Comment on "Small Firms and Merger Mania"

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I. Introduction

Considering its importance to the field of industrial organization, our understanding of the determinants of firm size has some major gaps. This becomes quite clear upon reading Aiginger and Tichy's recent review (hereafter, A&T (1991)) of the many empirical studies of firm size. They critically examine the separate literatures on the performance of large and small firms and on the efficiency of mergers. They find inconsistencies within each of these literatures. More interesting, they discuss a glaring inconsistency between the evidence in the literature and actual behavior. While much of the performance literature indicates that small firms have average or superior performance, large firms typically takeover smaller firms. Efficiency and survival would seem to dictate against this "merger mania."

A&T provide a number of interesting insights. They offer six hypotheses on why small firms might outperform large firms, and challenge the industrial organization view that economies of scale and scope require large firm size. They stop short, however, of arguing that large firms are inefficient, recognizing that they may simply perform different roles than small firms. Their discussion or mergers is more critical of large firms. While they do not entirely dismiss the possibility that mergers may yield efficiencies, they offer six alternative hypotheses. They suggest that mergers tend to reflect chance, stockholder or management optimism, nonprofit maximizing behavior, and other unproductive tendencies.

This comment focuses on the role of firm-specific capital, product life cycles and product niches. The relative performance of large vs. small firms is reconsidered in this light, followed by an examination of the merger literature and the practice of takeovers by large firms. Large firms are viewed less skeptically here than by A&T. Nevertheless, the purpose of this note is less to challenge A&T, than to elaborate on some of their points and suggest additional possibilities. The questions raised by A&T are central to the field of industrial organization and worthy of further attention.

II. Performance of large and small firms

A&T garner from performance studies that the relative superiority of large vs. small firms depends upon the indicator used, the choice of unit (establishment, firm, holding company) and time period examined. The clearest distinction is in terms of performance indicators. They find that small firms perform best in terms of employment growth, value added growth and possibly profits, while large firms tend to perform best in terms of sales growth and efficiency measures.

A&T recognize that small firms may tend to outperform large firms in terms of value added and employment because they often become more vertically integrated (and hence tend to raise their employment to sales or value added to sales ratio). This explanation receives further support from Stigler's life cycle interpretation (1968) of Adam Smith's hypothesis that "the division of labor is limited by the extent of the market". Stigler states that firms tend to vertically integrate in the earlier part of the product life cycle when the industry is growing and supply sources or distribution outlets

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are unavailable, and then disintegrate as the industry matures and nonintegrated establishments become available. Williamson (1975) and Levy (1984) elaborate on this theory from a transactions costs perspective.

Levy distinguishes age-related and size-related factors. He finds that, in early stages of the industry, firms vertically integrate due to "small numbers bargaining problems", lack of supply reliability and specialized needs. Contracting costs are too high between independent firms. Once the industry matures and products become more standardized, firms rely on outside sources. Thus, smaller firms in young industries will tend to be vertically integrated, while larger firms in more mature industries will tend to become less integrated.

While Stigler's theory applies most directly to inter-industry comparisons, it may also explain intra-industry differences in the degree of vertical integration. Small firms may be "niche players" or developers of new (nonstandardized) products, and, thus, tend to require nonstandardized inputs. The need for dedicated assets and flexibility would translate into high costs of contracting with other firms. In more mature industries, smaller firms would then still exist, but be more integrated than larger firms. Employment and value added would thereby increase relative to sales for these firms.

The relatively higher growth rates of large firms in terms of sales may also be explained by tendencies to diversify, especially if firms diversify as an alternative to vertical integration. From a transactions cost perspective, the ability of firms to reduce costs of contracting and information provision is part of their "firm-specific capital." For example, firms may have technological knowledge or a "brand name" for certain types of products. This capital is imbedded in the firm's organization, and incorporates firm-specific learning-by-doing, knowledge about employees capabilities and efforts, and the ability to match employees into teams [Prescott and Visscher (1980)]. Firm-specific capital provides advantages to transacting within the firm, while placing limits on the firm's growth [Prescott and Visscher (1980), or Penrose (1959)]. As firms accumulate this capital, they may diversify to take advantage of the scope economies arising from the ability to share or transfer firm-specific capital. While firm-specific capital is only of value to a single firm, it may be employed or shared in different product lines or different geographic areas [Teece (1982, 1987)].

Dunne, Roberts and Samuelson (1989a and 1989b) find that more diversified firms are more likely to survive and grow more rapidly as the industry ages. Thus, older and larger firms might be expected to become more diversified than younger, smaller firms. Given the limits to firm growth, this option may be more desirable than vertical integration. Thereby, the choice of measure, unit and time period would affect performance results.

An implication of the transactions cost approach is that large firms may be more adaptable than small firms in certain instances. In particular, Levy and Haber (1986) demonstrate that the large, diversified firm may be better able to transfer firm-specific (but non-product specific) capital between products. A store of such capital may better enable a firm to adapt to changes in demand or supply. On the other hand, smaller firms might have advantages when production requires product-specific investments that must be obtained from scratch. Whether or not small firms are more adaptable may depend upon the organizational structure and type of inputs employed by the firm and industry conditions.

III. Mergers by large firms

Merger performance has been evaluated in two types of studies: stock market price appreciation (event) studies and accounting profit performance or growth (outcome) studies. These studies tell contradictory tales. By and large, takeovers appear desirable from the results of event studies, but undesirable from results of the outcome studies. While there are problems associated with both, A&T are most skeptical of event studies. They report that most event studies find large gains within months after the merger, but some recent studies find losses looking at more long-run impacts.

One of the criticisms levelled at outcome studies is that they do not control for what might have happened in the absence of the merger. In other words, while these studies find that firms perform poorly after the merger, firms may have done worse in the absence of merger. This same

criticism may apply to long-term merger. This criticism applies to long-term as well as short-term event studies. While event studies generally control for risk and performance relative to the economy as a whole (read stock market), they do not control for industry-specific or firm-specific trends.[1] Most important, information about future conditions may be available to managers but not those investing in the stock market. If managers foresee industry downturns before investors, they may merge as a defensive strategy to counteract some of the effects. Support for this hypothesis comes from several sources.

Horizontal mergers may enable the firm to more effectively react to an industry downturn by redeploying capital. Ghemewhat and Nalebuff (1985) construct a theoretical model of exit in a declining industry. They find that large firms with fixed capacity become less viable in declining industries. They will either exit the industry or merge.[2] Merger has two advantages: the large firm internalizes a large share of the gains from reducing capacity within the industry, and may enable the firm to maintain scale economies. From a transactions cost perspective, the merger may be a way of employing industry-specific capital that would have been lost due to bankruptcy [Lieberman (1990)].[3]

In the face of a downturn, merger into new product lines may also be efficient when the firm has firm-specific capital that can be redeployed in other industries. In a declining industry, firms become susceptible to what game theorists call the "end of period problem." In the face of possible bankruptcy or even reduced market share, the firm has less incentive to maintain its reputation and input requirements for durable goods. Downstream firms or consumers would then be hesitant to purchase from the firm. By diversifying into other non-declining product lines, the ailing firm has greater incentive to maintain its brand name capital. Furthermore, merger may enable a firm to salvage firm-specific capital that is useful in other industries, such as technology, marketing and organizational knowhow [Levy and Haber (1986)]. Merger is a way of quickly developing such capital to become established in another product line. Similarly, merger into other, especially related product lines may be motivated by the ability to shore up a failing firm in another industry. Merger may provide an infusion of firm-specific brand-name or organizational capital.

The analysis above suggests that mergers may be profitable in declining industries, since firms may have done worse in their absence. Merger is a way of maintaining firm-specific capital. While it is possible that small firms may merge for the same purposes, larger firms generally have more firm-specific capital at stake and are more likely to have the organizational capital that is necessary for incorporating another firm into its structure.

Evidence is consistent with the view that mergers are a way of maintaining firm-specific capital. Evidence indicates that mergers often occur in industries subject to downturn. For example, Scherer and Ross (1990) and Morck, Shleifer and Vishny (1988) find that merger targets are often in industries with low average Tobin's Q-ratios (as a performance measure). The view of mergers as a defensive strategy is also consistent with findings that targets of take overs are not hostile or underperformers, and findings that stock market prices of merging firms fall over the long-run.[4]

IV. Conclusions

A number of additional hypotheses and qualifications to A&T's analysis have been suggested here. Firm-specific capital and transactions cost considerations are likely to be important in explaining patterns of growth by large and small firms, since the evidence indicates that trends in vertical integration and diversification vary for large and small firms. Where diversification is likely, A&T may have been too quick to suggest that small firms are more adaptable. They may also have been too quick to dismiss the long-run potential for mergers. Mergers may be a defensive strategy employed by managers to offset the effect of a future downturn.

A central theme of the above discussion is that circumstances at the industry and firm level require careful consideration before making a judgement about relative efficiencies. Further study should be directed at these factors to help untangle the importance of different theories of firm size. The level of vertical integration, the degree of diversification, the age of the firm, the product life cycle and the nature of investments in

firm-specific capital are potentially important considerations in solving the mysteries of firm growth.

Notes

[1] See, however, Langetieg (1978) who controls for industry factors and finds that acquiring firms are hurt by the merger. However, he controls for industry factors in a limited fashion, did not consider firm-specific factors, and limited the analysis to the short-run.

[2] Whinston (1988) extends Ghemewhat and Nalebuff to show that the large firm may reduce its size to avoid exit.

[3] Alternatively, mergers may protect market power by maintaining concentration in a declining industry. When firms have large investments in fixed capital, they have stronger incentives to cheat on the cartel in the face of an industry downturn.

[4] Long-term stock prices would fall if managers anticipate the downturn before investors. Managers may, however, be eager to merge during boom periods as an insurance policy once the economy declines.

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