# Application of Economic Analysis in Merger Reviews

State Administration for Market Regulation
Anti-Monopoly Bureau

October 2018 Beijing

# Content

1 Role and importance of economic analysis in merger reviews

2 Application of economic analysis in case review

3 Applicability of economic analysis in new industries

# Role of economic analysis in merger reviews

- Antitrust economics has a profound impact on Anti-Monopoly Law.
- It is common knowledge and practice within the industry to review anti-monopoly enforcement from the perspective of economics by applying the thinking and methods of economic analysis to anti-monopoly enforcement.
- This practice has been tested and proven by years of anti-monopoly enforcement in China.

# Role of economic analysis in merger reviews

- In the antitrust review of concentration of undertakings, economic analysis can help us to:

  - Define relevant markets
  - Identify competition concerns
  - Determine the theory of damages to competition
  - Find close competition rivals
  - Determine the effectiveness of remedies
  - Assess the viability of the removal or change of remedies in enforcement

# Role of economic analysis in merger reviews

- In the ten years since the implementation of the Anti-Monopoly Law, law enforcement authorities have concluded 2,283 cases of concentration of undertakings, cleared 38 cases with remedies and denied 2 cases.

- Over the course of the review, law enforcement agents generally follow an economic analysis framework in their assessments and investigations. For example, when reviewing horizontal mergers, agents usually take into account the possible unilateral effect caused by the transaction or the synergy effect caused by the change of market structure.

# Role of economic analysis in merger reviews

The importance of economic analysis is more prominent in the review of complex cases. The use of professional economic analyses is mainly demonstrated in the following aspects:

First, the parties involved need to consider economic analysis when submitting their documents.

If the parties involved think that the merger may raise competition concerns, they should, at their own discretion, include in the documents an economic analysis report regarding those concerns that clarifies their views and opinions, in order to help antitrust officials understand the situation in the market and clear their competition concerns.

# Role of economic analysis in merger reviews

- Second, the parties involved can submit an economic analysis report when concerns are raised over the course of the review.

If any competition concerns arise from the antitrust review, the parties involved will, after communicating with the law enforcement authorities, conduct economic analysis and generate a report that hopefully will clear any concerns the authorities have.

# Role of economic analysis in merger reviews

- Third, law enforcement authorities can engage third-party consultancies for economic analysis reports.

Due to the shortage of law enforcement officials, antitrust enforcement authorities can engage third-party agencies through a bidding process when reviewing major cases. These third-party agencies can provide assistance to carry out the assessment.

Many factors are to be assessed, including the definition of relevant markets, potential impact on competition by concentration, and determination of remedies etc.

E.g： WD acquires Hitachi GST; MediaTek's merger with Cayman MStar Semiconductor

# Role of economic analysis in merger reviews

- Fourth, market participants may also submit their economic analysis reports.

Any competitor in the market can submit their materials to antitrust authorities over the course of the case review if they think they could be affected by the merger or the merger could exert an adverse impact on competition.

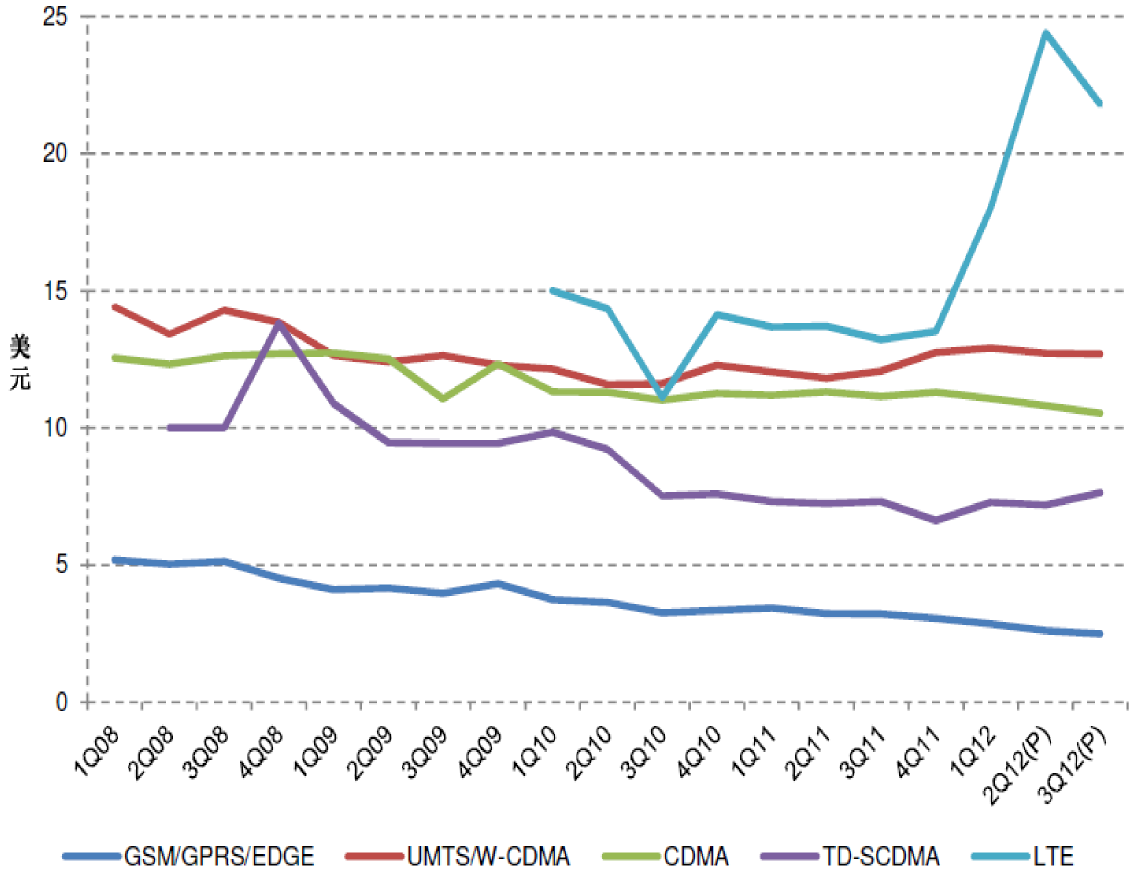
# Role of economic analysis in merger reviews

## Price correlation analysis

**Example:**

If 2G, 3G and 4G mobile phone chips are under the same relevant market

2G (GSM, GPRS, EDGE), 3G (TD-SCDMA, UMTS/W-CDMA, CDMA), 4G（LET）




- Differences in demand characteristics: Different technologies – Modulations and Bandwidths
- Differences in supply: technological requirements and patents, difficulties in manufacturing reform

# Role of economic analysis in merger reviews

## ◆ GUPPI Analysis

- **Example: Company A acquires Company B**

Formula for calculating Company A's GUPPI:

$$GUPPI_A = D_{A\to B} \times \Pi_B \times \frac{P_B}{P_A}$$

$D_{A\to B}$ is the diversion ratio from Company A to Company B, which measures Company A's loss of sales to Company B after Company A increases the price， e.g.

$$D_{A\to B} = \frac{\text{Sales diverting to Company B}}{Company\ A's\ sales}$$

$\Pi_B$ is Company B's profit margin， $\frac{P_B}{P_A}$ is the ratio between Company B's and Company A's prices.

# Role of economic analysis in merger reviews

**Table 1: GUPPI calculation for Company A's clients**

| **Route** | Company A's Price | Company B's Price | Company B's Profit Margin | Diversion Ratio from Company A to Company B | GUPPI |
|---|---|---|---|---|---|
| **All Routes** | 66.11 | 53.61 | 3.5% | 3.6% | 0.1% |
| **Route 1** | 69.02 | 69.41 | 4.2% | 2.3% | 0.1% |
| **Route 2** | 77.78 | 62.92 | 5.4% | 7.2% | 0.3% |
| **Route 3** | 46.43 | 36.56 | -1.7% | 3.9% | -0.1% |

**PS:**

[1] The average prices for the routes are the weighted average prices calculated with the traffic volumes and revenues on the routes in all major countries

[2] The average profit margins are the weighted average profit margins calculated with the profit margins on the routes in all major countries

[3] The diversion ratio is the frequency that Company A considers Company B as a major competing rival (based on the competition, data submitted by the parties)

# Role of economic analysis in merger reviews

**Table 2: GUPPI calculation for Company B's clients**

| Route | Company A's Price | Company B's Price | Company A's Profit Margin | Diversion Ratio from Company B to Company A | GUPPI |
|---|---|---|---|---|---|
| **All Routes** | 66.11 | 53.61 | 21.1% | 5.9% | 1.5% |
| **Route 1** | 69.02 | 69.41 | 24.1% | 5.9% | 1.4% |
| **Route 2** | 77.78 | 62.92 | 14.3% | 5.9% | 1.0% |
| **Route 3** | 46.43 | 36.56 | 9.7% | 5.9% | 0.7% |

**PS:**

[1] The average prices for the routes are the weighted average prices calculated with the traffic volumes and revenues on the routes in all major countries

[2] The average profit margins are the weighted average profit margins calculated with the profit margins on the routes in all major countries

[3] The diversion ratio is the frequency that Company B considers Company A as a major competing rival (based on the competition, data submitted by the parties)

# Role of economic analysis in merger reviews

## Critical loss analysis

- **Example: Merger between two major chemical companies, with business integration for Product A**
- Calculation of critical loss: $y = x/(x + m)$

  y is the ratio for loss of sales to keep the margin balance

  x (normally 5%-10%) is the ratio for price increase from the merged company

  m is the current profit margin

Using the total sales volume before the merger to calculate the assumptions on the price increases for different percentages (5%-10%) and the gross profit margin (5%-25%), and the total loss the merged company needs to bear.

# Role of economic analysis in merger reviews

## Critical loss analysis

- **Example: Merger between two major chemical companies, with business integration for Product A**

This analysis is based on the assumptions on the merged company's profit margin. It calculates the threshold when the loss of sales makes the price increase non-profitable. If the merged company's loss of sales for price increase is lower than the total summation of the surplus production capacities from other providers, it means that rivals are able to absorb excessive sales. The merged company will be concerned by the price increase and will not be able to easily gain more profits by increasing the price.

# Role of economic analysis in merger reviews

- Critical loss analysis

| Critical loss for breakeven point (loss of sales for Product A in tons) | | | | | | |
|---|---|---|---|---|---|---|
| | Average Gross Profit Margin for Product A % | | | | | **The total summation of the surplus production capacities from other providers (tons)** |
| **Price Increase** | 5% | 10% | 15% | 20% | 25% | |
| **5%** | 13,406 | 8,937 | 6,703 | 5,362 | 4,469 | **20,620** |
| **6%** | 14,625 | 10,055 | 7,661 | 6,187 | 5,189 | **20,620** |
| **7%** | 15,640 | 11,040 | 8,531 | 6,951 | 5,865 | **20,620** |
| **8%** | 16,500 | 11,916 | 9,326 | 7,661 | 6,500 | **20,620** |
| **9%** | 17,236 | 12,700 | 10,055 | 8,321 | 7,097 | **20,620** |
| **10%** | **17,875** | **13,406** | **10,725** | **8,937** | **7,661** | **20,620** |

# Application of economic analysis in case review

- Natural experiment method: focuses on unexpected incidents in the industry; analyzes the impact of such incidents on the industry.

**New Product Launch**:

From which company will the sales divert when a new product is launched?

**Impact of Exchange Rates**:

When the relative price between two products changes due to exchange rates, how will the prices subsequently change? It helps define the relevant geographical markets.

**Promotions**:

From which company will the sales divert when a product has a new promotion? Which products will respond with their own new promotions?

**Others**:

# Application of economic analysis in case review

- Natural experiment method:

- **Example: Merger between Company A & Company B**. A entered the market in 2012. B's market share dropped by around 8% while C's market share dropped from 47% to 31%. A's entrance into the market had a larger impact on C than on B. To a certain extent, the competition between A and C was more intense and the products of the two companies are more similar.
- **Example: Merger case of Essilor/Luxottica**. After the merger, the merged body had the motive to increase the number of its original retail stores. Through the foreclosure of popular products and setting unreasonable transaction conditions for non-original retail stores, the reinforcement of its original retail stores' competiveness could be achieved. Luxottica implemented the "STARS Plan" in China in 2017 to strengthen its control on retail channels and the retailers that did not join the plan could not get the licensing for the brand. Although this strategy led to some distributors of Luxottica leaving China in 2017, the company did not change their strategy for the notification since it could bear the pressure.

# Importance of economic analysis in merger reviews

- The importance of economic analysis lies in the following aspects:

  - Good economic analysis should be fact-based and not result-oriented.
  - Qualitative economic analyses are generally based on certain hypothetical premises. The analytical result has an important reference value but does not play a determining role.
  - Economic analysis can provide a clear analytical path for competition assessment, pointing in a clearer direction for case review and rendering a more logical and reasonable conclusion.
  - Economic analysis is not just a qualitative analysis. More importantly, it constitutes the significant use of the underlying logic of economics in the area of law enforcement.

# Applicability of economic analysis in new industries

- Four characteristics of new economic industries:
  - Dynamic innovation-driven competition becomes the new normal.
  - High fixed cost. Low marginal cost.
  - Led by standards
  - Network effect and Lock-in effect

# Applicability of economic analysis in new industries

- The principle and focus of antitrust review analysis may change.
  - Definition of relevant markets

Over the course of a case review, in order to define the boundaries of competition, antitrust officials will look for a reasonable relevant market based on the consideration of substitution. However, such a market may not be a clear product or geographic area in the conventional sense. Rather, it manifests as a technology market, innovation market or bilateral/multilateral platform market.

We noticed that the fast-moving markets in new economic industries are difficult to define. Due to the complexity of the business, the boundaries of bilateral or multilateral markets are not clear-cut. Moreover, the substitution of a product may not be reflected in the sensitivity to the price but on the pursuit of the product performance. All these factors pose challenges to the definition of traditional markets.

# Applicability of economic analysis in new industries

- The principle and focus of antitrust review analysis may change.
  - Market structure

Since the new economic industries possess traits such as dynamic, standard-oriented and leading to network effect, structural metrics such as the market share and the number of market participants will no longer hold much meaning. For example, the market shares in the innovation market and Free Open Source Software (FOSS) market are extremely difficult to calculate. The current market share of a company may not be a true indication of its strength in the future market. Companies with a  dominant market position could very well be knocked out by new technologies. This has weakened the role played by market structural analysis in antitrust reviews.

# Applicability of economic analysis in new industries

- The principle and focus of antitrust review analysis may change.
  - Technological barriers in the market

Businesses tend to pursue the path to become the standard in the market in order to be a dominant player. Therefore, business standards become a significant factor when considering market entry barriers for new economic industries. At present, there is still much debate on how we look at the influence that businesses with industry standards have on the market.

# Applicability of economic analysis in new industries

- The principle and focus of antitrust review analysis may change.
  - About pricing

In traditional industries, companies set prices based on the marginal costs. However in new economic industries, marginal costs tend to be lower or even zero. Therefore the pricing mechanism is bound to undergo substantial changes compared to traditional industries. Furthermore, the development and improvement of new technologies will keep lowering the costs and prices of products, calling for innovation to the traditional price analyzing method.

# Applicability of economic analysis in new industries

- The principle and focus of antitrust review analysis may change.
  - Assessing the competition

For instance, a network effect may be a positive effect for consumers. However, as the network keeps expanding, competitors could be excluded. This is because it is easier to create a single powerful player in the new economic industries where dominant companies possess substantial advantages in the areas of pricing and innovation. Merger reviews are in fact an assessment of future competition, but the ever so dynamic and fast-moving market makes it harder to anticipate future competition. This is another problem that needs to be factored in when assessing the competition.

# Applicability of economic analysis in new industries

## ◆ The importance of industry knowledge

New economic industries are usually complicated. Only when we understand the business and development of that specific industry, we can find where the core competition is, allowing us to get straight to the point and identify the real competition concerns when conducting competition reviews.

If one lacks the knowledge of the industry, it would be difficult to understand at what pace is it reasonable for a company to create a new generation of products in the market and what kind of pricing would harm consumers' interest.

# 谢 谢！

THANK YOU