Competitiveness and cost behaviour: evidence from the retail industry

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Abstract

Purpose – With a particular emphasis on corporate strategies for innovation, the purpose of this paper is to examine how cost behaviour operates under conditions of strong competition in the retail industry.

Design/methodology/approach – Retail companies listed on the Indonesian, Singaporean and Malaysian capital markets are studied using the regression analysis method.

Findings – The findings of this study show the sticky behaviour of changes in the selling, general and administrative (SGA) costs when companies are under competitive pressure. When sales increase, SGA costs will increase; however, when sales decline, SGA costs evidently increase. This is especially true for retail companies which have suffered a decrease in their sales of less than 7 per cent, but experienced positive sales growth in the previous period. The suggestion would seem to be that competition leads to greater aggression and the contemporary real options theory bears this out.

Research limitations/implications – This study only uses data from retail companies listed on stock exchanges in Singapore, Indonesia and Malaysia.

Practical implications – The type of industry, the extent of the competition and the corporate strategy employed might influence the extent of cost stickiness. Therefore, the users of financial statements need to understand these factors.

Originality/value – While previous studies incorporated a variety of industries, this paper focuses on examining cost behaviour amid the competitive pressure from recent phenomena in the retail industry. The study provides empirical evidence for supporting the contemporary real options theory. When an industry experiences competition, investing in an uncertain situation will add value to a company, even if it causes sticky cost behaviour. This result contributes to the literature on cost behaviour and strategy management.

Keywords Competition, Retail industry, Cost behaviour, SGA costs

Paper type Research paper

1. Introduction

Cost behaviour influences economic decision-making, and so the textbooks on cost accounting and management usually begin by discussing cost behaviour. Traditional cost behaviour theory states there is a close relationship between activity levels and cost changes. However, this symmetrical view of the relationship has been challenged by Anderson *et al.* (2003) who find it to be asymmetrical because, while classical economics divides costs into fixed costs and variable costs, the fact is that, in the short term, almost all costs are fixed – they are "sticky". One of the things that make the study of sticky cost behaviour worthwhile is that analysts, investors and others who read financial statements use them to forecast a company's earnings (Banker and Chen, 2006; Ciftci *et al.*, 2016). Banker *et al.* (2016) include a warning about the impact of sticky costs in a study of conservatism, while other studies have recently shown the propensity of cost stickiness to predict rates of macro-unemployment (Rouxelin *et al.*, 2018).

Costs are considered to be sticky when their rate of increase for a given increase in activity is greater than their rate of decrease for the same decrease in activity. It happens

because unused resources are retained due to factors that may be internal and/or external. The internal factors are: asset and labour intensity (Anderson *et al.*, 2003); the size of the company (Sepasi and Hassani, 2015; Via and Perego, 2014), organisational capital (Chae and Chung, 2015; Venieris *et al.*, 2015; Chae and Ryu, 2016; Mohammadi and Taherkhani, 2017), agency issues (Kama and Weiss, 2013; Xi *et al.*, 2013; Brüggen and Oliver, 2014; Bugeja *et al.*, 2015; Chae and Ryu, 2016; Namitha and Shijin, 2016; Xue and Hong, 2016), national culture (Kitching *et al.*, 2016). The external factors are: economic growth rates (Anderson *et al.*, 2003); the regulation of labour (Banker *et al.*, 2013; Via and Perego, 2014; Zanella *et al.*, 2015); political pressure (Prabowo *et al.*, 2018); and competitive pressure (Cheung *et al.*, 2018; Li and Zheng, 2017; Uy, 2014).

Recent sticky cost studies have demonstrated that there is an effect on the extent of the stickiness by competitive pressure (Cheung *et al.*, 2018; Li and Zheng, 2017; Uy, 2014). Studies in the past have included a range of industries[1]; however, Subramaniam and Watson (2016) show that what triggers cost stickiness varies between industries. We do not believe there has been any previous study of cost behaviour in the retail industry under competitive pressure before our study.

The recent declining trend in retail sales shows how competitive this industry is. Retail sales in the Asia-Pacific region fell by 50 per cent in 2015. Previously growing at an average of 13 per cent p.a., retail growth since 2013 has only been 6 per cent (marketeers.com). Be that as it may, data from the 2017 Global Retail Development Index (GRDI)[2] show continuing promise in Asia:

> In terms of both size and momentum, Asia is the driving force behind global retail and the expansion of branded food and beverages, personal-care products, apparel, fashion, and luxury. (The 2017 Global Retail Development Index (TM): The Age of Focus, 2017).

For all the encouragement in those words, 2017 saw Indonesian, Malaysian and Singaporean news outlets reporting the closure of many retailers. Indonesia's position, however, was anomalous, with retailing being under pressure even at a time when the country's macroeconomic condition seemed good (Prabowo, 2017). It was also odd to see a decline in retailing in Singapore, given the country's popularity with international shoppers (Prahara, 2017). What the closure of so many retail outlets demonstrates is how tough the competition in the Asian retail industries is. When Porter's five forces of competitive position are analysed, what is driving the competitive pressures in retailing is online newcomers (Saha, 2015). In recent years, online technology has become increasingly sophisticated and online sales have increased (Gupta and Sethi, 2016). Traditional retailers have been forced to innovate to meet the online competition, in order to survive. Winarno and Tjahjadi (2017) find that the relationship between innovation and information technology assets can be moderated by the industrial environment.

The aim of this study is to show, from an innovative investment strategy's perspective, the influence of competitive pressures in the retail industry on selling, general and administrative (SGA) costs. A company's strategy, in response to pressure on sales, can be inferred from its SGA costs[3]. Porter (2008) popularised a marketing strategy theory that says a company can win business by managing or improving its product's price, place and processes and also through people, promotion and physical evidence. Choosing the right strategy will assist a company to increase its sales; it is not easy to reduce prices when the margins in retail are thin, but innovation in its products, people, processes and physical evidence may be enough to combat the competition.

SGA costs provide evidence of the retailers' efforts to meet competitive pressures through innovation. The motivation behind this study is an experimental paper that shows managers are being forced to increase investment by competitive pressures (Schmidt *et al.*, 2017). It is also the case that, according to the current theory concerning real options, delaying investment during a period of uncertainty has reduced a company's value in times

of competitive pressure (Li and Zheng, 2017). Competitive pressure, which exists all through the retail industry, has led to an industry-wide re-examination of survival strategies. What strategies are available to sustain sales when competitive pressure is causing them to decline? Management's strategies ultimately indicate how sticky a company's costs will be. The conclusion from this study is that, in the period from 2014 to 2017, the higher stickiness goes hand in hand with higher competition. When competitiveness is low, managers innovate more aggressively, raising their SGA costs. This is particularly true for retail companies whose sales have fallen by less than 7 per cent and saw positive growth in their sales during the previous period.

While mass media reports suggest retail outlets are closing throughout the ASEAN region, this paper is concerned with only three countries: Indonesia, Malaysia and Singapore. This limits the number of observations; further studies might examine other countries' data as the decline in retail sales is a global phenomenon.

2. Literature review and hypotheses development
2.1 Characteristics of retail industries in ASEAN (Indonesia, Malaysia and Singapore)
According to the Asian Development Bank trade (in which wholesale and retail trade are included) is a main component of the GDP of all the ASEAN countries (Frost and Sullivan, 2016). The largest share of ASEAN trade belongs to Indonesia (21 per cent), Singapore (20 per cent) and Malaysia (18 per cent). Trade is underwritten by a strong ASEAN market that includes a population that is growing fast and is predominantly young, the emergence of middle-class consumers, and strong growth in the members' GDP. Other retail stimuli are falling unemployment and growing urbanisation (Frost and Sullivan, 2016). Although a number of reviews have forecast retail growth in all three countries, this is not supported by what is happening on the ground. The mass media in all three have reported retail outlet closures since 2013[4]. This triggered a sales decline, reportedly caused by competition from online retail sites. E-commerce has changed the retail sector's dynamics all over the world. New technology brings new ways of retailing to the detriment of established retailers, in a variety of ways not seen before. A relatively young population with increasing access to the internet and smartphones and a range of payment options means that the ASEAN region offers excellent opportunities for e-commerce to grow (Frost and Sullivan, 2016).

2.2 Cost behaviour theory
A proper understanding of cost behaviour requires that it should be linked to decisions. Clinton and Merwe (2008) ask whether certain costs may be avoided if a different decision is made. The way a manager makes decisions is strongly influenced by how complex the resource management is that he/she faces. Traditionally, cost behaviour theories have held that a correlation exists between cost behaviour and activity volumes, with costs being fixed or variable (Hansen and Mowen, 2007; Maher *et al.*, 2008; Atkinson *et al.*, 2012; Horngren *et al.*, 2012). However, Anderson *et al.* (2003) demonstrate that the asymmetric nature of cost behaviour is due to a number of factors, some external to the company and some internal, but all due to the managers' decisions about their resources' capacity. When activity lessens, managers do not adjust the unused resource capacity immediately but are likely to keep it constant or adjust it only slightly. Sticky cost behaviour can be triggered for reasons of legal compliance, the labour policy, operational policy, social systems or issues that are psychological or agency-related (Guenther *et al.*, 2014).

2.3 Contemporary real option theory
The contemporary real options theory holds that there is no value in delaying an investment when operating in a competitive arena (Li and Zheng, 2017). An experimental study by

Schmidt *et al.* (2017) confirms this as they find that an increase in the number of competitors reduces the incentive to cut costs. Porter's (2008) marketing strategy supports investment at times of high competition, when those who currently hold the ground must try to deter new competitors either by holding their prices or boosting investment. The 7Ps marketing tactics, designed to deal with competition, involves innovation in the areas of a company's product, price, place, process, people, promotion and physical evidence. Strong competition presents managers with a complex risk situation; according to economic theory, higher-risk investment decisions should, if successful, be rewarded by higher returns (Rankin *et al.*, 2012, p. 137).

The last few years have shown, by way of the fall in sales, that retail is a complex industry with very high levels of competition. Rapid developments in technology are held responsible for this. To meet its customers' demands, a company's strategies must be innovation-oriented (Pantano *et al.*, 2017). Adopting a high-cost and innovative investment strategy is primarily a long-term solution, but this can help a company to survive the competitive pressure. Pinto *et al.* (2017) demonstrate that a competitive advantage can accrue for retail companies embarking on radical strategies of innovation.

2.4 Innovation, competition and cost behaviour

Managers are encouraged through competition to innovate (Bessonova and Gonchar, 2017). Apart from competition, retailers also need to innovate in their business models, to create a good customer experience and provide good value for their customers. Innovation in the retail businesses' model involves changing current practices in one or more ways: how activities are organised, the types of activities and the level of participation of those carrying them out (Sorescu *et al.*, 2011).

Zawawi *et al.* (2016) state that innovation can be technological, administrative or managerial but it should be designed to produce a competitive advantage and improve durability. Innovation often has to do with how intangible assets are used; empirical evidence shows that investments in R&D, advertising, human and organisational capital can improve operations and market performance. Intangible assets are a reflection of the unique internal capabilities and can improve both performance and competitive advantage (Venieris *et al.*, 2015).

On the basis of previous empirical studies, it is the adjustment costs, management expectations and management incentives that determine the sticky cost behaviour. Incentives to maintain profits over the short term have a tendency to weaken any stickiness (Kama and Weiss, 2013; Weijden, 2013). Because innovation is a long-term orientation, we only review the managerial incentives and adjustment costs in this sub-section.

If the managers' future expectations are positive, they will be driven to innovate by competitive pressure. A corporate strategy oriented towards innovation will alter a company's cost structure and it is this innovation that causes cost behaviour to be asymmetrical. Costs become sticky because, instead of cutting resources, managers divert those resources to other activities, in what amounts to managerial or administrative innovation, or they add to their resources through technological innovation. Faced with intense competition, companies maintain their competitive positions in their markets by resource expenditure (Li and Zheng, 2017). Managers will invest more when sales are falling, on for example, research and development, quality control, marketing and customer satisfaction. This expenditure is an investment in intangible assets and is a form of innovation. A study by Venieris *et al.* (2015) shows that SGA costs' stickiness is affected by a company's view of its intangible-related economic sacrifices and also that, when sales fall, companies that have high levels of intangible assets loosen their unused resources to a greater extent than those where the levels of intangible assets are low. This is because high intangible investment levels increase the adjustment costs and encourage managers to have

more optimistic expectations about the likelihood of unused resources being taken up by a future growth in sales. This causes greater levels of cost stickiness.

Cheung *et al.* (2018) show the importance of the external factor, i.e. competition, in influencing managers' strategic decisions on costs. As competition's benchmarks, they examine the degree of differentiation, the cost of entry and the size of the market. High levels of differentiation, a high cost of entry and a large market size will all make management reluctant to cut their SGA costs. Faced with declining sales, managers may prefer to maintain a competitive advantage by keeping the costs for sales promotion and R&D where they are. Companies in an industry where the product differentiation is higher may face larger adjustment costs when sales decrease, because they are likely to have invested in specialised facilities and personnel to differentiate their products or services. As competition increases, the retail industry faces problems in maintaining its customers and their loyalty. Sidhu and Mather (2017) conclude that differentiation strategies are more appropriate to increase sales revenues in this condition. It is therefore difficult to reduce SGA costs greatly when sales are falling, because the adjustment costs are large (Cheung *et al.*, 2018). A large retail market share and high entry costs, resulting from competition, leads managers to delay cutting costs when faced with falling sales, to avoid future high adjustment costs when sales recover. When competition is fierce and each company faces market discipline, managers cannot delay in cutting committed resources during a reduction in sales, if they still want to be competitive (Cheung *et al.*, 2018).

In sum, intense competition obliges managers to be innovative with their business model (Bessonova and Gonchar, 2017; Sorescu *et al.*, 2011). Innovations to gain a competitive advantage and maintain durability can be technological, administrative or managerial (Zawawi *et al.*, 2016), but innovation to meet the competition brings costs with it. Venieris *et al.* (2015) state that to face competition, the role of organisational capital, especially intangible assets, is very significant. Given that the cost of adjusting this asset is very large, then when there is a decrease in sales, managers are reluctant to cut back on these resources, so the level of cost stickiness increases. Cheung *et al.* (2018) and Li and Zheng (2017) both show the effect of competition on cost stickiness. According to Li and Zheng, how a company views its competitors will influence its investment and cost decisions, so cost stickiness will be affected by competition in the market, and Cheung *et al.* show that SGA costs are stickier for companies in an environment of high competition.

Our study examines the effect of competitive pressures on the retail industry's cost stickiness. SGA costs in retail are largely decided by sales (Cravens and Piercy, 2003). Examining different time periods allows us to see the levels of competition and measure their effect on costs' stickiness. Innovation strategies can be inferred from the amount of the costs, and particularly the SGA costs. How aggressively managers innovate will affect the cost stickiness. Our hypothesis is, therefore, that competitive pressure affects cost stickiness.

3. Research methods
3.1 Operationalization of competitiveness
Our way of operationalising competition[5] differs from those used by Li and Zheng (2017) and Cheung *et al.* (2018). Cheung uses cross-industry observations and assesses competition by measuring the differentiation, cost of entry and market size in each industry type, while we observe only one industry type. Li and Zheng (2017) also use a cross-industry approach and capture the management's view of the competition and the product's similarity from the companies' 10-K filings.

We assess competition by distinguishing between two observation periods. Beginning with data on the changes in average sales between 2010 and 2017, we find that in the period 2010–2013 the average change was in two digits; while between 2014 and 2017 it was a single digit (see Table III (Panel B)). This agrees with information from marketeers.com which says that sales began to fall in 2013, with a decline in competitiveness after that period.

3.2 SGA costs as a proxy for innovation

Different studies have used different costs as a proxy in the literature on cost stickiness (e.g. Uy, 2016), but we use SGA costs because retailers list all their retail-related expenses under this heading. What is more, studies into SGA costs show a heavy influence from resource-related decisions to do with advertising and marketing, distribution, IT, HR and R&D (Lee *et al.*, 2017).

Companies gain added value from innovation, through the development of new products, services, solutions and processes (Popa *et al.*, 2010). The retail industry demands innovation (Pantano *et al.*, 2017) which can be technological, administrative or managerial innovations [6], but it must create a competitive advantage and improve the company's durability (Zawawi *et al.*, 2016). Previous studies show improvements leveraged across a set of SGA functions, in line with a business strategy to achieve the best possible results (Elliot *et al.*, 2016; Roth and Sides, 2010).

Because of the limited access to detailed breakdowns of the SGA costs, we cannot identify costs that are directly related to innovation, but it is our impression that SGA costs are an acceptable proxy for innovation. Innovation in the retail industry is closely related to organisational capital and especially to intangible assets. According to Venieris *et al.* (2015), organisational capital represents unique business processes and generates a sustainable competitive advantage. To face their competition, companies innovate by using their organisational capital. The activities related to the development of organisational capital have a direct influence on the SGA costs (Venieris *et al.*, 2015). SGA is an attractive approach for resources committed to innovation, process improvements, market research and similar activities undertaken to prepare a company to face its competition and restore its sales (Argilés-Bosch *et al.*, 2017). We therefore assume that higher SGA costs (relative to sales) indicate aggressive innovation.

3.3 The empirical model

The main variables in this study are sales changes (ΔSales), sales decrease dummy (DD) and SGA costs (ΔSGA). In common with earlier researchers, we also include control variables including successive decreases (SD), intensity of assets, intensity of debt and economic growth (GDP). This study did not include the intensity of workers because we could only obtain data on the number of workers from Indonesia. Each variable's operational definition is shown in Table I. SD and GDP represent managerial expectations (Banker and Byzalov, 2014). When a company experiences a decline in sales for two successive periods, its managers may feel this decline is permanent. Therefore, the managers' expectations that sales will return to normal in the future tend to be low. Conversely, a high GDP growth rate causes managers to have high expectations for the improvement of sales in the future. Therefore, SD reduces cost stickiness, whereas GDP does not. Assets act as a proxy for the resource adjustment costs, which trigger an increase in cost stickiness (Banker and Byzalov, 2014).

We use the model proposed by Anderson *et al.* (2003):

$$\log\left(\Delta SGA_{i,t}\right) = \beta_0 + \beta_1 \log\left(\Delta Sales_{i,t}\right) + \beta_2 \times DD_{i,t} \times \log\left(\Delta Sales_{i,t}\right)$$

$$+ \sum_{n=3}^{6} \beta_n \times DD_{i,t} \times \log\left(\Delta Sales_{i,t}\right) \times Control + \varepsilon_{i,t}.$$

The interpretation of the regression is as follows. As the DD has a value of 0 when sales increase, β_1 is the coefficient that measures the percentage increases in SGA costs, together with a 1 per cent increase in sales. As the DD's value is one when sales decrease, coefficient $\beta_1 + \beta_2$ measures the SGA costs' percentage increase together with the decrease in the sales revenue. Changes in the sticky SGA costs are associated with a sales increase, which must

Variable	Definition
Dependent	
$\Delta SGA_{i,t}$	Changes in SGA costs (deflated with inflation rate) in company i, period t, calculated with log $(SGA_{i,t}/SGA_{i,t-1})$
Independent	
$\Delta Sales_{i,t}$	Changes in sales (deflated with inflation rate) in company i, period t, calculated with log $(Sales_{i,t}/Sales_{i,t-1})$
DD	Decrease dummy: when a decrease in sales period t occurs, compared to $t-1$, then, dummy value $= 1$; otherwise $= 0$
Control	
Successive decrease (SD)	Variable dummy $= 1$, if it shows a decrease in sales for two consecutive periods
Assets intensity (AI)	Shows the intensity of assets used to sales in company i and period t, calculated with log (Total Assets$_{i,t}$/Sales$_{i,t}$)
Debt intensity (DI)	Shows the intensity of the amount of debt to sales in company i and period t, calculated with log (Total Debt$_{i,t}$/Sales$_{i,t}$)
GDP	Shows the country's economic growth, measured by the percentage change and taken from World Bank data in the related period

Table I.
Definition of
operational variables

be greater than the revenue's decrease and so the empirical hypothesis for stickiness is proved when $\beta_1 > 0$ and $\beta_2 < 0$ (Anderson *et al.*, 2003).

3.4 Selection of the best regression model

Before analysing the data, we test the best regression model because it uses panel data. Testing is carried out with two regression models (for the periods 2010–2013 and 2014–2017). The selection of the best regression model also takes into account testing for the classic assumptions: normality, heteroscedasticity, multicollinearity and autocorrelation. Table II shows the results of the model's selection and the classic assumption test for each period. The best model is the one with the most dots between each model. From 2010 to 2013, the random effect (RE) model is the best regression model while for the period between 2014 and 2017 the best model is the Pooled Least Square (PLS) model.

The distribution results are abnormal for the period from 2014 to 2017 but – as random sampling was not used – this can be ignored. For all that, and because the data's distribution

Criteria	Result	2010–2013 Model solution			Result	2014–2017 Model solution		
		PLS	FE	RE		PLS	FE	RE
LM test[a]	Significant			●	Not significant	●		
Chow test	Significant		●		Not significant	●		
Hausman test	Not significant			●	Not required			
Normality test	Normal				Not normal			
Multicollinear test	Not orthogonal				Not orthogonal			
Heteroscedasticity	Heteroscedastic			●	Homoscedastic	●	●	
Autocorrelation	Pass	●	●	●	Pass	●	●	●
Sampling	Not random	●	●		Not random	●	●	
$T > N$	No	●			No	●		
R-squared		0.6896	0.6659	0.6883		0.6067	0.5917	0.6065
Conclusion	Random effect model				Pooled Least Square			

Notes: PLS, Pooled Least Square; FE, fixed effect model; RE, random effect model; T, time series; N, cross section. [a]Breusch and Pagan Lagrangian multiplier test for random effects

Table II.
Best model selection
procedure

is abnormal, we carried out the regression testing using a variance–covariance matrix. The heteroscedasticity test results show no significant correlation between the independent variables and the residual variables (homoscedastic) for the period 2014–2017, while in contrast, heteroscedasticity is present during the 2010–2013 period, so the RE model is the appropriate one to use for this period (Baltagi, 2005, p. 82; Gujarati and Porter, 2012, p. 255). The results of the multicollinearity test show a strong correlation between the independent variables. Multicollinearity between the independent variables can be reduced by panel data (Baltagi, 2005, p. 5) and so the appearance of multicollinearity does not affect the results of the panel data model's estimation for the first period, because the model it uses is not the PLS model but the RE model. The symptoms of multicollinearity can be ignored because multicollinearity in this research model is unavoidable, as the variable X_2 is a multiplier for the formation of other variables.

4. Results and discussion

4.1 Data collection and descriptive statistic

We carried out tests on the data, obtained from the ORBIS database for the period 2008–2017, from 155 wholesale and retail companies that were listed on the stock exchanges in Indonesia, Malaysia and Singapore. We restricted our research to the wholesale/retail industry and specifically to companies that sold merchandise directly, but were not manufacturers. Because production costs make up most of the cost of innovation in manufacturing companies, including these companies would introduce a bias. We identified the retail companies from the Bloomberg and corporate websites. Having identified the type of business for each company, a total of 160 firm-years was obtained (Table III). The data were screened for companies with sales increases of more than 50 per cent and sales reductions of more than 33 per cent, effectively excluding any changes that may have resulted from divestments and mergers. Companies were also removed from the sample if their SGA costs exceeded their sales (Anderson *et al.*, 2003; Banker and Byzalov, 2014).

Table IV shows the descriptive statistics. Indonesia had the largest change in sales (ΔSales), with Malaysia next and then Singapore. Changes in the SGA costs (ΔSGA), in descending order, followed the same pattern (Panel A). The change in sales for every year and the average change in sales for each period are shown in Panel B. In the period 2010–2013, the average change in sales was 12.26 per cent, with the average SGA costs' change being 12.38 per cent. In the second period, from 2014 to 2017, the changes in sales were only 5.5 per cent, but the changes to the SGA costs were 7.55 per cent. In the same way, the SGA costs to sales

Country	ORBIS data[a]	Retail[b]	Firm-year (8 year)	Incomplete and excluded (firm-years)[c]	Final sample (firm-years)
Indonesia	40	19	152	80	72
Malaysia	59	9	72	32	40
Singapore	56	21	168	120	48
Total	155	49	392	232	160

Notes: [a]Corporate data with the wholesale/retail sector code based on ORBIS data; [b]a type of company that sells merchandise directly, without manufacturing it; [c]using 2008 data, this study used 2010 as a starting point, considering that the data related to successive, required decreases in period $t-2$. As in previous studies, extreme changes in sales (an increase of more than 50 per cent or a decrease of more than 33 per cent) and if SGA costs more than sales were deleted. Since this study compares the conditions for corporate competition over two periods (2010–2013 vs 2014–2017), we delete all the firm-years of companies that do not meet these criteria in one of the observation years. So, the data used in this study requires that for the period of our observation (2008–2017), companies do not have extreme changes in sales and have never experienced SGA costs exceeding sales

Table III.
Procedure for
selecting the sample

Panel A. variable mean

Variable	Mean			
	Singapore	Indonesia	Malaysia	All
ΔSGA (%)[a]	3.46	16.55	5.90	9.96
ΔSales (%)[a]	2.03	14.99	6.09	8.88
Asset intensity (%)[a]	0.77	0.64	0.84	0.73
Debt intensity (%)[a]	0.27	0.35	0.32	0.32
GDP (%)[a]	5.19	5.50	5.53	5.31
Log (ΔSGA)	0.0112	0.0636	0.0231	0.0377
Log (ΔSales)	0.0050	0.0580	0.0220	0.0331

Panel B. average of sales and SGA cost changes per year

Year	Mean				
	% ΔSales[a]	Log (ΔSales)	% ΔSGA[a]	Log (ΔSGA)	% SGA/Sales[a]
2010	10.27	0.0365	8.57	0.0320	25.18
2011	11.03	0.0405	11.84	0.0439	25.40
2012	14.81	0.0571	13.23	0.0513	25.23
2013	12.93	0.0508	15.87	0.0612	25.99
Average	12.26	0.0462	12.38	0.0471	25.45
2014	5.84	0.0234	9.56	0.0385	26.68
2015	3.86	0.0131	6.26	0.0218	27.27
2016	5.80	0.0217	9.61	0.0362	27.79
2017	6.49	0.0220	4.75	0.0170	28.04
Average	5.50	0.0200	7.55	0.0284	27.44

Panel C. distribution of sales and SGA cost changes (firm-years, percentage in brackets)

	2010–2013	2014–2017	Changes
ΔSales			
Decrease	16 (20.00)	25 (31.25)	9 (56.25)
Successive decrease	5 (6.25)	12 (15.00)	7 (140.63)
ΔSGA			
Decrease	10 (12.50)	16 (20.00)	6 (60.00)
Increase	70 (87.50)	64 (80.00)	−6 (8.57)

Notes: ΔSGA, changes in SGA costs; ΔSales, changes in sales. 160 observations, consisting of 48 (Singapore), 72 (Indonesia) and 40 (Malaysia) observations, each period consist of 80 firm-years (period 2010–2013 and 2014–2017). [a]% = (value$_t$–value$_{t-1}$)/value$_{t-1}$×100%

Table IV.
Descriptive statistics

increased from 25.45 to 27.44 per cent in the second period. Table III (Panel C) shows how many firm-years experienced reduced sales, together with the successive reductions for each period. Of the 80 firm-years in each period, the number seeing a decline in sales rose in the second period by 56.25 per cent and an increase in SD by 140 per cent, showing a decline in the retail companies' competitiveness in the second period.

4.2 Regression test results and discussion

Table V shows the regression results from our empirical models for both periods. Panel A shows the first period's results, with the p-value from coefficient β_2 showing no statistically significant result although, in economic terms, the results show a significant value as shown by the coefficient's sign corresponding to the asymmetric cost behaviour theory. The sign of coefficient β_1 is positive and that of coefficient β_2 is negative. This is also true for other coefficients showing no statistically significant results. Turning to the coefficient marks, neither the SD variable (β_3), asset intensity (β_4), debt intensity (β_5) nor GDP (β_6) behave as the literature on cost stickiness says they should.

		Predicted sign	2010–2013 (random effect)	2014–2017 (Pooled Least Square)
β_1	ΔSales	+	0.798***	0.404***
β_2	DD$\times\Delta$Sales	−	−0.616	−2.759*
β_3	SD$\times$DD$\times\Delta$Sales	+	−0.273	1.685**
β_4	AI$\times$DD$\times\Delta$Sales	−	2.620	0.330
β_5	DI$\times$DD$\times\Delta$Sales	+	0.207	−2.680*
β_6	GDP$\times$DD$\times\Delta$Sales	−	0.060	0.215
	R^2		0.6883	0.6067

Notes: ΔSGA, changes in SGA costs; ΔSales, changes in sales; DD, decrease dummy; PD, profit dummy; SD, successive decrease; AI, asset intensity; DI, debt intensity; GDP, economic growth. *,**,***Indicate significance at the 10, 5 and 1 per cent levels, respectively

Model:

$$\log\left(\Delta SGA_{i,t}\right) = \beta_0 + \beta_1 \log\left(\Delta Sales_{i,t}\right) + \beta_2 \times DD_{i,t} \times \log\left(\Delta Sales_{i,t}\right)$$

$$+ \sum_{n=3}^{6} \beta_n \times DD_{i,t} \times \log\left(\Delta Sales_{i,t}\right) \times Control + \varepsilon_{i,t}$$

Table V.
Summary of regression changes in SGA cost on changes in sales

Panel B shows the results for the period from 2014 to 2017. Coefficients β_1 and β_2 show results that are statistically significant. The value of coefficient β_1 is 0.404 (p-value < 0.05) and of β_2 −2.759 (p-value < 0.10); this is in accordance with the sticky cost theory which describes costs as being sticky if $\beta_1 > 0$ and $\beta_2 < 0$. These results indicate that for each 1 per cent increase in sales, SGA costs increase by 0.404 per cent. During the same period, a 1 per cent reduction in sales was met by a 2.355 per cent increase in SGA costs ($\beta_1 + \beta_2 = -2,355$). For this period, the results from the SD's variable are statistically and economically significant and are positively marked, which signifies that SD weaken cost stickiness. On the other hand, the asset intensity's coefficient and GDP level show signs that disagree with the previous literature's predictions and are not statistically significant. The results for debt intensity are significant but have signs opposite to those predicted.

The regression results for the first period show no statistically significant sticky behaviour, and this concurs with the descriptive statistics, according to which changes in average sales and SGA were in line with the first period. Competitive pressure was not felt by retailers in the first period and, as marketeers.com (2015) makes clear; retail was still enjoying double digit growth at that time. In the following period, retail growth was reported to have fallen by one digit. This tells us that an increase in the competition produced more sticky cost behaviour. When companies in the same industry feel subject to the same competition, managers innovate as much as possible and so act more aggressively in relation to their SGA costs. Our study shows that a fall in sales leads to an increase in the SGA costs.

To confirm our regression results, we conducted a robustness test, specifically related to the very large β_2 coefficient value found in the period 2014–2017. We used the competition variable in the model. The measure of competition is done by calculating the number of "compete" words and their derivatives (competitive, competition and competitiveness), which are conveyed in the companies' annual reports. We use the NVIVO 12 application to do this text search. The regression test's results show that the coefficient value of β_2 is still negatively significant (p-value < 0.05) with a large number of −4.168 (Table VI). The sum of the values of $\beta_1 + \beta_2$ is −3.729. This value is the same as that found in our initial model, which shows that the decline in sales actually caused an increase in the SGA costs. Coefficients for the competitive variables (β_7) show a significant negative result (p-value < 0.05) which means that competition strengthens the level of cost stickiness. Unlike the initial regression results, GDP significantly affects the results, with positive

		Predicted sign	2014–2017 (Pooled Least Square)
β_1	ΔSales	+	0.439***
β_2	DD×ΔSales	−	−4.168**
β_3	SD×DD×ΔSales	+	2.379***
β_4	AI×DD×ΔSales	−	0.647
β_5	DI×DD×ΔSales	+	−3.592**
β_6	GDP×DD×ΔSales	−	0.389**
β_7	Comp×DD×ΔSales	−	−0.061*
	R^2		0.6267

Notes: ΔSGA, changes in SGA costs; ΔSales, changes in sales; DD, decrease dummy; PD, profit dummy; SD, successive decrease; AI, asset intensity; DI, debt intensity; GDP, economic growth; Comp, competitive variable (measured by the number of "compete" words and their derivatives (competitive, competition, competitiveness), which are conveyed in the company's annual report. *,**,***Indicate significance at the 10, 5 and 1 per cent levels, respectively
Model:

$$\log\left(\Delta SGA_{i,t}\right) = \beta_0 + \beta_1 \log\left(\Delta Sales_{i,t}\right) + \beta_2 \times DD_{i,t} \times \log\left(\Delta Sales_{i,t}\right)$$

$$+ \sum_{n=3}^{6} \beta_n \times DD_{i,t} \times \log\left(\Delta Sales_{i,t}\right) \times Control + \beta_7 \times Comp \times DD_{i,t} \times \log\left(\Delta Sales_{i,t}\right) + \varepsilon_{i,t}$$

Table VI.
Robustness test with
competitive variable

coefficients. This is in line with the research undertaken by Banker and Byzalov (2014), which found that the GDP coefficient is positively marked in Malaysia, Indonesia and Singapore.

Our regression results were clarified by tracing the second period's observation data. Table VII shows the SGA costs change while sales are declining. There are 80 observations in the second period, and 31.25 per cent of them (25) showed reduced sales, which shows that up to 60 per cent saw increased SGA costs, the average being by 3.5 per cent, while sales fell by an average of 1.2 per cent. The remaining 40 per cent saw SGA costs fall, but were impacted by their SGA costs reducing on average by 6.36 per cent, compared with their average 8.18 per cent fall in sales. It can therefore be said that, when sales fall, SGA costs rise.

We also tracked sales conditions for the 60 per cent of the observations that experienced an increase in their SGA costs when their sales declined. The companies that pump up their SGA costs when sales go down are those whose sales have fallen by less than 7 per cent and which had no fall in sales during the previous period. It seems likely that managers see such a sales reduction as temporary and innovate to maintain their company's competitiveness and restore its sales, so that its SGA costs increase. This contrasts with companies experiencing a two-digit sales reduction, causing managers to reduce their SGA costs.

Our results confirm the theory of contemporary real options, according to which increased competitive pressure limits the incentive managers have to cut costs (Schmidt *et al.*, 2017). Companies facing the same pressures as their competitors are likely to be more aggressive in

SGA cost changes	Firm-years	%	ΔSales mean (%)	ΔSGA mean (%)
Decreased SGA costs				
Lower than sales decline	6	24	−8.18	−6.36
Higher than sales decline	4	16	−6.41	−7.95
Increased SGA costs	15	60	−1.21	3.50
Total observations experiencing sales decrease	25	100		

Note: Of the 80 observations, as many as 25 (31.25 per cent) observed a decline in sales, and 55 (68.75 per cent) experienced an increase in sales

Table VII.
SGA cost changes for
observation
experiencing sales
decrease (2014–2017)

raising their SGA costs when sales fall, so that cost stickiness increases. According to the contemporary theory, delays in investment provide no value for companies facing competition (Li and Zheng, 2017). Investment involves innovations, both technological and managerial or administrative (Zawawi *et al.*, 2016).

Managers' levels of aggression in raising their SGA costs show their wish to innovate. Lev and Thiagarajan (1993) found that increases in the SGA to sales costs ratio is seen as indicating that managers cannot control costs, but no such evidence was found by Abarbanell and Bushee (1997). To bring together these two studies' results, Anderson *et al.* (2007) examined SGA costs as they relate to cost stickiness and found that "Future earnings are positively related to changes in the SG and A cost ratio for the periods in which revenue declines, inconsistent with traditional interpretations of SG and A cost changes". Investors therefore do not see increases in the SGA cost ratios as indicating a failure to control costs and this is confirmed by the positive abnormal returns from those companies where the ratio of SGA costs to sales increases when sales fall, as a result of positive managerial future expectations. Positive expectations lead managers to innovate in order to achieve higher sales in the next period.

The situation where competition is evenly felt by the retail industry is expected to make managers dare to make decisions to increase their SGA costs. Greater levels of competition reduce competitiveness and so managers attempt to improve it by spending on innovation. Managers dare to take risks because they face strong competitive pressures and quite complex situations, especially in the retail industry. Retailers may use a strategy of radical innovation in the search for a competitive advantage (Pinto *et al.*, 2017). High risk investing may increase the returns (Rankin *et al.*, 2012, p. 137), particularly if managers are optimistic about future sales (Cheung *et al.*, 2018), but when a fall in sales over two successive periods reduces the managerial optimism, cost stickiness weakens in accordance with the existing literature (Banker *et al.*, 2014).

The second period's results showed debt intensity strengthened cost stickiness and this did not concur in earlier studies, which said that when managers were faced with high debt intensity they acted cautiously, especially in regard to their debt covenants (e.g Anderson *et al.*, 2003; Xu and Sim, 2017). In fact, our study shows the opposite and our suspicion is that managers take this risk in order to be more competitive in the future, by thinking about the long term when under competitive pressure similar to that faced by their competition. Managers who consider the long term have stickier cost behaviour and this concurs with the studies by He *et al.* (2010) and Kitching *et al.* (2016). Even so, efforts to keep to the provisions in its debt covenant are also very important for the survival of a company. We recognise the limitations of our study regarding this matter and leave this problem to future research.

5. Conclusion
This paper examines the asymmetric cost behaviour in the retail industry under competitive pressure in three ASEAN countries. The SGA cost behaviour is tested to measure how aggressive any investment strategies are. This study monitors innovation strategies by means of the contemporary real options theory, which has traditionally stated that when faced with uncertainty, including competitive conditions, companies are more likely to postpone any new investment. The opposite view, however, is taken by the contemporary real options theory. This study contributes to the literature on costs' behaviour and strategy management.

This study finds that companies facing higher levels of competition (as in the period from 2014 to 2017) show higher stickiness. In the previous period, the sticky cost level tends to be lower, but our study is not able to show a statistically significant effect. Our result shows that when a company's competitiveness is low, managers tend to be more aggressive

in innovating, so that the SGA costs are higher. These results concur with research by Anderson *et al.* (2007). Fundamental analysis has traditionally held that increased SGA cost ratios indicate that managers have poor control over their companies' costs, but this study produces the opposite result – one confirmed by the positive abnormal returns in companies where a fall in sales is met by a rise in the SGA cost to sales ratio (Anderson *et al.*, 2007).

Our results have implications for practitioners, especially the users of the information in financial statements. Investors looking at corporate performance should consider cost stickiness to be a good thing, particularly when an industry is experiencing strong competitive pressures. Managers respond to poor competitiveness by innovating, leading to higher SGA costs. This is especially true in the case of companies now experiencing a one-digit sales reduction that have not experienced consecutive sales decreases.

Our study is limited by our ability to access the SGA data in detail, so we are unable to explore SGA costs that relate directly to innovation, considering this cost is also used as an agency problem proxy (Namitha and Shijin, 2016). The limitations of the measurement proxy were also experienced by previous researchers, due to the difficulty of accessing the cost data in detail. For example, the use of operating costs as a proxy for CSR investments (Habib and Hasan, 2019) and proxy labour costs (Banker *et al.*, 2013; Rouxelin *et al.*, 2018). Further studies should make detailed observations, for example by conducting field studies.

This study is also limited because of its small number of sample observations, partly as a result of the retail industry being chosen as the subject for investigation. The use of only three countries with high levels of retail store closures is also a limitation, since falls in retail sales are a global phenomenon and data from other countries or regions should be used in future research. How debt covenants influence cost stickiness is also a problem and future research should consider trade-offs between long-term orientation and debt covenants. In-depth interviews would seem to be the best way of answering these questions.

Notes

1. Except Xu and Sim (2017) in manufacturing, Cohen *et al.* (2017) in government, and Nurafni (2015) in pharmaceuticals.

2. GRDI is an index that provides guidance on investment opportunities in the retail sector.

3. When competitive pressure is high, the companies' sales tend to fall. The greater the competitive pressure, the greater the decline in sales. Given that the SGA costs are related to sales, we can see the strategies that the companies take through their costs.

4. See, for example, Hendartyo (2017); Manjur (2016); and Ward (2017).

5. We use the terms competition, competitive and competitiveness interchangeably. When there is a situation with high competition, the competitiveness of a company will decline.

6. One of the SGA costs elements that has a significant value is managerial perks. Perks are generally given to retail companies as an incentive to trigger sales (Friebel *et al.*, 2015). In addition to technology-related innovations, innovation also includes administrative or managerial innovation so they are also related to perks (Zawawi *et al.*, 2016). Therefore, the level of innovation is also related to managerial activity costs (perks).

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