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The Effects of Transactional Barriers on the Effectiveness of a Firm's Competitive Strategy

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Abstract. *Extant literature has shown that firms' decisions can exert a bearing on the effectiveness of their competitive strategy. This paper seeks to extend this body of literature by demonstrating how and under what circumstances a firm's decision about transactional barriers, which it can impose on its customers, can impact the degree to which it can effectively deploy its competitive strategy in realizing its maximum possible profits. The study's main findings demonstrate that at equilibrium, the size of the set transactional barrier is on average inversely related to the effectiveness of the firm's competitive strategy, holding constant the consumers' income and other factors. Furthermore, the effectiveness of the firm's competitive strategy in attaining the firm's optimal profits is jointly and individually enervated by the price elasticity of the firm's product demand and the size of the transactional barrier that it imposes on its customers. Additionally, the effectiveness of the firm's competitive strategy tends to be maximized as the size of the transactional barrier tends to be zero. Therefore, the findings in this paper suggest that under the assumptions of the model in this paper, the optimal size of a transactional barrier to be imposed by a firm, in the service industry, should be zero.*

Keywords: Competitive Advantage, Transactional Barriers, Business Strategy Effectiveness

JEL Codes: M20, M21

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1. Introduction

In a plethora of prominent markets, suppliers impose a one-time cost, in addition to and different from the price paid for the goods sold by the supplier, that potential buyers must bear before they are allowed to execute a trade with the supplier. This one-time cost could surface in many



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forms. It could be a membership fee, a subscription, a minimum order quantity, or a minimum account balance that must be met before the buyer is afforded the privilege of participating in the special values offered by the supplier in the market. In this paper, this one-time cost is denoted as a transactional barrier, which is analogous to an entry barrier that exists on the supply side. This study considers the one-time cost to be a barrier because if it is high enough, it will exclude some customer groups from transacting with the firm introducing such a cost (Kongarchapatara & Shannon, 2014).

There are numerous noteworthy cases of such a market situation. However, a few examples will be mentioned in this paper. Zenith International Bank PLC, a commercial bank domiciled in Nigeria, currently proposes to its customers two special account offerings, including the Zenith Bank Gold Account and the Zenith Bank Platinum Account. Both of these accounts require customers to hold a minimum balance of one million and three million naira respectively and in turn, the Bank furnishes the holders of such accounts with exclusive benefits (Zenith Bank, 2022). Sam's Club, a retail and wholesale giant in America, specifies a membership fee for its customers and in return, it provides the opportunity for the customers to buy at lower prices among other competitive offerings (Sam's Club, 2022). Amazon.com, an e-commerce behemoth in America, imposes an annual subscription on its prime customers and in return provides a free two-day delivery on millions of its inventory (Amazon.com Inc, 2022). Some authors would view a transactional barrier (as defined in this paper) as a form of competitive strategy, for instance, Liu & Yang (2009) asserted that loyalty programs can enable an industry to achieve a competitive advantage over substitutes. However, this paper argues that a transactional barrier falls short of a competitive strategy given that it does not in itself confer a competitive advantage to a firm and also that it lacks uniqueness as required of a competitive strategy (Porter, 1980). A case in point is the competitive strategy of Sam's Club, which is centered around a unique positioning involving cost leadership and a low-price value proposition (Team,2014). This unique positioning is separable from the membership fee it imposes on some of its customers to grant them access to the complete package of its offerings.

1.1 Research questions

The above analysis triggered the research questions below:

- What would be the extent of the firm's performance in the absence of a transactional barrier?
- how large should the optimal size of a transactional barrier be without undermining the efficacy of the firm's competitive strategy?

1.2 Research objectives

This paper seeks to demonstrate that the decision of a firm to impose a transactional barrier on its customers can affect the effectiveness of the firm's competitive strategy as well as its ability to utilize its business strategy to make profits in specific ways, and under certain circumstances.



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1.3 Contribution of the study

The study contributes to the growing body of knowledge on the factors that impact the effectiveness of a firm's competitive strategy. In order to measure the effectiveness of the competitive strategy, we substitute for it by using the firm's profit in line with the findings of Porter (Porter, 1980) that firms create a competitive advantage by formulating and implementing a competitive strategy. The study also harmonises with Majeed (2011) that a firm's capacity for developing a competitive advantage is fundamental to accomplishing extraordinary firm performance in terms of profitability and revenue growth. The paper is also in support of Dey (2009) position that for a firm to remain competitive, it must strive to create a greater value for its customers and should search for strategies and tactics to maximize profit.

1.4 Structure of the paper

The next section of the paper will elaborate on extant theories and the assumptions that would provide a foundation for the study as well as delineate the framework of the model and provide detailed theoretical analysis. In section three, the paper presents its main results and proposes a few hypotheses. Section four will discuss the findings of the study and finally, section five presents the conclusion.

2.0 Theoretical foundation

2.1 Literature Review on the Factors Affecting the Effectiveness of a Firm's Competitive Strategy

A firm's competitive strategy could be shaped by numerous variables and several studies have been implemented to ascertain those factors that could affect a firm's competitive strategy. Shurchuluu (2002) demonstrated that globalization affects the competitive strategies of firms on a national level. Markgraf (2019) highlighted a number of factors affecting a firm's competitive strategy, including general transformations in the business ecosystems and more specifically, the need for a firm to find new suppliers when existing suppliers go out of business or change their strategy; a firm's existing products becoming obsolete when more advanced products come into existence in the wake of technological developments; and a firm's existing and potential competitors adopting a new strategy.

Choices about product quality could have enduring effects on the subsistence of a firm's competitive strategy. Yalcin (2012) analyzed how quality decisions are generated and their impact on strategic marketing variables including advertising as well as pricing and established that although competition frequently motivates firms to overinvest in quality and set prices that are lower relative to a monopolist media firm, there exist circumstances in which competition brings about a selection of lower quality and higher prices. Zineldin (2005) demonstrated that customer



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relationship management and product quality management contributed to strengthening the competitive strategy of Swedish banks.

A plethora of theories demonstrate that an absence of organizational agility at the center of a firm's capabilities can be immensely detrimental to the sustenance of a firm's competitive strategy. Elali (2021) highlighted that in turbulent markets, organizational agility supports a firm's ability to respond to threats and opportunities by improving its product innovation competencies. Saha et al. (2020) specified that organizational agility enhances a firm's creativity in responding to an expeditiously changing business ecosystem. Shrahrabi (2012) specified that in a perpetually transformative business ecosystem, organizational agility permits the firm to exploit threats and opportunities in the environment, possibly leading to growth. Joiner (2019) posited that by concentrating on enhancing its organizational and leadership agility, an organization that attempts to participate in a competitive market can potentially achieve a revolution in a constantly transformative and ambiguous environment. Brueller, Carmela & Drori (2014) specified that the diverse systems of mergers and acquisitions including platform and bolt-on acquisitions can supplement organizational agility in diverse approaches along distinct time horizons and that given the right managerial capabilities, acquisitions are in a position to facilitate the consistent accumulation of the competencies that are central to organizational agility.

Organizational learning can potentially impact a firm's competitive strategy. Halawi, McCarthy, & Aronson (2006), posited that knowledge management has a significant effect on the competitive strategies of firms. Argote & Miron-Spektor (2011) posited that exploiting organizational learning can be beneficial to a firm in its efforts to develop and implement an effective strategy. Locke and Jain (1995) specified that organizational learning facilitates projects of continual development. Altinay et al (2016) emphasized that there exists a promising relationship between organizational learning and entrepreneurial positioning in addition to a valuable relationship between entrepreneurial positioning and growth in an organization's market share. Azizi (2017) showed that organizational learning favorably impacted the organizational attainments of Insurance companies in Tehran. McKee (1992) investigated product novelty as an organizational learning campaign and showed that diverse groups of organizational learning capacities are connected to piecemeal innovation, erratic innovation, and incorporation of novelty within the organization.

Capital structure can have significant consequences for the effectiveness of the firm's competitive strategy. Several researchers have demonstrated that capital structure is a determinant of firm profitability, which in turn evolves from an effective competitive strategy, across both industries and jurisdictions. Birru (2016), Chinaemerem & Anthony (2012), and Maina & Ishmail (2014) demonstrated that capital structure plays a vital role in the financial performance of commercial banks when performance is assessed by either return on assets (ROA) or return on equity (ROE). Obu (2022) established that the optimal capital structure of an industry is a determinant of its profitability. This preeminence of firm capital structure in the determination of corporate



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profitability is consistent with the recommendation of Myers (1974) for the necessity for firms to concurrently make organizational financing and investment choices.

2.2 Literature Review on the Commercial Transactional Barriers

Several authors have attempted to establish a connection between transactional barriers in the form of membership fees or subscriptions on one hand and competition as well as customer satisfaction on the other hand. Baxter (2015), Kim, Vogt, & Knutson (2016), and Tommy (2020) demonstrated that the economic value of subscription-based loyalty programs, in the presence of other considerations, had the most effect on customers' behavior and satisfaction. Wen & Lin (2017) found that membership-fee-free-shipping (MFS) organizational programs lead to a mitigation of price rivalry. Jang, Mattila & Bai (2007) found that elevated degrees of regret were perceived when a greater membership fee had been paid and when competitors furnished a superior service or a lesser membership payment. However, these studies make an implicit assumption that the effectiveness of the firms' competitive strategy may remain untainted in the face of changing competition and customer satisfaction emanating from the consequences induced by the effects of transactional barriers. Therefore, this study will make good this deficiency by examining the potential impact of transactional barriers on the efficacy of a firm's competitive strategy.

Thus, in a nutshell, while a diverse range of factors have been established as capable of underlying the effectiveness of a firm's competitive strategy as shown above, this paper seeks to extend this body of knowledge by theoretically establishing the role of transactional barriers in the determination of a firm's competitive strategy. To move forward, the study sets up a model under certain assumptions and quantitatively analyzes the model to determine the firm's optimal profitability performance given the incentives and behavior of the model's economic agents.

3.0 The Model Framework

In this model, economic agents include consumers and firms, and they live for one period. They seek to maximize their utility and profitability, respectively, subject to prevailing constraints. The firm operates in an industry characterized by strategic interactions and consists of two categories of firms including firm A and firm O, where firm A is the representative firm in our model, and firm O represents all other firms in the industry. There are two groups of competing products, including product A, which is offered by firm A and product O, which is offered by all other firms, firm O. A real-life example is in the American e-commerce industry, where Amazon.com offers free delivery to its prime customers and practically all other firms offering e-commerce services charge a delivery fee. These two categories of products are also differentiated along other dimensions and they are imperfectly substitutable in consumption.



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Therefore, each firm in the industry faces an inverse or a downward-sloping demand curve for its good or product, nevertheless, the situation of the demand curve is dependent upon the features and prices of the other imperfectly substitutable products generated by other firms.

This study assumes that consumers demand for these differentiated products according to the love-of-variety approach or principle and as a result each consumer has a demand for multiple differentiated products over time. In the subsequent paragraphs, the essay will provide a more detailed description about the assumptions of each of the economic agents and undertake a quantitative analysis of the model. A description of all variables used in this study is provided in Appendix I.

3.1 Model Assumptions

3.1.1 Consumer Behavior

This study makes the following assumptions about the archetypical consumer in this model. The market is dominated by a unit mass of consumers and/or customers, who have a similar preference ordering of products that are made available for sale at the same price. All consumers prefer more quantity or quality to less but are not homogenous in their proclivity to pay for the attributes or offerings that they care about.

The goal of the consumer, who exhibits a love-of-variety, is to maximize their utility from the consumption of goods x_A and x_O and so possesses the utility function represented as follows:

$$U(x) = \frac{1}{1-b} x_A^{1-b} + \frac{1}{1-b} x_O^{1-b}$$

Subject to their income constraint

$$Y = p_A x_A + x_O + F_A,$$

Where, F_A is the transactional barrier that is associated with purchasing good x_A , P_A is the price of a good x_A and the price of good x_O is normalized to one.

To execute a transaction with firm A, the consumer has to pay a one-time fee, F_A , which is valid for a specified time, and also pays a recurring price, p_A for the quantity of goods demanded, x_A , whenever he chooses to buy from firm A.

This paper seeks to establish the consumers' optimal demand by applying the Lagrangean theorem, given their constraints as follows.



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$$L(x_A, x_o, \mu) = \frac{1}{1-b} x_A^{1-b} + \frac{1}{1-b} x_o^{1-b} + \mu(Y - p_A x_A - x_o - F_A)$$

The first order conditions are as follows:

$$\frac{\partial L}{\partial x_A} = x_A^{-b} - p_A \mu = 0 \quad (1)$$

$$\frac{\partial L}{\partial x_o} = x_o^{-b} - \mu = 0 \quad (2)$$

From equation (1), an expression for the optimal demand of the consumer for good x_A can be demonstrated in terms of the Lagrangean multiplier as follows:

$$x_A^{-b} = p_A \mu$$

$$x_A = (p_A \mu)^{\frac{-1}{b}} \quad (3)$$

Analogously, from equation (2), an expression for the optimal demand of the consumer for good x_o can be demonstrated in terms of the Lagrangean multiplier as follows:

$$x_o^{-b} = \mu$$

$$x_o = \mu^{\frac{-1}{b}} \quad (4)$$

By substituting for x_A and x_o in the income constraint equation from equations (3) and (4), the following expression can be deduced.

$$Y = p_A (p_A \mu)^{\frac{-1}{b}} + \mu^{\frac{-1}{b}} + F_A$$

$$Y - F_A = ((p_A)^{\frac{b-1}{b}} + 1) \mu^{\frac{-1}{b}}$$

$$\mu = \left(\frac{Y - F_A}{((p_A)^{\frac{b-1}{b}} + 1)} \right)^{-b}$$

$$\mu = \left(\frac{((p_A)^{\frac{b-1}{b}} + 1)}{Y - F_A} \right)^b \quad (5)$$



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Equation (5) is the optimized Lagrange multiplier. Substituting for the multiplier in equations (3) and (4) on the basis of equation (5), the optimal demand for goods x_A and x_o can be depicted as shown below in equations (6) and (7).

$$x_A = \left(P_A \left(\frac{((P_A)^{\frac{b-1}{b}} + 1)}{Y - F_A} \right)^b \right)^{\frac{-1}{b}}$$

$$x_A = \frac{Y - F_A}{P_A^{\frac{1}{b}} ((P_A)^{\frac{b-1}{b}} + 1)} \quad (6)$$

$$x_o = \left(\frac{((P_A)^{\frac{b-1}{b}} + 1)}{Y - F_A} \right)^{-1}$$

$$x_o = \frac{Y - F_A}{((P_A)^{\frac{b-1}{b}} + 1)} \quad (7)$$

3.1.2 Firm Behavior

This study makes the following assumptions about the representative firm in this model. The firm faces a downward-sloping demand curve and can set a price, $p_A(q)$, which is a determinate function of the quantity demanded.

Firm A operates in an industry in which there is strategic interaction among the existing and/or potential players. Firm A considers the value proposition and competitive strategy of Firm O. As a result, Firm A seeks to offer the consumers of its products some special privileges and/or a higher value than provided by its competitors without charging a proportionately higher price. One approach it adopts in order to achieve this is to impose a transactional barrier or a fixed one-time fee per period of time in addition to the price that is paid for the product per unit purchased.

Specifically, the firm enforces a one-time fee, F_A , which is valid for a specified period, and also requires consumers to pay a recurring price, $P_A(q)$, for the quantity of goods demanded, x_A , whenever they choose to buy from firm A.

Therefore, the total revenue of the firm is equal to: $F_A + p_A(q)q$



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In a bid to prevent abuse of the special privileges and/or higher value offered, firm A puts in place a maximum order constraint to be denoted as Q_M . Let the maximum order quantity, $Q_M = q + s$, where q = the quantity of goods ordered by customers and s = the slack in the quantity ordered, which is the difference between the maximum order quantity and the actual quantity of goods ordered.

These assumptions are predicated on facts and anecdotal evidence about the commercial practices of some firms. For example, Amazon.com, an online retailer of general merchandise, requires a certain category of customers, known as prime customers, to pay a yearly membership fee and as a reward, this customer group enjoys the benefit of free delivery on all their orders. However, Amazon.com expects the prime customers to demonstrate responsibility with their orders and not to abuse the privilege of free delivery. Prime customers at Amazon.com are expected not to excessively order goods. However, unsurprisingly some customers do deviate from this expectation and in response they are forbidden by Amazon.com from participating in purchasing from their website. This paper argues that the tendency of Amazon.com to impose a trade ban on its customers who abuse their Prime membership privileges is akin to placing a maximum order limit on the customers.

This study makes the following assumptions about the nature of costs incurred by the firm. Costs are incurred by firms to develop products. To incorporate this in the framework of the model, the study assumes that the cost function is increasing and concave in the level of quality chosen by firms. Firms incur costs in the production of their goods and in providing additional special privileges to the consumer. These costs are denoted as C_g and C_Q respectively per unit of quantity ordered.

This study goes further to assume that the cost of fulfilling an order per unit, C_Q , is established by the firm by apportioning the one-time cost it charges customers over the maximum order quantity. Therefore, it can be stated that the cost of fulfilling an order, C_Q , per unit of quantity demanded by consumers is equal to the following.

$$C_Q = \frac{F_A}{Q_M}$$

This study further assumes that firm A operates at the most efficient level possible. The output of the firm is directly proportional to the set one-time fee, F_A . This assumption can be represented quantitatively as follows.

$$q = \frac{1}{z} F_A^z, \text{ where } z \text{ is a parameter and } 0 \leq z \leq 0.5$$



3.1.3 Optimal One-time Fee (Transactional Barrier)

The goal of the firm is to maximize the wealth of its shareholders by maximizing the profits of the firm. The firm's problem is to ascertain the optimal amount of a one-time fee (the optimal size of the transactional barrier), F_A , which is required to enhance its competitive strategy in a bid to maximize its profits, which is represented by the profit function shown below.

$$\pi_A = NF_A + p_A(q)q - C_g q - C_Q q,$$

$$\pi_A = NF_A + p_A\left(\frac{1}{z} F_A^z\right) \frac{1}{z} F_A^z - C_g \frac{1}{z} F_A^z - C_Q \frac{1}{z} F_A^z$$

where, π_A is the profit function of firm A and N is the number of consumers ordering the firms' product in a specific time.

The first-order condition of the profit maximization problem is as follows:

$$\frac{\partial \pi_A}{\partial F_A} = N + \left(\frac{\partial P_A}{\partial q}\right) \left(\frac{1}{z} F_A^z\right) F_A^{z-1} + p_A(q) F_A^{z-1} - C_g F_A^{z-1} - C_Q F_A^{z-1} = 0 \quad (8)$$

$$N + \left(\frac{\partial P_A}{\partial q}\right) q F_A^{z-1} + p_A(q) F_A^{z-1} - C_g F_A^{z-1} - C_Q F_A^{z-1} = 0$$

$$N = C_g F_A^{z-1} + C_Q F_A^{z-1} - \left(\frac{\partial P_A}{\partial q}\right) q F_A^{z-1} - p_A(q) F_A^{z-1}$$

$$F_A^{z-1} = \frac{N}{(C_g + C_Q - \left(\frac{\partial P_A}{\partial q}\right) q - p_A(q))}$$

Therefore, the optimal amount for a one-time fee can be expressed as follows.

$$F_A = \left(\frac{N}{(C_g + C_Q - \left(\frac{\partial P_A}{\partial q}\right) q - p_A(q))} \right)^{\frac{1}{z-1}} \quad (9)$$

The second order condition for the maximization problem is as follows:

$$\frac{\partial^2 \pi_A}{(\partial F_A)^2} = \left(\frac{\partial P_A}{\partial q}\right) (2z - 1) \left(\frac{1}{z} F_A^{2z-2}\right) + (z - 1) p_A(q) F_A^{z-1} - (z - 1) C_g F_A^{z-1} - (z - 1) C_Q F_A^{z-1} \quad (10)$$



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The second order condition is negative, confirming the fact the existence of an optimal one-time fee that maximizes the profit.

3.1.4 Optimal Output and Price

The firm also seeks to determine the optimal output that maximizes its profits holding constant the optimal one-time fee, F_A , determined in the previous section.

As usual, an expression for the profit function can be expressed as shown below.

$$\pi_A = NF_A + p_A(q)q - C_gq - C_Qq,$$

where, π_A is the profit function of firm A and N is the number of consumers ordering the firm's product in a specific period.

The first-order condition for the profit maximization problem is as follows.

$$\frac{\partial \pi_A}{\partial q} = p_A(q) + \left(\frac{\partial p_A}{\partial q}\right)q - C_g - C_Q = 0 \quad (11)$$

$$p_A(q) + \left(\frac{\partial p_A}{\partial q}\right)q - C_g - C_Q = 0$$

$$\left(\frac{\partial p_A}{\partial q}\right)q = C_g + C_Q - p_A(q)$$

The optimal output that maximizes the firm's profitability is shown below.

$$q = \frac{C_g + C_Q - p_A(q)}{\frac{\partial p_A}{\partial q}} \quad (12)$$

Also, from equation (11), the following can be deduced.

$$p_A(q) + \left(\frac{\partial p_A}{\partial q}\right)q = C_g + C_Q$$

$$p_A(q) \left(1 + \left(\frac{\partial p_A}{\partial q}\right)\frac{q}{p_A}\right) = C_g + C_Q$$

Analogously, the optimal price that maximizes the firm's profitability is shown below.



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$$p_A(q) = \frac{C_g + C_Q}{\left(1 + \left(\frac{\partial P_A}{\partial q}\right) \frac{q}{P_A}\right)}$$

The study had earlier assumed that $C_Q = \frac{F_A}{Q_M}$, therefore generating the following equation.

$$p_A(q) = \frac{C_g + \frac{F_A}{Q_M}}{\left(1 + \left(\frac{\partial P_A}{\partial q}\right) \frac{q}{P_A}\right)} \quad (13)$$

3.1.5 Materials Equilibrium Condition

Our model conforms with the requirements of the materials balance condition which stipulates that “the amount consumed of any commodity i must not exceed the total production of commodity i plus existing stock of commodity i ” (Cowell, 2006).

Expressed quantitatively, the following results.

$$x_i \leq q_i + R_i$$

Where x_i is the optimal demand by consumers of commodity i , q_i is the optimal output of commodity i and R_i is the existing stock of commodity i .

This study assumes that the existing stock of commodity A for firm A is zero. Thus, the materials balance condition for product A can be established as follows.

Given the study’s assumptions about the resources stock, the following expression can be established.

$$x_i = q_i$$

$$x_A = \frac{Y - F_A}{P_A^{\frac{1}{b}} \left((P_A)^{\frac{b-1}{b}} + 1 \right)} \quad \text{and}$$

$$q_A = \frac{C_g + C_Q - p_A(q)}{\frac{\partial P_A}{\partial q}}$$

Therefore, the following expressions can be stated.



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$$\frac{Y - F_A}{P_A^{\frac{1}{b}}((P_A)^{\frac{b-1}{b}} + 1)} = \frac{C_g + C_Q - P_A(q)}{\frac{\partial P_A}{\partial q}}$$

$$\frac{P_A(q) - C_g - C_Q}{\frac{\partial P_A}{\partial q}} = \frac{F_A - Y}{P_A^{\frac{1}{b}}((P_A)^{\frac{b-1}{b}} + 1)}$$

$$P_A(q) - C_g - C_Q = \frac{\frac{\partial P_A}{\partial q}(F_A - Y)}{P_A^{\frac{1}{b}}((P_A)^{\frac{b-1}{b}} + 1)}$$

$$P_A(q) - C_g - C_Q = \frac{\frac{\partial P_A}{\partial q} \frac{q}{P_A}(F_A - Y)}{\frac{1}{q} P_A^{\frac{1}{b}}((P_A)^{\frac{b-1}{b}} + 1)}$$

$$P_A(q) - C_g - C_Q = \frac{\left(\frac{\partial P_A}{\partial q} \frac{q}{P_A}\right)(F_A - Y)}{P_A^{\frac{1-b}{b}} q((P_A)^{\frac{b-1}{b}} + 1)}$$

$$P_A(q) - C_g - C_Q = \frac{\left(\frac{\partial P_A}{\partial q} \frac{q}{P_A}\right)(Y - F_A)}{q(P_A^{\frac{1-b}{b}} - 1)}$$

$$F_A + P_A(q) - C_g - C_Q = \frac{\left(\frac{\partial P_A}{\partial q} \frac{q}{P_A}\right)(Y - F_A)}{q(P_A^{\frac{1-b}{b}} - 1)} + F_A$$

$$F_A + P_A(q) - C_g - C_Q = \frac{\left(\frac{\partial P_A}{\partial q} \frac{q}{P_A}\right)(Y - F_A) + qF_A(P_A^{\frac{1-b}{b}} - 1)}{q(P_A^{\frac{1-b}{b}} - 1)}$$

$$\pi_A = \frac{\left(\frac{\partial P_A}{\partial q} \frac{q}{P_A}\right)(Y - F_A) + qF_A(P_A^{\frac{1-b}{b}} - 1)}{q(P_A^{\frac{1-b}{b}} - 1)}$$

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4.0 Main Results

4.1.1 Proposition I

Incorporating a transactional barrier into a firm's value proposition and/or marketing strategy necessitates that the firm achieves the highest level of efficiency possible given its level of product differentiation or form of competitive strategy in order to attain its maximum profits.

This proposition follows from the results of the optimization analysis in equation (9) and is restated below as follows.

$$F_A = \left(\frac{N}{(C_g + C_Q - \left(\frac{\partial P_A}{\partial q}\right)q - p_A(q))} \right)^{\frac{1}{z-1}}$$

In order to pull a large number of customers, the firm needs as low a one-time fee as possible because it faces a downward-sloping demand curve, signifying that the customers prefer lower prices to higher prices. Therefore, it needs to achieve the lowest cost possible for the one-time fee given that the optimal one-time fee is increasing in the total costs of the goods sold as demonstrated in equation (9) above.

4.1.2 Proposition II

At equilibrium, the price that maximizes the firm's profitability is increasing in the size of the transactional barrier for the chosen level of quality but decreases in the product demand elasticity.

This proposition follows from the result of our optimization analysis in equation (13) and is restated below.

$$p_A(q) = \frac{C_g + \frac{F_A}{Q_M}}{\left(1 + \left(\frac{\partial P_A}{\partial q}\right)\frac{q}{P_A}\right)}$$

The result implies that a firm seeking to compete with low prices must also set a low transactional barrier. Moreover, a firm whose products have a high product demand elasticity is not able to charge prices that are higher than those of the competitors.



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4.1.3 Proposition III

At equilibrium, the smaller the size of the transactional barrier concerning the consumers' income, the more effective is the firm's competitive strategy in achieving the maximum profits possible.

This proposition follows from the result of our optimization analysis in equation (14) and is restated below.

$$\pi_A = \frac{\left(\frac{\partial P_A}{\partial q} \frac{q}{P_A}\right)(Y - F_A) + q F_A \left(P_A^{\frac{1-b}{b}} - 1\right)}{q \left(P_A^{\frac{1-b}{b}} - 1\right)}$$

This would imply that a firm seeking to maximize its profits should set the transactional barrier to the smallest feasible level.

4.1.4 Proposition IV

The effectiveness of the firm's competitive strategy in realizing the firm's profit potential is decreasing and/or undermined by the magnitude of the combination of the firm's product demand elasticity and the size of the transactional barrier it imposes on its customers.

This proposition follows from the result of our optimization analysis in equation (14) and is restated below.

$$\pi_A = \frac{\left(\frac{\partial P_A}{\partial q} \frac{q}{P_A}\right)(Y - F_A) + q F_A \left(P_A^{\frac{1-b}{b}} - 1\right)}{q \left(P_A^{\frac{1-b}{b}} - 1\right)}$$

One implication of this proposition is that a higher profitability or a more effective competitive strategy would result from a lowering of the size of the transactional barrier for a given level of firm product quality.



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5. Discussions

Overall, in consistency with other related studies, this study has shown that firm's choices and behavior can spell significant outcomes for the actualization of its business strategy. In the first assumption outlined above, the deduction reached was that incorporating a transactional barrier into a firm's value proposition and/or marketing strategy necessitates that the firm achieves the highest level of efficiency possible, given its level of product differentiation or form of competitive strategy to attain its maximum profits. This is consistent with the proposition of Porter (1980) that a firm pursuing a differentiated strategy must also seek to minimize its cost, while a firm pursuing a cost leadership strategy must also strive to enhance the quality offerings of its products.

The second assumption arrived at in this study is that at equilibrium, the price that maximizes the firm's profitability is increasing in the size of the transactional barrier for the chosen level of quality but decreasing in the price elasticity of product demand. This is consistent with the findings of Kongarchapatarara, & Shannon (2014) and should be expected because a larger size of a transactional barrier will lower demand in line with the law of demand and supply, necessitating higher prices to achieve the same level of profits as would be achievable with a lower price and corresponding bigger quantity demanded.

Additionally, this study hypothesized that at equilibrium, the smaller the size of the transactional barrier in relation to the consumer's income, the more effective is the firm's competitive strategy in achieving the maximum profits possible. Finally, this paper theorizes that the effectiveness of the firm's competitive strategy in realizing the firm's profit potential is decreasing and/or undermined by the magnitude of the combination of the price elasticity of the firm's product demand and the size of the transactional barrier it imposes on its customers. Overall, the above-stated results suggest that under the assumptions of the model in this paper, a firm, whose products possess a high price elasticity of demand, may likely achieve a superior performance if the size of the transactional barrier it imposes is close to zero.

One reason that may provide a grounding for the plausibility of these findings is the proclivity for transactional barriers to instituting some form of loyalty among customers by developing a more close-knitted and long-lasting relationship between the firm and its customers (Baxter, 2015; Meyer-Waarden, 2008; Sharp & Sharp, 1997; & Yi & Jeon, 2003). A more reliable relationship between a firm and its customers would suggest a greater capacity for the firm to be efficient. An additional factor that may account for the veracity of these findings is the greater tendency for firms that adopt MFS organizational programs, which impose a membership fee but offer free shipping, to possess a more extensive pricing band than other firms that do not (Wen & Lin, 2017). Several other research works corroborate the findings in this study. Wen & Lin (2017) found that MFS organizational programs lead to a mitigation of price rivalry. Menezes-Filho (1997) showed that demand elasticities possess a substantial and concrete effect on the profitability of firms in the UK. Jang, Mattila & Bai (2007) found that elevated degrees of regret were perceived when a greater membership fee had been paid and when competitors furnished a superior



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service or a lesser membership payment. They further posited that notwithstanding, customers were less willing to visit other restaurants that proffered membership programs in situations where the membership fee was low. These tendencies for transactional barriers to weaken price competition or strengthen customers' loyalty to associated firms suggest the existence of an embedded capability in transactional barriers to enhance a firm's profitability and therefore the effectiveness of the firm's competitive strategy.

This study goes further to illustrate the empirical relevance and furnish some experiential evidence for the propositions of this research work by examining international empirical cases for firms in the service industry, including the cases of Zenith International Bank Plc, a banking entity domiciled in Nigeria and Amazon.com Inc, a retail behemoth located in the United States of America for the periods ranging from the time of the incorporation of these companies or from 1990 and 1994 respectively till date.

Firstly, this study examines the case of **Zenith International Bank Plc**, which is currently the biggest bank by market capitalization and also the most profitable bank in Nigeria (Oyekanmi, 2022). From an interview with a few managerial executives at Zenith Bank, the study learned that when Zenith International Bank was founded in 1990, it sought to alleviate the sufferings of customers who had before then spent long hours in queues at a traditional Nigerian bank, to execute a simple banking transaction. Zenith bank achieved this by pioneering the use of computers as well as online, namely real-time banking in the Nigerian banking industry and substantially reduced customer waiting times. As a result, it quickly began to capture a large share of the market. However, to be able to manage the huge patronage with which customers welcomed its innovation, it introduced a minimum balance for opening accounts. At a time, a new customer must have an initial deposit of more than two hundred thousand naira to be able to begin banking business with Zenith Bank. To put it in perspective, the average worker in Nigeria at the time had an annual salary below two hundred thousand naira per annum. Thus, banking services at Zenith Bank were essentially out of the reach of the average person in Nigeria at that time. Zenith Bank Plc effectively implemented a transactional barrier. At the onset of its business, Zenith Bank's services had a low product demand elasticity as its loyal customers had no alternative provider of the unparalleled banking culture nurtured by Zenith Bank. Therefore, Zenith Bank's competitive strategy of product differentiation was very effective because the magnitude of the combination of the bank's product demand elasticity and the transactional barrier it imposed on customers was low owing to the low product demand elasticity. This is consistent with our postulation in proposition III in this paper. However, as other banks braced up to the competitive offerings of Zenith Bank, the price elasticity of demand of Zenith Bank's offerings became high, compelling the bank to introduce a zero-opening-balance account is consistent with our conclusion in this paper that firms, whose products are characterized by a high price elasticity of demand, might possess a greater likelihood of attaining superior performance in the absence of no transactional barriers.



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Finally, this study evaluates the case of **Amazon.com Inc**, which is the largest e-commerce store and provider of online retail services in the United States. The e-commerce behemoth is predominantly present in the United States and Western Europe. It was founded in 1994 and is arguably one of the first companies to sell merchandise over the Internet and outside of traditional brick-and-mortar stores. Its performance in terms of annual revenue was not very stellar until it introduced the Amazon Prime subscription in 2005. As at the time Amazon Prime was inaugurated in 2005, it was presented as a yearly membership and furnished members paying 79 USD a year with free two-day delivery on more than 1 million of Amazon's distinct products (Shatzkin, 2017). Currently, Amazon Prime members are required to pay 99 USD a year and get entitled to free two-day shipping on about 15 million of Amazon's different products (Shatzkin, 2017). In essence, Amazon.com has effectively implemented a transactional barrier that customers must overcome if they must be granted the special privilege of free two-day delivery. Amazon Prime customers were over 200 million as at April 2021 across 22 countries (Swindells, 2022). A subscription of 99 USD is less than the daily income of the average worker in economies where Amazon.com is operational. It is possible to relate the monumental success of the Amazon Prime subscription and draw a line of connection between the impact of the small size of the transactional barrier imposed by Amazon.com in relation to the average annual income of an Amazon Prime customer to our assertion in proposition II, where it was stated that at equilibrium, the smaller the size of the transactional barrier in relation to the consumer's income, the more effective is the firm's competitive strategy in achieving the maximum profits possible. In 2017, Amazon.com Inc acquired Whole Foods, a brick-and-mortar store and upscale retailer, operating outlets in the mostly prosperous neighborhoods in the United States of America (Wingfield and De La Merced, 2017). It is believed that the acquisition enabled Amazon.com to get closer to its customers, thereby lowering its delivery costs. Before the acquisition of whole foods, Amazon.com's net income percentage margin (net income as a percentage of revenue) was less than or equal to 1.7%. In the aftermath of the acquisition of Whole foods, the net income percentage margin had risen to above 4% (Fusion Media Limited, 2022). So, one can conclude that by lowering its shipping cost or fulfillment costs, Amazon improved its efficiency and therefore its profitability, consistent with our assertion in Proposition I.

Finally, it should be noted that a key challenge in implementing transactional barrier programs is the ability of the firm to retain subscribers to such programs. Omar, Musa, Wel, & Aziz (2012) showed that membership retention in loyalty programs can be a challenge and resolving this may require offering high-value benefits and segmenting customers more effectively in a bid to ameliorate members' retention and profitability of firms. For firms that successfully segment their customers, Kongarchapatara, & Shannon (2014) demonstrated that the typical purchases prior to and subsequent to being in the upper segment or tier are substantially divergent. These findings seem to validate the conclusion of this study that firms, whose products are characterized by a high price elasticity of demand, might possess a greater likelihood of attaining superior performance in the absence of no transactional barriers.



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6.0 Conclusion

This study sought to identify and examine how a firm's choice with respect to the imposition of transactional barriers on its customers could impact the effectiveness of its competitive strategy. This was executed in a bid to extend the body of knowledge on factors that affect business strategy effectiveness. In the study, an economic analysis was conducted taking into consideration certain assumptions that apply to a firm operating in a market that is characterized by some level of strategic interactions among the players. The study, which executed an examination of the optimizing behavior of economic agents, in the model applied, engendered some deductions about how transactional barriers could impact the efficacy of competitive strategy. The most important findings are stated as follows. Firstly, at equilibrium, the smaller the size of the transactional barrier in relation to the consumer's income, the more effective is the firm's competitive strategy in achieving the maximum profits possible. Additionally, the effectiveness of a firm's competitive strategy in realizing a firm's profit potential is decreasing or undermined by the magnitude of the combination of the firm's product demand elasticity and the size of the transactional barriers it imposes on its customers.

Therefore, in determining the size of a transactional barrier that would maximize the effectiveness of the firm's competitive strategy, firms must consider not only the average income of its target customers but also the price elasticity of demand for its product. In the presence of an indirect relationship between the effectiveness of the firm's competitive strategy and the size of the set transactional barrier and also considering the implied deduction that the effectiveness of the firm's strategy optimizes as the size of the transactional barrier approaches zero, a firm, whose products are characterized by a high price elasticity of demand, stands a greater chance of attaining superior performance in the absence of no transactional barriers.



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APPENDIX I

Description of all Variables Used in the Study

$U(x)$ - This variable denotes the consumer's utility function. The consumer derives its utility from consuming goods A and O

x_A - This variable denotes the quantity demanded of good A by the consumer in the model

x_O - This variable denotes the quantity demanded of good O by the consumer in the model

p_A - This variable refers to the price that is paid by the consumer for the purchase of good A

F_A - This variable refers to the size of the transactional barrier or the one-time fee that is imposed by the firm on the consumer.

Y - This variable refers to the output of firm A

$p_A(q)$ - This variable helps explain the fact that firm A's price is a determinate function of quantity

Q_M - This variable refers to the maximum order quantity and a maximum order constraint that is established by the firm.

q - This variable refers to the quantity of goods actually ordered by the consumer

s - This variable refers to the slack in the quantity ordered, which is the difference between the maximum order quantity and the actual quantity of goods that is demanded by the consumer.

C_Q - This variable refers to the cost the firm incurs in fulfilling an order.

C_g - This variable refers to the cost the firm incurs in producing the good.

N - This variable refers to the number of consumers who order firm A's product within a specific period of time.

z - This is a parameter employed in the model

b - This is a parameter employed in the model.

π_A - This variable refers to the profit function of the firm, which is a function of the revenue and costs of the firm.