Why L'Oreal kept the Nurse while P&G killed the Panda? Cross-Border M&A with Vertical Restraints

Toshihiro Ichida and Chia-Hui Lu
Waseda University and Academia Sinica

August 29, 2007

Abstract

Acquiring the local distribution channel is one of the most important entry strategies by MNE into emerging consumers markets. Buying the local brand company to get access to the local distribution is common these days. Whether the MNE keeps the local brand or not depends on the degree of product differentiation. When the products are similar, the MNE buys the local brand and kill it. When products are very different, then the MNE keeps the local brand.

1 Introduction

As the Chinese economy grows, the entry strategy by a multinational enterprise (MNE) shifted its focus from creating the cost-saving production base to selling its products to the local consumers. Through the 1990s, the main purpose of FDI into Chinese market by the MNEs of the developed economies has been to shift their production location in order to take advantage of its cheap labor costs. As the Chinese GDP per capita grows, however, the attractiveness of China as a consumer market grows rapidly.

One of the most important entry strategies into consumers markets in developing economies is how to acquire the distribution channels that keeps the good access into the local market. Due to the recent advancement of information technology, many business transactions started to omit some of the intermediaries in the marketing channels. Especially, more and more B2B (business to business) transactions are now conducted directly between the upstream and the downstream firms. Nevertheless, the importance of the role of distribution channels remains intact especially for B2C (business to consumers) transactions.

The role of distribution channels is very important in consumers' market.[1] The manufacturers usually find it difficult to sell their products directly to their

[1] In the business world, the importance of distribution channels is matter of course, although its existence is often neglected in the economics literature.

customers. Typically, consumers are spread around the country and its retail outlets are also spread widely across regions. Their tastes may differ across different regions in the economy. The assortment discrepancy of the products between the manufacturers and the consumers is huge: producers supply fewer product lines in larger quantities while consumers need a wide range of goods in smaller quantities. The important role of distribution companies should not be underestimated. So if MNEs want to sell to the consumers in the emerging markets like China, it is imperative to acquire good distribution channels in the local market. How do MNEs acquire the distribution channels which can sell their products? They could build their own subsidiary companies that focus on distribution channels from Greenfield. (We call this strategy as "FDI.") They can outsource the distribution service to the local distributor(s). (We call this strategy as "outsourcing.") Or they can buy the local distributor in the capital market. (We call this strategy as "M&A.") Note that in the literature, the terminologies like FDI, outsourcing, and M&A could be used to acquire either production facilities or distribution channels. Here we use these terms only for distribution channels.

For example, let us look at two contrasting cases by western MNEs' entry strategies into the Chinese markets in early 2000s. On the one hand, in the cosmetics industry, *L'Oreal* bought the local producers in order to acquire the local access. In the market for low-end skincare products that targets mass consumers, *L'Oreal* bought *Mini-Nurse*, the local skincare maker. In the makeup products market, *L'Oreal* bought *Yu-sai*, the local maker. On the other hand, *P&G* bought *Panda Detergent* that had top market share in the local China market before the acquisition by *P&G*.

What happened to the local companies that were bought by the western MNEs? According to the business press, there was a reversal of fortune between *Mini-Nurse* and *Panda Detergent*. After being acquired by *L'Oreal*, the local brands, *Mini-Nurse*, was kept under the umbrella of the MNE. On the other hand, the once-dominant market leader, *Panda* brand detergents are now seldom seen in the shelves in Chinese consumer markets. Why did this happen? The main purpose of this paper is trying to answer this question: Why *L'Oreal* kept the *Mini-Nurse* brand while *P&G* killed the *Panda* brand?

One hypothesis is that the degree of production differentiation mattered for the decision. Panda detergent was close substitute with Tide detergent, which is the brand name of *P&G*. However, the Mini-Nurse brand did not directly in competition with skin-care products produced by *L'Oreal*. There is an incentive for the MNE to kill the local brand when its products are similar to the ones made by the local maker. If the products are differentiated enough, then two products can coexist in the market profitably.

The paper is organized as follows: the next section develops the basic model of MNE's entry into the emerging markets. The most important feature of the model is to explicitly incorporate the distribution channel sector into the differentiated product Cournot type duopoly. The final section summarizes the results and suggests some possible extensions.

2 The Model

We consider the developed economy's MNE is thinking entry into the emerging local market such as China. Before the MNE's entry, the local market is sereved by a local monopoly maker M^* that has a strong tie with the local distributor D^*. We need to consider the vertical structure between the upstream firms M^* and the downstream firm D^*.

There are various ways to model vertical structures. Linear pricing; Franchise Fees; Resale Price Maintenance; Exclusive Dealing. Here we adopt the Franchise Fee contracting with non-linear prices. (In fact, we use two-part tariff schedule.) This choice is because RPM is prohibited by law and because limiting to the linear pricing case is also unrealistic.

The franchise fee contract is depicted as a combination of fixed fee and wholesale unit price $\{A, p_w\}\{A^*, p_w^*\}$. The upstream maker offer the contract and the downstream firm accept it as long as it receives larger than its reservation value which is assumed to be zero.

As a market structure, we presume differentiated product Cournot duopoly between the MNE's brand and the local brand.

2.1 Demand

The demand for the goods is written as follows:

$$p = a - q - bq^* \tag{1}$$
$$p^* = a - q^* - bq \tag{2}$$

where $b \in [0, 1]$ denotes the degree of differentiation between q and q^*.

2.2 Manufacturing Firms

There are two potential manufacturing firms that can serve the local market: Multinational firm from developing economy and local domestic firm. We presume MNE has a cost advantage in production process.

M (multinational firm): marginal production cost is zero; M^* (domestic firm): constant marginal production cost is $c > 0$.

2.3 Distribution Sector

In order to sell in the local market, utilizing the local distributor has a cost advantage.

D^*: faces zero (constant) marginal distributional cost. (If M does the marketing in the local market by itself, it faces $s > 0$ constant marginal distributional cost)

3 Entry Strategies by MNE

Now MNE considers the entry into th elocal emerging market. There are 4 possible strategies that the MNE can take.

4 Case 1: FDI

The vertical structure of case 1 is shown as Figure 1.

M directly compete with D^* in the final good market.

M's problem is:

$$\max_{\{q\}} \Pi_M = (a - q - bq^* - s)q \tag{3}$$

The F.O.C. of (3) is:

$$q = \frac{a - s - bq^*}{2}$$

D^*'s problem is:

$$\max_{\{q^*\}} \Pi_{D^*} = (a - q^* - bq - p_w^*)q^* - A^* \tag{4}$$

The F.O.C of (4) is:

$$q^* = \frac{a - p_w^* - bq}{2} \tag{5}$$

Solve the simultaneous equations of the FOCs of (3) and(4), we have:

$$q(p_w^*) = \frac{[2(a-s) - b(a - p_w^*)]}{4 - b^2} \tag{6}$$

$$q^*(p_w^*) = \frac{[2(a-p_w^*) - b(a - s)]}{4 - b^2} \tag{7}$$

$$p(p_w^*) = q(p_w^*) + s \tag{8}$$

$$p^*(p_w^*) = q^*(p_w^*) + p_w^* \tag{9}$$

$$A^*(p_w^*) = (q^*(p_w^*))^2 \tag{10}$$

M^*'s problem is:

$$\max_{\{p_w^*\}} \Pi_{M^*} = (p_w^* - c)q^*(p_w^*) + A^*(p_w^*) \tag{11}$$

The F.O.C. of (11) is:

$$b^2 q^*(p_w^*) + 2(p_w^* - c) = 0$$

Equilibrium solution:

$$p_w^* = c - \frac{b^2[2(a-c) - b(a-s)]}{4(2-b^2)} \tag{12}$$

$$q = \frac{[(4-b^2)(a-s) - 2b(a-c)]}{4(2-b^2)} \tag{13}$$

$$q^* = \frac{[2(a-c) - b(a-s)]}{2(2-b^2)} \tag{14}$$

$$p = s + \frac{[(4-b^2)(a-s) - 2b(a-c)]}{4(2-b^2)} \tag{15}$$

$$p^* = c + \frac{[2(a-c) - b(a-s)]}{4} \tag{16}$$

$$A^* = \frac{[2(a-c) - b(a-s)]^2}{4(2-b^2)^2} \tag{17}$$

$$\Pi_M = \frac{[(4-b^2)(a-s) - 2b(a-c)]^2}{16(2-b^2)^2} \tag{18}$$

$$\Pi_{M^*} = \frac{[2(a-c) - b(a-s)]^2}{8(2-b^2)} \tag{19}$$

$$\Pi_{D^*} = 0 \tag{20}$$

5 Case 2: M&A and Keep

The vertical structure of case 2 is shown as Figure 2.

D^* carries two brands and monopolizes in the final good market given the contract, $\{A, A^*, p_w, p_w^*\}$, offered by M.

D^*'s problem is:

$$\max_{\{q,q^*\}} \Pi_{D^*} = (a - q - bq^* - p_w)q + (a - q^* - bq - p_w^*)q^* - (A + A^*) \tag{21}$$

The F.O.C.s of (21) are:

$$q = \frac{(a - p_w)}{2} - bq^* \tag{22}$$

$$q^* = \frac{a - p_w^*}{2} - bq \tag{23}$$

Solve the simultaneous equations of the FOCs of (21) we have:

$$q(p_w, p_w^*) = \frac{[(a - p_w) - b(a - p_w^*)]}{2(1 - b^2)} \tag{24}$$

$$q^*(p_w, p_w^*) = \frac{[(a - p_w^*) - b(a - p_w)]}{2(1 - b^2)} \tag{25}$$

$$p(p_w, p_w^*) = \frac{a + p_w}{2} \tag{26}$$

$$p^*(p_w, p_w^*) = \frac{a + p_w^*}{2} \tag{27}$$

$$A(p_w, p_w^*) = \left(\frac{a - p_w}{2}\right) q(p_w, p_w^*) \tag{28}$$

$$A^*(p_w, p_w^*) = \left(\frac{a - p_w^*}{2}\right) q^*(p_w, p_w^*) \tag{29}$$

M's problem is:

$$\max_{\{p_w, p_w^*\}} \Pi_M = p_w q(p_w, p_w^*) + A(p_w, p_w^*) + (p_w^* - c) q^*(p_w, p_w^*) + A^*(p_w, p_w^*) \tag{30}$$

The F.O.C.s of (30) are:

$$q(p_w, p_w^*) = \frac{[(a + p_w) - b(a + p_w^* - 2c)]}{2(1 - b^2)} \tag{31}$$

$$q^*(p_w, p_w^*) = \frac{[(a + p_w^* - 2c) - b(a + p_w)]}{2(1 - b^2)} \tag{32}$$

Equilibrium solution:

$$p_w = 0 \tag{33}$$

$$p_w^* = c \tag{34}$$

$$q = \frac{[a - b(a - c)]}{2(1 - b^2)} \tag{35}$$

$$q^* = \frac{[(a - c) - ab]}{2(1 - b^2)} \tag{36}$$

$$p = \frac{a}{2} \tag{37}$$

$$p^* = \frac{a + c}{2} \tag{38}$$

$$A = \frac{a[a - b(a - c)]}{4(1 - b^2)} \tag{39}$$

$$A^* = \frac{(a - c)[(a - c) - ab]}{4(1 - b^2)} \tag{40}$$

$$\Pi_M = \frac{[c^2 + 2a(a - c)(1 - b)]}{4(1 - b^2)} \tag{41}$$

$$\Pi_{D^*} = 0 \tag{42}$$

6 Case 3: M&A and Kill

The vertical structure of case 3 is shown as Figure 3.

D^* carries only M's product given offered $\{A, p_w\}$ by M.

D^*'s problem is:

$$\max_{\{q\}} \Pi_{D^*} = (a - q - p_w)q - A \tag{43}$$

By the F.O.C. of (43), we solve:

$$q(p_w) = \frac{a - p_w}{2} \tag{44}$$

$$p(p_w) = \frac{a + p_w}{2} \tag{45}$$

$$A(p_w) = q(p_w)^2 \tag{46}$$

M's problem is:

$$\max_{\{p_w\}} \Pi_M = p_w q(p_w) + A(p_w) \tag{47}$$

The F.O.C of (47) implies:

$$p_w = 0$$

Equilibrium solution:

$$p_w = 0 \tag{48}$$

$$q = \frac{a}{2} \tag{49}$$

$$p = \frac{a}{2} \tag{50}$$

$$A = \frac{a^2}{4} \tag{51}$$

$$\Pi_M = \frac{a^2}{4} \tag{52}$$

$$\Pi_{D^*} = 0 \tag{53}$$

7 Case 4: Outsource Retail Service to the Local Distributor

The vertical structure of case 4 is shown as Figure 4.

D^* carries two brands and monopolizes in the final good market given facing the contracts, $\{A, p_w\}$ and $\{A^*, p_w^*\}$, offered by M and M^*, separately.

D^*'s problem is:

$$\max_{\{q,q^*\}} \Pi_{D^*} = (a - q - bq^* - p_w)q + (a - q^* - bq - p_w^*)q^* - (A + A^*) \tag{54}$$

The F.O.C.s of 54 are:

$$q = \frac{a - p_w}{2} - bq^* \tag{55}$$

$$q^* = \frac{a - p_w^*}{2} - bq \tag{56}$$

Solve the simultaneous equations of the FOCs of (54) we have:

$$q(p_w, p_w^*) = \frac{[(a - p_w) - b(a - p_w^*)]}{2(1 - b^2)} \tag{57}$$

$$q^*(p_w, p_w^*) = \frac{[(a - p_w^*) - b(a - p_w)]}{2(1 - b^2)} \tag{58}$$

$$p(p_w, p_w^*) = \frac{a + p_w}{2} \tag{59}$$

$$p^*(p_w, p_w^*) = \frac{a + p_w^*}{2} \tag{60}$$

$$A(p_w, p_w^*) = \left(\frac{a - p_w}{2}\right) q(p_w, p_w^*) \tag{61}$$

$$A^*(p_w, p_w^*) = \left(\frac{a - p_w^*}{2}\right) q^*(p_w, p_w^*) \tag{62}$$

M's problem:

$$\max_{\{p_w\}} \Pi_M = p_w q(p_w, p_w^*) + A(p_w, p_w^*) \tag{63}$$

The F.O.C. of (63) is:

$$q(p_w, p_w^*) = \frac{(a + p_w)}{2(1 - b^2)}$$

M^*'s problem:

$$\max_{\{p_w^*\}} \Pi_{M^*} = (p_w^* - c) q^*(p_w, p_w^*) + A^*(p_w, p_w^*) \tag{64}$$

The F.O.C. of (64) is:

$$q^*(p_w, p_w^*) = \frac{(a + p_w^* - 2c)}{2(1 - b^2)}$$

Equilibrium solution:

$$p_w = \frac{-b[2(a-c)+ab]}{(4-b^2)} \tag{65}$$

$$p_w^* = \frac{[4c-2ab-ab^2]}{(4-b^2)} \tag{66}$$

$$q = \frac{[a(2-b^2)-b(a-c)]}{(1-b^2)(4-b^2)} \tag{67}$$

$$q^* = \frac{(a-c)(2-b^2)-ab}{(1-b^2)(4-b^2)} \tag{68}$$

$$p = \frac{[a(2-b^2)+bc-ab]}{(4-b^2)} \tag{69}$$

$$p^* = \frac{[a(2-b^2)+2c-ab]}{(4-b^2)} \tag{70}$$

$$A = \frac{[2a^2(2-b^2)-(a-c)b^2(ab+a-c)]}{(1-b^2)(4-b^2)^2} \tag{71}$$

$$A^* = \frac{[2(a-c)^2(2-b^2)-ab^2(ab+a-bc)]}{(1-b^2)(4-b^2)^2} \tag{72}$$

$$\Pi_M = \frac{[a(2-b^2)-b(a-c)]^2}{(1-b^2)(4-b^2)^2} \tag{73}$$

$$\Pi_{M^*} = \frac{[(a-c)(2-b^2)-ab]^2}{(1-b^2)(4-b^2)^2} \tag{74}$$

$$\Pi_{D^*} = 0 \tag{75}$$

The results will be discussed in the next section.

8 The results

If the degree of substitution is large, then the MNE prefers killing the local brand to keeping it.

Lemma 1 *There exists a value* $\overline{b} = \frac{a-c}{a} \in (0,1)$ *such that* $\forall b > \overline{b}$*, Case 3 is preferred to Case 2. Thus, the optimal value for* $q^* = 0$ *after M&A.*

Proof will be added.

Lemma 2 *If* $b = 0$*, then the MNE is indifferent between Case 2 and Case 4. However, if* $b > 0$*, then this indifference may no longer hold.*

Proof will be added.

9 Conclusion

In this paper, we have analyzed a model of differentiated Cournot duopoly with vertical structure. In particular, we are interested in the role of distribution channel when the MNE enters the emerging consumer markets. We posit that the local consumer market is better served by the local distributor company because the local entity has advantage in getting the information about the tastes of local consumers, etc. So when the Western MNE wants to enter the emerging market, the MNE has an incentive to acquire the local distribution channel.

There are several ways to obtain access to the local consumer market. First, the MNE can build its own subsidiary distribution branch as a Greenfield FDI. In this case, the distribution technology by the MNE is not as efficient as the local distributor. Second, the MNE can outsource the distribution service portion of the business system or value chain to the local distributor. Third, the MNE can purchase the local maker in order to obtain its access to the local distribution channel. After the M&A of the local maker, the MNE has a choice between keeping the local brand and killing the local brand. We looked at how the incentives of the MNE changes as the parameter values change.

In describing the vertically separated structure between the maker and the distributor, we used a franchise fee contracting between the manufacturers and the distributors. The franchise fee contracts take the form of two part tariff. Given this two part tariff structure, we looked at the question of when and under what conditions the MNE from the developed world keeps or kills the local brand after acquiring the firm for the purpose of getting the access to local consumer markets.

We conclude that when the degree of product differentiation is high enough, then the MNE has an incentive to keep the local brand because it can afford the coexistence of the differentiated products. When the two products are closely related, however, the MNE tends to kill the local brand because the market can be better served by the monopoly.

In the analysis of the model, we gave the 100% bargaining power to the manufacturers. This was assumed in favor of simplicity of the analysis. In the future work, we could extend this to the case of different bargaining power between the upstream and the downstream firms.

Acknowledgments

For their helpful comments, we thank Masahiro Endoh, Naoto Jinji, and the participants at the European Trade Study Group 2007 in Athens. Of course, we are solely responsible for all the remaining errors. Part of this research was supported by the financial support of the government of Japan (via Grant-in-Aid for Scientific Research), and the research fundings from Waseda University and Academia Sinica.

Figure 1: FDI

Figure 2: Buy and Keep

Figure 3: Buy and Kill

Figure 4: Outsourcing