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# Linking price satisfaction and business performance in Malaysia's dairy industry

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## Abstract

**Purpose** – Price satisfaction is an influential factor in competitive performance and business success. Strong price satisfaction enhances and sustains high quality business relationships, leading to improved profits for chain participants. The purpose of this paper is to explore the dimensions of price satisfaction in the context of the Malaysian dairy industry. The aim is to determine which dimensions of price satisfaction affect relationship performance between Malaysian dairy producers and the dairy processors who purchase their milk.

**Design/methodology/approach** – In total, eight hypotheses are tested using partial least square methods on survey results from 133 dairy producers in Malaysia.

**Findings** – The study results suggest that relative price, price-quality ratio and price fairness influence producers' loyalty and improved business relationship performance.

**Practical implications** – To achieve long-term, sustainable business relationships involving consistent high quality supplies, milk buyers need to understand and capture the price satisfaction dimensions.

**Originality/value** – The paper provides insights into the important linkages between price satisfaction and business performance in an agriculture industry.

**Keywords** Malaysia, Agriculture, Milk, Prices, Business-to-business marketing, Price satisfaction, Business performance, Dairy industry

**Paper type** Research paper

## Introduction

Much of the relationship marketing research focusing on agricultural industries emphasize the benefits of long term, sustainable business relationships between exchange partners (Batt, 2003; Lu *et al.*, 2008; Reynolds *et al.*, 2009). This research reveals that long term relationships stimulate firm and chain benefits, including improved partner commitment (Gyau and Spiller, 2008), information sharing (Batt, 2003) and collaborative innovation (Soosay *et al.*, 2008). Overtime, stronger relationships can lead to lower transaction costs (Williamson, 1979), reduced market uncertainties (Heidi and Stump, 1995) and improved business performance (O'Toole and Donaldson, 2000). Batt (2004) argues that while a long term business relationship may reduce some market uncertainties, it may not be enough to provide price certainty. As a result, suppliers may



abandon their exchange partner from time-to-time to obtain a better and more reasonable price.

Like many other Asian countries, Malaysia's dairy market is expanding as a result of increasing population growth, rapid income growth and more attention to dietary health (Dong, 2006). The emerging dairy consumption opportunities presented by these demand-related growth factors are leading processors to explore the role of producer incentives that go beyond traditional production and product flow logistics. In particular, milk buyers seek information on how they can build stronger and mutually beneficial relationships with their suppliers to secure regular and uninterrupted milk supplies (Boniface, 2011). Capturing dairy producer's price satisfaction can play an important role for processors working within an ever more competitive dairy market.

Many studies recognize the importance of price satisfaction in the development and maintenance of long term relationships between exchange partners. In business-to-consumer (B2C) relationships, price satisfaction plays a significant role in competitive strategies, influencing customer's purchase intentions (Campbell, 1999; Munnukka, 2008) and loyalty (Choi and Mattila, 2009), which may eventually lead to business profitability and sustainability (Diller, 2000a; Kotler *et al.*, 2006; Boniface *et al.*, 2010).

Studies tend to operationalize price satisfaction as a unidimensional construct (Campbell, 1999; Diller, 2000b; Gyau and Spiller, 2008; Munnukka, 2008). Multi-dimensional analysis of the price satisfaction construct especially from the business-to-business (B2B) perspective is given much less attention. A better understanding of the various dimensions of price satisfaction and the role each dimension plays in influencing chain performance in the B2B relationship are potentially important for managerial decision making. This paper attempts to contribute to this literature by analysing the multi dimensional nature of price satisfaction in the Malaysian dairy industry and its influence business relationship performance.

The remaining sections of the paper are organised as follows. To provide context, the next section presents a brief overview of the Malaysian dairy industry. Next, the paper discusses the conceptual framework and hypotheses followed by a report of the results from partial least squares (PLS) statistical modeling to test the model. The final sections discuss the results and present the conclusions.

### **The Malaysian dairy market**

The dairy industry in Malaysia is projected to expand rapidly due to increasing milk demand as a result of higher incomes, urbanization and population growth (Dong, 2006). These projections suggest that by 2014, dairy product consumption will increase more than 30 per cent. For a number of reasons, domestic production is not coping well with the rapidly increasing demand. Milk marketing in Malaysia is dominated by a state owned enterprise, the Milk Collecting Centre (MCC), under the supervision of the Department of Veterinary Services, Malaysia. The government provides centralised milk collection and distribution facilities, some rural credit, subsidies for the purchase of dairy cows and extension-service support for animal nutrition and hygiene.

Producers sell their milk to MCC at a predetermined price based on a grading system. This contract does not restrict the producers from selling their milk to other buyers. Consequently, there are multiple markets for the producers. Some producers sell their milk to private traders and other producers sell directly to restaurants or

processing firms, including Dutch Lady Milk Industries Berhad, Susu Lembu Asli and Sabah International Dairies (Boniface *et al.*, 2010).

There are wide differences in the prices received by farmers depending upon whom they sell to. For instance, during the period of the authors field work in June and July 2009, the farm gate price that the farmers reported receiving from the MCC and factories ranged from Malaysian Ringgit (MYR) 1.80 to MYR 2.50 per litre. The price range for individuals, agents and restaurants lies between MYR 2.20 to MYR 4.00. In the next section, we develop the conceptual framework.

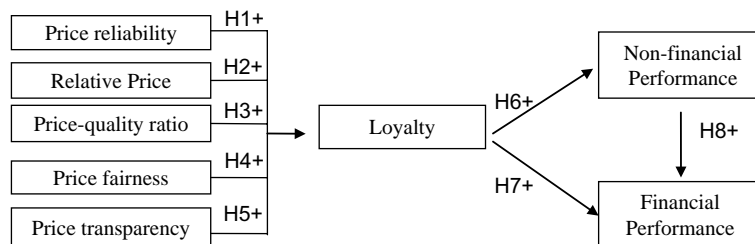
### Conceptual framework

The premise of the conceptual model (Figure 1) is that price satisfaction is a multi-dimensional construct made up of five components: price reliability (PR), relative price (RP), price-quality ratio (PQ), price fairness (PF) and price transparency (PT). We hypothesize that each of these dimensions influences supplier loyalty, effecting the financial and non-financial relationship performance of the dairy farmers.

### Loyalty

In the B2C relationships, customer loyalty plays a significant role in fostering profitability and business sustainability (Diller, 2000a). For the purpose of this study, we follow three established categories: behavioural loyalty (Jacoby and Chestnut, 1978), attitudinal loyalty (Bennett and Rundle-Thiele, 2002) and composite loyalty (Baldinger and Rubinson, 1996; Rauyruen and Miller, 2007). Behavioural loyalty refers to a pattern of repurchases of the same products such as when a customer stays loyal to the same brand name or services. Baldinger and Rubinson (1996) suggest that the behavioural pattern of repurchasing the same brand influences the underlying attitudes toward that brand. Therefore, attitudinal loyalty relates to a customer's "attitudinal" preferences and commitment towards a brand (Bennett and Rundle-Thiele, 2002). Some researchers argue that customer loyalty cannot be explained by looking only at the customer's behaviour in isolation of the customer's attitudes and vice versa. Rather, to gain an understanding of loyalty, behavioural and attitudinal loyalty should be considered.

"Composite" loyalty assumes that loyalty can only be seen when a customer both purchases or uses continuously the same product and actually recommends it to others (Baldinger and Rubinson, 1996; Rauyruen and Miller, 2007). Customer satisfaction is related to loyalty. Essentially, customers over time are loyal to the same company provided they are satisfied with the product and service (Diller, 2000a). Customer loyalty relates to brand loyalty, implying the strength for a particular product or service. However, in the context of agricultural producers studied here, loyalty implies the



**Figure 1.** Model of price satisfaction, supplier loyalty and relationship performance

strength of the preferences for a particular buyer. Buyer characteristics, such as keeping promises, making payments on time and communicating regularly can contribute to developing a supplier loyalty to a particular buyer.

Although the idea of loyalty in business relationships is beneficial in buyer-seller relationships, most literature concentrate on buyer behaviour. Much less emphasis is placed on analysing the process of buyer selection by suppliers. The result is an inadequate understanding of the needs, wants and preferences of sellers. Ramsay and Wagner (2009) argue that switching the emphasis from the buyers or customers needs and wishes to those of the suppliers provide opportunities to reduce conflict in buyer-seller interactions and improve joint trading performance.

In the agribusiness context, gaining, managing and maintaining loyal suppliers offers a number of advantages to processors, including more consistent supplies, lower transaction costs, enhanced efficiency and reduced post-harvest losses particularly for perishable products such as fresh milk (Boniface *et al.*, 2010). To explain the loyalty of suppliers to their buyers, this study applies the characteristics of customer loyalty to that of supplier loyalty within the Malaysian dairy industry to understand the motivation of dairy producers to continuously sell milk and engage in long term relationships with their buyers. Thus, by taking a mirror reflection of the definition of customer loyalty, supplier loyalty which is the focus of this article will be defined as "suppliers" willingness and desire to continue to supply to a particular buyer and recommends that buyer to other "suppliers". This is necessary in order to ensure that a buyer whom sellers are loyal to can obtain continuous and uninterrupted milk supply.

### Price satisfaction and loyalty

Price satisfaction refers to the psychological result of a difference between price expectations and price perceptions (Gyau *et al.*, 2011; Matzler *et al.*, 2006). In any market exchange relationships, price is a dominant factor. Matzler *et al.* (2006, p. 217) state that "the central role of price as a purchasing determinant as well as in post-purchasing processes is well recognized." Therefore, price satisfaction influences a consumers' buying intention (Campbell, 1999; Diller, 2000b; Munnukka, 2008) and eventually creates a loyal customer in the long run (Diller, 2000a; Espejel *et al.*, 2008). Capturing additional customer satisfaction through price related factors is often considered an important way to promote sustainable business relationships (Anderson and Narus, 1990; Geyskens *et al.*, 1999).

Understanding price satisfaction as a multi-dimensional construct provides a better understanding of the customers' satisfaction in price (Matzler *et al.*, 2007). Geyskens *et al.* (1999) find that satisfaction can be achieved through economic and non-economic factors because, offering a better and reasonable price, fulfils the economic reward while the feelings of being appreciated and perceived fairness complete the non-economic satisfaction (Geyskens *et al.*, 1999).

In searching for a better price, clients, consumers and costumers look for a clear, comprehensive, current and effortless overview of a company's quoted prices (Diller, 1997). Buyers tend to be satisfied when honest and complete price information is provided (Matzler *et al.*, 2007). Most price formula considers factors such as quality, quantity supplied, geographical location, length of relationship and the nature of contracts (Schroeder *et al.*, 1998). Suppliers are more likely to be satisfied if they are provided with information on how buyers determine the price that will be paid for their product. Thus, higher levels of PT may

influences supplier loyalty which eventually prolongs business relationship (Somogyi and Gyau, 2009; Boniface *et al.*, 2010).

PR includes the notion of price confidence, consistency and favourability (Diller, 1997). Matzler *et al.* (2006, p. 221) explain that:

Customers will perceive high price reliability if there are no hidden costs, if prices do not change unexpectedly. If prices change, customers should be informed properly and in a timely manner to build trust and maintain a long-term relationship.

From the suppliers perspective and in the context of Malaysia's dairy industry, offering reliable prices may encourage sustainable business relationship between exchange partners (Boniface, 2011).

RP exists when consumers start to compare the price of the product or services with that of the competitor (Matzler *et al.*, 2007). The act of comparing prices may influence perceptions of price (Compeau and Grewal, 1994). If consumers consider the price offered is better than that of the competitor, they will be satisfied, feeling they are being treated fairly.

Research suggests that offering fair prices leads to consumer satisfaction (Campbell, 1999; Matzler *et al.*, 2007; Choi and Mattila, 2009), extending B2B relationships (Anderson and Narus, 1990; Batt, 2003; Reynolds *et al.*, 2009). PF involves comparing prices (Somogyi and Gyau, 2009). Suppliers feel unfairly treated if they find that the same milk buyer offered different prices to different suppliers. PQ relates to reasonable price value and quality. If perceived quality exceeds perceived costs, customer value is high and vice versa (Matzler *et al.*, 2007). In the B2B relationships, providing a good PQ may improve supplier's satisfaction and loyalty (Diller, 2000a).

In the long run, loyalty may improve a firm's competitiveness and profitability (Rowley, 2005). It encourages word-of-mouth marketing, lowering marketing costs (Dick and Basu, 1994). Similarly, capturing behavioural and attitudinal loyalty stimulates long term relationships with exchange partners (Rauyruen and Miller, 2007) and enhances sustainable business environment (Caceres and Paparoidamis, 2005). Thus, price satisfaction may influence customer loyalty (Choi and Mattila, 2009).

Based on the above discussion we propose that:

- H1. PR has a positive influence on the supplier loyalty.
- H2. RP has a positive influence on the supplier loyalty.
- H3. Price quality has a positive influence on the supplier loyalty.
- H4. PF has a positive influence on the supplier loyalty.
- H5. PT has a positive influence on the supplier loyalty.

### **Supplier loyalty and business relationship performance**

O'Toole and Donaldson (2000) found that business relationship performance can be categorized into financial and non-financial business performance. They conceptualized that financial performance (FP) closely relates to economic rewards such as return on investment, cost sharing and long term profitability. Non-financial performance (NFP) is the outcome of mutual interest, trust and satisfaction in relationships. This paper proposes that creating supplier price satisfaction leads to supplier loyalty (Espejel *et al.*, 2008) and by gaining a supplier loyalty leads to improvements in both financial and non-financial relationship performance (O'Toole and Donaldson, 2000). Therefore:



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*H6.* Supplier loyalty has a positive influence on the NFP.

*H7.* Supplier loyalty has a positive influence on the FP.

Maintaining close and personal relationships with exchange partners is a major factor in developing better NFP. The close and personal relationships between exchange partners promote higher business commitment and indirectly increase economic rewards (Boniface, 2011). Therefore, promoting NFP such as flexibility and joint action in the B2B setting may influence supplier FP such as higher profitability and economic return on investment (O'Toole and Donaldson, 2000). It is hypothesized that:

*H8.* NFP has a positive influence on the FP.

### **Methodology and survey design**

This study is based on surveys of 133 dairy producers carried out during June and July 2009. The methods for selecting the households and designing the questionnaire included several stages. The first stage involved gathering information through a literature review, field visits and key informant interviews with producers, traders, extension agents, veterinarians, MCC staff and government department heads and staff working for the three large private milk processors, Dutch Lady, Susu Lembu Asli and the Sabah Dairy Association. These interviews provided the context for understanding many of the industry trends and issues, how supply chains operate, the size and location of producers across Malaysia, the dynamics of buyer-seller relationships and related socioeconomic and industry information to explore in the questionnaire.

In the next stage, four states, Johor, Melaka and Selangor (located on Peninsular Malaysia) and Sabah, were purposively selected for this study. Based on the key informant interviews and secondary data provided by the Department of Veterinary Service, these four states include:

- a wide range of small to very large dairy producers;
- a variety of marketing channels, biosecurity chain logistics and quality requirements; and
- more than more than half of all of the country's dairy producers (297 out of a total of 550).

The other dairy producing states are dominated by small-scale producers with less than ten cows per farm.

The dairy household selection involved two segments. One segment includes the small and medium scale producers. The other segment includes producers with more than 100 cows. Data provided by the three private dairy companies and the Department of Veterinary Services for the four states contained 297 total producers with 54 producers larger than 100 cows. The data was collected by interviewing milk producers. The list of the producers was obtained from MCCs at respective states. In order to obtain a representative sample, a cluster random sampling procedure was used. The producers were initially clustered into four groups based on size of the firm. A simple random sampling was then used to select respondents from each of the clusters. In total 133 producers were interviewed made up of 57 small, 25 semi-commercial, 31 commercial and 20 large-scale producers. These represented

42.9, 18.8, 23.3 and 15 per cent, respectively, for small, semi-commercial, commercial and large-scale producers.

All interviews were face to face, lasting around 1 h. The questionnaire was pre-tested with three dairy supply chain specialists and ten dairy farmers in Malaysia with participants asked to provide feedback on the length, content, format, comprehensibility and accuracy of the survey instrument. After each stage, the questionnaire was modified to incorporate feedback. To ensure consistency, farmers were asked to evaluate the relationship with their main buyer, defined as the buyer who purchases largest quantity of their fresh milk.

### Respondent description

The majority of respondents were men, with an average age of 45 years and 13 years of experience in the dairy farming business. The herd size averaged 85 cows, with the largest farm having 2,455 cows. The average milk yield (per day) is 10 kg per cow. The highest milk yield is 28 kg and the lowest is 2 kg. The breeds of cows are diverse, ranging from pure breed Holstein-Friesian and Jersey to mixed breeds such as Sahiwal-Friesian crosses. The respondents are predominantly small-scale producers. Most respondents (79 per cent) obtained primary and secondary education while a few (4 per cent) had tertiary education. The respondent profiles are presented in Table I.

### Measurements scales

Measurements for price satisfaction dimensions, loyalty and relationship performance are operationalised as shown in Table II.

	Numbers of producer	Percentage
<i>Age (years)</i>		
19-30	13	9.8
31-40	36	27.1
41-50	47	35.3
51-60	28	21.1
61-70	9	6.8
<i>Level of education</i>		
Primary and secondary education	105	78.9
Diploma and certificate education	23	17.3
Tertiary education	5	3.8
<i>Experience in the business (years)</i>		
1-5	35	26.3
5-10	29	21.8
10-15	21	15.8
15-20	18	13.5
20-25	13	9.8
25-30	12	9.0
<i>Farm size (number of cattle)</i>		
Small scale (1-30 cows)	57	42.9
Semi-commercial (31-50 cows)	25	18.8
Commercial (51-100 cows)	31	23.3
Large-Scale (101 and above cows)	20	15.0

**Table I.**  
Respondent profiles



Price satisfaction dimensions	Description	Statements
PR	Price does not change unexpectedly and suppliers are informed timely (Matzler <i>et al.</i> , 2007)	Milk price changes are communicated timely My buyer keeps all promise regarding milk price Milk price changes are communicated properly
RP	Price of the offer compared to that of competitors' offers (Matzler <i>et al.</i> , 2007)	Terms and condition of my buyer are better tailored to my needs than those of other buyers I am convinced that my buyer is the best choice I get a good PQ I have the impression that I know what I am paying for I agree with the milk price and grading system My buyer does not take advantage of me My buyer always consistence with the same pricing formulas
Price quality	The price receives from their buyer reflecting the quality of the product (Zeithaml, 1988)	
PF	Consumers gain satisfaction from a price of a product if they believe that the offered price is favourable and fair (Campbell, 1999; Diller, 2000a)	
PT	Clear, comprehensive, current and effortless overview about a companies quoted prices (Matzler <i>et al.</i> , 2007)	My buyer milk price is clear, comprehensible and understandable Milk price information is complete, correct and frank Milk price information is understandable and comprehensive I will be happy to recommend my processor to other dairy buyer I will ask other dairy producer to seek assistance from my buyer I will continue to do more business with my current buyer in the next few years
Loyalty	The producer's decision to maintain and remain their exchanges with the same buyer (Dick and Basu, 1994; Rauyruen and Miller, 2007)	
FP	Perceived business relationship performance by looking at the FP attributes (O'Toole and Donaldson, 2000; Gyau and Spiller, 2008)	My current buyer is much more convenience than other buyers My relationship with the buyer has been a financial success I have been able to achieve 100 per cent of my goals by selling to my current buyer I gain steady income and financial security from this Return on investment is higher in this contract/relationship My buyer able to solve problem adequately One of the main advantages of this contract/relationship is its stability One of the main advantages of this contract/relationship is its flexibility We are happy with this contract/relationship
NFP	Perceived business relationship performance by looking at the NFP attributes (O'Toole and Donaldson, 2000; Gyau and Spiller, 2008)	

Table II.  
Operationalisation  
of the variables

In all cases, five-point likert-scale type questions ranging from: 1 – strongly disagree, 2 – disagree, 3 – partly/disagree, 4 – agree and 5 – strongly agree were used to measure the various latent constructs of price satisfaction, supplier loyalty and relationship performance.

### Statistical analyses and results

#### *Path analysis*

PLS is used to test the model shown in Figure 1. The structural equation modeling (SEM) uses the SmartPLS Software 2.0.1. The PLS is a “Soft modeling” technique which iteratively estimates the parameters of latent variables using the least squares method. The PLS was considered as the most appropriate modeling technique due its advantages[1] compared to other traditional structural equation techniques such as LISREL.

In the soft modeling approach, two forms of variables, the latent and the manifest variables are considered. Manifest variables that make no significant contributions to the respective latent variables are progressively removed and the analysis is repeated until all the manifest variables are significant.

#### *Testing the measurement model*

The fit of the measurement model is evaluated using the inner and the outer models.

*Evaluating the outer model.* The outer model is evaluated by examining the individual item reliabilities and convergent validity of the model. The individual item reliabilities are examined through the factor loadings of the items on their respective constructs. Only items with factor loadings of at least 0.5 are considered significant and retained in the model (Hair *et al.*, 1998). The results are reported in Table III and range from 0.7099 to 0.9122. The internal consistency of the model was assessed by calculating the composite reliability (CR) of the measurements (Werts *et al.*, 1974). The usual homogeneity criteria is for the CR to be greater than 0.7. Table III shows that all the CR indices for the constructs surpass the recommended 0.7 (composite reliabilities range from 0.8058 to 0.8827).

Convergent validity assesses whether or not constructs measure what is purported to measure. The convergent validity was assessed by calculating the average variance extracted (AVE) which indicates whether the construct variance can be explained from the chosen indicators (Fornell and Lacker, 1981). The minimum recommended value for each construct is at least 0.5 (Bagozzi and Yi, 1988) meaning that the indicators account for at least 50 per cent of the variance. All the AVE indices for the constructs surpass the recommended 0.5.

*Evaluation of the inner model.* The first criterion used to evaluate the inner model is the discriminant validity, meaning that every construct is significantly different from the others. To analyse this, a loading and cross loading matrix was obtained. The loadings are the Pearson correlation coefficients to own constructs. The cross loadings are the Pearson correlation coefficients of indicators to other constructs. All loadings should be higher than the cross loadings as is the case. This is shown in italic letters in Appendix 1.

Another criterion for measuring the discriminant validity is that the square root of the AVE should be higher than the correlation between the construct and the other constructs (Chin, 2001). This is shown in Appendix 2. The diagonal displays the AVE square roots. This test is the Fornel-Larcker test (Fornell and Lacker, 1981). Bagozzi (1994) suggests that the correlations between the different constructs in the

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model must be smaller than 0.8. This is supported based on the results displayed in Appendix 2.

#### *The structural model*

The  $R^2$  and the significance of the path coefficients evaluate the hypotheses. Table III presents the standardized path coefficients. The  $R^2$  measures the construct variance explained by the model. A good model fit exists when the  $R^2$  is high. The  $R^2$  for the NFP and the FP are 0.3646 and 0.6320, respectively. The  $R^2$  for loyalty is 0.4816. These indicate that the model provides sufficiently good fit for the latent constructs (Appendix 3).

The standardized path coefficients analyses the degree of accomplishment of the hypotheses. The significant of the structural coefficients is estimated based on the bootstrapping method (Elfron and Gong, 1983). Standard errors of parameters were compute on the basis of 1,000 bootstrapping runs. Based on this criterion, we accepted six out of the eight hypotheses that were formulated as illustrated in Table IV.

#### **Discussion**

As expected, RP significantly influences supplier loyalty, likely resulting from suppliers comparing prices and services between buyers. Whereas some buyers offer high prices and buy low volume of milk, others like the MCC buys milk at slightly lower prices than the market price, but purchases high volumes of milk. Dairy producers consider how much they will obtain but also measure the price in relation to the quantity that can be sold to the buyers. For instance, in the qualitative stage of this research, one of the respondents stated, "no doubt they are paying less, but by 9.00 a.m. all my work will be finished, I can go back to my other work life." Many suppliers prefer to sell all their milk in one day to one buyer even at lower prices so they can do other work activities such as attending to the dairy maintenance, buying animal feeds or doing other related business. Another respondent mentioned that, "I do not like temporary buyers even though they offer higher milk prices." Thus, RP in terms of price quantity ratio as well as prices that can be obtained from other buyers have influence on supplier loyalty.

Second, PQ is found to influence supplier loyalty. In the context of the Malaysian dairy industry, this indicates that producers are interested in the quality grading system and hence, whether or not quality is considered when rewarding them. Considering quality may influence how they relate to the buyer. Thus, where a good grading system is used, farmers are more likely to be loyal and vice versa. In Malaysia, the biggest buyers like the MCC do milk quality tests test on site (e.g. methylene blue dye reduction) while other tests, like the total plate count (TPC) are done elsewhere due to lack of facilities and equipment in the milk collection centres. Milk price and grading are based on the TPC test result; the milk grade can be improved from grade D to A, by reducing the TPC levels from 0.50 to 0.20 M/ml, resulting in milk price increases of 25 percent (Moran, 2009, p. 78). Such practises cause some milk suppliers to doubt whether their milk quality is best related to appropriate price. One of the respondents stated that, "If I have the choice, I would sell to Dutch Lady, we get more recognition. When other people know that I sell to Dutch Lady, I will be recognized."

PF has a positive influence on loyalty. A result consistent with other research including Campbell (1999) and Choi and Mattila (2009) who postulate that, if customers perceive the price offer as reasonable and profitable, they will stay with the same retailer.

Variables and indicators	Factor loading	CRA	CR	AVE
<i>PR</i>		0.6412	0.8058	0.5803
Milk price changes are communicated timely	0.7597			
My buyer keeps all promise regarding milk price	0.7621			
Milk price changes are communicated properly	0.7635			
<i>RP</i>		0.5584	0.8170	0.6912
Terms and condition of my buyer are better tailored to my needs than those of other buyers	0.7861			
I am convinced that my buyer is the best choice	0.8743			
<i>PQ</i>		0.8007	0.8827	0.7151
I get a good PQ	0.8349			
I have the impression that I know what I am paying for	0.8265			
I agree with the milk price and grading system	0.8747			
<i>PF</i>		0.6898	0.8629	0.7593
My buyer does not take advantage of me	0.9122			
My buyer always consistence with the same pricing formulas	0.8286			
<i>PT</i>		0.7205	0.8402	0.6369
My buyer milk price is clear, comprehensible and understandable	0.7689			
Milk price information is complete, correct and frank	0.8110			
Milk price information is understandable and comprehensive	0.8135			
<i>Loyalty</i>		0.7663	0.8503	0.5870
My current buyer is much more convenience than other buyers	0.7269			
I will be happy to recommend my processor to other dairy buyer	0.7853			
I will ask other dairy producer to seek assistance from my buyer	0.7785			
I will continue to do more business with my current buyer in the next few years	0.7726			
<i>FP</i>		0.7981	0.8691	0.6253
My relationship with the buyer has been a financial success	0.7636			
I have been able to achieve 100 per cent of my goals by selling to my current buyer	0.8270			
I gain steady income and financial security from this contract/relationship	0.8545			
Return on investment is higher in this contract/relationship	0.7099			
<i>NFP</i>		0.7717	0.8503	0.5870
My buyer able to solve problem adequately	0.7481			
One of the main advantages of this contract/relationship is it stability	0.7371			
One of the main advantages of this contract/relationship is its flexibility	0.8129			
We are happy with this contract/relationship	0.7644			

**Table III.**  
Variables and statistical results

In the dairy industry, milk suppliers tend to look for fair and reasonable prices. For example, one of the respondents stated that:

I like to sell to milk agents because they come to my farm and collect my milk production while other buyers like MCC do not provide this kind of service.

Most suppliers felt that by selling to milk agents they saved transportation cost, obtain reasonable and fair prices even though some buyers like MCC offers similar milk price.

Contrary to our hypothesis, PR and transparency do not to influence loyalty of the dairy farmers. This result is not consistent with a study by Matzler *et al.* (2007) who find all five price satisfaction dimensions influence purchasing intentions in the banking industry. One reason for this difference could be that the majority of the dairy farmers sell their milk to MCC at predetermined prices. In this contractual arrangement, price changes are not frequent but they are communicated in advance. A consistent price-quality formula may mean the price information is clear and understandable. High milk quality receives a higher price and vice versa. In this manner, milk prices are seen as reliable and transparent and not considered as such an important component influencing the supplier loyalty to a particular buyer.

The hypotheses linking supplier loyalty to either financial or NFP are supported. The findings are consistent with a study by Du and Wu (2008) who argue that loyalty improves business performance in the service industry. In this study, business performance based on both financial and NFP are measured (O'Toole and Donaldson, 2000). The outcomes suggest that supplier loyalty eventually improves their FP through a continuous transaction with the same buyers and encourages joint action and problem solving between exchange partners through a series of interactions and long term relationships with the same buyers.

Finally, non-financial relationship performance is also found to have a positive influence on financial relationship performance indicating that the behavioural factors such as trust, satisfaction and commitment as perceived by the farmers may also influence their perception of economic rewards obtained from the suppliers. This supports the results of Gyau and Spiller (2008) who observed that non-financial relationship performance has a positive influence on the financial relationship performance in the international fresh produce business between Ghana and Europe.

**Conclusions**

The purpose of this study is to examine the relationship between the dimensions of price satisfaction, supplier loyalty and business relationship performance in the Malaysian dairy industry. Previous agribusiness studies have not explored thoroughly the multi dimensional nature of the price satisfaction construct (Schulze *et al.*, 2006; 2010; Gyau *et al.*, 2011). The results presented here indicate that price satisfaction is a multi-dimensional construct and that RP, PQ and PF influence supplier loyalty and business relationship performance.

Hypotheses	Constructs	Expected sign	$\beta$ coefficients	Accepted/rejected
H1	PR → Loyalty	+	-0.088	Rejected
H2	RP → Loyalty	+	0.414***	Accepted
H3	PQ → Loyalty	+	0.192*	Accepted
H4	PF → Loyalty	+	0.210**	Accepted
H5	PT → Loyalty	+	0.081	Rejected
H6	Loyalty → NFP	+	0.602***	Accepted
H7	Loyalty → FP	+	0.462***	Accepted
H8	NFP → FP	+	0.488***	Accepted

Note: Significant at: \*0.10, \*\*0.05, \*\*\*0.01

**Table IV.**  
Results of the structural model

This study offers some managerial implications for milk buyers in Malaysia. First, the results indicate that price satisfaction is not only generated from the absolute prices that the farmers are paid but includes the psychological aspects, including of the whole exchange system RPs, price quality and fairness. It is just not enough to pay high prices to suppliers in order to capture their loyalty. To ensure supplier loyalty, buyers need to understand and fulfil the psychological price aspects by making comparisons to what can be obtained from other buyers as well as the relationship between the price offered and quantity bought. This enables farmers to feel that the prices they receive are reasonable and fair, taking into consideration the quality of their milk. In this case, farmers may be more likely to stay in the relationship with the buyers even when the actual prices are not the highest. Second, by capturing price satisfaction, buyers indirectly avoid price asymmetry in relationships but practice mutual satisfaction in the exchange. In the food industry, high farm gate prices may affect consumers buying power which eventually influences the whole supply chain management. By enhancing price satisfaction in the supply chain, price asymmetry can be reduced and supplier's psychological gratification of the price which is given to them by the buyers can be enhanced.

Third, buyers should not only have to concentrate on promoting FP but NFP as well. Developing and building relationship quality with exchange partner prolong business relationships (Boniface *et al.*, 2009) and eventually improve financial perceptions and business performance (Gyau and Spiller, 2008). Against this background, it is recommended that milk buyers should consider relationship promotion as one of their performance objectives since it has the capacity to improve FP.

With regard to the findings stated here, there are some limitations that have to be taken into consideration in interpreting the results. First, we used a cross-sectional data for the analysis and a cross-sectional study is limited in its ability to study concepts such as price satisfaction dimensions which involves multiple actors over time. Essentially, the attitudes of producers toward price satisfaction change with time (Campbell, 1999; Munnukka, 2008; Choi and Mattila, 2009). Therefore, capturing time series data would provide a better insight into this aspect of relationship building. Finally, our data is also based on single sided interviews with the dairy producers, and therefore, potentially subject to hindsight and other biases. A triangulation study between producers and buyers should be conducted to capture a better insight and research framework.

#### Note

1. Detail discussion of the merits and demerits of PLS can be found in Fornell and Cha (1994).

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**Further reading**

Phillips, L.W. (1981), "Assessing measurement error in key informant reports: a methodological note on organizational analysis in marketing", *Journal of Marketing Research*, Vol. 18 No. 4, pp. 395-415.

**Appendix 1**

FP	NFP	Loyalty	PF	PQ	PR	PT	RP
0.7636	0.5027	0.6109	0.5926	0.1984	0.4093	0.4728	0.5501
0.5059	0.3520	0.7269	0.4587	0.2875	0.3067	0.4074	0.5165
0.6635	0.7481	0.6334	0.4762	0.3448	0.2709	0.3719	0.4208
0.4500	0.4452	0.7853	0.3427	0.2851	0.1348	0.2265	0.4376
0.5388	0.4586	0.7785	0.4974	0.4471	0.2833	0.2857	0.5004
0.8270	0.5599	0.4183	0.3721	0.3418	0.1857	0.3098	0.3147
0.8545	0.6216	0.6520	0.4966	0.3422	0.2412	0.3712	0.5034
0.5902	0.5710	0.7726	0.4824	0.3770	0.3913	0.4060	0.5129
0.3211	0.2461	0.4668	0.5017	0.2763	0.4349	0.4219	0.7861
0.4005	0.5105	0.3787	0.4928	0.8349	0.3084	0.2145	0.4020
0.4955	0.7371	0.2724	0.2706	0.3794	0.0775	0.0256	0.2278
0.3480	0.2421	0.2771	0.4758	0.3085	0.7597	0.4712	0.3222
0.5802	0.5295	0.5944	0.6356	0.4292	0.3822	0.4855	0.8743
0.5560	0.5597	0.5803	0.9122	0.5047	0.5559	0.5497	0.6202
0.1829	0.1365	0.3162	0.5029	0.2736	0.7621	0.5317	0.4081
0.5417	0.8129	0.3380	0.3369	0.2732	0.1094	0.1349	0.3584
0.7099	0.6277	0.4605	0.4350	0.3785	0.2287	0.2905	0.3749
0.4932	0.3749	0.4246	0.8286	0.3170	0.5993	0.6489	0.5847
0.3021	0.2553	0.2609	0.5193	0.1476	0.4944	0.7689	0.3904
0.3450	0.3349	0.3740	0.3773	0.8265	0.2873	0.2258	0.3965
0.3902	0.3200	0.3973	0.5719	0.2971	0.5531	0.8110	0.5272
0.2758	0.3401	0.4172	0.3658	0.8747	0.3071	0.1689	0.3079
0.4983	0.7644	0.4993	0.5400	0.4250	0.3361	0.3599	0.4287
0.2512	0.2722	0.2532	0.5190	0.2268	0.7635	0.5206	0.3733
0.3895	0.1936	0.3627	0.5213	0.1061	0.5439	0.8135	0.3765

**Table A1.**  
Cross loadings

**Table AII.**  
Latent variables  
correlations

**Appendix 2**

	FP	NFP	PF	PQ	PR	PT	RP	Loyalty
FP	1.0000							
NFP	0.7342	1.0000						
PF	0.6038	0.5493	1.0000					
PQ	0.3997	0.4650	0.4851	1.0000				
PR	0.3379	0.2778	0.6549	0.3558	1.0000			
PT	0.4587	0.3228	0.6747	0.2385	0.6676	1.0000		
RP	0.5580	0.4845	0.6902	0.4332	0.4851	0.5476	1.0000	
Loyalty	0.6863	0.6038	0.5868	0.4619	0.3735	0.4371	0.6442	1.0000

**Appendix 3**

**Table AIII.**  
Total model overview

Overview	CR	AVE	Cronbach's $\alpha$	$R^2$	Communality	Redundancy
FP	0.8691	0.6253	0.7981	0.6320	0.6253	0.3005
NFP	0.8503	0.5870	0.7717	0.3646	0.5870	0.1878
PF	0.8629	0.7593	0.6898	0.0000	0.7593	0.0000
PQ	0.8827	0.7151	0.8007	0.0000	0.7151	0.0000
PR	0.8058	0.5803	0.6412	0.0000	0.5803	0.0000
PT	0.8402	0.6369	0.7205	0.0000	0.6369	0.0000
RP	0.8170	0.6912	0.5584	0.0000	0.6912	0.0000
Loyalty	0.8503	0.5870	0.7663	0.4816	0.5870	0.1175

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