Agency and Institutions: National Divergences in Diversification Behavior

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Abstract

A fundamental theme in comparative cross-country research is the convergence of organizational forms in diverse national settings. In this paper we examine a special instance of this theme: the pattern of diversification across industries. A common argument is that technical and market forces compel firms to adopt "coherent" strategies of diversification. This thesis implies that there should be a convergence in the patterns of interindustry diversification in all market-based economies. An institutional approach offers an alternative view. From this perspective, when diversification across industries is seen as subject to nation-specific governance and resource constraints, countries should vary widely in their interindustry diversification patterns.

To test these alternative views, we analyze the diversification patterns of large corporations from five countries: France, Germany, Japan, the United Kingdom, and the United States. Our results do not support the hypothesis of a common pattern of diversification across countries, and thus reject the technological thesis. By comparing two case studies in which entrepreneurs attempted to diversify by acquisition in France and the United States, we examine how institutions and agents interact to permit different diversification patterns to arise in diverse national environments.

The statistical results and case studies imply that, given the fixity of certain institutions, even if countries are subject to globalization, convergence in diversification patterns is not necessary. The results cast doubt upon the merits of stylizing the lated diversification (Kogut et al. 1998). These results may be suggestive of a diffusion process across nations, or they may reflect the strong force of a technological determinism on organizational form and strategy.

The thesis of technological determinism is supported by research on the relatedness of old and newly acquired businesses. The benefits of technological relatedness are, by implication, invariant to a given institutional context. For example, oil refining is commonly seen as leading to

diversification into petrochemicals. The influential argument of Teece et al. (1994) for the "coherence" of a firm's portfolio of products rests on the presumption that the lines of business of a firm exhibit "certain technological and market characteristics common to each other." They conclude that firms tend to follow a common pattern of diversification across industries, implying coherence is driven by unobserved technological and market relatedness. Institutional considerations are absent in their analysis.

The argument and findings in support of a thesis of technological determinism are only weakly addressed by institutional theory and related studies. One possible response to the technological thesis is to accept, but limit, the range of the argument. For example, Scott and Meyer (1983, p. 140) suggest that technical factors tend to determine organizational form in environments where efficiency concerns dominate. This distinction between technical and institutional factors is also central to a useful body of work that has sought to sort out when technical or social influences may prevail in regard to the other. For example, Tolbert and Zucker (1983) note that efficiency seems to dominate the early adoption of bureaucratic practices and legitimation, their late adoption.

However, this dichotomy between technical and institutional determinants, though useful, ignores the agency behind managerial decision. The argument that in some cases decisions are technically, or institutionally, constrained suggests misleadingly that managers have "no choice" but to choose the technically or institutionally favored alternative. Giddens (1984, p. 15) notes that structural sociologists "have supposed that constraints operate like forces in nature, as if to 'have no choice' were equivalent to being driven irresistibly and uncomprehendingly by mechanical pressures." From this perspective, then, institutions enable and constrain agents engaged in purposive action through control over authority and the allocation of resources.

To explore the technical and institutional effects on managerial choice, this article examines the evidence on the similarity of diversification strategy of large corporations from five countries: France, Germany, Japan, the United Kingdom, and the Unites States. Comparing organizations across these nations allows us to assess arguments for the convergence and divergence of interindustry diversification around technical constraints. We ask the simple, but penetrating, question whether patterns of interindustry diversification differ among countries that, in turn, differ remarkably in their institutions.

Our results indicate a remarkable divergence in these patterns. We interpret these results in terms of the unique interplay of agency and institutions in the context of structurally determined opportunities for entrepreneurship. Institutions, in our view, provide a matching of agents and resources, a process that is guided by technical and entrepreneurial considerations, in particular social and political settings. Action is neither the outcome of technically given factors nor pressures toward conformity, but a product of reflective actors constrained and enabled by their access to authority, resources, and structural opportunities. To develop this thesis further, we briefly compare two case studies of thwarted acquisitions, one American and the other French, which isolate this interplay of entrepreneurial agents and national institutions.

Theory

The Technological Argument

The theory of business diversification has developed, at least since Chandler (1962), around the concept of relatedness (Montgomery and Wernerfelt 1988, Rumelt 1974). Business units within a corporation are related to the extent they share some activity, resource, or set of skills. The benefit of sharing the operation of one or more activities across business units in a firm is that economies of scope are achieved that lower costs, improving each unit's performance.

Teece et al. (1994) argue that the relatedness of activities within the corporation is reflected in diversification across industries. If firms benefit most from combining businesses with overlapping technologies or markets, then pairs of industries that are technologically or market related should be frequently linked through corporate diversification activities. *Teece e a . e a beca e ec g e a e ec c d e , d e ca a - e d e ec e d ec g ca e a ed- e .*

In their study, Teece et al. analyze a large sample of diversified firms and generate a matrix of industries whose cell values indicate how many firms are active in a given industry pair. This matrix shows many pairs of industries that are linked by large numbers of firms. It also shows many industries that are linked infrequently, if at all. The authors then construct a measure of coherence for each diversified firm. This measure represents the extent to which a firm is diversified into industries that an analysis of the matrix indicates should be highly related. A key finding of the study is that firms maintain their level of coherence as their number of businesses grows, suggesting some systematic concern for interbusiness sharing of activities.

Teece et al.'s study found "coherent" patterns of diversification without addressing whether these interindustry diversification patterns are institutionally founded,

and if so, whether they would hold up in other settings. The ahistorical and context-free logic of the technical argument suggests an equifinality. Regardless of different institutions, market economies that permit the forces of competition to select better firms should arrive at a convergent pattern in which interbusiness relatedness in diversified firms increases over time and is associated with "coherent" diversification. Their research implicitly assumes that if the underlying technologies and markets of an industry are relatively constant across countries, at least those at an advanced stage of market capitalism, the underlying linkages across industries should be robust to institutional influences.

This assumption is supported by evidence that in five advanced capitalist countries—France, Germany, Japan, the United Kingdom, and the United States—multibusiness firms have become increasingly similar in their diversification strategies. Table 1 shows that around 1970,

Table 1

A. Product Diversification Strategies by Country 1969–1970

	Single Products	Dominant Products	Related Products	Unrelated
France	20%	28%	43%	8%
Germany	27%	17%	37%	19%
Japan	19%	32%	49%	0%
United Kingdom	6%	30%	58%	6%
United States	7.6%	31%	45.2%	16.2%

Sources. For France and Germany, Thanheiser (1976); for Japan, Suzuki (1991); for United Kingdom, (1973); and for United States, Rumelt (1974).

B. Analysis of Variance Results

	Degrees of Freedom	Sum of Squares	Mean Square	*F*-value	Prob > F
Source					
Model	7	5948.50	849.79	6.86	0.002
Error	12	1485.70	123.81		
Variables					
Country	4	1968.70	492.18	3.98	0.028
Type of Div	3	3979.80	1326.60	10.71	0.001

C. Variance Components Results

Variable	Variance Component	%Variance Explained
Country	92.09	20
Type of Div	240.56	53
Error	**123.81**	**27**
Total	456.46	100

the diversification strategies of firms in these countries are remarkably centered on relatedness. If this trend in internal relatedness reflects comparable linkages between industries across countries, then the hypothesis follows:

TECHNOLOGICAL HYPOTHESIS. *T e a e   f e- d   d e   ca   ac   c   e   d be - a .*

The technological hypothesis implies that a technical relationship between two industries is *f c e* to cause a firm to diversify from one to the other. We can express this hypothesis using Ragin's (1987) Boolean algebra. Ragin codes the presence or absence of a potential cause of an event in Boolean form, that is, as a one or zero. For ease of exposition, let T represent the presence of a technical cause of diversification, and its absence. We ask the question, then, does it matter to the diversification pattern if T or is combined with the presence or absence of other potential causes. The other cause we consider here is a configuration of national institutions of corporate governance and control, for example, financial institutions (more or less developed capital markets), form of government intervention (dirigiste or laissez faire), corporate governance (e.g., the role of labor), and ownership (e.g., the prevalence of institutional investors). Country A will have one configuration, C_A, and Country B another configuration, C_B. These two factors—technology and configurations of national institutions—produce a range of combinations $\{T, C_A\} \ldots \{T, C_Z\}$ and $\{ , C_A\} \ldots \{ , C_Z\}$ for interindustry pairs across countries with different institutional configurations. If the technological hypothesis is correct, the combinations with T should be associated with diversification events across all countries, and the combinations with associated with the absence of diversification. If we found such an outcome, we could argue that the national institutions composing the configurations were functionally equivalent in the opportunities they produce for diversifying firms. Given the equivalence of national opportunity structures, in the end, we could say that only technology matters for the choice of industry into which a firm expands.

The Institutional Argument[1]
The technological hypothesis assumes that there is a single set of industry pairings that creates coherence within diversified firms, no matter what their institutional environment. But, because many industries share technologies and markets, coherence may arise through a variety of interindustry linkages, not just those found in the Teece et al. study. A number of different patterns of interindustry diversification may produce the results shown in Table 1.

Different patterns of interindustry diversification may be found across countries because the process of diversification is fundamentally guided by institutional factors that are country-specific. These institutional factors reflect national patterns in regard to who owns, who has the authority to decide, and who constrains diversification decisions. To focus attention on some of the most important institutions that affect issues of corporate control, consider the potential differences among countries in four important parts of the institutional environment: ownership, boards, interfirm networks, and government policy. These four components are important for the exercise of authority over managerial decision making and the allocation of resources. Owners and boards have the statutory power to authorize control; interfirm networks and governments influence the allocation of financial resources, if not actually influencing a firm's decisions. All four of these institutional components mediate and sanction the ideas that form the basis of how corporations are organized and governed.

The expansion of firms into new markets with new products typically requires the acquiescence of board members and frequently pits the interests of firms and financial interests against one another, as the interests of entrants and incumbents usually diverge. When the diversification effort stretches the core business of the corporation into industries with antagonistic incumbents, the battle for ownership mobilizes institutional forces on each side (Hirsch 1986). Financial institutions, as well as the ability of marginal players to access financial resources, profoundly affect acquisition behavior. The rules regarding corporate control govern the contest for control over resources throughout the society. Vested interests will reasonably seek to influence the allocation of resources that might finance a potential diversification, either facilitating or blocking its occurrence.

Access to financial resources is influenced by what Stearns and Allan (1996) have referred to as "structural opportunity and the individual incentive to change things." Moreover, the mobilization of capital and critical shareholders for a prospective acquisition is a central element in the success of these decisions. Large shareholders view the acquisition from the perspective of their portfolio of financial and social interests and can intervene in the exercise of managerial authority. Thus, the structure of ownership patterns in a country offers both structural opportunities and constraints on the decision to diversify.

Institutions both reflect these structural opportunities (e.g., who owns what) and influence their generation through the availability of resources to agents. In the diversification decision, the authoritative control by entrepreneurs over corporate strategies is enabled or constrained by the allocation of capital by institutions. The salient feature of a diversification decision, especially when conducted by acquisition, is the observation that the act of diversification entails both the agency of firms and potential conflicts among firms with differential access to financial resources.

To focus attention on how countries may vary in these institutions, consider the differences among France, Germany, Japan, the United Kingdom, and the United States around the 1970 time period. The following description of these differences, though incomplete, supports the claim that large institutional differences exist among these countries. Table 2 presents a summary of these institutions for the five countries.

The question we pose is whether, given the dependence of diversification on institutional factors and country differences in these factors, countries vary substantially in their interindustry diversification patterns.

INSTITUTIONAL HYPOTHESIS. *If c   ec c -   e ce e   c a   e a d e-   ce eeded d e f   e b   e e , e   e   a e   f e   d   d e   ca   d be d   -   a .*

To return to our Boolean language, this hypothesis claims that differences in institutional configurations are sufficient to determine dissimilarities in diversification patterns across countries. For example, Country A can be described by the following combination $\{T, C_A\}$ and Country B by $\{T, C_B\}$. Each country has a diversification pattern among pairs of industries that we denote as D_a and D_b. The hypothesis we propose is that D_a and D_b are negatively correlated.

Design

A comparative methodology is required to examine the importance of institutional and technical influences on corporate choice. We choose to examine the interindustry diversification patterns in five of the largest industrialized countries: France, Germany, Japan, the United Kingdom, and the United States. Choosing these countries provides a conservative test of the institutional hypothesis because their common status as large, advanced industrial economies with dominant private-sectors is likely to lead to more similar institutions, compared to the economies of smaller nations and those whose policies are less committed to capitalism.

Our study is limited to the largest firms in each of the five countries. Statistical studies have routinely found evidence for convergence across countries in the importance of large firms. For Germany, the United States, and the

Table 2 Summary of Corporate Institutional Environment by Country (1970)

	France	Germany	Japan	United Kingdom	United States
Owners (who?)	Public, Family	Corporate, Family Holdings	Public, Corporate	Public, Family De-clining	Public, Institutional
Boards (how powerful?) (who is repre-sented?)	Limited.	Strong. Bank representation Labor/mgmt co-determination	Weak boards. Insiders	Strong. Shareholders	Relatively strong. Shareholders
Intracorporate Networks (structure?) (personal/institu-tional?)	Two investment banks central. Social elites	Banks central but no industrial groups. Institutional	Banks central in distinctive industrial groups. Social elites	Weak structure. Some class ties	Weak structure. Banks relatively central
Government (nationalization?) (national industrial policy?)	Relative/ periodi-cally high. Dirigiste	Low. Noninterventionist, but regional policies	Little. Strong bureaucratic industrial policy	Moderate. Little Frequently interven-tionist	Regulated firms. Uncoordinated na-tional policy

United Kingdom, the correlations in the sectoral distri-bution of large companies increased dramatically be-tween 1913 and 1950, the time frame corresponding to Chandler's study (Kogut 1992); this increase in correla-tions is also evident for Japan and France (Kogut 1998). Over time, large firms tend to emerge in the same indus-tries in different countries. Studies showing correlations in industrial concentration across countries show simi-larly that large firms tend to dominate the same industries across countries (see Scherer 1980). Also, a number of studies have shown that more than one-third of the sales in all five countries are made by the largest 100 firms (for France, Daviet 1989; for Germany and Japan, Suzuki 1991, 1992; for United Kingdom and United States, Prais 1976).

We assembled data on the product diversification (at the two-digit level) of these largest 100 firms in each of the five countries. The data correspond to roughly a 1970 cross-section. The data on France and Germany were taken from Dyas and Thanheiser (1976); on the United Kingdom from Channon (1973); and the United States from Rumelt (1974) and Bhargava (1973). The Japanese data are given in Suzuki (1991). There are a number of reasons for choosing this time period and these sources. First, the studies from which the data are derived provide excellent contextual insights into the evolution of large enterprises in these five countries. Moreover, except for the Japan study, the four other country studies used a common methodology.[2] In addition, by 1970, the process of convergence in the size distribution of large enterprises

Table 3 Share of Industrial Output by 100 Largest Firms

Country	~1915	~1950	~1970
France	16% (1912)	25% (1955)	40% (1970)
Germany		22% (1949)	45.6% (1966)
Japan		39% (1950)	34% (1980)
United Kingdom	16% (1909)	21% (1949)	41% (1968)
United States	22% (1909)	30% (1954)	33% (1970)

Sources. For France, Daviet (1988); for Germany and Japan, Suzuki (1991, 1992); for United Kingdom and United States, Prais (1976).

had largely exhausted its trajectory; there is no additional growth in the share of large enterprises of industrial out-put in subsequent periods. (See Table 3.)

Because the list of the largest 100 enterprises includes some foreign companies and multinational subsidiaries, we excluded these companies. This exclusion led to an unequal number of firms in each country. Consequently, we deleted the smallest firms in the data for each country so as to create a set of 75 firms per country. For each firm, the two-digit SIC code of each business was identified. These SIC codes were broken down into "primary" (the origin for the firm) and "secondary" (subsequent entries).

For non-United States data, conversion into the U.S. SIC system was done by a careful analysis of the business description. Because of the common coding, there is no bias caused by differences in national industrial classifications.

Before turning to the diversification analysis, it is useful to establish first that we are comparing similar corporations across countries. A common complaint in cross-national studies is that "apples" and "oranges" are compared (Locke and Thelen 1995). This design, then, makes the assumption that the technical factors are common to all countries. (This assumption of a common unobserved technology is consistent with Teece et al. when they assume coherence implies an underlying technical relatedness.) In our Boolean terms, we are sampling on the cases where the combinations contain countries that have roughly the same technology available to their largest firms. This design is sufficient to test the technological determinism argument.

We took, therefore, the data on the largest 75 firms in each country and asked if large firms appear in similar industries. To estimate how much countries differed in size distribution by sector, we performed both an analysis of variance specifying random effects and a variance components analysis (see Searle 1971, Chapters 9–11). By examining the variance components, we can compare the percentage contribution of country differences to the contribution of industry effects.

Table 4 shows the primary industry of each firm in the set classified into a two-digit SIC category. It is easy to see that a small number of industries contribute disproportionately to the set of the largest firms in each country. The largest contributors are food, chemicals, petroleum and coal, primary metals and transportation equipment industries. Tobacco, paper, rubber, industrial machinery, electronics, and instruments are other major contributors across the countries. Most of the other industrial categories find little or no representation in the set. It appears that the size distribution across industries can be explained quite easily on the basis of the industry rather than country factors (see Chandler 1977, 1990; Scherer 1980). The more interesting result is that these patterns are quite consistent across the countries. The analysis of variance results presented at the bottom of Table 4 shows that there are no significant country differences across these firms, but very strong industry differences. The variance components results show that industries account for about 62% of the variance in the distribution of large firms across industries and countries account for 0%.

With the results in Table 2, this finding shows support for homogeneity across countries and indicates that a test of diversification patterns across countries is not biased by unobserved size and technology differences. The results in Tables 1, 2, and 4 are consistent with the technological proposition. They do not reject the claim that technological factors, such as scale economies in production, produced convergence across the five countries.

Method

We employ a method that takes the country as a categorical variable. This method is intermediate between two polar approaches. The first consists of rich descriptions that take each country as a case study. The other reduces countries to variables that identify universal causes of variations. The approach we have chosen, which is common in cross-national comparative work, employs statistical comparisons to sort out national effects (Ragin 1987).

The analysis of the interindustry pattern of diversification across countries is not straightforward. One problem is that in all countries the matrix of diversification across industries is too sparse. That is, there are a number of industries for which we have very little evidence of acquisition. Because we are interested in comparing the five countries on the pattern of diversification for industries where diversification occurred, we eliminated those industries that experienced little or no diversification, either as an origin or as a target. This process led to a set of 21 originating industries, which constituted about 70% of the 75 largest firms in each country, and a set of 21 target industries, which captured about 70% of the diversification events of these firms.

There is also a second problem. The diversification matrix is simply a cell count of the firms from the th industry that are active in the th industry. In analyzing these industries, we need to control for differences among countries in the number of firms in each industry. The more firms an industry had in one country, the more instances of diversification the industry would be likely to have. For example, the United Kingdom has 19 large food companies, but Germany has only two. We would expect, therefore, that the count of the diversifications of food companies to be higher for the United Kingdom than for Germany simply because there are more United Kingdom food companies. Thus, we need to have a statistic that is conditioned on the number of firms in each industry. The problem is that the diversification matrix normally only gives the cell count of diversification, not the number of firms that might potentially diversify into this industry.

Our method was to use the log-linear technique developed by Wasserman and Iacobucci (1986) to analyze

Table 4

A. Distribution of Largest 75 Companies in Each Country Across Industries

Industry	Country United States	United Kingdom	Germany	France	Japan
Agriculture production—Crops	0	1	0	0	0
Metal mining	0	0	0	7	0
Coal mining	1	0	2	0	0
Nonminerals, exc. fuels	0	2	2	1	0
Oil and gas extraction	5	0	0	1	0
Special trade contractors	0	0	0	0	0
Food and kindred products	8	19	2	15	3
Tobacco products	0	2	2	1	0
Textile mill products	1	3	1	3	8
Apparel and other textile products	0	0	1	0	0
Lumber and wood products	1	0	0	1	1
Paper and allied products	3	4	3	1	5
Printing and publishing	0	2	3	1	0
Chemicals and allied products	9	7	10	8	7
Petroleum and coal products	4	3	3	1	10
Rubber and misc. plastics	4	2	2	2	1
Leather and leather products	1	0	1	0	0
Stone, clay, and glass	1	4	1	2	4
Primary metal industries	6	6	19	6	12
Fabricated metal products	2	1	2	0	0
Industrial machinery	6	3	6	8	3
Electronic and other electric equipment	5	6	5	2	9
Transportation equipment	10	7	8	10	10
Instrument and related products	3	1	1	2	1
Pipelines, exc. natural gas	1	0	0	0	0
Misc. manufacture	0	0	0	1	0
Trucking and warehouse	0	0	1	0	0
Electric and gas	0	0	1	1	0
General merchandise	0	0	0	1	0
Security and commodity broker	0	1	0	1	0
Holding and other investment offices	2	0	0	0	0
Motion pictures	0	1	0	0	0
No listing	2	0	0	0	1

B. Analysis of Variance Results

	Degrees of Freedom	Sum of Squares	Mean Square	F-value	Prob
Source					
Model	36	1388.45	38.57	8.03	0.0001
Error	128	615.16	4.81		
Variables					
Country	4	0.036	0.009	0.00	1.000
Industry	32	1388.41	43.39	9.03	0.0001

C. Variance Components Results

Variable	Variance Component	%Variance Explained
Country	0	0
Industry	7.72	62
Error	4.81	38
	12.53	100

asymmetric single-relation networks. This method is based on Holland and Leinhardt's $_1$ distribution for analyzing relational data (Holland and Leinhardt 1981). In our use of this method, the firms are actors and the industries groups of actors (Feinberg and Wasserman 1981). There are two types of cell in the array to be analyzed: (1) the number of firms from an originating industry that have diversified into a target industry and (2) the number of firms from that originating industry that have not diversified into the target industry. The array has four dimensions: the five countries, the 21 originating industries, the 21 target industries, and how many firms have diversified from one industry to another or not diversified between these industries. The entries in each cell are the counts by country of firms in an industry that have diversified or not diversified into another industry.

The log probabilities of an entry into a cell can be specified in the $_1$ formulation as:

$$\log P(Y_{ijkl}) = {}_{ijk} + {}_1 + g_i + a_j + b_k + e_{ijkl}. \quad (1)$$

serves as a nuisance term to guarantee that the probabilities sum to 1; is the overall mean of the probability of a diversification event; g indicates the contribution of a Country i to diversification events; a indicates the contribution of Industry j to diversification (called expansiveness); b indicates the tendency of Industry k to be a target for diversification (called attractiveness); and e is the residual that represents the interaction of α and β, indicating the general tendency of Industry j to diversify into Industry k (see Wasserman and Faust 1994, Chapter 15). Our log-linear specification is similar to that of Teece et al. (1994), except that we assume the distribution to be Poisson and estimate the absence of diversification as well as its presence, a potentially important source of error given the small sample size of our study. The expansiveness and attractiveness parameters are important because they control for differences among countries in the resources that firms in specific industries can employ in diversification, and in the opportunities that target industries offer for new entrants. We would expect the expansiveness and attractiveness parameters not to be correlated across countries.

To test for similarity among countries in the interindustry pattern of diversification, we estimated Equation (1) on the 5 × 21 × 21 × 2 matrix, using the GLIM statistical package and specifying a Poisson distribution. We transformed the estimates produced by GLIM to make them consistent with the assumptions of the $_1$ model, following the procedure given in Wasserman and Iacobucci (1986, p. 62). In their method, the expansiveness and attractiveness estimates of industries within countries are given by the three-way interaction terms of country by industry by the incidence of diversification. The residuals represent the interactions of expansiveness and attractiveness within country for all industries, and thus indicate the pattern of diversification between industry pairs. To test the technological and institutional propositions, we correlated the estimates of the models residual values across countries. The correlations were calculated for both diversification events and the absence of diversification. To the extent the correlations are positive, the technological hypothesis is supported; on the other hand, a preponderance of negative intercountry correlations would support the institutional hypothesis.

Results

Table 5a presents the estimates of expansiveness by industry for the five countries. Table 5b shows the correlations of industry expansiveness among countries. With the exception of the negative correlation between Japan and France, the correlations are not different from zero. Also, it is important to note that only the correlation between the United States and the United Kingdom, 0.02, is above zero. However, diversification is not only a decision to invest out of a primary industry, but to exploit new opportunities. Table 6a presents the estimates for industry attractiveness. The only extreme value is the parameter estimate for the electric, gas, and sanitary industry in Japan. Table 6b presents the correlations for industry attractiveness among countries. Again, only the correlations between Japan and France and between Japan and the United Kingdom are strongly negative. And only one correlation is positive: 0.29 between the United Kingdom and France, which is indistinguishable from zero.

These results show that there is no similarity across countries in the tendencies of specific industries to be sources or targets of diversification efforts. One explanation is that countries differ in the profitability of their industries, reflecting unique technological histories or comparative advantage. Nevertheless, industries sharing common technological or market features should be related if the technological hypothesis is correct.

To test this hypothesis, we used a statistic similar to that created by Teece et al. (1994) as a measure of relatedness. We calculated the residual in Equation (1) as the difference between the predicted and observed cell counts. This residual represents the interaction between originating and target industries, controlling for their relative expansiveness and attractiveness, respectively, across and within countries. These controls correct for the effects of both global and country-specific resource endowments and market opportunities on diversification.

Table 5   Industry Expansiveness Values and Their Correlations Across Countries

| | A. Expansiveness Values | | | | |
| | Country | | | | |
Industry	France	Germany	Japan	United Kingdom	United States
Bituminous coal and lignite mining	1.92	− 0.04	− 2.33	− 0.53	0.98
Food and kindred products	− 3.94	4.60	− 2.74	− 2.03	4.11
Paper and allied products	11.50	− 4.90	− 5.24	− 4.19	2.82
Chemicals and allied products	2.61	− 2.52	− 2.64	3.88	− 1.33
Petroleum and coal products	1.42	− 2.30	3.22	− 0.09	0.59
Rubber and misc. plastics products	5.11	6.12	− 6.84	0.79	− 5.19
Stone, clay, and glass	2.64	3.29	3.01	− 1.54	− 2.12
Primary metal industries	2.45	− 3.19	2.91	− 0.96	− 1.20
Fabricated metal industries	0.63	− 0.68	− 0.28	0.96	0.63
Machinery exc. electrical	0.44	− 1.10	− 0.36	0.19	1.71
Electrical and electronic equipment	1.47	− 0.78	3.32	− 0.81	− 0.26
Transportation equipment	4.23	2.26	1.27	− 2.58	3.28
Instruments and related products	1.62	− 1.75	4.33	− 0.64	− 0.32
Electric, gas and sanitary services	5.52	3.67	− 6.11	4.93	3.04
Wholesale trade: durable goods	0.48	− 0.89	− 0.04	0.74	0.67
Wholesale trade: nondurable goods	1.91	− 1.81	4.53	− 0.52	− 0.29
Apparel and accessory stores	2.81	− 2.70	9.39	− 2.13	− 1.75
Security, commodity brokers	2.80	4.54	2.25	− 2.36	− 1.63
Holding and other investment services	10.90	0.94	− 4.40	− 3.95	− 3.49
Personal services	2.30	− 1.29	− 1.82	5.45	− 0.05
Membership organizations	2.31	− 1.45	− 1.42	5.38	− 0.19

	B. Correlations of Industry Expansiveness Values Among Countries				
France	1.00				
Germany	− 0.27	1.00			
Japan	− 0.46*	− 0.34	1.00		
United Kingdom	− 0.38+	− 0.03	− 0.27	1.00	
United States	− 0.34	− 0.12	− 0.11	0.02	1.00

*$p < 0.05$, +$p < 0.1$ ($n = 21$)

Because we have residuals both for acts of diversification and for the absence of these acts between two industries, we report in Tables 7a and 7b two sets of correlations. Both subtables show a large preponderance of significant negative correlations between pairs of countries. Japan appears to be least dissimilar from the other four countries. But these four are themselves highly dissimilar. Only one correlation, between Japan and France for nondiversification, is positive, but it is not significant from zero. These findings are quite consistent with the Institutional Hypothesis that countries differ in their patterns of interindustry diversification.

Technological coherence may exist at a more disaggregated level than we measure, for example, between various kinds of semiconductor technologies. In a trivial sense, there must be coherence at the most microlevel if we are not to expect nuclear physicists also to be deployed by barber shops. The analytical question is therefore: What is the appropriate level of aggregation at which to observe the balance of technological and institutional forces? If the answer is that the level of aggregation should capture important strategic decisions, then our results indicate no evidence for a technical coherence that is robust across nations.

Agency and Diversification: Two Case Studies

The statistical analysis presented above points to institutional effects on the decisions of the largest firms in

Table 6   Industry Attractiveness Values and Their Correlations Among Countries

A. Attractiveness Values

Industry	Country				
	France	Germany	Japan	United Kingdom	United States
Metal mining	−1.97	1.07	2.34	−3.09	1.64
Anthracite mining	1.36	−3.02	3.46	−2.45	3.37
Bituminous coal and lignite mining	2.33	0.64	−1.63	2.00	1.33
Oil and gas extraction	2.17	−0.43	−2.67	0.45	0.49
Food and kindred products	2.18	0.89	−5.06	0.87	1.11
Tobacco manufacturer	5.26	3.49	−0.38	−1.07	3.22
Textile mill products	0.53	−0.97	1.36	−0.14	−0.79
Paper and allied products	1.78	−0.22	−3.56	1.41	0.58
Chemicals and allied products	1.00	−1.35	0.57	0.37	−0.58
Petroleum and coal products	1.83	0.03	−3.26	0.91	0.49
Rubber and misc. plastics products	1.01	−0.62	0.22	0.22	−0.83
Stone, clay, and glass	1.98	0.21	−4.00	0.61	1.21
Primary metal industries	1.96	−0.09	−3.77	1.31	0.59
Fabricated metal industries	1.15	−3.20	3.11	−2.24	3.48
Machinery exc. electrical	1.95	−0.90	1.06	0.33	−2.44
Electrical and electronic equipment	1.07	0.53	−2.67	1.15	−0.07
Transportation equipment	2.80	0.12	1.67	5.54	−4.53
Instruments and related products	0.55	−0.90	1.44	−0.34	−0.74
Electric, gas and sanitary services	3.40	2.45	10.70	−4.57	−5.14
Security, commodity brokers	0.55	−0.90	1.44	−0.34	−0.74
Misc. repair services	0.29	3.16	−0.33	−0.91	−1.63

B. Correlations of Industry Attractiveness Values Among Countries

France	1.00				
Germany	−0.39[+]	1.00			
Japan	−0.60*	−0.04	1.00		
United Kingdom	0.29	−0.06	−0.61*	1.00	
United States	0.00	−0.26	−0.39[+]	−0.20	1.00

*$p < 0.05$, [+]$p < 0.1$ ($n = 21$)

each country, but the agency behind these decisions can only be inferred. Case studies of diversification by acquisition permit a finer-grained analysis of how institutions influence entrepreneurial agents. Agency requires the intent of agents to act upon their beliefs, that is, their cognitive understanding of themselves and their environment. Given this will, an acquisition depends upon three parameters: the "structural" opportunity that presents a firm for acquisition, the availability of financial capital to the acquirer, and the willingness of shareholders to sell their shares. Numerous case studies illustrate how institutional constraints within countries influence attempts to diversify between industries (see Gerlach 1992 for a discussion of Japanese keiretsu, and Hirsch 1986 for examples of institutional pressures in the United States).

Two quite well-documented cases—one in France, the other in the United States—show how financial organizations preserved traditional ownership structures against the aspirations of entrepreneurial outsiders. The outcomes of these attempted acquisitions reflect the frustration of enterpreneurial ambitions due to inability to successfully contest control over finances and ownership. In both cases, the failed attempts had consequences for subsequent diversification.

Lea c   a d C e   ca Ba . Despite the existence of well-established equity markets and the growing acceptance of the hostile takeover, Leasco's tender offer to acquire Chemical Bank in 1967 failed. Saul Steinberg founded Leasco in 1961 as a computer and programming

Table 7 Correlations Among Countries for Interactions Between Row and Column Industries

A. Correlations of Interactions for Diversification
(*n* = 441)

France	1.00				
Germany	−0.27*	1.00			
Japan	−0.07	−0.11*	1.00		
United Kingdom	−0.27*	−0.13*	−0.09+	1.00	
United States	−0.18*	−0.28*	−0.01	−0.45*	1.00

B. Correlations of Interactions for Absence of Diversification
(*n* = 441)

France	1.00				
Germany	−0.13*	1.00			
Japan	0.07	−0.29*	1.00		
United Kingdom	−0.28*	−0.16*	−0.07	1.00	
United States	−0.24*	−0.38*	−0.04	−0.36*	1.00

*$p < 0.01$, +$p < 0.1$

leasing company.[3] Its unfriendly acquisition of Reliance Insurance was well received by the stock market and was financed through the help of a few large banks and investment companies, as well as through the issuance of new stock held by mutual funds. The appreciation of Leasco's stock price by over 5,000% from 1965 to 1969 provided Steinberg with substantial capital resources. And yet, over the course of the planned takeover of Chemical Bank, Steinberg faced substantial resistance, causing a fall of Leasco's stock from $140 in early February of 1969 to $7 by May of 1970.

Chemical Bank was a commercial bank that held $9 billion in assets and occupied one of the most important positions in the network of board interlocks among the largest American corporations. Studies on interlocking directorates for the United States generally show that these networks have been fairly sparse, except for the historically important role of commercial banks. In the 1960s, commercial banks held 40% of American financial assets. They had, therefore, critical control over capital resources. Moreover, they were centrally positioned in the network of interlocking directorates. Mintz and Schwartz (1981) detail the important role played by banking and insurance firms in the 1960s. Analyzing directorate ties among the Fortune 500, they found that commercial banks had almost three times more ties than industrial firms; insurance companies had slightly less than two times as many as industrial firms.[4]

Bank centrality in the intercorporate network appears to be an important consideration in Leasco's failure to acquire Chemical. Four firms that played important roles in halting Steinberg's attempted acquisition have high network centrality. In terms of the "hub centrality," Chemical Bank was ranked fourth, Lehman fifth, Chase Manhattan sixth, and Continental Illinois Corporation (the eighth largest American corporation) as seventeenth (Mintz and Schwartz 1981). Chase Manhattan, Continental, and Lehman all owned large holdings in Leasco; Continental was also a major lender. The CEO of Chemical directly communicated with the CEO of Continental to discourage the attempted acquisition; Steinberg recalls Continental pressuring for the tender to be dropped. By 1970, Lehman responded to pressure from other banks by refusing to participate in the tender offer. Chemical's efforts also extended into Washington and the New York state assembly, in which a bill was passed to prevent conglomerate takeovers within its boundaries.

The attempted diversification by Leasco, a leasing company with insurance interests, into commercial banking therefore failed. By 1969, Steinberg had neither the shares nor the financial resources to continue the tender offer. In an often cited quote, Steinberg concluded that "I always knew there was an Establishment. I just used to think I was part of it."[5] Leasco moved eventually to other diversification interests, principally in information technology. In the 1980s, Steinberg and his renamed flagship Reliance played a major role in the early leveraged buyout wave. Chemical did not survive the post-1985 takeover boom in the banking industry, and merged with another bank, Chase Manhattan.

BSN a d S . G ba . With the backdrop of Steinberg's experience, it is particularly insightful to analyze the failed acquisition of a major firm in France in 1969. A remarkable example of the clash between an entrepreneur and stable business interests is the attempt by Antoine Riboud, chief executive officer of a newly merged company called Boussois-Souchon-Neuvesel, or BSN, to take over the 300-year-old firm of St. Gobain in 1969. Riboud, an outsider, was born to a Protestant family and was not educated at one of the local grandes écoles (Polytechnique, HEC, ENA). In contrast, St. Gobain, a chemical and glass company, held 16% of the world glass market in 1913 but failed to grow in the 1960s. It was slow to adopt the float glass procedure, and it did not organize itself by the new managerial structures. The stock fell drastically, though the overall bourse rose 40%.

The company's organization reflected the influence of its long history. Graduates of the École Centrale ran glass production; those of the École Polytechnique dominated chemicals. The board was controlled by long-established French Catholic families, stemming from their influence

in the mergers in the 1800s that had transformed St. Gobain to a modern power (Daviet 1989).

Antoine Riboud launched a hostile takeover in 1969. The Commission des Opérations de Bourse had only been founded in 1968, and had no prior experience in overseeing a hostile acquisition of this size; it consequently asked its London counterparts to offer advice.[6] The French state was not an important player in these events. Riboud was backed by discontented banks, such as Paribas and Lazard Frères, though on the board of Paribas sat one of the members of St. Gobain, who slowed down the attack. Lazard was headed by Michel David-Weill, who was not Catholic. In the proceedings, a third bank became involved, Neuflize-Schlumberger-Mallet, which had Protestant origins. Despite these formidable ties, Riboud failed in his attempt.

A white knight was found in the form of the venerable firm of Pont-à-Mousson. Pont-à-Mousson was an old firm from the Lorraine with ties to the great families of the region, de Wendel and Roechling. After World War II, Pont-à-Mousson built up a holding structure that included steel and related activities. Its role in restructuring the industry required close connections with government. The difficult transition of the firm from a company with strong representation of families to a professionally managed group was facilitated by a capable executive, Roger Martin, who was a graduate of the École Polytechnique. During the 1960s, when Martin resolved this transition, fights among the families in Saint-Gobain (none of whom owned more than 1% of the stock) led to the placement of stock with Pont-à-Mousson, a placement executed by the Banque de Suez. Eventually, Pont-à-Mousson stepped in to acquire the shares in St. Gobain held by other parties, mainly banks. Then St. Gobain-Pont-à-Mousson sold off some steel activities and eventually developed further interests in the paper industry.

BSN's attempted takeover of St. Gobain is an excellent illustration of how "coherence" can be influenced by national conditions.[7] Without the benefit of this history, one could infer from the product portfolio of BSN that it followed a coherent strategy of diversification. Deflected from its acquisition of a glass and chemical company, BSN expanded soon after into food products. Similarly, St. Gobain diversified into paper packaging. But it could have been otherwise. BSN's acquisition of St. Gobain would have merged diverse packaging and bottling activities together, with vertical integration into glassmaking. The outcome observed is not incoherent, but is hardly determined by technical and market-related features. The institutional context of ties among banks, family ownership, the state, and religion conditioned the choices of entrepreneurs.

Reflecting on these events in the context of the persistence of older groups, a well-known economic history of France observes that coherence is frequently achieved subsequent to decisions influenced by structural opportunities:

> The development of these groups renewed the old problem, so much debated in the 1920s, of their coherence. Most of them [the newly consolidated groups] defended themselves from being simple "financial conglomerates" and pretended to be organized in function of certain technological or economic "complementarities" that in the 1920s, would have been called "rationalization." It was, therefore, that the group Saint-Gobain-Pont-à-Mousson reoriented its activities to the environment [habitat]. However, moving from its packaging activities, it increased its equity investments in paper making. . . . These complementarities are in fact flexible extensions and result often from a historical evolution that is made a bit on the chance of "opportunities" [au hasard des occasions]. . . . The passage of B.S.N. . . . from the container [glass] to the content [drinks] and from the drink to the collection of food products is characteristic. . . . No group can indefinitely develop itself uniquely in function of "opportunities" of extensions that present themselves. A day arrives when it is necessary to research a coherence . . . (Braudel and Labrousse 1982, p. 1162, author's translation, bracketed text by authors).

In a different national setting, BSN would not have changed its name to its well known product label, Danone, but would consist of related packaging activities, with research and development activities that would have created a different coherence than the one eventually achieved.

C   a   f   e Ca e . The Leasco and Chemical case shares important similarities with the case of BSN and St. Gobain. First, as Hirsch notes (1986, p. 807), the conglomerate acquisition wave was begun by ethnic and geographic outsiders. An interesting issue, not well resolved in this literature, is whether the role outsiders played reflected a different understanding of the world, or different politics of these economies. Second, both cases reflect the introduction of financial innovations and the disruption of traditional institutional relations. In the United States, Chemical Bank worked through a fairly tightly knit set of ties among eastern and midwestern banks to drain financial resources from a young entrepreneur. In the case of France, investment banks and historical family ties joined to defeat the efforts of another young entrepreneur. In both cases, the attempt to diversify by acquisition led to the revelation of the structural unity among central institutions and in the reproduction of this structure through a reinvestment of capital among the key players.

Of course, the cases differed as well, particularly regarding the institutional identities of the key players controlling the allocation of financial resources. In the United States, hostile acquisitions had become established by 1967. But even in the market-oriented American economy, institutions and institutional relations enable and, as in this case, constrain the agency of entrepreneurs. These institutional relations are subject to more fluid change due to the strength of an equity market that has eroded the share of financial assets held by commercial banks from 40% in the 1950s to about 20% today (Davis 1994). In France, hostile takeovers still remain rare and are often blocked to this day, sometimes by the same players active in the BSN and St. Gobain affair. Moreover, the French government has maintained a strong ownership stake in the French economy; in fact, the wave of nationalizations (only now partly reprivatized) in the 1980s marked an increase in state influence. Yet, ties among the French elite and the prominent roles played by the two investment banks remained important fixtures of the French financial landscape.

One might conclude from these two case histories that the opportunities in each country revealed capital market inefficiencies. Indeed, the structure of ownership in France has undergone important changes in recent years (Manière 1999). Even if German capital remains a "small world" (Kogut and Walker 1999), recent hostile acquisitions challenge the existing network of ownership. But the argument of inefficiency ignores the fact that institutional structures are *g e* as historical features of the economic environment and condition its subsequent evolution.

Teece et al. (1994) assume that technological laws are invariant among all societies. Instead, the rare country studies that test the performance of similar organizational forms in different countries indicate a far more complex interaction of technological and institutional factors. At the present moment, when lessons of American capitalism challenge existing organizational forms in other industrial and developing countries, it is interesting to observe the varied evidence for the efficacy of organizational forms in diverse national settings. There is thus a clear link between our results and the research on the coevolution of country-specific organizational forms and technologies (Dosi and Kogut 1992, Lewin et al. 1999).

Reconsider our Boolean representation of technology and configurations of national institutions in light of our findings that technical factors are not sufficient to generate identical diversification patterns across countries. These findings do not contradict the possibility that technical factors might be necessary causes. Consider two combinations, $\{T, C_A\}$ and $\{T, C_B\}$, each with different diversification patterns. Suppose the institutional configurations, C_A and C_B, are distinguished by the presence or absence of an equity-based financial system and whether or not the government is *d g e*. We now want to ask if the forces of globalization that impose an equity system on Country A will then also cause it to converge towards the diversification pattern of Country B. In other words, we are posing the question of whether two country combinations $\{T, C_A\}$ and $\{T, C_B\}$ will converge in their diversification patterns. It should be obvious that convergence is not certain if governmental intervention interacts with the first two factors. If there is an interaction, then technology and equity markets are not sufficient, though perhaps necessary, for the convergence in diversification. For convergence, all three factors, due to their interactions, are critical to the outcome. It is not surprising then, that recent statistical work on emerging economies shows that the conglomerate form, which is under attack in many western countries, appears to be more efficient than focused firms (Khanna and Palepu 2000).

The historical given of institutions is thus critical to the understanding of convergence. *Ce a a be edf a e a d e ac e g e d f e.* It is unlikely that union representation will quickly disappear, for example, in many northern European countries. Thus, if an institution is a factor in determining an outcome but is historically fixed in a country and varies across countries, then convergence will not occur among countries.

These observations have a powerful implication. Evolution towards a convergent outcome in diversification is not at all guaranteed despite the globalization and homogenization of some institutions, such as equity-based financing. There are two critical logical conditions that prevent convergence. Because institutional differences persist, and because these persisting institutions interact to form distinctive complementary or interacting combinations, the introduction of imported institutions will not have the same effects in all countries.

We did not assess such institutional effects in this analysis; a sample of five countries with many institutions does not have the power, even in Boolean logic, to arrive at strong conclusions. Our analysis does show that by 1970 technical forces alone were not sufficient for convergence in diversification patterns; hence, there must be interacting institutions. More recent work shows that despite considerable globalization of financial markets, persisting country differences in institutions continue to influence acquisition and merger decisions (Kogut and Walker 1999).

Conclusions

The debate between technical and institutional environments has been focused at too general a level of analysis. In reviewing Parson's theory of action, W. F. Whyte summarized that "there is a stage, there is a set, but the actors do not move."[8] By not looking below the macrodescription of the environment, the technical and institutional sides fail to consider the conditions of cognition, agency, and entrepreneurship that influence interindustry diversification. Most studies show that economics and institutions matter. In response to a study of acquisitions (Palmer et al. 1995), Fligstein (1995) disagreed with the conclusions that interorganizational networks are important. However, there was no disagreement that the results showed that economic factors were far more powerful than institutional effects. Similarly, Davis and Stout (1992) conclude that acquisitions, though poorly explained by economic agency models, are highly responsive to economic factors. Even if networks influence the acquisition decision, there is little argument, or contrary evidence, that decision makers are not influenced by financial considerations in their acquisition decisions (Fligstein 1995). There is, in Giddens words, a means-end rationality in financial markets that is sensitive to economic considerations. Our results similarly show the effects of the joint influence of technological and institutional factors, but they challenge the notion that they represent "inherent" causes.

In this sense, the statistical and historical analysis of this paper suggests how structure interacts with the beliefs and decisions of entrepreneurial agents. It is hard to imagine any persuasive account of organizational evolution in a country without an appeal to both cognition and power in the context of historically given structural relationships. The claim that institutions matter corrects the view that economic and organizational patterns are simply the results of individual choice. Institutions matter not because they determine the occurrence of entrepreneurial action, but because they influence its content and direction. Neither an institutionalist nor a technological perspective is sufficient to explain our results. Entrepreneurs as economic and social agents seek to match their visions to the permissible and are influenced by rational considerations of technical and economic advantage. Yet what institutions do not fund or sanction is not likely to be realized. Observed coherence in diversification is, consequently, the etching on a space of technical possibilities left by the confluence of actors and institutions. The imprint of institutional variation is found in its effects on agency and action.

Acknowledgments

Appendix.   Summary of Comparative Institutional Research

Owners

Financial institutions have become the most important form of ownership in the United States and the United Kingdom (Useem 1984), and have increased in importance in France (Morin 1974). Germany and Japan stand out as countries in which shares are held by other enterprises, with the Germans tending more towards holdings by non-financial firms (Gorton and Schmid 2000, Studienkommission 1979), the Japanese towards financial-firm holdings (Prowse 1995). However, family ownership remains very important. Scott (1979) reports data across a number of countries, finding that 31 of 200 largest American industrials were family owned in 1963; the corresponding number for Japan was 33 of 200. However, in the European countries, these proportions have been much higher (Morin 1974, Hannah 1980).

Power of the Boards

In the United States and United Kingdom, the boards of directors are given supervisory powers whose rights are not divisible and alienable; they are appointed by the shareholders and are responsible to them (Useem et al. 1993). In Germany, the two-board system prevails among stock exchange companies. A managerial board (Vorstand) is given the task of overseeing operational management; a supervisory board (Aufsichtsrat) is elected by the shareholders and also includes representatives from employees who nominate half the directors. Through the inclusion of German worker representatives, this profit motive is clearly tempered by a concern not only with shareholder value, but also the welfare of employees. French practice tends to be closer to the Anglo model in which an administrative board oversees management directly. An external board exists in the form of performing an auditing function (Commissiares aux comptes), but it is far more limited than the German Aufsichtsrat. Japanese practice is influenced by a variety of traditions. Its corporate law is German in origin, though it follows the Anglo model nominally by requiring a board of directors. In practice, though, the board tends to consist of largely management insiders (Caves and Uekusa 1976, Gerlach 1992, p. 104ff, Kaplan 1993).

Intercorporate Networks

Intercorporate networks exist in every country; the issue is to what extent control is effectively mediated by powerful actors or interests. In all countries, the raw numbers of interlocks or ties can be high, though the overall density is low (Gerlach 1992, Scott 1979). The United States and the United Kingdom are notable for the weakness of their interfirm ties. There are few horizontal ties among industrial firms, with a minority of individuals responsible for disproportionate number of shares (Pennings 1980, pp. 92–93). Overall, the evidence points to a central role played by banks up through the 1960s and 1970s due to historic relationships (Scott 1979, p. 114). The United Kingdom also does not show strong structural ties, but does demonstrate a strong

pattern of defined class interest. As Useem (1984) concludes, class interests in the United Kingdom and the United States are expressed through personal ties rather than through stability in interfirm relationships. British ties also tend to be built around banks. The Japanese and German systems represent the polar opposite to the Anglo-American situation. Banks remain central actors in the modern Germany (Scott 1979, Weillhoeuer 1989) but do not appear to align themselves with distinct industrial groupings. In Japan, interfirm networks are also currently centered around the role of main bank institutions. Because of historical relationships, the overall density of interfirm ties in Japan is low, but the density within groups is high (Gerlach 1992). Some one-third of the top 200 firms are considered to be satellites (Gerlach 1992, p. 78). In comparison with the German case, Japan presents a network that is demarcated among industrial groups. The French case is intermediate. France's industry has remained strongly interlocked into a few groups. The structure of the network had been, until recently, centered around the "deux étoiles" of Paribas and Suez. Morin (1974) found that 23 of 200 firms in 1971 were controlled by the Banque de Suez and Paribas.

Government

The significance of government policy on directing the investment and economic decisions of firms varies dramatically among these countries. State ownership of key enterprises has been an important influence in France, somewhat less in the United Kingdom, and even less so in Germany and Japan. France experienced two waves of nationalization, just after the war and with the ascendance of Mitterand to the presidency. The United Kingdom experimented for thirty years with direct ownership of steel companies, as well as public utilities, before reversing the policy in the 1980s. The German government owned large industrial enterprises, principally Volkswagen and Salzgitter, as well as public utilities, such as the Bundespost or Lufthansa. Influenced by the American model, Japan did not nationalize enterprises after the war and has also privatized many of its utilities (Shepherd 1976). The French and Japanese government have been unquestionably proactive (Schonfield 1969, Zysman 1983, Johnson 1982). In recent times, French government policy has been implemented through indicative planning and fiscal incentives as well as close personal ties (Dobbin 1994). In 1990, 45% of the CEOs of the 200 largest French corporations began their careers inside the government, many of them with degrees from the elite schools (Fridenson 1996, Kadushin 1995). As in France, Schaede (1995) finds that the Japanese practice for bureaucrats to descend into private firms plays a similar role. The Anglo countries, plus Germany, developed largely noninterventionary policies. The training of top executives in Germany is more diversified among schools of higher education, with technical training being especially important (Ziegler 1997). The United States has relied more heavily on subsidies to research institutions, regulatory bodies, and military contracting as effective means of influencing private sector activity (Chandler 1990, Fligstein 1990).

Endnotes

[1]We adopt both Fligstein's (1990) view that institutions form the contextual environment of economic organizations and Giddens's (1994) emphasis on the endurance of institutions over time (see Scott 1979) for an excellent review of definitions). North (1990, pp. 3–5) defines institutions as "the rules of the game in a society or, more formally, the humanly devised constraints that shape interaction." Organizations "are groups of individuals bound by some common purpose to achieve objectives."

[2]The theses were written as part of a project organized by Bruce Scott, Professor at the Harvard Business School.

[3]Unless noted otherwise, the details of these events are found in Glasberg 1981.

[4]Mintz and Schwartz used a measure of centrality as their statistic; hub centrality indexed the extent that a given firms centrality measure is the result of numerous ties to less central organizations.

[5]*B e Wee*, April 26, 1969, p. 144; cited in Glasberg (1981), Hirsch (1986).

[6]We would like to thank Hervé Dumez for comments on the details of the acquisition.

[7]The following account draws from the study by Daviet (1989).

[8]Cited in Heritage (1984, p. 73). Also see Coleman's (1986) discussion of Parson's theory and the problem of action, DiMaggio's (1988) recommendations on agency and institutionalism, and the recent review of the debate by Hirsch and Lounsbury (1997), who also stress the importance of agency.

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