CORPORATE PROFITS AND THE RISK OF ENTRY

Robert J. Stonebraker*

ECONOMISTS have recently begun to assess the quantitative effect of risk on corporate rates of return. Several studies have analyzed the relation between the profitability of large firms and the amounts of risk faced by large firms. But none has yet considered that the profitability of large firms might be related to the amounts of risk faced by smaller, fringe firms within their respective industries.

Most entry occurs on a small scale and entrepreneurs are likely to estimate the risk of entering an industry on the basis of the performance of existing small firms. If these small firms fail or are unable to consistently earn a normal rate of return, potential competitors may regard entry as “risky.” The greater is this risk, ceteris paribus, the less likely new firms will be to enter. In this sense, the risk faced by small firms acts as an entry barrier enabling large firms to earn excess profits without attracting new competitors.

Alternatively, risk can be thought of as the vehicle through which entry barriers work. For example, where significant scale economies exist, the risk of entering the industry is likely to be high and, therefore, excess profits of existing large firms will be protected from new competition. Many of the characteristics that traditionally have been termed entry barriers can be interpreted as factors increasing the amount of risk faced by potential competitors.

Section I of this paper develops a measure of “entry risk” and section II incorporates it into a simple theoretical model of large-firm profit rates. Section III discusses the construction of variables and the selection of data for empirical estimation of the model, and section IV presents the statistical results. Finally, in section V, a model explaining entry risk on the basis of such conventional entry barriers as economies of scale, advertising, and research and development expenditures is developed and tested. The conclusions and implications of the study are summarized in section VI.

I. A Measure of Entry Risk

The risk of entering an industry has two dimensions: the probability of earning less than the competitive return (or of taking an economic loss), and the size of such possible losses. If there is no chance of earning less than a competitive return, there is no “risk” to deter a firm from entering the industry. The more likely it is that a firm will earn less than the competitive return, or the larger is the average size of possible losses, the riskier is the firm’s probability distribution of earnings.

Given a profit distribution with m possible outcomes (πj, j = 1, . . . , m) and a competitive return of π*, a loss function L(πj) can be defined where

\[ L(\pi_j) = \pi^* - \pi_j, \quad \text{for } \pi_j < \pi^* \]
\[ = 0, \quad \text{for } \pi_j \geq \pi^*. \]  

(1)

The risk function R(πj) is the expected value of the loss function. If \( p_j \) is the probability of outcome \( \pi_j \), and there are \( n \) possible outcomes such that \( \pi_i < \pi^* \) and \( m - n \) outcomes such that \( \pi_i \geq \pi^* \),

\[ R(\pi_j) = E[L(\pi_j)] \]
\[ = \sum_{j=1}^{n} p_j (\pi^* - \pi_j) \]
\[ + \sum_{j=n+1}^{m} p_j(0) \]

or

\[ R(\pi_j) = \sum_{j=1}^{n} p_j(\pi^* - \pi_j) \quad \text{for } \pi_j < \pi^*. \]  

(2)

2 A more complete discussion of the rationale and implications of such a definition of risk can be found in Stonebraker (1973).

Note that only those outcomes with $\pi_j$ below the competitive return are used to compute risk. Outcomes greater than or equal to $\pi^*$ drop out when the expected value is taken.

The $\pi_j$ are points of a probability distribution and cannot be observed directly. Since most firms enter on a small scale, either by buying out or merging with existing small firms, or by building a completely new facility, new firms are likely to base their risk calculations on the performance of existing small firms. If so, the ex post earnings distributions of small firms in an industry can be used to approximate the ex ante distribution as perceived by potential entrants.4

In this case each $\pi_j$ can be interpreted as a single observation of probability $1/m$. The risk function can be rewritten as

$$R(\pi_j) = \frac{1}{m} \sum_{j=1}^{n} (\pi^* - \pi_j), \quad \text{for } \pi_j < \pi^*$$

or as

$$R(\pi_j) = \frac{n}{m} \sum_{j=1}^{n} \frac{(\pi^* - \pi_j)}{n}, \quad \text{for } \pi_j < \pi^*.$$  

(4)

Risk then is the probability of earning a return below $\pi^*$ (based on the profit performance of existing small firms), multiplied by the average distance below $\pi^*$ of all such outcomes.

In empirical testing, this small-firm risk measure should be supplemented with a measure of the chance of failure or bankruptcy. Since possible failure is a severe problem for small firms, and since firms which fail are necessarily missing from any data set, the performance of existing small firms may not accurately represent the true risk of entry.5

II. The Model

The hypothesis is that entry risk acts as an entry barrier enabling large firms to maintain excess profits. Thus, the average profitability of large firms in the $j^{th}$ industry ($LFP_j$) should be positively related to the risk of entering that industry ($ER_j$). The risk of entering should in turn be a function of the risk faced by existing small firms ($SR_j$) and the chance of failure ($F_j$). This gives

$$LFP_j = g_1(ER_j)$$

$$ER_j = g_2(SR_j,F_j).$$

Substitution yields

$$LFP_j = f(SR_j,F_j)$$

where

$$\partial LFP_j/\partial SR_j > 0, \partial LFP_j/\partial F_j > 0.$$  

(8)

In the long run, risk and return should be positively related. Large firms in an industry should not be able to maintain higher-than-average profits over time unless the risk of entering the industry is also high. In the short run such firms might earn high profits given the level of entry risk in their industry, but in the long run any advantage should be erased by new entry or growth.

Adding a measure of the rate of growth of the $j^{th}$ industry ($G_j$) to account for some of the short-run disequilibrium effects, the model becomes

$$LFP_j = f(SR_j,F_j,G_j),$$

(9)

or, in linear form

$$LFP_j = a + bSR_j + cF_j + dG_j.$$  

(10)

The coefficients on all three independent variables should be positive. The greater is the risk of entry or the industry growth rate, the greater should be the rate of return for large firms in the industry.

With this model, risk is the only deterrent to new competition in industries with firms earning excess profits. Risk acts as an entry barrier. More precisely, it acts as a composite of entry barriers since a rise in any of them should increase the risk of entering the industry. In fact, entry barriers can be thought of as characteristics (either structural or behavioral) that increase the amount of risk faced by small or entering firms above that faced by dominant...
firms for a given expected return. Unless scale economies, cost advantages, product differentiation, and capital requirements increase this entry risk, they are not in any real sense "barriers" to entry.

Describing entry barriers in terms of risk has two major benefits. In the first place, the entry barrier literature has been written primarily in terms of the cost advantages enjoyed by dominant firms in an industry. But it is not the cost differences per se that are important. Once an entering firm achieves a particular scale or amount of consumer acceptance, most, if not all, of the cost differences are dissipated. The crucial question is whether or not entrants have a reasonable chance to attain the stature necessary for success.

Entry is a dynamic process. If a firm expects to be able to successfully break into a particular industry after a period of only one or two years, it might well enter even if the initial cost disadvantage is large. Although the chance of success (or risk) will almost certainly be correlated with the size of the initial cost disadvantage, a risk measure based on the performance record of past and present small firms in an industry should be a better indicator of the "barrier to entry" than the more conventional measures.

Secondly, the risk concept is more comprehensive than the traditional measures of entry barriers. If, for example, there exists the threat of predatory retaliation, entry into an industry might be deterred even if no other barriers are present. The effects of this and other behavioral barriers that could not otherwise be measured should be captured by the risk measure.

III. The Data

Profit and risk data are calculated from a sample of nearly 1000 firms in 33 industries for the 1955–1968 period. Data are taken from Moody's Industrial Manuals. Sample firms in each industry are divided into three groups (large, medium, small) based on their size relative to other firms in their industry. The profit rate of large firms in the jth industry (LFPj) is the average of the profit rates on assets of all large sample-firms in the jth industry for the period.

The small-firm risk measure for the jth industry (SRj) is the per cent of observed small-firm profit rates in the jth industry below the competitive return for the period, multiplied by the average distance of these returns below the competitive level. The competitive return (or opportunity cost of capital) is approximated by the return investors would earn by buying into a group of ten large, minimum-risk, "blue-chip," manufacturing corporations. It is calculated by finding the cost of capital by firm, by year; then averaging over firms for each year of the sample period (1955–1968).

Reliable data on failure rates are not available. However, Marcus has shown that indus-

6This could alternatively be expressed as anything that lowers the expected return for a given level of risk. Note that small existing firms are included in the definition. Large-firm advantages can be just as effective in holding small existing firms in check as they can be in prohibiting new entry. For an excellent discussion of how such competitively disadvantaged firms can survive, see Bain (1969).
7 These are the four traditional categories of entry barriers. See Bain (1956), especially chapter 6.
9 Yamey (1972) has an excellent discussion of how this can occur.

10For a complete listing of firms in each size group by industry, see Stonebraker (1973).
11The average is unweighted to show the effect that entry risk and growth have on the profitability of a "typical" large firm. Note that only firms listed by Moody's are included. Profit rates are calculated as after-tax net income plus interest payments divided by total assets. Although this is a generally accepted measure, there is much disagreement on the matter. For a good discussion of the problems in measuring profit rates, see Sherman (1968) pp. 20–60.
12The ten firms are U.S. Steel, Westinghouse, General Electric, General Motors, Ford, Chrysler, DuPont, Mobil, Gulf, and Exxon. The methodology follows that given in most traditional textbooks. See, for example, Weston and Brigham (1969), chapters 10 and 11. The statistical results of this study are not particularly sensitive to the level of the competitive return. See Stonebraker (1973).
13Dun and Bradstreet does publish the number of firms that fail in particular industries on a quarterly basis (Quarterly Failure Report, Dun and Bradstreet), but they do not list the total number of firms in their industry groupings so that the calculation of rates is difficult. Also, their industry groupings are quite broad, and are not comparable to those used in this study. Moreover, the Dun and Bradstreet data only include firms that "... ceased operation following assignments or bankruptcy; ceased with loss to creditors after such action as execution, foreclosure, or attachment; voluntarily withdrew leaving unpaid obligations; were involved in court actions such as receivership, reorganization, or arrangement; or voluntarily compromised with creditors out of court." The data unfortunately do not include firms which cease operations because of insufficient profits or prospects even though they are solvent, or firms that under other circumstances would fail but are instead bought out and absorbed by other (usually larger) firms.
try failure rates can be estimated by Internal Revenue Service data on the per cent of firms in the industry reporting negative net income. As a result, the per cent of loss-firms in each industry averaged over the period is used as a proxy for the chance of failure. Industries are grouped into those with high failure rates and those with low failure rates. The failure variable \( F \) is a dummy variable equal to one for those industries in which the chance of failure is high, and equal to zero for industries in which the chance of failure is low.

The relative rate of growth of the \( j \)th industry \( (G_j) \) is calculated as

\[
G_j = (GI_j - GA)/GA
\]

where \( GI_j \) is the rate of growth in the value added of the \( j \)th industry for the period and \( GA \) is the average rate of growth in value-added over the period for all manufacturing industries. \( G_j \) will be positive for industries growing faster than average and negative for industries growing slower than average. Data are taken from the *Annual Census of Manufacturing*.

### IV. Estimation Results

The model was estimated for 33 industries. The results are shown in table 1. All coefficients have the expected positive sign and all are statistically significant at the 95% confidence level.

#### Table 1. — LARGE FIRM PROFITS AS A FUNCTION OF ENTRY RISK

<table>
<thead>
<tr>
<th>Regression</th>
<th>Constant</th>
<th>( G_j )</th>
<th>( SR_j )</th>
<th>( F_j )</th>
<th>( R^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9.120</td>
<td>3.445</td>
<td></td>
<td></td>
<td>0.41</td>
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<tr>
<td></td>
<td></td>
<td>(4.59)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>7.869</td>
<td>3.365</td>
<td>0.391</td>
<td></td>
<td>0.48</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4.72)</td>
<td>(2.08)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>7.215</td>
<td>2.396</td>
<td>0.363</td>
<td>3.779</td>
<td>0.66</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3.74)</td>
<td>(2.33)</td>
<td>(3.87)</td>
<td></td>
</tr>
</tbody>
</table>

Model is estimated for 33 industries for the 1955–1968 period. Values in parentheses are \( t \)-statistics.

High profit rates are clearly associated with a high risk of entry. The results are strong evidence that risk is an important deterrent to entry which enables established firms to earn supranormal profits. The higher is the risk of entry (as measured by the risk faced by small firms and by the failure-rate dummy), the higher is the profit level an industry can maintain without attracting new competitors.

The explanatory power of the model is particularly impressive given that the data are cross-sectional. More than 60% of the differences in interindustry profit rates can be attributed to differences in growth rates and entry risk. Table 2 shows the close relationship between the actual and predicted values of growth-adjusted profit rates.

#### Table 2. — ACTUAL VS. PREDICTED LARGE FIRM PROFITS

<table>
<thead>
<tr>
<th>Industry</th>
<th>Actual Growth Adjusted Large Firm Profits(a) (%)</th>
<th>Rank</th>
<th>Predicted Growth Adjusted Large Firm Profits(a) (%)</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cosmetics</td>
<td>15.220</td>
<td>1</td>
<td>11.854</td>
<td>4</td>
</tr>
<tr>
<td>2. Drugs</td>
<td>14.555</td>
<td>2</td>
<td>11.488</td>
<td>6</td>
</tr>
<tr>
<td>3. Automobiles</td>
<td>13.267</td>
<td>3</td>
<td>11.563</td>
<td>5</td>
</tr>
<tr>
<td>4. Glass</td>
<td>12.814</td>
<td>4</td>
<td>11.368</td>
<td>7</td>
</tr>
<tr>
<td>5. Photograph</td>
<td>12.292</td>
<td>5</td>
<td>13.719</td>
<td>1</td>
</tr>
<tr>
<td>7. Cement</td>
<td>10.512</td>
<td>7</td>
<td>7.764</td>
<td>31</td>
</tr>
<tr>
<td>8. Furniture</td>
<td>(Household)</td>
<td>8</td>
<td>9.010</td>
<td>9</td>
</tr>
<tr>
<td>10. Shoes</td>
<td>9.729</td>
<td>10</td>
<td>8.806</td>
<td>22</td>
</tr>
<tr>
<td>13. Copper</td>
<td>9.551</td>
<td>13</td>
<td>8.244</td>
<td>17</td>
</tr>
<tr>
<td>17. Grain Products</td>
<td>9.026</td>
<td>17</td>
<td>8.588</td>
<td>11</td>
</tr>
<tr>
<td>18. Oil Refineries</td>
<td>8.968</td>
<td>18</td>
<td>8.166</td>
<td>19</td>
</tr>
<tr>
<td>19. Paper</td>
<td>8.802</td>
<td>19</td>
<td>7.972</td>
<td>25</td>
</tr>
<tr>
<td>21. Rubber, Rubber</td>
<td>Products</td>
<td>8.389</td>
<td>21</td>
<td>8.219</td>
</tr>
<tr>
<td>22. Aircraft</td>
<td>7.978</td>
<td>22</td>
<td>8.583</td>
<td>12</td>
</tr>
<tr>
<td>23. Steel</td>
<td>7.830</td>
<td>23</td>
<td>7.942</td>
<td>26</td>
</tr>
<tr>
<td>26. Textiles</td>
<td>7.097</td>
<td>26</td>
<td>8.570</td>
<td>13</td>
</tr>
<tr>
<td>27. Farm Equipment</td>
<td>7.041</td>
<td>27</td>
<td>7.476</td>
<td>33</td>
</tr>
<tr>
<td>29. Aluminum</td>
<td>6.246</td>
<td>29</td>
<td>7.927</td>
<td>27</td>
</tr>
<tr>
<td>30. Sugar</td>
<td>6.145</td>
<td>30</td>
<td>7.862</td>
<td>29</td>
</tr>
<tr>
<td>31. Publishing</td>
<td>5.791</td>
<td>31</td>
<td>7.908</td>
<td>28</td>
</tr>
<tr>
<td>32. Distilleries</td>
<td>5.148</td>
<td>32</td>
<td>7.564</td>
<td>32</td>
</tr>
<tr>
<td>33. Railway Cars</td>
<td>3.902</td>
<td>33</td>
<td>8.255</td>
<td>16</td>
</tr>
</tbody>
</table>

\(a\) Calculations are made on the basis of equation 3 in table 1.

14 See Marcus (1967). Data are derived from the Internal Revenue Service's annual *Statistics of Income*. Ideally we would want data on the failure rates of small and entering firms in an industry rather than on all firms, but such data are not available. If the per cent of loss-firms that are large varies substantially among industries, some bias could result.

15 Growth-adjusted industry profits are calculated by subtracting 2.396 \( G \) from actual industry profits (2.396 is the estimated coefficient for \( G \)).
The model was also tested with measures of the risk faced by large firms included. It is plausible that large firms facing high degrees of risk might, *ceteris paribus*, earn higher rates of return, but the data do not support this hypothesis. The high profits earned by dominant firms seem to result from the risk of entering their respective industries rather than from the risk faced by the firms themselves. This implies that General Motors maintains excess profits, not because its own risk level is high, but because the enormous risk faced by American Motors and the demise of such competitors as Studebaker, Packard, and Kaiser effectively prohibit any new competitive threats.

V. Determinants of Entry Risk

The risk of entering an industry should depend upon the height of entry barriers. In particular, where behavioral barriers such as advertising or research and development are important, or where structural barriers such as economies of scale in production or absolute firm size are large, the risk of entry should be great. Increases in advertising expenditures by large firms should increase the risk of entry as long as advertising can induce consumers to switch from one firm's product to another's. If entering firms match the increase in advertising expenditures on a proportional basis, their costs will rise, their expected profits will fall, and the risk of entry will increase. If entrants do not match the increased advertising expenditures, they are likely to lose sales and profits, again increasing the entry risk. If economies of scale exist in advertising, the advantage of large firms will be enhanced and the risk of entry will be correspondingly greater.

Advertising should be most effective in industries whose products are differentiable (at least in the minds of consumers) and are sold directly to individual consumers. In general, consumers are less informed about the differences (or lack of differences) between various brands than are corporate buyers and are therefore more susceptible to advertising claims. Even where buyer information is available, individual consumers are more apt to be swayed by advertising-induced appeals to personality factors than are corporate buyers.

Rapid technological change might also increase entry risk. In many industries, a firm's competitive position depends on its ability to keep up with a steady stream of innovations, many of which are protected by patents. If the dominant firms in an industry increase their research and development outlays, their chance of finding new products or processes to give them a competitive advantage increases. This in turn increases the chance that small firms will perform poorly and increases the risks faced by potential entrants.

The amount of risk facing small and entering firms should depend on structural characteristics of the industry as well as behavioral characteristics. Where production economies of scale or absolute capital requirements are important, entry risk is likely to be high. If an entering firm must produce a substantial percentage of industry output to reach minimum efficient size, the probability of successful entry will be small. Similarly, if the minimum efficient plant size is large in absolute terms, new firms will have difficulty in obtaining the capital necessary for them to have a reasonable chance of success.

In functional form:

\[ ER_j = f(ADV_j, RES_j, ES_j, MEP_j) \]  

where \( ER_j \) is the risk of entering the \( j \)th indus-

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16 Several different measures, including profit variance and loss-function measures, were tried. In no case was there a significant positive relationship between the profitability of large firms and the risks faced by large firms. See Stonebraker (1973).

17 The distinction between structural and behavioral characteristics is not always clear. For example, "structural" economies of scale in the production of automobiles are at least partially the result of the "behavioral" decision to produce annual model changes (see Snell, 1971). While structural characteristics are frequently exogenous, they are occasionally subject to nearly as much control by dominant firms as are behavioral barriers.

18 This assumes that a proportional increase in advertising expenditures enables small firms to just maintain their old level of sales revenue.

19 Many economists have argued that such economies do exist. See, for example, Comanor and Wilson (1967, 1969) and Weiss (1969).

20 Economies of scale in R&D might strengthen large-firm advantage here also. For an excellent review of the literature in this area, see Scherer (1970), chapter 15.

21 The classic discussion of scale economies and absolute size as barriers to entry is in Bain (1956), pp. 52–113 and 156–165.
Entry risk is measured as the linear combination of the small-firm risk measure and the failure proxy most significantly related to large-firm profits. From equation 3 of table 1, this is

$$ER_j = SR_j + (3.779/0.363) F_j$$  \[(15)\]

R&D data are available for only 25 of the 33 industries and were available only through 1966 at the time of this study. The average R&D-to-sales ratio for the 1955-1966 period was therefore used.

The variable is used in logarithmic form.

The economies of scale variable \(ES_j\) is computed as the per cent of industry output produced by one minimum-efficient-size plant.

In linear form the model is

$$ER_j = a + b \log ADV_j + c DRES_j + d ES_j + e \log MEP_j.$$  \[(14)\]

The empirical results are given in table 3. Advertising and R&D are positively and significantly related to entry risk in every instance. The scale economies coefficient is statistically significant when regressed with entry risk alone, but not when all four independent variables are included. The absolute size variable is not significant in any equation. Including the ES and MEP variables adds very little to the explanatory power of the model.

24 See Comanor and Wilson (1967) and Weiss (1969). The average size in employment is derived from the 1963 Census of Manufactures and then is converted to asset size by multiplying by the industry’s average assets per employee calculated from the 1963 IRS Statistics of Income. Comanor and Wilson report that their results are highly correlated with the engineering estimates obtained by Bain (1954) and seem to be superior to those derived from the Survival Technique. The results obtained here correspond closely to those of Comanor and Wilson.

25 Several other structural forms of equation (14) were also estimated, but the qualitative results do not differ substantially from those reported.

26 It would be interesting to see if the entry risk variable has any effect on large-firm profits after the effects of the behavioral and structural entry barriers have been accounted for. However, because of the functional relationships involved, regressing large-firm profits as a function of both entry risk and other entry barriers should and does

### Table 3. Determinants of Entry Risk

<table>
<thead>
<tr>
<th>Regression</th>
<th>Constant</th>
<th>log (ADV_j)</th>
<th>(DRES_j)</th>
<th>(ES_j)</th>
<th>log (MEP_j)</th>
<th>(R^2)</th>
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<tr>
<td>1</td>
<td>17.631</td>
<td>2.642</td>
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<td></td>
<td>(3.20)</td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>2</td>
<td>3.939</td>
<td>5.020</td>
<td>1.341</td>
<td></td>
<td></td>
<td>0.23</td>
</tr>
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<td></td>
<td>(2.63)</td>
<td>(2.56)</td>
<td></td>
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<td></td>
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<tr>
<td>3</td>
<td>3.946</td>
<td>4.188</td>
<td>0.535</td>
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<td>0.22</td>
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<td></td>
<td>(2.61)</td>
<td>(0.70)</td>
<td></td>
<td></td>
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<tr>
<td>4</td>
<td>14.569</td>
<td>2.328</td>
<td>4.180</td>
<td></td>
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<td>0.46</td>
</tr>
<tr>
<td></td>
<td>(3.09)</td>
<td>(2.53)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>12.405</td>
<td>2.019</td>
<td>3.570</td>
<td>0.699</td>
<td></td>
<td>0.52</td>
</tr>
<tr>
<td></td>
<td>(2.65)</td>
<td>(2.15)</td>
<td>(1.49)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>6</td>
<td>12.515</td>
<td>1.889</td>
<td>3.783</td>
<td>0.820</td>
<td>-0.289</td>
<td>0.52</td>
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<tr>
<td></td>
<td>(2.22)</td>
<td>(2.12)</td>
<td>(1.43)</td>
<td></td>
<td>(-0.38)</td>
<td></td>
</tr>
</tbody>
</table>

Model is estimated for 25 industries for the 1955-1968 period. Values in parentheses are t-statistics.
The results suggest that entry risk does depend upon the height of entry barriers, but that the "behavioral" barriers of advertising and R&D are far more important than are the "structural" barriers of production scale economies and absolute size. In this respect, advertising and research have anticompetitive effects. Whatever benefits accrue from these activities in the form of increased consumer awareness or technological progress accrue at a cost: an increased risk of entry and a misallocation of resources as evidenced by higher large-firm profits.27

VI. Conclusions

This paper has developed and tested a model explaining differences in interindustry large-firm profits on the basis of differences in the risk of entry. The risk acts as an entry barrier. In fact, it is the mechanism through which traditional entry barriers operate. Where such barriers exist, the risk of entry should be high. This discourages entry by raising costs (in utility terms) for entering firms above those prevailing in successful established firms. Successful firms are thereby insulated from new competition and can maintain excess profits in the long run.

The empirical results are consistent with the above hypothesis. Entry risk is positively and significantly related to large-firm profits. The level of entry risk can in turn be explained by behavioral entry barriers such as advertising and research and development and, to a lesser extent, structural barriers such as economies of scale in production.

The implications are important. Large firms earn excess profits not because they themselves are risky, but because small firms within their industries are risky. Such profits are excessive in that they cannot be justified as necessary compensation for assuming unusually high levels of risk and, therefore, should not be automatically immune from antitrust prosecution.

REFERENCES


Cootner, P., and D. Holland, "Risk and Rate of Return," Massachusetts Institute of Technology, DRS Project 9565, revised issue (Feb. 1964).


