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## Interstate Comparison - Use of Contribution Margin in Determination of Price Fixing

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**INTERSTATE COMPARISON - USE OF  
CONTRIBUTION MARGIN IN  
DETERMINATION OF PRICE FIXING**

**Tsui Tat Chee**

ABSTRACT

For over a century, anti-trust law has been used to maintain an open and fair market economy by preventing monopolies.<sup>1</sup> However, anti-trust law has never precisely defined the term “monopoly”, which makes evaluating the interactions between the prohibition of monopoly and encouraging competition increasingly challenging.<sup>2</sup>

In 2006, the Hong Kong Government appointed Arculli & Associates Solicitor Firm to study issues relating to competition in the auto-fuel retail market in Hong Kong.<sup>3</sup> A test based on contribution margins was recommended, leading to the con-

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<sup>1</sup> MASSIMO MOTTA, *COMPETITION POLICY: THEORY AND PRACTICE* 54 (Cambridge Univ. Press 2004).

<sup>2</sup> *Id.* at 59.

<sup>3</sup> THE HONG KONG LEGISLATIVE COUNCIL, HONG KONG SAR LEGISLATIVE COUNCIL LEGISLATIVE PAPER LC Paper No. CB(1)1303/05-06(03) (2006) (H.K.).

clusion that price fixing is not a crime in the industry.<sup>4</sup>

This article examines the problems related to Arculli & Associates Solicitor Firm's conclusion. First, price fixing is a per se violation (in or by itself) of the anti-trust law in the United States. Second, it is difficult for the courts to evaluate price fixing because the evidence of such activities between corporations is not easily available. Third, the test has applied non-standardized accounting principles, which clash with the accounting industry on numerous grounds.

To combat these problems, this paper proposes a revised and objective "Contribution Margin" test to measure monopolies. Based on general accounting principles, this paper presents a comparative study of contribution margins between listed companies in the United States and Hong Kong.

## I. BACKGROUND

The Hong Kong government has long taken on a non-interventionist policy towards the Hong Kong economy, contributing to the limited legal restrictions on the marketplace.<sup>5</sup> This laxity, however, began to change with the handover of sovereignty in July 1997.<sup>6</sup> The last decade has seen a series of debates, involving both the government and the public, on the competitive economic environment of Hong Kong.<sup>7</sup> In response, the government has appointed Arculli & Associates Solicitor Firm as a consultant on issues related to the auto-fuel retail market in Hong Kong.<sup>8</sup> The firm presented the results of their

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<sup>4</sup> MOTTA, *supra* note 1, at 73.

<sup>5</sup> Milton Friedman, *Hong Kong Wrong*, WALL ST. J., Oct. 6, 2006, at A2, available at [http://online.wsj.com/article/SB116009800068684505.html?mod=opinion\\_main\\_commentaries](http://online.wsj.com/article/SB116009800068684505.html?mod=opinion_main_commentaries).

<sup>6</sup> *Id.*

<sup>7</sup> See THE HONG KONG LEGISLATIVE COUNCIL, HONG KONG LEGISLATIVE COUNCIL PANEL ON ECONOMIC DEVELOPMENT MEETING, UPDATED BACKGROUND BRIEF ON THE INTRODUCTION OF A CROSS-SECTOR COMPETITION LAW IN HONG KONG, LC Paper No. CB(1)372/08-09(04), 1-12 (2008) (H.K.).

<sup>8</sup> HONG KONG SAR GOVERNMENT, ECONOMIC DEVELOPMENT AND LABOUR BUREAU GOVERNMENT OF THE HKSAR, STUDY OF THE AUTO-FUEL RETAIL MARKET 3 (2006) (H.K.).

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study in the Arculli & Associates Report (Arculli Report),<sup>9</sup> which was provided by the Economic Development and Labour Bureau for use as a reference document at the Meeting of Competition Policy in Hong Kong, hosted by the Panel of Economic Service of the Hong Kong Legislative Council.<sup>10</sup> In 2008, having received positive feedback from the public, the Hong Kong government introduced a bill in competition law to the Hong Kong Legislation Council (HK Legco) at the Panel on Economic Development Meeting.<sup>11</sup>

According to the United States approach, which maintains that price fixing is a per se violation of anti-trust law, the leading oil companies in Hong Kong would have indeed violated the law with their price fixing activities, *Dr. Miles Medical Co. v. John D. Park & Sons Co.*,. However, the difference between these two jurisdictions stems from the legislation that set the criteria to evaluate monopolistic powers objectively. Nevertheless, both the United States and Hong Kong tests have their inherent problems when enforcing anti-trust law. Thus, the Arculli Report introduces a “Contribution Margin” test, based on accepted general accounting principles, with the aim of reducing legislative discretion in these cases.<sup>12</sup>

This article consists of three parts. The first discusses the background of the Hong Kong Competition Legislation together with a consultation paper supported by the Hong Kong Government. The second part examines the information gathered from the literature review. Based on the contribution margin analysis - a method widely used in managerial accounting - the last section recommends a model that identifies the competi-

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<sup>9</sup> THE HONG KONG LEGISLATIVE COUNCIL, HONG KONG LEGISLATIVE COUNCIL PAPER LC PAPER No. CB(1)1303/05-06(03), (2006) (H.K.).

<sup>10</sup> THE HONG KONG LEGISLATIVE COUNCIL, HONG KONG LEGISLATIVE COUNCIL AGENT FOR THE MEETING ON FEB. 24, 2009 (H.K.).

<sup>11</sup> THE HONG KONG LEGISLATIVE COUNCIL, LEGISLATIVE COUNCIL PANEL ON ECONOMIC DEVELOPMENT MEETING, UPDATED BACKGROUND BRIEF ON THE INTRODUCTION OF A CROSS-SECTOR COMPETITION LAW IN HONG KONG, LC Paper No. CB(1)372/08-09(04), 1-12 (2008) (H.K.).

<sup>12</sup> HONG KONG SAR GOVERNMENT, ECONOMIC DEVELOPMENT AND LABOUR BUREAU GOVERNMENT OF THE HKSAR, STUDY OF THE AUTO-FUEL RETAIL MARKET 4 (2006).

tion stage of a company or an industry in the market.

II. WEAKNESSES OF THE MEASUREMENT IN THE ARULLI &  
ASSOCIATES' REPORT AND OTHER INDICATORS

A. *Gross Margin Analysis in The Arculli & Associates' Report*

The Arculli Report, titled the "Study of the Auto-Fuel Retail Market," was prepared by the Economic Development and Labour Bureau (EDL Bureau).<sup>13</sup> It focuses on how the government determines the scope of monopolistic activities under competition law legislation. It is regarded as a foundational source in discussions of competition law legislation.

The first conclusion of the Arculli Report states that there is "no clear evidence of collusion by oil companies in the Hong Kong auto-fuel retail market,"<sup>14</sup> a conclusion highly dependent on Section 1 of the US Sherman Act. The report performs a profit analysis (see Table 4.1), which shows that the contribution margin of the oil companies is relatively high on an international scale. The report explains this result by taking note of high land costs and concludes that the relatively high gross margins in Hong Kong still fall within a reasonable range.<sup>15</sup> However, it should be noted that in marginal accounting practice, other operating costs are not usually taken into account.<sup>16</sup>

There are two obvious loopholes in the report. First, a sufficiently high profit and gross margin, though not the sole indicators, are suitable criteria to measure whether a company is a monopoly.<sup>17</sup> Pun-Lee Lam and Sylvia Chan in their book *Competition in Hong Kong's Gas Industry*,<sup>18</sup> use the example of the gas industry to outline the framework of the competition environment in Hong Kong. Unlike the petroleum industry, the

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<sup>13</sup> *Id.* at 3.

<sup>14</sup> *Id.* at 22.

<sup>15</sup> HONG KONG SAR GOVERNMENT, ECONOMIC DEVELOPMENT AND LABOUR BUREAU GOVERNMENT OF THE HKSAR, STUDY OF THE AUTO-FUEL RETAIL MARKET 45 (2006).

<sup>16</sup> *See infra* Part 4.1.

<sup>17</sup> PUN-LEE LAM & SYLVIA CHAN, COMPETITION IN HONG KONG'S GAS INDUSTRY 19 (Chinese Univ. Press 2000).

<sup>18</sup> *Id.*

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Hong Kong and China Gas Company Limited (HKCG) is the only gas supplier in Hong Kong,<sup>19</sup> although it faces indirect competition from electricity companies in the domestic energy market.<sup>20</sup> Lam and Chan compare the stock price of HKSC with the Hang Seng Index—the leading Hong Kong stock market indicator - between 1982 and 1997.<sup>21</sup> The authors demonstrate that the contribution margin of the company rose consistently between 1973 and 1996 due to government intervention, which contributes to the consolidation of monopolistic power.<sup>22</sup> However, comparisons of stock prices may not be the most effective strategy to prove the existence of predatory market behavior because stock prices can be affected by a series of non-operating factors. On the other hand, an increase in contribution margin to improve operation profit has always been a strong indicator of a monopoly in the market.<sup>23</sup>

As for the second loophole, it should be noted that high selling prices are not caused by high land costs, but by investors who are willing to pay high prices because of investment opportunities.<sup>24</sup> The Arculli Report claims that the high selling price of petrol in Hong Kong is caused by the high land cost,<sup>25</sup> but this claim contradicts economist David Ricardo's argument in his book: *On the Principle of Political Economy and Taxation*.<sup>26</sup> Ricardo writes that, in the example of land and corn production, high corn prices are not the result of high land prices, but that land prices are a result of the predicted profits that sellers want to gain from the production of corn.<sup>27</sup> The purchasers of factors of production, such as land, are willing to

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<sup>19</sup> *Id.* at xvii-xxv.

<sup>20</sup> *Id.*

<sup>21</sup> *Id.*

<sup>22</sup> *Id.*

<sup>23</sup> MOTTA, *supra* note 1, at 27.

<sup>24</sup> See generally David Ricardo, *On the Principles of Political Economy and Taxation*, LIBRARY OF ECON. & LIBERTY, <http://www.econlib.org/library/Ricardo/ricP1a.html#Ch.2,%20On%20Rent> (last visited Mar. 31, 2011).

<sup>25</sup> HONG KONG SAR GOVERNMENT, ECONOMIC DEVELOPMENT AND LABOUR BUREAU GOVERNMENT OF THE HKSAR, *STUDY OF THE AUTO-FUEL RETAIL MARKET* 9, 12-13 (2006).

<sup>26</sup> Ricardo, *supra* note 24, at ch. 2.

<sup>27</sup> *Id.*

spend more because the expected profit is high.<sup>28</sup> In other words, rent would not have been high if no one had made use of these production factors for profit. In light of Ricardo's explanation, the argument of the Arculli Report is simply not feasible.

Besides these two loopholes, the biggest problems in the report are the misuse of accounting concepts to interpret law and the faulty application of cases to legal issues. As a precise definition of "monopoly" in competition law legislation and a spectrum of anti-competitive behaviors are essential to this legal reform, the legal and accounting point of views shall be re-examined in the following two sections.

### *B. Weaknesses of Other Indicators*

Share price is the most common indicator reflecting a company's profitability.<sup>29</sup> In their analysis of the town gas industry in Hong Kong, Pun-Lee Lam and Sylvia Chan compare the high return of the Hong Kong and China Gas Limited to the Hang Seng Index, the major stock market of Hong Kong.<sup>30</sup> The authors use share price as an indicator because it is regarded as one of the major elements of equity return.<sup>31</sup> In the long run, the share price reflects the profitability of a company, except in the case when share options are awarded to senior management. In past decades, some scholars suggested that when the interests of owners (the principals who own the companies) and managers (the agents who run the business) are different, share options might bind the interests of the two.<sup>32</sup>

Theoretically, including share options as a portion of remuneration binds managers' interests to the owners'; the managers would, in this case, have a vested interest in maximizing company profit and, thereby, the share price they own. However, this assumption does not work in practice because the managers may exercise their options and cash their shares after

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<sup>28</sup> *Id.*

<sup>29</sup> LAM & CHAN, *supra* note 17, at 22.

<sup>30</sup> *Id.*

<sup>31</sup> *Id.* at 20.

<sup>32</sup> See generally Michael C. Jensen & William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, J. FIN. ECON. 305 (1976).

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they have resigned. The grantees therefore tend to enter into a contract that provides them with short-term profits, but that affects the company negatively in the long run.<sup>33</sup>

The impact of the sub-prime mortgage crisis on the Hong Kong and Shanghai Bank Corporation (HSBC) speaks for itself; by the end of the fiscal year 2008, HSBC had suffered from a high bad-debt provision, which was the main reason for the nearly 70% drop in net profits.<sup>34</sup> Although the current senior management gave up their bonuses due to unsatisfactory performance, John Bond, the former chairperson who was responsible for taking the company into this high-risk market, was not affected by the bonus reduction because he retired in 2006.<sup>35</sup> Although some companies prohibit managers from exercising such a practice for a period after their resignations, such as the third-year period introduced by the China Life Insurance Co. Ltd. in 2006,<sup>36</sup> a company's share price may still not be a reliable indicator of its profitability.

Furthermore, share price is not a reliable criterion in legal tests because it is easily affected by external factors. A good example of this issue is the result of a claim made by the Chinese media on August 2, 2007.<sup>37</sup> The media claimed that the Chinese government would soon confirm the "Qualified Domestic Institutional Investor (QDII)" scheme, which allowed individuals in China to invest in the Hong Kong stock market.<sup>38</sup>

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<sup>33</sup> Jennifer N. Carpenter, *Does Option Compensation Increase Managerial Risk Appetite?* (NYU Working Paper No. FIN-98-016), available at <http://ssrn.com/abstract=1296411>.

<sup>34</sup> *Summary Consolidated Income Statement*, HSBC HOLDINGS PLC ANNUAL REV. 2008, [http://www.2008.annualreview.hsbc.com/financial\\_statements/consolidated\\_income\\_statement.html](http://www.2008.annualreview.hsbc.com/financial_statements/consolidated_income_statement.html) (last visited Apr. 12, 2011).

<sup>35</sup> *Historical Highest Provision of HSBC after Sub-prime Storm*, CHINA REV. NEWS, <http://www.chinareviewnews.com/doc/1005/8/2/8/100582-895.html?coluid=7&kindid=0&docid=100582895> (last visited Apr. 12, 2011).

<sup>36</sup> *China Life Insurance Co., Ltd. Designs Its Share Option Reward Scheme*, THE MINISTRY OF COMMERCE OF CHINA (Nov. 17, 2009), <http://jingyuan.mofcom.gov.cn/aarticle/zhongyaozt/200611/20061103767944.html> (last visited Nov. 12, 2010).

<sup>37</sup> *The First QDII Authorized Agent is Appointed*, H.K. ECON. J., Aug. 2, 2007, at P11.

<sup>38</sup> *Id.*



Following this announcement, the Hang Seng Index raised from 22,443.25 on August 2, 2007 to 31,492.88 on November 1, 2007,<sup>39</sup> the historical peak at closing. However, two days later, Wen Jiabao, the Premier of the People's Republic of China, announced that the scheme was not to be put in place.<sup>40</sup> A year after Wen's announcement, the Index plummeted to 14,344.37 on November 3, 2008.<sup>41</sup> The proposed scheme has been left hanging until the present day, and the share market in Hong Kong has experienced fluctuations. Although the shares returned to equilibrium after Wen's announcement, fluctuation indicates how unreliable share prices can be as an indicator for a legal test.

All the same, net profits alone are not a good indicator because they too can be affected by a range of tangential factors, like, as Chicago scholars suggest, high performance.<sup>42</sup> For example, the profits made from food and beverages sold in gas stations affect the total income of the petroleum company. However, this income is not relevant to petrol sales and the contribution margin analysis only concentrates on the profitability of the quantity of petrol sold. Compared with the Lerner Index,<sup>43</sup> contribution margins focus more on the corporation itself, when the former may be affected by the special nature of a product sold or the demand elasticity of customers.<sup>44</sup>

### III. LEGAL ANALYSIS OF THE ARCULLI & ASSOCIATES' REPORT IN US SHERMAN ACT

In addition to its use of non-standardized accounting concepts, the Arculli Report does not fully present and discuss relevant cases of price fixing before it jumps to the conclusion

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<sup>39</sup> YAHOO! FIN. H.K., <http://hk.finance.yahoo.com> (last visited Oct. 1, 2010).

<sup>40</sup> *Wen Jiabao: The QDII Scheme shall not Affects Stability of the Stock Market*, H.K. INFO. SERV. DEPT., (Nov. 3, 2008), <http://sc.info.gov.hk/-gb/www.news.gov.hk/tc/category/businessandfinance/071103/html/071103tc03003.htm>.

<sup>41</sup> YAHOO! FIN. H.K., <http://hk.finance.yahoo.com> (last visited Oct. 1, 2010).

<sup>42</sup> MOTTA, *supra* note 1, at 78.

<sup>43</sup> *Id.* at 110.

<sup>44</sup> *Id.* at 111.

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that price fixing in the petroleum industry is not a crime. Above all, it merely refers to a series of cases held by the United States Court of Appeal to cite opinions about individual issues of price fixing. It makes no mention of the leading case, *Dr. Miles Medical Co. v. John D. Park & Sons Co.*, in which the United States Supreme Court ruled that price fixing is a per se violation of the Sherman Act.<sup>45</sup> Furthermore, the United States Supreme Court price fixing case, *State Oil Co. v. Khan*, must be addressed for an in-depth and well-rounded discussion of the topic. A discussion of price fixing that is based on cases from the lower courts of the United States and neglects the judgments of two major Supreme Court cases is simply insufficient.

United States legislation contains a series of statutes concerning anti-trust law, such as the Sherman Act, the Clayton Act, the Robinson-Patman Act, and the Federal Trade Commission Act.<sup>46</sup> As an international law, the Sherman Act was first referred to in the Arculli Report to determine whether the petroleum industry in Hong Kong fits into the scope of international competition law.<sup>47</sup>

A. *Relevant Sections of US Sherman Act*

The Competition Policy Review Committee, under the Competition Policy Advise Group, refers to the Sherman Anti-trust Act, a prominent statute in the United States, as one of the foreign authorities for its overseas practice section.<sup>48</sup> Sections 1 and 2 are the major sections in the Sherman Act because they outline the scope of international competition law.<sup>49</sup> Section 2 is entitled Trusts, etc., in Restraint of Illegal Trade;

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<sup>45</sup> 15 U.S.C. § 2 (2011).

<sup>46</sup> Donald S. Clark, *The Robinson-Patman Act: General Principles, Commission Proceedings, and Selected Issues*, F.T.C., <http://www.ftc.gov/speeches/other/patman.shtm> (last visited Apr. 12, 2011).

<sup>47</sup> HONG KONG SAR GOVERNMENT, ECONOMIC DEVELOPMENT AND LABOUR BUREAU GOVERNMENT OF THE HKSAR, *STUDY OF THE AUTO-FUEL RETAIL MARKET* 62 (2006).

<sup>48</sup> ROBERT S. PINDYCK & DANIEL L. RUBINFELD, *MICROECONOMICS: PEARSON INTERNATIONAL EDITION* 384 (7th ed. 2009).

<sup>49</sup> 15 U.S.C. §§ 1-2 (2011).

Penalty. It states that:

[E]very contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is declared to be illegal. Every person who shall make any contract or engage in any combination or conspiracy hereby declared to be illegal shall be deemed guilty of a felony, and, on conviction thereof, shall be punished by fine not exceeding \$10,000,000 if a corporation, or, if any other person, \$350,000, or by imprisonment not exceeding three years, or by both said punishments, in the discretion of the court.<sup>50</sup>

According to the decision *United States v Trans-Missouri Freight Ass'n*, if a group of entities intentionally form a cartel to fix prices, then they have violated the Sherman Antitrust Act.<sup>51</sup> However, this scenario is unlikely because companies would recognize that any written agreement between them to fix prices would openly break the law. Thus, the authorities must use circumstantial evidence to determine whether there are any monopolistic activities in practice, such as oligopolistic industries being dominated by a few firms. The act itself does not explicitly define what types of agreements constitute a sufficient concert to form a “contract, combination or conspiracy.”<sup>52</sup> The analysis of Arculli’s Report attempts to classifying the issue of whether such an agreement exists, however, is unlikely completed for missing the leading cases above.

#### *B. Price Fixing Issue in the Arculli & Associates’ Report*

The Arculli Report refers to three cases to determine whether the petroleum industry in Hong Kong falls under the scope of the Sherman Act.<sup>53</sup> By referring to two cases in the United States Court of Appeal, the Report concludes that United States anti-trust law does not prohibit price fixing activi-

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<sup>50</sup> 15 U.S.C. § 1.

<sup>51</sup> *United States v. Trans-Missouri Freight Ass’n*, 166 U.S. 290 (1897).

<sup>52</sup> PHILLIP AREEDA, LOUIS KAPLOW & AARON S. EDLIN, *ANTITRUST ANALYSIS: PROBLEMS, TEXT, AND CASES* 202 (6th ed. 2004).

<sup>53</sup> HONG KONG SAR GOVERNMENT, ECONOMIC DEVELOPMENT AND LABOUR BUREAU GOVERNMENT OF THE HKSAR, *STUDY OF THE AUTO-FUEL RETAIL MARKET* 62-63 (2006) [hereinafter HONG KONG SAR GOVERNMENT, *STUDY OF THE AUTO-FUEL RETAIL MARKET*].

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ties.<sup>54</sup> However, it is clear that lower courts (i.e., the Court of Appeals) hold less authority than the United States Supreme Court, the highest judiciary body of the country,<sup>55</sup> which classifies price fixing as a per se violation of the Sherman Act, see *Dr. Miles Medical Co. v. John D. Park & Sons Co.*.

*C. The Scope of Price Fixing Under Article 1 of the Sherman Act in the US Supreme Court*

In a country that operates under a common law legal system, the decisions of the Supreme Court override the decisions of the lower courts.<sup>56</sup> It is therefore illogical to bypass the decisions of the Supreme Court and focus on the opinions of a lower court, especially when the latter's view is contrary to the prevailing opinion of the Supreme Court.

Between 1911 and 1997, the United States Supreme Court maintained the decision made in *Dr. Miles Medical Co. v John D. Park & Sons*, which maintains that price fixing is a per se violation of the Sherman Act.<sup>57</sup> In this decision, Justice Holmes affirms that any contracts made to maintain prices would violate the Sherman Antitrust Act, and comments on the issue of social benefits under any such agreement:

[T]he Dr. Miles Medical Company knows better than we do what will enable it to do the best business. We must assume its retail price to be reasonable, for it is so alleged and the case is here on demurrer; so I see nothing to warrant my assuming that the public will not be served best by the company being allowed to carry out its plan. I cannot believe that in the long run the public will profit by this court permitting knaves to cut reasonable prices for some ulterior purpose of their own, and thus to impair, if not to destroy, the production and sale of articles which it is assumed to be desirable that the public should be able to get.<sup>58</sup>

The circumstances of the *Dr. Miles* case clearly differ from

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<sup>54</sup> *Id.*

<sup>55</sup> See U.S. CONST. art. III, §1

<sup>56</sup> 28 U.S.C. § 2071 (2011).

<sup>57</sup> See *Dr. Miles Med. Co. v. John D. Park & Sons Co.*, 220 U.S. 373 (1911).

<sup>58</sup> *Id.*

those of the Hong Kong petroleum industry. In the former, there was a written agreement presented by the plaintiff as a single entity of wholesalers and retailers; in the latter, there is no such document among the petroleum companies in Hong Kong. In spite of this difference, the case is still notable because it was the first decision made by the United States Supreme Court to enforce Section 1 of the Sherman Act regarding price maintenance.<sup>59</sup> Therefore, it has relevance for the situation in Hong Kong.

The United States Supreme Court's stance on price fixing is further affirmed in the case: *United States v. Socony-Vacuum Oil Co.*<sup>60</sup> When applying the Sherman Act, the Supreme Court states that:

[U]nder the Sherman Act a combination formed for the purpose and with the effect of raising, depressing, fixing, pegging, or stabilizing the price of a commodity in interstate or foreign commerce is illegal per se. Where the machinery for price-fixing is an agreement on the prices to be charged or paid for the commodity in the interstate or foreign channels of trade, the power to fix prices exists if the combination has control of a substantial part of the commerce in that commodity.<sup>61</sup>

Further, *Albrecht v. Herald Co.*, reaffirms the decision that price fixing is a per se violation of the Sherman Act.<sup>62</sup> It states: "The question in this case is not whether dictation of maximum prices is ever illegal, but whether it is always illegal. Petitioner is seeking, and now receives, a judgment notwithstanding the verdict of a jury that he had failed to show that the practice was unreasonable in this case."<sup>63</sup> However, the Supreme Court overruled *Albrecht* in *State Oil Co. v. Khan*, which divided the offense of price fixing into two categories: vertical and horizontal maximum price fixing.<sup>64</sup> Because of this case, vertical price fixing is no longer considered a per se violation of the Sherman

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<sup>59</sup> Jeffrey Bradford, *The Antitrust News: "Resale price maintenance after Leegin,"* ELLIS & WINTERS, [http://www.elliswinters.com/?p=inside/5news/stories&story=antitrust\\_news\\_bradford\\_08](http://www.elliswinters.com/?p=inside/5news/stories&story=antitrust_news_bradford_08) (last visited Apr. 12, 2011).

<sup>60</sup> *United States v. Socony-Vacuum Oil Co.*, 310 U. S. 150 (1940).

<sup>61</sup> *Id.* at 223.

<sup>62</sup> *Albrecht v. Herald Co.*, 390 U.S. 145 (1968).

<sup>63</sup> *Id.* at 880.

<sup>64</sup> *State Oil Co. v. Khan*, 522 U.S. 3 (1997).

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Act, as Justice O'Connor states:

[I]n overruling *Albrecht*, we of course do not hold that all vertical maximum price fixing is per se lawful. Instead, vertical maximum price fixing, like the majority of commercial arrangements subject to the antitrust laws, should be evaluated under the rule of reason. In our view, rule-of-reason analysis will effectively identify those a situation in which vertical maximum price fixing amounts to anticompetitive conduct.<sup>65</sup>

Although the concept of vertical price fixing in the *State Oil* case is no longer a per se violation of anti-trust law in the United States, the *State Oil* case provides a reasonable test to justify this legal rationale. Furthermore, after the *State Oil* case, horizontal price fixing is still considered a breach of the Sherman Act.<sup>66</sup> The cases referred to in the Arculli Report are therefore unreliable because the opinions of the lower courts should not be relied upon when their views conflict with those of the Supreme Court. In the case of the Hong Kong petroleum industry, the per se violation will still be applicable if horizontal price fixing is found in the retailing market.

1. New Development in the U.S. v LG Display Co., Ltd. and LG Display America, Inc. (2008), CR 08-0803 VRW.

In 2008, the defendants of *United States v LG Display Co.*, *United States v. Chunghwa Picture Tubes*, , and *United States v. Sharp Corporation*, agreed to pay a total sum of USD 585 million to settle their prosecutions for price fixing.<sup>67</sup> The fine paid by LG Display, USD 400 million,<sup>68</sup> was the second largest amount awarded under the Sherman Act in history.<sup>69</sup> For their part, Sharp Corporation paid USD 120 million,<sup>70</sup> representing

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<sup>65</sup> *Id.* at 22.

<sup>66</sup> *Id.*

<sup>67</sup> *LG, Sharp, Chunghwa Agree to Plead Guilty, Pay Total of \$585 Million in Fines for Participating in LCD Price-fixing Conspiracies*, U.S. DEPT OF JUSTICE, <http://www.justice.gov/opa/pr/2008/November/08-at-1002.html> (last visit Apr. 12, 2011).

<sup>68</sup> *Id.*

<sup>69</sup> *Id.*

<sup>70</sup> *Id.*

the twelfth largest amount awarded under the Sherman Act.<sup>71</sup> Chunghwa Picture Tubes, Ltd. paid USD 65 million,<sup>72</sup> which is the second largest antitrust criminal fine in the history.<sup>73</sup>

In terms of law, however, *LG Display* may not be a leading case. First, the defendants were willing to pay the United States government before the court made the decision to end the litigation. Second, it was merely a case heard in the United States District Court for the Northern District of California. As mentioned earlier on, in the common law jurisdiction of the United States, a case heard in a district court may not have an effect on the whole country. Nevertheless, this case is referable not only for the huge amount paid by the defendants, but also for the nature of the case itself. Unlike the opinions made in the lower courts cases cited in the Arculli Report, the reasoning of the *LG Display* case matches the principles of the decision made by the United States Supreme Court, especially for the horizontal price model. Among other things, the case provides further information on what type of agreement violates the Sherman Act.

The grounds that the United States Department of Justice prosecuted LG Display and Chunghwa for violation of the Sherman Act were described:

[F]rom on or about September 21, 2001 to on or about June 1, 2006, the defendants and their coconspirators entered into and engaged in a combination and conspiracy in the United States and elsewhere to suppress and eliminate competition by fixing the prices of thin-film transistor liquid crystal display panels ("TFT-LCD"). The combination and conspiracy engaged in by the defendants and their coconspirators was in unreasonable restraint of interstate and foreign trade and commerce in violation of Section 1 of the Sherman Act (15 U.S.C. § 1). The charged combination and conspiracy consisted of a continuing agreement, understanding, and concert of action among the defendants and their coconspirators, the substantial terms of which were to agree to fix the prices of TFT-LCD.<sup>74</sup>

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<sup>71</sup> *Id.*

<sup>72</sup> *Id.*

<sup>73</sup> *Id.*

<sup>74</sup> *See* Indictment: United States of America v. Cheng Yuan Lin, a.k.a.

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In examining these allegations, it is too vague for The Arculli Report to merely emphasize a “plus factor” when determining whether corporate agreements violate Section 1 of the Sherman Act.<sup>75</sup> In 2007, when the United States Supreme Court, decided *Bell Atlantic Corp. v Twombly*, it upheld the decision in the Court of Appeals that: “[p]lus factors are not required to be pleaded to permit an antitrust claim based on parallel conduct to survive dismissal.”<sup>76</sup> Moreover, this study for the settlement of *LG Display* case can be directly comparable to the HK Petroleum industry because in both cases, they have been accused in court for price fixing activities with unreasonably high prices.

*D. Horizontal Price Fixing in Hong Kong Oil Industry?*

Based on these findings, the next question that arises revolves around how the court determines whether price fixing exists. In its discussion of the United States Anti-Trust Act and Section 1 of the Sherman Act, the Arculli Report emphasizes the existence of agreements by referring to lower court decisions.<sup>77</sup> However, as Phillip Areeda, Louis Kaplow, and Aaron S. Edlin remark, it is difficult to track written evidence of such agreements that would directly violate the Sherman Act.<sup>78</sup> It almost goes without saying that “firms contemplating a conspiracy will conceal their tracks or attempt to achieve their goals more indirectly.”<sup>79</sup> The Arculli Report simply concludes that “United States antitrust law does not prohibit oligopolists from pricing above competitive levels in the absence of an agreement to do so.”<sup>80</sup> In contrast, Phillip Areeda, Louis Kap-

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C.Y. Lin, Wen Jun Cheng, a.k.a. Tony Cheng, and Duk Mo Koo, No. CR 09-0110 MMC (N.D. Cal. Feb. 9, 2009), available at <http://www.justice.gov/atr/cases/f243500/243521.pdf>.

<sup>75</sup> HONG KONG SAR GOVERNMENT, STUDY OF THE AUTO-FUEL RETAIL MARKET, *supra* note 53, at 62.

<sup>76</sup> *Id.*

<sup>77</sup> *Id.*

<sup>78</sup> PHILLIP AREEDA, LOUIS KAPLOW & AARON S. EDLIN, ANTITRUST ANALYSIS: PROBLEMS, TEXT, AND CASES 113-14 (6th ed. 2004).

<sup>79</sup> *Id.* at 202.

<sup>80</sup> HONG KONG SAR GOVERNMENT, STUDY OF THE AUTO-FUEL



low, and Aaron S. Edlin contend that “oligopolists sometimes can achieve cartel-like results without any express agreement.”<sup>81</sup> They caution, “proving a conspiracy in restraint of trade often involves usual difficulties of interring the existence of an agreement from defendants’ behavior.”<sup>82</sup>

#### IV. THE CONTRIBUTION MARGIN ANALYSIS OF THE ARCULLI & ASSOCIATES’ REPORT

##### A. *Revenue*

The Arculli Report performs a gross margin (or contribution margin) analysis to evaluate whether the petroleum companies in Hong Kong have earned unreasonably higher profits in comparison with companies in other countries by means of collusion or price fixing.<sup>83</sup> This is a commonly used profit analysis for regular petrol and ULSD diesel sales in Hong Kong.<sup>84</sup> However, the Report’s method of calculating the percentage of contribution margin is not acceptable according to the Hong Kong Accounting Standard, the “Bible” of accounting principles in Hong Kong.<sup>85</sup>

Contribution margin (or profit margin) analysis is a useful tool for a company’s management team to evaluate financial performance and to make investment divisions. It is defined as, “the amount remaining from sales revenues after variable expenses have been deducted.”<sup>86</sup> According to the Hong Kong Ac-

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RETAIL MARKET, *supra* note 53, at 62.

<sup>81</sup> PHILLIP AREEDA, LOUIS KAPLOW & AARON S. EDLIN *supra* note 78, at 20.

<sup>82</sup> *Id.*

<sup>83</sup> HONG KONG SAR GOVERNMENT, STUDY OF THE AUTO-FUEL RETAIL MARKET, *supra* note 53, at 16.

<sup>84</sup> See HONG KONG CONSUMER COUNCIL’S REPORT, [http://www.consumer.org.hk/website/wrap\\_en2/oil9811/chinese/report.htm](http://www.consumer.org.hk/website/wrap_en2/oil9811/chinese/report.htm), (last visit Apr. 4, 2011).

<sup>85</sup> See Members’ Handbook Volume II – “Financial Reporting Standards,” H.K. INST. OF CERTIFIED PUBLIC ACCOUNTANTS (HKICPA), [http://app1.hki-cpa.org.hk/ebook/HKSA\\_Members\\_Handbook\\_Master/volumeII/contentpage.pdf](http://app1.hki-cpa.org.hk/ebook/HKSA_Members_Handbook_Master/volumeII/contentpage.pdf).

<sup>86</sup> RAY H. GARRISON & ERIC W. NOREEN, MANAGERIAL ACCOUNTING 211 (8th ed. 2000).

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counting Standard (HKAS), the Hong Kong version of the International Accounting Standard (IAS)<sup>8788</sup> “revenue” is defined as: “[t]he gross inflow of economic benefits during the period arising in the course of the ordinary activities of an entity when those inflows result in increases in equity, other than increases relating to contributions from equity participants.”<sup>89</sup> Although no definition is provided in the Inland Revenue Ordinance (IRO), the Hong Kong Inland Revenue Department provides one in its Departmental Interpretation and Practice Notes (DIPN):

[T]he term “profits” in paragraph 1 of Article 1 is not defined in the Arrangement. Its meaning is to be ascertained in accordance with the laws of both Sides. In the Mainland, profits refer to all profits derived by an enterprise directly from its business activities. In Hong Kong, profits refer to the business profits derived by an enterprise and are computed in accordance with generally accepted accounting principles and the provisions of the IRO.<sup>90</sup>

Generally, the sales revenue is equal to the amount received from the customer to the company. However, there is an exception when the company withholds part of the amount as a tax for the government.

In paragraph 8, the HKAS 18 also states that:

[R]evenue includes only the gross inflows of economic benefits received and receivable by the entity on its own account. Amounts collected on behalf of third parties such as sales taxes, goods and services taxes and value added taxes are not economic benefits which flow to the entity and do not result in increases in equity.

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<sup>87</sup> *Hong Kong Accounting Standard 18 Revenue*, H.K. INST. OF CERTIFIED PUBLIC ACCOUNTANTS (HKICPA) ¶ 7 (Mar. 2010), [http://app1.hkicpa.org.hk/ebook/HKSA\\_Members\\_Handbook\\_Master/volumeII/hkas18.pdf](http://app1.hkicpa.org.hk/ebook/HKSA_Members_Handbook_Master/volumeII/hkas18.pdf).

<sup>88</sup> The IAS is used in more than 100 countries. See Press Release, U.S. Sec. & Exch. Comm’n, SEC Proposes Roadmap Toward Global Accounting Standards to Help Investors Compare Financial Information More Easily (Aug. 27, 2008), available at <http://www.sec.gov/news/press/2008/2008-184.htm>.

<sup>89</sup> Hong Kong Accounting Standard 18 Revenue, *supra* note 87, at ¶ 7.

<sup>90</sup> INLAND REVENUE DEP’T H.K., DEPARTMENTAL INTERPRETATION AND PRACTICE NOTES NO. 32, 10 (June 1998), available at [http://www.ird.gov.hk/eng/pdf/e\\_dipn32.pdf](http://www.ird.gov.hk/eng/pdf/e_dipn32.pdf).

Therefore, they are excluded from revenue.<sup>91</sup>

Under this principle, excises and duties received from customers in the oil companies should be excluded from calculations of revenue. HKAS 18 rejects the accounting method in the Arculli Report, which does not treat excises and duties as economic benefits contributing to the entities; instead, they are withheld by the petroleum companies for the government as part of their revenue. Excises and duties should not be treated as variable costs when the fund is actually held by the sellers as a trustee, rather than as an income statement item for calculating the contribution margin and net income. For this reason, in the Arculli Report's gross profit analysis, the revenue of petrol is overestimated because the sales amount received is actually not fully recorded as the revenue. If this misleading figure is eliminated, the sales of regular petrol and ULSD Diesel would not be HK\$11.13 and HK\$5.78 per liter, but HK\$5.07 and HK\$4.67 respectively (see Table 4.1 and 4.2). Although this adjustment does not affect the actual amount of the contribution margin, it could be highly misleading when conducting the contribution margin analysis by percentage.

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<sup>91</sup> Members' Handbook Volume II, *supra* note 85, ¶ 8.

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**Table 4.1 - Contribution margin of Petrol Sales in Hong Kong Margin Analysis - (Year to 30 June 2005) Arculli & Associates' Report Version<sup>92</sup>**

	<u>Regular Petrol</u> HK\$/ Per litre	<u>ULSD Diesel</u> HK\$/ Per litre
Pump Price	12.06	7.23
Typical Discount	(0.93)	(1.45)
Price after Discounts	11.13	5.78
Excise/ Duty	(6.06)	(1.11)
Product Cost	(3.00)	(2.86)
	<hr/>	<hr/>
Gross Margin	2.07	1.81
	<hr/>	<hr/>
Land	(1.02)	(1.02)
Construction Costs	(0.14)	(0.14)
Operating Costs	(0.36)	(0.36)
Credit Card Commission	(0.05)	(0.05)
Government Rent and Rates	(0.07)	(0.07)
Terminal Storage	(0.08)	(0.08)
Distribution	(0.06)	(0.06)
	<hr/>	<hr/>
Net Margin	0.29	0.02
	<hr/> <hr/>	<hr/> <hr/>
As & of Ex-Duty Pump Price	4.80%	0.30%
As & of Ex-Duty Discounted Price	5.50%	0.50%

<sup>92</sup> HONG KONG SAR GOVERNMENT, *supra* note 8, at 6.

**Table 4.2 - Amended Contribution Margin of Petrol Sales in Hong Kong Margin Analysis - (Year to 30 June 2005)<sup>93</sup>**

	<u>Regular Petrol</u>	<u>ULSD Diesel</u>	
	HK\$/ Per litre	HK\$/ Per litre	a)
Pump Price (Net)	5.07	4.67	
Product Cost	(3.00)	(2.86)	b)
Contribution Margin in Dollar Amount (a) – (b)	<u>2.07</u>	<u>1.81</u>	c)
Contribution Margin in Percentage (c) / (b)	<u>40.83%</u>	<u>38.76%</u>	

*B. Fixed Cost and Variable Costs*

The essential step of calculating contribution margin divides all costs into two categories: variable costs and fixed costs. The difference between these two is their variations alongside the different level of activities. Whereas variable costs are directly caused by the products sold, other costs remain fixed. In theory, nonetheless, there are no fixed costs in the long run because all costs are subject to the changes of sales volume.<sup>94</sup>

In the case of the petroleum industry, the variable costs are directly influenced by each of the oil liters sold, while the rest of the costs remain the same.<sup>95</sup> Land cost is generally regarded as a fixed cost because the rent of the petroleum station

<sup>93</sup> *Id.*

<sup>94</sup> FARRISON & NOREEN, *supra* note 86, at 58.

<sup>95</sup> *See id.*

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is fixed now matter the quantity of oil sold.<sup>96</sup> Therefore, the report should not include land costs in the analysis and argue that high petroleum price is caused by the high land costs.

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<sup>96</sup> *Id.* at 57.

V. CONTRIBUTION MARGIN ANALYSIS – A TOOL FOR MONOPOLY MEASUREMENT

To determine price fixing, general accounting principles and formulas should be considered. Despite the errors in the Arculli Report on the competitive circumstances of the Hong Kong petroleum industry, the contribution margin method is a useful tool. It identifies the profitability of the companies in comparison to the general business environment of the territory.<sup>97</sup> The method uses the net sales revenue (i.e., gross revenue minor discount) so that the gross selling prices will not be misleading when discounts are being offered.<sup>98</sup> Furthermore, using net sales revenue better complies with the Accounting Standard than a method using gross revenue; the Accounting Standard defines revenue as “the gross inflow of economic benefits,” where discounts are never received by the sellers.<sup>99</sup>

A. *Legal Ground of Using the Contribution Margin*

Although the Arculli Report insists that high land costs are not the reason for the rise in oil prices,<sup>100</sup> the existence of collusion or a monopolistic position cannot be established merely by a high contribution margin.<sup>101</sup> However, an unreasonably high contribution margin in the same industry in comparison to other countries is still an important indicator when determining the competition environment of the petroleum industry in Hong Kong. The government does make use of contribution margin analysis to identify the nature of different business activities.

The concept of “Totality of the Facts,” which aims to take into consideration all relevant factors when drawing a conclusion, is widely used in Business Law.<sup>102</sup> Gross profit is obvious-

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<sup>97</sup> Members' Handbook Volume II, *supra* note 85, ¶ 7.

<sup>98</sup> Yeung Wei Hon, *A Few Words for the Oil Companies*, WISERS, Jan. 6, 2005, <http://www.wisers.com/corpsite/global/b5/products/wiseneews.html>.

<sup>99</sup> Members' Handbook Volume II, *supra* note 85, ¶ 7.

<sup>100</sup> HONG KONG SAR GOVERNMENT, *supra* note 8, at 9.

<sup>101</sup> *Id.*

<sup>102</sup> See *Comm'r of Inland Revenue v Magna Indus. Co. Ltd.*, [1995].

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ly one of the most important factors in determining the existence of unreasonably high profits. When the Inland Revenue Department performs field audits to detect tax evasion, profit margin in percentage is one of the essential elements that are studied because:

cases for field audit can be said that a field audit or investigation is normally initiated where characteristics or indications of non-compliance, such as the following, are present...a business has an unreasonably low turnover or profit percentage (having regard to factors such as the nature of the business, its location and type of customers).<sup>103</sup>

Unlike a high total profit, which may be caused by sales volume, cost control, or other non-core business activities, it is much more difficult to justify a high contribution margin in other countries where crude oil is an important sales element on the global market. In some circumstances, the defendant is expected by the prosecutor to prove his innocence against the finding of an unreasonably high profit. An example of this tendency is found in the treatment of corruption in the Possession of Unexplained Property, Prevention of Bribery Ordinance of Hong Kong.<sup>104</sup>

A high contribution margin alone is not sufficient to decide whether an industry or a single entity is operating as a monopoly. It is even more inappropriate to transfer the burden of proof onto the defendant because the government suggests, under the Hong Kong Competition Law, that a conviction shall be classified as a civil matter.<sup>105</sup> Nevertheless, the contribution margin analysis is still a powerful tool for prosecutors to judge whether defendants have access to excessive privileges. Thus, if the court takes contribution margin as a determining factor in a company's market status, the next question is how the court defines the reasonable scope of the margin of the defendant

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<sup>103</sup> HONG KONG INLAND REVENUE DEPARTMENT, *supra* note 90, ¶ 30.

<sup>104</sup> Prevention of Bribery Ordinance, No. 201, (2008) 22 O.H.K., § 10 (H.K.), *available at*: [http://www.legislation.gov.hk/blis\\_pdf.nsf/6799165D2-FEE3FA94825755E0033E532/660A25EA15B8C9D6482575EE004C5BF1/\\$FILE/CAP\\_201\\_e\\_b5.pdf](http://www.legislation.gov.hk/blis_pdf.nsf/6799165D2-FEE3FA94825755E0033E532/660A25EA15B8C9D6482575EE004C5BF1/$FILE/CAP_201_e_b5.pdf).

<sup>105</sup> HONG KONG INLAND REVENUE DEPARTMENT, *supra* note 90, at 4.



against the business market as a whole.

*B. Method for Determining Reasonable Profit*

Other methods may be used to measure the reasonability of profits, but they are not as preferable as the contribution margin method, which identifies companies' earnings through their activities. The contribution margin method shall exclude income from secondary items (e.g., income from items other than oil) because they are irrelevant to the main transaction. The contribution margin in US dollar amounts is not as useful, in terms of comparison to other companies, when it is affected by sales volume. A low contribution margin from selling a single unit may result in a high contribution margin when the sales volume is high. The contribution margin in percentage provides more insight into the profitability of the petroleum industry because it illustrates the margin in the sales unit of oil, regardless of the sales turnover of the company.

*C. Contribution Margin of the Industry vs. Enterprises Listed in the Stock Market*

Analysts may not be able to conclude whether the contribution margin percentage of a petroleum company is high without comparing it to other sectors. The collected data will therefore be compared to that of the leading companies of different industries in the same country because the same business environment is necessary for an effective study. The calculation compares the contribution margin of the petroleum companies in Hong Kong and the United States, as an example demonstrated below. As the available information on diesel discount is limited, the study is based on the figures provided in the Arculli Report's calculation of the contribution margin analysis in 2005.<sup>106</sup> The figures of the other listed companies in Hong Kong are collected from their financial reports for the year ending on December 31, 2005.<sup>107</sup> The financial results of

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<sup>106</sup> HONG KONG SAR GOVERNMENT, ECONOMIC DEVELOPMENT AND LABOUR BUREAU GOVERNMENT OF THE HKSAR, *supra* note 8, at 8.

<sup>107</sup> *The Consumer Council Provides Detailed Oil Price*, YAHOO! NEWS, Feb. 24, 2009, [http://hk.wrs.yahoo.com/\\_ylt=A8tU3rno\\_O1J7C8BIJq4ygt./SIG=1-2751gh35/EXP=1240419944/\\*-http%3A/hk.news.yahoo.com/article/090223/3/](http://hk.wrs.yahoo.com/_ylt=A8tU3rno_O1J7C8BIJq4ygt./SIG=1-2751gh35/EXP=1240419944/*-http%3A/hk.news.yahoo.com/article/090223/3/)

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the listed companies in the same period are not yet available, except for 2005; thus, this period will be used for the analysis. As mentioned, it is misleading to calculate a contribution margin using selling prices with taxes and duties because their amounts are not published separately in the data provided by the Consumer Council.

The information for the United States is taken from the Oil and Gas Journal Database, which provides detailed figures on oil prices.<sup>108</sup> The prices here also include the taxes withheld for the government. Unfortunately, it is impossible to calculate net oil prices with public information because of the variability of taxes and duties. Of the three international oil companies (Royal Dutch Shell, Exxon Mobil, and Chevron) listed in the Arculli Report,<sup>109</sup> only Royal Dutch Shell provides sufficient data for a calculation to be performed.<sup>110</sup> Therefore, this analysis adopts Shell's industrial contribution margin and uses a similar structure to study the crude oil cost and other variable costs of the other petroleum companies. To ensure consistent analytical criteria, the study uses the contribution margin figures of the US market based on the financial reports of the companies listed in the Dow Jones Index for the year ending on December 31, 2005.

To determine whether the petrol industry in Hong Kong has benefited from an unusual competitive advantage, the study adopts a multi-dimensional comparison between the contribution margin of major oil companies in Hong Kong and the United States to determine whether the former have higher profits than the latter. The study also provides information on the competitive environment of the oil companies in different geographical areas.

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au0i.html.

<sup>108</sup> OGJ ONLINE RESEARCH CENTER HOME, <http://ogjresearch.stores.yahoo.net/price.html> (last visited Sept. 12, 2010).

<sup>109</sup> HONG KONG SAR GOVERNMENT, STUDY OF THE AUTO-FUEL RETAIL MARKET, *supra* note 53.

<sup>110</sup> *See generally* ROYAL DUTCH SHELL PLC, FORM 20-F ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934, FOR THE FISCAL YEAR ENDED DECEMBER 31, 2005 (2006).

*D. Assumptions and Limitations*

The analysis in this chapter is based on several assumptions, which are subject to the limitations outlined below

1. “Main Board” Only

It is not easy to define which companies represent the general market environment of a region, but an accepted and common method relies on the major index of the regional stock market.<sup>111</sup> This study will adopt the Hang Seng Index and the Dow Jones Industrial Average to represent the Hong Kong and United States markets, respectively. The Hang Seng Index has the largest pool of components valued in the Stock Exchange in Hong Kong<sup>112</sup> and the thirty components of the Dow Jones Industrial Average represent 27% of the float-adjusted market capitalization of the Dow Jones United States TSM Index, which provides near complete coverage of the U.S. stock market.<sup>113</sup> Some private companies may be larger than those listed on the main board, but this limitation is not taken into account because their financial reports might not have been published. Likewise, for the sake of consistency, the same standard (i.e., the stock market index) will be used in the analyses for all regions.

2. Core Business Only

The objective of this analysis is to identify the profitability of the oil companies and, therefore, only the contribution margin of their core business is considered. For example, the study excludes the income from selling snacks in gas stations because this revenue is classified as food and beverage sales rather than petrol sales. The categorizations of core business activities

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<sup>111</sup> PUN-LEE LAM & SYLVIA CHAN, *COMPETITION IN HONG KONG'S GAS INDUSTRY* (2000).

<sup>112</sup> *Fact sheet*, HANG SENG INDEX, [http://www.hsi.com.hk/HSI-Net/-static/revamp/contents/en/dl\\_centre/factsheets/FS\\_HSIe.pdf](http://www.hsi.com.hk/HSI-Net/-static/revamp/contents/en/dl_centre/factsheets/FS_HSIe.pdf) (last visit Sept. 20, 2010).

<sup>113</sup> *Dow Jones Industrial Average: Overview*, THE DOW JONES INDEXES, <http://www.djaverages.com/?view=industrial&page=overview> (last visit Sept. 20, 2010).

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and principal activities are available in the director's reports of the respective companies.

3. Geographic Listing Basic for Sampling

A consolidated financial report, listed on the main board, is adopted because the necessary data from the companies for calculating contribution margin are not provided in the segment report. This data may not be completely accurate because the business may earn income from outside the region (e.g., income from Australia earned by a component of a Hong Kong-based company), but they are the only data available on this issue. Despite this limitation, those data are preferable because most of the components of the "Main Board" for one region encounter similar situations and crises in business.

4. Weight Average Contribution Margin in Percentage

The total contribution margins of the components of the Stock Index are calculated by their total variable cost and revenue in weight average.

VI. APPLICATION OF CONTRIBUTION MARGIN ANALYSIS IN COMPETITION LAW

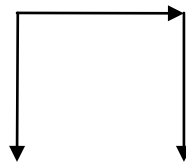
A. *Comparison of Contribution Margin of Oil Industries in Hong Kong and the US*

There are four figures in the model that are worth highlighting, see Table 6.1:

**Table 6.1 - The Three-Dimensional Model for Contribution Margin Analysis, of the Oil Companies and Major Enterprises in Hong Kong and US**

The CM of major Oil Companies in Hong Kong - *a*

The CM of major Oil Companies in the US - *b*



The CM of Major Enterprises in Hong Kong (Hang Seng Index) - *c*

The CM of Major Enterprises in US (Dow Jones Industrial Average) - *d*

*a* - The contribution margin of the oil companies in Hong Kong – based on the data provided by Arculli & Associates. <sup>114</sup>

*b* - The contribution margin of the oil companies in US – based on that of the Royal Dutch Shell, for the reason stated. <sup>115</sup>

*c* - The contribution margin of the enterprises in Hong Kong. <sup>116</sup>

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<sup>114</sup> See *infra* Part 6.1.1.

<sup>115</sup> See *infra* Part 6.1.2.

<sup>116</sup> See *infra* Part 6.1.3.

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*d* - The contribution margin of the enterprises in US. <sup>117</sup>

1. The Contribution Margin of the Oil Companies in Hong Kong

As indicated in Table 4.2, the contribution margin of regular petrol and ULSD Diesel sold in Hong Kong are 40.83% and 38.76% respectively. As there is no available information on collective sales volume, the following analysis will apply the contribution margin to each product separately.

2. The Contribution Margin of the Oil Companies in US

The variable costs and sales revenue of Royal Dutch Shell in 2005 are USD 48.24 and 67.48 respectively. <sup>118</sup> The contribution margin in percentage is  $(\text{USD } 67.48 - \text{USD } 48.24) / \text{USD } 67.48 = 28.51\%$ . Unlike in Hong Kong, there is no division between regular petrol and ULSD Diesel in the US.

3. The Contribution Margin of the Enterprises in Hong Kong

The weight average contribution margin of all components listed in the Hang Seng Index on December 31, 2005 is 54.05%. <sup>119</sup>

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<sup>117</sup> See *infra* Part 6.1.4.

<sup>118</sup> ROYAL DUTCH SHELL PLC, *supra* note 110, at 48, 54.

<sup>119</sup> See *infra* Table 6.2.

**Table 6.2 - The Contribution Margin of the Listed Companies of Hong Kong Hang Seng Index on 31 Dec 2005, For the Year Ended 2005<sup>120</sup>**

A	B	C	D	E	F	G	H	I
Company Name	Code	Turnover	Variable Costs	Contribution Margin	CM as Percentage	Exchange Rate Factor	Turnover in HKD	CM in HKD
Cheung Kong (Holdings) Limited	1	HK\$14,358,000,000	HK\$4,961,000,000	HK\$9,397,000,000	65.45%	1.000000	HK\$14,358,000,000	HK\$9,397,000,000
CLP Group	2	HK\$38,584,000,000	HK\$21,516,000,000	HK\$17,068,000,000	44.24%	1.000000	HK\$38,584,000,000	HK\$17,068,000,000
HK & China Gas Ltd.	3	HK\$9,350,900,000	HK\$6,036,100,000	HK\$3,314,800,000	35.45%	1.000000	HK\$9,350,900,000	HK\$3,314,800,000
The Wharf (Holdings) Limited	4	HK\$12,543,000,000	HK\$4,201,000,000	HK\$8,342,000,000	66.51%	1.000000	HK\$12,543,000,000	HK\$8,342,000,000

<sup>120</sup> See Annual Reports for the year ended 2005 of the companies listed in the table.

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HSBC	5	US\$60,094,000,000	US\$28,760,000,000	US\$31,334,000,000	52.14%	7.767900	HK\$466,804,182,600	HK\$243,399,378,600
Hongkong Electric Holdings Limited	6	HK\$11,622,000,000	HK\$4,038,000,000	HK\$7,584,000,000	65.26%	1.000000	HK\$11,622,000,000	HK\$7,584,000,000
PCCW	8	HK\$22,499,000,000	HK\$10,467,000,000	HK\$12,032,000,000	53.48%	1.000000	HK\$22,499,000,000	HK\$12,032,000,000
Hang Seng Bank	11	HK\$19,029,000,000	HK\$7,961,000,000	HK\$11,068,000,000	58.16%	1.000000	HK\$19,029,000,000	HK\$11,068,000,000
Henderson Law Development	12	HK\$5,833,300,000	HK\$2,933,200,000	HK\$2,900,100,000	49.72%	1.000000	HK\$5,833,300,000	HK\$2,900,100,000
Hutchison Whampoa Limited	13	HK\$182,584,000,000	HK\$62,804,000,000	HK\$119,780,000,000	65.60%	1.000000	HK\$182,584,000,000	HK\$119,780,000,000
Sun Hung Kai Properties Ltd	16	HK\$22,945,000,000	HK\$13,351,000,000	HK\$9,594,000,000	41.81%	1.000000	HK\$22,945,000,000	HK\$9,594,000,000
New World Development Company Limited	17	HK\$22,270,800,000	HK\$17,229,900,000	HK\$5,040,900,000	22.63%	1.000000	HK\$22,270,800,000	HK\$5,040,900,000



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Swire Pacific A	19	HK\$18,937,000,000	HK\$10,755,000,000	HK\$8,182,000,000	43.21%	1.000000	HK\$18,937,000,000	HK\$8,182,000,000
Bank of East Asia	23	HK\$7,806,534,000	HK\$4,046,276,000	HK\$3,760,258,000	48.17%	1.000000	HK\$7,806,534,000	HK\$3,760,258,000
Mass Transit Rail- way	66	HK\$9,153,000,000	HK\$4,052,000,000	HK\$5,101,000,000	55.73%	1.000000	HK\$9,153,000,000	HK\$5,101,000,000
Sino Group	83	HK\$4,150,741,802	HK\$2,078,945,025	HK\$2,071,796,777	49.91%	1.000000	HK\$4,150,741,802	HK\$2,071,796,777
Hang Lung Proper- ties	101	HK\$6,955,300,000	HK\$3,505,500,000	HK\$3,449,800,000	49.60%	1.000000	HK\$6,955,300,000	HK\$3,449,800,000
China Merchants Holdings (Interna- tional)	144	HK\$2,972,000,000	HK\$2,147,000,000	HK\$825,000,000	27.76%	1.000000	HK\$2,972,000,000	HK\$825,000,000
Johnson Elec H	179	US\$1,143,783,000	US\$795,625,000	US\$348,158,000	30.44%	7.767900	HK\$8,884,791,966	HK\$2,704,456,528
Denway Motors	203	HK\$850,483,000	HK\$754,813,000	HK\$95,670,000	11.25%	1.000000	HK\$850,483,000	HK\$95,670,000
CITIC Pacific Ltd	267	HK\$26,564,000,000	HK\$21,226,000,000	HK\$5,338,000,000	20.09%	1.000000	HK\$26,564,000,000	HK\$5,338,000,000
China Resources	291	HK\$53,583,919,000	HK\$44,439,151,000	HK\$9,144,768,000	17.07%	1.000000	HK\$53,583,919,000	HK\$9,144,768,000

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Enterprise

Cathay Pacific	293	HK\$50,909,000,000	HK\$46,766,000,000	HK\$4,143,000,000	8.14%	1.000000	HK\$50,909,000,000	HK\$4,143,000,000
Esprit Holdings Limited	330	HK\$20,631,815,000	HK\$9,412,770,000	HK\$11,219,045,000	54.38%	1.000000	HK\$20,631,815,000	HK\$11,219,045,000
Li & Fung Group	494	HK\$55,617,374,000	HK\$49,956,433,000	HK\$5,660,941,000	10.18%	1.000000	HK\$55,617,374,000	HK\$5,660,941,000
Yue Yuen Industrial (Holding) Ltd	551	US\$3,154,835,000.00	US\$2,427,728,000.00	US\$727,107,000.00	23.05%	7.767900	HK\$24,506,442,797	HK\$5,648,094,465
China Unicom	762	¥ 87,048,831,000.00	¥ 17,119,687,000	¥ 69,929,144,000	80.33%	1.053141	HK\$82,656,387,891	HK\$66,400,552,253
China National Off-shore Oil	883	¥ 53,417,669,000	¥ 5,934,598,000	¥ 47,483,071,000	88.89%	1.053141	HK\$50,722,238,523	HK\$45,087,097,549
China Mobile	941	¥ 181,765,000,000	¥ 18,533,000,000	¥ 163,232,000,000	89.80%	1.053141	HK\$172,593,223,509	HK\$154,995,389,981
Lenovo Group	992	HK\$22,554,678,000	HK\$21,381,062,000	HK\$1,173,616,000	5.20%	1.000000	HK\$22,554,678,000	HK\$1,173,616,000
CKI Holdings	1038	HK\$2,247,000,000	HK\$1,729,000,000	HK\$518,000,000	23.05%	1.000000	HK\$2,247,000,000	HK\$518,000,000
Cosco Pacific	1199	US\$295,648,000.00	US\$115,551,000.00	US\$180,097,000.00	60.92%	7.767900	HK\$2,296,564,099	HK\$1,398,975,486

Bank of China (HK)	2388	HK\$25,875,000,000	HK\$13,001,000,000	HK\$12,874,000,000	49.75%	1.000000	HK\$25,875,000,000	HK\$12,874,000,000
							HK\$	HK\$
							1,478,890,676,187	761,627,639,640
							(a)	(b)
							= (b)/(a)	54.05%

#### 4. The Contribution Margin of the Enterprises in the United States

The weight average contribution margin of all components listed in the Dow Jones Industrial Average on December 31, 2005 is 37.92%.<sup>121</sup>

**Table 6.3 - The Contribution Margin of the Listed Companies of the US Dow Jones Index on 31 Dec 2005,**

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<sup>121</sup> See *infra* Table 6.3.

*INTERSTATE COMPARISON - USE OF CONTRIBUTION MARGIN IN DETERMINATION OF PRICE FIXING*

**For the Year Ended 2005<sup>122</sup>**

A	B	C	D	E	F
Company Name	Code	Turnover	Variable Costs	Contribution Margin	CM as Percentage
3M	MMM	US\$21,167,000,000	US\$10,408,000,000	US\$10,759,000,000	50.83%
AIG	AIG	US\$108,905,000,000	US\$93,692,000,000	US\$15,213,000,000	13.97%
Alcoa Inc	AA	US\$26,159,000,000	US\$21,217,000,000	US\$4,942,000,000	18.89%
Altria Group	MO	US\$97,854,000,000	US\$36,764,000,000	US\$61,090,000,000	62.43%
American Express	AXP	US\$24,267,000,000	US\$5,841,000,000	US\$18,426,000,000	75.93%
AT&T	T	US\$43,862,000,000	US\$37,694,000,000	US\$6,168,000,000	14.06%
Boeing	BA	US\$54,845,000,000	US\$45,849,000,000	US\$8,996,000,000	16.40%
Caterpillar Inc	CAT	US\$34,006,000,000	US\$26,558,000,000	US\$7,448,000,000	21.90%
Citigroup	C	US\$120,318,000,000	US\$36,676,000,000	US\$83,642,000,000	69.52%

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<sup>122</sup> See Annual Reports for the year ended 2005 of the companies listed in the table.

Coca Cola	KO	US\$23,104,000,000	US\$8,195,000,000	US\$14,909,000,000	64.53%
DuPont	DD	US\$26,639,000,000	US\$19,701,000,000	US\$6,938,000,000	26.04%
Exxon Mobil	XOM	US\$358,955,000,000	US\$212,038,000,000	US\$146,917,000,000	40.93%
General Electric	GE	US\$92,589,000,000	US\$66,814,000,000	US\$25,775,000,000	27.84%
General Motors	GM	US\$192,604,000,000	US\$171,033,000,000	US\$21,571,000,000	11.20%
Hewlett Packard	HPQ	US\$86,325,000,000	US\$66,224,000,000	US\$20,101,000,000	23.29%
Home Depot	HD	US\$81,511,000,000	US\$54,191,000,000	US\$27,320,000,000	33.52%
Honeywell	HON	US\$27,653,000,000	US\$21,465,000,000	US\$6,188,000,000	22.38%
IBM	IBM	US\$91,134,000,000	US\$54,602,000,000	US\$36,532,000,000	40.09%
Intel Corporation	INTC	US\$38,826,000,000	US\$15,777,000,000	US\$23,049,000,000	59.36%
Johnson and Johnson	JNJ	US\$50,514,000,000	US\$13,954,000,000	US\$36,560,000,000	72.38%
JP Morgan Chase	JPM	US\$45,200,000,000	US\$25,369,000,000	US\$19,831,000,000	43.87%
McDonalds	MCD	US\$20,460,000,000	US\$14,135,000,000	US\$6,325,000,000	30.91%
Merck Com	MRK	US\$22,011,900,000	US\$5,149,600,000	US\$16,862,300,000	76.61%

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Microsoft	MSFT	US\$39,788,000,000	US\$6,200,000,000	US\$33,588,000,000	84.42%
Pfizer	PFE	US\$51,298,000,000	US\$8,525,000,000	US\$42,773,000,000	83.38%
Procter Gamble	PG	US\$56,741,000,000	US\$27,804,000,000	US\$28,937,000,000	51.00%
United Tech	UTX	US\$42,278,000,000	US\$30,935,000,000	US\$11,343,000,000	26.83%
Verizon Commun	VZ	US\$75,112,000,000	US\$25,469,000,000	US\$49,643,000,000	66.09%
Wal Mart	WMT	US\$285,222,000,000	US\$219,793,000,000	US\$65,429,000,000	22.94%
Walt Disney	DIS	US\$31,944,000,000	US\$27,837,000,000	US\$4,107,000,000	12.86%
		<hr/>		<hr/>	
		US\$		US\$	
		2,271,291,900,000		861,382,300,000	
		<hr/>		<hr/>	
		(a)		(b)	
			= (b)/(a)	37.92%	

A. *Analysis*

1. The Contribution Margins

The required figures are in Table 6.4 and 6.5:

**Table 6.4 - Contribution Margin Analysis when Regular Petrol is Used**<sup>123</sup>

a	40.83%	b	28.51%
c	54.05%	d	37.92%
a / c	75.54%	b / d	75.18%

**Table 6.5 - Contribution Margin Analysis when ULSD Diesel is Used**<sup>124</sup>

a	38.76%	b	28.51%
c	54.05%	d	37.92%
a / c	71.71%	b / d	75.18%

Based on Table 6.4 and 6.5, it is clear that the contribution margins of petroleum companies in Hong Kong - 40.83% (Regular Petrol) and 38.76% (ULSD) - are significantly higher than the US equivalent, 28.51%. However, a different conclusion may be reached when the contribution margin of the petrol industry is compared to that of the general market. The contribution margins of Regular Petrol and ULSD sold in Hong Kong (as listed in the Hong Kong stock market) are only 75.54% and 71.71% respectively. The equivalent figure in the US is 75.18%, which is in the same level.

2. Is Contribution Margin of Hong Kong Oil Companies

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<sup>123</sup> See *supra* note 114-117 and accompanying text.

<sup>124</sup> *Id.*

Too High?

As emphasized above, it is too arbitrary to conclude that the Hong Kong petroleum companies enjoy monopoly simply because of their high contribution margin. However, when the court considers the “totality of the facts”, contribution margin shall still be one of the most important concerns. Thanks to the high cost of land in Hong Kong, the petroleum companies could expect to earn more from the same activity than in another country. Nevertheless, the Arculli Report still fails to justify the high contribution margin of the petroleum companies in Hong Kong over other large enterprises in the same region, provided that they all operate in the same business environment, the logic which has been rebutted by David Ricardo.<sup>125</sup> It is also unclear why such a high contribution margin does not exist in the United States.

For the reasons given above, the court has every right to ask the petroleum companies to justify their high contribution margin with reasons other than the factor of land price that is described in the Arculli Report. This inquiry should determine whether the companies are violating the future competition law. Again, the multi-dimensional model here provides a possible answer to the unreasonably high contribution margin of some Hong Kong companies, an imbalance that could also prove to be the reason behind high land costs in the city.

### 3. The Legal Application on the Contribution Margin

Companies may argue that, when it comes to applying anti-trust law, the contribution margin test will increase both their operational costs and the price of reviewing their statuses on the monopoly issue. Nevertheless, this test will obviate the need of corporations to defend themselves against charges of anti-trust behaviors.

Shenefield John and Stelzer Irwin suggest that companies

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<sup>125</sup> DAVID RICARDO, *ON THE PRINCIPLE OF POLITICAL ECONOMY AND TAXATION*, ch. 2 (3d ed. 1821), *available at* <http://www.econlib.org/library/Ricardo/ricP.html> (last visited Nov. 2, 2010).



should perform periodic audits specifically aimed at issues of antitrust behaviors.<sup>126</sup> They also point out that lawyers should conduct the examination to avoid accusations of “privilege.”<sup>127</sup> As the authors note, antitrust law has become “a fact of life in American business” and regular reviews are, therefore, necessary.<sup>128</sup> Additionally, accountants should be involved in this process because accounting principles are generally accepted not only by accountants, but also by legal experts and the general public.

In fact, the performance of periodic statutory audits under regulation is not overly costly in the current business environment. In Hong Kong, all limited companies have to be audited upon submitting their financial statements to the Inland Revenue Department.<sup>129</sup> Furthermore, the data provided by the companies is accepted by professional accountants as well as government institutions. Guaranteed by third parties removed from the legal proceedings, data provides companies with a means of self-defense and a just method to test whether they risk violating anti-trust laws

## VII. CONCLUSION

A fair and objective test of corporations’ monopolistic power is vital to develop anti-trust legislation that protects the public without impairing commercial activity. Although the Arculli Report is a viable model with which to test a per se violation of the competition law, in reality, it is very difficult for the courts to apply this model because it is almost impossible to prove the existence of price fixing between large corporations. This article provides an alternative method that uses systematic and reliable accounting knowledge and formulae. If the competition law is enacted in Hong Kong in the near future, it will be for the courts to determine whether a company or industry is acting as a monopoly.

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<sup>126</sup> JOHN H. SHENEFIELD & IRWIN M. STELZER, *THE ANTITRUST LAWS, A PRIMER* 143-44 (4th ed. 2001).

<sup>127</sup> *Id.* at 143.

<sup>128</sup> *Id.* at 144.

<sup>129</sup> See *Profits Tax Return – Corporations (Form BIR51)*, INLAND REVENUE DEPT., <http://www.ird.gov.hk/eng/pdf/ebir51.pdf> (last visited Apr. 6, 2011).

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As it was emphasized in this article, a high contribution margin does not perfectly indicate a violation of anti-trust law, but it is a good starting point for the courts to examine the defendant's monopolistic power. Judges can use this test to measure the degree of monopoly objectively. Due to the limited information available from some industries, the courts can ensure a more accurate test by demanding that the concerned business parties provide more data and information (e.g., the contribution margin of all single items). It also ensures that companies will have a built-in defense against charges of monopoly when they provide data for this test. This requirement perfects the model and will ultimately establish a solid foundation upon which to enforce anti-trust law.