

West German Industrial Policy

Jeffrey A. Hart

in Claude E. Barfield and William Schambra (eds.),
The Politics of Industrial Policy (Washington:
American Enterprise Institute, 1986)

Introduction

West German industrial policy differs from that of all the other large capital industrial countries in combining a low degree of centralization of government institutions for making industrial policy with a highly centralized "corporatist" or "concertative" bargaining system, especially during crises. Germany like the United States and Britain in its governmental decentralization, more like France and Japan in its bargaining arrangements. This system is often praised for its ability to maintain economic stability (especially low inflation and unemployment rates) while ensuring labor peace. It has been criticized for its failure to incorporate more marginalized sectors of the working force in the mainstream German society and for undermining the legitimacy of the major parties and interest groups. As in the industrial policies of all the other large capitalist countries, one must distinguish the normal policy-making process from that which exists during crises. Therefore, the narrative below will start with a description of the institutions that are responsible for industrial policy making along with some historical background on them. Some attention will be made to identify the elements of continuity not just in the institutions themselves but also in the justifications for government intervention in general. Then several cases of major industrial crises and the politics of crisis resolution will be discussed. The conclusion will attempt to synthesize the lessons learned from studying both normal and crisis policy making.

Thanks are due to the American Enterprise Institute for partial funding of the research for this chapter, and in particular to Claude Barfield for organizing the AEI conference on industrial policy, held in Washington on October 1, 1984, at which an earlier draft was presented. Peter Katzenstein, Alfred Diamant, and Gerd Junne provided helpful comments on that draft.

This chapter omits any detailed description of European industrial and regional policies that affect Germany. Inclusion of European policies would help to provide a more complete picture of German policies. The reader may wish to obtain this additional information by reading the author's forthcoming work on industrial policy, *Atlantic Riptides*.

Background on the German Institutional Setting

The most important government institutions for a discussion of economic and industrial policies are the chancellor's office, the Bundesbank, the Ministry of Economics, the Ministry of Research and Technology, the *Sachsverständigenrat*, and the regional governments. As in all large capitalist nations, the government institutions work within a wider policy network, which includes the political parties, the unions, employer associations, and other private actors. This section will focus only on government institutions to provide some background for the uninitiated. Those already familiar with German governmental institutions may want to skip to the next section.

The chancellor of the Federal Republic is in a key position to propose new policies, especially as the chancellor often is also the head of the largest party in the ruling coalition. But the chancellor must win approval for all legislative changes in the parliament and has limited control over certain parts of the bureaucracy, as in many other industrial democracies. A particularly important limit on the chancellor's policy-making power in economic policy is the high autonomy of the German central bank, the Bundesbank.

The Deutsche Bundesbank (a central bank that also coordinates the activities of the regional banks and is autonomous from the rest of the federal government) has sole control over monetary policy. It was created under the occupation in 1948 and was modeled after the U.S. Federal Reserve System. The Bundesbank in Frankfurt, however, serves as a true central bank unlike any of the branches of the Federal Reserve System in the United States. The board of directors (*Zentralbankrat*) of the Bundesbank is composed of the directors of the Bundesbank and the presidents of the central state banks (*Landeszentralbanken*). The *Landeszentralbanken* have no real independence, unlike the state banks (*Landesbanken*), but are merely administrative units of the Bundesbank. Members appointed by the federal government have eight-year terms. The long terms are designed to ensure that the Bundesbank can be quite independent from the chancellor and the ruling party if it chooses to be.¹

The Ministry of Economics shares control over fiscal policy with the Ministry of Finance. The Ministry of Economics has been headed by relatively conservative political figures since World War II. Ludwig Erhard was the master of economic policy during the Adenauer administration. At that time the Ministry of Economics had no real rivals for control over economic or industrial policy in the federal government. In 1972, however, the creation of the Ministry of Technology and Research presented the Ministry of Economics with a rival of considerable importance. The Ministry of Technology and Research developed an elaborate research planning system and was given authority over administering various technical aid programs for specific industries. During the 1970s, the majority of this aid went to the nuclear energy programs and to the state governments.²

The *Sachverständigenrat* (which roughly translates as Council of Experts) was created in 1963 to produce an annual report on the economy. Composed mostly of academic economists, it tends to take a relatively conservative (that is, neoclassical) view toward economic policies. It disapproves of too much involvement of the government in domestic economic affairs and favors maintaining liberal free trade policies in external economic affairs. The *Sachverständigenrat* was an early proponent of national-level bargaining between management and labor allocating wage increases according to productivity criteria. The federal government appoints its five members to a term of five years.³ It has lost much of its influence in recent years.

Antitrust or competition policy is the province of the *Bundeskartellamt* (Federal Cartel Office). Antitrust administration, however, is pretty much a paper tiger—or at least it has been until quite recently. The *Kartellamt* can be overruled by the minister of economics on any ruling.

Finally, no one could describe the formal institutions for economic policy in the Federal Republic without reference to the state governments. These governments have the power to collect taxes (but not to set rates), to distribute state revenues (a certain percentage of which come from federal income taxes) according to the mandate of state assemblies, and to use state banks (*Landesbanken*) for development and aid purposes. The result is that the state governments have considerable power and that economic policy in the Federal Republic is truly federal, yet the state governments remain subordinate to the federal government in many important areas.

The Evolution of Economic and Industrial Policy in Germany

German economic policy is strongly market oriented. The main goals pursued are increased growth, price stability, low unemployment, and external equilibrium.⁴ When a trade-off has had to be made in macroeconomic policies between price stability and increased growth, the general response of the German government has been to favor price stability.⁵ The evolution of German industrial policy has been affected by macroeconomic cycles. The period between 1950 and 1967 was one of relatively high average growth with swings between fast growth and recessions. Recovery from World War II and membership in the European Economic Community accounted for a large proportion of the growth in this period. Besides price stability, macroeconomic policies stressed promotion of exports through a somewhat undervalued exchange rate for the mark.⁶

During the 1950–1967 period, the ruling parties, the Christian Democratic Union/Christian Social Union (CDU/CSU) and the Free Democratic Party (FDP), favored a market-oriented and generally noninterventionist approach to economic policy; and even the Social Democratic Party (SPD) moved in this direction after the Bad Godesburg Program of 1959. The

economic policies of the CDU were consistent with the widely accepted notion of a social market economy or *Soziale Marktwirtschaft*. This concept, originally coined by Professor Mueller-Armack and adopted by the Freiburg School of economists who influenced Ludwig Erhard (economics minister between 1949 and 1963 and then chancellor from 1963 to 1966), embraced four basic principles: (1) a focus should be on the general desirability of competition in the economy, and central planning should be avoided; (2) the most important role of the state in the economy was to promote competition and avoid monopolies; (3) anticyclical policies should be adopted by the government, but the manipulation of the money supply was more desirable than Keynesian demand management because of the possible inflationary effects of the latter; and (4) a competitive market economy and a libertarian political system went hand in hand, and both needed to be maintained.⁷

The major opposition party, the SPD, differed in some major respects with the program above. After 1959, however, on economic planning in the face of real competition, they were in basic agreement. The Bad Godesburg Program of 1959, for example, states the following: "Free competition and free initiative of entrepreneurs are important elements of Social Democratic economic policy. . . . The Social Democratic Party is in favor of the free market whenever real competition exists."⁸ The paragraph continues, however, to invoke planning as a necessary response to domination of markets by individuals or groups to "preserve the freedom of the economy." The SPD opposed cartels during the Adenauer administration when the CDU favored them. The SPD stressed consumer and worker interests in competition and free trade during this period.⁹

The recession of 1966-1967 was a major turning point in many respects because it was the beginning of the end of CDU control of the federal government. The German Bundesbank, angered by an increase in public spending preceding the 1965 elections, implemented highly restrictive monetary policies in August 1964 and maintained them for eighteen months. The resulting recession was quite marked. The gross domestic product decreased by 15 percent, and the number of unemployed increased by 140,000. In all of Europe, only Germany experienced such a deep recession at this time. The Bundestag responded with the Stability and Growth Act of 1967, which mandated countercyclical policies on the part of federal authorities to avoid future shocks of this sort.¹⁰ The German political system, and especially the SPD, began to perceive a need to increase governmental intervention to reduce the effects of business cycles.

In 1967 the grand coalition (combining the CDU and the SPD) government initiated an informal process called *konzertierte Aktion* (concerted action), which brought together representatives of the government, the Bundesbank, the major employer groups, and the trade unions to establish a greater degree of consensus on economic policies (and especially on wage policies).

Through this mechanism the SPD/FDP coalition government intervened actively after 1969 in national wage negotiations to avoid strikes. At the end of the 1960s a short burst of wildcat strikes and an increase in labor militancy had occurred. *Konzertierte Aktion* ended in 1977 when the unions withdrew in opposition to the contesting in the Constitutional Court by the German Employers' Association of the 1977 Codetermination Act. They decided also at this time to pursue more actively the goal of *Mitbestimmung* or codetermination (in the form of effective worker representation on supervisory boards of corporations) and humanization of working life.¹¹ In 1978 the *Industrie Gewerkschaft Metall* (henceforth IG Metall, the main union of the auto and metal workers) first called for a thirty-five-hour work week to maintain levels of employment during a period of rapid increases in productivity.¹² IG Metall was concerned that jobs lost in traditional manufacturing industries because of technological rationalization of production would not be replaced elsewhere. It was also concerned that the rationalization of production might produce extremely unpleasant working environments. Thus both the thirty-five-hour week and the humanization of the workplace goals stemmed from fears about the effects of the introduction of new production technologies.

The 1966–1973 period was one of intense debate within the SPD on planning and *Strukturpolitik* (structural policy). Although the SPD/FDP coalition's economics minister, Karl Schiller, added the concept of global steering—a German version of Keynesian demand management—to the policy lexicon after the 1966–1967 recovery, some members of the SPD pushed for more ambitious planning and sectoral industrial policies.¹³ These were mainly the young socialists and SPD technocrats, a not very powerful wing of the party. Nevertheless, one of the results of their efforts was the establishment in 1972 of the Ministry of Research and Technology (BMFT).¹⁴ The BMFT became, through its ability to allocate credit to specific firms, the main institutional focus of sectoral industrial policy in Germany.

The OPEC price increases of 1973 put a temporary end to the experiment with Keynesian policies as the Bundesbank, with the concurrence of Economics Minister Helmut Schmidt, again used restrictive monetary policies to reduce inflation through induced economic recession. When Schmidt became chancellor in 1974, a reflationary package was introduced against the advice of the *Sachsverständigenrat*.¹⁵

At this point, the domestic debate over the economy changed its focus. Whereas previously the main debate had been between the advocates of intervention and those of nonintervention, now the debate was between those who wished to stick with macroeconomic policy interventions and those who preferred additional sectoral or mesoeconomic interventions. The oil price increases created a major problem of adjustment for German industries. The higher price of energy had an immediate and negative effect on those industries that were highly dependent on energy as an input: that is, most of the

heavy manufacturing and durable goods industries in Germany. There was an immediate call for government aid for the promotion of alternative energy production and energy-conserving technology. In 1974, even the bastion of neoclassical economics and the most prestigious of the five main economic think tanks in Germany, the Kiel Institute for the World Economy, began to point out that German economic problems were not merely cyclical but structural in nature. Problems in textiles, shoes, and clothing industries would spread to other parts of the economy. Some economists at Kiel began to advocate sector-specific policies not inconsistent with the mandate of the BMFT. "Sectoral policy seemed to go along with the emphasis on selective competitiveness, increased research and development, and a new international division of labor articulated by the Kiel School."¹⁶

The economists at Kiel were not alone, however. In 1976 the chancellor's office received a report from the Swiss consulting firm PROGNOS on the structural sources of unemployment in Germany.¹⁷ This report, together with the arguments of the Kiel economists, helped to create an impetus for more sector-specific industrial policies.

The main opposition to sector-specific policies came from the FDP leadership, in particular Count Otto von Lambsdorff, the minister of economic affairs. The FDP preferred macroeconomic measures, such as tax reductions, to mesoeconomic ones. The SPD view prevailed on the question of research on structural trends. In 1977, the government decided to approve such research, and in 1978 the five economic think tanks (IFW in Kiel, DIW in Berlin, HWWA in Hamburg, RWI in Frankfurt, and IFO in Munich) were asked to prepare annual structural reports.¹⁸

Also, in the summer of 1978, the government decided to inject the sum of DM13 billion into the economy to stimulate growth. The BMFT came up with an ambitious proposal for directing DM12 billion for research and development in five specific sectors: (1) ecology and environmental improvement, (2) humanization of the work place, (3) alternative energy technology, (4) water treatment, and (5) general promotion of innovation. Again the FDP opposed the sector-specific measures, whittling back considerably the increase to BMFT funding.¹⁹ In 1978-1979, the government enacted a large tax reduction for business amounting to around DM8 billion in 1978 and DM10 billion in 1979.²⁰

In other words, the FDP views on how to stimulate the economy prevailed over those in the SPD who preferred a structural approach. The effect of tax reductions was dramatic: an increase of 14 percent in investments in plant and equipment.²¹ The economic recovery spurred by this investment was interrupted, however, by the second OPEC oil price increases in 1979.

After the 1979 OPEC price increases, the Schmidt government returned to the traditional deflationary policies advocated by the Bundesbank and the Ministry of Finance. The resulting recession was prolonged by the restrictive

monetary policies adopted by the Reagan administration in 1981. Even before the recession of 1980–1982 several German industries began to suffer difficulties that forced them to approach the government for assistance. Previously the German government dealt with bankruptcies and plant closures in a hands-off manner. Rescues of firms in trouble were generally handled either by the major investment banks or the regional governments (sometimes both acting together).²²

Increasingly after 1975, the federal government itself began to intervene in industry crises. The first major case was the steel industry in the Saar valley in the middle and late 1970s. The next two examples are the rescues of AEG in 1979 and 1982. For the purposes of comparison, the case of the rescue of Volkswagen will also be discussed below. The general argument to be made here, however, is that the German government became more involved in resolving industry crises in the late 1970s and early 1980s for the following reasons: it had adopted new policy instruments that made such intervention possible; the German banks became vulnerable to the increasing number of firm failures;²³ and the number and importance of firm failures increased because of heavier international competition and bad firm strategies. Thus intervention became both necessary and possible for the federal government to a greater extent than it had been in the past twenty years (see tables 1, 2, and 3).

The increased involvement of the German federal government in rescues and the general increase in expenditures for entitlements led directly to a

TABLE I
TOTAL WEST GERMAN FEDERAL AND REGIONAL GOVERNMENT AID,
SELECTED CATEGORIES, 1974 AND 1983
(billions of 1985 DMs)

	1974	1983
Industrial	7.2	9.4
Coal	2.9	1.3
Manufacturing	4.3	8.1
Other	48.1	15.1
Housing	—	7.4
Regional	—	4.6
Stock purchasing	—	3.1
Total	55.3	24.5

Sources: Juergen B. Donges, "Industrial Policies in West Germany's Not So Market-Oriented Economy," *The World Economy*, vol. 3 (September 1980), p. 196; "Down to Earth: A Survey of the West German Economy," *The Economist* (February 4, 1984), p. 11.

TABLE 2
SUBSIDIES TO THE WEST GERMAN INDUSTRIAL SECTOR,
FEDERAL AND REGIONAL GOVERNMENTS, 1966-1978
(millions of 1985 DMs)

<i>Year</i>	<i>Grants and Loans</i>	<i>Tax Allowances</i>	<i>Total</i>
1966	692	2608	3300
1967	1107	3799	4906
1968	1230	3826	5056
1969	867	4800	5667
1970	1077	5449	6526
1971	1024	6686	7710
1972	1149	7670	8819
1973	1605	7926	9531
1974	2054	8513	10567
1975	1935	7613	9548
1976	1796	7975	9771
1977	2272	7784	10056
1978	2588	8044	10632

SOURCE: National Economic Development Office, *The West German Economy* (London: September 1981), p. 88. Original source is the Seventh Subsidy Report of the West German federal government.

TABLE 3
WEST GERMAN FEDERAL AND REGIONAL GOVERNMENT SUBSIDIES TO SPECIFIC
INDUSTRIAL SECTORS, AS PERCENT OF VALUE ADDED, 1974 AND 1980

<i>Industry</i>	<i>1974</i>	<i>1980</i>
Railways	72.9	82.5
Agriculture, forestry, and fishing	40.7	31.7
Coal mining	17.8	17.2
Office machinery and computers	6.9	4.5
Telecommunications	2.3	2.0
Motor vehicles	0.8	0.6
Iron and steel	0.6	0.4

SOURCE: Andrew Black, *Industrial Policy in W. Germany: Policy in Search of a Goal?* (Discussion Paper in Industrial Policy), (Berlin: International Institute for Management, June 1984), p. 21.

conflict within the SPD/FDP coalition between Chancellor Helmut Schmidt and Minister of Economics Count Otto von Lambsdorff. The immediate cause of the breakup of the coalition in 1982 was an open letter from von Lambsdorff to Schmidt concerning his disagreement with Schmidt about the continued growth of subsidies and entitlements expenditures. Von Lambsdorff and Schmidt also had open conflicts over the role of the minister of research and technology (especially his use of public funds to support Siemens).²⁴ Thus the internal debate over the direction of economic and industrial policies was a key factor in the fall of the SPD/FDP coalition and the election of a new CDU/FDP coalition government in 1982.

To summarize, German economic policy evolved over the past thirty years from the relatively noninterventionist policies implicit in the concept of *Soziale Marktwirtschaft* to much more ambitious forms of intervention. The first point of transition was 1966, when the German system moved decisively toward a Keynesian demand management and anticyclical policy (interrupted in 1973 and 1979 by periods of monetaristic orthodoxy). Major parts of the German government remain committed to this approach. Another turning point occurred in 1973 when the OPEC oil price increases provoked a serious turn toward structural policies and, in particular, the use of state-controlled investment funds to promote specific new technologies. That year was also a period of increased institutional openness to reducing the costs of adjustment to firms and workers during a period of rapid change in relative prices and in technologies. From 1973 to 1979, the German government came close to adopting what we might call a supply-side economic policy, especially toward the end of that period when it used tax reductions for businesses to spur investment. The failures of these policies led in 1982 to the crisis that broke up the SPD/FDP coalition and replaced it with the more conservative CDU/FDP government. Not enough time has passed since 1982 to make firm judgments about the differences between the CDU/FDP government and its predecessors. Yet, as I will try to demonstrate below, there seems to be more continuity than discontinuity in its overall economic and industrial policies.

Policies for the Steel Industry

In 1945 the occupation authorities confiscated two major German enterprises: IG Farben (a huge chemical combine) and the Krupp steel complex. The British military trusteeship controlled the iron and steel production of occupied Germany. The Allies planned to dismantle the Nazi-created Salzgitter iron and steel works, but they abandoned these plans when the workers protested. Labor unions were suppressed until 1947, when German workers were permitted to organize at the zonal level. France, like Russia, wanted to limit permanently the ability of Germany to resume its previous world leadership position in steel production. This aim was expressed in French proposals

for the internationalization of steel production in the Ruhr Valley. The French position on this matter helped to create political support later for the creation of the European Coal and Steel Community.

The United States, in contrast, was initially concerned primarily in breaking up the large combines in steel (and other industries), to deconcentrate control over production in a sort of internationalization of U.S. antitrust laws. The United States succeeded in codifying this goal in the Potsdam Agreement, which called for the breaking up of trusts and cartels in postwar Germany. The Vereinigte Stahlwerke, created during the Weimar years and second only to Krupp in importance in the Nazi steel industry, was broken up into thirteen smaller firms. But the United States relaxed its position on the reconcentration of German industry in 1947–1948 as the Cold War got underway. "It was one of the basic ideas underlying the Marshall Plan that an enhanced economic recovery of Western Europe crucially depended on the economic development of Germany."²³ So even the less ambitious policy of deconcentration lost its initial appeal to the occupation forces.²⁶

How the Germans stood on these issues was clear from the beginning. They believed that deconcentration of the steel industry would prevent it from resuming its prewar eminence. Thus the immediate response to the occupation efforts at decartelization was the formation of the *Walzstahlkontore* (steel consortia), which coordinated production of the small firms created by the breakup of the larger combines so that they could continue to take advantage of scale economics.²⁷ The *Kontore* were partly the creation of the German banks. The occupation authorities realized that the deconcentration of control over steel production required the deconcentration of banking as well. The smaller banks formed after 1945 quickly began to merge into larger financial institutions, however. Of particular importance for the steel industry was the emergence of the Deutsche Bank, which had its directors on the supervisory boards of almost all of the major steel firms.²⁸

In 1962–1963, after a period of rapid growth, a crisis developed owing to an overcapacity of production of several million tons. The lead banks for the steel industry (especially the Deutsche Bank) persuaded Mannesmann to stop the planned increase in production of sheet steel in exchange for an eight-year contract with Thyssen for the supply of slabs for Thyssen's new sheet steel production.²⁹ Thus the German banks reverted quite early to their traditional role in structuring the nature of competition and specialization within the steel industry.

The next major crisis occurred in 1967, at the same time as the general economic recession. The Krupp steel works had been allowed to resume operations during the early days of the Cold War. In 1967 the president of the Deutsche Bank, Herman Abs, took over the management of the firm. The president of Thyssen, Dr. Sohl, made a statement at this time which helps to explain the position of the industry: "We don't want state intervention that

submits our industry to external influences. . . . We hope that the time when prices and incomes in our sector were considered political factors belongs to the past."³⁰ Thus the firms preferred bank intervention to state intervention as a way of limiting the politicization of the industry. The banks had strong financial incentives to intervene. The state had an ideological stake in avoiding overt intervention. Thus the major actors at this point agreed on a policy of bank-led restructuring.

Also in 1967 the *Walzstahlkontore* were replaced with the *Rationalisierungsgruppen* (rationalization groups). The Northern rationalization group, for example, consisted of Kloeckner, Peine-Salzgitter, and Maximilianshütte. Kloeckner had invested in a major way in engineering and technology. It owned 26 percent of Korf Engineering, which owned a method of direct reduction. Using the crude steel products supplied by Peine-Saltzgitter and Maximilianshütte, Kloeckner tried to carve out a niche for itself in the markets for specialty steels. In 1977 Kloeckner purchased a controlling share of Maximilianshütte. Thus, even though Kloeckner eventually ran into financial difficulties in the 1980s, one can argue that the existence of the rationalization groups contributed to the reconcentration of control over steel production.³¹ In 1960, for example, the two top German firms controlled only 23 percent of production; by 1984 they controlled 52 percent.³²

In the early 1970s, a Dutch holding company called Estel, jointly owned by Hoesch Werke AG (a German steel firm that was not doing very well) and Hoogovens BV (the largest Dutch concern), was established. Hoogovens gained access to the German market in this way in exchange for new investments made in Germany through Estel. This was the first major attempt by the German industry to deal with problems of specific firms by internationalizing control.³³

The next major crisis occurred in 1977. The Deutsche Bank again took a leading role in a second restructuring of Krupp. This time three other banks along with the federal minister of economics were involved in the bargaining. One result was the so-called Krupp discount—a lower interest rate paid by the firm to its major lenders, which amounted to no less than a private subsidy.³⁴ The small steel firms of the Saar Valley were also particularly hard hit. Between 1974 and 1977, employment fell by 6,000 workers. In 1977 two firms—Roehling Burbach and Neunkircher Eisenwerke—threatened layoffs or bankruptcy. This threat began a round of negotiations involving the firms, the state and federal governments, the unions (especially IG Metall), and eventually the Luxemburg-based enterprise, Arbed.

The restructuring plan that emerged in 1978 was quite complex. Arbed agreed to take control of the Saar Valley firms in exchange for a one-time infusion of DM1 billion in aid from the federal government. The IG Metall agreed to this control even though it meant a drastic reduction in jobs in the industry (9,000 over five years to be precise) because the union received

guarantees of jobs for certain workers and social aid for those who would be displaced. Adjustment assistance also was to come from the European Community under article 56 of the Treaty of Rome, and arrangements would be made to allow older workers to retire early without losing their pension benefits. Production capacity declined by 20 percent as a result of the closing down of the least efficient units.

This restructuring plan was a hard pill to swallow, but it seems to have had some of the desired effects. Unemployment in the region decreased from 7.6 percent in 1977 to 6.6 percent in 1980.³⁵ Nevertheless, by November 1982, Arbed was in financial trouble. Chancellor Kohl was faced soon after his election with the possibility of bankruptcy of the firm. A special bridging loan of DM2.2 billion was arranged with some brokering on the part of the federal government to avoid the loss of 30,000 jobs in the Saar. By 1982 the unemployment level in the region had soared to 12 percent.³⁶

The 1977-1978 steel crisis also affected the Estel group and therefore the Ruhr Valley firm Hoesch. During the crisis the German government decided not to give loans to nonnational companies (companies less than 100 percent German owned), so Estel was left out of the picture. In addition, the success of the Estel venture depended on further movement toward implementing the Werner Plan, which had stabilized exchange rates between the German mark and the Dutch guilder, but no such further movement was forthcoming. Thus by 1982 the Estel venture was dead. Hoesch was incorporated into a new grouping of Ruhr Valley firms.

Bargaining over rationalization of the Ruhr was also complex, and had not yet resulted in a stable solution by the end of 1984. The first step was taken by Krupp and Hoesch in 1981 in negotiations to form a firm called Ruhrstahl. This idea was supported by the IG Metall union and by state and federal economics ministers. By June 1982 Ruhrstahl approached the federal government with requests for assistance of DM14 billion. In January 1983 three mediators were appointed by the federal government to recommend a course of action for the Ruhr Valley. They suggested that the five Ruhr firms should merge into two groups: a Rhine group composed of Thyssen and Krupp and a Ruhr group composed of Hoesch, Kloeckner, and Salzgitter. Aid from the federal and state governments would be given, but only DM3 billion would be needed. This solution was opposed by IG Metall and the North-Rhine Westphalian government.

By March 1983 Kloeckner was nearly bankrupt.³⁷ Thyssen had refused to merge with Krupp because of the demands of Gerhard Stoltenberg, the finance minister, that Thyssen pay cash to cover differences in valuation between the two firms. The lead banks were very unhappy with the decisions of Thyssen's chairman, Dieter Spethmann, because Thyssen would be ineligible for state subsidies as a result of the collapse of the merger deal. Thyssen lost \$173.7 million from September 1983 to September 1984, the majority of which was

accounted for by losses at its American subsidiary, the Budd Company, purchased in 1978.³⁸

The steel industry of Germany, like that of all other major industrial countries, went through a period of great difficulty in the late 1970s and early 1980s. Attempts at internationalization in the Saar were only partially successful. The same could be said about attempts to rationalize by the formation of regional groups in the Ruhr. The problems of the Ruhr, of course, were much more important quantitatively than those of the Saar, since the Ruhr was where the largest and most modern steel-making facilities were located. The German federal government was increasingly involved in negotiations for the restructuring of the industry. Neither the banks nor the state governments were capable of handling it alone. Nevertheless, the German government avoided either nationalizations or restrictive trade measures in its efforts to assist the industry. It relied primarily on its ability to sanction mergers and to provide grants, loans, and loan guarantees.

Policies for the Auto Industry

The German auto industry, as in many other countries, is an oligopolistic industry dominated by a small number of firms: Volkswagen, Ford, BMW, Opel (the German subsidiary of General Motors), Daimler Benz, and Porsche. BMW, Daimler Benz, and Porsche produce high-priced autos only, while Volkswagen, Ford, and Opel produce autos at the lower prices. Because German drivers drive fast and tend to calculate lifetime costs of owning an automobile, they seem to be somewhat less inclined than consumers in other countries to buy the less-expensive but less-well-built Japanese exports. Nevertheless, Japanese imports currently account for about 10 percent of the domestic market (see table 4).

The auto industry is an important source of export revenues for Germany. Roughly half of its export revenues in the early 1980s were accounted for by exports of motor vehicles. Net exports of motor vehicles produced a trade surplus of DM58 billion in 1982. The importance of motor vehicle industry in creating employment and export revenues combined with the relative strong international competitiveness of German firms has reinforced the general tendency of the German federal government to defend free trade at home and abroad. While one expects to see free trade policies meshing with noninterventionist domestic economic policies, in Germany the state has been deeply involved in the evolution of the industry. The best example of this involvement is the state's relations with Volkswagen, the largest German firm.

The Case of Volkswagen. The role of the German government in the auto industry is shaped to some degree by the origins and importance of Volkswagen in the German industry. Volkswagen was started in 1939 under the

TABLE 4
SHARES OF FIRMS IN THE WEST GERMAN DOMESTIC AUTO MARKET, 1980
(percent)

<i>Firm</i>	<i>Market Share</i>
Volkswagen	30.3
Opel	16.9
Ford	10.4
Daimler	10.2
BMW	5.7
Renault	4.7
Fiat	3.6
Toyota	2.4
Nissan	2.1
Mazda	1.9
Honda	1.8
Other	10.0

SOURCE: European Research Associates, *EEC Protectionism: Present Practice and Future Trends* (Brussels: 1982), p. 144.

tutelage of the Nazi government. After negotiations with Ford and General Motors failed to produce an agreement satisfactory to the National Socialist government, it "asked" several German firms, including Porsche and Daimler, to help the state form a new firm to produce a "people's car." The German government wanted to demonstrate that Germany could produce mass consumption items like automobiles that could compete eventually on a world scale. In the meantime, they were prepared to subsidize the development of this capability through direct state aid and investment and through the establishment of a system of forced savings under which families would periodically set aside small sums to qualify for a vehicle at a later date. The workforce of the Volkswagen plant at Wolfsburg (near the current border with East Germany) was mostly German, but already in 1939 Italian workers were imported through an agreement between Hitler and Mussolini.

After World War II, Volkswagen was allowed to continue production. In 1960, 60 percent of the shares of Volkswagen were offered to the public. The federal government retained a 20 percent share of the stock as did the state government of Lower Saxony (Volkswagen is still 40 percent government owned). The state intervened occasionally during times of crisis but otherwise left the firm mostly to its own devices. In this respect, the German government does not differ much from the governments of the other major industrial countries.

Volkswagen made its success with a single model, the Beetle. In the

1960s Germany made major inroads into foreign markets with that model, and prospects for Volkswagen looked very rosy. The Japanese auto producers were already gaining, however. Volkswagen became vulnerable eventually because of its slowness to develop new models. Although the firm tried to deal with this problem by purchasing Audi from Daimler Benz in 1965 and NSU in 1969, the firm still remained highly dependent on the Beetle. The resistance to such mergers by minority stockholders of acquired firms produced fairly intense political resistance to further acquisitions and resulted in the dismissal of Kurt Lotz as head of Volkswagen in 1971. Rudolf Leiding, who replaced Lotz, tried to introduce some new models. By 1974, however, the firm was in severe financial trouble as a result of increased competition in foreign markets and difficulties in making the transition from single-model to multimodel production. In addition, the floating of the mark after 1972 reduced the trade advantages of an overvalued currency for all German exports, especially automobiles.

During the period of transition, Leiding had called for wage restraints from the auto workers. This appeal made him extremely unpopular with the IG Metall, which had five of the seats on the supervisory board (*Aufsichtsrat*) as a result of the campaign in the late 1960s for codetermination. The displeasure of the workers was expressed also through the SPD coalition government. Leiding himself stated that maybe he had "underestimated the influence of the Federal and Lower Saxony SPD governments who are part-owners of VW." In 1974 Leiding was replaced by Toni Schmuecker, a man who had been in charge of the reorganization of the Rhein Stahl firm in the early 1970s and was trusted by the SPD and the unions.³⁹

In 1974 Volkswagen sales fell by 11 percent. The firm was heavily dependent on exports. In 1973, 70 percent of production was exported; by 1975 this figure fell to 56 percent. A decline in demand in the United States provoked by the 1974 recession and increased competition from Japan created severe difficulties for Volkswagen exports to the United States, its most important foreign market. Volkswagen had begun to set up plants for overseas production in Belgium, Brazil, Yugoslavia, Mexico, Nigeria, and South Africa. The capital outlays required for these ventures were substantial, and the return was not always good. Although growth was buoyant in oil-producing countries like Mexico and Nigeria, it was sluggish elsewhere.

The government of Lower Saxony and the representative of the IG Metall cochaired the supervisory board of Volkswagen in 1974. The firm secured an agreement with IG Metall to a reduction in the work force of 40,000 workers (roughly one-fourth of the total) in exchange for a system of layoffs distributed across different plants and a general avoidance of plant closures. Some of these workers were Turks, who had to leave Germany after being laid off. Italian workers could not be expelled from Germany under the Treaty of Rome, so they were offered general severance payments. The government of

Lower Saxony and the federal government agreed to implement a special program for regional assistance to provide for dismissed German workers. Finally, older workers were encouraged to make extensive use of early retirement provisions to reduce the size of the workforce. By 1976 Volkswagen was back in the black.⁴⁰

Since 1974 Volkswagen has successfully introduced a number of new models including the Rabbit (or Golf as it is called in Europe). It has made major investments in production facilities in the United States (not yet earning much money)⁴¹ and has begun a joint venture with Nissan to produce a new model called the Santana. This model would be sold in Japan and Southeast Asia, and Volkswagen expects to benefit greatly from increased access to Asian markets, Nissan's marketing expertise, and advanced automotive components produced in that region. Volkswagen had a 50 percent market share of the auto market in Brazil in the late 1970s, which has declined in recent years to around 40 percent. Brazil, however, has become an increasingly important supplier of components for Volkswagen's assembly operations in other countries. In 1983 Volkswagen signed an accord with the Spanish national firm SEAT to produce several models in Spain.⁴² Thus Volkswagen has made major steps toward internationalization to supplement its strategy of diversifying its model lines.

The Auto Industry in General. German governmental policies toward Volkswagen demonstrate the general preference of the federal government for letting the state governments and the major banks preside over most restructuring exercises; but when that policy fails, as in 1974, the federal government steps in smartly. The German autoworkers union, IG Metall, is unusually deeply involved in policy making for the firm, both through its representation on the supervisory board (a result of the campaign for *Mitbestimmung*) but also through its influence along with the allied SPD in the Lower Saxony and federal governments. This overall pattern seems to have worked reasonably well in the case of Volkswagen and perhaps for the German auto industry more generally.

BMW had serious financial problems in the late 1950s but was restructured by the Bavarian state bank (which is controlled by the CSU) along with its major private lenders: another example of the general preference of the federal government for allowing the state governments and the banks to do the restructuring.⁴³

Even foreign subsidiaries seem destined to go along with the general pattern. That is, all auto firms operating in Germany are relatively free of effective federal government intervention in normal times, while remaining subject to the actions of banks, unions, and local governments. The Ford Motor Company, for example, did not want to allow the IG Metall to represent its workers or to join the main association of German auto firms, the *Verband*

der Deutsche Automobilindustrie (VDA), when it began to increase production in Germany in the 1960s. IG Metall, however, organized the main Ford plant in 1962, thus forcing the company to join the German auto employers' association or forgo the advantages of bargaining at the national rather than the plant level for wage contracts.

Ford also planned to build a green field plant in Dortmund in the late 1960s to be near its major steel suppliers. The steel firms controlled the land in the area, however, and refused to sell to Ford because they feared that Ford would bid up wages in the region.

Not only does the German government avoid involvement in restructuring unless all else fails; it tends in assisting the industry more generally to avoid targeting and industry-specific measures in favor of more diffuse promotional activities. An example of this preference is the CAR 2000 program administered by the federal Ministry of Research and Technology. The purpose of this program is to subsidize the development of exotic technologies relevant to the automotive industry by the federal funding of projects proposed by the firms themselves for models not under current development. The German government is comfortable with this sort of fuzzy policy, uncomfortable with French or Japanese style of administrative guidance.

Policies for Microelectronics

Although the German auto industry has been overall a pillar of strength, and therefore relatively autonomous from state intervention except during temporary crises, the same cannot be said for the German microelectronics industry. Germany is Europe's biggest market for semiconductors (32 percent in 1980; 29 percent in 1983); yet only Siemens to date has managed to compete with the other major suppliers in Europe, where it still is fourth after Philips, Texas Instruments, and Motorola. In addition, Siemens was unable to foresee developments in demand to produce the right types of circuits. A Siemens executive has "ruefully" described the past decade of chip making as "10 years of dismal failure."⁴⁴ Much of its recent marketing success is due to second sourcing of Intel chips.⁴⁵

Other signs of general weakness in markets related to the microelectronics field exist. Siemens, for example, was marketing Fujitsu mainframe computers because it had been unable to develop competitive systems on its own. IBM dominated the German market for mainframes, and the Japanese were their main challengers in that market.

IBM defeated both Siemens and AEG (the other large German firm in the electronics field) in November 1981 for a \$22.5 million contract to build a videotext system for the Bundespost (post office). Although IBM had some problems with this contract, experiencing several delays and cost overruns, for the Bundespost to award such a contract to a foreign bidder was unusual.

The biggest crisis in microelectronics so far did not involve Siemens, however, but its nearest German competitor, AEG-Telefunken. The story of the near collapse and rescue of AEG is an important addition to the overall picture of state-societal links in Germany. It illustrates again the general tendency of the state to avoid involvement in rescues unless absolutely needed and the relatively important role played by the private banks in the system.

The Case of AEG-Telefunken. AEG is a firm with deep roots in German industrial history. An early innovator in radio and electronics, it was always the main rival of Siemens in Germany. By the 1970s, AEG had become a highly diversified holding company with equity participation in nuclear engineering, consumer electronics, and various other businesses. In 1983 it was Europe's fourth largest electronics concern and the world's twelfth largest electronics firm.⁴⁶ It employed 120,000 workers, more than 100,000 in Germany. AEG played a crucial role in establishing Germany as a major industrial nation. Thus its fall from grace in the late 1970s and early 1980s was rather a shock to most Germans. Part of the problem can be traced to the mid-1970s when AEG and Siemens, who were partners in the nuclear engineering concern, Kraftwerk Union, had to take major losses in the restructuring of that firm. For AEG, the cost was between DM1 billion and DM1.5 billion.⁴⁷ The main problem, however, was that AEG had failed to see that its consumer electronics business could not compete with foreign firms. It delayed too long in diversifying out of consumer electronics and shoring up its other businesses. It also had serious weaknesses in microelectronics (see table 5).

AEG paid no dividends after 1973. Losses in 1979 amounted to around DM1 billion. On October 24, 1979, the chief executive officer, Walter Cipa, informed the Aufsichtsrat of the firm that big problems existed and that major layoffs of employees were likely. The next day, the IG Metall representatives of the organized workers at AEG issued a press release reporting the large anticipated layoffs and opposing them. Representatives of major shareholders accused IG Metall representatives on the Aufsichtsrat of leaking confidential internal information, and the union representatives defended themselves by arguing that the management's first recourse was always to lay off people rather than to do something more creative to maintain levels of employment.

On November 8, 1979, four AEG representatives met with the minister of economics, Count von Lambsdorff, and the minister of finance, Hans Matthofer, to convince them to involve the federal government in resolving the problems of AEG. Their efforts were to no avail. On December 4, 1979, a rescue plan put together by the major banks under the leadership of the Dresdner and Deutsche Banks was announced. This plan included a major write down of the nominal value of AEG shares, a restructuring of its debt, the layoff of 12,000 employees, the closure of a gas turbine plant, and a "solidar-

TABLE 5
AEG PROFITS AND LOSSES, 1970-1979
 (millions of DMs)

<i>Year</i>	<i>Profits/Losses</i>
1970	105
1971	79
1972	45
1973	94
1974	-664
1975	-77
1976	397
1977	8
1978	-347
1979	-968

SOURCE: Doug Anderson, *AEG-Telefunken, A.G.* (Cambridge: Harvard Business School, 1981), p. 20.

ity contribution" of German manufacturing firms (an agreement to purchase DM 200 million-450 million of unsecured debentures at less than the market rate of interest).⁴⁸

The banks were anxious to avoid federal government intervention, and so were many firms. At the time a German businessman made the following observation:

Small firms get into trouble all the time and go under. But a business of this size can't be allowed to fail. The State won't let it. We saw that the United States did not abandon Chrysler and Canada won't abandon Massey-Ferguson either. We were therefore of the opinion that in Germany, as well, the State would not allow a company like AEG to go bankrupt. We concluded that if we wanted to preserve our economic system we had to make an attempt to save the company without leaving that task to government.⁴⁹

Concern that the failure of AEG would reduce competition in the German market still further was also expressed. But the problem of not encouraging other large firms to expect bailouts was also clearly recognized and handled by the not terribly generous terms of the rescue.

In 1980 Hans Friderichs of the Dresdner Bank was elected chair of the *Vorstand* (board of directors) and brought in a new manager for the firm, Heinz Duerr, who had previously run Bosch, a producer of automobile components and electronic products. AEG, along with Bosch and Mannesmann, made some new investments in telecommunications, and the situation

began to look a little brighter for the firm. In the summer of 1982, however, AEG rejected an offer from GEC (a British heavy electrical equipment firm) for 40 percent of AEG's capital goods business, and the value of AEG stock fell precipitously.

By July 1982 the firm was once more on the edge of bankruptcy. A new rescue was devised, this time with direct involvement of the federal government. The government came up with DM1.1 billion in credit guarantees and 85 percent of a package of DM0.6 billion export credits. The banks agreed, as a result of government guarantees, to grant DM1.1 billion in new credit to the firm. The firm itself filed for "composition" (*Vergleich*), which is roughly equivalent to reorganization on chapter 11 of the bankruptcy laws in the United States. Composition is possible in Germany only if write-offs of debt are less than 65 percent of existing debt and 75 percent of all creditors agree to the package. A writer for *The Economist* made the following observation about this rescue:

West Germany's way of financing industry puts most of the burden of rescues onto the banks for two reasons. The universal banking system makes banks more deeply committed to industry than elsewhere. And the government's *laissez faire* approach to industrial finance leaves banks to pick up the tab when things go wrong.³⁰

The final episode to this sad story is the sale of AEG's consumer electronics subsidiary, AEG-Telefunken, to the French firm, Thomson-Brandt, in March 1983. This sale came about largely as a result of the blocking of the sale to Thomson of a somewhat larger German consumer electronics firm, Grundig, by the German Cartel Office. While the official story was that the purchase of Grundig would reduce the level of competition in consumer electronics to an unacceptably low level, the fact that Philips owned 24.5 percent of Grundig and that Grundig was a major purchaser of semiconductors produced by Siemens had a lot to do with the opposition of the federal government to the Thomson-Grundig deal.

In spite all of this trouble, AEG is not dead as a semiconductor producer. In 1982 the components production wing of AEG, Telefunken Elektronik Gesellschaft (TEG), formed a joint venture called Eurosil with the United Technologies Corporation and the Diehl Group and took an 85 percent share. This joint firm owned a new plant for the production of advanced semiconductor devices. TEG is a major supplier for Volkswagen and BMW and United Technologies' subsidiary Mostek is an important supplier of CMOS and NMOS circuits in Europe, while Eurosil supplies components to the watch and telecommunications firms of Europe. Therefore AEG may be able to recover some of its lost glory in league with its new partners.

The Belated Promotional Policies of the Federal Government. The German

TABLE 6
SHARES OF FIRMS IN WEST GERMAN SEMICONDUCTOR MARKET,
1986, 1972, AND 1978
(percent)

<i>Firm</i>	1968	1972	1978
Siemens	22	26	21
Valvo (Philips)	25	18	15
Texas Instruments	16	12	13
AEG Telefunken	9	12	9
SEL (ITT)	10	8	7
Motorola	6	7	6
SGS-Ages	6	3	3
Other	6	14	26

SOURCE: Giovanni Dosi, *Technical Change and Industrial Transformation* (London: Macmillan, 1984), p. 159.

electronics industry is not just Siemens and AEG. One must also include Valvo (Philips), Bosch, SEL (ITT), Nixdorf, IBM-Germany, Texas Instruments, and Motorola as important actors in Germany and Europe generally. German-owned firms are clearly in a weak position overall, however (see table 6). For this reason Uwe Thomas, director of electronics research of the German Ministry of Technology and Research said in 1982: "The main emphasis of this ministry is to see what we can do in strengthening the application of microelectronics."³¹

A large percentage of the R and D funds previously went for research on mainframe computers; insufficient attention was given to the development of advanced microelectronic devices. Accordingly, the ministry budgeted \$190 million for this purpose to be spent over 1982-1985.³² More important, the ministry spent \$1.4 billion to advance German semiconductor and computer research in 1974-1979, a program that unfortunately failed to achieve the desired results. One of the problems with the ministry's approach was its overreliance on aid to the two largest firms: Siemens and AEG. Roughly \$1.3 billion went to Siemens, \$0.4 billion to AEG (see table 7).

Total BMFT research and development funds remained constant in relation to GNP (around 0.7 percent) between 1974 and 1981. The funds devoted to promotion of high-technology industries (see the column in table 7 dealing with Economic Services/Industrial Promotion) accounted for a nearly constant 22-24 percent of the total. Thus, despite the desire of the minister of Research and Technology to increase the emphasis on high technology in R and D spending, as of 1981 he had not been able to prevail against opposing forces, mainly in the form of the minister of economics.

TABLE 7
RESEARCH AND DEVELOPMENT SPENDING BY THE WEST GERMAN
FEDERAL MINISTRY FOR RESEARCH AND DEVELOPMENT, 1974-1981
 (millions of 1975 DM)

Year	<i>Economic Services/ Industrial Promotion</i>	<i>Energy</i>	<i>Defense</i>	<i>Environment</i>	<i>Basic</i>	<i>Total</i>
1974	1699	1331	1493	155	1641	6319
1975	1679	1557	1455	192	1535	6418
1976	1542	1348	1551	191	1391	6023
1977	1418	1462	1488	179	1319	5866
1978	1511	1611	1560	201	1386	6269
1979	2023	1884	1591	261	1317	7076
1980	2033	1867	1385	251	1331	6867
1981	2044	1882	1206	224	1291	6647

SOURCE: BLACK, *Industrial Policy in W. Germany*, p. 10.

The resignation of von Lambsdorff from that ministry in 1984 might have removed one of the more effective obstacles to a shift in German research policy. The replacement of von Lambsdorff with a minister more interested in promoting small- and medium-sized firms allowed the minister of research and development to make several changes that many previous ministers had advocated.

The most recent five-year program, for 1984-1989, called for the expenditure of \$1.2 billion to support research on integrated circuits, data processing, and industrial automation. The minister of technology and research, Heinz Reisenhuber, defended these efforts: "If we want to be internationally competitive and create new jobs, we absolutely must use the big potential for innovation and growth in [electronics] technology."³³

Part of the overall strategy for promoting German microelectronics was the use of state agencies like the Bundespost and Bundesbahn to purchase more advanced technological products. The Bundespost met with firms like Siemens and AEG before establishing specifications for purchasing contracts for telecommunications equipment. IBM's ability to penetrate this system was a testimonial to its technological strength and political savvy.

On the whole, however, the German policy is one of letting the firms do whatever they can on their own to meet the international competition. In case of problems, the banks take the first step to rescue the larger firms. The government steps in only when it must and tries to limit itself to loan

guarantees' rather than giving direct subsidies. This approach has not been completely bankrupt. AEG is still alive, Siemens seems to be prospering, and several new and smaller firms like Nixdorf are finding market niches in which to grow and prosper. The Germans have learned the lesson of not becoming too dependent on national champions to lead them out of industrial crises; they have studiously avoided administrative guidance of the French or Japanese varieties.

Conclusion

German industrial policy is a strange mixture of decentralized control with increasingly ambitious goals. The growth of the capacity of the federal government to intervene in specific regional and industrial crises has been substantial, but the government remains firmly committed to allowing other social actors (especially the banks) to try their hand at resolving crises before it gets involved. The case of steel highlights the weaknesses of this strategy. (1) The government has eventually become much more involved than it had ever intended. (2) Because the banks have incentives to rescue ineptly managed but very large firms, government intervention tends to be costly when it occurs. (3) The older and younger workers pay a larger share of adjustment costs than the workers in the midrange. The case of automobiles shows that the combination of strong firms and avoidance of administrative guidance go hand in hand to produce desirable results, as the rapid adjustment of Volkswagen to changed world market conditions attests. The case of semiconductors shows how wrong pursuing a national champions policy can be when the national champions experience a chronic inability to catch up to the global leaders. It also shows that the German government learned this lesson well in the 1980s.

German industrial policy, therefore, is much like U.S. industrial policy (and the elephant in the classic joke about the blind men)—what you see depends on where you look. To identify German policy with any extreme on any descriptive continuum, however, would be a big mistake. Merely to say that German policy works would also be a mistake. It works for some people and some industries some of the time. It has gone through major evolutionary changes since 1945. The main lesson of German industrial policy is the need to match public policy to the market conditions and industrial capacities existing in specific industries.

Notes

1. Peter A. Hall, "Patterns of Economics Policy among the European States: An Organization Approach," in Steven Bornstein, David Held, and Joel Kricger, eds., *The State in Capitalist Europe* (London: Allen and Unwin, 1983), pp. 10–12; and Jeremiah

M. Riemer, "Alterations in the Design of Model Germany: Critical Innovations in the Policy Machinery for Economic Steering," in Andre Markovits, ed., *The Political Economy of West Germany* (New York: Praeger, 1982), p. 60.

2. Jonathan Story, "The Federal Republic—A Conservative Revisionist," *West European Politics*, vol. 4 (May 1981), p. 64; and Josef Esser and Wolfgang Fach with Kenneth Dyson, "'Social Market' and Modernization Policy: West Germany" in Kenneth Dyson and Stephen Wilks, eds., *Industrial Crisis: A Comparative Study of State and Industry* (New York: St. Martin's Press, 1983), p. 122.

3. Karl-Georg Zinn, "Politik und Sachverständigenmeinung—Sachverständigenrat und Council of Economic Advisers im Vergleich," *Gewerkschaftliche Monatshefte*, vol. 29 (March 1978), p. 181; Kenneth H. F. Dyson, "The Politics of Economic Management in West Germany," *West European Politics*, vol. 4 (May 1981), p. 36; and Jeremiah M. Riemer, "Alterations in the Design of Model Germany," pp. 68–69.

4. Gerhard Wagenhals, "Industrial Policy in the Federal Republic of Germany: A Survey," in F. Gerard Adams and Lawrence R. Klein, eds., *Industrial Policies for Growth and Competitiveness* (Lexington, Mass.: D. C. Heath and Company, 1983), p. 247.

5. Michael Kreile, "West Germany: The Dynamics of Expansion," in Peter Katzenstein, ed., *Between Power and Plenty* (Madison, Wisc.: University of Wisconsin Press, 1978); and Peter Hall, "Patterns of Economic Policy among the European States."

6. Eric Owen Smith, *The West German Economy* (London: Croom Helm, 1983), p. 27.

7. *Ibid.*, pp. 19–20; and Ernst-Juergen Horn, *Management of Industrial Change in the Federal Republic of Germany* (Sussex: Sussex European Research Centre, 1982), pp. 6–8.

8. Kenneth H. F. Dyson, "The Politics of Economic Management in West Germany," p. 37.

9. Jeremiah M. Riemer, "Alterations in the Design of Model Germany," p. 81.

10. Peter A. Hall, "Patterns of Economics Policy among the European States," p. 16; and Jeremiah M. Riemer, "Alterations in the Design of Model Germany," p. 60. Nevertheless, in the spring of 1973, prior to the OPEC oil price increases, the Bundesbank adopted restrictive monetary policies, again contributing to a general recession (although this time in company with most of the OECD countries).

11. Josef Esser and Wolfgang Fach with Kenneth Dyson, "'Social Market' and Modernization Policy," pp. 107–108.

12. Wolfgang Streck, "Qualitative Demands and the Neo-Corporatist Manageability of Industrial Relations: Trade Unions and Industrial Relations in West Germany at the Beginning of the Eighties," *British Journal of Industrial Relations*, vol. 14 (1981), p. 151.

13. Josef Esser and Wolfgang Fach with Kenneth Dyson, "'Social Market' and Modernization Policy," p. 106.

14. Kenneth H. F. Dyson, "The Politics of Economic Management in West Germany," p. 35.

15. *Ibid.*, pp. 43–44.

16. Jeremiah M. Riemer, "Alterations in the Design of Model Germany," p. 76.

17. Hans Besters, *Neue Wirtschaftspolitik durch Angebotslenkung* (Baden-Baden: Nomos-Verlag Gesellschaft, 1979), p. 29.

18. *Ibid.*, p. 29; and Gerhard Wagenhals, "Industrial Policy in the Federal Republic of Germany," p. 254.

19. Stephen Woolcock, *Industrial Policy in the European Community* (M.Phil.

- Diss., University of Edinburgh, 1980), p. 97; Hans Besters, *Neue Wirtschaftspolitik*, pp. 30-31; and Guido C. Goldman, "The German Economic Challenge," in Andre Markovits, ed., *The Political Economy of West Germany: 'Modell' Deutschland* (New York: Praeger, 1982), pp. 14-15; see also table 5-3.
20. Kenneth H. F. Dyson, "The Politics of Economic Management in West Germany," p. 47.
21. Guido C. Goldman, "The German Economic Challenge," pp. 19-21.
22. Christopher Wilkinson, "Trends in Industrial Policy in the EC: Theory and Practice," paper prepared for delivery at a meeting of the Centre for European Policy Studies, Brussels, June 1983; and Kenneth H. F. Dyson, "Introduction," in Kenneth Dyson and Stephen Wilks, eds., *Industrial Crisis: A Comparative Study of State and Industry* (New York: St. Martin's Press, 1983), p. 41.
23. *Ibid.*, pp. 53-55.
24. Josef Esser and Wolfgang Fach with Kenneth Dyson, "'Social Market' and Modernization Policy: West Germany," p. 109.
25. Ernst-Juergen Horn, *Management of Industrial Change*, p. 13.
26. Eric Owen Smith, *The West German Economy*, pp. 13-17.
27. Domenico Moro, *Crisis e ristrutturazione dell'industria siderurgica italiana* (Varese: Giuffrè Editore (1984), p. 88.
28. Andrew Shonfield, *Modern Capitalism: The Changing Balance of Public and Private Power* (New York: Oxford University Press, 1965), p. 255; and Eric Owen Smith, *The West Germany Economy*, p. 17.
29. Andrew Shonfield, *Modern Capitalism*, p. 256.
30. Jean G. Padioleau, *Quand la France s'enferme* (Paris: Presses Universitaires de France, 1981), pp. 161-62.
31. Domenico Moro, *Crisis e ristrutturazione*, pp. 95-96.
32. *Ibid.*, p. 88.
33. *Ibid.*, p. 95.
34. Josef Esser and Wolfgang Fach with Kenneth Dyson, "'Social Market' and Modernization Policy," p. 114.
35. Gerhard Ollig, "Staat und Stahl in Deutschland," p. 434; and Josef Esser and Wolfgang Fach with Kenneth Dyson, "'Social Market' and Modernization Policy," pp. 112-13.
36. *Ibid.*, p. 114.
37. *Ibid.*, pp. 112-13; and John Tagliabue, "Kloekner Pulling out of German Steel Plan," *New York Times*, (March 15, 1983), p. 21D.
38. John Tagliabue, "Thyssen's Difficulties with Budd," *New York Times* (March 28, 1984), p. 29; and Daniel F. Cuff, "Thyssen's Big Push to Revitalize Budd," *New York Times* (April 9, 1985), p. 29.
39. Eric Owen Smith, *The West German Economy*, p. 209.
40. Josef Esser and Wolfgang Fach with Kenneth Dyson, "'Social Market' and Modernization Policy," pp. 114-18.
41. "The People's Car Struggles to Change Gear," *The Economist* (October 24, 1981), pp. 65-66.
42. John Tagliabue, "Seeking to Restore the Magic at VW," *New York Times* (March 25, 1984).
43. Eric Owen Smith, *The West German Economy*, p. 209. The federal government does not always, strictly speaking, let state banks do the rescuing. Given the predominance of the CSU in Bavaria, and of Franz Josef Strauss in the CSU, national party politics project to some extent onto the policies of the state banks of certain states. Thus, and only thus, could one explain the recent DMI billion loans from the Bavarian

state bank to the East German government.

44. "Siemens is Set to Take on the World in Integrated Circuits," *Business Week* (August 6, 1984), pp. 64-65.

45. Gerd Junne, "Multinationale Unternehmen in 'High Technology' Sektoren: Inwieweit ist die Strategie vom guten Zweiten?" in Peter H. Mettler, ed., *German Multinationale* (forthcoming), pp. 11-14.

46. Josef Esser and Wolfgang Fach with Kenneth Dyson, "'Social Market' and Modernization Policy," p. 118.

47. "Banking on Recovery: A Survey of International Banking," *The Economist* (March 26, 1983), p. 49; and Doug Anderson, *AEG-Telefunken, A.G.* (Cambridge, Mass.: Harvard Business School, 1981), case 1-381-187, p. 9.

48. *Ibid.*, pp. 1-2.

49. *Ibid.*, p. 16.

50. "Banking on Recovery: A Survey of International Banking," p. 50.

51. "Last Chance Tactics of European Chip Makers," *Business Week* (June 28, 1982), p. 117.

52. *Ibid.*

53. "Bonn's Late Push in the High Tech Race," *Business Week* (April 9, 1984), pp. 43-44.