



国家市场监督管理总局

State Administration for Market Regulation

Thoughts on the Loyalty Discount Analysis in the Tetra Pak Case

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2018.10.16



I. Case overview



Tetra Pak

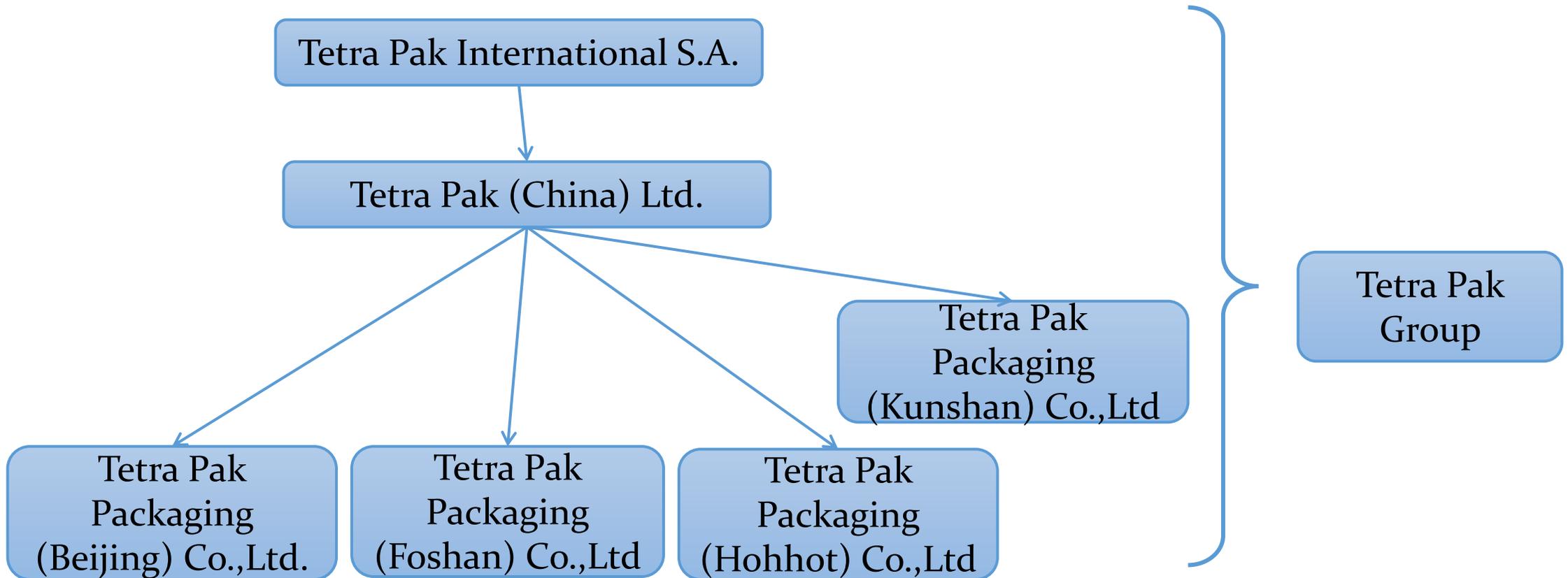
The world's largest liquid food packaging manufacturer.

In 2012, China's anti-monopoly enforcement agency launched an antitrust investigation against Tetra Pak.

In 2016, Chinese authorities ordered Tetra Pak to immediately stop its illegal activities and imposed a concurrent fine of RMB 667 million as their administrative penalty.



I. Case overview





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Relevant product markets:

- Aseptic carton packaging machinery market
- Technical services market for aseptic carton packaging machinery
- Aseptic carton packaging materials market

Relevant geographic market:

- Mainland China

Time period:

- 2009-2013

Dominant market position:

- Market share and competition situation
- Market control ability
- Reliance by other undertakings
- Level of difficulty to enter relevant markets

Abuse of dominant market position:

- **Tie-in** sales without justification
- **Exclusive dealing** without justification
- **Loyal discounts** that eliminate or restrict competition



II. Relevant theories on loyalty discounts

- Loyalty discounts are a common business strategy that gained wide attention in the field of competition law in recent years.
- In competition law theories, loyal discounts are generally discussed as an act of **abuse of dominant market position**.
- Loyalty discounts may both encourage and harm competition. Therefore, to determine whether an act constitutes monopolistic behavior, it requires a **thorough examination of the consequences of harmed competition resulting from the behavior in each individual case**.



II. Relevant theories on loyalty discounts

- At present, economists have not come up with a uniform analysis framework with regards to harmful consequences to competition caused by loyalty discounts.
- Two kinds of analysis frameworks have been adopted previously – the **predatory pricing theory** and the **exclusive dealing theory**.
- **Predatory pricing theory:** Loyalty discounts may harm some small and medium-sized competitors' interests, but by and large remain favorable to consumers. (This is only 'favorable' in the short-term as consumers pay a lower price. However, in the long run, the monopolist can raise their price and gain huge profits once other competitors have been squeezed out of the market, making the market unfavorable to consumers.)
- **Exclusive dealing theory:** Even if the loyalty discount did not make the price lower than the cost, it can still have an exclusive effect on competitors by 'raising rival's cost'.



III. Loyalty discounts in the Tetra Pak case

Between 2009-2013, Tetra Pak implemented dozens of types of discounts in its packaging business, among which Retroactive Accumulative Volume Discounts and Customized Target Discounts fall within the scope of loyalty discounts.

Retroactive Accumulative Volume Discount, also known as retroactive accumulative discount (RAD), refers to a discount that if a customer's purchase volume during a defined period reaches a certain threshold, then a single price discount is granted on all units accumulatively purchased during that time. When a higher threshold is met, the customer may enjoy a larger discount, which means that **the level of discount increases according to the volume threshold**.

RAD can be further categorized as **single-product retroactive accumulative discounts** and **multi-product retroactive accumulative discounts**.

Single-product retroactive accumulative discount refers to a discount that is granted based on a customer's accumulative purchase of a single product in one year according to the predefined threshold.

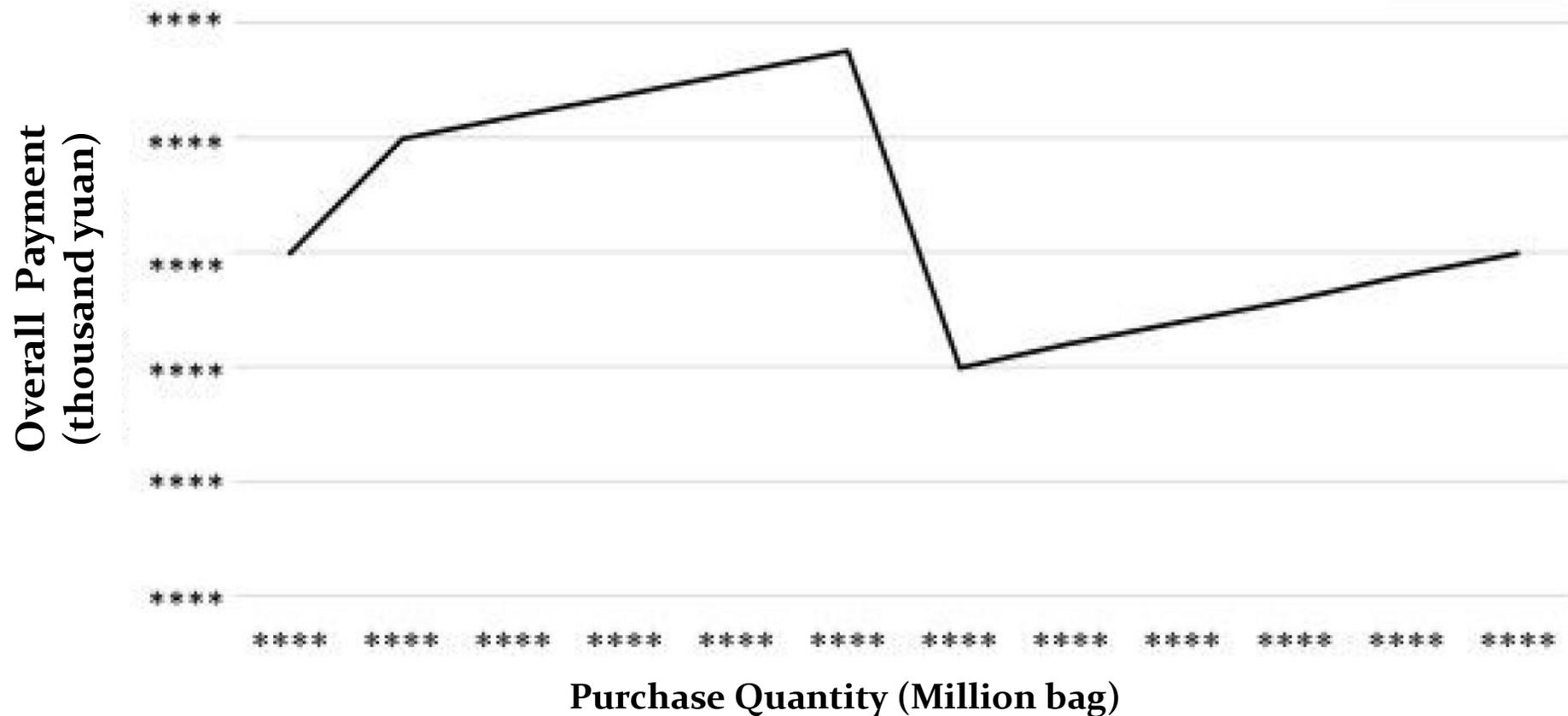
Multi-product retroactive accumulative discount is built on the single-product retroactive accumulative discount where the discount is based on the purchase volume of two or more types of packaging goods combined. The customer can enjoy either an overall discount or an extra discount on the single-product retroactive accumulative discount.



III. Loyalty discounts in the Tetra Pak case

Tetra Pak sales discounts trend in 2013 (TBA/**)

Note: For the purpose of calculation, we assume the original price of packaging material as 0.1 yuan/bag





III. Loyalty discounts in the Tetra Pak case

Customized volume-target discount generally refers to a discount that is granted to a customer based on the condition that the products purchased under a certain period reach or exceed a target percentage or a predefined fixed volume, usually enforced through an agreement or memorandum. The discount can be rebates to certain prices or other preferential measures.

In this case, Tetra Pak's target discounts are often personalized for customer's specific and usually special situations, thus having an evident targeting effect. Besides loyalty discounts, Tetra Pak offered other types of discounts:

- **Special Discount:** In its sales of packaging materials, Tetra Pak offered extra discounts beyond the predefined rebate policy to some of its customers based on factors such as competition climate and the importance of the customer, etc. Such discounts are called Special Discounts (SD) or exceptional discounts.
- **Category Discount:** Tetra Pak also offered certain packaging discounts on certain types of packaging materials and content, known as Category Discount (CD)

Special Discount and Category Discount are usually used concurrently with Retroactive Accumulative Discount.



III. Loyalty discounts in the Tetra Pak case

Tetra Pak's loyalty discounts have an evident **anti-competitive effect** in a certain market context.

For the dominant market player, the overall customers' demand can be divided into '**Non-contestable Demand**' and '**Contestable Demand**'.

❑ **Non-contestable Demand** can only be met by the dominant company.

Reasons: customers' reliance on the type, performance and/or IPR of the product, additional obligations of the contract, market advantage, brand influence.....

❑ **Contestable Demand** can be met by the dominant company or other companies.

The **anti-competitive mechanism** of loyalty discounts mainly lies in that the **dominant company leverages the non-contestable demand to limit and affect the contestable portion of demand**, along with other influences on the customers' loyalty. Therefore, **the level of the anti-competitive effect depends on the company's ability to extend its market power over non-contestable demand to the contestable portion of demand**. This may also be influenced by other factors such as the size of non-contestable demand, discount rate and the way discounts are offered, etc.



IV. Economic analysis

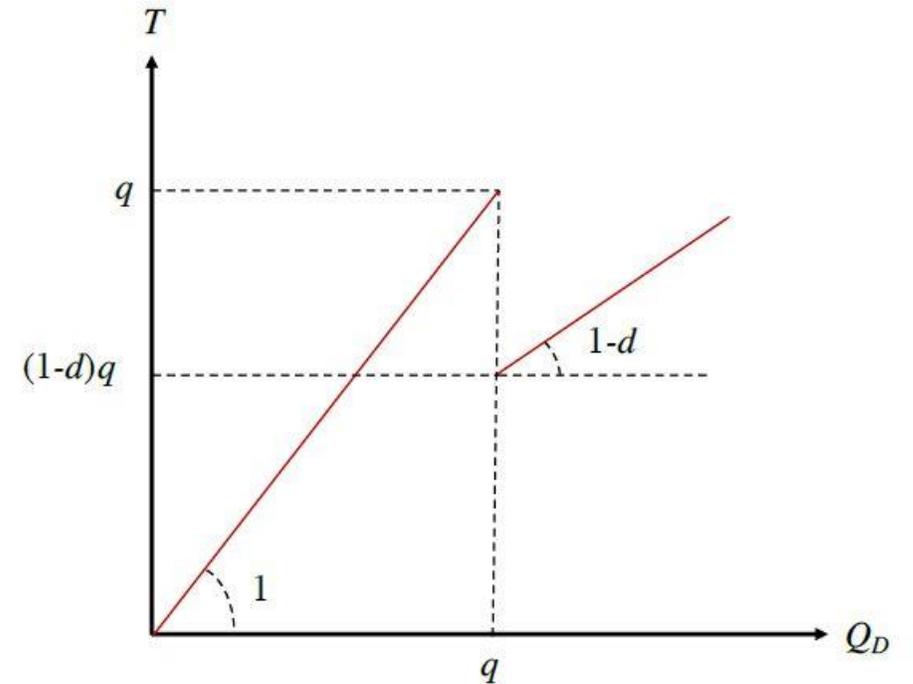
A simple economics model can demonstrate the competitive effect of **All-units Discount (AUD)**.

Let's assume that a customer's demand is Q and the constant value of the unit product is 1.

Two companies – D and R – produce the same product. Assume that D occupies the dominant market position with no limit on its production capacity while R is a relatively small competitor whose production capacity \bar{Q}_R is lower than Q ($Q_R < Q$). R is unable to fully meet the customer demand. Under such circumstances, \bar{Q}_R is the contestable portion of demand and $Q - \bar{Q}_R$ is the non-contestable demand.

Customers' purchase volume at D and R are Q_D and Q_R . Assume that D adopts an AUD strategy while R provides the unit price. Use p to represent the full price before discount (for the purpose of abstractive analysis, we assume $p=1$), $d(Q_D)$ represents the discount given by D for customer's purchase volume Q_D ($0 \leq Q_D \leq Q$). Then the price offered by D after discount should be $1-d(Q_D)$.

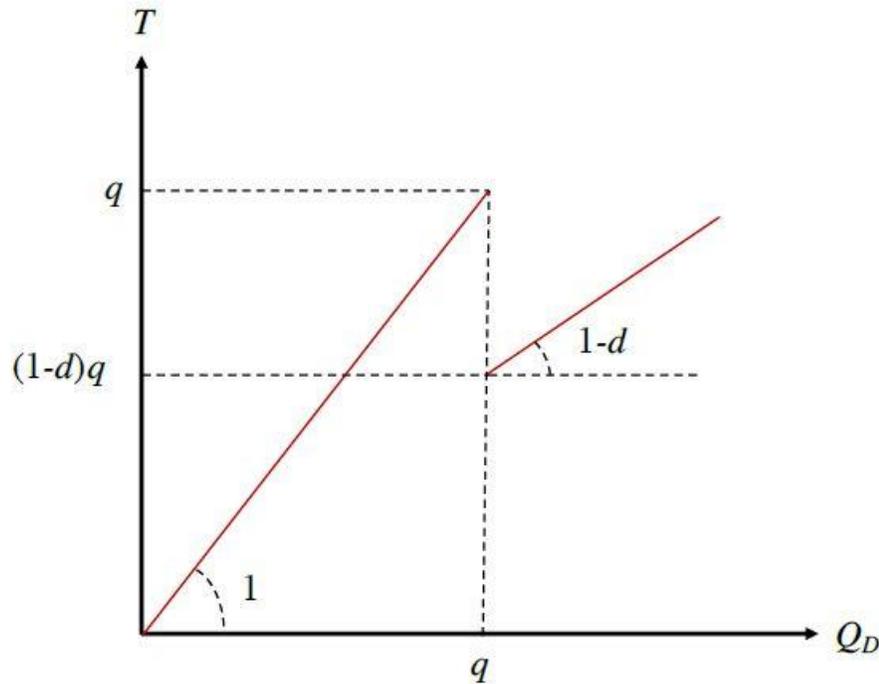
Under an AUD strategy, when Q_D reaches a certain threshold, for instance threshold q , and the unit price paid by customers is at $1-d(q)$, then total payment T will drop significantly from q to $(1-d(q))q$.



Customer's total payment to D under an AUD strategy



IV. Economic analysis



Customers may choose to purchase from D entirely or from both D and R. In order to shake a deal, R needs to not only match D's price after discount but also offer extra discount as a compensation to the customer for quitting purchasing from D entirely.

Assume the extra compensation offered by R is k , and customers indiscriminately choose between the offers from R and D, then we have:

$$(1 - d(Q_D) - k)Q_R + (1 - d(Q_D))Q_D = (1 - d(Q))Q,$$

$$\text{Then: } (d(Q_D) + k)Q_R + d(Q_D)Q_D = d(Q)Q,$$

$$\text{Then } k \text{ is ranged at: } k = \Delta d \frac{Q}{Q_R} \geq 0,$$

$\Delta d \equiv d(Q) - d(Q_D)$ represents the discount reduction when customers do not make the entire purchase from D, and $d(Q_D) < d(Q)$

Customer's total payment to D under an AUD strategy



IV. Economic analysis

Now, we substitute the variables in the hypothetical economic model above with a series of numbers:

When $Q = 100$, if customers purchase entirely from D, i.e. $Q_D = 100$, and the obtainable AUD is 10% i.e. $d(Q) = 10\%$, then when customers only purchase 90 from D, the unit price offered by D becomes 0.91 and so on.

To the right are different AUDs offered by D when customers' purchase volume reaches different thresholds.

D's price before discount is set at 1.

Volume thresholds	Retroactive discount rates
100	10%
90	9%
80	8%
70	7%
60	6%
50	5%

Quantities purchased from D: Q_D	Quantities purchased from R: Q_R	Prices offered by D: $1 - d(Q_D)$	Prices offered by R: $1 - d(Q_D) - k$
100	-	0.90	-
95	5	0.91	0.710
90	10	0.91	0.810
87	13	0.92	0.766
84	16	0.92	0.795
80	20	0.92	0.820
77	23	0.93	0.800
74	26	0.93	0.815
70	30	0.93	0.830
67	33	0.94	0.819
64	36	0.94	0.829
60	40	0.94	0.840
57	43	0.95	0.834
54	46	0.95	0.841

Impact of AUD strategy by dominant company on prices

IV. Economic analysis

Both the economic analysis and the statistical analysis on the purchase percentage, volume, price and discount of the top 30 customers of Tetra Pak found:

A competitor would have to give a substantially higher discount than that offered by Tetra Pak if the competitor wishes to obtain a certain volume of the packaging material purchase order from a customer, especially when the obtainable volume is very small.

Generally speaking, when customers purchase more materials from the competitor, the purchase volume from Tetra Pak diminishes accordingly, resulting in less discounts given by Tetra Pak. Especially when the purchase quantity from Tetra Pak falls below a certain discount threshold, the discounts offered by the competitor will have to increase sharply.

When the contestable demand is rather small, the competitor must offer a very low price; And in some circumstances, **the competitor does not have the capacity to obtain a large portion of the demand, leaving only a small portion of contestable demand to grab.**

The economic model above is merely a simplification of the retroactive discount used in Tetra Pak's case. In fact, the retroactive discount strategy used by Tetra Pak involves dozens of discount levels, covering hundreds of customers. The complexity of its discount tactics is far beyond the economic model described above.

IV. Economic analysis

Tetra Pak's use of loyalty discount requires specific market conditions:

- A portion of customers relies on the type of products and production capacity offered by Tetra Pak.
- Tetra Pak leverages the influence of tie-in sales of packaging materials when providing machineries and technical services.
- Tetra Pak's concurrent use of multiple discounts.

The harmful effects to competition in this case include:

Short term: - forcing competitors to compete with larger discounts to match Tetra Pak's price offering, making it more difficult for competitors to compete.

- enticing customers to stick with Tetra Pak, creating a lock-in effect against competitors.

Long term: - Competitors find it difficult to compete with a similar price offered by Tetra Pak for a long period of time. Their abilities to expand or make full use of the production capacity and gain more profits are hampered.

- The long-term inadequate sales volume, decrease of profits and idle capacity result in the decline of investment in and market expectations of packaging manufacturers, blocking potential competitors from entering into the market.

Evidence has shown that during 2009-2013 the sales performance of many small and medium-sized packaging materials manufacturers in mainland China stayed unimproved, with the gross margins and capacity utilization rates consistently low.



Thank you!

You may refer to the following theses on the economic analysis in the Tetra Pak case:

Xiao Fu and Guofu Tan:

Abuse of Market Dominance Under China's Anti-Monopoly Law, *Review of Industrial Organization*, published online: 07 June 2018, <https://ssrn.com/abstract=3111205> .

Yong Chao, Guofu Tan and Adam Chi, Leung Wong:

All-units Discounts As a Partial Foreclosure Device, *RAND Journal of Economics*, Vol. 49, No. 1, Spring 2018, pp. 155–180

Yong Chao and Guofu Tan:

All-units Discounts: Leverage and Partial Foreclosure in Single-product Markets, *Canadian Competition Law Review*, Vol. 30, No. 1, pp. 92–110