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FOREIGN TAKEOVERS OF SWEDISH FIRMS

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ABSTRACT

The examination of foreign takeovers is a way of distinguishing between the characteristics of firms and industries that encourage takeovers and the effects of foreignness or of takeovers per se.

Foreigners have tended to take over Swedish firms that are of above average size within each industry. Very few takeovers are of the smallest groups of firms: those with fewer than 20 employees or even those with fewer than 200. However, the firms taken over are not large compared to Swedish companies of 200 employees or more. In fact, they are well below average size within that group.

The firms taken over are more skill-oriented or technology-oriented than Swedish-owned firms in the same industries. However, takeovers are not particularly prevalent in industries in which firms in general are large or skill-oriented or technology-oriented. Thus the selection of firms for takeover is based on firm characteristics, not industry characteristics. After takeover by foreigners, firms grow somewhat faster than Swedish-owned firms in the same industries. The technological characteristics of the firms, by the crude measurements we have been able to apply so far, do not seem to be affected in any consistent way by takeover.

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## FOREIGN TAKEOVERS OF SWEDISH FIRMS

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Studies of direct investment often have two objectives: to explain the motivating forces behind it and to judge its effects on host countries and investing countries. Direct investment is generally explained as a way of exploiting a firm-specific comparative advantage in a foreign market more profitably than can be done by exporting the firm's products from the home country or by selling the firm's technology or other knowledge to host-country firms. The comparative advantage may be of several types. It may be an industry characteristic, so that a high proportion of firms in a particular industry will tend to invest abroad, no matter where the firms are based. It may be associated with country of origin, so that American firms in an industry invest abroad while British or German firms do not. It may be peculiar to the individual firm and not associated with industry or country of origin. It may, of course, be some combination of these.

A typical way of trying to identify the type of comparative advantage that is involved has been to examine the characteristics of firms that invest abroad, as compared with others in their home countries, or the characteristics of the firms in which they invest, as compared with others in the host countries. It has often been difficult in these studies to separate the factors encouraging foreign ownership from the effects of foreign ownership. A possible way to distinguish these and to focus on the effects of foreign ownership per se is to single out for study the characteristics of firms taken over by foreign purchasers and the changes in these characteristics after takeover. We have taken a first step in this direction by examining takeovers of Swedish firms through 1970 as part of a plan to analyze a larger body of data on both Swedish and Canadian firms.

So far we have asked two types of questions about the Swedish firms taken over by foreigners. One is how they compared with Swedish-owned firms in the same industries at the time of takeover. That is, do foreign firms pick off the smaller or less technologically oriented firms or the larger or more technologically oriented ones? The second is whether firms taken over by foreign owners change relative to Swedish-owned firms in their own industries. The data on takeovers and on foreign-owned firms are from the survey taken by the Industriens Utredningsinstitut of Stockholm for 1970 and analyzed in Samuelsson (1977). Data for all firms in Sweden are from various issues of Industri and Företagen, published by Statistiska Centralbyrån.

#### Selection of firms for foreign takeover

We begin to answer the first question, for a few firm characteristics, in Table 1. We compare the 1965 characteristics of each Swedish firm taken over in 1961-65 and the 1970 characteristics of each firm taken over in 1966-70 with those of Swedish-owned firms in the same 5-digit SNI industry in 1965 and 1970. We must assume here that the firms did not change very quickly after takeover and that their characteristics as much as four years later still to some degree reflected their characteristics at the time of takeover.

The Swedish enterprises taken over in both 1961-65 and 1966-70 were, on the whole, considerably larger in 1965 and 1970 than the averages for their 5-digit industries, as measured by sales value of output or by employment. The margin was particularly large in the food industry, a field in which Sweden is not particularly strong. Even in machinery, which is an area of Swedish comparative advantage, firms taken over were of above-average

TABLE 1

Swedish Firms Taken Over by Foreign Owners  
 Characteristics at or About Time of Takeover Relative  
 to Those of Swedish-Owned Firms<sup>a</sup>

	SNI <sup>b</sup>			
	3	31	35	38
<u>Takeovers, 1966-70, 1970 Characteristics</u>				
Average sales value of output	3.96	5.36	4.28	2.41
Average employment	3.77	6.18	2.56	2.74
Ratio: salaried employees to total employees	1.39	3.11	1.23	1.09
Ratio: technical employees to total employees	1.82	1.45	2.26	1.26
Average salaries and wages per employee	1.24	1.07	1.40	1.17
<u>Takeovers, 1961-65, 1965 Characteristics</u>				
Average sales value of output	3.88	c/	1.44	2.00
Average employment	4.20		2.31	1.93
Ratio: salaried employees to total employees	1.18		1.38	1.08
Ratio: technical employees to total employees	NA		NA	NA
Average salaries and wages per employee	1.08		1.01	1.10

a  
 Characteristics compared at 5-digit SNI level and averaged up.

b  
 SNI groups for which we have data on more than three takeovers.

c  
 Number of takeovers insufficient for calculation.

Source: Characteristics of takeovers and all foreign-owned firms  
 from IUI survey. Swedish industry data from Industri  
1965 and 1970.

size, but the differences were smaller, as they were also for chemical firms in 1965 and, by the employment measure, in 1970 also.

The other three measures in Table 1 are rough indicators of technical or skill intensity. All of them show that the firms taken over had labor forces that were more highly skilled than the average for their industries and more technically oriented. Thus we find, at our first look, that the foreign owners were absorbing relatively large and relatively skill-oriented Swedish firms.

It is conceivable that these differences in average skill intensity are entirely associated with the greater average size of the firms taken over, if size and skill intensity are strongly and positively correlated. The published data permit a test of this point only for the average employee compensation measure. For that one at least, as we can see below, the means for firms of over 200 employees are very similar to those for all firms.

Total Employee Compensation per Worker: Homogeneous Enterprises

Ratio:  $\frac{\text{Average for enterprises of 200 employees or more}}{\text{Average for all enterprises}}$

<u>SNI</u>	<u>Ratio</u>
31	1.02
35	1.01
38	1.00

We can say, therefore, that the skill differences we observe between firms taken over and their industries as a whole are probably not simply the consequence of the larger average size of the takeovers.

The comparisons in Table 1 are all within 5-digit industries and give no indication as to whether the foreign firms are also selecting industries with large or technologically oriented Swedish firms. That question is investigated in Table 2, in which we compare the characteristics of all Swedish manufacturing firms, in the first column, with the characteristics that the taken-over firms would have if in each industry they had the same characteristics as Swedish firms in that industry. While the distribution of takeovers was somewhat towards industries with larger firms than the average for all manufacturing, the differences were far smaller than those within industries described in Table 1. The indicators of technological orientation also showed small differences but these were in the opposite direction from those within industries: the foreign takeovers seemed to be more heavily weighted towards industries of less than average technical orientation. However, the strongest impression from Table 2 is that the industry bias in takeovers was of little importance compared with selection within industries.

The major difference we found within industries between foreign takeovers and firms that remained Swedish-owned was that the takeovers were far larger on the average. However, the fact that firms taken over were of above-average size for their industries does not necessarily mean that the typical takeover was of a larger-than-average firm. The mean values for the industries and the foreign takeovers are both from very skewed distributions of firm sizes. A comparison of the distributions is made in Table 3, in which it is clear that the average for all Swedish enterprises reflects the two-thirds of firms with fewer than 20 employees while less than 10 per cent of takeovers fall into this class--none at all outside the chemical industry. The size distributions by per cent of total employment are much more similar, but still show the high concentration of takeovers in firms of over 200 employees.

TABLE 2

Characteristics of Swedish Manufacturing Firms: Actual  
Compared with Weighting by Importance of Foreign Takeovers

	Actual Charac- teristics, 1970	Swedish Industry Characteristics, 1970, with Industry Weighting of Takeovers, 1966-70
Average Sales Value of Output (mil. Kr.) <sup>a</sup>	8.46	9.39
Average Employment <sup>a</sup>	71.6	75.5
Ratio: Salaried Employees to Total Employees (%) <sup>b</sup>	27.5	27.0
Technical Employees to Total Employees (%) <sup>b</sup>	7.9	7.4
Average Salary and Wage per Employee (th. Kr.) <sup>a</sup>	27.9	27.2

a

Based on characteristics of homogeneous enterprises in each group.

b

Based on characteristics of establishments in each group.

Source: Swedish industry characteristics from Industri 1970 and  
takeover data from IUI survey.



TABLE 3

Distribution by Employment Size: Foreign  
Takeovers and All Swedish Manufacturing Enterprises, 1970

Size of Enterprise, by No. of Employees	SNI Group			
	3	31	35	38
	<u>Per cent of firms</u>			
<u>Takeovers</u>				
<20	9	0	43	0
20 to <200	45	25	29	67
200 or more	45	75	29	33
<u>All Swedish Enterprises</u>				
<20	66	71	70	64
20 to <200	30	25	25	32
200 or more	4	5	6	4
	<u>Per cent of employees</u>			
<u>Takeovers</u>				
<20	a/	0	3	0
20 to <200	13	7	11	16
200 or more	87	93	86	84
<u>All Swedish Enterprises</u>				
<20	8	9	8	6
20 to <200	26	27	24	21
200 or more	66	64	68	73

a  
Less than 0.5 per cent.

Source: Swedish industry data from Företagen 1970  
and takeover data from IUI survey.

Within that group we might expect again that takeovers were on the average much larger than Swedish firms, if foreign buyers were concentrating on large units. In fact, the average size was considerably smaller for the takeovers, as can be seen below. Once we eliminate the very small firms

	SNI Group			
	3	31	35	38
Average no. of employees				
Takeovers	552	303	413	714
All Swedish enterprises	1,036	740	759	1,396

from our calculations we find that among firms of 200 employees or more the average Swedish firm was about twice as large as the average firm taken over by foreigners. That was true for manufacturing as a whole and also in each of the three main industry groups with more than three takeovers. Thus foreign buyers of Swedish firms were not taking over very small ones, but they were not taking over particularly large ones either.

#### Effects of foreign takeovers

The first step we have taken to analyze the effect of foreign ownership is to relate 1970 characteristics of Swedish firms acquired by takeover to the length of time the firm had been foreign-owned. The assumption that underlies this calculation is that the takeovers are drawn from the same universe, and that the purpose of a takeover is to change the Swedish firm: for example, to implant the technology of the foreign parent in the Swedish subsidiary. If that is the case, we can interpret the coefficient of time since takeover as representing the effect of foreign ownership in making the Swedish firm more like the parent or in enabling it to outdistance its rivals. There are, of course, other possible interpretations, as will be noted later.

In Table 4 we relate the period of foreign ownership to the attributes described in Table 1. The only variable which seems to have some relation to the period of foreign ownership is the average employment of the firm relative to its industry, and that relationship is weak. The longer the period since takeover, the larger the foreign-owned firm relative to its industry as measured by employment (but not significantly measures by sales value of output). The relationship virtually disappears in the log equations, which give greater weight to differences among recently taken-over firms, as compared to the arithmetic equations which give greater importance to the longer time periods.

A similar analysis is carried out in Table 5 for foreign-owned Swedish firms not acquired by takeover, presumably those newly established by the foreign parents. A comparison of the coefficients, in the text table,

	Average Employment Coefficients	
	Takeovers	Newly Established Firms
<u>Arithmetic Eq.</u>		
Years	0.16* (2.00)	0.15* (3.75)
Decades	1.48 (1.82)	1.42* (3.54)
<u>Log Eq.</u>		
Years	0.21 (1.26)	0.66* (4.89)

\*Significant at 5 per cent level.

discloses that the arithmetic equations for the employment size variables are rather similar but the log equations for the newly established firms have larger coefficients for age and a much higher  $\bar{R}^2$ . Presumably the log equations, which are strongly influenced by short periods of foreign ownership,

TABLE 4

Foreign-Owned Firms Acquired by Takeover  
Equations Relating 1970 Characteristics Relative to Those of Their  
Industries to Length of Period Since Takeover

Dependent Variable	Period Since Takeover		Constant Term	$\bar{R}^2$	F
	Years	Decades			
<u>Arithmetic Equations</u>					
Average sales value of output	0.09		3.95	.01	1.89
	(1.37)		(3.39)		
		0.88	3.64	.01	1.69
		(1.30)	(2.67)		
Average employment	0.16*		3.42	.04	4.01*
	(2.00)		(2.46)		
		1.48	2.97	.03	3.33
		(1.82)	(1.82)		
Ratio: salaried employees/ total employees	-0.00		1.39	-.01	0.06
	(0.24)		(9.69)		
		-0.00	1.37	-.01	0.00
		(0.06)	(8.22)		
Ratio: technical employees/ total employees	-0.00		4.93	.00	0.00
	(0.00)		(1.11)		
		0.89	3.60	-.02	0.10
		(0.32)	(0.68)		
Salaries and wages per employee	-0.00		1.39	-.01	0.06
	(0.24)		(9.69)		
		-0.00	1.37	-.01	0.00
		(0.06)	(8.22)		

(cont.)

TABLE 4 (concl.)

Dependent Variable	Period Since Takeover	Constant Term	$\bar{R}^2$	F
	Years			
<u>Log Equations</u>				
Average sales value of output	0.14 (0.83)	0.45 (1.25)	-.00	0.69
Average employment	0.21 (1.26)	0.34 (0.96)	.01	1.59
Ratio: salaried employees/ total employees	0.04 (0.61)	0.11 (0.90)	-.01	0.37
Ratio: technical employees/ total employees	-0.18 (1.28)	0.44 (1.49)	-.01	1.63
Salaries and wages per employee	-0.02 (0.74)	0.17 (3.01)	-.01	0.55

\*Significant at 5 per cent level.

Source: Company data from IUI survey. Industry data from Industri 1970.

TABLE 5

Foreign-Owned Firms Not Acquired by Takeover  
Equations Relating 1970 Characteristics Relative to Those of Their  
Industries to Length of Period Since Takeover

Dependent Variable	Period Since Takeover		Constant Term	$\bar{R}^2$	F
	Years	Decades			
<u>Arithmetic Equations</u>					
Average sales value of output	0.17* (2.06)		-0.28 (0.10)	.05	4.26*
		1.49 (1.83)	-0.32 (0.11)	.03	3.35
Average employment	0.15* (3.75)		-0.39 (0.29)	.16	14.09*
		1.42* (3.54)	-0.69 (0.48)	.15	12.56*
Ratio: salaried employees/ total employees	0.01 (1.84)		1.28 (7.88)	.04	3.40
		0.09 (1.95)	1.24 (7.14)	.04	3.79
Ratio: technical employees/ total employees	-0.01 (0.46)		2.22 (3.69)	-.02	0.21
		-0.08 (0.47)	2.24 (3.54)	-.02	0.22
Salaries and wages per employee	0.00 (0.68)		1.20 (10.64)	-.01	0.46
		0.02 (0.69)	1.19 (9.86)	-.01	0.48

(cont.)

TABLE 5 (concl.)

Dependent Variable	Period Since Takeover	Constant Term	$\bar{R}^2$	F
	Years			
<u>Log Equations</u>				
Average sales value of output	0.63* (4.44)	-1.72 (4.14)	.22	19.68*
Average employment	0.66* (4.89)	-1.67 (4.25)	.25	23.90*
Ratio: salaried employees/ total employees	0.11* (2.00)	-0.03 (0.18)	.04	4.00*
Ratio: technical employees/ total employees	0.00 (0.01)	0.12 (0.32)	.00	0.00
Salaries and wages per employee	0.04 (1.29)	0.06 (0.69)	.01	1.67

\*Significant at 5 per cent level.

Source: Company data from IUI survey. Industry data from Industri 1970.

reflect more the growth of newly established firms in their first few years of existence. However, the positive coefficients in the arithmetic equations, and particularly those in which age is measured in decades, suggest that there has been some long-run tendency for foreign-owned Swedish firms, both takeovers and newly established firms, to grow more rapidly than locally-owned firms.

Although we suspect that the interpretation of faster growth of foreign firms is the correct one, there are other possibilities. One is that we are observing a vintage effect: the firms taken over in earlier decades were of a different type from those taken over recently. They may have been larger than Swedish firms when they were taken over and remained so with no change in relative standing. Another possibility is that the firms taken over long before 1970 have the characteristics of old firms, while the Swedish firms with which we are comparing them are a mixture of old and new firms. It is a problem of trying to infer a temporal change from a cross-section in this way that we could only eliminate if we had a sample of "survivors" among Swedish-owned firms as well as among the takeovers.

In Table 6 we study temporal change directly for a small sample of takeovers by examining changes in firms relative to their industries after takeover. Specifically, for firms taken over between 1961 and 1965, we measure changes between 1965 and 1970 and their position in 1970. All the size measures indicate that these taken-over firms grew relative to others. They increased their shares of aggregate industry sales, and they increased their sales size and their employment size relative to other firms in their industries, especially within the chemical industries.



TABLE 6

Swedish Firms Taken Over 1961-65: Changes in Characteristics Relative to Their Industries, 1965 to 1970, and Characteristics in 1970  
 Comparisons at 5-Digit Level Aggregated to 2-Digit Level  
 and All Manufacturing

	All Manufacturing	SNI 35 Chemicals	SNI 38 Machinery
<u>Changes in Characteristics, 1970/1965</u>			
Firm's share of industry output	1.27	1.42	1.14
Average sales value of output	1.23	1.53	1.10
Average employment	1.28	1.64	1.27
Ratio: salaried employees/total employees	0.96	1.06	0.85
Salaries and wages per employee	0.98	1.06	0.93
<u>Characteristics, 1970</u>			
Average sales value of output	4.77	2.25	2.20
Average employment	5.38	3.79	2.45
Ratio: salaried employees/total employees	1.13	1.46	0.92
Salaries and wages per employee	1.06	1.07	1.02

Source: Company data from IUI survey. Industry data from Industri 1970  
 and Industri 1965.

On the other hand, we see no evidence of any increase in skill levels, at least as measured by salaries and wages per employee or by the ratio of salaried employees to total employees. For all manufacturing the ratios declined slightly relative to the rest of their industries. Since these ratios were somewhat above industry levels at the time of takeover, the changes imply that the firms moved somewhat toward industry averages. However, while that is true also for machinery takeovers, the chemical firms taken over seem to have moved away from industry averages toward higher average skill levels.

By 1970, then, the firms taken over by foreigners had become even larger relative to their industries than they were at the time of takeover. Their skill levels, which had been above average for their industries, seem to have drifted back a little for manufacturing as a whole, although they remained above the Swedish average. In machinery, by one measure, they actually ended up below the averages for their industries.

One interpretation of these results is that the infusion of capital or other resources from abroad enabled these firms to substantially increase their shares of Swedish employment and output. However, we are not able so far to compare these firms to Swedish companies that survived the whole period, as these firms did, or to Swedish companies that were taken over by other Swedish firms. The influence of foreignness is therefore not conclusively established, and is a subject we hope to explore further.

Summary

We find that foreigners have tended to take over Swedish firms that are of above average size within each industry. Very few takeovers are of the smallest groups of firms: those with fewer than 20 employees or even those with fewer than 200. However, the firms taken over are not large compared to Swedish companies of 200 employees or more. In fact, they are well below average size within that group.

The firms taken over are more skill-oriented or technology-oriented than Swedish-owned firms in the same industries. However, takeovers are not particularly prevalent in industries in which firms in general are large or skill-oriented or technology-oriented. Thus the selection of firms for takeover is based on firm characteristics, not industry characteristics. After takeover by foreigners, firms grow somewhat faster than Swedish-owned firms in the same industries. The technological characteristics of the firms, by the crude measurements we have been able to apply so far, do not seem to be affected in any consistent way by takeover.