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# Royal Commission on Corporate Concentration

## Study No. 34

### Mergers and Acquisitions in Canada

#### A Background Report

by

Steven Globerman

Associate Professor  
Faculty of Administrative Studies  
York University

April 1977

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## FOREWORD

In April 1975, the Royal Commission on Corporate Concentration was appointed to "inquire into, report upon, and make recommendations concerning:

- (a) the nature and role of major concentrations of corporate power in Canada;
- (b) the economic and social implications for the public interest of such concentrations; and
- (c) whether safeguards exist or may be required to protect the public interest in the presence of such concentrations."

To gather informed opinion, the Commission invited briefs from interested persons and organizations and held hearings across Canada beginning in November 1975. In addition, the Commission organized a number of research projects relevant to its inquiry.

This study on mergers and acquisitions in Canada was prepared by Professor Steven Globerman of the Faculty of Administrative Studies, York University in Toronto. The study discusses the evidence on mergers and acquisitions in Canada, and the theoretical background to analyzing merger activity, both topics being of central importance to our mandate, and ones that were discussed at length in our hearings and in the briefs submitted to us.

The commissioning of this study represented our attempt to bring much of the material on the subject together in one place, and to update earlier material on mergers and the merger process.

Professor Globerman is co-author of three books and monographs, the most recent being Tariff and Science Policies: Applications of A Model of Nationalism (with D.J. Daly) and of a number of articles on aspects of economics and public policy. He holds a doctorate from New York University.

The Commission is publishing this and other background studies in the public interest. We emphasize, however, that the analyses presented and conclusions reached are those of the author, and do not necessarily reflect the views of the Commission or its staff.

Donald N. Thompson  
Director of Research

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## SECTION ONE

### THE POLICY SETTING

#### Introduction

Mergers and acquisitions are a means of reallocating the ownership of resources in an economy. As such, the aim of public policy with respect to mergers, acquisitions, or other business reorganizations such as joint ventures, licensing agreements and partial acquisitions, is conceptually clear: to encourage those reorganizations which promise to have positive net social benefits and discourage those promising to have negative net social benefits.<sup>1</sup> In general, if a merger or acquisition promises to improve upon the overall allocation of resources, it can be presumed to impart positive net social benefits, distributional considerations aside. It is extremely difficult however, if not impossible, to estimate precisely the efficiency impacts of mergers and acquisitions. The practical difficulties of imperfect information are compounded by the need to consider all of the impacts, direct and indirect, upon the resource allocation process arising from corporate reorganizations. The effects of any merger, or class of mergers, may have contradictory implications for social welfare. For example, a merger might provide cost savings through economies-of-scale; yet by altering the structure of one or more product markets, it might also encourage reduced price and (or) non-price competition.

#### Primary and Secondary Merger Consequences

Skeoch suggests classifying merger consequences by their primary and secondary effects.<sup>2</sup> Primary effects encompass the probable impact of mergers in creating or reinforcing artificial economic restraints; secondary effects encompass the probable real cost economies and the longer-run dynamic consequences of mergers. The primary effects of mergers include not only the consequences of a potential increase in the concentration of resource ownership within any one individual market, but also the consequences of increasing concentration of resource ownership across different markets. The secondary effects of mergers include the economies (or diseconomies) of scale associated with combining specific economic activities within larger decision-making units, as well as the consequences of transferring resource ownership from one economic unit to another. The focus of most of the literature on mergers and acquisitions has been to specify and (where possible) to estimate these primary and secondary effects.

In considering the primary and secondary consequences of mergers, net social benefits or costs could conceivably be realized within each category of potential effects. We first consider primary effects. Mergers between firms producing the same (or very similar) products could heighten oligopolistic awareness and spontaneous collusion in the industries of the merging firms, possibly leading to different kinds of restrictions on competition. However, it might be argued

that in industries characterized by imperfect competition any shift in the relative sizes of firms, accomplished for example through mergers or acquisitions, could disturb existing collective (although not necessarily collusive) agreements, thereby leading to more effective competitive behaviour in those industries. This possibility is more likely if the acquiring firms are outsiders or new to the industries and have not, therefore, been "socialized" to accept prevailing industry codes of competitive ethics. In industries where entry through mergers or acquisitions is particularly favoured over entry through internal expansion, restrictions on merger activity, even given substantial existing concentration ratios in the industry, may reduce effective competition by raising additional entry barriers to the industry.

In general terms, while a presumption exists that, ceteris paribus, the likelihood of price competition becomes smaller as firms become fewer in number, the assumption of ceteris paribus rarely holds across different industries and different markets.<sup>3</sup> Thus, it cannot be assumed on an a priori basis that given any market of a particular size, a large number of small firms will necessarily compete more vigorously than a small number of large firms. At least one observer has argued that in many technology-intensive industries, large firms are inherently more vigorous competitors than small ones.<sup>4</sup>

A related and frequently expressed concern is that large corporations are more successful than small corporations at applying political pressure to influence government decisions in areas affecting business performance. Richard Caves, for one, questions any such presumption on both theoretical and empirical grounds. Specifically, he suggests that the larger the industry (firm), the more likely is its protection to be noticed and attacked by the general consumers, who are always more numerous. Caves posits that if an unconcentrated industry's many entrepreneurs do manage to co-ordinate their efforts, they may be a much more effective force than a few oligopolists commanding an equivalent stock of factors of production.<sup>5</sup> Indeed, he provides some empirical evidence that effective tariff rates are lower in more highly concentrated industries.<sup>6</sup> This observation complements Siegfried's evidence from U.S. data indicating that industries in which a few firms control a larger proportion of the market seem to pay relatively higher effective tax rates.<sup>7</sup> However, Siegfried also provides evidence indicating that larger firms, in general, pay lower effective average corporation taxation rates.<sup>8</sup>

Theoretical arguments can be raised supporting corporate mergers and acquisitions on the grounds that they increase allocative efficiency, (i.e. have positive secondary effects) as a result of the capture of economies-of-scale and other "synergy" effects in different economic activities. The existence of an active merger market might also encourage increased allocative efficiency indirectly by:

1. providing a constant "takeover" threat to inefficient management, and
2. facilitating the reallocation of resources from less efficient to more efficient companies.<sup>9</sup>

The various efficiency arguments rest upon notions that have been called into question in a number of different studies. One notion is that managers attempt to maximize the long-run discounted profits of firms. The literature evaluating the profit-maximization hypothesis is too lengthy to undertake in review. Suffice it to say that a popular competing theory of the firm, the growth-maximization hypothesis, supplies sufficient incentives for mergers even when no potential efficiency gains exist. <sup>10</sup> Another notion is that capital markets are sufficiently perfect so that more efficient companies (regardless of size) can obtain financial capital on competitive terms in order to buy less efficient companies. To the extent that the risk and transactions-cost adjusted cost of capital differs systematically across firms of different sizes, the "natural-selection" mechanism might be inoperative for firms above some given size category. Indeed, the existence of any such capital market imperfections might provide firms with an incentive to grow through the merger/acquisition route in order to reduce the risk of being taken over. <sup>11</sup>

In summary, the theoretical literature on mergers and acquisitions offers no unambiguous conclusions regarding the expected net impact of either primary or secondary merger consequences. <sup>12</sup>

#### Primary and Secondary Merger Effects in Canada

It has been suggested on a priori grounds, that the impacts of merger and acquisition activities in Canada may differ substantially from those experienced in the United States and other large developed economies; the smaller Canadian economy is said to impart distinctive features to Canada's industrial structure and, consequently, to Canadian merger and acquisition experience. <sup>13</sup>

Specifically, Canada's comparatively small domestic market contributes to the average firm size in Canada being generally smaller than average firm sizes in comparable U.S., Japanese, and Western European industries. The existence of scale economies at the firm level, presumably attained by firms located abroad but not by domestic firms, has been put forth as one a priori reason for expecting substantial positive secondary benefits to arise from mergers in Canadian industries. Proponents of an efficiency argument for mergers hold that economies of scale are particularly significant in the research and development and marketing functions of the firm. <sup>14</sup> The presumption is that a certain minimum critical firm size is needed if certain activities, particularly those related to innovation and new product development, are to be undertaken efficiently. Many Canadian companies are alleged to be smaller than the minimum efficient size for their given industry. <sup>15</sup>

Another presumed consequence of Canada's economic structure is that the conditions which call for a relatively small number of relatively large firms also generate in many instances small, or at any rate insufficiently specialized, plants which cannot achieve maximum economic efficiency. This point is made in the following statement:

Inadequate specialization is especially marked in industries where the distribution system offers marketing

advantages to firms producing a "full line" of products. In such cases, while the industry may contain the number and size of firms consistent with the efficient production of its total output, maximum efficiency in terms of individual products is unlikely to be achieved because each of the firms is producing a full line instead of specializing in a few items only.<sup>16</sup>

Mergers and acquisitions among firms in Canada might therefore lead to increased production efficiencies if they facilitate greater specialization at the plant level.

Another potentially important set of scale economies attainable through the merger route is that which exists for managerial functions. The relative scarcity of aggressive and innovative managers in Canada makes this potential secondary merger benefit of particular significance.<sup>17</sup>

On the other hand, the smaller Canadian market has also been suggested to increase the probability of negative primary consequences of mergers and acquisitions. Given a relatively small domestic market, mergers undertaken to create "world-scale" Canadian business units imply increased levels of industrial concentration with potential anti-competitive consequences. Canada's geographic size contributes to high transportation costs which in turn heighten the potential for creating local monopolies through the merger process.

The fact that existing levels of industrial concentration are higher in Canada than, for example, in the United States, has ambiguous implications. On the one hand, it raises a concern that existing oligopolistic interdependence in domestic industries might be increased by even greater industrial concentration. On the other hand, it may reduce to insignificance the marginal impact of any additional merger on competitive behaviour, since concentration levels are already high enough to facilitate collusive behaviour.<sup>18</sup> Moreover, the threat of new firm entry through a corporate takeover might be the most effective "disciplinary" force confronting oligopolistic producers in Canada. Foreign firms, in particular, may prefer entry-by-acquisition as a means of establishing a toehold in domestic industries. Merger policy which discourages acquisitions of firms in Canada, particularly by foreign-based acquiring companies, may increase barriers to entry and allow domestic producers, particularly in highly concentrated industries, to exploit more fully potential monopoly rents.<sup>19</sup>

A similar ambiguity arises when tariffs are related to the expected primary consequences of mergers and acquisitions. The substantial degree of tariff protection existing across a wide range of manufactured goods in Canada increases the potential importance of indirect entry through foreign direct investment and, in particular, the potentially beneficial competitive consequences of foreign acquisitions of domestic firms.

In summary, policy evaluations of the merger process in Canada have noted a concern that the anti-competitive primary consequences of mergers and acquisitions may be particularly severe given the small overall size of the Canadian market and the entry barriers created by existing high tariffs and high domestic levels of concentration. However, these very same factors underscore



the importance of maintaining some effective form of potential competition which might include potential entry through the merger or acquisition route, when de novo entry is significantly more difficult. There is a widespread presumption that the positive secondary consequences of mergers are potentially greater in Canada than elsewhere because of Canada's "unique" industrial structure; however, this presumption is open to some question on a priori as well as empirical grounds. It seems safe to conclude that further empirical justifications of the presumption are warranted.

In short, while Canada's industrial structure might lead merger and acquisition activities in Canada to have different primary and secondary consequences than, for example, in the United States, it is not obvious that the differences can be established on theoretical grounds. This observation underlines the importance of evaluating evidence on actual merger experience in formulating merger policies.

#### Alternative Approaches To Merger Policy

It is generally acknowledged that mergers have been scrutinized much less intensively in Canada than, for example, in the United States. Several observers have argued that Canadian laws have, by and large, accorded mergers a prima facie legal status. Only in the narrow case of the establishment of a complete monopoly, or in cases of anti-competitive business conduct like price fixing, has the presumption of legality been rebuttable. However, since monopoly, monopolistic pricing, supply reduction and the like are all violations under other sections of the Combines Act, there has really been no scope for action under the merger section of the Act. Furthermore, inquiries into mergers by the Director of Investigation and Research under the Combines Act are presumed to be largely immaterial, since only a handful of the thousands of mergers undertaken in Canada over the post-war period have been questioned by the Director. 20

Recent Canadian government actions have signalled changes both in existing and future policies toward mergers. The most significant change, to date, was the promulgation of the first phase of the Foreign Investment Review Act in 1974. The Act provided for a governmental review of forms of foreign investment in Canada, including certain acquisitions of control of Canadian business enterprises. The Act was implemented in two phases. The provisions on takeovers of Canadian businesses with gross assets of \$250,000 or more, or gross revenues of \$3 million or more, have been in effect since April 9, 1974. In its first year, the Foreign Investment Review Agency (FIRA) reviewed 150 cases, and resolved 92: Of these, 63 were allowed, 12 were disallowed, and 17 were withdrawn by the applicant before a decision was reached. 21 In its second year, a total of 144 cases were certified as reviewable, and 58 cases under assessment from the preceding year were carried over into 1975/76. Of this total, 153 were resolved: 110 were allowed, 22 were disallowed, and 21 were withdrawn by the applicants before a decision. 22

A report prepared for the Department of Consumer and Corporate Affairs

calls for the creation of a domestic merger review board which would screen both domestic and foreign takeovers of domestic firms. <sup>23</sup> This proposal parallels the proposed changes in merger law introduced by Amendments to the Combines Act which would require mergers involving a certain quantity of assets to be registered with the Competitive Practices Tribunal for evaluation.

The Skeoch Committee proposal calls for establishing multiple criteria guidelines for the purpose of identifying whether or not a merger will be investigated. If a merger were considered significant, the primary merger consequences would be analyzed; if these led to an unfavorable conclusion, the secondary effect would then be analyzed. If the secondary merger benefits effectively offset the disadvantageous primary merger consequences, the merger would be approved. If not, the analysis would move to a fourth stage in which possible alterations in the reaction pattern of the industry would be examined. <sup>24</sup>

In effect, the Skeoch Committee proposes a truncated version of a case-by-case merger review procedure, in that each merger is screened with reference to "approximation guidelines", with (presumably) the majority of cases never being investigated in any detail. <sup>25</sup>

Thus, the legal environment for mergers in Canada would appear to be undergoing a fairly substantial change from a per se position to an evaluatory approach. An obvious advantage of the per se approach is that it minimizes the costs associated with evaluating primary and secondary merger consequences. A sufficient case for adopting a per se legal position toward mergers (i.e. no merger review process exists) would be established by evidence that mergers uniformly have no unfavorable primary consequences. A sufficient case for adopting a per se illegal position (i.e. no merger is permitted) would be established by evidence that mergers uniformly have no favorable primary or secondary consequences. In the absence of sufficient evidence to justify a per se policy, the merits of alternative approaches, including a screening procedure, must be compared to the per se position. Support for instituting tighter merger surveillance procedures would be provided by evidence that the net social benefits of mergers would be increased beyond the additional social costs associated with the most efficient merger surveillance procedure for all mergers covered by the screening legislation. The potential costs of tighter merger surveillance include the direct expenses associated with staffing and maintaining the review apparatus and the indirect costs associated with a reduction in the number of socially beneficial mergers undertaken. Potentially beneficial mergers may be discouraged either as a result of added administrative costs and uncertainties that are imposed upon potential acquirers and (or) acquirees, or as a result of merger board rejections which reflect mistakes in judgement on the part of review personnel. In summary, a per se approach toward mergers presumes that the social consequences of mergers are so substantially negative if per se illegal (or positive or neutral, if per se legal), or so easily addressed by other means as to outweigh (on net balance) the costs of trying to screen mergers. An evaluative approach toward mergers and acquisitions, whether on a guideline or case-by-case basis, presumes that the net benefits of overall merger activity can be increased, beyond the costs

of the investigatory process, by evaluating the potential consequences of mergers in greater or less detail. Conceptually, the guiding principle for allocating resources to the screening and evaluation of mergers is similar to that for other public activities: i.e. increase the amount of resources devoted to the activity as long as the additional social benefits exceed the additional social costs. Determination of the "optimal" public policy toward mergers in Canada clearly requires a careful consideration of available empirical evidence on mergers and acquisitions. Before considering such evidence, however, it is advisable to analyze in more detail the theoretical motives for mergers in order to identify empirical criteria that would support or reject alternative explanations of merger motives.

## SECTION TWO

### THEORETICAL MOTIVES FOR MERGERS

#### The "Valuation-Gap"

At the basis of any theoretical model of the merger/acquisition process is the notion of a valuation-gap. A valuation-gap may be thought of as the difference in the discounted present value of an enterprise existing between the owners of the enterprise and any potential buyer; its presence is a necessary pre-condition to a corporate merger or takeover. There are several broad sets of factors which could contribute to the existence of valuation-gaps. <sup>26</sup>

#### Valuation-Gaps Created By Coordination Gains

Valuation-gaps can arise from the existence of coordination gains attainable through efficiency improvements which result from the corporate takeover. Efficiency improvements are potentially attainable at both the plant and firm levels.

At the plant level, horizontal mergers (i.e. mergers between companies producing essentially the same product or products) might facilitate achieving plant level scale economies when: a) the equipment and layout of the acquiring plant are flexible and easily expanded and b) the sunk costs associated with durable equipment are relatively unimportant compared to the ongoing costs of plant management and supporting services. <sup>27</sup>

While economies at the plant level would ordinarily be attained by combining the outputs of the merged plants into one or more larger plants, it is possible that some economies might still be realized if greater specialization in production were undertaken in the merged plants, even if the same pre-merger volumes were produced in the separate plants.

There is a general presumption in the literature that achieving plant level economies is probably not an important motivation for horizontal mergers, since such economies could be achieved more directly through internal expansion. <sup>28</sup> However, there may be cases where internal expansion would add so much to supply that prices would be subject to downward pressures, which (in turn) might threaten the industry's pricing structure; in such cases mergers may be a means of rationalizing expansion capacity, as a pre-condition for actual expansion. <sup>29</sup> Evidence consistent with this motive for mergers would include ubiquitous observations of plant level reorganizations being carried out after mergers or acquisitions, for example plant shutdowns in the merged firms and (or) reallocation of product lines within merged plants, leading to greater plant level product specialization.

Plant level economies might also be realized through vertical mergers. Vertical integration could increase production efficiency through, for example, increased reliability of input supply with concomitant inventory reductions, or by improving the accuracy of forecasted input needs.

An efficiency motive leads to the expectation that vertical mergers would mostly be undertaken in activities where the supply of one or more inputs is highly variable, due perhaps to the existence of foreign suppliers or volatile market conditions, e.g. agriculture, and (or) in activities where it is difficult to specify the exact qualities of the requisite inputs through contractual agreements. In fact, economies at the firm level are perhaps more important as a motive for vertical mergers than economies at the plant level.

Firm level scale economies can be hypothesized to arise from combining the operations of firms performing similar or related activities. Economies of scale are said to exist in management functions, in research and development, in advertising and sales promotion, in raising capital on organized security markets, in risk-taking, in the use of inputs to produce a common service such as credit availability and billing systems, and in other overhead activities of the firm encompassing, among other things, the accounting and legal functions.

The credibility and significance of these potential economies rest upon several assumptions. One is that available economies cannot be exploited as effectively by renting services from outside the firm as by centralizing activities within the firm. For example, economies of scale in managerial functions might be indirectly realized, even in a small firm, by renting the services of a larger management consulting firm. There are reasons to believe that scale economies are more fully captured when management resources are "owned" rather than rented by the firm.<sup>30</sup> One reason is that implementing changes advised by consultants may be quite difficult if the consultants do not also control the assignments of personnel and do not supervise the carrying out of recommended policy. Another reason is that owned management inputs will ordinarily be utilized more intensively than rented management inputs as long as the precise timing of the managerial workload cannot be forecasted perfectly. Similar reasons can be offered for expecting that any economies of scale in research and development and marketing functions are more effectively captured through the use of owned rather than rented inputs.

Another assumption is that any cost savings accruing to the larger firm reflect lower unit costs to lenders rather than capital market imperfections which create a systematic bias against smaller borrowers.

Direct evidence on the significance of firm level scale economies might be provided by statistical examinations of the relationship between unit costs and firm size. Additional indirect evidence might be derived from the following observations: a) mergers are relatively more frequent in industries with presumably significant returns to scale; b) merger intensive industries show a faster increase in average firm size, or a faster decrease in the proportion of small firms, than less merger-intensive industries; c) merger-intensive industries are slow production growth industries, since capturing scale economies through internal expansion would be more difficult in these industries, and d) mergers take

place to a greater extent among small and medium-sized firms than among the largest firms in an industry.

#### Non-Synergistic Valuation-Gaps

The plant and firm level scale economies discussed above represent a potential source of valuation-gaps arising from the existence of what have been called coordination gains or "synergy". Non-synergetic valuation-gaps can arise from, among other things, different expectations about the future profitability of enterprises. For example, management of the acquiring firm may simply believe that it can do a better job than the management of the acquired firm.

The importance of differing managerial expectations as a merger motive has been questioned by Mueller, among others.<sup>31</sup> Mueller argues that because of the ease with which stocks can be traded, even small disequilibria in discounted present values can be expected to set in motion equilibrating exchanges of stock between marginal stockholders. In effect, stockholders can be expected to adjust their portfolios so that the marginal holder of company A's stock has the same earnings expectations for firm A as the marginal holder of firm B's stock has for A.

The strength of Mueller's argument is dampened somewhat by two considerations. One is that the expectations of the corporate managers engineering a takeover may, in fact, differ from the expectations of the company's stockholders. Another is that the stock of many smaller companies is not widely held or traded. For example in Australia and Sweden the limited coverage and imperfect information about smaller companies which apparently exists, appears to be a fundamental reason for the existence of valuation-gaps among investors in those countries.<sup>32</sup>

A related valuation-gap source is the possibility that owners of different companies have different discount rates, which in turn reflect underlying differences in their attitudes toward risk and their liquidity preferences. The existence of such differences would impart merger incentives to both parties regardless of what changes might be anticipated in the performance of the firms after merger.

Several factors have been put forth as being particularly important in creating differences in discount rates across firms. One such factor is the easier access to outside funds that a larger firm is presumed to have. A firm might benefit from being absorbed into a larger firm by gaining access to cheaper capital even for the same planned investments.<sup>33</sup> While recognizing this potential advantage, Mueller argues that the above situation could justify the larger firm lending funds to the smaller company or acquiring a minority interest in it, rather than taking it over.<sup>34</sup> However, it may be significantly more costly for both firms to arrange arms-length loans on an ongoing basis than to merge financial operations. This may be particularly the case when the timing and amounts of the necessary cash flow are uncertain.



Another factor that could create a divergence between subjective discount rates is a difference in investment time horizons. Many smaller companies may be closely held businesses whose owners are nearing retirement, or wish to liquidate their businesses in anticipation of liquidity requirements to pay inheritance taxes. More generally, owners of small family-run businesses may simply wish to diversify the portfolio they leave to their heirs by exchanging an equity position in the family business for an equity position in a broadly held public company. <sup>35</sup>

Finally, differences in discount rates can stem from differences in the perceived risk of future investment. In particular, the possibility of bankruptcy associated with adverse economic conditions could cause the discount rates for small firms with proportionately less borrowing capacity to smooth out uneven cash flows to rise, relative to those for large firms, during an economic downturn. <sup>36</sup>

The various non-synergistic valuation-gap hypotheses would be consistent with observing acquired firms to be, by and large, small family-owned businesses. If evidence were found that the largest percentage of mergers and acquisitions are initiated by the acquired firms, which (in turn) are generally less profitable than the acquiring firms, this would further support the hypotheses outlined above.

#### Market Structure Valuation-Gaps

Valuation-gaps could be created through mergers and acquisitions which facilitate collusive behaviour and other restrictions on competition. The potential to earn monopoly rents through the merger/acquisition route is most obvious in the case of horizontal mergers. The basic assumption here is that a reduction in the number of independent decision-making units facilitates cooperative (although not necessarily collusive) pricing, market sharing arrangements and other forms of non-competitive behaviour. It should be noted that any monopoly rents could be extracted in the form of non-pecuniary gains, e.g. the "quiet life", as well as in the form of higher rates of return to the merging units.

The theoretical importance of the reduction of competition as a motive for horizontal mergers is well accepted. The empirical relevance of this motive is somewhat difficult to evaluate, however, since reducing competition will be a carefully disguised motive in any merger. There are several observations that would be consistent with a market-structure motivation for mergers. The long-run advantages of reducing competition through mergers and acquisitions should be related to existing entry barriers into an industry. If entry into an industry were relatively easy, any monopoly rents attainable after merging potential competitors would tend to be eroded over time through entry of new firms or through increased foreign competition. Thus, a competition motive would require merger activity to be concentrated in industries characterized by substantial barriers to entry. <sup>37</sup> Evidence against the competition motive would be provided by the observation that most mergers occur between very large firms and very small firms, with the small firms generally initiating the merger.

Additional indirect evidence to support the competition motive would be provided by the observation that mergers have been a significant cause of increased concentration in merger-intensive industries, as opposed to internal expansion of leading firms.

It has been suggested that the incentive to reduce competition through mergers and acquisitions will be greater in industries undergoing decline in sales since cooperative agreements to restrain competition are more likely to break down under adverse industry conditions.<sup>38</sup> However, an observation that mergers are concentrated in declining industries could not be taken as unambiguous evidence in support of the competition motive, since it could also reflect differences in discount rates associated with asymmetrical risks of bankruptcy existing between small and large firms, a motive previously discussed.

The potential importance of vertical mergers in reducing competition and, therefore, as a market-structure merger motive has also been raised in the literature. The main concerns about vertical mergers can be summarized as follows:

1. Control of limited sources of supply at one stage of production may serve as an important barrier to entry at successive stages;
2. When entry into two separate stages of production is already difficult because of large capital requirements or for other reasons, combining successive stages will further raise entry barriers, because new entrants must enter two stages rather than one;
3. Vertical integration may raise entry barriers when it "forecloses" part of the market. Such foreclosure will shrink the "open" portion of the market, thereby heightening the economies of scale barrier to entry.<sup>39</sup>

The arguments concerning the potential anti-competitive effects of vertical mergers can be criticized on a number of grounds. There is a presumption in the literature that vertical mergers, per se, cannot transform an effectively competitive market structure into a non-competitive one. This position rests upon several notions. One is that any firm with a cost advantage in a particular market can achieve horizontal market power there, regardless of the structure of its vertical relationships. Another is that even if an industry is entirely integrated vertically, a new entrant need not be an integrated producer. Entry could proceed independently in both sectors with the independent firms contracting through a supply agreement.<sup>40</sup>

The degree to which independent entry can proceed as easily as integrated entry in a vertically integrated industry is ultimately an empirical question. However, it seems reasonable to conclude that vertical integration, by itself, is unlikely to create permanent barriers to entry. Where such barriers to entry exist, a requisite source of market power is concentration at one or more levels of the industry, i.e. a problem of horizontal integration.

More recently, there has been increased concern about the anti-competitive effects of large firm size, per se, rather than about increased concentration in



particular markets. This concern suggests that monopoly gains can arise from mergers between firms not necessarily producing the same or similar products.

One source of enhanced market power is related to what has been called the "deep-pocket" hypothesis. This hypothesis holds that large size enables a firm to create monopoly conditions in various markets by practicing predatory pricing. This argument has been examined in the literature and has been generally rejected. The main counter-argument is that where the large firm possesses no real cost advantage, it could only prevent entry into a market in the long run by permanently subsidizing its operations in that market with profits earned from other activities. It is hard to imagine why any firm would engage in such an activity.<sup>41</sup>

Another source of market power associated with size is the alleged ability to practice reciprocity. Conglomerate leverage enabling the large firm to practice reciprocity is presumably strongest when the large firm sells only one or a very few narrow segments of its product line to a supplier who, in turn, is anxious to satisfy the demand for an input employed by all of the conglomerate's division. While potential gains to practicing reciprocity may exist, a question arises as to why a large firm would choose to exploit its position as a monopsonistic purchaser of inputs through practicing reciprocity, when it could simply demand lower prices on the inputs it purchases.<sup>42</sup> Moreover, merely observing reciprocal buying as a prevalent industry practice would not allow any determination to be made on whether it reflects the market power of a diversified firm or whether it reflects cost savings associated with reduced search and contracting costs. In short, it is difficult to suggest any aggregative tests of the empirical relevance of non-cost-justified practices of reciprocity. A case-by-case analysis would seem appropriate.

Yet another concern about mergers is that large firms might engage in mutual forbearance. Specifically, a diversified firm, even with a dominant position in a given market, might refrain from launching a competitive attack against a rival for fear of retaliation by the rival in another market in which the firms compete. Presumably, the greater the number of industries in which diversified firms confront each other the stronger the incentives for mutual forbearance.

The practice of mutual forbearance implies the existence of horizontal market power on the part of conglomerate firms in those markets in which they confront each other. If other rivals compete in those markets, the forbearing conglomerates could be drawn into competition with each other, if only indirectly. In short, mutual forbearance appears to be a more appropriate concern about horizontal merging activities.

It has also been noted by a number of authors that there are potential market settings where conglomerate power might be used to inject new competition into the market. Specifically, in industries where market concentration is high and a new entry difficult, a diversified firm might increase competition by entering the industry through internal growth, or by acquiring a small firm, i.e. making a "toehold" acquisition, and subsequently expanding it.<sup>43</sup> Evidence prepared by the research staff of the Royal Commission on Corporate Concentration suggests that

over the period 1960-1975, Canadian firms did tend to diversify by "toehold" acquisitions, albeit into unconcentrated industries.

In summary, both pro- and anti-competitive effects of large firms size can be raised on a priori grounds; however, the anti-competitive effects of conglomerate mergers can be shown to derive by and large from horizontal market power in one or more markets.

#### Diversification Motives

The reduction of risk through the pooling of investments has been cited frequently as a motive for mergers particularly those involving firms in largely unrelated activities. The reduction of risk through diversification investment can be seen as a form of coordination gain: i.e. the combined risk of two merged enterprises is lower than the additive risks of the two enterprises operating separately.

The relevance of this motive has been questioned on the grounds that stockholders could achieve the same risk-pooling effect by purchasing some of the stock of the separate firms, presumably at a lower cost than would result from one firm acquiring the other. Moreover, investors could diversify their portfolios by investing in mutual funds or other institutional investment vehicles. The possibility exists, however, that full portfolio diversification through investing in financial intermediaries is not possible, or is extremely costly, because of institutional or legislative restrictions on investment activity. It has been suggested, for example, that institutional investors in Canada will not invest in more than fifty enterprises and are only attracted to investments in companies with a minimum market capitalization of \$50 million.<sup>44</sup>

A reservation might be raised about the claim that investors are unable to obtain full portfolio diversification; however, it is at least plausible that individual corporations may provide diversification services more efficiently than financial intermediaries by having access to better market information at a lower cost. Furthermore, existing shareholders in a given company, seeking to diversify their investment, may prefer to have the diversification performed for them by the company's management -- thereby avoiding personal taxes -- rather than withdrawing their funds from the company through (for example) accelerated dividend payouts and reinvesting the money themselves.

In short, a theoretical argument can be made to support a diversification motive for mergers. The empirical significance of the motive might be evaluated by examining the covariance of the earnings streams of acquiring and acquired companies. Support for a diversification argument would require company acquisitions to reduce the overall variance of the acquiring firm's net earnings.

## Growth Maximization Hypothesis

A prominent explanation of mergers and acquisitions derives from the hypothesis that firms do not attempt to maximize profits, but rather that management attempts to maximize some other objective variable, most notably the firm's growth rate.

Even if there are no synergy effects to be gained from the merger and both managers and stockholders have the same expectations regarding the profit prospects for the two firms, mergers will take place when the managers of firm A have a lower discount rate than the sellers of firm B. The stock market value of a firm (even at its maximum) will always be less than the discounted present value of the firm to a growth-maximizing management, since the latter's discount rate is below that of the marginal stockholder. The growth-oriented management will have no inclination to supply a small firm with capital directly, by buying its stock or bonds, since none of these activities contributes to the growth of the company.<sup>45</sup> Thus, the growth maximizing motive can be seen as a special subset of the non-synergistic valuation-gap motive.

The growth maximization hypothesis has certain theoretical weaknesses. One is that it provides no estimates of the premium which an acquiring firm would be willing to pay for an acquisition. Even if it is assumed that mergers are undertaken to maximize growth subject to some constraint to earn "satisfactory" profits, the theory offers no unique insight into what would constitute a satisfactory profit level for the acquiring firm.

It has been suggested that the growth-maximization explanation is consistent with observing acquisitions being made primarily by the largest firms in an economy, since if all firms' managements desire growth, it will be the largest firms which can pursue this goal most vigorously, confident that few other firms will have the financial resources to attempt to acquire them. The growth-maximization hypothesis as conventionally specified would have difficulty rationalizing the observation that mergers are concentrated in particular industries or in specific time periods, since the growth-maximizing incentive is presumably general to all managers. Furthermore, evidence supporting the hypothesis could be consistent with other explanations of merger activity. For example, differential discount rates can exist between large and small firms even if both sets of firms attempt to maximize profits. A finding that mergers are primarily characterized by large firms absorbing small firms, by itself, could be taken as support for a variety of synergistic and non-synergistic value-gap explanations.

## Other Merger Motives

Several other possible motives for mergers have been noted in the literature, including presumed tax and speculative advantages. The taxation of dividends and the taxation of capital gains from the liquidation of stockholdings provide, as mentioned earlier, an incentive for internal reinvestment of corporate funds.

By themselves, such taxes do not bias the choice of reinvestment in favor of merging versus de novo expansion. However, the acquired company might provide certain unique tax advantages to the acquiring company. For example, the acquired company might have unutilized (and if no merger takes place, likely unutilizable) tax loss carryovers. There might also be unused investment credit carryovers and tax deferrals on credit sales. Depletion allowance provisions for resource companies might also be available to the acquiring firm.

Note that the acquiring company should only be willing to pay, at a maximum, the discounted present value of its expected tax savings for the acquired company, and if the acquisition was made solely to acquire tax credits, the operations of the acquired firm should be discontinued after its finances have been consolidated within the acquiring company. An observation that the majority of acquired companies were in fact profitable would provide evidence that would mitigate against tax-loss acquisition as a general merger motive.

Speculative gains to merger activity have been alleged to arise from the opportunity to distort the profitability of the joint company. For example, the pooling of interest method of accounting for business combinations allows companies to report substantial increases in earnings per share without improving operating efficiency. Corresponding distortions are feasible under the purchase accounting alternative since surpluses over book value do not have to be amortized.<sup>46</sup>

The notion that the stock market will fail to recognize pure "accounting" gains in evaluating a merger is somewhat suspect, and it seems unreasonable to assume that accounting merger motives would persist over a long period of time if merger gains were purely illusory. One would expect that, eventually, the stock market would recognize the nature of these gains and discount the reported increase in profitability of the joint company in the price of its stock. Furthermore, the accounting motive for mergers cannot explain why merger activity increases in some periods and recedes in others.

In addition to accounting manipulations, it has been suggested that instantaneous gains in earnings per share can be accomplished whenever the price paid for the acquired firm per dollar of its earnings is less than the price earnings ratio of the acquiring firm.<sup>47</sup> This argument assumes that investors systematically underestimate the long-run earnings potential of acquired companies and overestimate the long-run earnings potential of acquiring companies. An alternative explanation is that the acquired firm is assigned the (presumably higher) price earnings ratio of the acquiring firm because the market recognizes management of the acquiring company to be superior. Alternatively, the lower price earnings ratio assigned to the acquired company might reflect an under-estimation of the company's long-run profitability on the part of investors. The under-estimate is, in turn, "corrected" upon acquisition by a larger company.

Finally, a key tax provision presumed to encourage mergers involves the non-recognition for tax purposes of gain associated with corporate re-organization through the exchange of shares. It should be recognized that this provision, while creating an incentive for existing owners to accept payment in the form of equity rather than cash, does not explain why the acquired company was sold in the first place.

In short, the tax and speculative motives for merger which have been considered in various studies do not provide a satisfactory theoretical justification of most ongoing merger activity.

#### Disturbance Theories of Merger Activity

The alternative valuation-gap models discussed to this point must explain observed merger activity patterns over time as well as explain how perceived merger gains can accrue to both the acquiring and the acquired firm. In the absence of any changes in underlying market conditions, one would expect that existing valuation-gaps would be eliminated over time and that no further mergers would take place. Moreover, if the market for corporate acquisitions is efficient, a set of equilibrium prices for firm acquisitions would be established so that super-normal gains could not be earned through the acquisition process, i.e. mergers should be no more attractive to the acquiring firm than internal expansion. In short, the existence of valuation-gaps is a condition of disequilibrium in the corporate acquisition market. Some explanation of how valuation-gaps can persist is required.

One explanation of continuing merger activity is provided by Gort, <sup>48</sup> who suggests that significant changes in underlying economic conditions are constantly occurring and these in turn give rise to perceived valuation-gaps among firms. Gort contends that the most common disturbances are caused by rapid changes in technology and in the price of securities, although one could certainly add political and social events to the list of potential disturbance factors. Given the likelihood that firms will differ in access to new information as well as in their reactions to new information, it is probable that any significant change in the business climate will create a new set of valuation-gaps. While some of the perceived advantages created by a disturbance may be attainable through internal expansion, the advantages may be more quickly attained, or attained at a lower cost, through acquisition.

The disturbance theory provides an explanation of the perpetuation of mergers and acquisitions over time, but it does not provide any unique insights into specific motives for mergers. Successful efforts to link merger patterns empirically to specific disturbance sources could provide insight into the underlying motivation for merging, and therefore into the anticipated consequences of mergers and acquisitions. For example, a finding that merger rates were primarily related to broad cyclical movements in stock prices and corporate liquidity could be taken as some support for a non-synergistic valuation-gap explanation of mergers. Several observers have suggested that sales of closely held businesses are positively related to movements in stock prices. Specifically, owners seeking to retire are supposedly more likely to sell after some gain can be realized on the sale of their businesses than when the prices of their businesses are at a low. On the other hand, buyers are more likely to buy when they can obtain "bargains" which, in turn, are most likely to exist when rapid stock price changes are occur-



ing, i.e. the equity market is in disequilibrium. 49

A closely related theory suggests that broad cyclical changes in real economic activity create valuation-gaps by increasing the difference in expectations among firms about future rates of profitability as well as by creating divergences between liquidity needs and liquidity availability. More specifically, in periods of rapid general economic expansion, smaller firms may find it difficult to obtain external financing to support a higher level of economic activity, leading them to seek outside financing through acquisition. Larger firms may be more anxious to acquire other firms when their own expansion has proceeded to full or near full capacity and they cannot easily expand further through internal investment. 50 Empirical evidence that merger activity closely parallels the business cycle would support a "macroeconomic" explanation of the perpetuation of valuation-gaps.

Alternatively, if merger activity is observed to be largely unrelated to cyclical movements in the economy, but instead is tied to structural changes occurring in specific industries, it might be taken as some support for the hypothesis that economic developments had altered the optimal firm-size in given industries.

It is quite possible for available empirical evidence to be consistent with a number of alternative hypotheses. For example, certain industries experiencing intensive merger activity might be undergoing rapid growth, in part resulting from technological developments in the industry, e.g. the appearance of a significant new product or production process. In such cases, non-synergistic valuation-gaps could coincide with valuation-gaps created by the potential for real coordination gains.

#### "Summary"

Three broad categories of merger motives have been raised and considered in the literature: valuation-gaps arising from market-structure coordination gains, valuation-gaps arising from synergy gains ( and particularly synergies related to firm-level economies of scale) and valuation-gaps arising from differential estimations of discounted values of future revenue streams. The latter phenomenon can arise from differences in information possessed by various market participants, from differences in attitudes towards risk and subjective time-preferences, and in management evaluation of its competence vis-à-vis other managers.

Existing tax structures in both the United States and Canada encourage internal reinvestment of funds and share exchange payments, rather than cash payments to acquired firms. It is less obvious that the tax system, per se, encourages internal reinvestment through acquisition rather than through de novo expansion. The desire for a more liquid portfolio in order to pay estate taxes at some future and uncertain date might provide an incentive for owners of closely held businesses to sell in anticipation of making a bequest.

The persistence of valuation-gaps over time requires further explanation, since any once-and-for-all gaps would (in the absence of new information) event-

ually be equilibrated. One popular theory suggests that technological change and rapid stock price changes are continuous generators of valuation-gaps. The various theories of how valuation-gaps are created and perpetuated suggest certain empirical tests of their validity. Unfortunately, much of the observable empirical evidence can be expected to be ambiguous regarding the various merger motives: a number of observations are potentially consistent with more than one theory. Furthermore, tests of merger motives which evaluate the consequences of mergers are potentially subject to the criticisms that the time period over which the effects were analyzed was too short, or that the observed effects, in fact, differed from expectations. These reservations should be borne in mind as we turn to a review and appraisal of some existing evidence on merger activity.

## SECTION THREE

### EMPIRICAL EVIDENCE ON MERGERS AND ACQUISITIONS

#### Introduction

This section broadly reviews available empirical evidence on the causes and effects of mergers in Canada and in other developed countries. While causes and effects of mergers may not be identical inside and outside of Canada, the bulk of available empirical studies of mergers and acquisitions focus on countries other than Canada and, hence, cannot be overlooked. Moreover, coincidence of findings across countries would provide gratifying support for specific hypotheses. The various studies can be classified into five general categories:

1. Surveys of managerial motives for mergers;
2. Analysis of the characteristics of merging companies;
3. Evaluation of the gains from mergers;
4. The relationship between merger patterns and overall economic activity;
5. The relationship between merger activity and changes in concentration levels.

#### Management Surveys

The most direct sources of information on merger motives are surveys of managers involved in mergers. However these sources of information are potentially the least reliable for the obvious reason that managers might be reluctant to admit to any motives which did not imply social as well as private beneficial result. This inherent bias in the survey approach might account for its limited use in merger studies.

One comprehensive survey of a sample of managers in U.S. firms involved in mergers found that 76% of responding firms sought a "common thread" or "synergy" when seeking acquisition possibilities. The most common sources of a synergy cited were in sales administration and research and development.<sup>51</sup> Another study found for a sample of 104 U.S. firms that management considerations played an important role in half of all sales of companies with assets of up to \$15 million and in a fourth of those with larger assets. The definition of management considerations encompasses more than just differences in managerial skills: it includes for example, such factors as a desire on the part of owner-managers to retire.<sup>52</sup>

A case study of important individual mergers in Australia supports the notion



that managerial considerations are an important factor influencing mergers. The study concluded that some one-man businesses or partnerships expanded so rapidly during the war and post-war periods that their owner-managers found they could not cope with the problems of administration. A related observation is that quite a few Australian mergers, including many large mergers, were at least partly caused by a family's abdication of managerial responsibility. <sup>53</sup>

A study done for Canada also points to the importance of managerial attitudes as a merger motive. In a special survey conducted through the Director of Investigation and Research under the Combines Investigation Act, Reuber and Roseman found that the most frequently cited response to the query concerning "the reasons which led the reporting company or firm...to chose the merger route to expansion rather than to rely on internal growth" was that the owner or owners wanted to sell.<sup>54</sup> Of the total number of times any reason was ranked first, this reason was ranked first 19.5% of the time for foreign acquisitions and 27.9% of the time for domestic acquisitions. In contrast to the study by Ansoff, et. al., achieving economies of scale or reducing costs was a minor motivation cited in both foreign and domestic acquisitions. The belief that better management would increase profits was a virtually insignificant factor based upon survey responses. Indeed, the desire to expand productive capacity or operations, combined with the notion that acquisition was cheaper and less risky than building, appears as the second most important reason for mergers. <sup>55</sup>

#### Characteristics of Merging Companies

A number of studies have investigated the characteristics of acquiring and acquired companies with particular attention to the size, profitability and liquidity of these companies. One general observation is that the probability of a firm being acquired is inversely related to the size of the firm, although the relationship is not necessarily monotonic. For example, the Federal Trade Commission reports that in 1968, mergers took the heaviest toll in the \$10-25 million asset size class (the next to the smallest size class), with acquired firms equalling 63% of the number and 59% of the total assets of all companies of this size operating that year.<sup>56</sup> For 463 quoted companies in four industries in the United Kingdom, Singh found an inverse relationship between size and probability of acquisition, particularly for firms above a certain (fairly large) size. <sup>57</sup> While the correlation between merger frequency and size for Swedish companies was found to be strongly positive up to the size limit of 500 employees, the proportion of acquired firms to their number in the population declines beyond this size. <sup>58</sup>

The probability of a firm making an acquisition is positively related to the size of the firm, although the relationship is, again, not necessarily monotonic. The Federal Trade Commission found that companies with assets of \$250 million or more acquired 37% of the total number of acquired companies and 56% of all the acquired assets, while companies with assets between \$10 million and \$25 million made only 8% of the acquisitions. <sup>59</sup> Gort and Hogarty conclude,

however, that the cumulative proportion of assets acquired by U.S. firms ranked 101 to 150 was greater than for the 50 largest and as large as that for firms ranked 51 to 100.<sup>60</sup>

Available evidence for Canada also indicates that acquiring firms tend to be substantially larger than acquired firms, on average.<sup>61</sup> For firms acquired in foreign mergers, about half had fewer than 50 employees, assets under \$700,000 and sales of about \$1 million. The picture is roughly the same for firms acquired in domestic acquisitions, except that, on average, they were smaller than the firms acquired in foreign mergers. Because the distributions are highly skewed in the direction of the larger classes, the average size of the firms acquired in both international and domestic mergers from 1945 to 1961 appears to have been substantially larger than the average size of all Canadian firms in existence during this period.<sup>62</sup>

Evidence regarding the profitability of acquiring and acquired firms is somewhat less consistent across studies. The Federal Trade Commission found that, on the whole, acquired firms in 1967 and 1968 appear to be nearly normal in terms of profitability. Of the 234 large manufacturing and mining firms acquired in 1967-68, 111 or 48% exhibited a profit rate greater than their industry average. Only eight companies were losing money in the year before acquisition.<sup>63</sup> Conn found for 56 pure conglomerate mergers over the period 1960 to 1969 that firms of similar profitability and similar profitability trends tend to merge.<sup>64</sup> On the other hand, Kuehn found for a sample of mergers in the United Kingdom that, for profits, acquired firms performed substantially worse than those firms which survived.<sup>65</sup> Raiders, i.e. firms undertaking three or more acquisitions during the sample period, tend to be faster growing than other firms in their respective industries, but do not earn significantly higher profits.

Singh reports that firms which fell within the three lowest profitability deciles within their own industry ran a risk of being acquired roughly one and one-half times greater than those with a higher profitability. A firm's takeover prospects remained much the same, however, from the fourth up to the highest profitability decile. Moreover, acquiring companies were found to be more profitable than those they acquired.<sup>66</sup>

In contrast to Singh's U.K. results, Reuber and Roseman conclude that the median profit of the acquired firm was higher than the rate earned by the acquiring firm. There was a 3.2 percentage point difference in domestic acquisitions and a 3.4 percentage point difference in foreign acquisitions. However, far fewer of the acquiring firms were incurring losses: 10.6% compared with 19% for acquired firms in foreign acquisitions, and 8.4% versus 22.8% in domestic acquisitions.<sup>67</sup>

There is also conflicting evidence regarding liquidity characteristics. While Steiner suggests that acquired firms tend to be more liquid than average while acquiring firms have less than average liquidity,<sup>68</sup> Singh's findings indicate that acquiring firms were more liquid than those they acquired.<sup>69</sup>

In summary, the evidence is unambiguous in pointing to acquiring firms being of larger than average size in their respective industries and being sub-

stantially larger than acquired firms. They also tend to be faster growing than acquired firms. The evidence is less conclusive with respect to relative profitabilities. At the least, it seems safe to conclude that acquiring and acquired companies do not differ substantially with respect to profitability and are not significantly different from average in terms of profit performance. Thus, there is little evidence from the aforementioned studies to support a general theory of merger activity based upon the phenomenon of efficient managers replacing inefficient managers through takeovers. If anything, the results are more supportive of the "growth-maximization" explanation. Specifically, growth-maximizing firms have lower discount rates than profit-maximizing firms, ceteris paribus, and therefore will be more likely to regard existing firms as being "underpriced". Since small firms have difficulty amassing the capital necessary to take over large firms, acquiring firms tend to be larger than average, while the converse is true for acquired firms.

We must note again, however, that measured current or past profit rates are imperfect indicators of the long-run discounted profits of a firm. Therefore, one cannot reject the hypothesis that acquiring firms would be observed to be more profitable than acquired firms, if unbiased estimates of all future income streams of acquiring and acquired companies were available. Indirect evidence supporting this argument is provided by the observation that acquiring firms tend to have higher price-earnings ratios than acquired firms.

#### Gains From Mergers

A number of studies conclude that mergers do not contribute in any significant way to improved operating performance. Ansoff, et. al., conclude, on the basis of the 20-year history of their sample of acquiring and non-acquiring firms, that acquisitions do not pay and, in fact, are an inferior method of growth. High growth acquirers were, however, distinctly superior on both price/earnings and price/equity ratios. <sup>70</sup>

Gort's analysis of 111 manufacturing firms disclosed, on the average, no relation between overall company rates of return and the extent to which companies had diversified. <sup>71</sup> Hogarty, on the other hand, found that the investment performance of active acquirers was considerably worse than the average investment performance of firms in their respective industries. <sup>72</sup> This conclusion is supported by Reid's finding that internal growth firms were more profitable than acquirers. <sup>73</sup> Singh concluded that as for the actual effect of takeovers on improving the profitability of assets of the amalgamating firms, the evidence for the United Kingdom for the period 1955-1970 is at best neutral. <sup>74</sup> Kelly's analysis of changes in the market value of the stock of active as compared to inactive acquirers indicated that actively acquiring companies did not generate greater gains in market value than did other firms. <sup>75</sup> Some evidence on the financial performance of merging firms in Canada is provided by Laiken, who compared the economic and financial performances of firms with varying levels of merger activity including nonmerging firms. Companies surveyed consisted of 369 Canadian-based firms listed on the TSE during the period 1960-1970. Laiken concluded that higher levels

of merger activity were not associated with larger increases in profit margins, nor were they associated with increased price/earnings ratios. <sup>76</sup>

More recently, Mason and Goudzwaard compared 22 conglomerate firms to 22 portfolios of firms which were constructed to mirror the asset compositions of the conglomerates. Their results suggest that mirror portfolios offered at least as high or higher rates of return on assets; from 1962-1967, the mirror portfolios yielded somewhat higher rates of return to shareholders. <sup>77</sup> Studies comparable to Mason and Goudzwaard's were performed for the Royal Commission. In one study done by the Commission's staff, the performance of ten highly diversified firms in Canada was compared to a "mirror" portfolio of stocks which duplicated the acquiring firms' diversification pattern over the period 1960-1975. The Commission's staff found that firms which followed a strategy of unrelated diversification were less profitable, grew less quickly, and returned less to their stockholders in dividends and stock appreciation than the mirror portfolio. Baesel and Grant extended the Commission's study by using stock price (rather than accounting) evaluations of firm performance. <sup>78</sup> Active acquiring companies were arbitrarily defined as those for which at least five acquisitions were reported for the period 1960-75. Companies were ranked by Treynor's Performance Measure, and average Treynor Measures were calculated for the acquisition sample, as well as for a random sample, the ten firms comprising the Commission staff's sample, and a mutual funds portfolio. For the period 1960-1969, results provide tentative support for the hypothesis that the performance of acquisition-oriented companies was superior. The results for 1970-1975 indicated no significant difference between the various acquisition samples and the Toronto Stock Exchange index. <sup>79</sup>

Less ambiguous evidence that gains are in fact realized from mergers is provided by Halpern, who found that for companies involved in mergers for the period January, 1950 to July, 1965, the total adjusted gain to the merger was positive and divided evenly, on average, between the merging companies. <sup>80</sup> Weston and Mansinghka compared 63 conglomerate companies with two control groups randomly selected from among the Fortune 500 Industrials and 250 non-industrials. Data covered the periods 1958-1968 and 1960-1968. The earnings of the conglomerates at the start of the period were lower than those of the controls, but by 1968 they had become not significantly different. Furthermore, the average stock prices of conglomerate acquirers increased faster than those of the control group. <sup>81</sup> Lev and Mandelker found that acquiring firms were somewhat more profitable than their non-merging partners in terms of subsequent stock market performance. Mergers did not appear to reduce the variance of the combined company's stock relative to the control stock. <sup>82</sup>

It can be safely concluded that opinions on how acquiring firms have fared after mergers differ considerably. Existing studies can be criticized with respect to the matching process used for establishing control groups. It is extremely difficult to find a sample of control firms identical to the sample of acquiring firms in all respects other than frequency of acquisitions. But, more fundamentally, the relevant (and unobservable) enquiry is how active acquirers would have performed had they not engaged as extensively in acquisition activities. It might also be true that merger gains take longer to realize than the sample periods of many studies allow.

More direct evidence on the existence of merger gains is provided in a survey which found that of those firms that sought synergy in their acquisitions, about 30% derived synergistic benefits which exceeded management expectations, while 35% realized benefits that were lower than expected.<sup>83</sup> Indirect evidence from the same survey is supplied by the observation that about 41% of the acquired firms were allowed to operate in a completely autonomous fashion; another 24% installed uniform policies and procedures in the acquiring and acquired firms; 16% of the acquisitions resulted in the integration of functional areas only; 15% integrated all activities.<sup>84</sup>

A recent study by the FTC of a sample of conglomerates discovered little evidence of significant organizational change following acquisition. Only those functions such as administration of pension funds and insurance policies and auditing and legal functions were centralized; other functions such as R & D, marketing, procurement and promotion underwent little change following acquisition.<sup>85</sup> Thus, a substantial percentage of acquired firms are apparently left to operate autonomously after being acquired, which raises further questions about the existence of synergy gains to mergers. However, Marx notes that centralization often takes place in those administrative functions which modern organization theory suggests are characterized by economies of scale.<sup>86</sup>

Evidence for Canada shows that in 51 out of 93 acquisitions for which information was available, there was complete or substantial retention of top management at the operating level. In 42 cases, top management was either completely or significantly changed; however, in only 7 cases did top management in the acquired firms assume an important role in the overall corporate affairs of the merged company.<sup>87</sup> This finding offers a stronger suggestion that the operation of acquired firms changes after acquisition than is provided by similar U.S. studies.

To conclude, while no single view exists on how acquiring firms have fared after mergers, it should be noted that evidence from stock price changes tends, on balance, to support the notion that merger gains are realized by acquiring companies. Since stock price changes would presumably discount the long-run anticipated effects of mergers, they may be the most reliable available evidence on merger gains.

#### Merger Patterns and Overall Economic Activity

An outstanding characteristic of merger and acquisition activities is the episodic nature of their intensity. This characteristic has led some observers to link merger activity with broad macroeconomic changes.

A number of studies have cited the existence of a relationship between merger activity and capital market conditions. Specifically, capital market conditions as reflected in stock price changes tend to be positively related to changes in merger activity.<sup>88</sup> The theoretical underpinning for such a relationship is the notion that valuation-gaps are generated by rapidly changing stock market prices, since share prices of individual companies ordinarily will not rise or fall at the same rate.



For the United States, over the period of 1919-1961, the time sequence of peaks indicates that mergers reach their zenith first, followed by contracts for plant and equipment and finally by stock prices. All of this precedes the peak in general economic activity. <sup>89</sup> The fact that merger peaks lead stock market peaks suggests that bargains in the stock market are exhausted before the top of the market is reached.

In analyzing Canadian merger patterns, Martin, et. al., found that the frequency of business combinations over the period of 1960-1968 has tended to follow within a year fluctuations in the TSE industrial index. <sup>90</sup> Reuber and Roseman identified variations in stock market prices in Canada as being a significant variable influencing variations in the number of domestic mergers in Canada over the period 1945-1961. <sup>91</sup> However, Maule concludes for the period 1948-1963, that while cyclical movement in Canadian merger activity was similar to the cyclical behaviour of stock market prices, after 1959 the relationship is, if anything, negative. <sup>92</sup> He further suggests, on the basis of earlier work on Canadian mergers performed by Weldon, that mergers and stock market prices do not show any consistent timing relationship to each other over the period 1900-1963. <sup>93</sup>

The theory relating mergers to stock price changes has an important omission; namely, it does not indicate why valuation-gaps should increase when stock market prices are moving upward and not when they are moving downward as well. One explanation offered is that sellers react asymmetrically to stock price changes, i.e. when prices are rising, sellers are more likely to feel that takeover bids made reflect "fair" value, while in depressed stock markets they are more likely to regard takeover offers as being below the long-run discounted values of their enterprises. Another explanation is that rising stock prices encourage merger activity because industrial production is also rising, thus generating valuation-gaps derived from differing expectations about future economic conditions, as well as from differences between managers in the ability to cope with rapid economic expansion. Nelson concludes, however, that while stock prices and industrial production tend to be correlated over cycles, capital market conditions were of leading importance in periods of high merger activity. Furthermore, for the period 1895-1904, the net partial relationship between quarterly changes in the merger and industrial production series is slightly negative. <sup>94</sup> This latter observation coincides with Maule's finding that the detrended relationship between merger activity and industrial production is slightly negative when both stock prices and industrial production are employed simultaneously to explain merger patterns. <sup>95</sup>

On the basis of available evidence, one cannot dismiss the possibility that production changes in specific industries is related to merger activity. For example, Nelson did find that the three industries growing in merger importance after 1914, transportation equipment, chemicals, and petroleum products, were industries that experienced large rates of growth, with large increases in both the number and size of firms. <sup>96</sup> Furthermore, for the period between 1897 and 1954, 11 of the 12 merger cycles showed a definite timing relationship to turning points of National Bureau of Economic Research reference cycles. <sup>97</sup> These latter results suggest that while the precise timing of mergers may be more closely related to stock price changes, differential changes in industry growth rates may be a long-run underlying influence.

In summary, there is some consensus among existing studies that cyclical movements in stock prices are related to movements in merger activity. There is much weaker evidence that overall industrial growth is positively related to merger activity. These observations, by themselves, cannot establish the causal nature of these relationships. For example, it might be the case that changes in stock prices associated with changes in underlying economic conditions create non-synergistic valuation-gaps. Alternatively, increased industrial growth might intensify the pressures to economize on scarce resources, particularly managerial and financial resources, thereby providing incentives for firms to merge. The latter argument is supported by the previously cited finding of Bushnell, i.e. that a significant number of Australian mergers were caused by the inability of owner-managers to cope with expansion problems, and the finding of Martin, et.al., that the most frequent reason given for the sale was that the managers of the acquired firms were not of the calibre to operate at the corporate level.<sup>98</sup>

#### Merger Activity and Changes in Corporate Concentration

It is obvious that managers would be reluctant to acknowledge coordination gains arising from suppressing competition as a motive for mergers. As a result, investigators have looked at some indirect evidence to evaluate the importance of this motive. The most prevalent approach has been to relate changes in aggregate and industrial concentration to preceding levels of merger activity, under the presumption that high concentration levels are a requisite market structure characteristic for earning monopoly rents.

The Federal Trade Commission found that the share of manufacturing assets held by the 100 largest U.S. corporations rose from slightly less than 40% in 1929 to nearly 50% in 1968. However, the share of assets of the 200 largest corporations in 1968 was not greatly different from their share in 1947.<sup>99</sup> The Commission concludes that industry growth played a role in increasing aggregate concentration about equal in importance to mergers between 1947 and 1960, and that mergers have been almost exclusively responsible for the increase occurring since 1960.<sup>100</sup>

Gort and Hogarty question the FTC's conclusion by observing that it is the largest 50 U.S. firms that show an increase in the measure of aggregate concentration, but that these firms account for only one-fifth of the assets acquired by the largest 200 companies.<sup>101</sup>

The fact that the assets of the 100 largest domestically owned manufacturing companies in the United Kingdom as a percentage of the total assets of all quoted manufacturing companies increased from 55.9% in 1954, to 65.8% in 1964, and to 73.4% in 1968, a period of relatively rapid merger activity, leads Singh to conclude that the merger movement has been a major factor in increasing the level both of aggregate and of individual industry concentration.<sup>102</sup> For analogous reasons, Bushnell concludes that during the post-war period in Australia, mergers led to greater concentration in many industries.<sup>103</sup>

Recent evidence on patterns of industrial concentration in Canada has been assembled by Marfels.<sup>104</sup> Employing special tabulations by Statistics Canada, various measures of concentration were constructed for different levels of aggregation. In one exercise, concentration ratios for the 25, 50, 100 and 200 largest non-financial corporations in Canada were compared for 1965, 1968, and 1973. Modest increases in asset concentration were evident for the first 25 and the first 200 non-financial corporations from 1965, while sales concentration showed a slight decline. In another exercise, Herfindahl indices were calculated for 129 manufacturing industries. Detailed analysis of the indices by industry group showed that concentration had a tendency to decline during 1965-1972. Analysis of concentration trends in nine large two- and three-digit manufacturing industries lends support to this conclusion. Six of the nine industries showed declines in both enterprise and establishment concentration for various measures of concentration. Thus, aggregate concentration as well as industrial concentration across a broad range of manufacturing industries appears to have declined during a period in which merger activity was quite intense.

The various studies relating changes in industrial concentration to merger activity are subject to several major criticisms. One is that they ignore the possibility that market shares of acquiring companies would have been larger in their primary activities had they diversified less, with the result that the companies would still have grown as much or more. Another criticism is that the role of mergers in increasing concentration might be overstated if mergers are an alternative to exit for the absorbed firm.

A careful study by Weiss attempted to standardize for the impact of internal growth and for the existence of sub-optimal capacity in evaluating the relationship between mergers and changes in industrial concentration. His study was based upon observations from six industries, and it concludes that internal growth and exit are much more closely related to changes in concentration at the four firm level than is merger. While there were mergers at this level, they were distributed among industries and periods in a fairly random way and offered little explanation of the net changes in concentration that actually occurred.<sup>105</sup>

In a more recent study, Aaronovitch and Sawyer analyzed changes in concentration ratios for the quoted company sector in the United Kingdom over the period 1958-1967. They found that in general, external growth causes concentration to increase by more (or decrease less) than internal growth, but the impact of both is relatively small.<sup>106</sup>

After reviewing the available evidence, Steiner concurs with Weiss that macro-concentration concerns are largely unrelated to the merger issue, since the average size of large corporations would not have been very different if none of the large mergers had occurred and if the acquired companies had remained independent.<sup>107</sup> This is not to say that concentration in specific industries has not been significantly affected by merger activity in those industries. Furthermore, conclusions regarding the relationship between aggregate concentration and merger activity are sensitive to the time period chosen for study. For example, conclusions based upon observations from the post-war period would be inappropriate if applied to North American merger experience at the turn of the century.



## Summary

The various empirical studies of mergers and acquisitions provide diverse conclusions. There is certainly no unanimous view on how acquiring firms have fared after mergers, nor on the relationship between merger rates and resulting changes in industrial concentration.

Managerial considerations have been noted in several surveys as an important factor influencing sales of companies. The potential importance of managerial factors is reinforced by the observation that merger activity is positively related to industry growth rates. We shall say more about this relationship in the following section. The fact that acquired firms do not appear to be significantly less profitable than acquiring firms contradicts the notion that mergers represent a process of simple replacement of less efficient managers by more efficient. However, profitability comparisons have generally been based on accounting measures, rather than on market measures which would presumably reflect the anticipated long-run performances of merging firms. In this regard, recent findings of Ellert are of interest.<sup>108</sup> Ellert examined the risk and return characteristics of 205 large corporations whose merger activities were challenged by the Antitrust Division of the Department of Justice or the Federal Trade Commission over the period of 1950-1972. He found that stockholders in large companies indicted under the antimerger law earned abnormal returns of approximately 23%, on average, over the eight years preceding anti-trust complaints. Most of these gains accumulated well in advance of the specific mergers challenged, and the market adjusted stockholder returns downwards by less than 2% on the announcement that an antimerger case was being filed by the Justice Department or Federal Trade Commission. Companies whose merger activity did not evoke antimerger complaints also experienced large positive abnormal gains in advance of rumours or announcements of merger activity, and companies acquired were typically those whose pattern of pre-merger abnormal returns suggested mismanagement of assets.<sup>109</sup> Ellert interprets the evidence as being consistent with the hypothesis that mergers reallocate resources from less efficient to more efficient users.

The absence of any decisive evidence on the determinants of merger patterns could reflect acknowledged possibilities that the causes of mergers are both complex and diverse, and vary in importance across industries and over time. It might also reflect the fact that the outcomes of many mergers differ from their anticipated results.

## SECTION FOUR

### ADDITIONAL EVIDENCE ON CANADIAN MERGER ACTIVITY

#### Introduction

In this section, we consider some additional evidence bearing on the motives for and the consequences of merger activity in Canada. The limited evidence discussed in the preceding section did not indicate that the Canadian merger experience was atypical of the experiences of other developed countries; however, a more detailed investigation of this point is desirable.

We will first review the general merger pattern in Canada and compare it to patterns in other developed countries for which evidence is available. The analysis is restricted to the post-war period, partly for pragmatic reasons, i.e. the bulk of available data are for this period, and partly because of the Royal Commission's concern with diversification mergers, a relatively recent phenomenon.<sup>110</sup> We will then investigate the determinants of merger activity in Canada through cross-section industry analysis as well as through information contained in briefs filed with the Royal Commission.

#### Aggregate Merger Activity in Canada

Table 1 (page 55) summarizes merger intensity in Canada over the post-war period as well as the number of foreign versus domestic acquisitions during the period, and demonstrates the cyclical nature of merger activity in Canada. Mergers and acquisitions were undertaken with particular intensity during the period 1945-46, 1955-56, 1959-61 and 1968-72. The latter period constituted the most prolonged cyclical upswing in merger intensity over the post-war period, with the number of mergers in Canada relative to the total number of domestic firms reaching its highest value in recent years in 1969. We should note explicitly that the merger series reported in Table 1 excludes mergers undertaken in those sectors not covered under the Combines Investigation Act, most notably the service sector. As a result, the merger intensity series reported in column 3 of Table 1 is consistently lower than it would be if all mergers undertaken in Canada were covered under the Act. Furthermore, to the extent that the service sector grew relative to other sectors of the economy over the post-war period, this underestimate of overall merger intensity is more severe for later years.

The degree to which mergers in Canada were foreign rather than domestic acquisitions does not show a particularly marked cyclical pattern. Rather, the percentage of foreign acquisitions appears to have increased in 1954 (as compared to the period 1945-52), and then to have fluctuated between 35% and 45% over the period 1955 to 1971. It has declined continuously since 1971.

Some preliminary evidence on the extent to which Canadian merger activity reflects broad international patterns can be obtained by comparing overall merger intensity in Canada over time to merger intensity patterns in other countries. Since the absolute number of mergers would offer a meaningless comparison in light of size differences among various economies, a measure of

relative merger intensity is required. Unfortunately, the number of domestic firms in our sample of comparison countries was not readily available to deflate the total number of mergers. Hence, Table 2 reports the year-over-year percentage change in the number of mergers for Canada and for four other developed economies for various time periods. The comparisons will be affected by differential growth rates in the total number of domestic firms in the various countries. However, on a year-to-year basis, the percentage increase in the number of mergers is likely to reflect primarily the percentage increase in mergers per firm, since the percentage growth in the total number of domestic firms will be relatively small in all cases.<sup>111</sup>

Table 2 indicates that year-to-year changes in merger activity are not perfectly correlated across the sample countries. The Canadian pattern appears to parallel most closely the U.S. pattern. Substantial differences appear to exist in the precise timing of merger activity when comparing Canada to Sweden, Great Britain and Australia. Additional evidence on this point is provided in Table 3 which reports zero-order correlation coefficients for the annual percentage change in the number of mergers for paired sample countries. It should be noted that the Canadian merger series is more broadly defined than the series for the other countries, since it includes all industrial mergers, while (with the exception of the U.S. (1) measure) the other series are for mergers only in the manufacturing and mining sectors. To the extent that timing differences in merger activity exist among industrial sectors, the lack of exact correspondence between the various merger series could bias downward the observed correlation coefficients. Indeed, a comparison of the correlation coefficients for the U.S. (1) and U.S. (2) series with the Canadian merger series suggests the existence of such a bias. However, the bias appears to be relatively small and, in any case, is unlikely to account for the statistically insignificant relationship between annual rates of change in North American mergers and annual rates of change in merger activities in the other sample countries.

While short-run variations in merger activity are most closely correlated in the United States and Canada, data in Table 4 suggest that long-run merger patterns tend to be broadly similar across countries. Table 4 reports mean annual percentage changes in the number of mergers for the full sample period and for various sub-periods. The longer run pattern of merger activity is generally similar when comparing Canada, the United States and Sweden, i.e. the three countries for which a reasonably long time series on mergers is available. Specifically, there was a pickup in average merger activity in both the United States and Sweden in the middle period (1955-1968) over the earlier period (1948-1958). No such pickup is evident for Canada; however, it should be noted that if the observation for 1951, which is an extreme outlier in the Canadian sample, is deleted, the mean annual percentage change in the number of Canadian mergers for the period 1948-1958 is reduced to 7.9, and the pattern for the Canadian series accords with those for the United States and Sweden. Moreover, in each of the various sub-periods, there is no statistically significant difference in the mean annual percentage change in the number of mergers between any paired sample of countries.

Tables 5 through 8 further demonstrate the correspondence between the long-run merger patterns of the various sample countries, and particularly between Canada and the United States.

Table 5 provides a broad sectoral breakdown of merger patterns in Canada and the United States for selected years. The data indicate a general decline in the relative importance of merger activity in the manufacturing and mining sectors in both countries over the post-war period, and a general increase in relative merger activity in sectors other than manufacturing, mining and trade. Merger activity in the trade sector has consistently been relatively more important in Canada than in the United States, while merger activity in manufacturing and mining has been relatively more intensive in the United States than in Canada.

A more detailed breakdown of the distribution of merger activity by manufacturing industry is given in Table 6. The table reports the ratio of acquired firms to the total number of domestic firms in 17 two-digit Canadian manufacturing industries averaged over the period 1945-1961 and for 1972.<sup>112</sup> Since observations for any given year may be atypical of secular patterns, we have estimated a comparable ratio for 1973. The estimation was obtained by dividing the actual number of mergers in 1973 by the total number of companies in the industry in 1972. The ratio could not be obtained directly since the requisite Corporate Taxation Statistics volume was not yet available at the time of writing. If the ratio of total number of firms in 1973 to the total number of firms in 1972 is roughly equal across industries, the 1973 ratios should offer a reliable picture of relative merger intensities across the industries.

From Table 6, it can be concluded that relative merger intensities across industries vary somewhat over time. Over the period 1945-1961, the leading industries are: petroleum refining, paper and the rubber industries, followed by the food and beverages, tobacco and electrical products industries, merger activity over this period was least intensive in the apparel, furniture and wood products industries. Over the period 1972-1973, the leading merger intensive industries are: petroleum refining, tobacco, chemicals, electrical products and machinery. Knitting mills, wood products and rubber were virtually inactive industries in terms of merger activity.

A comparable measure of merger intensity at the two-digit industry level is available for Sweden over the period 1946-1957. A sample of 13 two-digit Swedish manufacturing industries was chosen for comparison with their counterpart Canadian industries.<sup>113</sup> Since industry classifications are not strictly comparable across the two sets of observations, and the time period is not exactly matched, these data are capable at best of indicating a broad correspondence or lack of correspondence in the distribution of merger activity among manufacturing industries in Canada and Sweden.

The degree of correspondence was measured by ranking the industries in order of merger intensities in the two countries and calculating a Spearman rank-order correlation coefficient. For the 13 industry sample, the rank correlation coefficient equals .412; however, the coefficient increases to .713 (statistically significant at the .01 level) when the rubber industry (which is a significant outlier) is deleted from the sample. Thus, we can conclude that over the sample period there was a substantial correspondence

between merger patterns in the manufacturing industries of Canada and Sweden, although significant differences can be found to exist for specific industries, and particularly for the rubber industry.

Additional evidence on the correspondence between merger patterns in Canada and outside of Canada is provided in Table 7. The table reports another measure of an industry's relative merger intensity; the ratio of acquired firms in an industry to the total number of acquired manufacturing firms, for the United States and Canada. Potential biases in a comparison of the series in Table 7 are introduced by the possibility that the relative sizes of the various industries in the two countries are different, thereby contributing to differences in measured merger intensities across industries. Furthermore, the U.S. data extend for a substantially longer time period than the Canadian data, introducing an additional source of incomparability. Thus, any comparison between the two countries must once again be taken as indicative of a broad rather than an exact relationship.

The 17 industries were ranked in terms of relative merger intensity, and a Spearman rank correlation coefficient was calculated between the U.S. and Canadian series. The coefficient obtained when comparing the U.S. series for 1948-68 to the Canadian series for 1946-61 equals .67; the coefficient obtained for a comparison between the 1973 series equals .55. Both coefficients are significant at the .05 level. It is interesting to note that the U.S. merger pattern was more stable over time than the Canadian pattern, which in part might be due to the longer time period of the U.S. series. The rank-correlation coefficient for the two U.S. series is .92, while the coefficient for the two Canadian series is .72. Once again, specific examples of outlier observations can be identified, most notably the machinery industry in the case of the Canada-U.S. comparison. However, the evidence supports the general conclusion that the distribution of merger activity across manufacturing industries is similar in Canada and the United States.

To summarize the evidence presented to this point: the distribution of Canadian merger activity over time and across industrial sectors bears a strong similarity to patterns observed for other developed countries. While the short-run timing pattern of mergers and acquisitions in Canada appears unrelated to patterns in various Western European countries, a reasonably close timing relationship exists with the U.S. pattern.

Given the significant differences in average firm sizes as well as in the application of anti-combines legislation in the two countries, the observed similarities in Canada-U.S. merger patterns can be taken as some evidence against general explanations of merger activity based primarily upon either restriction of competition or economies of scale motives.

Data are also available enabling a cross-country comparison of types of merger activity by broad category, i.e. horizontal, vertical and conglomerate. Table 8 provides the estimated percentage distribution of mergers by merger type for various countries in selected years. Disclaimers should be provided before analyzing these data. The classifications of merger by type may differ substantially from country to country, and particularly for the various



sub-categories of broad horizontal mergers.<sup>114</sup> Canadian data for 1972, 1973 and 1974 were compiled by the author from information in the Department of Consumer and Corporate Affairs Merger Register for each year. For all public companies listed in the register, an attempt was made to obtain detailed information on the operating characteristics of the company through annual reports. However, a substantial percentage of mergers involved private companies for which no additional information was available. Hence, the classification for these years relied, by and large, on the merger register description of the merging companies. If the companies were producing the same or related products or services, the merger was classified as horizontal.

If the companies were linked by different stages in a common production process, the merger was classified as vertical. All mergers involving largely unrelated production processes or holding company acquisitions were classified as conglomerate.<sup>115</sup> Given the imprecisions in our classification, we do not report different categories of broad horizontal mergers in 1972, 1973 and 1974. The Federal Trade Commission classes geographic market extension and product extension mergers as conglomerate mergers. In order to maintain consistency with our classification procedure for Canada for the period 1972-74, we have included such mergers in the broad horizontal category for the United States.

A striking point indicated by the data in Table 8 is the extent to which conglomerate mergers have increased relative to vertical mergers in both Canada and the United States as well as relative to horizontal mergers in the United States over the post-war period. The growth in the relative importance of conglomerate mergers is particularly marked for the United States, although this might partly reflect sampling differences. Specifically, the 1972, 1973 and 1974 U.S. distributions are based upon large acquisitions in manufacturing and mining, while the Canadian distribution is based upon all recorded industrial mergers. If conglomerate acquisitions are larger on average than horizontal or vertical mergers, they might be over-represented in the U.S. distributions compared to the Canadian distribution in Table 8.

The U.S. data suggest that conglomerate merger activity may have peaked in the late 1960's and subsequently declined in relative importance.<sup>116</sup> Unfortunately, comparable data for Canada are unavailable for the 1960's. What evidence is available for Canada is provided in a survey by Martin, et. al., of 93 acquisitions undertaken by large T.S.E. listed companies over the period 1960-68. Of these acquisitions, 68% were classified as horizontal, i.e. basically firms in the same industry; 20% were vertical, and roughly 12% were conglomerate, i.e. firms not in the same industry.<sup>117</sup>

It would appear, therefore, that conglomerate mergers increased in relative importance in Canada over the period of the 1960's. It is not possible, given existing data, to establish whether conglomerate merger activity reached a peak in Canada at the same time as in the United States; however, it seems reasonable to conclude that conglomerate acquisitions were, and continue to be, relatively more important in U.S. than in Canadian merger activities. An investigation into the reasons for the greater popularity of diversification mergers in the United States could provide useful insights into the nature of expected merger benefits; one tentative hypothesis is that

horizontal mergers in the United States over the period of the 1960's, were more likely to be struck down by anti-trust officials than was the case in Canada; thus the relatively greater importance of conglomerate mergers might partially reflect greater legislation restraints on horizontal merging activity.

#### The Determinants of Merger Activity

The preceding analysis has explored the similarities in the timing and nature of merger activity in Canada and the United States. The exclusive focus on number of mergers as a measure of merger activity is dictated by the fact that it is the only measure for which a consistent time series is available over the entire post-war period. In the following section, we investigate in more detail the potential determinants of merger activity in Canada and (by way of comparison) in the United States. Identification of a common set of factors influencing merger patterns in the two countries would help to explain the broad similarities of merger patterns in the two countries, as well as contribute to a better understanding of the potential consequences of mergers.

#### Stock Price Changes

Previous studies have indicated the existence of an empirical relationship between cyclical changes in merger activity and changes in stock market prices. The bulk of these studies for both Canada and the United States do not include observations for the late 1960's and early 1970's, a period in which conglomerate merger activity became more pronounced in both countries. It would be interesting, therefore, to update previous studies relating mergers to stock price changes, to determine if recent mergers experience adheres to previous patterns.

The dependent variables in the following analysis are the first difference rates of change in the number of mergers in Canada and in the United States for various time periods.<sup>118</sup> The dependent variable was specified in this manner to remove a time trend in the aggregate merger series associated with overall growth in the two economies. Failure to detrend the merger series could introduce a spurious correlation between the dependent variables and various explanatory variables arising from the existence of a common time trend. Equations 1 - 6 in Table 9 report the results of estimating the dependent variables as functions of first difference rates of change in Canada and U.S. stock price indices for various post-war periods. The relationship is statistically significant in both countries over the entire period 1947-1974, although it is substantially stronger for the United States. When the entire period from 1947-1974 is divided into two non-overlapping periods and equations 1 and 2 are re-estimated, an interesting difference is observed: the relationship between merger activity and stock price changes remains statistically significant in the United States for the earlier period, i.e. 1947-1963 (equation 4), but it is statistically insignificant in the later period, i.e. 1964-1974 (equation 6). The conclusion for Canada is, if anything, the reverse, with the relationship between merger activity and stock price changes being stronger in the latter period.



The possibility exists that the sub-period results are affected by the exclusion of one or more relevant variables whose values changed substantially over the sub-periods, thereby influencing the observed relationship between merger activity and stock prices. One such variable is the overall level of real economic activity. Equations 7 - 12 report the results of estimating the merger equation including the first difference rates of change in industrial production in the two countries as an additional independent variable. Over the entire period, 1947-1974, industrial production is a statistically insignificant variable in the Canadian merger equation, and remains statistically insignificant in the two sub-period estimations. The sign of the variable is negative in all three equations, which is consistent with results obtained by Maule in his analysis of cyclical merger patterns in Canada.<sup>119</sup>

The industrial production variable is statistically significant with the expected sign in the U.S. equation for the 1947-1963 sub-period, i.e. equation 10; however, it is statistically insignificant in the equation estimated for the period 1964-1974, further suggesting the possibility that the underlying determinants of merger activity in the United States may have changed over the post-war period, or that the macro relationship estimated for the earlier period reflects spurious correlation with other excluded relevant variables.

A possibility exists that stock price changes and changes in industrial production interact multiplicatively to determine changes in merger activity. An interactive relationship was specified and estimated for Canada over the full period, 1947-1974, and for the two sub-periods, 1947-1963 and 1964-1974. The interactive equation provides a marginal improvement in the overall adjusted coefficient of determination for the earlier period, (equation 14), but performs marginally worse for the later period, (equation 15). In short, changes in industrial production at the aggregate level do not appear related in any significant way to changes in merger activity in Canada over the post-war period.

It is recognized that introducing lagging (or leading) relationships among the variables in the various estimating equations would provide stronger tests of the existence of a significant relationship among the variables. This procedure was not attempted for several reasons. One reason is that Maule's earlier analysis for Canada demonstrated that introducing leads and lags into the estimated relationship between mergers, stock prices and industrial production does not significantly improve the statistical "fit" in detrended series.<sup>120</sup> Another reason is that Nelson observed the time sequence of peaks in mergers and stock prices to occur within nine months of each other<sup>121</sup> so that a substantial (if not perfect) overlap could be expected between changes in the two series on an annual basis.

It is, of course, quite possible that the exclusion of other relevant variables from the equations results in biased parameter estimates for the included variables. One such excluded variable, found to be significant in Reuber and Roseman's study, is the supply of internally generated funds in Canada's corporate sector. Another is the number of failing domestic firms in any year. Since other a priori relevant variables were not included in our equations, the results presented above must be viewed cautiously. It

should be noted, however, that Maule observed no significant changes in the overall detrended stock price-merger relationship for Canada when additional variables, including the number of failing domestic firms, were introduced into the estimating equation.<sup>122</sup>

Additional evidence on the interrelationships between merger activity, stock prices and industrial production is provided in Table 10. Zero-order correlation coefficients for first difference rates of change in the three variables in Canada and the United States are estimated for various time periods. The results cast further doubt on the importance of stock price changes and business cycle changes in explaining merger activity. Specifically, the relationship between merger activity in Canada and the United States is, if anything, stronger in the period 1964-1974 than in the period 1947-1963; however, the correlation between stock price changes and changes in industrial production in the two countries is weaker in the later period than in the earlier period. Moreover, it has already been observed that both stock price changes and changes in industrial production were statistically insignificant variables in an equation explaining changes in U.S. merger rates during 1964-1974; thus, the correlation between Canadian and U.S. merger rates for that period cannot be causally linked through changes in stock prices.

Another observation mitigating against a ubiquitous theory of mergers based upon capital market conditions is the fact that merger activity in given periods tends to be concentrated in specific industries; moreover, the relationship between merger intensities and capital market conditions is not uniform across different industries.

Table 11 provides estimates of the zero-order correlation coefficients between merger intensities (i.e. total mergers divided by total number of domestic firms) and the first difference rate of change in the Canadian industrial stock price index for 17 two-digit industries over the period 1946-1961. It can be seen that the strength of the relationship varies quite substantially across industries and, on the whole, is not particularly impressive. For 6 of the 17 industries, the relationship has the "wrong" sign. This result is particularly striking in light of the fact that the food and beverage and tobacco industries are amongst the more merger intensive industries over the period.

Table 12 presents an intercorrelation matrix for the merger intensities of the 17 sample industries correlated with each other over the period 1945-1961. The zero-order correlation coefficients illustrate that merger activity varies significantly across different industries over given periods of time. In analyzing the results, one notices that merger activity patterns in the tobacco, textiles and transportation equipment industries are largely unrelated to merger activity patterns in other industries. Strong positive relationships appear to exist between the food and beverage industry and the wood and non-metallic minerals industries; the leather industry and the knitting, apparel and chemicals industries; the furniture and non-metallic minerals industries, and the paper and chemical industries. A strong negative relationship exists between merger activity patterns in the food and beverages and printing industries.

To summarize the evidence presented to this point: while capital market conditions are related to aggregate merger patterns in North America for specific post-war periods, the relationship is not uniform across industries and varies from period to period. Furthermore, capital market conditions do not appear to provide a satisfactory explanation of the broad similarity in merger activity patterns in Canada and the United States over the post-war period; nor do general economic conditions related to business cycle activities in the two countries appear to explain the broadly similar merger experience of the two countries.

#### Cross-Section Industry Models

Further investigation of the characteristics of merger intensive and non-intensive industries could provide useful insights into the nature of the merger process.

In an earlier study, Gort analyzed differences in merger intensities across a sample of three-digit U.S. manufacturing industries over the period 1951-1959.<sup>123</sup> The dependent variable was the ratio of the aggregate number of mergers in the industry over the entire period to the number of firms in 1954 with assets of \$500,000 and over. Seven explanatory variables were selected for the purpose of testing the hypothesis that the frequency of mergers is a function of: a) economic disturbances that lead to valuation discrepancies, b) attempts to reduce competition and c) economies of scale. The seven variables include: the technical personnel ratio, the industry's concentration ratio, the growth rate of the industry, the change in the average size of firm, the change in the number of firms and the change in labour productivity.

Gort hypothesized that changes in technology alter the structure of investor expectations, with the result that the variance in the valuations of investors rises and the frequency of mergers increases. Furthermore, in an industry in which barriers to entry for new firms are small, the range of potential valuation-gaps for existing firms is limited to the reproduction costs of tangible assets, while the range of valuation differences is much greater when barriers to entry are high. Finally, he suggests that the greater the number of firms that require additional capacity, the larger will be the number of valuation-gaps that are discovered and hence, the greater the number of mergers.<sup>124</sup>

Gort hypothesized that the pursuit of monopoly motive for merger would be consistent with observing merger activity to be most intense in concentrated industries, in industries with increasing levels of industrial concentration, and in non-growing industries. He suggests that with respect to the economies of scale hypothesis, one would anticipate that in sectors in which mergers are an adaptation to changes in the relative efficiencies of various sizes of firms, there will be a concurrent change in the average-sized firm. Specifically, the average firm size in the industry should rise. If economies of scale are a decisive variable, merger activity should be inversely related to industry growth. This is because with rapidly growing demand it is easier to achieve the requisite size for a minimum cost firm through construction of new capacity; industries with large increases in the

number of new firms may be expected to show more mergers induced by economies of scale following from the probability that some new firms enter at inefficiently low sizes.

With three explanatory variables the highest multiple correlation coefficient was for the equation that relates merger rates positively to the technical personnel ratio, the concentration ratio, and growth.<sup>125</sup> Gort concludes that the positively signed parameter for the concentration variable is not consistent with a desire to reduce competition since the estimated parameter was negatively signed for the change in concentration variable, while the growth parameter was positively signed, both results being inconsistent with the competition reduction motive. The observations that: 1) a consistently positive relation was observed in all equations between merger rates and industry growth; 2) the correlation between the merger rate and the rate of change in size of firm was small and significant only at the .05 level, and 3) the rate of change in number of firms had a negative statistically insignificant parameter were taken as arguments against the economies of scale hypothesis.

In order to provide comparable evidence for Canada, a cross-section industry analysis of merger activity in 17 two-digit Canadian manufacturing industries was conducted by the author. We recognize at the outset that statistical analysis at the two-digit level could obscure significant relationships at the three-digit industry level. Moreover, the two-digit level of aggregation could introduce biases by averaging differences in relevant variables across the three-digit levels. However, the only detailed merger data available for Canada is at the two-digit level.

The dependent variable was specified as the ratio of the number of mergers to the total number of domestic firms in the sample industries for two sub-periods: 1945-1953 and 1953-1961. The entire sample period was divided into two sub-periods to test the possibility that the determinants of merger activity vary over time.

The dependent variable for the period 1945-1953 (AM1) was specified as a function of the following independent variables: the average annual percentage change in the number of companies 1945-1953 (CC1); the percentage change in total industrial employment 1945-1953 (CE1); the average percentage of companies reporting losses (CL1); the average year to year variance in the percentage of companies reporting losses (VL1); the top quartile concentration ratio in 1965 (C);<sup>126</sup> a technological opportunities index value (T)<sup>127</sup> and the growth in the average size of companies as measured by total employment (AS1).

The CC1, CE1, C, T and AS1 variables are similar to those used in Gort's study. The CL1 variable was included to test the hypothesis that mergers are merely a civilized form of bankruptcy. The VL1 variable was included to evaluate the hypothesis that mergers are undertaken by firms to increase the stability of their earnings streams through diversification of their activities. Higher values of the VL1 variable are taken to reflect greater cyclical instability of the industry, which in turn might encourage

firms in the industry to seek out potential merger partners. To the extent that firms seek to stabilize their earnings by acquiring firms outside of their primary industry, the VL1 variable does not provide an adequate test of the diversification motive. We must also note that the conceptually appropriate variable is the covariance of the industry's profit rate with profit rates in other industries.

The functional form of the estimating equation is specified as:

$$1. \text{AMI} = f(\text{CC1}, \text{CE1}, \text{C}, \text{T}, \text{AS1}, \text{CL1}, \text{VL1})$$

The equation was estimated in linear form; however, substantial multicollinearity between several of the independent variables raised problems in estimating the full relationship in one equation. Specifically, the zero order correlation coefficient between CC1 and C equalled -.527; the simple correlation coefficient between CE1 and AS1 was .75; the correlation coefficient between CL1 and VL1 was equal to -.636. As a consequence of this substantial multicollinearity, the collinear variables were entered separately in the various estimating equations. This procedure is clearly subject to criticism and implies that reliable point parameter estimates will not be obtained. Indeed, the results should be viewed at most as indicative of directional relationships between the dependent and independent variables, with the "true" relationships bounded by the estimated results for the partially specified equations.

The first equation in Table 13 reports the results of estimating equation one initially deleting the CC1 and AS1 variables. An additional standardizing variable introduced into the equation, MUS, is a measure of industry mergers as a percentage of total manufacturing mergers in the United States averaged over the period 1948-1968.<sup>128</sup> A previous study for Canada indicated that merger activity among foreign subsidiaries in Canada was significantly influenced by merger patterns in the parent companies. The MUS variable was therefore introduced to capture this "spillover" influence of foreign merger activity; however, the lack of time period correspondence with our dependent variable undoubtedly introduces some error measurements into the variable.<sup>129</sup> The CC1, CL1, VL1 and MUS variables all have negatively signed parameters, although only the parameter for the CC1 variable is statistically significant at the .05 level. The CE1 and T variables have positive, statistically insignificant parameter values.

The second equation in Table 13 reports results after dropping the CC1 variable and entering the C variable into the estimating equation. The overall goodness-of-fit of the estimating equation is marginally improved. The parameters for the CL1 and VL1 variables both become statistically significant at the .05 level. The remaining parameters are all positively signed with the C parameter significant at the .10 level.

Equation 3 is identical to equation 1 with the exception that the AS1 variable is substituted for the CE1 variable. In equation 4, the C variable is substituted for the CC1 variable in equation 3. The results of equations 3 and 4 are virtually identical to the estimated results for equations 1 and 2. The only statistically significant parameters are for the CL1 and VL1 variables, both being negative.



Thus, analysis of inter-industry differences in merger intensity over the period 1945-1953 indicates that merger activity is positively related to industry concentration, growth in average firm size, merger intensity in comparable U.S. industries and the technological progressiveness of an industry. It is negatively related to the probability of a firm suffering losses, the variability of earnings in the industry and the growth in the number of firms in the industry. However, the majority of the relationships are statistically insignificant.

The dependent variable was subsequently redefined as the industry's merger intensity over the period 1953-1961, AM2. An additional independent variable included was AM1, merger intensity in the preceding period, i.e. 1945-53. The AM1 variable was included as a quasi "stock-adjustment" variable, i.e. to capture the effects of merger influences from the preceding period that carried over into the later period. A substantial multicollinearity problem was found to exist between the CE2 and AS2 variables in the second sample period, i.e. the zero-order correlation coefficient is .96. Hence the variables were introduced separately in different estimating equations.

Equation 5 reports the results of estimating AM2 as a linear function of AM1, CC2, CL2, VL2, MUS, C and T. The AM1, CE2 and C variables have positively signed statistically significant parameters. The VL2, MUS and T parameters are positive but insignificant. The CC2 variable is significant and negatively signed.

For equation 6, the uniformly insignificant MUS and T variables are dropped from the estimating equation and AS2 is substituted for CE2. The AS2 variable is positive and statistically significant at the .05 level. The signs of the remaining parameters are the same as for equation 5. The CL2 and VL2 parameters remain statistically insignificant.

In comparing our results to those obtained by Gort, a substantial amount of agreement is evident. Concentration is positively (and significantly) related to the merger intensity across industries. Growth in industry employment is positively related to merger intensity, with the relationship being statistically significant in the second sample period.<sup>130</sup> The growth in the number of firms in an industry is negatively related to merger rates, and is statistically significant in the majority of cases. The technological intensity of an industry is positively related to merger intensity, although the relationship is uniformly insignificant. The growth in average firm size is positively related to an industry's merger intensity and the relationship is particularly strong in the second sample period. Our other variables provide mixed results. The fact that merger intensities are negatively related to the percentage of companies reporting losses mitigates against an explanation of mergers as being a simple process by which assets from bankrupted companies are transferred to surviving companies. This result is consistent with observations for both the United States and Canada, i.e. that with respect to profitability, acquiring and acquired firms are not markedly different. The results for our crude measure of variability of an industry's earnings suggest that the diversification for income-stability motive receives support only in the second sample period.



In relating our results to merger motivations, we recognize that the concentration variable presents ambiguities in interpretation. To the extent that concentration serves as a measure of barriers-to-entry, our results support an anti-competition merger motive. While we were unable to include a change in concentration variable, the positive relationship between merger intensity and industry growth is taken as evidence against a merger-to-restrain competition argument. More specifically, competitive threats to oligopolistic cooperation would presumably be greater in slower growing industries. Therefore, one would expect mergers to be undertaken most intensively in slower growing concentrated industries. Furthermore, the concentration variable might be inadvertently measuring the existence of certain firm-level economies of scale, particularly in marketing and management functions.<sup>131</sup> Thus, our results for the concentration variable might also be taken as indirect evidence in support of an economies-of-scale motivation for merger.

Similar characteristics of merger intensive industries in Canada and the United States provide a tentative explanation for the close correspondence in industrial merger patterns between the two countries. More specifically, Canadian and U.S. industries tend to have similar if not identical market and production structures: highly concentrated industries in Canada tend to be highly concentrated in the United States; technology-oriented industries in Canada are also technology-oriented in the United States. Similar demand conditions imply that faster-growing industries in the two countries will tend to be identical. In short, the marked similarity in Canadian and U.S. merger patterns would seem to have an explanation in common microeconomic characteristics of industrial organization and performance in the two countries. The precise nature and importance of those characteristics is, however, open to some debate.

Gort considers a positive relationship between merger intensity and industry growth as evidence against an economies-of-scale motive. This is because internal investment in a growing industry is a more effective means of capturing available plant level economies. However, this conclusion cannot be extended to economies at the firm level. Specifically, given inelastic supplies for certain administrative inputs, firms in a rapidly growing industry may find it exceedingly costly to increase those inputs by hiring them from outside the industry, particularly if substantial on-the-job training is required to develop requisite information about operating parameters for the industry. Indeed, the constraints imposed by rapid growth on obtaining adequate administrative resources may act as a powerful incentive for firms to economize on managerial inputs by centralizing their managerial staffs, presuming that economies of scale exist in administration and decision-making functions. Some support for this hypothesis is provided by the observation that merger intensity is negatively related to the growth in the number of firms.<sup>132</sup> An inelastic supply of managers and entrepreneurs could act as an important barrier-to-entry into rapidly growing industries. The fact that growth in average firm size is positively related to merger intensity is an additional indication of the potential relevance of an economies-of-scale motivation for merger in our sample of Canadian industries. The particular significance of economizing on scarce managerial inputs is emphasized by the following observation: for each of our sample industries, the ratio of salaried employees to total employees was calculated for the year 1957 as a proxy variable for the degree of "managerial intensity" of the industry. Over the period 1953-1961, the period for which the AS2 parameter was statistically

significant, the zero-order correlation coefficient between AS2 and our measure of "managerial intensity" was equal to .939.

The fact that our technology variable was statistically insignificant argues against the existence of economies-of-scale in research and development. It is also inconsistent with Gort's hypothesis that valuation-gaps are particularly marked in technology-intensive industries. Our measure of technological progressivity may, however, be too crudely defined to permit any strong conclusions to be drawn.

In summary, while our overall results are in general agreement with Gort's findings for the United States, we are led to somewhat different interpretations about the importance of various motivations for merger activity. Specifically, we interpret the evidence for Canada as being more supportive of an economies-of-scale motive than Gort is willing to concede for the United States. In addition, we find less evidence to support a "pure" disturbance-induced valuation-gap explanation for Canada. We are inclined (as is Gort) to reject the hypothesis that mergers are primarily motivated by the desire to restrict competition. Our results are put forward as being suggestive rather than conclusive, since several of the variables are crudely measured as well as being collinear, and the estimation results are somewhat sensitive to the sample period.

Additional evidence on the importance of economies-of-scale as a motivation for merger will be considered in a following section. We now turn to consider some additional evidence on the significance of merger activity as a means of reducing competition levels.

Gort, in his sample of U.S. industries, considers the fact that the change in industrial concentration over the sample period is unrelated to an industry's merger intensity as evidence against an anti-competition merger motive. Unfortunately, requisite data to perform a similar analysis for our full sample of Canadian industries are unavailable. The best we were able to do was to estimate a change in concentration measure between two discrete years, 1948 and 1965, for 10 of our two-digit sample industries. These industries and the calculated percentage change in the number of largest firms accounting for 80% of industry employment over the period are given in Table 14. It should be noted that the estimates for the food and beverages, textiles, wood, machinery, and chemicals industries are extremely crude and are based upon incomplete data. Specifically, the concentration ratios for these industries in 1948 are provided for several, but not all, of the associated three-digit industries comprising the two-digit group. The two-digit ratio was calculated by weighting the ratios given for the available three-digit industries by their percentage of value added in 1948. To the extent that the concentration ratios for the unreported three-digit industries differ from the weighted average ratio for the included industries, the measure is biased. Since we have no way of establishing the direction and magnitude of any such bias, the results to be discussed must be treated very cautiously.

The industries were ranked in order of their percentage change in industrial concentration and in order of their merger intensities, from highest to lowest values. The calculated Spearman rank order correlation

coefficient between the two series for the 10 sample industries equals .12, which is not statistically significant at any acceptable confidence level. Thus, our admittedly crude analysis does not support the hypothesis that merger activity is related to increased concentration at the individual industry level.<sup>133</sup>

#### Characteristics of Acquiring and Acquired Companies

In an earlier section, we reviewed several studies which investigated the characteristics of acquiring and acquired companies. The evidence pointed to the fact that with the exception of size, no consistent differences are observable in the characteristics of acquiring and acquired companies. This observation was taken as evidence by some authors that the desire to maximize growth, rather than profits, is the main motive underlying merger activity.

Some more recent evidence for Canada on the characteristics of acquiring and acquired companies is available for the years 1970 and 1971. These data are provided in Table 15. The data are available in whole or in part for nine industrial sectors and for all industries in the aggregate. The data indicate that on the basis of assets or sales, acquiring companies are substantially larger than acquired companies in all industrial sectors.

The evidence is less consistent with respect to the calculated profitability ratio, i.e. column 4. In 1970, the acquiring companies were more profitable than the acquired companies in all sectors except retail trade. In 1971, the acquiring companies were more profitable than the acquired companies in the mining, manufacturing, and transportation sectors. The converse holds true for the trade, finance and service sectors. For all sectors aggregated, acquiring companies were more profitable than acquired companies in 1970 and less profitable in 1971. No attempt was made to calculate whether the differences are statistically significant. Given the volatility of the profitability variable over short time periods, the results should be accepted with caution. A prudent interpretation of these results might be that for the years 1970 and 1971, acquiring and acquired companies were not substantially different with regard to profitability performance. This observation is consistent with prior evidence presented which suggested that the view that mergers are simply a process by which superior managers replace inferior managers is largely unsupportable (on the basis of accounting data) as a general merger motive, although this may certainly be a relevant factor in individual mergers.

The growth-maximization hypothesis would lead one to expect that acquiring firms would become progressively larger over time relative to acquired firms, if growth is (in some measure) undertaken to reduce the risk of being taken over. Moreover, firms interested in maximizing growth would presumably have acquired the fastest-growing smaller firms initially, leaving the slower-growing and presumably smaller-sized companies for later acquisitions.

Table 16 provides the size ratios of acquired to acquiring firms for the period 1945-1961 and for 1970 and 1971 (averaged) for firm size measured by assets and by sales. It also gives the ratio of acquired to acquiring firm profits over the same period. The results are suggestive, inasmuch as they show that the relative size of acquired to acquiring firms has remained roughly constant over virtually a 25-year period, acquiring firms in Canada became relatively more profitable as compared to acquired firms.

At the very least, it seems reasonable to conclude that evidence on the characteristics of acquiring versus acquired firms in Canada, over time, does not support a ubiquitous explanation of merger activity based upon a desire on the part of large firms to maximize growth.

In summarizing the evidence from empirical studies of merger activity in Canada, one must conclude that insufficient evidence exists to support any one general explanation of mergers. There is some evidence to suggest that attaining economies of scale is a motive for some mergers in Canada; however, it cannot be concluded, necessarily, that all, or even the bulk, of merger activity in the country can be accounted for by this motive. The fact that acquired companies are generally solvent does not obviate the possibility that a significant number of acquisitions arise from perceived managerial and financial difficulties on the part of existing owners.<sup>134</sup> Moreover, while aggregate data do not provide strong support for a diversification motive, statements by managers of acquiring companies attest to the importance of mergers in reducing the perceived risk of the companies' operating revenue streams. While admittedly difficult to test, there appears to be little direct or indirect empirical support from post-war data for the hypothesis that mergers are generally undertaken to restrict or reduce levels of competition. However, several economists presented evidence to the Royal Commission on Corporate Concentration suggesting that a number of publicly known mergers contributed to substantially increased concentration in relevant markets.

#### Evidence from Briefs to the Royal Commission

A review of the company briefs submitted to the Royal Commission on Corporate Concentration strongly reinforces our tentative conclusion that mergers are motivated by a variety of factors.

It is not surprising to find that a desire to restrict competition is not mentioned in the various briefs as a motive for merger. What is enlightening, however, is a general consensus among the briefs that certain specific economies are potentially attainable through the acquisition process. Specifically, economies of scale in overhead managerial functions and in cash management are prominently mentioned as two general areas in which scale economies at the firm level are particularly marked.

The company statements concerning the existence of specific scale economies are reinforced by the organizational structure of large, acquiring companies. The large acquirers generally allow the acquired divisions to function in a decentralized manner with respect to ongoing operating activities. Central management assumes the task of coordinating and reviewing the operating

plans of the divisional units. Specific managerial functions are invariably centralized within the head office. The functions most frequently cited in the briefs are: financial and cash flow management, accounting, employee benefits, legal and insurance services, public relations and other specialized skills.<sup>135</sup>

Examples are available in the briefs where management of the acquired companies indicated that obtaining assistance in some of the above-mentioned functions was an important reason for their favoring the acquisitions. For example, the management of Progresso, acquired by IMASCO, claimed that the IMASCO takeover enabled significant improvements to be realized in the company's accounting techniques, legal knowledge, inventory control and management information systems. Another IMASCO takeover, Grissol, cited improvements and cost savings in the legal counselling and insurance functions after integration of these functions into IMASCO operations.<sup>136</sup> As another example, the management of Alpa Industries, acquired by Reed Paper Limited in 1975, cited the advantages in the financial and technical support which a company such as Reed could provide as being an important benefit to Alpa in the takeover.<sup>137</sup>

Other sources of economies arising from mergers were mentioned with some frequency in the briefs. One such was an alleged improvement in the firm's ability to transfer investment funds from one investment area to another. Another factor mentioned was the ability of large, diversified companies to obtain funds at a lower cost of capital. Specific examples were cited of acquisitions where the acquired company was "unable" to obtain loanable funds through capital markets or whose borrowing capacities was improved upon being acquired by a larger company.<sup>138</sup>

A sceptic might note that companies submitting briefs to the Commission had a vested interest in emphasizing the significance of economies-of-scale. While recognizing the existence of such a potential bias, it is suggestive that specific firm level scale economies were mentioned repeatedly.<sup>139</sup> On the other hand, very few of the briefs emphasized the importance of plant-level economies of scale. Indeed, in those briefs which discussed plant acquisitions, virtually half of the acquiring companies indicated that little or no integration of the acquired production facilities took place after the merger.<sup>140</sup>

The desire to diversify the company's activities was frequently mentioned in the briefs as a motive for merger. In an earlier section, we offered some reasons for why such diversification might be undertaken through the merger route rather than through reinvestment by stockholders in mutual funds or through other institutional investment vehicles. Several briefs indicated that diversification could be accomplished more efficiently through intra-corporate transfers of funds rather than through capital markets because: a) managers of acquiring companies are better informed about the prospects of potential acquisitions than are managers of investment funds and b) the transfers can proceed more quickly through the corporate acquisition process.



While the validity of these arguments can be questioned, they should not be dismissed. The fact is that most diversification acquisitions are made in areas where the acquiring company's management does have some expertise.

The briefs cited a surprisingly small number of acquisitions made because owners wished to retire or wanted to sell in anticipation of estate taxes.

#### Summary

The briefs submitted to the Commission by various companies, in contrast to the survey results cited by Reuber and Roseman, emphasized quite strongly the existence of scale economies potentially obtainable through merger. Specific scale economies in certain overhead functions as well as advantages in obtaining and transferring investment funds were particularly mentioned. Conversely, the desire on the part of existing owners to sell for reasons of retirement, taxes or impending bankruptcy are mentioned relatively infrequently in the briefs as merger motives.<sup>141</sup> The desire to achieve a secure source of supply in the case of vertical mergers, and to diversify the company's earnings base in the case of non-vertical mergers, were also frequently mentioned as merger motives.



## SECTION FIVE

### CONCLUSIONS AND POLICY CONSIDERATIONS

In this section, we consider the implications of the findings cited in the preceding chapter for altering existing policies towards merger activity in Canada. Before putting forward policy considerations, we will consider several specific issues related to the general topic of merger activity in Canada which have not been completely covered in preceding sections.

#### The Effect of FIRA Upon the Market for Canadian Business

The Foreign Investment Review Agency is a potentially significant institution already in place to influence the extent and nature of merger activity in Canada. The stated objective of the Agency is to screen takeovers of domestic firms by foreign firms to determine if any significant benefit will be realized by Canada as a result of the acquisition.

The Agency has a number of stated criteria for approving foreign takeovers, although there is no ordering of the criteria in terms of importance, nor have any "tradeoffs" amongst the different criteria been established.<sup>142</sup>

It is our contention that the likely impact of the Foreign Investment Review Agency is to decrease the overall number of mergers that would otherwise have been undertaken in the absence of FIRA. More specifically, the activities of FIRA can be expected to result in a decrease in the number of foreign acquisitions and an increase in the number of domestic acquisitions of Canadian companies, the net effect probably being a decrease in overall merger intensity, *ceteris paribus*. Furthermore, we would suggest the possibility that significant costs may be imposed upon the Canadian economy as a result of FIRA's activities, both because potential merger benefits may fail to be realized as well as because of an increased danger of mergers being undertaken to restrict competition.

Our argument proceeds as follows. The impact of FIRA is to raise the effective purchase price of domestic firms to potential foreign acquirers. This is accomplished in two ways: 1. by increasing the uncertainty of the merger being successful and by introducing additional legal, accounting and other transaction costs into the takeover process; 2. by insisting that foreign acquirers demonstrate significant benefit to Canada which, in many cases, may require foreign acquirers to operate in a manner which does not maximize the potential economic advantage of the merger; e.g. implementing high cost, uneconomical R & D functions in the acquired firm.

It has been suggested that FIRA might not raise the effective acquisition price for foreign takeovers because the FIRA criteria may alert

foreign firms to certain advantages in reorganizing economic activity in the acquired firm which would otherwise be ignored. For example, foreign firms may systematically overestimate the cost of performing R & D in Canadian subsidiaries. The FIRA review process might therefore lead to a more accurate estimate of the "true" net benefits of domestically performed R & D. This argument can be quickly dismissed. It would clearly be in the interest of the potential seller to inform potential buyers about the maximum potential net benefits to be gained through the acquisition process. Furthermore, it is extremely unlikely that FIRA would have more accurate information about how to organize economic activity in any particular domestic company than would interested potential acquiring companies.

Another argument raised is that large foreign firms can act as monopsonistic buyers of domestic firms, thereby acquiring firms at prices below the reservation-price of the foreign acquirer. Thus, any additional costs imposed by FIRA may simply reduce the "surplus" gained by foreign firms through their bargaining power in the acquisition process. This argument is conjectural and can be questioned on both theoretical and empirical grounds. It could reasonably be argued that size, per se, is only one firm characteristic influencing the outcome of a takeover bid. More important, perhaps, is the number of potential buyers relative to the number of potential sellers. It might be the case that for most domestic acquisitions, a smaller domestic company has a specific asset or set of assets to provide a larger company, while the larger company offers general managerial or financial resources to the seller. In such cases, competition among potential buyers for a firm-specific asset might result in the takeover price equalling the reservation price of the successful acquirer. In short, domestic firms, albeit smaller than foreign acquirers, may frequently be monopolistic sellers while acquirers are competitive buyers.

There is some indirect evidence to suggest that size, per se, does not confer monopsonistic power upon acquiring firms. Martin found for a sample of Canadian acquisitions that the "average" transaction involved a purchase premium of \$1.3 million or 47% greater than the book value of net assets acquired. This premium was proportionally greatest for acquiring companies of the largest size (84%) and the smallest size (64%).<sup>143</sup>

Another relevant statistic is the fact that over the entire period 1945-1961, about 75% of international firms acquiring domestic companies purchased one or at most two companies. By comparison, less than 60% of domestic firms acquired one or two companies.<sup>144</sup> This pattern has continued to the present time. For example, in 1972, the percentage of foreign acquirers making more than one acquisition was approximately 6%. The percentage of domestic acquirers making more than one acquisition was approximately 35%. In 1973, comparable percentages were 8.1% for foreign acquirers and 28.9% for domestic acquirers. In 1974, the percentages were 4.8 and 13.7% respectively.<sup>145</sup> These data suggest that the set of potential foreign buyers of domestic firms may be sufficiently broad to guarantee that the final takeover price equals the reservation price in the majority of foreign acquisitions.

If the takeover price ordinarily paid by foreign acquirers is "competitive", then additional costs imposed by the FIRA process can be viewed as a tax on foreign acquirers, which would, ceteris paribus, reduce their demand for domestic acquisitions. Given an existing supply curve of potential sellers and a given demand curve for acquisitions by domestic acquirers, the expected result is a decrease in foreign takeovers, and an increase in domestic takeovers. The average takeover price should decrease with a resulting decrease in the seller's surplus earned by the acquired firms.

In effect, the FIRA procedure amounts to a process by which the acquisition activities of large domestic firms are subsidized at the expense of smaller domestic companies. Moreover, the anti-competitive dangers of merger activity may be increased by the presence of FIRA for several reasons. One reason is that the concentration of acquisitions in a given number of companies will be increased; i.e. the number of acquisitions per domestic company can be expected to increase. As already noted, acquisitions in Canada have been historically concentrated among a relatively smaller number of domestic acquirers than has been true for foreign acquirers. Another reason is that by restricting the opportunities for selling out to any potential acquirer, the FIRA legislation can be expected to reduce the rate of growth of new firms entering domestic industries. Reductions in new firm entry rates will exacerbate potential problems of increased concentration associated with merger activities, and increase the probability that existing firms will engage in anti-competitive practices. The probability that domestic firms will merge to realize market-structure gains will also be increased if FIRA activities create barriers-to-entry for foreign investors in Canadian industries. In short, whatever competitive dangers are inherent in mergers and acquisitions have been heightened by the institution of the FIRA review process.

#### The Effect of Tax Laws on Merger Activity

It has been noted that the existing tax system encourages retention of earnings within the corporation. This, by itself, does not bias the reinvestment decision of corporations in favor of acquisitions versus internal expansion and, therefore, cannot be considered as a cause of corporate acquisitions, per se. The capital gains treatment of share exchanges may bias the seller in favor of equity rather than cash payment, since capital gains taxes can be deferred. However, it should not by itself encourage existing owners to sell their businesses as opposed to reinvesting the businesses' earnings. Liquidity considerations relating to estate tax obligations may encourage owners of closely held businesses to sell out in anticipation of retirement. However, if the owners did not intend to keep management of the company within the family, they would probably have sold the business in any case. On the basis of available evidence for Canada, it would not appear that tax considerations are of significant importance with regard to merger activities.

## Conclusions and Policy Considerations

The main economic concern about merger activity on the part of government authorities is the potential impact of mergers and acquisitions on industrial competition. In this regard, there is little general evidence indicating that mergers, *per se*, have contributed to a lessening of industrial competition in Canada, although strong arguments can be made that a number of specific post-war mergers had significant anti-competitive effects.

Furthermore, while one might argue that actual (or potential) new firm entry has (over the post-war period) been strong enough to ensure that the anti-competitive effects of Canadian mergers have been generally benign, one hesitates to conclude that this will necessarily be true in the future. Indeed, as outlined earlier, the presence of FIRA heightens the potential anti-competitive dangers of domestic mergers in Canada. The existence of anti-competitive consequences to certain mergers does not, however, constitute sufficient grounds for rejecting a per se legal position toward mergers. To do so would require demonstrating that the lowest-cost merger surveillance procedure available was less costly (for any given level of effectiveness) than any other means of alleviating anti-competitive merger effects, including the application of anti-combines legislation, as well as being less costly than the anti-social effects of mergers themselves.

Proponents of a domestic merger review procedure have suggested that the costs of reviewing mergers can be minimized by adopting a flexible, "screening" approach. The presumption is that most mergers would require no more than cursory examination to determine if potential anti-competitive effects were significant. Only those mergers with significant a priori competitive dangers would be intensively analyzed for their potential positive and negative social consequences. While not fully explicated, the screening criteria would largely comprise market structure characteristics of the relevant industries, including entry barriers, and concentration levels.<sup>146</sup>

There are grounds for arguing that linkages between market structure and performance are sufficiently imprecise to block successful "low-cost" screening. The main concern in this regard is that imports are a significant source of potential competition in Canada's open economy.<sup>147</sup> Market structure measures of competition which do not incorporate potential foreign competition are bound to be biased for Canada. Integrating measures of potential domestic and foreign competition is no easy task, however, since the bulk of international trade data are collected on a commodity basis, rather than on the industry basis for which market structure measures are derived. Thus, any domestic merger review board would either confront a substantial data collection and processing problem or make decisions on the basis of incomplete information.

An alternative to establishing a domestic merger review board is to treat the consequences of anti-competitive mergers directly through the use of the Combines legislation. The Skeoch Committee and others have raised an objection that it may be more difficult to restrain collusive practices through the Combines legislation than through preventing undesirable changes in an industry's market structure; however, recent and proposed amendments to the Combines Act increase the likelihood that successful prosecution of restrictive trade actions will proceed more easily under the amended legislation. Nevertheless, evidence from the United States indicates that it is extremely difficult to effect dissolution of a merger after the assets of the merging companies have been comingled. Furthermore, the anti-competitive effects of some mergers may be manifested in cooperative behaviour, such as parallel pricing, which is not easily treated even under a substantially strengthened competition act.

More active use of anti-Combines legislation would reduce the need to prejudge the likelihood of certain mergers having anti-competitive consequences, a task which we have suggested is far more difficult than has been acknowledged. Administrative efforts to reduce institutional barriers to entry, including tariff reductions and removal of government regulations which restrict new entry into domestic industries, would further contribute to ensuring that the anti-competitive consequences of most mergers will be benign. These observations notwithstanding, one can anticipate the existence of merger-induced market structure changes which cannot be easily offset by tariff reductions or like action. In other cases, barriers-to-entry may be raised by mergers themselves. In such cases, prohibition of mergers may be the most efficient way of reducing their anti-competitive consequences.

Some observers have suggested that while social benefits may arise from some types of mergers, other types, particularly "conglomerate" mergers, are unlikely to provide net social benefits and should therefore be discouraged. This viewpoint is difficult to defend. For one thing, the classification of mergers by type is a somewhat arbitrary process, and the boundary between conglomerate and non-conglomerate mergers is imprecise. Indeed, it is almost always the case that some connection between the activities of an acquiring and acquired company can be found to exist. Furthermore, administrative activities of the firm, including the legal, accounting and payroll functions, can be centralized following almost any type of merger, and offer potential scale economies to both conglomerate and non-conglomerate acquirers. Finally, the potential competitive consequences of mergers are probably of least importance, on a priori basis, in the case of conglomerate acquisitions.

#### Proposals For Further Research

The gaps in our knowledge about the merger/acquisition process are significant and further research efforts in this area are justified.

As an initial step, the Department of Consumer and Corporate Affairs should consider, as they may in fact be doing, undertaking a study comparable to the Reuber and Roseman study for a later period. Any new study should include an investigation of merger and acquisition activities in all industrial sectors and not just in manufacturing and mining. The study might attempt to link the Reuber and Roseman results to new information in order to test specific hypotheses. For example, the two data sets would provide a sufficient time period for examining the effects of mergers on industrial structure and performance in sample industries. It would also provide the basis for examining in more detail, the process underlying the shifting emphasis towards diversified acquisitions in Canada.

Another important contribution might be made by analyzing the impact that FIRA has had on the merger/acquisition process in Canada. Specifically, attempts should be made to determine the types of mergers which have either been encouraged or discouraged by FIRA, and the likely impacts of such influences should be evaluated. Indeed, a study of FIRA's impact upon merger activity would appear to be a requisite input to any further consideration of a domestic investment review agency.



TABLE 1

## SUMMARY OF POST-WAR CANADIAN MERGER ACTIVITY

	Column 1 No. of Mergers	Column 2 No. of Domestic Companies *	Column 1+ Column 2	Column 4 No. of Foreign Acquisitions	Column 5 No. of Domestic Acquisitions	Column 4+ Column 1
1945	74	27,229	.0027	23	51	.311
1946	79	30,442	.0026	15	64	.190
1947	45	34,037	.0013	13	32	.289
1948	53	35,960	.0015	14	39	.264
1949	38	37,467	.0010	11	27	.289
1950	45	40,545	.0011	9	36	.200
1951	80	43,365	.0013	19	61	.138
1952	76	45,777	.0017	17	59	.224
1953	93	49,745	.0019	25	68	.269
1954	104	54,434	.0019	43	61	.414
1955	134	59,773	.0022	56	78	.418
1956	135	67,480	.0020	54	81	.400
1957	103	73,823	.0014	35	68	.340
1958	140	80,770	.0017	60	30	.429
1959	186	88,806	.0021	66	120	.355
1960	203	97,549	.0021	93	110	.458
1961	238	106,309	.0022	86	143	.368
1962	185	115,062	.0016	79	106	.427
1963	179	118,597	.0011	41	88	.318
1964	204	136,813	.0016	80	124	.392
1965	235	152,818	.0015	78	157	.332
1966	203	164,410	.0012	30	123	.394
1967	223	176,210	.0013	85	143	.373
1968	402	185,816	.0022	163	239	.405
1969	504	199,994	.0025	168	336	.333
1970	427	212,192	.0020	162	265	.379
1971	388	228,458	.0017	143	245	.369
1972	429	236,431	.0018	127	302	.296
1973	352	258,501	.014	100	252	.284
1974	296	276,157(P)	.0010	78	218	.276

Sources: all data for the years 1945-1961, Reuber and Roseman, op.cit. all other years, Columns 1, 4, 5; Combines Investigation Report, various issues  
 Column 2: Corporation Taxation Statistics, various issues.  
 (P) indicates projected value based on continuation of average annual growth rate from 1970-1972

\* - Excludes Crown Corporations, cooperatives and personal corporations.

TABLE 2

## OVERALL MERGER ACTIVITY FOR SELECTED COUNTRIES

## YEAR-OVER-YEAR PERCENTAGE CHANGE IN NUMBER OF ACQUISITIONS

	CANADA	U.S.	SWEDEN	GREAT BRITAIN	AUSTRALIA
1946	6.75				
1947	-43.03	- 3.57	41.67		
1948	17.77	-45.79	-17.65		6.25
1949	-28.30	-44.75	-21.42		73.53
1950	18.42	80.99	43.18		28.81
1951	77.78	7.31	0		6.58
1952	- 5.0	22.55	-63.49		-45.68
1953	22.37	2.43	26.09		43.18
1954	11.83	34.38	36.21		42.86
1955	28.85	76.49	0	6.91	34.44
1956	00.75	- 1.46	- 3.70	-16.33	- 7.44
1957	-23.70	-13.08	1.92	22.36	14.29
1958	35.92	.68	39.62	10.63	39.06
1959	32.86	41.77	24.32	67.87	
1960	9.14	1.07	44.57	31.66	
1961	15.27	13.03	-10.53	-14.13	
1962	-20.94	-10.59	35.29	00.16	
1963	-30.27	.94	1.86	39.15	
1964	58.14	- .81	7.93	6.10	
1965	15.20	18.03	28.81	5.96	
1966	-23.40	- 1.29	36.40	-19.10	
1967	12.32	50.35	-19.94	-20.37	
1968	76.32	60.89	4.82	- 6.71	
1969	25.37	- 4.15	18.77		
1970	-15.28	-41.44	-18.71		
1971	- 9.13	-35.17			
1972	10.57	-31.75			
1973	-17.95	- 3.33			
1974	-18.75	-24.29			

Sources: CANADA: Table One

U.S.: Federal Trade Commission, Statistical Report on Mergers and Acquisitions, various issues

SWEDEN: Ryden, op. cit., table 2, p.51

GREAT BRITAIN: Ryden, op. cit., table 10, p.84

AUSTRALIA: Bushnell, op. cit.

TABLE 3

SIMPLE CORRELATION COEFFICIENTS FOR ANNUAL  
PERCENTAGE CHANGE IN NUMBER OF MERGERS

	<u>U. S.(1)</u>	<u>U. S.(2)</u>	<u>Sweden</u>	<u>Great Britain</u>	<u>Australia</u>
	d	d	c	b	a
Canada	.726	.609	.075	-.022	-.058
U. S.(2)			.201 <sup>c</sup>	-.028	-.056
Sweden				.320	.555 <sup>a</sup>

a: time period 1948-58  
b: time period 1955-68  
c: time period 1947-70  
d: time period 1956-68

U. S.(1): all industrial mergers  
U. S.(2): mergers in manufacturing and mining

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Source: Author

TABLE 4

MEAN ANNUAL PERCENTAGE CHANGE IN NUMBER

OF MERGERS

	<u>Canada</u>	<u>U. S.</u>	<u>Sweden</u>	<u>Great Britain</u>	<u>Australia</u>
1948-58	14.2	10.0	8.2		21.4
1955-68	13.3	16.9	13.7	8.2	
1948-70	13.5	10.8	10.6		
1948-74	10.2	9.4			

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Source: Author

TABLE 5

INDUSTRY CLASSIFICATION FOR MERGERSCANADA

<u>Year</u>	<u>Mergers in Manufacturing and Mining</u>	<u>Mergers in Wholesale and Retail Trade</u>	<u>Mergers in Other Sectors</u>
	<u>Total Mergers</u>	<u>Total Mergers</u>	<u>Total Mergers</u>
1945	.716	.176	.108
1955	.579	.301	.120
1971	.416	.252	.332
1973	.551	.203	.247
1974	.456	.201	.343

Sources: 1945 and 1955, Reuber and Roseman, op. cit.  
 1971, Canadian Statistical Review, February, 1976  
 1973 and 1974, author's analysis of Department of Consumer and Corporate  
 Affairs' Merger Register.

UNITED STATES

1955	.807	.123	.070
1968	.677	.127	.196
1971	.607	.123	.270
1973	.521	.188	.291
1974	.575	.174	.251

Sources: 1955 and 1968, Federal Trade Commission, op. cit., p. 679  
 1971, 1973, and 1974, Federal Trade Commission, Statistical  
 Report on Mergers and Acquisitions, various issues.

TABLE 6

INDUSTRY CLASSIFICATION FOR MERGERS  
IN CANADIAN MANUFACTURING INDUSTRIES

<u>Industry</u>	<u>Acquired Firms</u> <u>Total Firms</u> <u>(1945-61)</u>	<u>Acquired Firms</u> <u>Total Firms</u> <u>(1972)</u>	<u>Acquired Firms</u> <u>Total Firms</u> <u>(1973)</u>
1. Food and Beverages	.0038	.0127	.0037
2. Tobacco	.0085	.0000	.0476
3. Rubber	.0103	.0000	.0000
4. Leather	.0042	.0113	.0056
5. Textiles	.0040	.0131	.0029
6. Knitting Mills	.0031	.0000	.0000
7. Apparel	.0007	.0023	.0058
8. wood	.0022	.0061	.0044
9. Furniture	.0011	.0079	.0089
10. Paper	.0124	.0042	.0106
11. Printing	.0030	.0050	.0060
12. Machinery	.0026	.0216	.0065
13. Transportation Equipment	.0052	.0186	.0062
14. Electrical Products	.0084	.0160	.0116
15. Non-metallic Mineral products	.0059	.0071	.0132
16. Petroleum	.0158	.0400	.0400
17. Chemicals	.0051	.0219	.0219

Sources: Number of Acquired Firms, 1945-61: Reuber and Roseman, op. cit.  
Number of Total Firms: Corporation Taxation Statistics, 1974.  
Number of Acquired Firms, 1972: Department of Consumer and Corporate  
Affairs Merger Register.  
Number of Acquired Firms, 1973: Department of Consumer and Corporate  
Affairs Merger Register.



TABLE 7

DISTRIBUTION OF MANUFACTURING COMPANIES ACQUIRED  
BY INDUSTRY OF ACQUIRED FIRM

Percentage of Total Acquisitions

<u>U.S. 1948 - 1968</u>		<u>U.S. 1973</u>	<u>Canada 1946 - 1961</u>		<u>Canada 1973</u>
1. Machinery	13.2	12.7	1. Food	26.3	8.5
2. Food	8.7	15.0	2. Paper	8.2	3.9
3. Chemicals	8.5	11.0	3. Chemicals	7.9	15.5
4. Electrical Machinery	7.6	14.6	4. Fabricated Metals	7.8	12.4
5. Paper	7.1	4.6	5. Printing	6.9	13.2
6. Primary Metals	6.8	4.9	6. Non-metallic Minerals	5.9	10.4
7. Fabricated Metals	6.7	7.2	7. Electrical Products	5.2	6.4
8. Textiles	5.9	3.6	8. Wood	5.1	6.2
9. Transportation equipment	5.7	7.9	9. Machinery	3.7	4.7
10. Non-metallic Minerals	4.3	4.5	10. Textiles	3.5	2.4
11. Petroleum	4.2	1.7	11. Transportation Equipment	3.2	3.8
12. Printing	3.1	3.8	12. Leather	3.1	0.1
13. Wood	2.6	3.1	13. Primary Metals	2.5	2.3
14. Rubber	1.9	2.7	14. Petroleum	1.6	1.6
15. Furniture	1.0	1.3	15. Rubber	1.1	0.0
16. Leather	0.9	0.8	16. Furniture	0.9	7.0
17. Tobacco	0.4	0.5	17. Tobacco	0.4	0.8

Sources: Canada: author's calculations from Reuber and Roseman, op. cit. Tables 4-8 and A-7;

U.S. : Federal Trade Commission, 1969, op. cit., Table 1.7 and Federal Trade Commission, Statistical Report on Mergers and Acquisitions, July, 1971

TABLE 8

PERCENTAGE DISTRIBUTION OF TYPES OF MERGERS

<u>CANADA: 1945-1961</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	
Broad Horizontal. . . . . 68.25%	68.9%	68.9%	67.7%	
Horizontal. . . 40.23%				
Geographic Market Extension. . . 12.71%				
Product Extension. . . . 9.71%				
Other. . . . . 5.60%				
Vertical. . . . . 22.43%	12.3%	12.5%	9.2%	
Conglomerate. . . . . 9.31%	18.8%	18.6%	23.1%	
<u>UNITED STATES: 1948-1963</u>	<u>1967</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
Broad Horizontal. . . . . 67.02%	70.0%	58.6%	52.7%	62.9%
Horizontal and Other. . . . . 23.21%				
Geographic Market Extension. . . . 5.64%				
Product Extension. . . . 38.17%				
Vertical. . . . . 19.89%	8.9%	17.2%	12.7%	4.8%
Conglomerate. . . . . 12.74%	21.2%	24.1%	34.5%	32.3%
<u>SWEDEN: 1946-1970</u>				
Broad Horizontal. . . . . 79.8%				
Vertical. . . . . 7.6%				
Conglomerate. . . . . 12.6%				

Sources: Canada: 1945-61, author's calculations from data in Reuber and Roseman, op. cit., p. 87; 1972, 1973 and 1974, author's classification of mergers reported in Dept. of Consumer and Corporate Affairs' Merger Register, various issues.

U.S.: 1948-63, Federal Trade Commission, 1969, op. cit., p. 673; 1972, 1973 and 1974, Federal Trade Commission, Statistical Reports on Mergers and Acquisitions.

Sweden: 1946-1970, Ryden, op. cit., p. 76.

TABLE 9

MERGERS AND STOCK PRICE CHANGESVARIABLES

$MC_t$	=	Number of industrial mergers in Canada in period t
$SC_t$	=	Investors Index of Common Stocks in Canada (Industrial Total 1935-39 = 100)
$IC_t$	=	Index of Total volume of Canadian manufacturing production (1949 = 100)
$MU_t$	=	Number of manufacturing and mining mergers in U. S. in period t
$SU_t$	=	Standard and Poor's Price Index of manufacturing companies (1941-43 = 100)
$IU_t$	=	Industrial production index in U.S. (1961 = 100)

A t statistic is shown in parenthesis under the estimated coefficients.

D.W. is the Durbin-Watson statistic.

REGRESSION RESULTS

For Period: 1947 - 1974

1.	$\frac{MC_t - MC_{t-1}}{MC_{t-1}} = .0146 + .9970 \frac{SC_t - SC_{t-1}}{SC_{t-1}}$	$\bar{R}^2 = .167$
	(2.53)	F = 6.41
		D.W. = 1.68
2.	$\frac{MU_t - MU_{t-1}}{MU_{t-1}} = .0462 + 1.3824 \frac{SU_t - SU_{t-1}}{SU_{t-1}}$	$\bar{R}^2 = .322$
	(4.75)	F = 13.80
		D.W. = 1.73

TABLE 9  
(con't)

For Period: 1947-1963

3.	$\frac{MC_t - MC_{t-1}}{MC_{t-1}}$	$.0099 + .7387$	$\frac{SC_t - SC_{t-1}}{SC_{t-1}}$	$\bar{R}^2 = .091$ $F = 2.58$ $D.W. = 1.61$
		(1.61)		

4.	$\frac{MU_t - MU_{t-1}}{MU_{t-1}}$	$-.0986 + 1.853$	$\frac{SU_t - SU_{t-1}}{SU_{t-1}}$	$\bar{R}^2 = .506$ $F = 17.41$ $D.W. = 2.58$
		(4.17)		

For Period: 1964 - 1974

5.	$\frac{MC_t - MC_{t-1}}{MC_{t-1}}$	$.0014 + 1.8640$	$\frac{SC_t - SC_{t-1}}{SC_{t-1}}$	$\bar{R}^2 = .316$ $F = 5.62$ $D.W. = 1.24$
		(2.37)		

6.	$\frac{MU_t - MU_{t-1}}{MU_{t-1}}$	$-.0233 + .7483$	$\frac{SU_t - SU_{t-1}}{SU_{t-1}}$	$\bar{R}^2 = .013$ $F = 1.13$ $D.W. = .90$
		(1.06)		

For Period: 1947-1974

7.	$\frac{MC_t - MC_{t-1}}{MC_{t-1}}$	$.0450 + 1.0751$	$\frac{SC_t - SC_{t-1}}{SC_{t-1}}$	$-.7179 \frac{IC_t - IC_{t-1}}{IC_{t-1}}$
		(2.47)		$(-.458)$
				$\bar{R}^2 = .141$ $F = 3.21$ $DW = 1.79$

TABLE 9  
(con't)

8. 
$$\frac{MU_t - MU_{t-1}}{MU_{t-1}} = -.1112 + 1.1742 \frac{SU_t - SU_{t-1}}{SU_{t-1}} + 1.8138 \frac{IU_t - IU_{t-1}}{IU_{t-1}}$$

(3.20) (2.02)

$\bar{R}^2 = .394$   
F = 9.76  
D.W. = 1.51

For Period: 1947 - 1963

9. 
$$\frac{MC_t - MC_{t-1}}{MC_{t-1}} = .0376 + .8053 \frac{SC_t - SC_{t-1}}{SC_{t-1}} - .7333 \frac{IC_t - IC_{t-1}}{IC_{t-1}}$$

(1.61) (-.41)

$\bar{R}^2 = .036$   
F = 1.30  
D.W. = 1.80

10. 
$$\frac{MU_t - MU_{t-1}}{MU_{t-1}} = -.1687 + 1.6350 \frac{SU_t - SU_{t-1}}{SU_{t-1}} + 1.8902 \frac{IU_t - IU_{t-1}}{IU_{t-1}}$$

(4.05) (2.29)

$\bar{R}^2 = .615$   
F = 13.77  
D.W. = 2.39

For Period: 1964-1974

11. 
$$\frac{MC_t - MC_{t-1}}{MC_{t-1}} = .2395 + 2.7833 \frac{SC_t - SC_{t-1}}{SC_{t-1}} - 5.0021 \frac{IC_t - IC_{t-1}}{IC_{t-1}}$$

(2.60) (-1.23)

$\bar{R}^2 = .353$   
F = 3.72  
D.W. = 1.40

(con't)

$\bar{R}^2$		.056
F		.733
D.W.		1.03

13. 
$$\frac{MC_t - MC_{t-1}}{MC_{t-1}} = .0134 + 13.410 (1.82) \left( \frac{SC_t - SC_{t-1}}{SC_{t-1}} \right) \left( \frac{IC_t - IC_{t-1}}{IC_{t-1}} \right)$$

$\bar{R}^2 = .166$   
F = 6.37  
D.W. = 1.57

$$14. \quad \frac{MC_t - MC_{t-1}}{MC_{t-1}} = .0114 + 10.528 \left( \frac{SC_t - SC_{t-1}}{SC_{t-1}} \right) \left( \frac{IC_t - IC_{t-1}}{IC_{t-1}} \right)$$

$$(1.71)$$

$$\bar{R}^2 = .108$$

$$F = 2.94$$

$$D.W. = 1.55$$
$$15. \quad \frac{MC_t - MC_{t-1}}{MC_{t-1}} = -0.0061 + 22.084 \left( \frac{SC_t - SC_{t-1}}{SC_{t-1}} \right) \left( \frac{IC_t - IC_{t-1}}{IC_{t-1}} \right)$$

$$(1.98)$$

$$\bar{R}^2 = .326$$

$$F = 3.93$$

$$D.W. = 1.26$$



TABLE 10

MERGERS AND STOCK PRICE CHANGES

CORRELATION RESULTS

ZERO-ORDER CORRELATION COEFFICIENTS:

1947 - 1974

$$\begin{array}{lcl} \frac{MC_t - MC_{t-1}}{MC_{t-1}} & \cdot & \frac{MU_t - MU_{t-1}}{MU_{t-1}} = .495 \\ \\ \frac{SC_t - SC_{t-1}}{SC_{t-1}} & \cdot & \frac{SU_t - SU_{t-1}}{SU_{t-1}} = .794 \\ \\ \frac{IC_t - IC_{t-1}}{IC_{t-1}} & \cdot & \frac{IU_t - IU_{t-1}}{IU_{t-1}} = .779 \end{array}$$

1947 - 1963

$$\begin{array}{lcl} \frac{MC_t - MC_{t-1}}{MC_{t-1}} & \cdot & \frac{MU_t - MU_{t-1}}{MU_{t-1}} = .439 \\ \\ \frac{SC_t - SC_{t-1}}{SC_{t-1}} & \cdot & \frac{SU_t - SU_{t-1}}{SU_{t-1}} = .879 \\ \\ \frac{IC_t - IC_{t-1}}{IC_{t-1}} & \cdot & \frac{IU_t - IU_{t-1}}{IU_{t-1}} = .814 \end{array}$$

TABLE 10  
(con't)

1964- 1974

$$\frac{MC_t - MC_{t-1}}{MC_{t-1}} \cdot \frac{MU_t - MU_{t-1}}{MU_{t-1}} = .628$$

$$\frac{SC_t - SC_{t-1}}{SC_{t-1}} \cdot \frac{SU_t - SU_{t-1}}{SU_{t-1}} = .698$$

$$\frac{IC_t - IC_{t-1}}{IC_{t-1}} \cdot \frac{IU_t - IU_{t-1}}{IU_{t-1}} = .741$$

TABLE 11

INDUSTRY MERGERS AND STOCK PRICE CHANGES 1946-61

<u>Industry</u>	<u>Simple Correlation Coefficient</u>
1. Food and Beverages	-.085
2. Tobacco	-.372
3. Rubber	.598
4. Leather	.377
5. Textiles	-.148
6. Knitting	.024
7. Apparel	.135
8. Wood	.214
9. Furniture	.439
10. Paper	.029
11. Printing	-.161
12. Machinery	.265
13. Transportation Equipment	.135
14. Non-metallic Minerals	-.238
15. Electrical Products	.226
16. Petroleum	.287
17. Chemicals	-.013

TABLE 12

## INTERCORRELATION MATRIX

	<u>MI</u>	<u>M1</u>	<u>M2</u>	<u>M3</u>	<u>M4</u>	<u>M5</u>	<u>M6</u>	<u>M7</u>	<u>M8</u>	<u>M9</u>	<u>M10</u>	<u>M11</u>	<u>M12</u>	<u>M13</u>	<u>M14</u>	<u>M15</u>	<u>M16</u>	<u>M17</u>	
1945-1961																			
All Industries	MI	1	.76	.14	-.04	.33	.39	.38	.33	.42	.57	.33	-.44	.23	-.02	.30	.65	-.04	.32
Food and Beverages	M1		1	.08	-.15	.11	.35	.21	.27	.60	.40	-.26	-.53	-.14	-.01	.04	.54	-.37	-.09
Tobacco	M2			1	-.01	-.23	.24	-.17	-.29	.20	-.27	-.12	-.23	-.08	.10	.02	.11	.02	.10
Rubber	M3				1	.34	-.17	-.05	.05	.37	.05	-.14	-.10	-.01	.18	.40	-.26	.21	-.11
Leather	M4					1	.26	.70	.60	.10	.26	.23	-.19	.19	-.02	.39	.15	.07	.52
Textiles	M5						1	.35	.20	.17	-.28	.17	-.14	-.25	-.04	-.13	.18	.19	.15
Knitting	M6							1	.71	.01	.20	.32	-.02	-.01	-.14	.47	.31	-.07	.54
Apparel	M7								1	.09	.43	.19	.17	-.16	-.19	.43	.38	.01	.41
Wood	M8									1	.04	-.39	-.42	-.17	-.06	.04	-.06	-.17	-.18
Furniture	M9										1	.17	-.21	.13	-.19	.38	.57	-.05	.19
Paper	M10											1	.13	.50	.25	.19	.49	.55	
Printing	M11												1	-.10	.07	-.16	-.06	.04	
Machinery	M12													1	.13	.09	-.09	.49	
Transport Equipment	M13														1	-.39	.19	-.03	.06
Electrical Products	M14															1	.04	.11	.19
NMM	M15																1	-.16	.34
Petroleum	M16																	1	-.09
Chemicals	M17																		1

TABLE 13

CROSS-SECTION REGRESSION RESULTS \*

VARIABLES

1.	Average Merger Intensity, 1945-53,	(AM1)
2.	Average Merger Intensity, 1953-61,	(AM2)
3.	Average Annual Percentage Change in Number of Companies, 1945-53,	(CC1)
4.	Average Annual Percentage Change in Number of Companies, 1953-61,	(CC2)
5.	Percentage Change in Total Industry Employment, 1945-53,	(CE1)
6.	Percentage Change in Total Industry Employment, 1953-61,	(CE2)
7.	Average Percentage of Companies Reporting Losses, 1945-53,	(CL1)
8.	Average Percentage of Companies Reporting Losses, 1953-61,	(CL2)
9.	Average Annual Variance in the Percentage of Companies Reporting Losses, 1945-53,	(VL1)
10.	Average Annual Variance in the Percentage of Companies Reporting Losses, 1953-61,	(VL2)
11.	Merger Intensity in Comparable U. S. Industry, 1948-68,	(MUS)
12.	Top Quartile Concentration Ratio, 1965,	(C)
13.	Technological Opportunities Index,	(T)
14.	Growth In the Average Size of Firm, 1945-53,	(AS1)
15.	Growth In the Average Size of Firm, 1953-61,	(AS2)

TABLE 13  
(con't)

EQUATION ONE

$$\begin{aligned}
 \text{AM1} = & .02533 - .00120 \text{ CC1} + .00006 \text{ CE1} - .00050 \text{ CL1} - .00184 \text{ VL1} \\
 & \quad (-2.49) \quad (1.04) \quad (-1.23) \quad (-1.26) \\
 & \quad [-.592] \quad [.229] \quad [-.350] \quad [-.206] \\
 & - .00011 \text{ MUS} + .00018 \text{ T} \\
 & \quad (-.291) \quad (.240) \\
 & \quad [-.063] \quad [.111]
 \end{aligned}$$

$\bar{R}^2 = .309$   
 $F (5.11) = 2.43$   
 $D.W. = 2.13$

EQUATION TWO

$$\begin{aligned}
 \text{AM1} = & .01360 + .00003 \text{ CE1} - .00048 \text{ CL1} - .00280 \text{ VL1} + .00020 \text{ MUS} \\
 & \quad (1.03) \quad (-2.55) \quad (-2.39) \quad (1.14) \\
 & \quad [.215] \quad [-.695] \quad [-.652] \quad [.247] \\
 & + .00003 \text{ C} + .00023 \text{ T} \\
 & \quad (1.70) \quad (.225) \\
 & \quad [.366] \quad [.078]
 \end{aligned}$$

$\bar{R}^2 = .347$   
 $F (5.11) = 2.69$   
 $D.W. = 1.95$

EQUATION THREE

$$\begin{aligned}
 \text{AM1} = & .01237 - .00022 \text{ CC1} + .00003 \text{ AS1} - .00034 \text{ CL1} - .00214 \text{ VL1} \\
 & \quad (-.892) \quad (.642) \quad (-1.46) \quad (-1.44) \\
 & \quad [-.227] \quad [.226] \quad [-.495] \quad [-.499] \\
 & + .00012 \text{ MUS} + .00019 \text{ T} \\
 & \quad (.577) \quad (.161) \\
 & \quad [-.147] \quad [-.063]
 \end{aligned}$$

$\bar{R}^2 = .182$   
 $F (6.10) = 1.59$   
 $D.W. = 1.95$



TABLE 13  
(con't)

EQUATION FOUR

$$\begin{aligned}
 AM1 = & .01395 + .00003 C + .00002 AS1 - .00049 CL1 - .00274 VL1 \\
 & \quad (1.53) \quad (.512) \quad (-2.27) \quad (-2.21) \\
 & \quad [.349] \quad [.166] \quad [-.705] \quad [-.639] \\
 & + .00018 MJS + .00025 T \\
 & \quad (.914) \quad (.221) \\
 & \quad [.222] \quad [.080]
 \end{aligned}$$

$\bar{R}^2 = .285$   
 $F (6.10) = 2.06$   
 $D.W. = 1.97$

EQUATION FIVE

$$\begin{aligned}
 AM2 = & .00491 + 1.05573 AM1 - .00083 CC2 + .00014 CE2 \\
 & \quad (3.68) \quad (-4.14) \quad (2.35) \\
 & \quad [.506] \quad [-.540] \quad [.327] \\
 & - .00004 CLS + .00171 VL2 + .00005 MJS + .00008 C \\
 & \quad (-.232) \quad (1.23) \quad (.203) \quad (2.93) \\
 & \quad [-.033] \quad [.191] \quad [.027] \quad [.449] \\
 & + .00058 T \\
 & \quad (.378) \\
 & \quad [.097]
 \end{aligned}$$

$\bar{R}^2 = .782$   
 $F (7.9) = 9.18$   
 $D.W. = 1.60$

EQUATION SIX

$$\begin{aligned}
 AM2 = & .00516 - .00069 CC2 + 1.07337 AM1 + .00014 AS2 \\
 & \quad (-3.80) \quad (4.13) \quad (2.47) \\
 & \quad [-.444] \quad [.515] \quad [.307] \\
 & - .00004 CL2 + .00162 VL2 + .00008 C \\
 & \quad (-.264) \quad (1.29) \quad (3.08) \\
 & \quad [-.036] \quad [.182] \quad [.448]
 \end{aligned}$$

$\bar{R}^2 = .803$   
 $F (6.10) = 11.84$   
 $D.W. = 1.63$

- a t - statistic is shown in parentheses and a beta coefficient is provided in brackets below each coefficient,  $\bar{R}^2$  is the adjusted coefficient of determination; D.W. is a Durbin-Watson statistic.

TABLE 14

PERCENTAGE CHANGE IN THE NUMBER OF  
LARGEST ENTERPRISES ACCOUNTING  
FOR 80 PERCENT OF EMPLOYMENT 1948 TO 1965

<u>Industry</u>	<u>Percentage Change</u>
1. Food and Beverages	- 18.5
2. Tobacco	32.4
3. Leather	- 62.1
4. Textiles	47.1
5. Clothing	- 25.9
6. Wood	129.3
7. Paper	- 16.0
8. Machinery	61.8
9. Non-metallic Minerals	277.5
10. Chemicals	27.2

Source: Author's calculations from  
Department of Consumer and Corporate Affairs,  
Concentration In The Manufacturing Industries of Canada,  
Table V-4, p. 45

TABLE 15

CHARACTERISTICS OF ACQUIRING AND ACQUIRED FIRMS

	<u>Average Assets</u> <u>('000's)</u>		<u>Average Sales</u> <u>('000's)</u>		<u>Average Profits</u>		<u>Average Profits</u> <u>Average Assets</u>	
	<u>1970</u>	<u>1971</u>	<u>1970</u>	<u>1971</u>	<u>1970</u>	<u>1971</u>	<u>1970</u>	<u>1971</u>
1. Agriculture								
a) Acquired	x	1,457	x	892	x	212		
b) Acquiring	x	x	x	x	x	x		
2. Mines								
a) Acquired	x	12,189	x	2,026	x	468		.0389
b) Acquiring	31,619	222,233	9,008	105,482	2,710	17,495		.0737
3. Manufacturing								
a) Acquired	2,425	2,808	3,180	3,734	153	187	.0631	.0666
b) Acquiring	53,050	66,259	48,816	64,487	4,150	5,234	.0782	.0790
4. Construction								
a) Acquired	3,462	3,895	5,272	4,815	422	307		
b) Acquiring	x	x	x	x	x	x		
5. Transportation								
a) Acquired	1,930	2,383	1,762	1,638	395	28		.0117
b) Acquiring	x	70,842	x	21,535	x	3,737		.0528
6. Wholesale Trade								
a) Acquired	1,133	2,218	2,354	4,584	107	151	.0944	.0681
b) Acquiring	5,119	20,199	8,345	35,586	574	938	.1832	.0464
7. Retail Trade								
a) Acquired	623	2,415	1,309	4,047	35	174	.0562	.0720
b) Acquiring	16,302	26,867	15,167	66,197	848	1,459	.0520	.0543
8. Finance								
a) Acquired	22,819	4,510	1,716	638	574	409	.0252	.0907
b) Acquiring	33,430	43,390	4,150	3,220	1,354	1,710	.0405	.0394
9. Services								
a) Acquired	1,811	958	1,722	1,404	67	24	.0370	.0251
b) Acquiring	14,422	12,493	11,054	3,506	1,398	-28	.0969	-.0022

Source: "Pilot Project on Statistics of Corporate Takeovers in the Canadian Economy", Canadian Statistical Review, February, 1976.

TABLE 16  
RELATIVE SIZE AND PROFITABILITY OF  
ACQUIRED TO ACQUIRING FIRMS  
ALL INDUSTRIES

	<u>Average Assets (Millions)</u>			<u>Average Sales (Millions)</u>			<u>Profit Rate</u>		
	<u>Acquired</u>	<u>Acquiring</u>	<u>Ratio</u>	<u>Acquired</u>	<u>Acquiring</u>	<u>Ratio</u>	<u>Acquired</u>	<u>Acquiring</u>	<u>Ratio</u>
1945-61	3.46	45.65	.076	4.24	53.54	.079			1.22
1970	4.72	37.57	.126	2.39	25.95	.092	4.74	7.07	.670
1971	3.45	91.97	.038	3.04	40.75	.075	5.97	4.77	1.25
Average 1970-71			.082			.064			.960

Sources: Average assets and average sales, 1945-61, calculated from Reuber and Roseman, op. cit., Tables 4.3, 4.4;  
Profit rates, 1945-61, calculated from Reuber and Roseman, op. cit., Table 4.11;  
All other data from Table 15.

## NOTES

1. Definitional distinctions can be made among the various types of reorganizations. Specifically, mergers can be viewed as amalgamations between firms while acquisitions generally refer to takeovers of one or more firms by another firm. In this report, we treat mergers and acquisitions as equivalent activities, and use the two terms synonymously.
2. This classification is discussed in L.A. Skeoch and B. McDonald, Proposals For The Further Revision of Canadian Competition Policy, Dynamic Change and Accountability in a Canadian Market Economy, Department of Consumer and Corporate Affairs, Ottawa, 1976. An earlier discussion can be found in L.A. Skeoch, "Merger Issues in Canada", The Antitrust Bulletin, 1971.
3. A specific concern is that concentration ratios may be an unsatisfactory single market structure measure, particularly in an open economy. A more general objection to simple applications of a market concentration criterion for evaluating mergers is raised by considerations of "second-best" alternatives. That is, in a world of imperfect markets, a departure from competitive pricing in any one market might improve upon overall resource allocation.
4. See H. Ansoff, "Issues in National Policy on Growth of Firms", in J.F. Weston and S. Peltzman, eds., Public Policy Toward Merger, Goodyear Publishing Company, Pacific Palisades, 1969.
5. For a full discussion of these points, see Richard E. Caves, "Economic Models of Political Choice: Canada's Tariff Structure", The Canadian Journal of Economics, May, 1976.
6. Ibid., p. 296.
7. See John J. Siegfried, "Market Structure and the Effect of Political Influence", Industrial Organization Review, Volume 3, Number 1, 1975.
8. A more extensive consideration of primary merger effects will be undertaken in a later section.
9. The various efficiency arguments as well as relevant evidence will be considered more fully in a later section of this paper.
10. On this point, see Dennis C. Mueller, "A Theory of Conglomerate Mergers", Quarterly Journal of Economics, November, 1969.
11. This hypothesis has been raised in Ajit Singh, "Take-Overs, Economic Natural Selection and the Theory of The Firm: Evidence from The Postwar United Kingdom Experience", The Economic Journal, September, 1975, among other articles.

12. This is precisely the conclusion drawn by A. Beacham and S.C.H. Jones, "Merger Criteria and Policy in Great Britain and Canada", Journal of Industrial Economics, April, 1971.
13. Some of these features as they relate to merger policy in Canada are discussed in Economic Council of Canada, Interim Report on Competition Policy, Queen's Printer, Ottawa, 1969 and in L.A. Skeoch and B. McDonald, op. cit., 1976.
14. See, for example, The Provincial Bank of Canada, Economic Review, Volume 2, Number 4, July/August, 1972.
15. On this point, see Report of The Senate Special Committee on Science Policy, A Science Policy for Canada, Volume 2, Information Canada, Ottawa, 1972, p. 495.
16. Economic Council of Canada, op. cit., p. 75.
17. See D.J. Daly and Rein Peterson, "On Bridging the Gaps", Management Science, 1973 for a discussion of some evidence on this point.
18. This discussion does not imply that concentration is a sufficient condition facilitating collusive behaviour among firms. Rather it is taken to be a necessary condition if the expected benefits of collusion are to exceed the expected costs of collusion in most industries.
19. This is a particular concern which might be raised about the activities of Canada's Foreign Investment Review Agency. A recent study suggests that foreign-owned firms are more likely than domestically owned firms to enter highly concentrated industries characterized by technology-based barriers to entry. See Paul Gorecki, "The Determinants of Entry by Domestic and Foreign Enterprises in Canadian Manufacturing Industries: Some Comments and Empirical Results", Review of Economics and Statistics, November, 1976.
20. For a discussion of this position, see C.W. Borgsdorf, "The Virtually Unconstrained Legal Environment For Mergers In Canada", The Antitrust Bulletin, Winter, 1973.
21. See Foreign Investment Review Agency, First Annual Report Under The Foreign Investment Review Act, Information Canada, Ottawa, 1975.
22. See Foreign Investment Review Agency, Annual Report 1975/76, Information Canada, Ottawa, 1976.
23. L.S. Skeoch and B. McDonald, Dynamic Change and Accountability In A Canadian Market Economy, op. cit.
24. Ibid., p. 89.



25. See Ibid., pp. 86-87 for a discussion of approximation guidelines. The desirability of a guideline approach toward merger review is also supported in Peter O. Steiner, Mergers: Motives, Effects, Policies, University of Michigan Press, Ann Arbor, 1975.
26. A comprehensive survey and discussion of these various factors is provided in Peter O. Steiner, op. cit., and Bengt Ryden, Mergers In Swedish Industry, Almquist and Wiksell, Stockholm, 1972.
27. See F.M. Scherer, et. al., The Economics of Multi-Plant Operation: An International Comparisons Study, Harvard University Press, Cambridge, 1975 for a discussion of these conditions.
28. Ryden, op. cit., p. 135.
29. This motivation is discussed in Scherer, et. al., op. cit.
30. These arguments are elaborated upon in Steiner, op. cit., pp. 63-64.
31. See Dennis C. Mueller, op. cit.
32. See John A. Bushnell, Australian Company Mergers 1946-1959; Melbourne University Press, Parkville, 1961 and Bengt Ryden, op. cit., respectively.
33. Note that this motive might be classified under the category of coordination gains if the differential access to capital is derived from differential costs to lenders.
34. Dennis C. Mueller, op. cit.
35. Bushnell, op. cit., suggests this as an important motive in a number of prominent Australian acquisitions.
36. At least one researcher has suggested that takeovers are merely a civilized alternative to bankruptcy. See Donald Dewey, "Mergers and Cartels: Some Reservations About Policy", American Economic Review, May, 1961.
37. A potential empirical ambiguity is raised by the likelihood that entry barriers are positively related to optimal firm size.
38. This hypothesis is explicitly suggested in Ryden, op. cit., p. 174.
39. An elaboration of these arguments can be found in Willard F. Mueller, "Public Policy Toward Vertical Mergers", in J.F. Weston and S. Peltzman, eds., op. cit.
40. See Sam Peltzman, "Issues in Vertical Integration Policy", in Weston and Peltzman, eds., op. cit., for a full discussion of these points.

41. A full exposition of this argument can be found in Wayne Leeman, "Limitations on Local Price Cutting as a Barrier to Entry", Journal of Political Economy, August, 1956, Scherer, while agreeing with Leeman's basic argument points out that larger firm size might encourage limit entry pricing by reducing the firm's discount rate. See F.M. Scherer, Industrial Market Structure and Economic Performance, Rand-McNally, New York, 1971, p. 276.
42. One possible reason is the existence of regulated or administered prices which make explicit price discounting impossible. This would seem to be a relevant consideration in only a small number of cases. However, the reader might note a recent study which concludes that reciprocity is practiced by companies with smaller market shares as a device for cutting prices and hiding the evidence from their larger rivals. See Bruce T. Allen, "Industrial Reciprocity: A Statistical Analysis", The Journal of Law and Economics, October, 1975.
43. See Federal Trade Commission, Economic Report On Corporate Mergers, U.S. Government Printing Office, Washington, 1969, p. 323, for a discussion of this point.
44. See Submission of Jannock Corporation Limited to The Royal Commission on Corporate Concentration, p. 5.
45. See Dennis Mueller, op. cit., for discussion of these points.
46. A full discussion of the influence of accounting practices on merger activity can be found in the Federal Trade Commission, op. cit. and in Samuel A. Martin, Stanley W. Laiken and Douglas F. Haslam, Business Combinations in the '60's: A Canadian Profile, The Canadian Institute of Chartered Accountants, Toronto, 1969.
47. See Federal Trade Commission, op. cit., p. 133.
48. Michael Gort, "An Economic Disturbance Theory of Mergers", Quarterly Journal of Economics, November, 1969.
49. The relationship between mergers and stock price changes is discussed in Ralph Nelson, "Business Cycle Factors in the Choice Between Internal and External Growth", in William W. Alberts and Joel E. Segal, eds., The Corporate Merger, The University of Chicago Press, Chicago, 1966, and Samuel A. Martin, et. al., op. cit.
50. An extensive consideration of this argument is provided in Ralph L. Nelson, Merger Movements in American Industry 1895-1956, Princeton University Press, Princeton, 1959.
51. See H. Igor Ansoff, Richard G. Brandenburg, Fred E. Portner, and Raymond Radosevich, Acquisition Behavior of U.S. Manufacturing Firms, 1946-1965, Vanderbilt University Press, Nashville, 1971, p. 38.
52. See J. Keith Butters, John Lintner and William Cary, Effects of Taxation On Corporate Mergers, Harvard University Press, Boston, 1957.

53. See Bushnell, op. cit., p. 49.
54. Grant L. Reuber and Frank Roseman, The Take-Over of Canadian Firms, 1945-61, An Empirical Analysis, Special Study No. 10, Economic Council of Canada, 1969, p. 76.
55. Reuber and Roseman, op. cit., p. 78.
56. Federal Trade Commission, op. cit., p. 47.
57. Singh, op. cit., p. 507.
58. Ryden, op. cit., p. 71.
59. Federal Trade Commission, op. cit., p. 48.
60. Michael Gort and Thomas F. Hogarty, "New Evidence on Mergers", The Journal of Law and Economics, April, 1970, p. 170.
61. See Reuber and Roseman, op. cit., pp. 50-51.
62. Ibid., pp. 48-49.
63. Federal Trade Commission, op. cit., p. 97.
64. Robert L. Conn, "The Failing Firm/Industry Doctrines in Conglomerate Mergers," The Journal of Industrial Economics, March, 1976.
65. Douglas Keuhn, Takeovers and The Theory of The Firm, The MacMillan Press Ltd., London, 1975, p. 26.
66. Singh, op. cit., p. 506.
67. Reuber and Roseman, op. cit., p. 65.
68. Steiner, op. cit., p. 196.
69. Singh, op. cit., p. 508.
70. See Ansoff, et. al., op. cit., p. 75.
71. See Michael Gort, "Diversification, Mergers and Profits", in Alberts and Segall, eds., op. cit.
72. Thomas F. Hogarty, "The Profitability of Corporate Mergers", Journal of Business, July, 1970.
73. Samuel R. Reid, Mergers, Managers and the Economy, McGraw-Hill, New York, 1968.

74. Singh, op. cit., p. 514.
75. Eamon M. Kelly, The Profitability of Growth Through Merger, Pennsylvania State University Press, University Park, 1967.
76. S.N. Laiken, "Financial Performance of Merging Firms In A Virtually Unconstrained Legal Environment", The Antitrust Bulletin, Winter, 1973.
77. R.H. Mason and M. Goudzwaard, "Performance of Conglomerate Mergers: A Portfolio Approach", Journal of Finance, March, 1976.
78. Jerome B. Baesel and Dwight Grant, The Performance of Acquisition Oriented Canadian Companies: 1960-1975, Report Prepared for the Royal Commission on Corporate Concentration, Ottawa, 1975.
79. Ibid., pp. 48-49.
80. Paul J. Halpern, The Empirical Estimates of Premiums and Gains to Companies in Mergers, University of Toronto, Working Paper 72-08, 1970.
81. J.F. Weston and Surenda Mansinghka, "Tests of the Efficiency Performance of Conglomerate Firms", Journal of Finance, September, 1971.
82. B. Lev and C. Mandelker, "The Microeconomic Consequences of Corporate Mergers", Journal of Business, January, 1972.
83. Ansoff, et. al., op. cit., p. 38.
84. Ibid., pp. 36-37.
85. Federal Trade Commission, Economic Report on Conglomerate Merger Performance: An Empirical Analysis of Nine Corporations, U.S. Government Printing Office, Washington, 1972.
86. Thomas G. Marx, "Internal Organization Structure and the FTC's Economic Report on Conglomerate Merger Performance", Akron Business and Economics Review, Winter, 1976.
87. See Martin, et. al., op. cit., p. 60.
88. See Nelson, 1959, op. cit., Bushnell, op. cit., p. 188, concludes for Australia that a major reason for mergers occurring during the period 1956-59 was uneven stock market valuations. Specifically, companies with low share prices in relation to their earning power and asset backing were taken over by companies with high share prices.
89. Nelson, in Alberts and Segall, eds., op. cit., p. 56.

90. Martin, et. al., op. cit., p. 14.
91. Reuber and Roseman, op. cit., p. 173. Variations in internally generated funds in Canada's corporate sector was also a significant explanatory variable.
92. Christopher J. Maule, Mergers in Canadian Industry 1900 to 1963, Thesis submitted for the degree of Doctor of Philosophy at the University of London, May, 1966, p. 81.
93. Ibid., p. 81.
94. Nelson, 1969, op. cit., p. 100.
95. Maule, op. cit., p. 119.
96. Nelson, 1969, op. cit., p. 46.
97. Ibid., pp. 110-111.
98. Martin, et. al., op. cit., p. 31.
99. Federal Trade Commission, op. cit., p. 172 and p. 196.
100. Ibid., p. 193.
101. Gort and Hogarty, op. cit., p. 171.
102. Singh, op. cit., p. 499.
103. Bushnell, op. cit., p. 165.
104. Christian Marfels, Concentration Levels and Trends in The Canadian Economy, 1965-1973, Report prepared for the Royal Commission on Corporate Concentration, December, 1976.
105. Leonard W. Weiss, "An Evaluation of Mergers In Six Industries", Review of Economics and Statistics, May, 1965.
106. Sam Aaronovitch and Malcolm Sawyer, "Mergers, Growth and Concentration," Oxford Economic Papers, March, 1975, p. 147.
107. Steiner, op. cit., p. 291.
108. James C. Ellert, "Mergers, Antitrust Law Enforcement and Stockholder Returns", The Journal of Finance, May, 1976.
109. Ibid., p. 729.

110. A review of pre-war Canadian merger activities can be found in J.C. Weldon, "Consolidations in Canadian Industry, 1900-1948", in L.A. Skeoch, ed., Restrictive Trade Practices in Canada, Toronto, 1966, pp. 228-279.
111. The percentage change in the number of mergers can be viewed as the product of the percentage change in the number of mergers per domestic firm and the percentage change in the total number of domestic firms. For Canada, the simple correlation coefficient between the percentage change in the total number of mergers and the percentage change in the number of mergers per domestic firm over the period 1945-1974 was .96.
112. Two industries for which merger statistics are available, i.e. primary metals and metal fabricating, are not included in the table. Changes in detailed industrial classifications over time in the Corporation Taxation Statistics reports raised a concern that incomparabilities and resultant biases would be introduced into the denominator of the merger intensity ratio for these two industries. Hence, they were excluded from all ensuing industry-level analyses. The industry classification of the acquired firms for 1972 and 1973 followed the two digit classification reported in the merger register.
113. These industries included: machinery, electrical products, transportation, equipment, non-metallic minerals, wood products, paper products, food and kindred products, printing and publishing, leather textile mill production, apparel, rubber products and chemicals. Data are provided in Ryden, op. cit., p. 63.
114. Classification definitions for Canada for 1945-61 are provided in Reuber and Roseman, op. cit., pp. 85-86; definitions for the U.S. are found in Federal Trade Commission, 1969, op. cit., pp. 59-60.
115. Those mergers for which insufficient information on the nature of the companies was available were deleted. Our 1973 sample consisted of 280 mergers, representing approximately 80% of the mergers recorded by the Department of Consumer and Corporate Affairs for 1973.
116. While not shown in the table, the percentage of conglomerate mergers in 1968 was 43.6.
117. See Martin, et. al., op. cit., pp. 32-33.
118. All variables are defined in Table 9.
119. Maule, op. cit.
120. Maule, op. cit., p. 144.
121. Nelson, in Alberts and Segall, op. cit., p. 56.

122. Maule, op. cit., p. 161.
123. See M. Gort, "An Economic Disturbance Theory of Mergers", Quarterly Journal of Economics, November, 1969.
124. A full discussion of the derivation of the various empirical hypotheses is provided in Gort, op. cit., pp. 627-631.
125. Gort, Ibid., p. 635.
126. This is the earliest year for which concentration ratios for all sample industries are available. It would certainly have been more desirable to have a comparable ratio for an earlier period; however, later evidence (to be discussed) indicates that industry concentration ratios tend to be relatively constant over time.
127. The technological opportunities index value for the 17 two-digit industries is a discrete index of an industry's opportunity to exploit the results of research and development in the production of new products and processes. The index is described in more detail in S. Globerman, "Market Structure and R & D in Canadian Manufacturing Industries", The Quarterly Review of Economics and Business, Summer, 1973.
128. This is the closest period to our own sampling period for which such U.S. data are conveniently available. For source, see Table 7.
129. It should be recalled, however, that industry merger intensities in the U.S. have remained relatively constant over the post-war period.
130. Gort's industry growth measure was based upon production indices. In separate estimations, we determined that the use of a value-added measure of industry growth provides virtually identical results to those obtained using the employment measure.
131. In several studies, a measure of industry concentration has been used as a proxy for the existence of firm level economies of scale. See, for example, Harry Baumann, "Structural Characteristics of Canada's Pattern of Trade", Research Report 7401, University of Western Ontario, London, February, 1974.
132. This observation is also evidence against Gort's value-gap hypothesis although the point is not explicitly recognized by Gort's study.
133. It should be noted that this evidence is consistent with the more extensive and detailed analysis of concentration trends in Canadian industries over the period 1965-1973 performed by Marfels op. cit.



134. Evidence on this point is available in many of the company briefs submitted to the Royal Commission on Corporate Concentration.
135. For specific examples, the reader should consult the briefs submitted by: Genstar, Jannock, Imperial Oil Ltd., George Weston Ltd., John Labatt, Canadian Industries Limited, DuPont of Canada, Ltd., Steel Company of Canada and IMASCO, among others, for explicit citation of the above-mentioned functions as important sources of firm level economies.
136. IMASCO Limited, Submission to the Royal Commission on Corporate Concentration, October 27, 1975, pp. 14-15.
137. See Reed Paper Limited, A Submission to the Royal Commission on Corporate Concentration, February, 1976.
138. On this point see the briefs submitted by: Laurentide Financial Corporation Ltd., p. 6; Jannock Corporation Limited, p. 6; IMASCO, p. 16; MacMillan-Bloedel, and NORCEN Energy Resources Ltd., p. A-5.
139. At least one company brief does question the significance of firm level economies of scale. See The Investors Group, A Submission to The Royal Commission on Corporate Concentration, p. 86.
140. See for example, briefs submitted by the Molson Companies Ltd., The Investors Group, and John Labatt. Alternatively, see the briefs submitted by STELCO, Rothman's of Pall Mall Canada Ltd., and George Weston Ltd., for evidence of such integration.
141. This must be due, in part, to the fact that the briefs were submitted by large companies, who may not have been entirely aware of all of the various motivations the sellers may have had for selling-out.
142. These criteria are discussed in Skeoch and McDonald, op. cit., pp. 107-108.
143. Martin, et. al., op. cit., p. 18.
144. See Reuber and Roseman, op. cit., p. 59.
145. The source of these data is the author's analysis of the Department of Consumer and Corporate Affairs' Merger Register.
146. One such screening procedure is discussed in Skeoch and McDonald, op. cit.
147. At least one Canadian study provides evidence that high concentration in the absence of high tariffs has no significant impact on firm performance. See Harry Bloch, "Prices, Costs and Profits in Canadian Manufacturing Industries: The Influence of Tariffs and Concentration", The Canadian Journal of Economics, November, 1974.