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COST EFFECT OF BACKWARD GROWTH ON SUPPLY CHAIN IN THE INDUSTRIAL CATERING

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Abstract

In order to get competition advantage, reducing cost even a point is more essential in the industrial catering. The study focused on cost benefits of the backward growth among industrial catering firms in the supply chain. Thus, a survey was conducted on 7 backwards growth firms and 20 traditional working firms in the supply chain. Research results indicate that backwards growth decision of firms resulted positively with increase in stability of supply, competitiveness, firm's market share, financial risk, firm's profit and innovation, and negatively in coordination problems. In addition, backwards growth resulted with decrease in supply and inventory cost among vertical merged firms in the supply chain. Competition in the industry, caterer and supplier relations, capacity utilization, advantages and disadvantages of backgrowth has been also investigated.

Keywords: Cost Reduction, Supply chain, Backward growth, Catering Firm.

ENDÜSTRİYEL YİYECEK ENDÜSTRİSİNDE TEDARİK ZİNCİRİNDE GERİYE DOĞRU BÜYÜMENİN MALİYET ETKİSİ

Öz

Endüstriyel yiyecek işletmeciliğinde rekabet avantajı elde edebilmek için maliyetleri bir birim dahi azaltmak oldukça önemlidir. Çalışma, endüstriyel yiyecek işletmeleri arasında geriye doğru büyümenin maliyet kazanımlarına odaklanmaktadır. Bu doğrultuda tedarik zincirinde geleneksel olarak çalışan 20 firma ile geriye doğru büyüyen 7 firmaya yönelik bir araştırma yürütülmüştür. Araştırma bulguları firmaların geriye doğru büyüme kararının tedarikte istikrarı, rekabeti, pazar payını, finansal riski, firma karını ve yenilikçiliği olumlu yönde, koordinasyon sorunlarını ise olumsuz yönde etkilediğini göstermektedir. Araştırma bulguları geriye doğru büyümenin dikey olarak büyüyen firmalar arasında tedarik ve stok maliyetlerinde de azalma ile sonuçlandığını göstermektedir. Ayrıca çalışmada sektördeki rekabet, tedarikçi ve alıcı ilişkileri, kapasite kullanımı, geriye doğru büyümenin üstünlükleri ve sakıncaları da araştırılmıştır.

Anahtar Kelimeler: Maliyet Düşürme, Tedarik Zinciri, Geriye Doğru Büyüme, Endüstriyel Yiyecek İşletmesi.

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INTRODUCTION

Complexity and nature of catering industry makes it difficult what the large-scale catering firms comprises. Contract catering can be described as the management of catering for a company, client or public organization, for a stipulated fee with agreed specifications (Wilson et al., 2001:202). Today, many large and small firms are operating in the catering industry and the new entries have been also observed in the industry. Thus, separating the firms as industrial catering or just catering is not easy. However, if a caterer works with large scale production for a company, client or public organization, for a stipulated fee with agreed specifications on the basis of contract or bargain can be classified as an industrial catering.

Large-scale catering firms cook large amount of meals for big organizations. Thus, the best way of increasing profit depends on reduction in food cost. Reduction in cost is also more essential for firm's competitiveness. Hibbets et al. (2003:66) address that a firm's competitive environment influences its ability to successfully carry out a chosen strategy. That is, a low-cost provider strategy may work when price competition among rival firms is especially intense and when the industry's product is standardized.

One of the best ways of reducing raw material cost is to have volume discount for industrial catering firms. Coomes (2008:16) states that volume discounts on product purchases and funding operational costs by rebates from food manufacturers or sellers are significant. However, gaining volume discount is mostly depending on sellers and competition. Jayaswal et al. (2011:716) indicate that if the capacity cost increases, a dedicated capacity firm offers more homogeneous price and delivery time schemes for both substitutable and non-substitutable products. A shared capacity firm offer more homogeneous delivery times, but increase or decrease the price differentiation level depending on the status-quo capacity cost is high or low.

Communication with sellers can help to decrease food buying cost for catering firms. As Kenyon and Vakola (2003:329) indicated that traditional retailers are under increasing pressure from other sales channels such as mail order and electronic commerce. Change is being forced by global markets and technological impacts. Customer satisfaction is also more essential as decreasing food cost in the catering industry. Grunert et al. (2005:429) indicated that firms should interact in value chains in creating value for end-users satisfaction. The competitiveness of the whole value chain in serving end-users will be related to how the various chain members perform the task of generating intelligence on customer needs and wants. Otherwise, lack of interaction among chain members can result unsatisfied customers.

Research about linkages and merger in the catering industry are too limited. Hence, by analyzing backward growth in the catering industry, which has

not been studied much in the literature (there are some indirect studies in this setting, but not directly), we study the following issues: (1) The food cost of large scale catering firms, (2) How these firms decrease food cost and (3) try to understand interaction between backward growth and food cost in the industry.

The remainder of the paper is organized as follows. In section 1, we analyze traditional and comprehensive food cost reducing approaches and methods. In addition, we examine the importance of raw material cost and its competitiveness effect. In section 2, we evaluate financial effect of backward and forward linkages in the catering industry. In section 3, we carry out an empirical analysis based on industrial application. We also provide details of our survey data in this section. In section 4, we conclude.

LITERATURE REVIEW

Reduction Food Cost in the Industrial Catering

Theoretically an individual firm is the price-taker and has no control over the market price under perfect competition. Depending on increasing cost, a catering firm cannot purchase more inputs without having repercussions on the prices of inputs also needed by other industries (Scott and Nigro, 1982:179). According to these rules, the best way of increasing profit can be achieved by decreasing inputs cost for a caterer. Thus, determining profit by targeting cost has a significant role for competition. Labor cost and stock cost also play a critical role in traditional cost analysis in the catering industry. Fougere et al. (2010:1231) indicate that wages has a positive and significant impact on prices in traditional and fast-food restaurants. This impact consistent with the share of minimum-wage compensations in total costs that can be estimated with macroeconomics data.

All food production systems such as ‘cook-serve’, ‘cook-freeze’, ‘cook-chill’ and ‘sous vide’ focus on reducing cost. According to Edwards and Hartwell (2006:422) food quality, temperature and texture are significant factors in the selection of a system. Englund et al. (2009:4) indicate that replacement of traditional cooking procedures with high production technologies such as cook-freeze, cook-chill and sou vide, and output reaches a certain size in a large-scale meal production, the traditional cooking for smaller scale are no longer suitable. Mibey and Williams (2002:95) address also that there is a proportional increase using cook-chill system comparing with conventional cook-fresh system. On the other hand, Sebastia et al. (2010:965) define that cook-chill is the process of cooking raw food materials and ingredients inside heat-stable vacuumized pouches under controlled temperature and time, followed by quick cooling and low-temperature storage. They also indicate that cook-chill system offers significant advantages such as increased tenderness and moistureness, reduced nutritional loss, improved color retention, texture, flavor and the maintenance of microbiological quality for much longer periods than other procedures. Labor saving, lower costs

and less kitchen operations are also the benefits of the system (Anonymous, 2011:33). On the other hand, vacuum package is one of the most useful methods in this system to protect foods. According to McClyner (2010:202) vacuum food sealers removes many of the barriers at all level in the mass-food production. Cooked foods can be protected healthfully with both vacuum technology and cook-chill system. That is, extending protection date of cooked foods mean minimizing cost by decreasing waste of foods and a well-designed menu plans. Moreover, the delivery of raw materials can be rationalized and centralized in a cook-chill system (McKenna, 1990:389). Cooking and consuming should be on time in the conventional cook fresh system. But forcing to consume on time with cooking carry many difficulties as mentioned above. These difficulties can be ended with well-planned operations in this system.

Targeting cost approach may also useful to reduce food cost in the industry. Yılmaz and Baral (2010:39) state that targeting cost focus on reducing the cost of developing, producing and distributing new products, without sacrificing the quality of finished foods. Furthermore, Cooper and Slagmulder (2004:46) contribute that targeting cost can be applied during product design for any cost overruns. On the other hand, Okoroh et al. (2003:24) demonstrate that facilities management can be applied among catering firms as the proactive management of constructed facilities and organizational assets to improve their efficiency and add value to their performance and services.

With carefully controlled cost structure, catering firms can achieve the most cost-effective ways of providing services in order to ensure its cost effectiveness while maintaining standards. In this sense, competition plays a crucial role. According to McKenna (1990:380) the best way of testing success of a new job or existing catering service is to put it out to competitive tender. Muller and Woods (1994:32) address that having a narrower menu mix allows to maintain lower operating cost. But with a broad menu, inventories are manageable due to cross-use of products.

Returns of cooked foods and wasted meals to caterer are common and problematic. According to Great Britain health minister wasted meals was 10.14% in 2005 (Anonymous, 2006:7). In order to solving problem, flexibility is vital depending on demand estimation and customer returns information. Szymanski (1995:43) indicates that flexibility can be achieved through an automated comprehensive logistic system. This system requires a well-planned production schemes for availability of materials and ordering for the operational divisions on the basis of demand. On the other hand, according to Gul and Ergun (2010:143) industrial catering firms consider mostly cost reducing and creating value for customers in the product design process. Targeting cost and profit by increasing market share is the second, and the use of minimum resources and time is the third factor used in the product design. Each in turn follows as meeting customer expectation by participating, creating design alternative, developing production

process, and improving quality and cost by participating.

According to Dora et al. (2016:1) the inherent characteristics of food industries, such as mandatory quality assurance requirements, low shelf life of food products, and the extremely volatile demand and supply presented barriers in the stock and time reduction, improve on-time delivery, productivity and quality improvement performance. The most important way of decreasing production cost depends on reducing food items cost. Price, quality, quantity and timing is the main factors in the process. Chang et al. (2008:470) imply that buyers and suppliers need to negotiate these factors for building a long-term constructive and cooperative relationship. A well-designed production schedule may also help to decrease contamination risk and wastage for bulk operations by producing products at lower cost (Vlachos, 2015:1360). On the other hand, flexible resources add substantial value as compared dedicated resources (Tyrone, 2009:259). As Jayaswal et al. (2011:727) indicated that a firm with shared capacity offer more differentiated products than a firm with dedicated capacities.

Linkages or merger through resources may carry some disadvantages. Financial and managerial activities of a linked or merged catering firm should be separated with procurement firm. Otherwise, there may be authority and coordination problems. Negligence of profit in the procurement firm may deprive rationality and financial success. Lack of authority and coordination may cause some problems on cost control in the linked caterer. Hwang et al. (2010:466) indicate that optimizing total cost by adjusting capacity is vital for maximizing profit. In this manner, cooperation with suppliers may be useful for a catering firm. Driffield et al. (2004:703) address that a closer relation between industrial catering firm and supplier linked under one ownership or partnership can reduce financial cost of own supplier. They indicate also that backward linkages can create productivity spillovers for both industrial catering firm and their own supplier.

If a catering firm procures food items with its own resources, it may have stability for both production and sales. This stability is more vital especially during price fluctuation periods. Price increase on food commodity decreases profit of a firm which uses external resources. But firm which use internal resources may protect its profit in unstable market conditions. As a result merger through resources may be protecting catering firms at the time of unstable periods.

Financial Effect of Vertical Merger in the Catering Industry

Many industrial catering firms exist in the market. Most of them are very small, some are medium size, but a few are quite large. Most of them operate on the basis of varying flexibility, highly customer oriented and having business depending on bargains, proposals and contracts. Food suppliers and buyers are vertically related firms in the catering industry. In this manner, food suppliers can be retailers, wholesalers and sometimes directly food item producers for industrial catering firms.

An industrial catering firm may have own supplier firm, may have a partnership, may target a vertical or horizontal merger. These entire targets require new investment opportunities. However, protecting optimal capital structure is the key factor for entrance a new business. Thus, an industrial catering firm should consider the ability to liquidate in the investment decision through supply chain. Tyrone (2009: 259) addresses that against the uncertain chance or failure; it is to utilize the investment options for measuring its value by assessing investment and judging the influence of options on investment.

Gross profit of a vertically related firm depends on its affiliated firms. The pie is distributed among vertically related firms according to their bargaining power and market conditions. The distribution of the bargaining power and the degree of final product substitutability are the key determinants when the upstream market is monopolized and upstream firms are merged (Milliou and Petrakis, 2007:965). Catering firm's menu substitutability is quite high among firms. But, product differentiation is too low. That is, under market food item price, a catering firm obtain smaller share of the pie. But merging vertically, it may have increase bargaining power in the market. There is one another advantage for vertical merger in the industry. As Horn and Wolinsky (1988:415) pointed out that if a downstream firm works with a single input supplier or face with supplier monopoly conditions and its products are substitutes, the profit of that firm is less than the total industry's profit. In other words, bargaining position is the main incentive for downstream merger.

Nocke and White (2010:350) assume that capacity and products is the main determinants in the merger with a downstream firm. A vertical integration of a downstream firm with an upstream firm reduces downstream outlets by reducing upstream firm's deviation profit. When downstream firm gets the input from its own upstream affiliates at the marginal cost zero and therefore, not willing to pay any more. At the other hand, an integrated downstream firm sells more than unintegrated firm that charge a higher price for each one of its goods. Holding a higher price on demand of other goods, result is the positive externality. According to UE vertical merger guidelines non-horizontal mergers provide substantial scope for efficiencies. Feinstein (2010:6) emphasizes that these efficiencies may provide an increased incentive to decrease prices, decreased transaction cost and the alignment of incentives of the parties with regard to investment in new products, new production process and in the marketing of products.

Systematization and standardization is the main advantage of large-scale production. Industrial catering firms can reduce their production cost by using high technology and standardized large-scale production. But the lack of stable standards between vertically linked firms of high-growth industry is one of the main disadvantages for finished products. Unquality supplier products and food items can cause various problems rather than satisfy standard expectations (Klimenko, 2005:187). As a result, linking with suppliers for an industrial catering

firm is a way of handling supply chain problems and a chance for reducing food items cost.

Volume discounts on product purchases and funding operational costs by rebates from food manufacturers is also significant for a caterer in the economic and fiscal crisis (Coomes, 2008:16). On the other hand industrial catering firms should follow the changes of food prices at the market. In a research using 35 years of U.S. price data, energy and food commodity price changes take two to nine months to pass through to farm and wholesale prices, and these changes pass through at rates ranging between 2% and 41% depending on product and time period. Also farm and wholesale prices take one to six months to pass through to retail prices and pass through at a rate of 2% to 18% (Leibtag, 2009:1467). Richards and Pofahl (2009:1450) indicate that commodity price change of foods depend on the nature of the production process such as competitiveness of the vertical supply channel, the number of products sold and the direction of the price change.

A new investment opportunity by having own supplier firm, a partnership or targeting a vertical merger may bring critical risk during financial and economic crisis. Capello et al. (2010:470) indicate that financially constraint firms restrict their attractive investment projects, and more than half of these firms are forced to cancel valuable investments. Their survey also reveal that these firms use internal sources of funding for investment when access to external capital market is limited. As a result, an industrial catering firm should take into account investment conditions when targeting backward growth as an investment opportunity.

METHODOLOGY

Research Goal

The aim of the study is to determine cost benefits of the backward growth among industrial catering firms in the supply chain. In order to achieve this aim, we investigated cost reduction approaches in the industry. We have been also investigated competition in the industry, caterer and supplier relations, capacity utilization, advantages and disadvantages of backgrowth.

Sample and Data Collection

The research population consists of 27 industrial catering firms. Company addresses are obtained via the internet and telephone call from the secretariat of the Turkey Industrial Catering Association Federation (YESIDEF) and affiliated associations with federation: Ankara Industrial Catering and Businessmen Association (YESIAD), Bursa Industrial Catering Association (BUYSAD) and Aegean Industrial Catering Association (EYSAD). Data were collected by means of questionnaires. We reached only 7 catering firms which had backward linkages from industrial catering through supply chain in the survey. 20 catering firms try to

get competition advantages by using supply chain effectively. Survey was conducted to volunteer company representatives who agreed to participate in questionnaires between May 2014 and September 2015.

Firms were divided into two categories in the study as the businesses backward linkages or not in the supply chain. Thus costs and the financial effect of the backward growth for both groups can be compared. Backward growing businesses were selected according to the criteria of accessibility in the study, while others were selected randomly.

A questionnaire has been prepared by examining other studies in the literature (Wilson et al., 2001, Edwards and Hastwell, 2006, Hibbet et al., 2003; Muller and Woods, 1994; Szymanski, 1995; Jayaswall et al., 2011; Chang, 2008; Nocke and White, 2010; Milliou and Petrakis, 2007; Feinstein, 2010; Capello et al., 2010; Gul and Ergun, 2010). The first section consists of questions related to the recognition of industrial catering business. The second section consists of the questions that factors affecting food cost and methods used to reduce cost in the businesses. In order to analyze the obtained data about the factors that depending on priorities of company representatives, ranking scale was used in this section. According to Ural and Kılıc (2011:78) the values rank according to the degree of importance or to each other in the ranking scale. Fabbris (2013:22) indicates that ranking scale is extremely suitable for determining the priorities among the selection set and enables the recognition of the hierarchy between the items and provide a monitoring the changes caused by previous ranking in comparison. According to Vanleeuwen and Mandabach (2002:89) giving the great importance of a single item among others regarded as insignificant negative correlation with this matter in the method. Therefore, unlike Likert-type items, ranking will force the power effect of the items to zero. Moreover, the assumption of independence, item loads ignore the comparison of standard errors and the reliability concerning on the differences. In this section, in order to calculate mean value of the each factor, the highest score is given the most important factor to be considered and the lowest score for the least important (exp. mean value of a variable that consist of eight factors, 8 point is given the most important factor and 1 point for the least important factor, and then multiplied by the number of frequencies). In addition, interviews with business representatives and observation techniques have benefited from the resulting impression in the study.

Analyses and Results

25.9% of firms (7 catering firms) have backwards growth from industrial catering through supply chain. 74.1% of firms (20 catering firms) use suppliers in the supply chain. 22.5% of businesses are active between 1 and 5 years, 29.6% are 6-10 years, 29.6% are 11-15 years, 14.8% are 14.8%, and 3.7% are 21 and over years. 63% of catering firms have investment in other industries. 42.3% of investment is on food industry related to catering and 34.6% of investment is on other industries unrelated to catering. 37% of the firms have investment only in the

catering industry. Average daily production capacity of firms is 6 887 meals. 32% of firms' customer is public that works on contract and the private sector is 68% that works on bargain or proposal. 74% of the businesses use table d'hôtel service, 44.4% use optional and free flow, 33.3% use a la carte, 25.9% use buffet and 18.5% use vacuum packaging. 85.2% of firms provide additional services to their customers such as meeting (63%), cocktail (48.1%), canteen (29.6%), cafeteria (22.2%) and cleaning services (14.8%).

In order to analyze the factors that affect cost and methods used to reduce cost in the businesses, ranking scale was used in the study. According to VanLeeuwen and Mandabach (2002:93) each subject's average can be denoted in ranking scale as:

$$\sum_{i=1}^r (\mu + \alpha_i + e_{ik}) = r(r + 1)/2$$

where i illustrates rank of the items, k illustrates ranking subjects, μ and α_i are regarded as fixed effects. Based on ranking scores, the reasons for using external catering services for both public and private sector ranked as reducing costs ($\mu=3.6296$), easy accessibility of catering services ($\mu=2.5185$), organizational desire to stay in the core business ($\mu=2.1111$), quality of catering services ($\mu=1.8148$) and trends in the business life ($\mu=0.4815$) based on 5 ranking subjects. 18.5% of catering firms evaluate market competition as much powerful, 70.4% as powerful, 7.4% as weakness and 3.7% as no competition. Priorities of firm's competitiveness can be listed as follows: strong financial structure ($\mu=5.4815$), market reputation ($\mu=4.6296$), lower raw material cost ($\mu=4.4815$), advertising advantage ($\mu=3.9630$), following to technological innovation ($\mu=3.8519$), lower labor cost ($\mu=3.3333$), lower operational cost ($\mu=2.6296$) and managerial advantage ($\mu=1.8519$) based on 8 ranking subjects.

Capacity usage is 66.6% in the kitchen facilities, 61.1% in the kitchen machines and 66.7% in the kitchen equipment. These results show that firms work with lower capacity level. However, Budde and Minner (2015:652) suggest that the service providers' profits do not always increase with a higher capacity level. Their findings address that a firm's profit would have been better with having a lower capacity level by achieving an advantage when capacity decisions are sequential, rather than simultaneous. Lin et al. (2016:4838) also indicate that production decisions ultimately depend on customer demand, and capacity usage will drop when customers respond to a low fulfillment fraction by seeking alternative sources of supply. Our research shows that oversupply and increasing competition ($\mu=3.5185$), rising input costs ($\mu=3.4400$), lack of market demand ($\mu=3.2593$), economic and financial crisis ($\mu=3.0741$), mismanagement ($\mu=1.2963$) and production process problems ($\mu=1.4815$) are the reasons for reducing capacity utilization based on 6 ranking subjects.

85.2% of firms run new menu design and innovation activities and 14.8% do not. Firms focus on mainly using resources effectively in the menu design and innovation ($\mu=4.6087$), balance between lower cost and consumer benefit ($\mu=4.4783$), priority of customer's needs and wants ($\mu=4.3913$), providing cost advantage and high quality by participation of workers ($\mu=4.0870$), increasing menu options and choosing the best ($\mu=3.6522$), developing cooking and serving process ($\mu=2.9130$), menu developing based on profit target ($\mu=2.6087$), developing cooking process by eliminating all unnecessary activities ($\mu=2.4348$) based on 8 ranking subjects. 30% of catering firms purchase raw materials in cash and 70% in term of 45 days. 73.8% of the firms use vendor credit for purchasing raw materials (24 Firms), % 14.6 use short-term bank loans (15 Firms) and 3.8% of them also use financial resources of the partners (7 firms). The ways of reducing cost of raw materials as follows: to provide discount by buying in bulk ($\mu=4.9630$), to select seasonal menus ($\mu=3.7037$), supply directly from producers ($\mu=3.6667$), using their own supply sources ($\mu=1.4444$), shortening the term of the purchase ($\mu=0.9259$) and to extend term of the purchase ($\mu=0.3704$) based on 6 ranking subjects. Factors that increase raw material's cost of catering firms are; high prices in the market ($\mu=4.2963$), waste and spoilage ($\mu=1.7407$), problems arising with kitchen staff ($\mu=1.7407$), demand estimated failure ($\mu=1.4444$) and the low level of sales ($\mu=1.0741$) based on 5 ranking subjects. Participants consider that increase in food production inputs ($\mu=4.4231$), high profit expectation of suppliers ($\mu=3.3077$), price speculation in the market ($\mu=2.8846$), high profit expectation of food producers ($\mu=1.6154$), business ethic of suppliers ($\mu=0.8846$) and weak competition between suppliers ($\mu=0.7692$) cause increase in raw material's prices in the market (6 ranking subjects). Participants also consider that have their own supply company ($\mu=2.4444$), have good commercial relations with suppliers ($\mu=2.2593$), partnering with a supplier company ($\mu=0.8519$) and merger with a supplier company ($\mu=0.6296$) may be useful to decrease purchasing costs (4 ranking subjects). These results contribute research findings that inter-firm linkages and collaboration with suppliers may improve directly the performance of food and beverage processors as it induces cost savings (Grekova et al., 2016:1861).

In order to determine the ways of decreasing purchasing cost among firms, Anova was used in the study. Depending on central limit theorem, sample limit and sample size below 30 for each category based on independent variable, Kruskal Wallis non-parametric test is used in the interpretation of analysis results.

Research results indicate that there are statistically significant differences for decreasing supply cost between traditional working firms and backwards growth firms in the supply chain. The first difference is about perception of having own supply firm ($X^2=5.773$, $p=.016 < .05$). The mean rank value is 7.00 for backwards growing firms. This value is 13.00 for firms that working with suppliers in the supply chain. This result shows that the backwards-growing firms' representatives consider more important to have their own supply company in the supply chain. The second difference is about establishing good commercial

relations with suppliers ($X^2=4.076$, $p=.044<.05$). Catering firms that working with suppliers in traditional ways consider more importantly have good relation with suppliers. The mean rank value is 15.17 for backwards growth firms and 9.03 for traditional working firms. Depending on these results, it would be useful to consider a supplier’s collaboration capacity for traditional working firms. According to Hoof and Thiell (2014:239) characteristics of the firms and managers such as the firm’s sector, the number of participating managers and their profiles influence a supplier’s collaboration capacity. Difference for partnering with a supplier company ($X^2=.054$, $p=.817>.05$) and merger with a supplier company ($X^2=.750$, $p=.386>.05$) is not statistically significant. Some participants also did not answer the related question in the survey (Table 1).

Table 1: The ways of decreasing purchasing costs by using alternative distribution channels

<i>Factors</i>		<i>N</i>	<i>MR</i>	<i>df</i>	<i>X²</i>	<i>p</i>
Partnering with a supplier company	Backward growth firms	1	4,50	1	,054	,817
	Traditional working firms	8	5,06			
Have own supply firm	Backward growth firms	7	7,00	1	5,773	,016
	Traditional working firms	14	13,00			
Merger with a supplier firm	Backward growth firms	1	5,50	1	,750	,386
	Traditional working firms	6	3,75			
Good commercial relations with suppliers	Backward growth firms	3	15,17	1	4,076	,044
	Traditional working firms	16	9,03			

25.9% of catering firms (7 firms) are backwards growth firms and 74.1% (20 firms) are traditional working firms in the supply chain. As Richards and Pofahl (2009:1454) indicated that competitiveness effect of the vertical supply channel on food cost via prices, we tried to determine advantages and disadvantages of backward growth on industrial catering firm’s investment decisions in the study. Participants consider that advantages of backwards growth can be summarized in accordance of importance as follows: reducing raw material cost by eliminating suppliers in the supply chain ($\mu=6.2400$), reduction of dependence on suppliers ($\mu=3.8400$), ensuring the security of supply ($\mu=3.8000$), improving profitability and creating synergy by using partnerships between catering and supplier company ($\mu=3.7200$), ability to expand market and increase sales ($\mu=2.1200$), ability to decrease prices in the new businesses ($\mu=1.6800$) and ability to reduce risk in the supply chain as well as in the catering market ($\mu=1.5200$) based on 7 ranking subjects. The perception about the advantages of backwards growth is not statistically significant between firm’s representatives of backwards growth and traditional working firms in the supply chain. The perception of firm’s representatives about disadvantages of backwards growth as follows: difficulty in coordination and control ($\mu=3.6522$), increased financial risk ($\mu=2.3913$), failure to decompose both catering company and supplier company as

a separate profit center ($\mu=1.8689$), insensitivity of catering company to reduce supply cost ($\mu=1.5652$) and failure to take responsibility among both catering company and supplier company ($\mu=1.4783$).

In order to determine the results of firms' backward growth investment decisions in the supply chain, a scale is developed in the study. But we reached only 7 catering firms which had backward linkages from industrial catering through supply chain in the survey. Due to insufficient sampling, descriptive statistics were used in the study based on central limit theorem.

Table 2: Results of backward growth investment decisions

Propositions	Yes		No	
	n	%	n	%
Supply cost decreased	7	100	-	-
Inventory costs decreased	7	100	-	-
Stability and security of supply increased	5	71	2	29
Financial risk increased	7	100	-	-
Firm's market share increased	6	86	1	14
Firm's profit increased	5	83	1	17
Competitiveness of the firm increased	5	83	1	17
Menu development and innovation increased	6	86	1	14
Customer satisfaction increased	5	71	2	29
Coordination problem increased	5	71	2	29

Descriptive statistics show that 100% of backwards growth decision (7 firms) resulted decrease in supply cost and inventory cost. But it also resulted increase in financial risk (100%). 86% of participants consider that backward growth investment decision resulted increase in firm's market share and menu innovation, while 14% are not. 83% of them also indicated that this decision resulted increase in firm's profit and competitiveness, and 17% are not. 71% of the participants also consider that it resulted positively increase in security of supply and customer satisfaction, and negatively increase in coordination problems. 17% of remainders think that it resulted negatively decrease in security of supply and customer satisfaction, and no effect on coordination problems (table 2).

Finally, an open-ended question was asked to 27 participants which criteria should be considered in the backward growth. 14 participants answered the question. Three responses were excluded. Responses can be grouped as follows: investment profitability (4 response), adequacy of financial resources (3 response), the existence of market share (1 response), ensuring stability of supply (1 response), competitive effect of investment (1 response) and ensuring diversity in raw materials (1 response).

CONCLUSION

Reducing cost is the main drivers for both industrial catering firms and their suppliers. Research results indicate that industrial catering firms' customers use catering services for the reason of reducing cost, easy accessibility of catering services, in order to stay in core business and quality of catering services. Firm's representatives consider mostly market competition as powerful. Strong financial structure, market reputation, lower raw material cost, advertising advantage, innovation, lower labor cost, lower operational cost and managerial advantage are main priorities of firm's competitiveness in the sector. These results are consistent with studies in the literature (McKenna, 1990; Gul and Ergun, 2010; Feinstein, 2010; Fougere et al., 2010).

Nocke and White (2010:350) assume that capacity is the main determinants in the merger with a downstream firm. Depending on this phenomenon, average capacity usage is 66.6% in the industrial catering firms. Oversupply and increasing competition, rising input costs, limited market demand and economic bottlenecks are the main reasons for reducing capacity utilization. Capello et al. (2010:470) indicate that firms restrict their attractive investment projects when things go wrong. That is, reduction in capacity usage is one of the main indicators for canceling a valuable backward growth investment.

Cooper and Slagmulder (2004:46) state that targeting cost may be applied for cost reduction during product design. Our research results show that 85.2% of firms run new menu design and innovation activities. These firms focus on mainly using resources effectively, balance between cost and consumer benefit, customer's needs and participation of workers for cost reduction in the menu design and innovation. Research results have been revealed 73.8% of the firms use vendor credit for purchasing raw materials and % 14.6 of them use short-term bank loans. Research result shows that volume discount is the main driver for reducing cost of raw materials. Coomes (2008:16) indicates that volume discounts and purchasing products directly from food manufacturers is significant for a caterer. Our research results support this foresight. In accordance of importance, selecting seasonal menus, supplying directly from producers and using own supplier follow it.

According to Great Britain Health Minister, wastage is more common and problematic in the catering industry (Anonymous, 2006:7). Flexibility may be useful for solving the problem depending on demand estimation, customer returns information and comprehensive logistic system (Szymanski, 1995:43). Dora et al. (2016:1) state also that barriers in stock reduction, time reduction, improve on-time delivery, productivity and quality improvement depending on inherent characteristics of food industries such as quality assurance requirements, low shelf life of food products, and the extremely volatile demand and supply affect firm's performance. In parallel with these arguments, high prices in the market, wastage and spoilage, problems arising with kitchen staff, demand estimated failure and the low level of sales are the factors that increase raw material's cost of industrial

catering firms. Participants also consider that increase in food production inputs, high profit expectation of suppliers, price speculation in the market, high profit expectation of food producers, business ethic of suppliers and weak competition between suppliers increase food product prices in the market. Participants consider also that own supply company, good commercial relations with suppliers, partnering with a supplier company and merger with a supplier company may be useful to decrease food costs. Research results show also that there are meaningful differences about decreasing supply cost between backward growth firms and traditional working firms in the supply chain. Firstly, backward growth firm's representatives consider more important to have their own supply company in the supply chain. Secondly, catering firms that working with suppliers in traditional methods consider more importantly have good relations with suppliers.

According to Feinstein (2010:5) vertical merger may provide some opportunities such as decreasing cost, increasing market share, incentives of parties with regard to investment in new products and innovation. Our research result supports this argument. Participants consider that reducing food cost by eliminating suppliers, reducing dependence on vendors, ensuring security of supply, creating synergy by using partnerships between catering and supplier firms, expanding market share, decreasing prices in the new businesses and reducing risk in the supply chain are the advantages of backward growth. Despite that, difficulty in coordination and control, increasing financial risk, failure to decompose both caterer and supplier as a separate profit center, insensitivity of caterer to reduce food cost and failure to take responsibility among both caterer and supplier are the disadvantages of backward growth.

The importance of opportunities and threats of linking and merger for allocation of financial funds is very important in the investment decisions. Our research results indicate that backwards growth decision of firms resulted with increase in stability of supply, increase in competitiveness, increase in firm's market share, increase in financial risk, increase in firm's profit, increase in menu development and innovation. Backwards growth resulted also with decrease in food and inventory cost among vertically merger firms in the supply chain.

RESEARCH LIMITATION AND FUTURE WORKS

Deficiency about the classification of industrial catering business in the literature is the first limitation of the study. This deficiency has led to difficulties in the selection of the catering firms in the study. To remedy the problem, some criteria are taken into account in the selection of industrial catering firms such as having a meal production center, meal production contracted or negotiated with public organizations or private sector enterprises. The second limitation is related to reach backward growth firms. Obtaining data from limited number of backward growth firms has led to limited methods that can be used in data analysis.

Research findings indicate that backward growth investment decision resulted positively among industrial catering firms. Based on research results, backward growth may be argued as an alternative investment decision in order to reduce food cost among industrial catering firms. However, backwards investment decision carries high financial risk and coordination problems for industrial caterer. It is recommended that managers should be taken account the investment profitability, adequacy of financial resources and the existence of market share in the vertical merger in the supply chain. Comparing investment cost with purchasing cost is another aspect of backward growth investment decision.

The study contributes the literature by providing valuable findings in reduction of food cost via backward growth investment decision among industrial catering firms. Data gathered with limited backward growth firms is the main weakness of the survey. However, applying the survey on a greater amount of backward growth firms in the future studies will make the study findings more meaningful. It will also be useful to develop a more detailed scale depending on research results in future studies.

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