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Structure, Conduct and Performance of the Malaysian Meat and Meat Preparation Industry

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ABSTRACT

Higher concentration tends to be inefficient in the allocation of resources especially in price setting and probable collusion among larger firms. One of the most influential approaches among various theories of industrial organisation is the Structure-Conduct-Performance (S-C-P) model, which highlights the competitive conditions of an industry by examining the structure of the industry in relation to behaviour (conduct) and performance of companies. Thus, the objective of the study is to investigate the level of concentration and industry performance of selected meat and meat preparation manufacturing sub-sectors in Malaysia and to examine the relationship between market structure, conduct and performance of the industry. Secondary data were collected from selected meat manufacturing firms registered under the CCM. Results indicate that the meat processing industry tended to have a moderate concentration with monopolistic market structure prevailing throughout the study period, where more than 60% of the industry market share is being controlled by four firms. Results from the TSLS regression technique indicate that market structure provides a weak effect on advertising. This indicates that the lower the concentration ratio of the industry, the higher the expenditure spent on advertising in order to attract customers to buy products. Consequently, increases in advertising expenses have a positive effect on a firm's profit. Thus, there is a direct relationship between market structure, conduct and performance with positive and significant feedback effect among the variables; however, the magnitude of the feedback varies.

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INTRODUCTION

Malaysia has a growing and impressive food manufacturing industry that produces for both the domestic and export markets. This sector has been growing at an annual rate of 6.2% since 1995, making it one of the fastest growing sectors in the resource-based manufacturing industry. The output value of the food manufacturing industry expanded from RM10.8 billion in 1983 to RM47.4 billion in 2000 and increased to RM192 billion in 2007 (DOS, 2009). As part of the food manufacturing industry, the meat processing industry also plays an important role in contributing to the total food output in Malaysia. Even though the contribution to total output is quite small, the demand of food products especially meat and meat products, has shown an increasing trend over the years. This can be seen clearly from Table 1, with increasing numbers in the meat processing industry in Malaysia. Changes in lifestyle, busy routines, double income families and prepared meals are some of the factors that are normally cited to show the increasing demand of meat and meat products beside their availability and convenience for consumption.

Table 1 shows a number of establishments in the Malaysian processed meat industry. The number of firms that involved in this industry fluctuated during the study period. The number increased from 49 in 1996 to 53 in 1999 and it decreased to 40 in 2001. However, the numbers have continuously increased until 2007 with 55 establishments.

TABLE 1
Number of Establishments in the Malaysian Meat Processing Industry, 1996-2007

Year	Number of Establishments
1996	49
1997	53
1999	53
2000	40
2001	40
2002	47
2003	42
2004	43
2006	52
2007	55
2008	55
2009	55

Source: Census of Manufacturing, Department of Statistics (DOS), 2010

Similarly, the export performance of manufactured meat is quite encouraging as the total export of the industry has been increasing each year. The total export earnings increased from RM27 million in 1998 to RM68 million in 2003. This figure increased further to RM77 million in 2007, more than double its value in 1998 as shown in Table 2. From Table 2, one can see that Malaysia has had a positive balance of trade in processed meat products since 2005. This could be due to the contribution of the poultry sub-sector, which has been aggressively developing new product lines and exploring new export markets.

Although the contribution of the meat and meat processing industry to the whole economy is encouraging, the higher concentration tends to be inefficient in the allocation of resources especially in price setting and probable collusion among the larger firms. It is a well known fact that there are few major players in the meat and meat processing industry in Malaysia. There has not been much research into this phenomenon, leaving room for some fact-finding missions and further studies. One of the most influential approaches among various theories of industrial organisation is the Structure-Conduct-Performance (SCP) model, which highlights the competitive conditions in an industry by examining the structure of the industry related to the behaviour and performance of firms. Thus, the objective of the study was to investigate the level of concentration and industry performance of selected meat and meat preparation manufacturing sub-sectors in Malaysia and to examine the relationship between market structure, conduct and performance in the meat manufacturing industry.

METHODOLOGY

Most of the manufacturers in the meat processing industry are under the Small Medium Enterprise (SMEs) category while some can be categorised under large firms as shown in Table 3. According to the National SMEs Development Council, firms with an annual sales turnover of between RM250,000 and less than RM10 million can be categorised under SMEs. The gap between large and small firms in the Malaysian meat manufacturing industry is wide in terms of numbers and sale volumes and values. Thus, few large and scale efficient firms tend to dominate the meat processed industry as they have a higher market share over the smaller firms.

TABLE 2
The Value of Import and Export of Processed Meat Products in Malaysia, 1990-2009

Year	Processed Meat Exports	Processed Meat Imports
	RM ('000)	RM ('000)
1998	26,986	33,168
2000	34,820	47,335
2003	136	799
2004	126	964
2005	85	1049
2006	92	991
2007	112	1197
2008	211	1372
2009	239	1514

Source: Census of Manufacturing DOS, 2010

TABLE 3
Total Sales for Meat Processed Industry in
Malaysia, 1998-2007

Year	Total Sales
1998	1,032,457,256
1999	1,136,578,913
2000	1,147,422,533
2001	1,268,610,845
2002	1,487,575,222
2003	1,475,951,131
2004	1,554,209,271
2005	1,669,470,758
2006	1,762,704,586
2007	1,360,299,899

Source: Companies Commission of Malaysia
(CCM), 2009

The conceptual framework of the paper is based on the Structure-Conduct-Performance (S-C-P) paradigm by Bain (1956) and Mason (1939). Fig.1 shows a theoretical framework on the relationship between market structure, conduct and performance. The analysis of S-C-P starts with three aspects, market structure, market conducts and market performance, which reciprocally affect each other (Xinhong *et al.*, 2003).

As indicated by Xinhong *et al.* (2003), in the short term, market conduct is the direct cause that decides market performance while market structure is the basic factor that restricts market conduct. However, in the long term, market structure changes as a result of change of market conduct and performance, and sometimes, change of market performance may directly make market structure change. Basic supply and demand determine market structure, which directly affect market conduct and performance.

Structure-Conduct-Performance Measurement

The Structure-Conduct-Performance (S-C-P) paradigm was used in this study. Data were collected from the Company Commission of Malaysia (SSM). Thirty (30) meat processing companies were selected based on their profitability and performance from 1998/99 to 2008/09. Structure and conduct related to how the market functioned within the limits of its basic condition, whereas performance related to how well the market functioned (Mason, 1939; Bain, 1956). The SCP paradigm advocated active government involvement in industry to ensure that competition prevails. Therefore, government policies have direct influence on all three SCP elements.
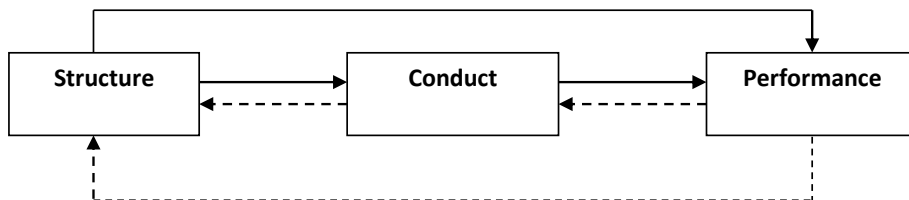
(Source: Adopted from Xinhong *et al.*, 2003)

Fig.1: Relationship between market structure, conduct and performance

Market structure is a form and character of market relation among firms in industry. It includes relation and character in quantity, scale, share and benefit allocation among buyers, sellers, buyers and sellers and existing buyers and sellers and those who may be planning to go into the market to determine competition form. It was measured using concentration ratio (CR4) and the Herfindhl Hirschman Index (HHI).

The concentration ratio for the k largest firms in an industry was calculated by adding the market shares of these k firms. This can be represented as $CR_k = S_1 + S_2 + S_3 + S_4 + S_5 + ... + S_k$, where S_i is the market share of the ith firm. A very commonly used concentration ratio is the four-firm concentration ratio or CR4. The CR4 is the total market share held by the top four firms in an industry and it is calculated as $CR4 = S_1 + S_2 + S_3 + S_4$. The percentage of CR4 was measured in four classifications. There

are differences with Bain's classification, which is indicated by using percentile, but it is still based on CR4 classification as shown in Table 4. It classifies the market structure on the basis of volume of industry and on the basis of firms' share in the total industry. Accordingly, control of 75-100% of the business of a product by a firm was considered as a highly concentrated oligopoly, while 50-75% control was recorded as a moderately concentrated oligopoly, 25-50%control was called a slightly concentrated oligopoly and control of less than 25% of the business was referred as to as being atomistically competitive.

Market share is the share of firm i in the time period t. The proportion of the market that the firm is able to capture will indicate the firm's performance relative to other competitors. This proportion is referred to as the firm's market share. Market share is often associated with profitability and thus,

TABLE 4
Classifying Industries with the CR4 in Percentage

CR4	Interpretation of Market Structure	Bain's Classification
CR4 = 0	**Perfect Competition:** Competitive system in which a large number of firms produce a homogenous product for a large number of buyers	75-5100: highly concentrated
0 < CR4 < 60	**Monopolistic Competition:** Many sellers each of whom produces similar but slightly differentiated products; each producer can set its price and quantity without affecting the marketplace as a whole	50-575: moderately concentrated
60 < = CR4	**Oligopoly:** A market condition in which sellers are so few that the actions of any one of them will materially affect price and have a measurable impact on competitors	25-550: slightly concentrated
90 < CR4 < 100	**Monopoly:** A situation in which a single company or group owns all or nearly all of the market for a given type of product or service, often leading to high prices and inferior products	0-525: atomistic

Source: A Guide for Industry Study and the Analysis of Firms and Competitive Strategy, 2001.

many firms seek to increase their sales relative to those of competitors. Market share is estimated by dividing an individual firm's revenue with the total industry revenue (Edwards, 2006). An individual firm's market share is calculated as:

$$\text{Market Share} = \text{Individual Firm Revenue} / \text{Total Industry Revenue}$$

As mentioned earlier, another index that can be used to measure market concentration is the Herfindahl Hirschman Index (HHI). The HHI is a more comprehensive and revealing measure of industry concentration. It is able to show differences in concentration between industries even when the CR4 measures (or CR8 measures) are identical. The HHI is calculated by summing the squares of the individual market shares of all the firms in an industry. This is represented as $HHI = S_1^2 + S_2^2 + S_3^2 + S_4^2 + S_5^2 + ... + S_n^2$, where S_i is the market share of the ith firm. According to the US Department of Justice (USDOJ, 1992), a market with an HHI less than 1,000 is considered unconcentrated, between 1,000 and 1,800 moderately concentrated, and over 1,800 highly concentrated as shown in Table 5.

Market conduct, on the other hand, is the actual behaviour of buyers and sellers in a market. It includes pricing policy, activities to raise entry barriers and rent seeking activities to establish regulation to limit competition. Advertising intensity (ADV) can be used as a proxy to market conduct (Dorfman & Steiner, 1954; Needham, 1978). Markets do not advertise equally, either absolutely or relatively. To compete in some industries requires substantial investments in advertising, while success in other industries requires hardly any media advertising (Willis & Rogers, 1998). Intensive advertising is associated with successful product differentiation and it will erect a barrier to entry that should be conductive to greater concentration. According to Resende (2006), in the case of a persuasive role of advertising, barriers to entry play a central role in enabling market power as they are associated with brand loyalty. Advertising creates a stronger preference for the established brand and the scope for stronger market dominance (and concentration) and therefore for the exercise of market power. Advertising affects the structural and performance characteristics of an industry, and it is likely to affect the

TABLE 5
Classifying Industries with the HHI

HHI	Interpretation of Market Structure
HHI < 1000	Monopolistic Competition = Unconcentrated
1000 < HHI < 1800	Oligopoly = Moderately Concentrated
1800 < HHI	Monopoly = Highly Concentrated

Source: A Guide for Industry Study and the Analysis of Firms and Competitive Strategy, 2001.

prices that consumers pay for products that are advertised. Advertising intensity is measured by the ratio of advertising expenditures to sales. Based on Dorfman and Steiner's (1954) conditions,

$$\text{Advertising / Sales Ratio (ADV)} = \frac{A}{S}$$

[1]

where:
S = (sale) and
A= (advertising expenditure)

Firms with a low advertising to sales ratio tend to have little market power and low price-cost margin. *Ceteris paribus*, oligopoly has larger advertising-sales ratios compared to monopolists and competitive firms. Meanwhile, a monopolist's advertising is greater than that of firms in a perfectly competitive level of advertising.

Performance measure is based on outcomes resulting from competition among firms, within an industry, the market and the entire economy. It shows how a firm or a system is performing and identifies the trends of performance over time. In an industry, performance is directly impacted by the structure and conducts of the industry and can ultimately be used as a measure of the success of a firm. Performance is therefore a function of a firm's conduct and the industry structure (Porter, 1980). There are two general indicators in measuring performance in terms of profit rate, which are the rate of return on assets after tax and the rate of return on shareholders' equity after tax. Another indicator in terms of sales is the rate of return on sales after tax. All these three measurements are considered as part of the profitability ratio.

The rate of return on assets after tax (ROA) measures the overall ability of the firm to utilise the assets in which it has invested to earn a profit.

$$\text{Return on Assets (ROA)} = \frac{P - T + I}{A}$$

[2]

where:
P = net profits
T = tax on profits
I = interest payment to debt holders
A= total assets

Rate of return on shareholders' equity after tax (ROE) is used to measure profitability. Investors use ROE, a measure of profitability, in comparative analysis to help investors make informed investment decisions (Acheampong, 2000). The rate used in this study can be written as:

$$\text{Return on Shareholders' Equity (ROE)} = \frac{P - T}{E}$$

[3]

where:
P = net profits
T = tax on profits
E = stockholders' equity

Return on Sales after Tax (ROS) is a robust measure of profitability that correlates positively and strongly with other widely-used profitability measures, such as return on assets (Cool & Dierickx, 1993; Goll &

Rasheed, 1997). The rate of return on sales (ROS) is expressed as follows:

$$\text{Return on Sales after Tax (ROS)} = \frac{P - T}{S} \quad [4]$$

where:
P = net profits
T = tax on profits
S = total sales

Regression Model

The TSLS (Two Stage Least Square) regression technique was used to estimate the parameters and linkages of the concentration (structure), advertising (conduct) and profitability (performance) variables as the elements in the S-C-P model.

Three equations in this study were identified using regression analysis by taking market structure, market conduct and market performance in a function of the other two variables. Three variables of considerable interest within the traditional S-C-P paradigm (concentration, advertising and profits) were more properly considered as jointly determined within a system of equation (Hay & Morris, 1991).

The general three equation S-C-P model is as follows:

STRUCTURE
    = *f* (CONDUCT, PERFORMANCE)
CONDUCT
    = *f* (STRUCTURE, PERFORMANCE)
PERFORMANCE
    = *f* (STRUCTURE, CONDUCT)

Evaluation of the state of competition requires an understanding of how the relevant markets function in practice. Market structure determines performance. The market structure which was measured by concentration ratio is endogenously determined and conditions the conduct that is measured by advertising expense of the firms, and that in turn determines market performance (profitability).

Concentration ratio of the four largest firms (CR4) measured based on the firms' total sales was used as the dependent variable in the structure equation. The dependent variables for the conduct and performance equations were the advertising to sale ratio (ADV) and profitability (ROE) of the four largest firms, respectively. The market structure (concentration) equation below was assumed to be a function of lagged advertising (ADV_{t-i}), lagged capital intensity (CAP_{t-i}) and lagged profits (ROE_{t-i}). The market structure (concentration) equation can be presented as follows:

$$CR4 = \alpha_0 + \alpha_1 ADV_{t-i} + \alpha_2 CAP_{t-i} + \alpha_3 ROE_{t-i} + \varepsilon \quad [5]$$

The lag structure was used to identify more precisely the relationship between the three variables. It enabled those variables to enter as exogenous rather than endogenous variables. It was generally hypothesised that past values would increase the current concentration level. Capital intensity (CAP) was lagged as it could act as a potential barrier to entry. The larger the capital requirement to enter an industry and more

differentiated the product, the higher the level of concentration (Kong, 2004). According to Kambhampati (1996), concentration may be affected by lagged value of advertising and profits, but in principle the direction of the effects is uncertain and cannot be predicted.

Market conduct is the actual behaviour of buyers and sellers in an industry. It includes pricing policy and activities to raise entry barriers to establish regulation to limit competition. Below is an equation of market conduct:

$$ADV = \beta_0 + \beta_1 ROE_t + \beta_2 GRO_{t-1} + \beta_3 CR4_t + \mu \qquad [6]$$

Market conduct is being measured by advertising and it is affected by industry structure. According to the S-C-P paradigm, concentration and profit should be positive and significant in the conduct equation. Firms should advertise more if the concentration and profits are high. Growth of firms (GRO) was used as the demand for processed meat products. Kambhampati (1996) noted that lagged growth in sales should be negative. However, Delorme *et al*. (2002) argued that lagged growth should be positive, as there should be an increase in advertising to combat increased competition among the incumbents in the market to capture this increased demand. In this study, the advertising intensity for the four largest firms for ten years was used to run the regression analysis. The growth measurement was done using sales growth rate.

A high level of past profits is expected to attract new entrants into the industry and reduce concentration. Thus, market performance equation can be presented as:

$$ROE = \gamma_0 + \gamma_1 GRO_{t-1} + \gamma_2 CAP_t + \gamma_3 CR4_t + \gamma_4 ADV_t + \xi \qquad [7]$$

Profitability should be higher in an industry in which barriers to entry exist. The higher the entry barriers, the less established firms have to consider the response of potential entrants when setting profit margins. Profit should be positively related to the entry barriers as being measured by capital intensity (CAP). To account for this source of entry barriers, the advertising to sales ratio (ADV) is included in the profit equation, with the expectation that higher advertising intensity bring to higher profitability. Growth is expected to influence profitability positively since it reflects increase in demand or decrease in cost or both. Since capital will earn a normal profit under competition, ROS will be larger and more capital intensive in production techniques, even in the absence of barriers to entry. A study by Allen and Shaik (2005) revealed that the variable market share had a statistically significant impact on the net profit margin for the agricultural commodity carrier of the trucking industry in the United States. ROEs of the four largest firms for 10 years were used to run the regression analysis.

RESULTS AND DISCUSSION

Table 6 shows the concentration ratio of the four largest firms (CR4), the eight largest firms (CR8) and the Herfindahl Hirschman

Index (HHI) for the meat processing industry in Malaysia from 1998/99 to 2008/09.

CR4 shows that the four largest firms in the industry accounted for 73.36% of the total value of sales in 1998. It decreased over the years and declined to 63.43% in 2007. For CR8, total value of sales was about 93.01% in 1998 and it decreased to 83.61% during a study period. The decrease levels of concentration indicated decreased market power and increased market competitiveness of SMEs in the meat manufacturing industry. This could be due to more firms having entered and captured the market share, which led to the industry's concentration to decline. This is in accordance with Stepherd's (1997) findings that market power declined as CR4 decreased. In other words, on average, each top four firms had at least 68.82% of the total market share. The high percentage of CR4 indicated that the meat manufacturing industry was moderately concentrated in the late 90s and declined to 63.42% in 2007.

Table 6 also shows the Herfindahl Hirschman Index (HHI) of the meat manufacturing industry in Malaysia. The HHI indicated that the industry declined from being highly concentrated in the late 90s to moderately concentrated in the 2000s. This was consistent with the CR4 results. The results also suggested that the competition in the industry had gradually increased, causing market power to decrease.

Advertising is a form of product differentiation whereby firms communicate to consumers what goods and services they are selling. Advertising to sale ratio or 'advertising intensity' (ADV), has often been used as a proxy to examine market conduct and behaviour in the S-C-P function. Advertising affects the structural and performance characteristics of an industry, and it is likely to affect the prices that consumers pay for products that are being advertised.

Table 7 shows the advertising sales ratio (ADV) and the value of rate of return on asset after tax (ROA), rate of return on shareholder's equity after tax (ROE) and rate of return on sales after tax (ROS) of the four largest firms in the meat manufacturing industry. The industry advertising expenditure indicated a decreasing trend over the study period. The advertising

TABLE 6
Concentration Ratio in Terms of Cumulative Percentage of Market Share for Meat Processed Industry

Year	CR4	CR8	HHI	Gini Coefficient
1998	73.358	93.01	2134.79	0.598
2000	69.561	89.91	1696.08	0.591
2002	67.972	88.84	1599.38	0.587
2004	65.020	87.08	1533.03	0.58
2006	63.596	85.34	1349.59	0.546
2007	63.429	83.61	1294.20	0.545

Source: Calculated from CCM, Malaysia.

expenditure peaked in 1998 with ADV of about 2.676 and declined to 2.567 in 2007. With a higher ADV, the entrance barrier was also increased because advertising increases the costs of production, brand royalty and consumer demand over a longer term (Lipezynski & Wilson, 2001). Larger firms can apply advertising effectively because they are better known compared to smaller firms. In this situation, only small amounts of advertising are required to maintain the firms' market share and performance.

The performance indicators of ROA, ROE and ROS showed a decreasing trend over the study period. Even after the economic crisis of 1999 to 1998, firms in the industry did not manage to recover from the downturn by 2002. The reason was that a majority of the firms in the industry were small and medium enterprises (SMEs); therefore, they needed a longer time to regain their sales. Similar findings were also reported by Kong *et al*. (2004). Another reason could be that the numbers of firms

that were involved in the industry increased from 49 in 1996 to 55 in 2007 (DOS, 2008), making the industry more competitive and causing profit earnings to decrease as newcomers captured the market share. The decreasing trend revealed the inability of the firms in the industry to utilise their assets, which were invested to earn profits (Lasher, 2000). Moreover, the rate of return on total investment for the industry was quite low as compared to ROE over the study period.

The relationship and the feedback effect between the structure, conduct and performance of the meat processing industry and concentration ratio of the four firms (CR4) can be seen in Table 8. The regression results of the TSLS of the SCP of the meat manufacturing industry showed that lagged capital intensity (CAP1) was positively related to CR4 but not significant, indicating a weak relationship with CR4. The results also showed that there was a strong relationship between market structure and market conduct and performance,

TABLE 7
Market Conduct and Performance of the Meat Processing Industry in Malaysia, 1998-2007

Year	Advertising Intensity	ROA	ROE	ROS
1998	2.676	5.1240	15.746	3.62
1999	2.638	4.7789	15.746	3.18
2000	2.624	4.1767	14.867	2.51
2001	2.620	4.0729	14.387	2.32
2002	2.604	3.1492	14.346	1.77
2003	2.593	2.8114	13.877	1.38
2004	2.589	2.7211	12.947	1.35
2005	2.587	2.1165	12.466	0.73
2006	2.573	1.4430	11.868	0.69
2007	2.567	1.4223	10.584	0.55

which was significant at 0.01% and 0.05%, respectively. The positive sign indicated that concentration of the industry would increase if as proxy of conduct, lagged advertising (ADV1) and proxy of performance, profit (PFT1) increased. It suggested that effective past profit, capital and advertising could increase concentration of the four firms further in the sense that market share would increase. Thus could create barriers to entry in the industry.

Conduct equation (as proxy of Advertising Intensity [ADV]) showed a negative relationship with performance but was positive with market structure. Market structure was significant at

0.01%. It indicated that market structure had a strong feedback effect on market conduct, where the firms spent more on advertising if the market concentration of the industry increased. However, it had a weak relationship with market performance and was not significant. The result showed that conduct did not seem to depend on performance of the firms, suggesting that conduct is best regarded as a forward-looking, strategic variable (Delorme, 2002). Lagged growth is negatively related and significant at 0.05%, meaning that the firms would spend less on conduct as presented by advertising expenditure if the previous year's performance was good.

TABLE 8
TSLS Regression Results for the Malaysian Meat Manufacturing Industry

	TSLS		
Independent variable	Concentration	Advertising	Profit
Intercept	1.19 (0.653)	0.11 (2.539)	0.22 (0.685)
(ADV1)	18.43[a] (3.035)		
(CAP1)	0.582 (0.618)		
(PFT1)	2.34 [b] (2.112)		
(GRO1)		-0.003 [b] (-2.042)	-0.003 (0.352)
(CAP)			0.25[c] (1.659)
CR4		0.03 [a] (4.355)	0.10[a] (3.053)
(ADV)			-1.47 (1.244)
(PFT)		-0.05 (0.805)	
R^2	0.865	0.799	0.784

t-value in parentheses, [a, b] and [c] significant at the 0.01, 0.05 and 0.10 levels respectively

The performance equation was presented by profit as the dependent variable showed a positive relationship with structure (CR4) and conduct (CAP) and was significant at 0.01% and 0.1% respectively. However, advertising intensity and lagged growth were not significant in explaining the feedback effect on performance. The finding was similar to Delorme's (2002). Delorme found that there was no systematic relationship between advertising, industry growth and profitability. Profitability should be higher in an industry in which barriers to entry exist. Thus, industry profit should be positively related to concentration and capital intensity (CAP), which determine entry barriers in the industry. As concentration and conduct of the firm increase, the performance of the firm will also increase. The finding was also similar to that of Oustapassidis (1998).

The TSLS results indicated that market structure provided a direct effect on performance and conduct. The CR4 can be highly concentrated if the firms spent more on advertising to attract customers to buy their products. Consequently, the increase in advertising expense would generate lower performance from the firms. Thus, market structure, conduct and performance are directly related with each other. The feedback effect is also directly related to market performance, to market conduct and to market structure of the industry. Similarly, market conduct can also affect market performance but these relationships are relatively weak and not significant in some cases.

CONCLUSION

The Concentration Ratio (CR) and the Herfindahl-Hirschman Index (HHI) results clearly showed that the market for meat manufacturing in Malaysia was moderately concentrated during the study period. This can be proven by the existence of some larger firms that controlled a large market share of the industry. The concentration ratio of the top four firms (CR4) ranged from 60-65 over the study period and according to Bain, the meat processing industry is moderately concentrated; this was substantiated by the HHI. This indicated that there were many sellers in the industry and each produced similar, but slightly differentiated products. This indicated that each producer could set its own price and quality without affecting the market as a whole.

The results proved the existence of both primary and secondary feedback effects between market structure, conduct and performance in the meat and meat products manufacturing industry. The results of the regression analysis indicated the existence of primary and feedback effects between market structure, conduct and performance based on the industrial organisation approach in the Malaysian meat manufacturing industry. The results showed that concentration directly affected the firms' advertising expenditure (conduct) and profitability (profitability). In addition, advertisement intensity and profitability demonstrated the lag feedback effect on structure of the industry, that is, while structure gave a positive feedback effect on conduct and performance, market

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performance did not have a feedback effect on market conduct.

Since the meat and meat product manufacturing industry is moderately concentrated, there are signs of collusion or merger among the top four firms. Thus, the monopolisation of the industry by one firm is highly unlikely to happen. The industry can be categorised as displaying monopolistic competition where there are many sellers with differentiated products and they each have their own market niche. The Malaysian government has managed to successfully reduce monopoly power and to increase the competitive levels among the firms in this industry. This is to ensure that the industry remains open to new entrants while market power of established firms in the industry is reduced. The government should maintain competitive levels among the firms and at the same time protect small market players from unfair market practices used by the larger firms.

Market expansion can facilitate new entrants into the market place and hence, reduce market concentration. It is, however, less certain whether the trend could be sustained in the long run. In an effort to establish domestic competitiveness, the Malaysian government has to intensify policies for the promotion and growth of Small and Medium Enterprises (SMEs) in the meat and meat manufacturing industry by providing more investment incentives, loans and open market opportunities, especially among the Organisation of Islamic Conference (OIC) countries and to promote Malaysia as a Halal Hub centre for the Muslim world.

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