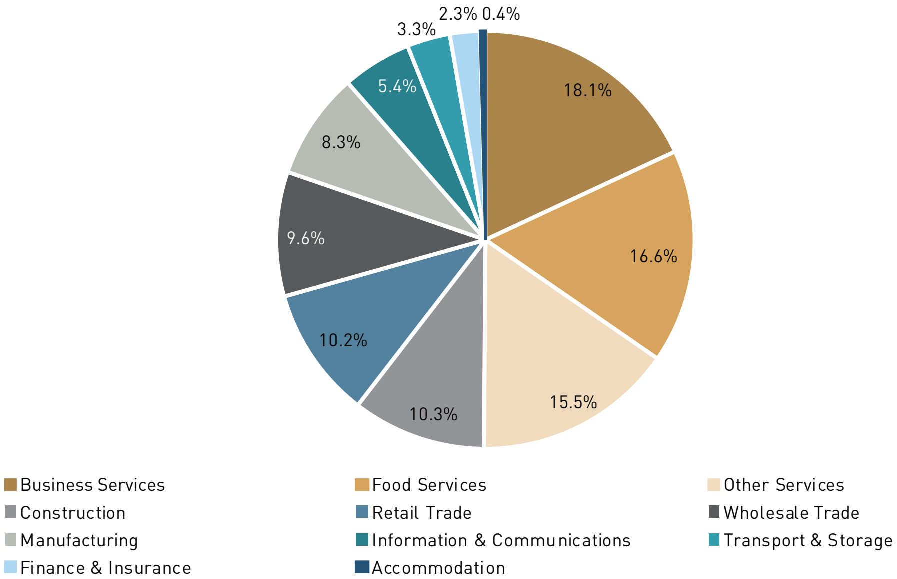


Source: DOS
Notes: Due to the scope of the study, the results in this chart will not be comparable with the Ministry of Manpower's employment change data. When comparing employment change between year t+1 and t, 'new firms' are defined as newly registered employing firms in t+1, and 'incumbents' are defined as firms that are live and have valid employment data in both t+1 and t. 'Exits' are defined either as firms that were live in year t but ceased operations in t+1, or firms that are live in both periods but have no employment in t+1.

...and a sizeable portion of the jobs created by new firms between 2009 and 2016 were in industries with good wage prospects

Finally, we find that a sizeable portion of the jobs created by new firms over the 2009-2016 period were in industries with good wage prospects, such as other services (16 per cent), wholesale trade (9.6 per cent), manufacturing (8.3 per cent), information & communications (5.4 per cent) and finance & insurance (2.3 per cent) (Exhibit 5). In particular, these industries had average monthly earnings that were higher than that of the overall economy for the 2009-2016 period.

Exhibit 5: Share of Jobs Created by New Firms by Industries, 2009-2016 Average



Source: DOS

Conclusion

Overall, we find that young firms in Singapore are more likely than old firms to increase their employment, with a small proportion experiencing significant employment growth, although young firms are also more likely to exit. Decomposing the average annual net employment change over the 2009-2016 period, we find that young firms contributed significantly more than maturing and old firms to net employment growth over this period. This can in turn be attributed to both new firms entering the market, as well as the expansion of incumbent young firms.

In view of the importance of young firms in employment creation, the Government will continue to be mindful of the need to create and maintain conditions that are conducive for firms to enter and grow. At the same time, the Government will continue its efforts to help workers who may be affected by firm exits so that they can enter new and better jobs. These include providing support to help Singaporeans stay relevant through the SkillsFuture programme, and helping displaced workers to plug skills gaps and re-enter employment through the Adapt & Grow initiative.

Contributed by:

Ms Ngiaw Kwee Ann
Economist
Economics Division
Ministry of Trade and Industry

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