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ECONOMIC ANALYSIS IN MERGER INVESTIGATIONS – Contribution from Singapore

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More documentation related to this discussion can be found at: oe.cd/mergerinv.

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Economic Analysis in Merger Investigations

- Contribution from Singapore –

1. Introduction

1. A wide range of quantitative tools are available in an economist's toolkit to assess the likely effects of a merger. As with other competition authorities, many of these quantitative economic techniques have been applied by economists in the Competition and Consumer Commission of Singapore ("**CCCS**") in merger reviews. While there are techniques that are more commonly applied, the choice of techniques may differ across mergers. This is not surprising given that various factors influence an economist's choice across mergers. Some examples include data availability, the ease of data collection and processing, the time available for merger review and the likelihood of competition concerns. Moreover, smaller jurisdictions like Singapore also present unique opportunities in relation to the quantitative techniques to apply. Given these considerations, it seems therefore that the key is to identify the technique(s) that are most appropriate to find the answers to the theories of harm raised given the constraints and circumstances instead of finding one best technique that can be applied to all mergers or pursuing the most sophisticated technique available. The following sections describe CCCS' approach and experience in "economising" the appropriate techniques to apply.

2. Review of Mergers in Singapore

2. The CCCS enforces the Competition Act (Chapter 50B) ("**the Act**") and the Consumer Protection (Fair Trading) Act in Singapore. In particular, section 54 of the Act prohibits mergers that have resulted, or may be expected to result, in a substantial lessening of competition within any market for goods and services in Singapore ("**the section 54 prohibition**").

3. Singapore operates a voluntary merger notification regime. This means that there is no mandatory requirement for merger parties to notify their merger situation to CCCS, either before or after the implementation of the merger. However, merger parties have the option to apply for a decision as to whether the merger situation infringes, or will infringe, the section 54 prohibition[1]. Merger parties are therefore required to perform a self-assessment to determine whether notification may be appropriate.[2]

4. Not notifying a merger situation that raises competition concerns however runs the risk of CCCS investigating the merger on its own initiative. If CCCS finds that the merger substantially lessens competition, it can direct the merger parties to take remedial actions including dissolving or modifying the merger and can impose financial penalties.[3]

5. For notified mergers, CCCS takes a two-phase approach in its evaluation. Upon receipt of a complete application from the merger parties, CCCS will carry out a Phase 1 review which is expected to be completed within 30 working days. The purpose of a Phase

[1] Sections 56 to 58 of the Act.

[2] Paragraph 2.3 of the CCCS Guidelines on Merger Procedures 2012

[3] Paragraph 2.4 of the CCCS Guidelines on Merger Procedures 2012

1 review is to conduct a quick assessment to allow CCCS to rule out merger situations that clearly do not raise any competition concerns under the Act. For mergers that are not filtered out in the Phase 1 review, CCCS will conduct a more detailed assessment in a Phase 2 review, which it endeavours to complete within 120 working days.[4]

3. Organisation and Involvement of Economists in Merger Review

6. CCCS does not organise its case officers according to case specialisations. Accordingly, CCCS does not have a dedicated department that conducts merger reviews. Instead, lawyers and economists that are organised under different divisions are selected to form case teams as and when CCCS undertakes a new case. As and when there is a merger notification or merger investigation, teams that comprise a mix of two to four lawyers and economists are formed. The size of the case team depends on multiple factors such as the complexity of the merger, availability of resources, experience of officers and the time available for the merger review.

7. As teams are formed at the commencement of a case, economists are involved in the merger review right from the start and actively participate in information gathering, conducting interviews, processing and reviewing of feedback and evidence, as well as performing competition assessment. Economists would also contribute their expertise to identify the key pieces of quantitative and qualitative information needed and perform economic assessment in areas like market definition, closeness of rivalry, and non-coordinated effects. They also take on the main role in processing and analysing quantitative information and the application of quantitative economic techniques.

4. Economic Analysis in Merger Review

4.1. Quantitative Techniques Used in Merger Review

8. Economists in CCCS apply a range of quantitative techniques during merger reviews. For instance, CCCS recently issued a clearance decision for the *Proposed Acquisition of Daewoo Shipbuilding & Marine Engineering Co., Ltd ("DSME") by Korea Shipbuilding & Offshore Engineering Co., Ltd. ("KSOE")* ("**the shipbuilding merger**") after a Phase 2 review. The merger parties overlap in the global supply of commercial vessels, including oil tankers, containerships, liquefied natural gas ("LNG") carriers and liquefied petroleum gas ("LPG") carriers. CCCS' assessment focused on the largest vessel classes within each of the four vessel types and found that the merger, if carried into effect, will not lead to a substantial lessening of competition in Singapore. In particular, CCCS found that, while the merger parties were close competitors to each other in the relevant markets, there were viable alternative suppliers to the merger parties. In its assessment, CCCS reviewed the merger parties' Residual Supply Index analysis and provided its own version based on revised assumptions. Additional quantitative techniques were also applied where they were more appropriate and relevant to the assessment. For example, CCCS undertook a quantitative assessment on the closeness of rivalry between shipbuilders using techniques including propensity score matching, switching analysis and a winner-runner up analysis. CCCS also applied an econometric analysis of the effect of market concentration and tender participation on price/gross margins and an econometric analysis of the effect of the participation of one merger party on the other's price in a tender.

[4] Paragraph 2.7 to 2.9 of the CCCS Guidelines on Merger Procedures 2012

9. In May 2020, CCCS also issued a clearance decision for the *Proposed Acquisition by Fresenius Medical Care Singapore Pte. Ltd. of RenalTeam Pte. Ltd*. ("**the dialysis merger**") after a Phase 1 review. The merger parties overlap in the operation of private dialysis centres that provide kidney dialysis services to end stage renal disease patients in Singapore. Given that patients tended to obtain kidney dialysis services close to their homes, local competitive conditions were an important consideration in CCCS' assessment. In this regard, using patient data of the merger parties' dialysis centres, CCCS examined the presence of local catchment areas where the merger parties each have at least one dialysis centre and the respective radial distance within which most of the merger parties' patients resided. This delineated the catchment areas within which CCCS could perform a local competition assessment.

10. Market shares and win-loss data are also commonly analysed to examine the closeness of rivalry between merger parties and their competitors. For example, CCCS examined the former in its review of the *Proposed Acquisition by Wilhelmsen Maritime Services AS of Drew Marine* ("**the WMS/DMTS merger**") in the maritime products industry. CCCS found that the merger parties' combined market share in the supply of marine water treatment chemicals in Singapore was substantial and the next largest competitor was less than one-twentieth of the merger parties' combined market share. CCCS also found that the capture of significant market share from WMS by DMTS and the win-loss data from internal sales reports supported the finding that the merger parties were each other's closest competitors.

4.2. "Economising" on Economic Analysis

11. The wide range of quantitative economic techniques available provides choice and flexibility for economists since each technique has its own strengths and limitations. The choice of technique requires a practical approach especially in merger reviews which tend to be time sensitive. CCCS "economises" on its choice of technique(s) by carefully selecting those that are most appropriate for finding the answers to the relevant theories of harm within the merger review timelines.

12. From experience, simpler quantitative analysis can be as effective as complex techniques. Such quantitative analysis are generally more expedient and can be more appropriate in a Phase 1 merger review which only has a short 30-working day administrative time frame and where the objective is to perform a quick assessment to identify mergers that clearly do not raise competition concerns. Simpler quantitative measures or analysis that do not involve econometric methods are also generally easier to comprehend and have the advantage of enabling other non-economics trained persons to quickly understand the results. Therefore, during Phase 1 merger reviews, economists generally rely on both quantitative measures (such as market shares based on appropriate measurements, capacity utilisation rate, customer share of sales) and qualitative feedback from the merger parties and third parties to perform competition assessment in areas such as closeness of rivalry, barriers to entry/expansion and countervailing buyer power. Where possible and relevant, an analysis of customer dispersion data may also be carried out to define geographic markets or an analysis of bidding data may be performed to examine the closeness of rivalry between merger parties and their competitors. For example, in Phase 1 of the shipbuilding merger, CCCS carried out an analysis on the percentage of tenders for which only the merger parties bidded.

13. Smaller economies like Singapore have the advantage of being able to perform quantitative analysis at a granular level and glean valuable insights without requiring complex quantitative techniques where the concern relates to Singapore and the quantity of data is manageable. For example, in a recent clearance decision of the *Proposed*

Acquisition of Bombardier Transportation (Investment) UK Ltd by Alstom S.A. in August 2020, CCCS analysed the participation and win rates at the tender level to determine the closeness of competition between the merger parties and other competitors in the relevant markets in Singapore. In the shipbuilding merger, CCCS also performed a switching analysis at the tender level to determine the presence of close competitors to the merger parties.

14. Qualitative evidence, usually derived from internal documents and feedback from third parties, can also be equally useful when checked against the data collected. These qualitative evidence provide the necessary intuition and guidance to help economists determine which quantitative techniques are more appropriate and whether the assumptions made are logical and in line with market realities. To quote some examples, in its investigation into the *Acquisition of Uber's Southeast Asian business by Grab and Uber's acquisition of a 27.5 percent stake in Grab* ("**the Grab-Uber merger**"), CCCS found that the merger parties' internal documents were an important piece of evidence indicating the product(s) that the merger parties considered as close substitutes to their services, which informed CCCS' market definition. To validate this against the data, CCCS compared the changes in the number of trips made via chauffeured point-to-point transport services with that of street hails, and measured their correlation. This analysis capitalised on the natural experiment that occurred when the Uber mobile application was not in service in the Singapore market. The fact that demand diverted to Grab instead of street hails supported the hypothesis that the street hails were not close substitutes to chauffeured point-to-point transport services. In the WMS/DMTS merger, market feedback and internal documents gathered by CCCS suggested that the merger parties were each other's closest competitors in the supply of marine water treatment chemicals and this was checked against quantitative measures such as market shares and weekly sales reports that contained information on the customer contracts that were won and lost by the merger parties.[5]

15. CCCS also finds that the merger parties' internal strategic documents relating to the merger such as due diligence reports can provide important pieces of market analysis that supplement an internal quantitative assessment. Merger parties necessarily perform a comprehensive review of the strategic and economic benefits of the merger to determine its economic value before entering into a deal. They are therefore likely to possess detailed information on the existing competitive environment and competitive positions of market players and have conducted an analysis of the post-merger competitive environment. In some cases, these internal strategic documents also contain information on the merged entity's pricing strategy, thus providing insight into the merger parties' assessment of their ability to raise prices post-merger which can inform the authority's assessment of the likelihood of non-coordinated effects. In the Grab-Uber merger investigation, CCCS found that the merger parties' contemporaneous internal documents and funding estimates indicated that they expected the merger to increase Grab's ability to increase effective price, thus suggesting the possibility of non-coordinated effects. This was indeed borne out in the data as CCCS saw an actual increase in effective price following the merger.[6]

16. As cited in the earlier examples, economists in CCCS also apply more sophisticated quantitative techniques such as econometric analysis in merger review, albeit mainly in a Phase 2 review where the time frame is more suitable for the collection and analysis of comprehensive datasets. The effectiveness of econometric techniques over simpler quantitative analysis lies in its ability to control for factors that confound a relationship

[5] https://www.cccs.gov.sg/media-and-consultation/newsroom/media-releases/wms-dmts-proposed-merger-provisional-decision-issued

[6] https://www.cccs.gov.sg/public-register-and-consultation/public-consultation-items/uber-grab-merger?type=public_register

under investigation e.g. the effect of market concentration on prices. Therefore, econometric techniques are commonly used to provide further validation and bolster arguments that are derived from simpler analysis. This is similarly true for other sophisticated quantitative techniques. Where the merger parties raise arguments using more sophisticated quantitative techniques, usually with the help of external economic experts, CCCS would also, where necessary, adopt similar techniques to evaluate the merger parties' economic analyses or other appropriate techniques to respond to their arguments. In the shipbuilding merger, for example, CCCS challenged certain assumptions in the Residual Index Analysis submitted by the merger parties through a revised analysis. To illustrate closeness of rivalry, the merger parties also provided their analyses of participation rates and win-loss ratios while CCCS utilised additional techniques such as propensity score matching, switching analysis and winner-runner up analysis to supplement its assessment.

17. CCCS found it useful to consider the following factors when deciding whether to apply sophisticated quantitative techniques in merger reviews. Firstly, these techniques – econometric methods in particular – may require large, granular and continuous datasets that may not be available or require more time and resources to collect. Economists will need to consider whether the time and effort that is invested to operationalise such data requests, including the need to obtain approvals to exercise legal powers at times, might come at the expense of exploring other alternative methods of assessment which could be as or more effective. Secondly, businesses may not collect or compile data in the way that the competition authority requires. As such, the authority will need to find an appropriate balance in view of the compliance cost such data requests would impose on its recipients, especially third parties. Thirdly, CCCS has found that the results of quantitative models could be sensitive to assumptions which make them susceptible to challenge. In the Grab-Uber merger investigation, the merger parties submitted a GUPPI analysis to support their argument that the merger parties' long-run margins were unlikely to meet the critical values required to raise concerns[7]. This analysis however suffered from some shortcomings, as highlighted in CCCS' infringement decision, including the fact that the analysis did not factor in the two-sided nature of the relevant market, thus understating the extent of upward pricing pressure imposed by the merger. Economists should therefore ensure that their models use appropriate assumptions and that results are robust. In practice, CCCS will consider all available evidence before reaching its decisions rather than relying on the results of one economic model.

4.3. Complementary Role of External Economic Experts

18. CCCS has at times engaged external economic experts as a complementary resource to case teams. They are engaged for a variety of purposes, ranging from providing a review of the economic models and analyses submitted by merger parties, recommending improvements or alternative methodologies, to performing a full competition assessment of the merger. External economic experts are valued for their independent analyses which can be compared against CCCS' internal assessment. Such independent analyses will also be helpful when preparing for any appeals by merger parties against potential infringement decisions by CCCS. Where necessary, external economic experts may also be engaged for their industry expertise so that they can help the case teams move up the learning curve quickly.

[7] Due to negative profit margins, a conventional GUPPI will yield a negative figure which will not be meaningful. Therefore, the merger parties submitted a variant of the GUPPI test by estimating how high margins would have to be over the long run, given the estimated diversion ratios, for the GUPPI to reach a level of concern.

5. Conclusion

19. While economists can tap on a wide range of quantitative economic techniques for merger review, the choice of technique boils down to practical considerations that have to be weighed by the economists. There are tradeoffs involved in using simpler versus complex quantitative techniques. The former, while more expedient and easier to understand, could result in inaccurate conclusions if there are confounding factors that are not controlled for. The latter, which can be more precise or deal with a big dataset with appropriate assumptions, requires more time and resources that merger review teams may not have the luxury of having. The economist will therefore have to "economise" on the choice of techniques by choosing the most appropriate ones that can provide answers to the theories of harm raised while balancing time and resource constraints in a merger review. In CCCS' experience, sophisticated quantitative techniques are effective to validate or provide further support for arguments but are generally more appropriate in a Phase 2 review. Simpler quantitative techniques are useful in Phase 1 reviews and can be convincing when paired with qualitative evidence, such as strategic documents. Simpler quantitative techniques also generally provide a useful starting point for the application of more advanced techniques.