# GAZING INTO THE CRYSTAL BALL: IMPROVING THE EVALUATION OF UNCERTAINTY IN NEW ZEALAND MERGER CLEARANCE APPLICATIONS*

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## Introduction

Competition law aspects of New Zealand merger regulation are governed by the Commerce Act 1986. In 2001 the legal test for merger evaluation was amended.[1] Part of the reason for this amendment was to allow the agencies to apply more sophisticated methods of merger analysis.[2] However, the opportunity to modernise New Zealand's merger analysis test was rejected by the Court of Appeal in the *Warehouse Case*.[3] Instead, the Court adopted a test that, this paper will argue, poorly evaluates the likely consequences of a merger and causes greater uncertainty for businesses trying to predict whether a potential merger breaches the statutory prohibition. As an alternative, this paper suggests an Expected Value approach for evaluating all numerically quantifiable aspects of a merger.

## A. Legislative Framework

The Commerce Act 1986 (the "Act") is the primary piece of legislation governing competition law in New Zealand. The Act is administered by the Commerce Commission[4] (the "Commission") and its purpose is to

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[1] Commerce Amendment Act 2001 (2001 No 32).

[2] Explanatory Note to the Commerce Amendment Bill 2001 No 2, 111-1.

[3] In this paper "Warehouse Case" refers collectively to *Commerce Commission v Woolworths Ltd* [2008] NZCA (also "Warehouse Case CA"), *Woolworths Ltd v Commerce Commission* 29/11/07, Mallon J and Dr King, HC Wellington CIV-2007-485-1255 (also "Warehouse Case HC") and *Foodstuffs Limited and Woolworths Limited / the Warehouse Group Limited* Com Com Decision Nos 606 & 607 (8 June 2007) (also "Foodstuffs/Warehouse").

[4] New Zealand Commerce Commission, *Mergers and Acquisitions Guidelines* (Wellington,

"promote competition in markets for the long-term benefit of consumers in New Zealand."[5] Parts II and III of the Act prohibit certain activities on the grounds that they are anti-competitive.[6] If these provisions are breached the person(s) involved are liable to pecuniary penalties.[7]

Section 47 of the Act prohibits business acquisitions that are likely to substantially lessen competition in a market.[8] If a person proposing a business acquisition is concerned that it might breach s 47, that person may apply to the Commission for a merger clearance under s 66 of the Act.[9] A clearance allows the applicant twelve months to complete the nominated acquisition, during which time the acquisition will be protected from challenge under the Act.[10] The Commission will grant an applicant a merger clearance if it is "satisfied" that the merger is "not likely to have the effect of substantially lessening competition in a market".[11]

The Commission publishes the New Zealand Mergers and Acquisitions Guidelines[12] (the "Merger Guidelines") to assist the public in determining whether a clearance should be sought and to explain the Commission's merger analysis procedure.[13] The Merger Guidelines are not intended as a substitute for the Act and do not bind the court.[14]

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2004), 6. The Commission is also responsible for the regulatory regimes specified in the Dairy Industry Restructuring Act 2001, the Electricity Industry Reform Act 1998, the Telecommunications Act 2001 and the Fair Trading Act 1986.

[5] Commerce Act 1986, s 1A.

[6] Prohibited activities include entering into contracts, arrangements, understandings and covenants that substantially lessen competition (Commerce Act 1986, ss 27 and 28), boycotts (s 29), taking advantage of a substantial degree of market power for certain purposes (s 36) and resale price maintenance (s 37).

[7] Commerce Act 1986, s 83. The breaching party may also be liable for personal actions for damages (Commerce Act 1986, 84A), divestiture of assets or shares (Commerce Act 1986, 85) and injunctions (Commerce Act 1986, 84).

[8] Commerce Act 1986, s 47(1).

[9] Optional merger notification (also referred to as *ex post facto* control, or the 'strike-down' regime) replaced mandatory pre-merger notification in 1990 by virtue of the Commerce Amendment Act 1990. For an analysis of this legislative change see M Berry and A Riley, "Beware the New Business Acquisitions Provisions in the Commerce Amendment Act 1990" (1990) 21 VUWLR 91.

[10] Commerce Act 1986, s 69.

[11] Commerce Act 1986, s 66(3)(a).

[12] Merger Guidelines, above n 4.

[13] Ibid, 1.

[14] Ibid.

Such a publication is in line with most other Western competition law regulatory bodies.[15]

The general framework used by the Commission to evaluate mergers involves three steps.[16] First, the Commission will define the relevant market(s) and estimate the market shares of the participants in the market(s).[17] Second, the Commission will establish hypothetical scenarios for each relevant market: what will, or is likely to happen if the acquisition takes place (the "factual") and what will, or is likely to happen if the acquisition does not take place (the "counterfactual").[18] Third, the Commission will compare the state of competition between the factual and counterfactual to determine whether any reduction in competition amounts to a substantial lessening of competition (a "SLC"). If the Commission determines that a SLC is not likely then the clearance will be granted, otherwise the clearance will be refused.

### B. The Warehouse Case

New Zealand has only two independent supermarket retailers, Foodstuffs and Woolworths,[19] who between them account for 100% of

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[15] E.g. U.S. Department of Justice and the Federal Trade Commission, *Horizontal Merger Guidelines* (Washington DC, 1997), Australian Competition and Consumer Commission, *Merger Guidelines* (Canberra, 1999), UK Competition Commission, *Merger references: Competition Commission Guidelines* (London, 2003), Canadian Competition Bureau, *Merger Enforcement Guidelines* (Ottawa, 2004), European Competition Commission, *Guidelines on the Assessment of Horizontal Mergers Under the Council Regulation on the Control of Concentrations Between Undertakings* (Brussels, 2004).

[16] Merger Guidelines, above n 4, 6-7.

[17] The Commission uses a broad definition of 'market' that includes geographical area(s), goods/services supplied and level(s) of production/distribution. When relevant, the Commission also considers timing elements and customer types. The central inquiry when defining a market is substitutability. That is, products that are good substitutes for each other will be in the same market. Whether products are good substitutes is measured by customer reaction to price increases; the "SSNIP" test. The SSNIP test measures the smallest geographical area within which a hypothetical localised monopolist could impose a Small yet Significant and Non-transitory Increase in Price without customers substituting to other goods. Often the SSNIP used to determine customer reaction is a 4-5% increase in price. (Merger Guidelines, above n 4, 14).

[18] See Merger Guidelines, above n 4, 21.

[19] Prior to 2002 New Zealand had three independent supermarket retailers: Progressive, Woolworths (New Zealand) Limited and Foodstuffs. At the time Progressive had 24% of the market-share, Woolworths (New Zealand) Limited had 18% and Foodstuffs had 58% (See *Foodstuffs/Warehouse*, 6). In June 2002, Progressive acquired Woolworths (New Zealand) Limited from Dairy Farm International Holdings of Hong Kong. This acquisition reduced the number of independent supermarket retailers in New Zealand to

supermarket retail purchases in New Zealand.[20] The *Warehouse Case* involved two separate merger clearance applications to the Commission by both of the supermarkets to acquire the Warehouse Group Limited (the "Warehouse"). The decision to acquire the Warehouse followed the Warehouse becoming a direct competitor of the supermarkets by launching "supercentres"[21] that sold general merchandise together with a full range of groceries. The Commission declined both applications on the ground that the acquisitions would result in a substantial lessening of competition.[22] On appeal, the High Court overturned the Commission's decision.[23] The High Court's ruling was itself overturned by the Court of Appeal, which reinstated the Commission's original determination.[24]

Both parties accepted in court that the relevant market was the market for "retailing of grocery items in supermarkets, incorporating local markets not less than 5km in radius from The Warehouse Extra stores."[25] The central issues were how should uncertainty be dealt with under s 66 of the Act and how should the SLC be measured.

### 1. Evaluating uncertainty under Section 66

The relevant part of s 66 reads:

> **s66: Commission may give clearances for business acquisitions**
> (1) A person who proposes to acquire assets of a business or shares may give the Commission a notice seeking clearance for the acquisition.
> ..

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two. In December 2005, Progressive was sold by Foodland Association Limited of Australia to Woolworths Limited of Australia.

[20] Woolworths holds a market share of approximately 44% while Foodstuffs accounts for the remaining 56% (*Foodstuffs/Warehouse*, 10).

[21] Supercentre is a generic term for exceptionally large stores that offer both a wide range of general merchandise and a full range supermarket, all under one roof. The Warehouse called its supercentre stores "Warehouse Extra".

[22] *Foodstuffs/Warehouse*, 71.

[23] *Warehouse Case HC*, [261].

[24] *Warehouse Case CA*, [208].

[25] *Foodstuffs/Warehouse*, 30. At the High Court the supermarkets contested that the Commission's 5 km radius was arbitrary, but the High Court found that extending the boundary made no difference to the final result (*Warehouse Case HC*, [163]-[164]). See also *Warehouse Case CA*, [5].

> (3) Within 10 working days after the date of registration of the notice, or such longer period as the Commission and the person who gave the notice agree, the Commission shall either—
> (a) If it is satisfied that the acquisition will not have, or would not be likely to have, the effect of substantially lessening competition in a market, by notice in writing to the person by or on whose behalf the notice was given, give a clearance for the acquisition; or
> (b) If it is not satisfied that the acquisition will not have, or would not be likely to have, the effect of substantially lessening competition in a market, by notice in writing to the person by or on whose behalf the notice was given, decline to give a clearance for the acquisition.

The Court of Appeal found that s 66 requires the Commission to engage in an inquisitorial rather than adversarial process.[26] As part of this process, the Commission should make its own "reasonable inquiry" into the merits of the clearance sought[27] and grant a clearance "only if satisfied that a substantial lessening of competition is not likely."[28] If the Commission is left in "doubt" as to whether a SLC is likely or not, it should refuse the clearance.[29] The standard of proof to which the Commission should be satisfied that a SLC is unlikely is the civil "more probable than not" standard.

The Court of Appeal did not directly discuss the meaning of the word "likely" in s 66. The High Court expressed the meaning of 'likely' as:

> What is clear from the case law is it must be more than 'possible' that the proposed acquisition will have the prescribed effect but it need not be 'more probable than not' that it will. To be above merely what is 'possible', the case law has referred to 'a real chance' and a 'real and substantial risk'.[30]

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[26] *Warehouse Case CA*, [97].
[27] *Warehouse Case CA*, [101].
[28] *Warehouse Case CA*, [107]. The Court considered that s 66(3)(b) should be read as "In any other case ... decline to give a clearance for the acquisition." instead of "If it is not satisfied that the acquisition will not have, or would not be likely to have, the effect of substantially lessening competition .. decline to give a clearance." (*Warehouse Case CA* [95]). This interpretation is intended to simplify the reading if the double negative in the subsection.
[29] The Court of Appeal defined doubt in this context as "a failure to exclude a real chance of a substantial lessening of competition." (*Warehouse Case CA*, [98]).
[30] *Warehouse Case HC*, [112].

The High Court held that this formulation supported the following propositions:

- 'Likely' contemplated a 30% probability of occurrence;[31]
- There can be more than one 'likely' effect or outcome;[32]
- Where a certain outcome is dependent on more than one probability, both probabilities must be independently likely for the effect or outcome to be likely;[33] and
- The likelihood of an outcome must not be assessed in relation to the outcome itself.[34]

The Court of Appeal rejected this approach and stated that:

> We regard the key question on this aspect of the case as being whether there is a real and substantial prospect that the Extra concept will succeed to the extent that the Warehouse is prepared to roll out more stores. This question can, in the end, only be answered as a matter of impression.[35]

This passage dictates an approach whereby 'likely' is to be assessed on impressionistic grounds. Under this approach it is unclear when the Commission would be required to resort to economic evidence. Even where the Commission decides to resort to economic evidence, the impressionistic approach seems to allow a reasonable degree of discretion in weighting the evidence. Moreover, if the Commission is not confident of its own impressionistic evaluation, the Court of

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[31] *Warehouse Case HC*, [113]. Note that the Court adopted this threshold simply because the parties agreed to it. Subsequently, however, the Court placed little weight on the actual figure. For the purposes of this paper it is of little importance whether the probability threshold is 20%, 30% or 49% since they all carry the same degree of predictability for merger clearance applicants and they all treat uncertainty in the same manner. For reasons of simplicity this paper will use the Court's 30% threshold for illustrations.

[32] *Warehouse Case HC*, [113]. The Commission and the Court are not entitled to choose the one likely outcome that has the greatest prospect of occurring and evaluate only that outcome. Rather, if any one of these 'likely' outcomes will result in a SLC, the merger clearance will not be granted.

[33] *Warehouse Case HC*, [125].

[34] *Warehouse Case HC*, [123]. In other words the court must limit itself to the probability of an event occurring, while ignoring the consequences of that event: "The question is what is likely to happen, not what benefit to customers potentially could be gained if the acquisition is locked unrelated to the chance of that gain materialising."

[35] *Warehouse Case CA,* [135].

Appeal's approach means that the Commission should err on the side of declining the clearance.

This approach creates a gap between s 47, where the onus of proof is on the Commission to prove that a SLC is likely, and s 66 where the Commission must be satisfied that a SLC is unlikely. Thus, an applicant whose clearance application is declined because the Commission is uncertain whether a prescribed effect is likely, may decide to proceed with the acquisition without a clearance. The onus of then proving that the acquisition is likely to result in a SLC, as per s 47, will rest on the Commission. Given the Commission's earlier inability to be satisfied one way or the other, the Commission is unlikely to successfully discharge its onus of proof.

## 2. The factual and counterfactual

There was little disagreement between the Commission, the High Court and the Court of Appeal as to the formulation of the factual. All three agreed that the supermarkets currently competed with each other, but that the competition could potentially be more vigorous.[36] They also agreed that the supermarkets had no incentive to develop a successful Warehouse Extra once they purchased the Warehouse.

When assessing the counterfactual both the Commission and the High Court found it was not their role to evaluate Extra's business model and its likelihood of success.[37] However, both proceeded to evaluate the business model. The Commission found that the Warehouse Extra was likely to succeed because, by and large, the supercentre concept was successful overseas.[38] The High Court found three possible counterfactuals,[39] two in which the Warehouse Extra concept would fail and one in which it would succeed. The High Court held that the third counterfactual was not likely because the Warehouse Extra's chances of success were "remote".[40]

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[36] *Foodstuffs/Warehouse*, 33, *Warehouse Case HC*, [197] and *Warehouse Case CA*, [119]. The disincentive arose from the fact that a successful Warehouse Extra would cannibalise the traditional supermarkets' sales.

[37] *Foodstuffs/Warehouse*, 34 and *Warehouse Case HC*, [218].

[38] *Foodstuffs/Warehouse*, 35.

[39] *Warehouse Case HC*, [209].

[40] *Warehouse Case HC*, [224]. Note, however, that the Court only evaluated the limited empirical data available on Extra's performance since its launch to decide this (*Warehouse Case CA*, [143]).

The Court of Appeal examined Extra's business plan and found that it was both viable and showing signs of success.[41] Rather than leaving the business model assessment at that, however, the Court of Appeal went further and held that:

> While it is true that the [supercentre] concept has not been universally successful, it has had considerable success elsewhere. It is difficult to see why it cannot be developed to operate successfully in New Zealand, at least in some form. In this respect we are *not prepared to second-guess the business judgment of the senior management* and directors of the Warehouse. They would not have developed the Extra concept unless they saw it as viable.[42] (Emphasis added)

The Court of Appeal appears to make its final assessment of what is likely to happen by reference to management rather than the plan's likelihood of success. The Court is presuming that Extra is likely to succeed because the Warehouse executives chose to invest in it. Such a "Presumptions Approach", which is discussed in detail below, in section C 2 (b), is appealing because it allows the Court to avoid an evaluation of the empirical data. However, it sets a difficult precedent for future cases where the Commission and the courts might be required to presume that every business plan is likely to succeed merely because someone chose to invest in it. Such an approach risks substituting the judgment of business persons for that of the court.

### 3. Likely competitive impact

When evaluating Extra's likely competitive impact on the market, the Commission considered several theoretical concerns. Most importantly, the Commission evaluated the general undesirability of three-to-two mergers[43] and the high barriers of entry to the supermarket industry to conclude that a SLC was likely.[44] The High Court, on the other hand, was not required to evaluate the competitive impact since it concluded that Extra was unlikely to continue operating. The High Court nonetheless proceeded to assess the competitive impact of Extra if it

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[41] *Warehouse Case CA*, [141].
[42] *Warehouse Case CA*, [142].
[43] "Three-to-two mergers" are mergers that reduce market competition from three independent competitors to two independent competitors.
[44] *Foodstuffs/Warehouse*, 64.

continued in operation.[45] The Court focused on the available quantitative and empirical data on Extra's performance. It determined that the threshold for a SLC is generally a 4-5% price increase for consumers[46] but decided to reduce the threshold to 3% in this case because of the small profit margins characteristic of the supermarket retailing industry.[47] This approach is in line with the most recent Australian Competition and Consumer Commission's 2008 Draft Merger Guidelines, which state that a 5-10% increase in price for consumers will generally amount to a SLC under the Australian legislation.[48] The High Court then evaluated Extra's financial impact to date and concluded that a SLC was unlikely, even if Extra was continued, because Extra did not compete on price.[49]

The Court of Appeal criticised both approaches. The Commission, it found, focused too much on theory[50] while the High Court focused too much on available empirical data.[51] The Court of Appeal also rejected the idea of a general threshold for assessing a SLC.[52] The Court considered that:

> [W]hat constitutes a substantial lessening of competition must in the end be a matter of judgment, although we accept, of course, that such a judgment must be informed by as much practical evidence as possible.[53]

This approach is in line with the recent Court of Appeal authority in *New Zealand Bus Ltd v Commerce Commission*.[54] There the Court considered that the s 47 SLC assessment is one of "fundamental judgment", not to be obscured by "false scientism".[55]

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[45] *Warehouse Case HC*, [249].
[46] *Warehouse Case HC*, [145].
[47] *Warehouse Case HC*, [149].
[48] See Australian Competition and Consumer Commission, *Merger Guidelines Draft 2008* (Canberra, 2008), 7. New Zealand adopted the current SLC test for merger analysis from the Australian legislation (G Goddard and E Curry, "New Zealand's New Mergers Test: A Comparison of Dominance and Substantial Lessening of Competition in the Supermarket Industry" (2003) 24 European Competition Law Review 300).
[49] *Warehouse Case HC*, [258].
[50] *Warehouse Case CA*, [187].
[51] *Warehouse Case CA*, [188].
[52] *Warehouse Case CA*, [191].
[53] *Warehouse Case CA*, [191].
[54] [2007] NZCA 502.
[55] *New Zealand Bus Ltd v Commerce Commission* [2007] NZCA 502, [104].

The Court of Appeal's approach to evaluating Extra's likely competitive impact was to consider both the available empirical evidence and the theoretical concerns of a three-to-two merger in a market with high barriers to entry. In its conclusion the Court favoured a theoretical evaluation of the evidence over an empirical evaluation.[56] It concluded that there is "no reason why [a successful Extra] would not have a significant effect" on Woolworths' and Foodstuffs' pricing, quality, range and service.[57] Woolworths and Foodstuffs would not be able to ignore Extra because neither could replicate Extra's offering involving general merchandise.[58] As a result the merger had a likely effect of substantially lessening competition in a market, and clearance was declined.

### C. The Treatment of Uncertainty

That business and commerce are inherently uncertain has been recognised at least as far back as biblical times.[59] Businesses throughout history have nonetheless managed to deal with uncertainty with relative success.[60] Business best practice today employs various statistical methods to reach the best decision given the available information.[61] Statistics can in no way eliminate uncertainty (and the current economic turmoil is testament to that fact), but in practice statistics can help the decision-maker reach the best decision given the available information. It is, of course, essential that the decision-maker understand the statistic in order for him or her to utilise it effectively.

The Commerce Commission is also required to make business-like decisions in conditions of uncertainty. This is especially true when the Commission attempts to determine what is likely to happen in a given market when assessing a merger clearance under s 66 of the Act. Given the wide raft of factors that influence the behaviour

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[56] *Warehouse Case CA*, [135]: "This question can, in the end, only be answered as a matter of impression".
[57] *Warehouse Case CA*, [201].
[58] *Warehouse Case CA*, [203].
[59] James 4:13, "Come now, you who say, 'Today or tomorrow we will go to such and such a city, and spend a year there and engage in business and make a profit.' Yet you do not know what your life will be like tomorrow."
[60] Peter L Bernstein, *Against the Gods: The Remarkable Story of Risk* (John Wiley & Sons, New York, 1996), 1.
[61] See generally Robert Kast and André Lapied, *Economics and Finance of Risk and of the Future* (John Wiley & Sons, Chichester, England, 2006).

of a market and its participants,[62] this is a very difficult task. Yet the decision must be good, since the wrong decision may have negative long-term consequences for consumers in New Zealand.

This part of the paper will argue that the Court of Appeal's approach to evaluating uncertainty, as expressed in the *Warehouse Case*, is inadequate. Rather, the Commission and the courts should use a simple statistical method called "Expected Value",[63] which is discussed in detail below, in section C 2 (c), to improve their analysis of uncertainty. This paper will only discuss how to improve the analysis of effects that the Commission and the courts are able to quantify, and which they do quantify on a regular basis. The paper does not advocate a wholly scientific approach to merger analysis, nor does the majority of literature on the use of Expected Value in business decision-making.[64] Moreover, economics alone cannot provide objective or scientific solutions to merger analysis. As John Maynard Keynes once observed:

> The Theory of Economics does not furnish a body of settled conclusions immediately applicable to policy. It is a method rather than a doctrine, an apparatus of the mind, a technique of thinking, which helps its possessor to draw correct conclusions.[65]

The evaluation of qualitative effects, their relationship to quantitative effects and the final measurement of a SLC are beyond the scope of this paper.[66]

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[62] These would include changing customer preferences, the availability and costs of capital and labour, the behaviour of other firms in the relevant market, changes in the legislative framework, etc.

[63] Expected Value is also referred to in the literature as "Expected Utility", "Decision-Theory", "Prospect Theory" and sometimes simply as "Risk Assessment".

[64] Eg, Sean Cleary and Thierry Malleret, *Global Risk: Business Success in Turbulent Times* (Palgrave Macmillan, New York, 2007), 48: "In risk assessment, different forms of quantitative and qualitative techniques are used. More often than not, *quantitative* modelling is complemented by *qualitative* analysis for risks that are less suited to formal modelling."

[65] This observation is contained in an introduction written by Keynes to a series known as "The Cambridge Economic Handbooks", cited by C. W. Guillebaud and Milton Friedman in the introduction to Sir Dennis Robertson and Stanley Dennison, *The Control of Industry* (Cambridge University Press, Cambridge, 1960), vii.

[66] However, they are discussed in my dissertation: Ronen Lazarovitch, *An Expected Value Approach to Evaluating Uncertainty in New Zealand Merger Analysis* (Honours Research Paper, University of Otago, 2008), available online at <http://www.otago.ac.nz/law/oylr/2008/Ronen_Lazarovitch.pdf>.

### 1. Econometric analysis in merger clearance evaluation

When assessing the likely effects of a merger, the Commission evaluates changes in a number of market competition indicators. The Commission often focuses on changes in coordinated[67] and non-coordinated[68] market power.[69] An increase in coordinated market power means that firms find it easier to tacitly coordinate their pricing, output or related commercial decisions, usually due to a decrease in the number of participants in the market.[70] An increase in non-coordinated, or unilateral market power means that competitive restraints on a firm have been removed or weakened such that the firm finds it profitable to raise prices, reduce output or otherwise exercise market power.[71]

The economic measures used to estimate the potential changes in coordinated and non-coordinated market power include market concentration, market barriers to entry, elimination of a vigorous competitor, scope for collusion, etc.[72] These measures can be utilised in two ways. They can either be used as isolated measures to gain a general impression of the competitive effect of the merger or they can be integrated into an econometric model that estimates the quantitative effect of the merger. The quantitative measurement is often expressed as a percentage price increase or decrease for consumers.[73]

The Commission often assesses merger clearances using a number of relevant individual measures rather than a full econometric model.[74] This is appropriate when the merger clearance is relatively uncontroversial, either because one or more of the economic measures

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[67] For a discussion on coordinated effects and their econometric simulation see K U Kühn, "The Coordinated Effects of Mergers" in P Buccirossi (ed.), *Handbook of Antitrust Economics* (MIT Press, London, 2008), 105.
[68] For a discussion on non-coordinated effects and their econometric simulation see G J Werden and L M Froeb, "Unilateral Competitive Effects of Horizontal Mergers" in P Buccirossi (ed.), *Handbook of Antitrust Economics* (MIT Press, London, 2008), 43.
[68] Merger Guidelines, above n 4, 12.
[69] Merger Guidelines, above n 4, 12.
[70] Australian Competition and Consumer Commission, *Merger Guidelines Draft 2008* (Canberra, 2008), 28.
[71] Ibid, 20.
[72] See generally Merger Guidelines, above n 4.
[73] James Michael Mellsop and James Palmer, *Economics and Competition Law* (New Zealand Law Society, Wellington, 2004), 60-61.
[74] Merger Guidelines, above n 4, 22-31.

is so high that the merger is likely to cause a SLC or because the relevant measures are so small that the merger is unlikely to cause a SLC. In controversial or difficult mergers where the market is appropriate for modelling,[75] however, the Commission may undertake full econometric modelling. For example, econometric modelling was used for the Progressive/Woolworths,[76] Cendant/Budget[77] and Contact Energy/NGC[78] clearance applications and the Qantas/Air New Zealand[79] authorisation application.[80] All these applications involved oligopolistic markets and conflicting individual economic indicators. Econometric modelling is necessary in such cases because the Merger Guidelines require that merger effects on price or quantity must be sustainable for a period of two years or more.[81] In borderline cases this can only be gauged from full econometric modelling, as opposed to an assessment of individual economic indicators.

The Commission uses one of two broad economic models to evaluate mergers in oligopolistic markets: the Cournot model and the Bertrand model.[82] These are both well-established economic models that differ on the assumptions that they make. The Cournot model assumes that oligopolies produce a single homogenous product.[83] It is therefore most appropriate for modelling industries where firms make decisions based on quantity, as opposed to price. An example of such an industry would be the electricity market. The Bertrand model assumes firms largely compete on price with similar but differentiated products.[84] It would therefore be appropriate for modelling, for example, the personal computer hardware market. The Commission will sometimes use modifications of these models to better represent

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[75] Most oligopolistic markets are appropriate for econometric modelling, see I Kokkoris, "Merger Simulation: A Crystal Ball for Assessing Mergers" (2005) 28 World Competition 327, 332 (henceforth "Kokkoris I").

[76] *Progressive Enterprises Ltd / Woolworths NZ Ltd,* Com Com Decision No 448 (14 December 2001).

[77] *Cendant Corporation / Budget Group Incorporated*, Com Com Decision No 482 (6 November 2002).

[78] *Contact Energy Ltd / Natural Gas Corporation Holdings Ltd,* Com Com Decision No 491 (4 February 2003).

[79] *Qantas Airways Ltd / Air New Zealand Ltd,* Com Com Decision No 511 (23 October 2003).

[80] Mellsop and Palmer, above n 73, 60-61.

[81] Merger Guidelines, above n 4, 13.

[82] Mellsop and Palmer, above n 73, 58.

[83] Ibid.

[84] Ibid, 59.

the market analysed. However, the fact that the Commission uses one of two broad models means there is relatively little scope for disagreement over the general economic framework.

Under the current approach the Commission uses econometric modelling for a single factual or counterfactual that is considered 'likely' and causes the most serious reduction in competition. Factuals and counterfactuals that do not reach the 'likely' threshold or whose effects are not as serious as the factual or counterfactual being assessed are ignored from this early stage. However, once econometric modelling is created for a given merger, it is relatively simple to run the simulation several times with small changes that take account of the different possible factuals and counterfactuals. For example, if there is a 25% chance of new entry into the market and that possibility was not evaluated in the 'likely' counterfactual, then the exact same model could be run again, only with the added information of the new entry, resulting in two sets of possible price increases. Moreover, the information used to create the econometric model can be used to help quantify the likelihood of each potential event occurring.[85]

## 2. Three approaches for evaluating uncertainty

### (a) The "Real Risk" Approach

This paper identifies three separate approaches for evaluating uncertainty in the context of merger analysis. The first is the Real Risk approach. This approach refers to the use of either a verbal or numerical probability threshold for the assessment of likely events. This is the current approach in New Zealand for evaluating uncertainty in merger clearance analysis. The Merger Guidelines express the evaluation of uncertainty under 'likely' in s 66 as:

> Likely does not mean more likely than not. It means more than a mere possibility, but it can mean less than a probability of 50 percent. Likely means a real risk, a substantial risk or something that might well happen.[86]

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[85] See Kast and Lapied, above n 61, Chapter 6: Risk Economics. See also Kokkoris I, above n 75.

[86] Merger Guidelines, above n 4, 10.

This interpretation accords largely with the pronouncements of the High Court and Court of Appeal in the *Warehouse Case*.

The advantage of the verbal formulation is that judges are familiar with it from their experience with other areas of the law. However, the formulation is vague and unpredictable in application. While it may be appropriate in criminal cases where the actions or beliefs of a person are at issue, it is not necessarily appropriate for the evaluation of the likely behaviour of a market and its participants. Moreover, an attempt to determine what the formulation means in practice may cause some frustration. Clearly any event with a 50% chance of occurring or more will be 'likely'. But, when the probability is lower one must try and determine, using an "impressionistic approach",[87] whether the chance of occurrence is "more than merely possible" and a "real risk".

The High Court's adoption of a 30% threshold for likelihood in the *Warehouse Case*, while arbitrary, could have injected a significantly higher degree of certainty into the Real Risk formulation. However, the 30% threshold shares two central deficiencies with the verbal formulation. The first deficiency is that the Real Risk formulation amounts to an "all-or-nothing" approach. That is, if a counterfactual reaches the 'likely' threshold it is treated as an absolute certainty and if it does not, the counterfactual is treated as if it does not exist. In the American context Katz and Shelanski express this deficiency as:

> Under this approach, events found to be of low probability or supported by uncertain evidence receive no weight in the decision calculus. Meanwhile, events with probabilities above the threshold are sometimes treated as if they were certain to occur. In short, uncertainty is treated as if it did not exist. This treatment can generate seriously inaccurate predictions regarding consumer welfare when low-probability events would have significant effects if they occurred.[88]

In the *Warehouse Case* the High Court considered that the counterfactual where Extra succeeded did not reach the 'likely' threshold.[89] As a result the Court ignored that counterfactual completely. Ignoring

[87] *Warehouse Case CA*, [135].
[88] M L Katz and H A Shelanski, "Merger Analysis and the Treatment of Uncertainty: Should We Expect Better?" (2007) 74 Antitrust Law Journal 537, 538-539.
[89] *Warehouse Case HC*, [224].

counterfactuals reduces the information on which the decision is founded and the quality of the decision is reduced. Innovation, for example, is a major casualty of such an approach. Innovation is often considered more important to a competitive market than price competition,[90] but it frequently takes several years to make its full impact on a market.[91] Effects due to take place several years into the future are more difficult to predict with accuracy than events in the near future and will therefore have lower likelihoods of occurrence. As a result detriments to consumers from losing this innovation will rarely be assessed by the Commission and the courts under the Real Risk approach, no matter how significant.

The second deficiency, closely related to the first, is that the Real Risk approach disregards likelihood when assessing the effects of a merger. That is, once a counterfactual passes the 'likely' threshold, the probability of it occurring is disregarded in the later assessment of the merger's effect. Consider, for example, two counterfactuals in two separate mergers. The counterfactual in the first merger is 'likely' and has a 90% chance of causing a 5% increase in prices for consumers. The counterfactual in the second merger is also 'likely' but has only a 40% chance of causing a 5% increase in prices for consumers. Under the Real Risk approach both counterfactuals would be evaluated as having an equal effect on the relevant markets. However, consumers should worry about the first merger more than the second, because the price increase in the first merger is almost certain to occur whereas the price increase in the second merger has a much smaller chance of occurring. Katz and Shelanski note that:

> The fundamental point for policy is that the magnitude of each possible outcome... and not just whether it is likely ... must be taken into account if the welfare implications of the merger are to be fully understood.[92]

To properly assess a merger, then, the probability of a counterfactual occurring must be linked to that counterfactual's effect.

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[90] M E Porter, "Competition and Antitrust: Toward a Productivity-Based Approach to Evaluating Mergers and Joint Ventures." (2001) 46 Antitrust Bulletin 919.
[91] Ministry of Economic Development, *Discussion Document: Review of the Clearance and Authorisation Provisions under the Commerce Act 1986* (Wellington, 2007), 13.
[92] Katz and Shelanski, above n 88, 550-551.

### (b) The "Presumptions" Approach

The Presumptions approach is a modification of the Real Risk approach. It attempts to address some of the deficiencies in the way the Real Risk approach deals with events that have a low probability of occurrence by assuming that an event is likely, regardless of its actual probability, if a certain set of facts exists.

The Court of Appeal in the *Warehouse Case* tends towards this approach. This is particularly evident when the Court stated its unwillingness to "second-guess" the business judgment of the Warehouse's executives.[93] While a credible, well resourced management team with continuing faith in a business plan is relevant to the assessment of the plan's likelihood of success, the Court's comments can be interpreted as going further than this and creating a presumption that the Warehouse Extra is likely to succeed because: (a) the business plan envisages its success, and (b) the Warehouse executives chose to invest in it. Such an approach could be transferable to other cases where the Commission would be required to assume that a given business plan is likely to succeed because a competent investor thought that it was a good investment. While the matter was not explored in the Court of Appeal's judgment, it is possible that these presumptions are rebuttable. For example it may be possible to rebut the likelihood of Extra's success by showing that the business plan is wholly illusory or that it was negligently prepared.

The attraction of the Presumptions approach is the foreseeability and objectivity it injects into the analysis of certain kinds of mergers. Once a presumption is articulated by the Commission or the courts, legal advisors can forecast with reasonable accuracy whether a similar merger is likely to receive clearance or not. As things presently stand, however, businesses may be required to wait a long time until a sizable case law builds up articulating the various presumptions and their rebuttals.

Moreover, the Presumptions approach does not remedy the structural deficiencies of the Real Risk approach. By creating a list of presumptions it merely attempts to remedy specific situations where the presumptions may provide for the best outcome in most, but not

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[93] *Warehouse Case CA*, [142]: "In this respect we are not prepared to second-guess the business judgment of the senior management and directors of the Warehouse. They would not have developed the Extra concept unless they saw it as viable".

all, cases. Indeed, once the factual patterns that are required for a presumption become known, companies may attempt to artificially order their affairs to fit into a presumption's requirements if it will benefit them. Such a development would reduce the number of instances where the presumption provides for the best outcome and creates a whole new set of problems without solving the old ones. It is submitted, therefore, that a framework that arrives at the best decision without creating a list of exceptions to the rule would be preferable.

### (c) The "Expected Value" Approach

Expected Value is a summary statistic.[94] It quantifies a decision's various possible outcomes, weighs each of them by the probability that they will occur, and sums these estimates together.[95] The Expected Value result can then be employed to help guide decision-makers, such as the Commerce Commission, in cost-benefit analysis.[96] Richard Posner argued as early as 1972 that the law in general should utilise an Expected Value-like approach to appraise legal disputes.[97] Today Expected Value is advocated by academics for use in various aspects of competition law.[98] Michael Katz and Howard Shelanski of the University of California at Berkley advocate an Expected Value approach for use in US merger analysis.[99] Ken Heyer, the Economics Director at the Antitrust Division of the United States Department of Justice, advocates a similar approach, which he would apply generally to most antitrust assessments of uncertainty.[100] The approach advocated in this paper differs from these US writers by tailoring the approach to

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[94] Summary statistics are a type of descriptive statistics that are used to summarise a set of observations in order to communicate them as simply as possible ("Summary Statistics" in Graham Upton and Ian Cook, *A Dictionary of Statistics* (2nd ed, Oxford University Press, Oxford, 2006)).

[95] K Heyer, "A World of Uncertainty: Economics and the Globalization of Antitrust" (2005) 72 Antitrust Law Journal 375, 376.

[96] Christian Gollier, *The Economics of Risk and Time* (MIT Press, Cambridge, Mass, 2001), 3.

[97] R A Posner, "An Economic Approach to Legal Procedure and Judicial Administration" (1973) 2 JLS 399.

[98] See eg, D S Evans and A J Padilla, "Designing Antitrust Rules for Assessing Unilateral Practices: A Neo-Chicago Approach" (2005) 72 University of Chicago Law Review 73, C Frederick-Beckner and S C Salop, "Decision Theory and Antitrust Rules" (1999) 67 Antitrust Law Journal 41 and K Hylton and M Salinger, "Tying Law and Policy: A Decision Theoretic Approach" (2001) 69 Antitrust Law Journal 469.

[99] Katz and Shelanski, above n 88.

[100] Heyer, above n 95.

fit the unique characteristics of New Zealand competition law. It also differs by combining Expected Value with qualitative assessments rather than relying on the Expected Value alone.[101] Expected Value is a suggested tool to improve merger analysis that has yet to be used judicially in New Zealand or overseas.

In order to calculate an Expected Value for a given merger the Commission would require three sets of figures: the number of possible counterfactuals (n), the probability of each counterfactual occurring (PR) and the percentage price impact[102] of each counterfactual, when compared to the factual (PI).[103] These figures would be assessed through econometric analysis currently undertaken by the Commission. Once these figures are obtained the Expected Value of the merger is calculated using the following formula:

**Equation 1: Expected Value Formula**

$$EV = \sum_{i=1}^{n} PR_i \times PI_i$$

EV = Expected value.
PR = Probability of counterfactual occurring.
PI = Price impact of each counterfactual, compared to the factual.
n = Number of possible counterfactuals.

This formula multiplies each counterfactual probability by the price impact of the counterfactual when compared to the factual,[104] and adds all the outcomes together.

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[101] Katz and Shelanski, above n 88, 571-574.

[102] Percentage price increases are used because it is a figure the Commission often calculates and that the courts often deal with (as was the case in the *Warehouse Case*). This approach can easily be modified to take account of any other quantifiable impact that the Commission may determine is relevant to the assessment of a particular merger (see Charles M Grinstead and J. Laurie Snell, *Introduction to Probability* (2nd ed, American Mathematical Society, Providence, RI, 1997), chapter 6: Expected Value and Variance).

[103] The comparison to the factual is used, so as to represent the fact that the counterfactual cannot occur if the merger takes place (see below n 104).

[104] In other words, the effect of each counterfactual is first deducted from the factual in

To illustrate, consider the three counterfactuals identified by the High Court in the *Warehouse Case*. For the purposes of illustration I will use probability percentages that are either above or below the 30% threshold expressed by the High Court, since the High Court did not assign percentage probabilities to each counterfactual.[105] The first counterfactual was that the Extra concept would fail. I will assign it a probability of 40% with a price impact of 0%. The second was that Extra would continue to be trialled for a while and then fail. I will assign that a probability of 35% and a price impact of 0%. The third was where Extra would succeed. This counterfactual was held not 'likely' and therefore I will assign it a probability of 25% and an impact of a 2.5%[106] price increase for consumers, when compared to the factual.[107] Putting the numbers into the equation we get:

**Equation 2: Expected Value Example 1**

$$(0.4\times 0)+(0.35\times 0)+(0.25\times 0.025)=0.00625$$

Under the High Court's assessment the price effect on consumers was zero because the third counterfactual did not reach the High Court's

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order to receive a net price impact for that scenario if the merger takes place. This is done so that the expected impact under Expected Value is calculated for the merger as a whole, rather than calculating Expected Value twice, once for all the factuals and again for all the counterfactuals, and then deducting one from the other. Thus, where a counterfactual would result in a price decrease for consumers, but that price decrease would be lost in the factual (ie, if the merger took place) then that price decrease would be calculated as a price increase to represent the fact that consumers could not benefit from it if the merger took place.

[105] Note that the High Court did not place significant weight on the 30% threshold, nor did it calculate the precise percentage probability of each counterfactual. However, the 30% threshold is useful for illustration purposes to demonstrate the difficulties associated with the Real Risk approach, which always uses an arbitrary cut-off point (expressed as either a verbal cut-off point or a percentage cut-off point). The percentage probability used here is either above or below the 30% threshold depending on whether the High Court considered the counterfactual was 'likely' or not.

[106] The price increase figures were omitted from the public version of the High Court judgment in the *Warehouse Case*. Since the SLC threshold in that case was held to be 3%, the price increase must be lower. Hence the use of a 2.5% price increase in this example.

[107] If the merger was declined and the counterfactual occurred then there would be a 2.5% price decrease for consumers. However, this price decrease would be lost in the factual (ie, if the merger took place). Therefore when comparing the counterfactual to factual we represent the *loss* of this price decrease as a price increase for consumers.

'likely' threshold and was therefore ignored. Under the Expected Value calculation the average expected price increase is small, 0.625%,[108] but it is not zero.

As a second example, consider a fictional merger with two possible counterfactuals: an 80% chance of a 1% price increase for consumers and a 20% chance of a 15% price increase for consumers. Under the Real Risk approach this merger would be allowed,[109] since the 20% probability counterfactual would be ignored and a 1% price increase may not be sufficient to constitute a SLC. Expected Value would measure the merger in this way:

**Equation 3: Expected Value Example 2**

$$(0.8 \times 0.01) + (0.2 \times 0.15) = 0.038$$

The average expected price increase of allowing this merger is 3.8%. The use of this statistic allows the lower probability counterfactual to be considered together with all other counterfactuals. As a result the decision-maker can come to an informed decision on whether to grant or decline the merger application.[110]

Before proceeding it is important to explain what the Expected Value result actually means. Expected Value is a descriptive quantity, akin to an average or a mean, of all the counterfactuals and their effects.[111] It is not equivalent to a price increase in a given counterfactual. The Expected Value may be, and often is, a result that we would not expect to observe in practice after making the decision a single time. In this respect it is similar to a class with an average grade of 72.3 despite no individual student receiving this mark. A useful way to conceptualise Expected Value, then, is as an average result for the proposed merger. What the Expected Value "average" actually measures is the price increase that would occur if we allowed a large

[108] The Expected Value of 0.625% is reached by multiplying the Expected Value result of 0.00625 by 100. This is because the Expected Value calculation expresses the percentage outcome out of a maximum of 1 (ie, a result of 1 = 100% and a result 0.5 = 50%). To express the Expected Value result as a percentage out of 100% we simply multiply the Expected Value result by 100.

[109] Assuming all other facts are equal.

[110] See Katz and Shelanski, above n 88 for numerous examples of how such an approach would work in different types of mergers with varying probabilities and outcomes.

[111] Grinstead and Snell, above n 102, 225.

number of mergers with the same facts and averaged the price increases that resulted in all of them.[112]

By combining all the possibilities and outcomes of a particular decision together, Expected Value allows us to assess a summary of all aspects of the decision instead of focusing on individual parts of it. To illustrate, consider an attempt to assess whether a given school class performed well in an exam. Adapting the Real Risk approach, we would measure how well a class did by determining whether a certain proportion received a mark higher than 80% and ignore the rest of the class, which would be misleading and unhelpful. The Expected Value approach would be akin to using an average mark for the class to determine how well it performed, thus taking into account more information than the Real Risk approach and condensing it into a single figure.

To further explain Expected Value, we can use a more complicated example. Consider being faced with an American roulette and the question whether it would be profitable to place a bet on one of the numbers? An American roulette has 38 numbers on it.[113] If you place a $1 bet on the winning number you will get your $1 back plus $35,[114] otherwise you will lose your $1. You thus have a 1/38 chance of winning 35 times your original bet and a 37/38 chance of losing your original bet. Using Expected Value we can calculate that you should expect to lose 5.26% of your money.[115] Obviously you could not lose this percentage of money on an individual bet. The Expected Value is the loss that you would expect if you repeatedly placed bets on the roulette. Note that if you bet $1 on all 38 numbers in a single roulette spin, then one of your numbers would inevitably come up and you end up with $36. This $36 represents a 5.26% loss from the $38 that you bet on the round,[116] which is equal to the loss as calculated by

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[112] Note that an ordinary average calculation can be accompanied by a variance, so that the average of 50 and 100 (ie, 75) can be distinguished from the average of 70 and 80 (which is also 75). Similarly Expected Value can be accompanied by a variance measure so that a merger with potential outcomes of -100% and +100% price change for consumers and a merger with -2% and +2% price changes can be distinguished from one another (see , Chapter 6 for a full explanation of the Expected Value variance).

[113] American roulettes have numbered slots 1-36 as well as "0" and "00" slots (38 slots in total). Non-American roulettes only one "0" (and therefore 37 slots in total).

[114] This is the standard 'win' when playing American roulette.

[115] The Expected Value calculation is $\frac{1}{38} \times 35 - \frac{37}{38} \times 1 = -0.0526$ .

[116] The calculation is $\frac{36}{38} - 1 = -0.0526$ .

Expected Value. Expected Value can thus help us reach the logical conclusion that gambling on roulette is a loss making exercise. When applied to merger analysis, Expected Value can give the decision-maker the same level of insight into the risks of granting clearance to a merger.

Since Expected Value represents an average outcome for a decision, it is especially useful in merger analysis. The Commission is required to analyse numerous merger clearance applications every year.[117] Most of these applications represent borderline cases where the advising solicitor is unsure whether the merger will or will not breach s 47 of the Act. Therefore the applications will often have similar probabilities and outcomes, despite existing in different markets and at different times. An Expected Value approach would allow the Commission to both make a long-term assessment of the benefit to consumers in New Zealand and enhance its ability to compare different mergers. Moreover, since Expected Value calculates the likely effect of the merger as a whole, it avoids the 'gap' between ss 66 and 47 caused by the current approach by the Court of Appeal.[118]

Further, the Court of Appeal in the *Warehouse Case* noted that:

> [T]he Commission can be expected to engage in an inquisitorial process in which it would make a reasonable inquiry into the merits or otherwise of the clearance that is sought. The decision to grant or refuse a clearance is necessarily to be made on the basis of all the evidence.[119]

It is difficult to see how the Court of Appeal's Real Risk approach complies with its own pronouncement. An approach that omits potentially important evidence from the final determination does not result in a decision made "on the basis of all the evidence". Expected Value, on the other hand, evaluates all the possible counterfactuals to allow a decision to be truly made on the basis of all the evidence.

In summary, Expected Value provides a single numerical summary of the entire quantitative aspects of the proposed merger, with which the Commission can begin to assess its likely impact.

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[117] On average the Commission evaluates approximately 20 clearance applications per year (Ministry of Economic Development, *Discussion Document: Review of the Clearance and Authorisation Provisions under the Commerce Act 1986* (Wellington, 2007), 23).

[118] See section B 1.

[119] *Warehouse Case CA*, [101].

Expected Value provides several additional benefits over the Real Risk and Presumptions approaches. The formalistic and well-established formulation of Expected Value promotes transparency in the merger clearance process; many applicants will easily understand the Expected Value techniques since they regularly use it in their business dealings; Expected Value takes into account future events with a low probability, ensuring that serious detriments to consumers will not be ignored; Expected Value links the probability of a counterfactual occurring to its effect; and, Expected Value allows the Commission and the courts to make their own assessment of the likely effect of the merger, rather than relying on the opinions of the parties involved in the merger. This quantitative assessment must, however, be supplemented by a qualitative assessment.[120]

### 3. The potential prevalence of Expected Value in merger analysis

Under the current Real Risk approach the Commission focuses on a single factual or counterfactual that is 'likely'. Therefore most of the reported cases and decisions do not discuss alternative possible counterfactuals. For example, in *Brambles New Zealand Ltd v Commerce Commission*[121] the Commission identified the relevant counterfactual as being a continuation of the status quo. The Commission specifically omitted an alternative counterfactual from its analysis because the probability of that counterfactual occurring did not reach the statutory threshold of 'likely'.[122] Since ignored counterfactuals are often not reported it is difficult to estimate precisely how much information is currently being discarded. The scarcity of discussion over alternative counterfactuals does not, however, mean that they do not exist. Nor does it mean that the alternative counterfactuals can be safely ignored: "low probability events can matter, and for that reason they should not be casually or easily discarded."[123]

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[120] The link between quantitative and qualitative assessment is outside the scope of this paper. However, it is discussed in my dissertation, above n 66.
[121] (2003) 10 TCLR 868.
[122] Ibid, 873. The details of that counterfactual were censored from the public version of the judgment: "[The Commission] then considered the counterfactual and concluded that the status quo was the counterfactual. In particular, it rejected the possibility that [...]."
[123] Katz and Shelanski, above n 88, 554.

It is feasible to estimate what counterfactuals may have been ignored in a decision by reading the case and contemplating what alternative scenarios may have been possible. For example, in *New Zealand Bus Ltd v Commerce Commission*[124] the largest bus company in Wellington, New Zealand Bus Limited, wanted to purchase the second largest bus company in Wellington, Mana Coach Services Limited.[125] The factual, that Mana and NZ Bus would no longer compete with each other after the merger was virtually certain and was not controversial.[126] The counterfactual, however, was not as obvious.[127] The High Court nonetheless considered that the only relevant counterfactual was that Mana would be sold to a different bus company who wished to enter the Wellington market, and that under new ownership Mana would compete with NZ Bus.[128] The High Court did not evaluate other counterfactuals, but that does not mean that there were none. One possibility would be for Mana to go bankrupt and not be purchased at all. Moreover, if Mana would have been purchased then there would still be at least two possibilities: that Mana remain a meek competitor, or, if Mana would have been purchased by a bus company that wanted to usurp NZ Bus, it may have become a very aggressive competitor. It would have been preferable for the High Court to have evaluated all the possible counterfactuals rather than a single one.

Notwithstanding this estimation exercise, without the information held at the time by the parties and the court we cannot know what scenarios were possible, or how possible they were. This exercise shows that, since the Commission and the courts can rarely determine with absolute certainty what *will* happen in the future, alternative possible counterfactuals should not be ignored.

The discussion in this paper has focused on the benefits of using Expected Value to calculate price increases as measured by econometric modelling. However, Expected Value can also be used to evaluate the likely effect of individual economic indicators that are expressed in numerical terms. For example, an economic indicator used to estimate increases or decreases in a firm's unilateral power is the

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[124] [2007] NZCA 502.
[125] Ibid, [10].
[126] Ibid, [256]-[258] and *Commerce Commission v New Zealand Bus Ltd* (2006) 11 TCLR 679, 719-720.
[127] *Commerce Commission v New Zealand Bus Ltd* (2006) 11 TCLR 679, 720.
[128] Ibid, 721.

firm's market share. Under the Real Risk approach the Commission would only evaluate the change in a firm's market share in a single 'likely' counterfactual and ignore market share changes in scenarios that do not reach the 'likely' threshold. Under the Expected Value approach the Commission would estimate the change in market share under all possible counterfactuals and use Expected Value to gain a complete understanding of the merger's effect on the firm's market share.

Thus, the Commission's and the court's use of the Real Risk approach masks the true risks that a merger gives rise to by discarding counterfactuals early on in the investigation. These counterfactuals are often not mentioned in the final decision or judgment, but they nonetheless exist. As a result the potential prevalence of Expected Value in merger analysis is large. The Expected Value approach could be employed in every merger analysis where the assessment involves deciding what is 'likely' to happen and where that evaluation involves quantitative indicators of competition.

## 4. Potential Criticism of the Expected Value Approach

The Expected Value approach, and indeed any mathematical or statistical usage can seem foreign within the law. In this part of the paper I would like to anticipate and address a number of potential criticisms that the Expected Value approach may give rise to. The first potential criticism that will be addressed is that judges and the Commission will not understand the concept or be able to apply it in practice. Katz and Shelanski also identify this potential criticism[129] and pose a simple, yet effective response to it – observing that "the difficulties of the expected-value approach arise not because the method of analysis is hard, but because the problem to be addressed is hard."[130] Merger analysis necessarily involves complicated econometric and statistical data.[131] The Expected Value approach helps synthesise this information in a more effective manner. It does not introduce foreign statistical calculations in an area of law where they do not currently exist.[132] Nor does it create an additional burden by including

[129] Katz and Shelanski, above n 88, 554.
[130] Ibid.
[131] See Mellsop and Palmer, above n 73, Chapter 3.
[132] *Telecom Corporation of New Zealand Ltd v Commerce Commission* [1992] 3 NZLR 429, 441.

quantitative data that could be safely ignored, since ignoring low probability events does not eliminate their impact.[133]

Moreover, the Commission and the courts are equipped to effectively implement such an approach. The Commission is a specialist tribunal that deals with significantly more complex mathematical, statistical and econometric data than Expected Value. A significant portion of the Commission's staff are trained in economics and related disciplines, and specialist economist assistance is regularly sought for merger clearance review.[134] Judges on appeals from the Commission are naturally privy to all the reports prepared by and presented to the Commission, and High Court Judges sitting on Commerce Act cases are in the unique position of sitting alongside a lay-member advisor who is literate in economics.[135] A central purpose of this arrangement is cross-pollination of expertise. One would expect the lay-member to explain the meaning of the Expected Value statistic to the judge in order for them to reach a conclusion on it together.

A second potential criticism that I would anticipate is that the Expected Value approach is one of "false scientism"[136] whereby the work of the law is replaced by an imprecise mathematical calculation. Such criticism, however, misunderstands the approach advocated. First, it is vital that the Commission and the courts understand the figures, the econometric modelling and the assumptions that make up the Expected Value. Since the Commission currently analyses this data itself there is no reason to assume that the Commission will not be able to continue to do so in the future. Second, Expected Value will rarely be the sole determining factor for the outcome of a clearance application. The use of Expected Value in merger analysis, like in business decision-making, requires an additional consideration of qualitative factors before a decision is made.[137] It should be noted that,

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[133] Katz and Shelanski, above n 88, 555.

[134] Alan Lear, *Report to the NZ Commerce Commission: A Best Practice Review of the New Zealand Merger Clearance Regime* (Auckland, 2007), 25.

[135] In competition law cases a "lay-member" ordinarily sits alongside the judge in High Court proceedings (Commerce Act 1986, ss 77 & 78). The lay-member is selected from a panel of persons with "knowledge or experience in industry, commerce, economics, law or accounting" (Commerce Act 1986 s 77(2)) and may issue his or her own opinion. In cases where there are two or more lay-members, they may constitute a majority opinion that decides the outcome of the case, notwithstanding the judge's opposing view (, 259).

[136] *New Zealand Bus Ltd v Commerce Commission* [2007] NZCA 502, [104] per Hammond J.

[137] Cleary and Malleret, above n 64, 48-49.

A further potential criticism, also mentioned by Katz and Shelanski,[138] is that the figures used to calculate the Expected Value are sometimes controversial and could lead to disagreement between the Commission and the applicants. A subsequent appeal to the High Court would be very expensive, long and complicated, involving significant economic data and analysis. Such a criticism is well placed. However, it could equally be directed at the Real Risk approach. There too the Commission is required to undertake economic analysis of the proposed acquisition and, if the parties disagree over the Commission's modelling, the ensuing litigation is likely to be long, expensive and complicated. Thus, if there is no reliable economic data available the implication and solution in the Real Risk approach and the Expected Value approach is the same: to skip the quantitative assessment and focus on theoretical and qualitative concerns.

Moreover, it is submitted that where the data is reliable but the Commission misapplies the economic modelling, then the applicant is entitled to, and should challenge the modelling. In such a case the area requiring improvement is not the theoretical treatment of complicated economic data, but the quality of modelling undertaken by the Commission. Further, an Expected Value approach would be preferable to the Real Risk approach in such circumstances by reducing disagreements over small inaccuracies in the economic modelling. For example, under a 30% probability threshold it may be extremely important for an applicant to establish whether the likelihood of a potential event is estimated at 28% or 32%.[139] As a result significant resources may be expended in debunking the Commission's accuracy when assessing the event's probability. Expected Value, on the other hand, combines all the merger's figures together instead of focusing on one single figure. Therefore such a small variation would be virtually immaterial when using Expected Value, especially once qualitative factors are taken into account.[140]

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[138] Katz and Shelanski, above n 88, 553. Note, however, that Katz and Shelanski address this criticism from the context of evidence in American antitrust cases.

[139] Similarly, under an impressionistic approach, where it is controversial whether a counterfactual is 'likely' or not, the parties will conduct the same expensive exercise. The central difference between a percentage probability threshold and an impressionistic threshold is that the decision-maker has more discretion when using an impressionistic threshold. While the use of that discretion may in some cases resolve the disagreement, in other cases it may simply form the grounds for an expensive and drawn out appeal process.

[140] For example two calculations of expected value with such a variation could be

Some could build on the above potential criticism and claim that parties to litigation would engage in expensive 'arms races' or that judges could manipulate Expected Value and use it as a cover for intuitive judgments rather than a way of forcing transparency. Such criticism misses the purpose of Expected Value. Expected Value cannot, and is not designed to provide a foolproof mechanism for foreseeing the future. Expected Value is merely designed to improve the Commission's merger evaluation from its current state and provide a comprehensive summary of the quantitative information already at the Commission's disposal. It is possible that some people may attempt to manipulate Expected Value. However, Expected Value would be harder to manipulate than the Real Risk approach because Expected Value mandates deference to more objective criteria and, unlike the Real Risk approach, does not condone judges using their own intuitive impression to determine the outcome of complicated legal proceedings. The final potential criticism that this paper will address is that the Expected Value approach takes into account price decreases as well as price increases for consumers. This appears, on first inspection, similar to merger authorisation under s 67 of the Act where the Commission is required to look at the net benefit to the public.[141] Therefore, the argument would run, the Expected Value approach wrongly encroaches on territory reserved for merger authorisations.

The response to this criticism is twofold. First, it is true that the Expected Value approach increases the level of overlap between the clearance and authorisation provisions. However, the authorisation process takes into account significantly more information on the benefits to the public than the Expected Value approach. This 'Public Benefit' test under s 67 has been given a wide interpretation that includes matters such as greater international competitiveness for New Zealand, increased utilisation of New Zealand resources, preserving local economic activity and employment, better consumer information

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$(0.28 \times 0.05 + 0.72 \times 0.01) = 2.12\%$ and

$(0.32 \times 0.05 + 0.68 \times 0.01) = 2.28\%.$

The difference between the two figures is a fraction of percentage point (0.16%).

[141] Section 67(3)(b) requires the Commission to authorise a merger "if it is satisfied that the acquisition will result, or will be likely to result, in such a benefit to the public that it should be permitted." For an explanation of the net benefit test and some of its shortcomings see G Bertram, "What's Wrong With New Zealand's Public Benefit Test?" (2004) 38 New Zealand Economic Papers 265.

and preventing "free riding",[142] to name a few. Moreover, there is a difference between the authorisation procedure and the clearance procedure in the way the information is used.[143] The authorisation process uses this information to assess whether there is a net benefit to the public, while the clearance procedure uses this information to assess whether there is likely to be a change in the competitive pressures in a market.[144]

Second, the clearance process is a complex process. The Court of Appeal in the *Warehouse Case* noted that the 10 working day timeframe for clearances[145] is not an indication that the clearance process should be used only for obvious cases.[146] In practice it takes the Commission over two months on average to assess and publish a clearance decision.[147] In making this decision all relevant and available information that affects competition in the market should be taken into account to evaluate the likely effect of the merger.[148] This should include potential increases in competition as well as decreases in competition.

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[142] R Ahdar, "The Authorisation Process and the 'Public Benefit' Test" in R Ahdar (ed.), *Competition Law & Policy in New Zealand* (The Law Book Company, Sydney, 1991), 217, 239. See also Jill Caughey, *A Tangible Distinction? Intangibles and the Public Benefit Test in the Commerce Act 1986* (Honours Research Paper, University of Otago, 2006).

[143] See R Ahdar, "A Tale of Two Airlines (Still)" (2005) 33 Australian Business Law Review 64 for an analysis of *Air New Zealand Ltd v Commerce Commission (No 6)* (2004) 11 TCLR 374 where the Commission was required to analyse both a SLC and the public benefit tests under a merger authorisation request.

[144] For alternative views on analysing what constitutes a "Public Benefit" and the different factors that could be considered in the test see J S Gans, "Reconsidering the Public Benefit Test in Merger Analysis: The Role of 'Pass Through'" (2006) 34 Australian Business Law Review 28, P Hughes, "Comments on Professor Joshua Gans's Presentation 'Reconsidering the Public Benefit Test'" (2006) 34 Australian Business Law Review 49 and S P King, "The Public Benefit Standard for Merger Authorisations" (2006) 34 Australian Business Law Review 38.

[145] Section 66(3) of the Commerce Act 1986 requires the Commission to issue a decision over a clearance application within 10 working days unless the applicant agrees to extend that period.

[146] *Warehouse Case CA*, [96].

[147] Ministry of Economic Development, *Discussion Document: Review of the Clearance and Authorisation Provisions under the Commerce Act 1986* (Wellington, 2007), 25.

[148] *Warehouse Case CA*, [101].

## 5. Does the Commerce Act 1986 prohibit an Expected Value approach?

It is well established that merger analysis in New Zealand requires a comparison of the factual with the counterfactual.[149] The word 'likely' in s 66 dictates how the Commission and the courts are to treat uncertainty in merger analysis. 'Likely' is not defined in the Commerce Act 1986. Nonetheless, 'likely' has been interpreted as providing for a Real Risk approach in *Port Nelson Ltd v Commerce Commission*[150] case, which interpreted 'likely' in the context of s 27 and restrictive trade practices, and has since been expanded to all usage of the term 'likely' in the Commerce Act, regardless of the differences in context.[151] Clearly, Parliament could mandate the use of an Expected Value approach through specific legislation. However, this paper contends that the Supreme Court could reverse *Port Nelson* in the context of s 66 clearance applications, and adopt an Expected Value approach. The question that arises is whether, in this context, an interpretation of 'likely' necessarily dictates a Real Risk approach and prohibits an Expected Value approach.[152]

The interpretation of 'likely' depends on the statutory context in which it exists.[153] In *Telecom Corporation of New Zealand Ltd v Commerce Commission*[154] the Court of Appeal held that the essential notions and objectives of the Commerce Act 1986 were economic ones.[155] Words such as "market" and "competition" should be interpreted with reference to their economic equivalent.[156] Maureen Brunt, for example, who has sat as lay-member on many competition law cases in New Zealand and Australia, considers that "if antitrust is to be relevant and socially useful, the very fabric of the law must have mixed economic-

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[149] See *Tru Tone Ltd v Festival Records* [1998] 2 NZLR 352 (CA) and *New Zealand Bus Ltd v Commerce Commission* [2007] NZCA 502, [91].

[150] *Port Nelson Ltd v Commerce Commission* [1996] 3 NZLR 554, 563.

[151] For an in depth discussion on the evolution of the interpretation of 'likely' under the Commerce Act 1986 see above n 66.

[152] Note that Katz and Shelanski consider that Expected Value is not barred by the US statutory language which bars mergers where "the effect of such acquisition *may be* substantially to lessen competition or to tend to create a monopoly" (emphasis added, Katz and Shelanski, above n 88, 562-564).

[153] *Commissioner of Police v Ombudsman* [1988] 1 NZLR 385, 404.

[154] [1992] 3 NZLR 429.

[155] Ibid, 441.

[156] See Miriam Dean and Tom Weston, *New Zealand Law Society Seminar: Competition Law Update* (New Zealand Law Society, 2001), part 3.

legal content, with due attention given to both."[157] Thus, interpretation of 'likely' within the Commerce Act 1986 could be performed with reference to its economic equivalents of risk assessment, which would include Expected Value.[158]

Moreover, the current interpretation of s 66 assesses the likelihood of individual counterfactuals without linking them to the outcome or effect.[159] This interpretation appears incompatible with s 66, which requires an assessment of the merger's "likely effect of substantially lessening competition".[160] Read literally, the likely effect is for the merger as a whole where the likelihood and effect are linked to each other. This is precisely what Expected Value calculates. The current interpretation reads s 66 as if it read "a likely factual or counterfactual that has an effect of substantially lessening competition", despite no indication in the section that it should be read this way.

Finally, the Court of Appeal in *Benton v Miller & Poulgrain (a firm)*[161] discussed the treatment of uncertainty in the context of negligence and a loss of chance. Loss of chance evaluation involves a counterfactual analysis,[162] similar to that undertaken in merger analysis. In that context the Court found that uncertainty could either be evaluated on an "all-or-nothing" basis by reference to the balance of probabilities or on a proportionate basis.[163] The Court held that where the question is how would the plaintiff have acted in the absence of a breach of duty it should be evaluated on an all-or-nothing basis.[164] However, uncertainties as to how third parties would have acted should be

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[157] M Brunt, "Antitrust in the Courts: The Role of Economics and of Economists" in M Brunt (ed.), *Economic Essays on Australian and New Zealand Competition Law* (Kluwer Law International, The Hague, 2003), 353, 354.

[158] See Gollier, above n 96.

[159] The danger with such an approach is that "When merger review addresses uncertainty by overemphasising the likelihood of particular outcomes and discounting the importance of those outcomes, except perhaps when that importance reaches 'extraordinary' scale, a small effect that has a high probability of occurring may weigh much more heavily in enforcement decisions than an effect whose probability is lower but whose consequence is of greater magnitude. Such an approach could have perverse effects on consumer welfare." (Katz and Shelanski, above n 88, 545)

[160] Commerce Act 1986, s 66(3)(a).

[161] [2005] 1 NZLR 66.

[162] Ibid, [46].

[163] Ibid, [44].

[164] Ibid, [47].

evaluated on a proportionate basis.[165] Similarly in merger analysis, when evaluating the 'likely' effect of a merger, it is necessary to evaluate how customers and other participants in the market are likely to react. Extending the *Benton v Miller* ratio, the evaluation of what is 'likely' in merger analysis should use a more sophisticated method than a simple all-or-nothing approach. As a result, not only is it open to the courts to interpret 'likely' as allowing an Expected Value approach, it is more consistent with the legislation to do so.

## Conclusion

Returning to the observation made at the introduction to this paper, the change in the legal test of merger analysis in 2001 provided the Commission and the courts with an opportunity to improve merger analysis. While sophisticated economic analysis is used in some areas of merger analysis, its absence in other areas materially reduces the quality of the analysis. The Real Risk approach expressed by the Court of Appeal in the *Warehouse Case* perpetuates this lack of sophistication. The most serious shortcoming of the Real Risk approach is its treatment of events with a low probability as if they did not exist and events with a high probability as if they were certain to occur, which can have perverse effects on consumer welfare. It also fails to link effects to their probability. The impressionistic aspect of this approach, as expressed by the Court of Appeal, injects unnecessary vagueness into this flawed assessment of likelihood.

As an alternative, this paper advocates an Expected Value approach to the evaluation of uncertainty in merger clearance applications. Expected Value is commonly used by businesses to evaluate risk in cost-benefit analysis and guide decision-makers.[166] This approach allows the Commission and the courts to consider the merger's entire quantitative effect using a single figure that denotes the merger's 'likely' effect. At the same time Expected Value provides a clear and simple measure that allows applicants to determine what the Commission and the courts will consider the merger's 'likely' effect to be. Since it would be open to the courts to adopt an Expected Value approach under current legislation, it is submitted that they should do so.

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[165] Ibid, [49].

[166] Heyer, above n 95, 376.