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# *Industrial Policy through the Restriction of Capital Flows: A Test of Several Claims Made about Industrial Policy\**

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We examine the extent and effect of an interest rate–based industrial policy in Japan, France, Great Britain, and West Germany while using the United States as a control case. We argue that some governments have undertaken industrial policies that achieve a “below-competitive market” interest rate, thereby allowing the redirection of financial flows to firms in the form of cheaper capital. Zysman, Shonfield, and others believe these restrictions on interest rates cause additional firm investment, change the time horizon of managers, and transfer wealth from domestic savers to domestic firms. We first examine the role of industrial policy by assessing the relationship between domestic interest rates and Eurocurrency rates. We argue that the degree of difference between these rates is an indication of the extent of one type of industrial policy. We then evaluate the relative influences of domestic and external interest rates on stock prices as a way of measuring the consequences of these industrial policies. If the policy were completely effective (i.e., insulating the “relevant” interest rate from market forces), only the domestic interest rate would influence stock prices. We assess the conditions under which states demonstrate sufficient strength to undertake policies to insulate domestic markets. We find that only France under the Socialists succeeded in positively affecting economic activity through this type of industrial policy, and that Britain prior to Thatcher’s election demonstrated ineffective policies. Some evidence also indicates that Japan’s industrial policies were less effective than previously believed. No evidence of such policies was found for West Germany under either the Socialists or the CSU/CDU alliance. We tested for partisan political changes in government policies, and except in Great Britain, found none.

What is the relationship between a government’s policies toward its financial and banking industries and increases in a country’s economic activity and wealth? Two relationships have been hypothesized: one is drawn from economics and the other is drawn from political science and comparative politics. Economists generally believe that a free financial market, in which private agents set prices through their buying and selling decisions, is the optimal method of efficiently allocating a society’s resources. Government’s function is to provide a stable macroeconomic environment and to overcome negative externalities associated with commons problems, not to subsidize credit or to pick “winning” firms. Although political scientists rarely discuss allocative efficiency of financial or other markets per se, a tradition

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in comparative politics has argued that financial systems with government-administered prices are partly responsible for the postwar economic successes found in Japan and France (Shonfield, 1965; Zysman, 1983).

These competing hypotheses coexist in part because of their incommensurability and in part because of the difficulty in testing them. The incommensurability stems from the fact that the analysis of economists on this matter is largely done from prior theories about microeconomics and that of political scientists is done from empirical analysis of political and economic institutions in Japan and other countries. In a sense, what is disputed is not that the Japanese and French governments historically intervened in their financial and credit markets to allocate credit to favored firms, but the efficacy of this state intervention. The difficulty in testing these hypotheses stems from the range of variables and assumptions that a full and rigorous test would need to incorporate: interest rates, monetary policy, banking regulations, financial market segmentation, and taxation policies, among others.

We propose a partial test of these hypotheses using methods drawn from financial economics. We examine the extent and effect of an interest rate-based industrial policy by comparing, first, the relationship of domestic interest rates to the Eurocurrency rates of instruments denominated in the home country's currency and, second, the effects of unanticipated changes in each of these rates on stock prices for the United States, Great Britain, West Germany, France, and Japan. Some governments undertook financial policies that achieved a "below-competitive market" interest rate, thereby allowing the redirection of financial flows to firms in the form of cheaper capital. We argue that systematic differences between the domestic and Eurocurrency rate is an indication of the extent of a government's attempt to undertake a particular type of industrial policy, one based on reducing interest rates for private firms. The relative influences of domestic and external interest rates on stock prices is a way of measuring the consequences of these industrial policies. If the policy of government-administered financial prices were completely effective (i.e., insulating the "relevant" interest rate from market forces), only the domestic interest rate would influence stock prices. If the policy of government-administered prices were found to be ineffective, as economists would argue is likely, only the external Euromarket interest rate would influence stock prices. Have these credit restrictions played a crucial role in lowering the cost of capital to firms? Can we attribute higher levels of economic performance cross-nationally to government rationing of credit or to government regulation of financial markets? We propose to explore these questions.

The central arguments we make in this paper are that (1) an effective credit-based industrial policy requires political institutional arrangements such that financial markets are segmented in order to redirect the flow of

saving from individual savers to firms; (2) only in the case of France can we find evidence that a credit-based industrial policy positively influenced the level of economic activity; and (3) the evidence indicates that both British financial policies prior to Margaret Thatcher's election and, though less clearly, the preliberalization credit policies of the Japanese government had little influence on economic activity. We found no electoral effects regarding the implementation of an interest rate-based industrial policy, except in Great Britain. We doubt that the United States is capable of adopting an effective interest rate-based industrial policy, even should policymakers in Washington decide to do so.

The paper is organized in the following manner. We first describe the competing expectations about the efficacy of interest rate-based industrial policies derived from economics and comparative politics. Next, we review the domestic financial institutions and politics of the five countries in our survey and evaluate the influence of the Euromarkets and the economic forces behind financial market deregulation on these domestic institutions. In the third section, we outline our hypotheses and tests and follow this with a description of the data used. The analysis of the results and their implications conclude the paper.

### **Background**

The United States and Great Britain are both in the midst of an economic decline relative to other industrial nations, and this decline is concentrated in the industrial sectors of both countries: such is the conventional wisdom, and some evidence exists to support this claim. A number of studies have highlighted the erosion of competitiveness of American and British firms relative to those of Germany and Japan. Lower rates of saving and investment by firms in the United States and the United Kingdom were held to be partly responsible for industrial stagnation. Paradoxically, despite this industrial decline, the firms of both countries remained relatively profitable, and the stock market indexes in London and New York rose substantially through October 1987. To what can we attribute this loss of international competitiveness, low saving rate, and low investment, all with firm profitability?

Two primary explanations have been offered as to why in the postwar world the Americans and British have lost ground while the Germans and the Japanese have prospered.<sup>1</sup> These are (1) that any changes are due to the natural and largely beneficial working of market forces and (2) that other

<sup>1</sup>Whatever its other virtues, the explanation that the high marginal tax rates in effect in the United States and Great Britain have discouraged saving and investment has not received much support from recent events. The various tax reductions acts of the Thatcher and Reagan administrations did not visibly produce saving and investment increases.

countries have evolved government institutions and policies, particularly with regard to financial institutions, that are more effective in promoting increases in economic activity than are those of the United States or the United Kingdom. These explanations, although not necessarily incompatible, suggest different solutions to the problem of industrial decline.

The first explanation holds that we do not really have a problem, or at least not a problem that we can (or should) do much about. Any industrial decline we might be experiencing is the result of natural adjustments of market and social forces. Government intervention to resuscitate declining firms would prevent the redeployment of capital and labor to more efficient uses. Hence, the paradox of the economic decline of one sector in the context of firm prosperity and booming financial markets is no paradox but our natural expectation. Capitalism is a process of "creative destruction." In this view short-term economic decline is a prerequisite for longer-term economic growth.

The adherents of this view also argue that government intervention is not the solution, even if the industrial decline is creating severe problems for the economy. Government intervention of this type has had a history of being ill-timed and misconceived. Intervention may merely shift the burden from one group of individuals to another, thus raising questions of equity and distribution as well as efficiency: see, for example, the criticism of free enterprise zones. Van Horne (1984) provides the "textbook" critique of the social allocation of capital by saying, "When the government explicitly directs funds to certain investments which would otherwise not be able to attract funds on their own or would attract them only at a higher rate of interest, it tampers with the workings of the marketplace. This tampering can lead to less efficient financial markets with the result that savings are allocated at higher costs and/or with greater inconvenience. This has adverse implications for us all" (p. 294).

The opponents of government allocation of capital also argue that the standards that democratic governments will use in choosing which firms and which investments to subsidize are influenced by political considerations, thereby raising the specter of rent-seeking activity by interest groups, which, when successful, further restricts economic output and social welfare (Olson, 1982). Several economists have argued that, even if other nations have successfully used credit-based industrial policy as a device for promoting economic growth, the United States is ideologically and institutionally incapable of this type of planning (Lawrence, 1982, 1984; Schultze, 1983; Shonfield, 1965).

A second explanation, derived from comparative politics, holds that industrial decline is a problem and that some sort of government policy is the answer (Bluestone and Harrison, 1983; Cohen and Zysman, 1987; Reich,

1983; Shonfield, 1984). The problem is that some other countries, most notably France and Japan, have evolved government institutions and policies designed to encourage business investment and profitability through lowering the cost of capital to firms; the cost of investment capital is higher historically in the United States and Great Britain than in other industrial countries (Ellsworth, 1985; Hatsopoulos, 1983). The absence of either public sources of finance or other public activities aimed at lessening the cost of capital to firms in the United States and Great Britain is in contrast to the financial arrangements of Japan, Germany, and France. These governments have ensured, through a variety of formal and informal mechanisms, a lower cost of capital for their domestic firms than could be obtained given the financial arrangements present in either the United States or Great Britain. The credit restrictions are thought to have the effect of providing beneficiary companies with a lower cost of capital and, therefore, a competitive advantage over firms in countries whose governments do not engage in this type of industrial policy. Also critical for lower capital costs to firms is the link between banks and firms in Germany, France, and Japan, which allows firms successfully to carry higher levels of debt without substantially increasing risk.

The underlying logic of the Japanese and French mechanism of administered prices, as described by Shonfield and Zysman, is twofold. Not only will the level of interest rates have an impact on the amount of investment (Auerbach, 1983), but also on the types of investments that are undertaken. Investments with longer-term payoffs will be valued less when the interest rate is higher; that is, the present discounted value of future returns will be less as the interest rate increases. This creates an incentive for managers to engage in products, processes, markets, and investments that have a shorter-term payoff. These short-term investments, however, may be inadequate to ensure the long-term competitiveness of the firm as the development of new products and markets often requires a long-term commitment, which American and British managers and financial investors are thought not to demonstrate (Hayes and Abernathy, 1980; Nickell and Wadhvani, 1987). Government policies that change the time horizon of managers might induce investments with longer-term horizons. Japanese, French, and German firms presumably are under less "short-term" pressure thanks to various government policies. The differences among national financial arrangements, interest rates, and rates of investment is a potential, partial explanation for the industrial stagnation in the United States and United Kingdom.

The adherents of the second (hereafter, institutional) explanation for relative economic decline see the differences among these national financial arrangements as being principally caused by differences in public policies to-

ward financial industries. For instance, the regulation and segmentation of financial institutions are generally the result of government policy. Public policy differences in turn reflect nationally specific political traditions, state institutions, constellations of social forces, and the historical circumstances of national economic and political development.

The concern in comparative politics and in institutional economics for the effects of institutions is part of a research program that treats state structures and political cultures as having independent influence in the allocation of a society's benefits, harms, and risks (cf. Chandler, 1977; Katzenstein, 1985, 1987a, 1987b; Krasner, 1984, 1987; March and Olsen, 1984; Moe, 1984; Shonfield, 1965; and Zysman, 1983). Political and economic institutions are not merely the agencies through which the exogenous preferences of individuals are revealed; institutions shape preferences, constrain choices, make possible other choices. This concern with institutions is in contrast to the usual approach in economics, which is to treat institutions as being at best epiphenomena of the underlying forces of supply and demand.

Because these two explanations lead us to different conclusions about the relationship between firms and states in modern capitalism, some method of testing expectations derived from these explanations would be useful, especially since the work of institutionalists such as Zysman has been criticized for failing to measure the costs of government interventions (Backhaus, 1984). Theoretically, we might expect that if governments really were able to reduce the cost of capital to firms (i.e., the interest rate), investment, profitability, and stock prices would increase as would the overall level of economic activity.<sup>2</sup> Therefore, if we were able to find a measure of the extent to which governments intervened in capital markets to reduce domestic interest rates, we might be able to measure the effects of this intervention on economic activity. We could then evaluate the claims made for and against the economic efficacy of government-administered prices in capital markets by examining the effects of the government-administered interest rate and compare these to the effects of a market set rate.

At issue then is whether government intervention into the financial markets can effectively promote increased economic activity by lowering the cost of capital to firms. Even if this can be done, should it be done? After

<sup>2</sup>Governments influence interest rates either through monetary policies or through administrative pricing. Our concern in this paper is with the effects of below-market, administratively set interest rates. We can separate macroeconomic policy effects from interest rate-based industrial policy by looking at the differences between domestic and international interest rates in the same currency for instruments of the same risk and time profile. This is so because a government's monetary policies will affect both the domestic interest rate and the Euromarket interest rate, but administrative pricing will affect only the domestic market.

all, one of the effects of this action is a transfer of wealth from domestic savers to domestic firms (and to their stakeholders). These issues are part of the broader "industrial policy debate" about the appropriate role of government in spurring new industries, in reviving old ones, and in using its agencies to coordinate the private sector's response to the challenge of foreign competition. In turn, the industrial policy debate is part of a broader debate on the role of government. Simply put, the debate is Under what circumstances, and through what institutions, is it more effective or more efficient for a society to allocate some resources through nonmarket mechanisms?

### **Government Institutions and Financial Markets: Restricting Capital Flows?**

All governments of mixed economy nations use macroeconomic (i.e., monetary and fiscal) policies to influence economic activity: all nations have policies that seek to promote industry. Hence, every industrial country will regulate its financial markets, its money supply, and its interest rates to some degree.

Governments do not do so in similar ways, however. Indeed, in asking Katzenstein's (1987b) question of whether public policies are shaped primarily "by the way a country organizes political power or [by] . . . the functional imperatives of a particular problem," we would answer that, regarding financial industries, historically the "political logic of the country" has been more important than "the political logic of the problem" (p. 31). Nations have dissimilar financial institutions and policies. Even when national financial industries were confronted with similar external shocks, these similar shocks had distinctly different national consequences owing to the peculiarities of national structures (Zysman, 1983). Although some (Moran, 1984b) see a strong convergence of institutions and public policies developing as international markets in finance continue to develop, "political logic" dominated "market logic" in this sector, historically. Hence, in evaluating a government's strategy in promoting industry, we need to know the institutional context: practices, traditions, ideologies, and national economic circumstances.

Our purpose in this section will be to focus on those institutional arrangements that either permit or limit government ability to set administratively the cost of capital to firms through interest rate policies. Three variables matter: (1) the capacity of state institutions, (2) the politics of a country, and (3) the internationalization of a country's financial markets. We argue that, generally speaking, the capacity of a country's institutions matters at least as much as does the immediate domestic politics of that country, though, of course, a country's domestic politics shapes state capac-

ity. We also argue that, with the spread of international financial markets, state capacity to redirect financial flows has everywhere diminished as the opportunity costs of domestic isolation increase. Usually, the capacity of state institutions is constrained by a country's position in the regime of international finance, and state capacity in turn will condition the terms of domestic political discourse.

### *State Capacity*

Does a state have the capacity and the inclination to direct the cost and sectoral location of firm investment? With regard to the cost of capital, the important differences (for our purposes) among financial systems can be seen along two dimensions. First, how do corporations fund themselves and their investments? Second, how regulated are financial markets? These two questions are closely related, as financial market regulation will alter the funding options available to firms. Nonetheless, these two questions are considered separately since (1) the preferences of corporations for the methods of funding investments are not only the result of government regulation—national traditions matter—and (2) these managerial preferences will in turn influence the ability of governments to introduce interest rate-based industrial policies.

*Firm funding.* Corporations raise money through offering equity and fixed-rate bonds, retaining income from earnings, and borrowing money from banks. Equity financing is more costly than is debt financing because most companies incur a larger claim on future earnings when they sell stock than would be the case if they simply borrowed the money, since interest payments are tax deductible while dividends are not. A higher level of debt (or leveraging), however, can create more risk for shareholders, thereby increasing the "risk premium" these shareholders will demand from firms. Despite some recent trends toward debt financing, concern over risk is the rationale given by most American and British firms for having comparatively low debt/equity ratios despite the greater expense involved. In other countries, however, large private sector loans are implicitly guaranteed by the government, thereby reducing risk to shareholders. In Germany and France, capital costs to firms are also lower because banks can be owners as well as lenders, thus strengthening the link between finance and industry and giving lenders an incentive to provide emerging industries with the long-term capital that can foster stronger economic growth.

The relationship between America's financial industry and the financing of corporate investment has been shaped both by regulatory restrictions and by the traditions of financial practices. The regulatory prohibition of bank ownership of stock, the preference of American firms to raise capital

internally or through equity issues (with debt-equity ratios below one for most of the postwar era), and the institutional dominance of stock trading result in a production system with a marked interest in quarterly, short-term profits. The much-discussed owner-manager conflict, raised first by Berle and Means in the 1930s, seems to have come down to pension fund managers demanding high quarterly profits.

German firms, in contrast, tend to raise funds primarily through retained earnings and secondarily through bank borrowing, but rarely through share issues. Banks own or control much of the equity in German firms in a fashion precluded by law in the United States; several sources report that banks own or control 70 percent of the voting stock of the largest 425 German corporations. Ellsworth (1985) reprints a table that reveals that banks own over 50 percent of the stock of 30 of the 62 largest publicly traded German companies and own between 25 and 50 percent of 11 of the remaining 32 companies. In addition to owning or controlling voting stock, German banks have provided much of the capital necessary for the investment of German firms: the debt to equity ratio of German firms averaged (approximately) three for the 1966–82 period. Many analysts (Shonfield, 1984; Ellsworth, 1985; Zysman, 1983) have argued that this allows firms the luxury of a “long-term perspective,” as firms are insulated from the “rate of return” pressure assumed to follow from well-developed equity markets. Even the banks are partly insulated from investor pressure: they own stock in each other.

Firm funding in France is also bank dominated; equity and bond markets play a relatively small role in financing firm investment in France. These firms also rely on retained earnings, rarely on capital issues. Unlike Germany, however, banks are state owned or state controlled, though the current Conservative coalition government in the Assembly has promised deregulation and denationalization of the industry by 1992.<sup>3</sup>

The French government has long directed private as well as public economic activity in France: *dirigisme*. Control of financial markets has long been an identifying feature of French planning. The French state developed public institutions that serve investment functions, which are performed in other countries by private institutions (like equity and securities markets). For instance, the Caisse des Dépôts et Consignations (CDC) redirects savings from postal and other savings institutions to public and private investments; Crédit National administers funds from the CDC and the Ministry of Finance (and from other sources) to industries with “approved” projects;

<sup>3</sup>Three of the big six French banks, Société Générale, Groupe Suez, and Paribas, have been sold already to private investors.

the Comité Interministériel de Reconstruction de l'Industrie (Ciri) rescues failing French firms. These public institutions provided the state with direct influence over the French economy through the funding of corporations even prior to the nationalization of the banking sector by the Mitterrand government. For instance, Zysman (1983) quotes a Banque de France report that stated that, in 1979, "43 percent of all credits to the economy in France were made with some kind of privilege or subsidy and that 25 percent of corporate lending was subsidized directly" (p. 129).

Britain's financial industry is characterized by a well-developed and funded equity market and by banking institutions with limited ties to industry. As with the United States, the debt to equity ratio for British firms has generally averaged below one for the previous 20 years. This has resulted in British firms relying on raising funds from equity and debenture (bond) issues rather than from bank loans, though Williams, Williams, and Thomas (1983) suggest that retained income was far more important in industry's finance than was either equity or loans. The relationship between Britain's financial industry and its manufacturing sector has been a subject of some political and academic controversy, with Britain's government occasionally standing accused of "betraying" industrial Britain through the promotion of financial Britain. As with French banks, British financial institutions did not develop close financial or equity ties to industry. Unlike the French case, the British state did not develop effective public substitutes for providing investment capital for private firms.

In the past, Japanese firms funded investments through banking and retained earnings sources. As with German and French firms, Japanese firms were "undercapitalized" (i.e., had high debt to equity ratios and rarely issued new equity). Even though Japanese firms often competed fiercely within an industry, the Japanese government, by tightly regulating the banking industry (and providing cheap, rationed credit), remained the final arbiter of firm success through the 1950s into the 1970s. Some public control over firm investment was thought to prevent "wasteful" competition, and this control was effected by an interest rate-based industrial policy.<sup>4</sup> Favored firms received subsidized credit, a subsidy made possible by the high rate of saving of Japanese consumers in conjunction with the very restricted instruments offered to consumers.

Up until the 1970s, Japanese firms had few choices but to coordinate their economic decisions with the government: few other sources of capital were available. As late as 1972, the equity and bond markets accounted for

<sup>4</sup>Saxonhouse (1983) has argued that Japanese financial and policy institutions, which he terms "illiberal," serve as surrogates for open market institutions. He concludes that Japanese financial and industrial policies and institutions are substitutes for, not complements to, American financial institutions.

less than 10 percent of the funds raised by corporate businesses in Japan as opposed to 43 percent in the United States (Pigott, 1983). Another possible source of capital, borrowing capital from overseas sources, required prior government approval. This has changed in recent years, as the Japanese stock market has expanded rapidly.

One measure of the national differences can be seen by examining the "capitalization" of each country's stock market as a percentage of gross national product (GNP). The American figure in January 1983 was roughly 45 percent of GNP; the British and Japanese figures were approximately 38 percent of GNP; the German percentage was 10 percent; and the French was under 5 percent. The degree of equity financing of firm investment is relevant here because those nations whose firms are self- or equity financed will be relatively independent from government-directed policies. So, for instance, as Japanese firms rely increasingly on retained earnings or on equity financing or on both, we would expect government capacity to direct the economic activity of firms to diminish.

*Government regulation and financial market segmentation.* Financial market regulation and segmentation varies from minimal to substantial. Germany's financial markets are little segmented, with its "universal" banks engaged in a full range of economic activities, though the government and the managers of the large banks are said to have a "well-developed system of highly discreet, ad hoc communication" (Spindler, 1984, p. 13). The German government has given itself greater discretionary stabilization and planning powers (1967 Stabilisationsgesetze, 1978 Finanzplan) over the German economy and could more substantially intervene in financial markets; it has so far chosen not to do so (Shonfield, 1984). Britain's financial markets were characterized by differences between the merchant and wholesale markets and the commercial and deposit markets, but these differences have substantially eroded. French financial markets were relatively "undeveloped" in contrast to those of other countries, and France developed a series of unique banking institutions and banking regulations and traditions. The American financial industry is highly segmented and relatively unconcentrated, with sharp divisions between and among the functions and services offered by various banking institutions. This segmentation and lack of concentration are usually attributed to (1) a populist political culture hostile to a concentrated banking and financial industry and to (2) the fragmented nature of American banking regulation (state vs. federal interests; divided federal powers). Legislation such as the Glass-Steagall provisions of the 1933 Bankruptcy Act erected boundaries between lending and stock owning, but boundaries of this formal segmentation have been breached by the aggressive strategies of commercial banks and brokerage houses and by the inca-

capacity of federal and state authorities to develop a consistent regulatory policy. The segmentation of America's financial markets was aimed at maintaining the solvency of the banking system, not at redirecting capital investments. Japan's financial markets are perhaps the most segmented of the five countries surveyed, with differences among commercial banks extending to those specializing in long-term finance and those specializing in short-term finance. Consumers with small savings (under \$500,000) have few choices when searching for saving instruments and less when searching for a loan; wealthier people and corporations now have access to "competitive" financial instruments. A market where consumers have restricted choices of saving instruments (i.e., which is segmented) is one prerequisite for subsidizing firm investment as this segmentation lowers the rate of return firms need to achieve to undertake investment.

Given these differences regarding firm funding and market segmentation, state capacity to intervene in financial markets varies from the minimal to the substantial. The United States, a country with a notoriously "weak" state, has yet to demonstrate an internally consistent set of regulatory preferences regarding its financial industry and appears to have little capacity to direct the flow of saving to specific sectors or industries at preferential rates. The British Parliament clearly has the capacity to impose capital controls and interest rate ceilings on its financial industry: it did so intermittently during the 1960s and 1970s. The effectiveness of British policy, however, is open to question, as the British state does not seem to have the formal and informal mechanisms necessary to ensure compliance with its directives. The current British government chooses to rely upon market mechanisms where possible in allocating resources. The current German government also shows such preferences, though Germany, through the Bundesbank and other agencies as well as through formally legislated powers, has the formal capacity to influence both prices and supply in the German financial markets. About the Japanese and the French states, we have no doubt but that the state can intervene to set prices and supply with regard to financial markets. Even though both countries have embarked upon liberalization of their financial markets, the power of institutions and habits is deeply ingrained.

### *Domestic and International Politics*

Though politics matter in understanding government industrial policies, the usual distinctions between left and right are of limited help in examining this problem. Generally, the question of whether or not a country undertakes a program of capital investment subsidies of the sort we are describing is as much a matter of state institutions as political ideology. That is, both the ideological disposition to undertake such policies and the institutional

capacity are necessary conditions for success. We usually find a match between state capacity and political ideology, though several exceptions to this rule can be cited.<sup>5</sup>

This point can be illustrated by examining the continuity in government financial market policies from one governing political party to another in the cases of Germany, France, and the United States. The German Social Democratic party under both Willie Brandt and Helmut Schmidt followed essentially a social market strategy toward the German financial sector. No capital controls, no systematic program of below market lending for firm investment occurred under SPD rule, and none has been introduced by Chancellor Kohl and his CDU/CSU/FPD alliance. This pattern of policy continuity between German governments of differing political parties is characteristic, Katzenstein (1987a, 1987b) argues, of postwar German politics. The Socialist government of President Mitterrand did nationalize the banking sector, but the agencies of planning and public control of the banking system were largely introduced by Center/Right coalition governments in France during the 1950s and extended by the Conservatives under both Charles de Gaulle and Valéry Giscard d'Estaing, though the effectiveness of these policies, as we shall see, differed. The current Conservative government's reliance on market forces in finance is as much a break with previous conservative policies as with those of the Socialists. In the United States, both major political parties remain committed to a strategy of market allocation of resources, and no American government has sought to introduce the broad controls on lending and borrowing traditionally present in Japan and France.

Japan has been governed continuously since the late 1940s by the conservative Liberal Democratic party. Policy consistency between governments in Japan is therefore no surprise; for instance, the candidates who sought to follow Nakasone as prime minister seemed determined to reveal no policy disagreements. The politics that matters here is international politics. The weakening of the regulation of Japan's financial industry was tied to negotiations between the United States and Japan in 1978–79 and 1983–84. The two governments negotiated a series of agreements (during the spring of 1984) aimed at reducing Japanese government restrictions on the domestic and international (yen) financial markets.

<sup>5</sup>The Conservative French government of Prime Minister Chirac sought to reduce the French state's direction of the French economy, despite the continued institutional capacity to do so. The case of Britain under the Labour government is a harder one, as the Labour government undertook interest rate-based industrial policies without the institutional capacity to succeed. State capacity and political ideology, one would think, would evolve in a mutually reinforcing matter: rarely would parties propose policies likely to fail. Labour seems not to have understood the institutional limits of its policies.

Britain is the case that tests the rule that state capacity matters more than does party ideology. Almost uniquely among large capitalist democracies, Britain's politics are characterized by deep policy discontinuities between the major parties (Krieger, 1986; Hall, 1986; Beer, 1982), with little sign in economic policymaking of the previous postwar patterns of consensus politics. Therefore, we might expect political differences here, though the effectiveness of these policies absent cross-party consensus is another matter.

The Labour governments of Harold Wilson and James Callaghan did attempt, prior to Thatcher's election, to fashion an effective industrial policy, occasionally using credit controls and other financial restraints (Shonfield, 1984; Grant, 1982; Shank, 1987). The British government, save the period of Edward Heath's prime ministership, employed capital controls in the hopes of providing both industrial investment credit to firms and direction as to which sectors and to what ends banks would lend money. Both formal guidelines and "moral suasion" were employed.<sup>6</sup> (The government also established agencies—e.g., the National Enterprise Board—through which funds were to be provided to support firm investment.) The ability of British authorities to direct economic activity through restricting financial markets was limited, however, by a series of sterling crises (culminating in IMF help to the British economy) and by the development of "off-shore" trading in London, a market over which the British authorities exercised little control.

Britain, under the Conservative government, does not have an industrial policy that redirects financial flows to firm investment. The capital controls and other financial restrictions introduced by Labour governments are gone, quickly lifted by the Thatcher government shortly after its election in May 1979. The Conservatives achieved full deregulation of Britain's financial markets in October 1986.

### *Euromarkets*

The internationalization of financial markets has rather dramatically changed the terrain of government financial market regulation, opening the possibility of arbitrage by private economic agents. The central institution of international finance is the Eurodollar market, a market that is now nei-

<sup>6</sup>A Bank of England notice (11 April 1978) reads in part, "Banks and finance houses are asked: (i) to provide, within the bounds of banking prudence, finance required for both working capital and fixed investment by manufacturing industry and for the expansion of exports and the saving of imports; (ii) in order to insure the future ability to meet the requirements in (i) above, to exercise strict restraint on lending or provisions of facilities for other purposes including . . . those . . . for purely financial transactions." It is unclear what effect this missive had.

ther confined to Europe nor to trading in the dollar. Many differing stories are told about the emergence of the Eurodollar markets, but all share one element, and it is that the principals either were seeking to avoid U.S. regulations or taxation or were looking for arbitrage possibilities resulting from U.S. regulations.

In this \$1 trillion + market, the deposit rates offered to customers are generally higher than are deposit rates on identical instruments offered for sale in, say, New York and the lending rates are generally lower. Why this should be is clear: no government regulation, fewer transaction and operation costs, more "competitive" markets with price sensitive customers with nearly perfect information.<sup>7</sup> The spread between the bid and ask price of corporate bonds, for instance, tends to be smaller on the Eurodollar market than is the spread on those offered for sale in regulated markets. A number of studies have demonstrated that the arbitrage possibilities on the Eurocurrency markets, both within a currency and between similar instruments denominated in different currencies, are very limited-covered interest parity (see Ito, 1984; Levi, 1983; Frankel, 1984).

The unregulated Euromarket threatens the ability of governments to direct resources through a nonmarket mechanism, and governments have not abstained in an effort to influence trading in that market. Although the dollar trading in the Eurocurrency market is unregulated, this is not yet entirely true for trading in other currencies, especially the yen, the franc, and the DM. Many scholarly and newspaper reports allude to an "informal" understanding whereby governments are able to influence bank and firm activity in the unregulated Euromarket. For instance, Frankel (1984), in discussing negotiations between the United States and Japan on the yen's use in international markets, notes that Japan is able to influence rates in London. He argues that "there is an international understanding that each country's banks and securities companies will take the role of lead-manager on a Eurobond issue denominated in its own currency, which in practice places the issues under the jurisdiction of the bank's home-country government" (p. 41). The Federal Republic of Germany established a formal institution, a subcommittee of the Central Capital Markets Committee, which set a "calendar" for the timing for D-Mark bond issues. This arrangement has precluded until now non-German banks from "lead-managing" a D-Mark bond issue. Quinn (1975) reports that by 1975 only a "score" or so of offerings in francs took place on the Eurobond market and that French borrowers

<sup>7</sup>See Levi (1983) for a discussion of the economics of Eurodeposits. Levi notes that, owing to deposit requirements in, for example, the United States, that an interest rate differential favoring the Eurodeposit will persist. Hence, while the discrepancy can be expected to be small, we would not expect the external U.S. dollar rate to be an unbiased estimator of the domestic U.S. dollar rate in a regression equation.

needed permission to use the Eurofranc market, permission not usually granted unless the capital raised was used in investment outside France. Although estimating the influence of government regulation of the Euromarket is difficult, we do know that, since arbitrage possibilities have been found to be limited, these markets are, at a minimum, very much less regulated than are domestic markets.

The development of trading in the Japanese yen provides an illustration of the workings of the nondollar part of the Euromarket. Trading in Japanese currency on the Eurodollar market is reported to have begun as early as 1971, though most financial sources only started to report yen interbank transactions during 1978. Few trades were made prior to 1978, and the market was extremely volatile until then. From 1978 to 1981, the trading on the Euroyen market was well developed, but not well articulated with trading in Japan. Interest rate differentials were substantial for the interbank markets. From 1981 on, the differential has substantially decreased for the interbank, though *not for the financial instruments available to consumers*; interest rate differentials for these instruments remain substantial. The changes occurred through measures that permitted foreigners to participate in the Gensaki market (May 1979) and Japanese nationals to hold and trade nonyen denominated instruments (December 1980).

In summary, the Euromarkets are substantially unregulated and are characterized by "efficiency"; arbitrage possibilities are limited. Most transactions are dollar denominated, though DM, yen, and sterling trading is also extensive. Home governments, particularly in Germany and Japan, can influence, though not structure, the price and volume of trading on the Euromarkets done in their domestic currencies. The Euromarket remains the closest approximation to a free market in the financial world. Its very presence threatens the capacity of governments to segment domestic financial markets by raising arbitrage possibilities for investors.

### *Summary*

The conclusion derived from the above survey and analysis of the research on comparative economic institutions is that a successful interest rate-based industrial policy requires strong state capacity vis-à-vis domestic and international actors. We would expect that an interest rate-based policy would be successful only when (1) firms relied on either direct government grants or on bank loans for their investment capital; (2) financial markets were segmented so that capital can be redirected at below market rates from consumers to firms; and (3) the access of economic agents to international markets with market-set interest rates is limited. Party change, except in the case of Great Britain, ought not matter much for presence of a credit-based industrial policy. We also expect such a policy to be successful only when

the political institutions of a society have a tradition of public direction of economic activity. Early developing countries, which relied upon market forces, are unlikely to have the requisite institutions and traditions; late developing countries are more likely to have this state capacity. Theoretically, we would expect to find a match between capacity and policies. That is, those societies capable of successfully intervening to promote economic activity will tend to do so, those states without such capacity will tend not to introduce interventionist policies.

The prior expectations regarding the results of the empirical investigation are as follows. With regard to the presence of an interest rate-based industrial policy, little disagreement exists regarding which countries have undertaken such policies except in the case of Germany.<sup>8</sup>

The more contentious point concerns the effects of these policies. Economists, as we noted in the introduction, generally regard capital subsidies as inefficient infringements upon market allocation of resources and would expect our empirical investigation to reveal no or negative effects from government capital policies in all cases.

Japan and France are the two countries whose results are most likely to be at odds with the expectations of economists on this matter. Both countries have institutions and policy traditions that meet the conditions for a successful interest rate-based industrial policy. The research undertaken by Shonfield and Zysman led each to regard Japanese and French industrial policies and planning as being central to the success of those economies and to expect positive effects from government strategies. We might also expect, given the critiques mounted by economists (Balassa, 1984; Sachs and Wyplosz, 1986) of the policies of the French Socialists, that the policies of the French Socialists were less effective than were the policies of the previous Conservative government, an expectation that we shall test.

The United States, on the other hand, does not appear to have the institutional prerequisites for a successful interest rate-based industrial policy. We would expect to find no evidence for such policies, and we would expect electoral outcomes to matter little in the American case.

<sup>8</sup>Shonfield (1965) argues that Germany is interventionist in practice though adhering to an ideology of market liberalism. He suggests that the policies and instruments of state direction of the economy are closer to France's than to those of the United States and Great Britain. Ellsworth (1985) and Spindler (1984) believe that Germany has employed its financial system to reduce capital costs to its firms. Katzenstein (1987b) though not directly addressing this issue, writes that it is "implausible to view the West German state as an actor that imposes its will on civil society" (p. 16). He notes that German sovereignty is incomplete in that Germany's government is open both to domestic and international forces. If this view of Germany is correct, the conditions for the sort of coercive industrial planning found in France and Japan do not exist in Germany.

The other early developing country, Great Britain, developed institutions of planning during and after World War II and did undertake industrial policies, all the while retaining a liberal market orientation to many aspects of fiscal and monetary policy. Britain is the one country in this survey in which the governing political elites differed in ideology and in economic strategy, and the resulting underdeveloped state administrative capacity shows the results of this conflict. Both Zysman and Shonfield have trouble categorizing Great Britain's capacity for directing economic matters. Shonfield (1965) writes, "The basic prerequisites for planning . . . exist in Britain—even though the administrative habits required to make a success of the planner's task have not yet been much cultivated" (p. 330). Zysman, in analyzing the financial system, describes Britain as having characteristics of both market-led and government-led financial systems. In addition to the incomplete development of institutions of economic intervention, the adversarial nature of British politics and the absence of corporatist institutions make a successful interest rate-based industrial policy problematic. After all, such policies were introduced by the Labour government, a party with whom the British managerial elite has shown little interest in cooperating. The need for such policies was and is rejected by the market liberals who lead the Conservative party and who have no interest in seeing Labour's economic policies succeed.

The case of Germany is less clear. Germany has thinly funded equity markets, but its consumers have wide choices of saving instruments, and the government's capacity to direct its financial sector is offset by large and powerful banks. Katzenstein's (1987a, 1987b) argument that Germany is characterized by semisovereignty with regard to both domestic and international forces leads us to conclusions different from Ellsworth's (1985) and Spindler's (1984) analyses of Germany's financial market policies.

Table 1 provides an overview of our expectations.

Our next task is (1) to test our measure of government industrial policy through interest rate regulation and (2) to test to see if such policies affect economic activity.

### **Hypotheses and Tests**

To assess the feasibility and effectiveness of government restructuring of financial markets, we shall empirically test to see (1) if there is any evidence of an effective credit-rationing system for any country or countries and, if so, (2) are there significant associations between credit restrictions and economic performance? We shall also test to see whether changes in government or in government policy influence credit-rationing systems by splitting samples into periods corresponding to the rule of governments.

TABLE 1  
Summary Expectations

Country	Interest Rate Policy?	Effective?	Partisan Effects?
Japan	yes	1. no 2. yes	no
Germany	uncertain	1. no 2. mixed	no
France	yes	1. no 2. yes	no
Great Britain	yes, pre-Thatcher	1. no 2. no	yes
United States	no	-	no

NOTE: 1 = economists; 2 = institutionalists.

In the absence of any government regulation/intervention, it should be expected that interest rates paid on financial instruments of like maturity and risk denominated in the same currency will be nearly identical. If the rates were different, the adjustment of supply and demand would continue until the difference dissipated. One way, however, that governments can affect interest rates, and so redirect capital, is to restrict the movement of funds. The extent of this type of industrial policy can be examined by observing the association between domestic and external interest rates. The external (i.e., Eurocurrency) market can be assumed to approximate roughly the interest rate that would be in existence in the absence of government intervention in the credit market. In the absence of government intervention, the domestic rate should approximate this external rate. If it did not, arbitrage possibilities would exist, and savers would shift funds to the Eurocurrency market.

Our first test will be to determine whether for a given country and time period the domestic interest rate (i.e., the rate paid on deposits within a domestic economy) is approximated by the external interest rate (i.e., the Eurocurrency rate). For instance, does a three-month French franc certificate of deposit (CD) sold in Paris pay the same return as a three-month French franc certificate of deposit (CD) sold in London? Under the null hypothesis of no government intervention, the rates should essentially be the same and uniformly react to similar influences. Although differences will exist (Kreicher, 1982), they can be expected to be the result of disequilibrium phenomena resulting from transitory shocks. The alternative hypothesis is that differences in the behavior of domestic and external interest rates do

exist for some countries. These differences can be expected for countries whose governments engage in the structuring of financial markets: Japan, France, and Great Britain prior to the election of Thatcher. We do not have strong priors as to the West German results. No, or at least a smaller, difference in the behavior of the domestic from external rate is our expectation for the United States and for Great Britain subsequent to the Thatcher election. The American and post-Thatcher British results will serve as a benchmark against which to measure the convergence of domestic and international rates in the absence of government credit restrictions.

We shall test the degree of intervention by assessing the extent to which the external rate approximates the domestic rate for a given currency. Without government intervention, the external rate should have properties consistent with its being a conditional expectation of the internal rate. This implies that it should be an unbiased indicator of the domestic rate. That is, the external rate will neither systematically understate nor overstate the domestic rate. Further, no systematic prediction error, an outgrowth of the rates responding in a different manner to influences, will be present. The residual error from a regression of the internal rate on the external rate will approximate white noise. Conversely, the residual will have the time series properties of the internal rate, a highly autocorrelated process, if the series are completely unrelated. Therefore, under the null hypothesis of no interest rate-based industrial policy, if the domestic rate is regressed on the external rate (1) the intercept will equal 0.00, (2) the slope will equal 1.00, and (3) no serial correlation will be present.

Although these tests will assess the extent of government intervention in capital markets, a test of the effect of these policies is also needed. After all, we know from the work of Shonfield (1965, 1984) and Zysman (1983) that governments do achieve, through regulatory and trade control, a below competitive market interest rate. We might still hypothesize that these government policies might not have a positive effect on economic growth or the ability of domestic firms to compete. Indeed, most economists would expect such a finding. In such a case, the credit policy would affect selected interest rates without having relevance for business activity or decisions. In order to test the effect of interest rate-based industrial policy, the association of the domestic and external rates with stock return, a widely accepted measure of economic performance, is examined.

Under the assumption of efficient markets, stock prices are thought to incorporate all available information relating to the profitability of the firm. As aggregate economic activity affects corporate earnings, stock prices will reflect the earliest available information about future economic activity. Numerous studies have found that stock return is significantly correlated with changes in both current and future economic activity, findings that are con-

sistent with the market participants' anticipating economic activity. Fama (1981), for example, documents a strong, positive association between stock return and future economic activity (e.g., capital expenditures, industrial production, gross national product). Hence, stock return has nomological/predictive validity as a measure of economic activity. The ability of stock return systematically to predict changes in economic activity has led to its use as a component in the Department of Commerce's Index of Leading Economic Indicators. Fischer and Merton (1984) conclude, based on their survey of the empirical evidence, that "stock price changes are the best single variable predictor of the business cycle."

Although different measures of economic activity, such as gross domestic product (GDP), could be used, and this is a direction for future research, the time series properties of stock return make it the "best" measure of economic activity for use in our analysis. This is because the modeling of lag effects will not be an issue, since previous research has shown, consistent with the hypothesis of efficient markets, that no variable leads stock return.<sup>9</sup> This simplifies our modeling. By not having to model potentially completed lag structures, we shall have more statistical power in our tests of the relative efforts of the internal and external interest rates. The fact that stock return is an imperfect indicator of economic activity does not limit the conclusions that can be drawn, since measurement error in a dependent variable still allows for unbiased estimates of regression coefficients and their standard errors (Pindyck and Rubinfeld, 1981).

The stock market will react positively to information thought to increase profitability and negatively to information thought to decrease profitability. A number of studies report a negative association between stock returns and interest rates, and several theories offer explanations as to why this should be so. Geske and Roll (1983) suggest that, because nominal interest rates forecast inflation and inflation is negatively correlated with stock return, interest rates will be negatively correlated with stock return. Fama (1981) offers another argument based on the premise that changes in nominal interest rates reflect expectations of economic growth. Increased interest rates can be expected to connote a slowdown in future demand and therefore stock prices will fall.

<sup>9</sup>The efficient markets hypothesis postulates that stock return will not be correlated with any information observed in an earlier time period (i.e., stock prices are a random walk). Market participants have already incorporated all past information into the current stock price (Jensen, 1968). While some recent research has raised the possibility that stock prices may exhibit mean reversion, the random walk hypothesis has been empirically shown to be an extremely good approximation of the behavior of stock price data cross-nationally (Poterba and Summers, 1987).

By examining the association of stock return with the internal and the external interest rate, we assess which interest rate(s) stock market participants perceive to influence aggregate economic activity. In an economy with little, or no, government intervention in capital markets, the stock market can be expected to respond in much the same, or even identical, manner to movements in interest rates of the same maturity and risk characteristics. For economies where the government is engaging in interest rate-based industrial policy, if the intervention were effective, the stock market would respond more (or even exclusively) to movements in the domestic rate and not to the external rate. If the intervention were ineffective, the external rate would be the rate to which the stock market would respond. In either case, the “relevant” interest rate is the one that reflects the underlying “true” costs of capital.

### Data

Three types of data for each country are required for us to test the extent and effect of interest rate-based industrial policy. First, we need a Eurocurrency rate denominated in the home country's currency in order to measure the competitive market interest rate that would prevail in the absence of government regulation. Second, a rate on domestic deposits of similar characteristics to the Eurocurrency deposits is needed to assess the extent of the industrial policy. Finally, we shall require stock return data to assess the effect of the policy.

Information on Eurocurrency rates is reported by the OECD in the *Financial Statistics Monthly* and by the Federal Reserve in its *Monthly Bulletin*. Interest rates on three-month interbank deposits in sterling, DM, French franc, and yen deposits are reported on a monthly basis. A three-month interest rate on U.S. wholesale deposits is reported for the United States. In order to assess the extent of industrial policy, the domestic deposits should be as similar as is possible to these Eurocurrency deposits. Achieving similarity avoids the ambiguities created by relating interest rates that differ, not because of government policy but because of differences in the nature of the interest rates. The *Annual Statistics Digest* reports three-month domestic interbank rates for Great Britain, West Germany, and France. Unfortunately, no interest rate data directly comparable to the Eurocurrency rates is available for the United States or Japan. The most similar domestic rate to the Eurocurrency interbank rate for Japan is the three-month Gensaki rate. The data for domestic yen deposits come from Morgan Guarantee (*World Financial Markets*). The interest rate on large denomination certificates of deposit is selected as the domestic U.S. money instrument most appropriate for comparison to the Eurodollar rate on wholesale

deposits.<sup>10</sup> Monthly information on stock return, calculated as the percentage of change in stock price plus monthly dividend yield, is reported in the *Capital International Perspectives*. The changes in stock prices are changes in terms of the domestic currency of the stock exchange.

Because we are using the Eurocurrency market as our proxy for the competitive market interest rate, the analysis will start for each country with the emergence of a “deep” Eurocurrency market. (Ironically enough, we are able to measure capital controls and interest rate restrictions only as they begin to break down with the development of the Euromarkets.) In the case of the yen, the Euroyen market dates from approximately 1971, though the market was “thin” until the late 1970s. Our Euroyen data begins in June 1978. Our Eurofranc data begins in 1975. The German data is sporadic prior to 1974. We begin the German analysis in early 1975 as a way of controlling for the effects of the failure of the Herstatt Bank in 1974. The Eurodollar and Europound rates are available to us on a monthly basis from December 1971.

## Results

### *The Extent of Interest Rate–Based Industrial Policy*

We test for the extent of interest rate–based industrial policies by using a regression of the domestic rate on the external rate, while controlling for possible serial correlation. Under the null hypothesis of no government intervention, the domestic and external interest rates should be virtually identical. The farther the intercept away from 0.00, the farther the slope away from 1.00, the larger extent of the serial correlation, the greater the extent of interest rate–based industrial policy. Table 2 reports the results of generalized least squares regressions of the domestic rate on the external rate for each of the five countries. The results are remarkably clear in discriminating among which countries in what time period engage in interest rate industrial policies from those that do not.

For Japan prior to 1981, France in both periods, and Great Britain prior to Thatcher’s election, the external rate is a relatively poor predictor of the domestic rate. The intercept is far from zero; the slope coefficient is small; and substantial serial correlation is present. The estimates for  $\rho$  range from .90 to .96 indicate the differences in the rates tend to persist. The  $R^2$  value in the range of .18 to .21 indicates that these rates are responding to different influences or reacting to the same influences in different ways or both.

<sup>10</sup>Some ambiguities in the analysis will be present because of the failure to match the Eurocurrency rate with the domestic rate for the United States and Japan. Nevertheless, it can be expected that the nature of the deposits are similar enough to expect comparability in rates in the absence of government intervention.

TABLE 2  
The Association of External with Internal Interest Rates  
(Extent of Interest Rate-Based Industrial Policy)

Country	Period	$\beta_0$	$\beta_1$	$\rho$	$R^2$
Japan	78:06–80:12	5.76 (1.65)	.27 (.09)	.94 (.05)	.18
Japan	81:01–85:09	.43 (.36)	.92 (.05)	.38 (.16)	.94
France	75:01–81:04	8.97 (1.33)	.09 (.05)	.96 (.03)	.20
France	81:05–85:06	11.34 (1.49)	.11 (.03)	.96 (.04)	.56
West Germany	75:02–85:09	.26 (.10)	.99 (.01)	-.002 (.090)	.97
Great Britain	71:12–79.05	6.60 (1.00)	.30 (.05)	.90 (.05)	.21
Great Britain	79:06–85:09	.45 (.19)	.96 (.01)	-.03 (.12)	.98
United States	71:12–85:09	-.04 (.17)	.93 (.02)	.30 (.08)	.95

NOTE: Standard errors are in parentheses.

$$\text{Internal} = \beta_0 + \beta_1 \times \text{External} + \varepsilon_t$$

$$\varepsilon_t = \rho \times \varepsilon_{t-1} + u_t$$

Given that the nature of deposits in the Euromarket are different from those made in domestic markets (e.g., reserve requirements), we expect that the external rate will not be a completely unbiased estimator of the domestic rate, even for a country not engaging in interest rate-based industrial policy. We also expect, however, that the differences between the domestic rate and the external rate will be minor for countries without such an industrial policy in comparison to countries with one. This is precisely what we observe for West Germany, the United States, Japan after financial market deregulation in January 1981, and Great Britain after June 1979. Although the hypothesis that the external rate is an unbiased predictor of the domestic rate for these countries during the stated time periods can be rejected, the differences between the rates are relatively minor and substantially less than that observed for the other data samples. The intercept terms are close to 0.00; the slopes close to 1.00; and there are only minor indications of serial correlation. The  $R^2$  value close to 1.00 indicates that the domestic rate and the external rate respond similarly to influences.

We wish to be somewhat cautious in our interpretations, although the results appear to be surprisingly clear in discriminating among countries with such policies and those without. The extent of Japanese interest rate policy prior to 1981 may well be overstated because the domestic financial instrument (the Gensaki rate) is not identical to the Eurorate, (the inter-bank rate). As such, some differences not attributable to government policy will result. Of course, the relatively close correspondence between the Gensaki and Euroyen rates after January 1981 gives clear indication that government policy, and not financial instrument differences, account for most of the pre-1981 differences. Furthermore, this same problem of slightly different financial instruments is present for the U.S. data, and yet, even with this downward bias, the Eurodollar rate on wholesale deposits is a remarkably good indicator of the rate on domestic certificates of deposit. The Japanese engaged in an interest rate-based industrial policy before 1981, it seems reasonable to conclude, though not after 1981; and the United States did not engage in this type of policy at all.

The West German results, contrary to the findings of several scholars, are consistent with that of a country not engaging in financial market industrial policy. In fact, the domestic rate and the external rate move in a nearly identical fashion. The external rate is a very good predictor of the domestic rate under both Socialists and Conservatives. We tested for differences between periods, using the election of Chancellor Kohl and the Christian Democrats as our dividing date, and found no differences between German results under the Socialists and under the CDU/CSU/FDP coalition. This result suggests that Germany's banks operate under exactly the same rules abroad and at home and that German policies are characterized by the across-party continuity described by Katzenstein (1987a, 1987b). The results do not support the view that the effects found by Ellsworth (1985) are due to an interest rate-based industrial policy.

An alternate interpretation is possible, however. As we noted earlier, some have speculated that German authorities are able to influence prices and supply on the Eurocurrency market. The similarity between the domestic and external rate may not indicate absence of interest rate-based industrial policy on the part of the Germans, but an effort to control external markets as part of controlling domestic markets. The German results are consistent with both interpretations. For the latter explanation to be plausible, however, we would have to posit the full cooperation of Germany's banks and major international borrowers/lenders with the German authorities in setting both foreign and domestic rates, and this seems to be highly unlikely given the profitable (and anonymous) arbitrage opportunities that such a voluntary system would make available.

Less caution is necessary in interpreting the French and British results. The comparison for France is of a domestic three-month *Ff* interbank rate with an external three-month *Ff* interbank rate. These rates are not in close correspondence for either period. The reason for this lack of correspondence can most reasonably be explained by government policy that restricts the domestic rate to a below competitive market level.

The drastic difference between the British results, corresponding to the periods before and after Thatcher's election, provides perhaps the strongest indication of evidence of interest rate-based industrial policy. Prior to the Thatcher election, the external rate is a poor indicator of the domestic rate; after the Thatcher election, it is a good one. The close correspondence of domestic and international rates after the Conservative victory is evidence that the policies of selective intervention of the Labour party were ended in favor of a rather pure market approach to public direction of the economy. Thatcher promised an end to exchange controls, to direct, below-market borrowing by firms, and to other forms of capital subsidies to business firms; and she has substantially delivered on these promises, thereby undoing much of the Labour party's economic policies in this arena as in so many others. Only in Britain do we find evidence that partisan politics matter in the industrial policy area.

#### *The Effect of Interest Rate-Based Industrial Policy*

The evidence is an initial step in our investigation; we cannot so far choose between the competing explanations for economic decline. The ability of governments to influence an interest rate is not sufficient to show the value of an interest rate-based industrial policy. After all, political scientists and economists would all agree that governments can provide subsidized credit to firms and can force down an interest rate. The crucial issue is the ability of this policy positively to influence economic activity. Economic agents may be able to circumvent the policy so as to dissipate the effect of a "controlled" interest rate on the economy. The effect of interest rate-based policies can be assessed by examining the association of the domestic and external rates with stock return, a widely accepted indicator of both current and expected future economic performance. In the case of countries where the government is not intervening in the financial markets (i.e., where the external and the domestic rates are approximately the same), the rates should have a similar effect on economic activity. If a government is completely effective in influencing economic policy through an interest rate-based industrial policy, then only the domestic rate should have an effect on stock prices. If a government's policies were ineffective, only the external interest rate should affect stock prices.

The first step in estimating the effect of interest rates on stock return is to obtain an estimate of unanticipated changes in the rate of interest. The notion of efficient markets implies that stock market participants already will have incorporated any predictable information that influences stock prices into the price of the stock. Hence, *only* unanticipated changes should exhibit a correlation with stock return. As a minimum, it can be expected that market participants make use of the past behavior of interest rates in formulating their forecasts of future interest rates. Therefore, a measure of unanticipated interest rates is the residual obtained after subtracting from current interest rates the interest rate that can be predicted based on past values of interest rates.<sup>11</sup>

A second-order autoregressive model (i.e., a regression of the interest rate on the interest rate lagged one and two months) is found to capture the systematic time series behavior of interest rates for both the domestic and external rate for each country (i.e., the residuals from these equations approximate white-noise). The results of these regressions are reported in Table 3. The residuals from these interest rate equations can be thought to be reasonable proxies for unanticipated interest rate movements. Thus, the estimate of the unanticipated interest rate is defined to be  $\eta_t = ir_t - \phi_0 - \phi_1 \times ir_{t-1} - \phi_2 \times ir_{t-2}$ .

Values of  $R^2$  in the range of .9 for most of the equations tell us that the past behavior of interest rates is able to explain most of the variation in current interest rates. The use of a second-order autoregressive model nests the hypothesis that interest rates follow a random walk, which implies that the first-order coefficient would be 1.00 and the second-order coefficient would be 0.00. Even though the random walk assumption is not an unrealistic assumption, the results suggest that either a higher-order autoregressive model or a first-order autoregressive coefficient different from 1.00 is better able to explain the behavior of interest rates. In some instances, as evidenced by an insignificant coefficient for the interest rate lagged two months, a first-order autoregressive model (i.e., relating the current interest rate just to the interest rate in the previous month) is an adequate representation of the behavior of interest rates. But this possible "over-parameterization" by the use of a second-order autoregressive model creates no problems for the analysis, as it still allows for consistent coefficient estimates. Therefore, second-order autoregressive models are used for each equation as filters to obtain estimates of unanticipated interest rates.

The associations of unanticipated interest rates with stock return are reported in Table 4. Table 4 contains the bivariate regressions of stock return

<sup>11</sup>For a more detailed discussion of the theoretical and empirical issues in the use of unanticipated measures, see Barro (1977) and Cornell (1983).

TABLE 3  
Time Series Behavior of Interest Rates  
(Obtaining Estimates of Unanticipated Interest Rates)

Series	$\phi_0$	$\phi_1$	$\phi_2$	$R^2$
Japan internal (pre-1981 liberalization)	.49 (.35)	1.44 (.17)	-.49 (.17)	.96
Japan external (pre-1981 liberalization)	.98 (.61)	.76 (.20)	.14 (.20)	.86
Japan internal (post-1981 liberalization)	1.41 (.27)	.88 (.13)	-.10 (.11)	.88
Japan external (post-1981 liberalization)	.99 (.35)	.71 (.11)	.13 (.09)	.85
France internal (Conservative)	.37 (.31)	1.29 (.11)	-.32 (.11)	.93
France external (Conservative)	2.36 (.93)	.70 (.12)	.09 (.12)	.58
France internal (Socialist)	.85 (.66)	1.26 (.14)	-.33 (.14)	.90
France external (Socialist)	3.18 (1.61)	.83 (.15)	-.03 (.15)	.63
West Germany internal	.12 (.10)	1.39 (.08)	-.40 (.08)	.98
West Germany external	.14 (.14)	.92 (.09)	.06 (.09)	.95
Great Britain internal (pre-Thatcher)	.99 (.35)	1.26 (.10)	-.35 (.10)	.90
Great Britain external (pre-Thatcher)	1.57 (.61)	.80 (.11)	.07 (.11)	.78
Great Britain internal (Thatcher)	.67 (.41)	1.25 (.11)	-.31 (.11)	.93
Great Britain external (Thatcher)	.73 (.51)	.99 (.12)	-.05 (.12)	.89
United States internal	.58 (.21)	1.28 (.07)	-.34 (.07)	.93
United States external	.64 (.25)	1.16 (.08)	-.22 (.08)	.91

NOTE: Standard errors are in parentheses.

$$ir_t = \phi_0 + \phi_1 \times ir_{t-1} + \phi_2 \times ir_{t-2} + \eta_t$$

regressed on both the domestic rate and the external rate, along with a multiple regression of stock return regressed jointly on the domestic and external rates. A varied picture emerges from these results.

For France we find that an interest rate-based industrial policy is effective only during the period of Socialist rule. From 1981 to 1985, the French results indicate that the domestic rate was more important for domestic French economic agents than was the external rate. For the bivariate regressions, the domestic rate has a larger coefficient and offers more explanatory power than does the external rate. In fact, the domestic rate is found to be highly significant at the same time that the external rate is statistically insignificant. The multivariate regression supports the conclusions drawn from the bivariate analyses. The regression allocates virtually the entire explanatory power to the domestic rate and little to the external rate. While the internal rate is negative and significant, the external rate is indistinguishable from zero. The French under the Socialists seem to have implemented an industrial policy that has had a positive impact on economic activity. The evidence regarding the effectiveness of French capital restrictions prior to President Mitterrand's election is less clear. The analysis is unable to assess accurately either the individual or the relative impact of the internal and external interest rates on stock return. We do see, however, some evidence to suggest that policies during this period were ineffective in insulating credit markets sufficiently so as to promote economic activity; in the bivariate regression, the external rate is significant at the .1 level while the internal rate is not.

The British prior to Thatcher's election appear to have implemented policies that, although influencing the domestic rate, were unable to influence economic activity. The bivariate regressions indicate that though both the external and domestic rates are significantly associated with stock prices, the external rate offers the greater explanatory power. The multiple regression allocates the majority of the influence to the external rate and little to the domestic rate. In addition to being larger, the coefficient for the external rate is statistically significant, and the domestic rate is not. These results imply that Britain's interest rate-based industrial policies were ineffective in promoting economic activity.

The results for Great Britain subsequent to the Thatcher election are consistent with a country not engaging in interest rate-based industrial policy. The bivariate regressions indicate that both the domestic and external rates are statistically significant and offer about the same level of explanatory power. The multivariate regressions are essentially dividing the influence between the rates. The insignificant coefficients for the United Kingdom, resulting from high multicollinearity between the rates, is exactly the

TABLE 4  
 Stock Market Reaction to Unanticipated Interest Rates  
 (The Effect of Interest Rate-Based Industrial Policy)

Country	Bivariate Regressions		Multiple Regression	
	$\delta_1$	$\delta_2$	$\delta_{11}$	$\delta_{12}$
Japan (pre-1981 liberalization)	-.95 (.48)	-.59 (.21)	-.28 (.59)	-.51 (.28)
$R^2$	.13	.22	.23	
Japan (post-1981 liberalization)	-2.44 (2.88)	-3.11 (2.40)	1.00 (4.52)	-3.76 (3.80)
$R^2$	.01	.03	.03	
France (Conservative)	-1.38 (1.36)	-.94 (.56)	-.65 (1.45)	-.84 (.60)
$R^2$	.01	.04	.04	
France (Socialist)	-3.49 (1.01)	-.40 (.28)	-3.63 (1.19)	.07 (.30)
$R^2$	.20	.04	.20	
West Germany	-1.21 (.84)	-1.20 (.55)	-.60 (.90)	-1.03 (.60)
$R^2$	.02	.04	.04	
Great Britain (pre-Thatcher)	-3.00 (1.09)	-2.70 (.54)	-.48 (1.19)	-2.56 (.64)
$R^2$	.08	.22	.22	
Great Britain (Thatcher)	-1.92 (.78)	-1.49 (.62)	-1.15 (1.32)	-.75 (1.04)
$R^2$	.08	.07	.08	
United States	-1.37 (.36)	-1.30 (.30)	-.52 (.54)	-.97 (.47)
$R^2$	.08	.10	.11	

NOTE: Standard errors are in parentheses.

*Stkr* = stock return; *Unint* = unanticipated internal interest rate; *Unext* = unanticipated external interest rate.

result expected from using interest rates containing approximately the same information.<sup>12</sup>

The Japanese results are in contrast to the expectations derived from both Zysman's (1983) and Shonfield's (1984) arguments. In the preliberalization period, both the internal and external bivariate coefficients are significant, though the explanatory power of the external equation is higher. When the multivariate equation is run, the external coefficient is significant at the .1 level, while the internal coefficient is statistically insignificant. These results imply that Japan's credit-based industrial policies were not effective in insulating the Japanese economy from market forces. No significant results are found for the postliberalization phase. Given all that influences stock return, the "signal-to-noise" ratio is perhaps too low to be able to isolate the impact of interest rates in the latter period. This problem is especially severe in the case of the Japanese data. Japanese interest rates have very little volatility. With so little movement, we anticipated that, in using regression analysis, our ability to detect an influence would be low. The results for the first period are all the more remarkable in this light.

A significant association is not observed between the interest rates and stock return in the multivariate regressions for West Germany. The coefficients have the expected negative sign, but they are insignificant, and the regression has little explanatory power. In the bivariate equation, the external coefficient is significant, but its explanatory power is low. Two explanations are possible. First, perhaps there really is little effect; perhaps interest rates do not extensively influence economic activity in Germany. This explanation is possible, but we believe that a more likely explanation is that our ability to detect an effect is limited. As we noted above, the power of our test is low in situations with low interest rate volatility, and Germany's interest rates change little owing to stable macroeconomic policies. Though the German results are somewhat suggestive that interest rates have a negative impact on stock return, the results provide little evidence as to the relative importance of the domestic versus the external rate.

For the United States, the internal and external interest rates have a similar association with stock return. The magnitude of the coefficients and explanatory power of the regression are in close correspondence for the bivariate regressions. In the multiple regression, the external rate is statistically significant, and the internal rate is not. Although the result could be caused by actual differences in the interest rates, the hypothesis that the coefficients are the same cannot be rejected. The results are completely consistent with a country not having an interest rate-based industrial policy.

<sup>12</sup>Multicollinearity in a regression still allows for unbiased estimates of the coefficients and their standard errors. The standard errors, however, are often too large to be able to discriminate among alternative hypotheses.

## Conclusion

Governments, of course, can structure financial markets in hopes of achieving industrial policy aims. To what extent governments do this, and what effect this has on the domestic economy, has been the subject of the empirical investigation of this paper.<sup>13</sup> The roots of this investigation are to be found in the competing arguments found in comparative politics and in economics regarding the effectiveness of a financial market-based industrial policy.

Our results can be briefly summarized. We have demonstrated that France, Japan before financial deregulation, and Britain prior to Thatcher structured their financial markets. The evidence suggests that the United States, Germany, Japan after January 1981, and Britain (following Thatcher's election) do not employ interest rate-based industrial policies. These findings broadly conform to those found by other researchers and, as such, are uncontroversial. The results for Germany are open to two explanations: no government interest rate policy, or tight government controls on all German credit markets, including the Euromark market, though we believe that the latter explanation is unlikely to be accurate.

The more important question has been the effectiveness of these policies, a point of controversy among economists and political scientists. Much

<sup>13</sup>Because economic activity can be expected both to influence and to be influenced by political institutions and policies, one avenue for future research is to model the bidirectional relationship of policies, economic outcomes, and responding policies regarding financial systems. A number of studies have documented the importance of economic conditions on, for example, electoral outcomes (Lewis-Beck, 1986).

The dramatic difference in results for Great Britain, corresponding to the periods prior and subsequent to the Thatcher election, illustrate the importance of political events on economic interactions. Fischer (1983) contends that Thatcher's policies affected the very nature of economic relationships so that her policies would cause a structural change in econometric models (i.e., coefficients in econometric models would be different from the pre-Thatcher period). In the absence of explicit measures, a number of statistical approaches (e.g., switching regression models) can be used to test, control, or model the effects of political events on relationships among economic variables.

The specific modeling approach taken is open to question. The substantial body of work devoted to structural multiequation modeling has come under criticism (Sims, 1980) because, among other limitations, the zero-order restrictions necessary to achieve identification are arbitrary choices among reasonable alternatives. The restrictions cause the structural model to be misspecified, and therefore, conclusions drawn from the estimated equations are not valid. Reduced form estimation (e.g., vector autoregressive modeling) has gained popularity in some disciplines and might be applied to the study of political relationships. The logic underlying this approach is that it is possible to test hypotheses without estimating the structural model. Instead, hypotheses are tested by deriving implications for the reduced form representation and then determining whether the estimated reduced form is consistent with these theoretical implications. This approach may prove promising for future research that investigates the association among political institutions and policies and economic activity.

case study evidence on the utility of credit-based industrial policies has been undertaken, but we believe that this is the first attempt systematically and comparatively to investigate this question using these methods and procedures.

With regard to France, we have demonstrated that the French government's policies under the Socialists were effective in that economic activity changes as a result of changes in domestic, but not external, interest rates. The government was successful in allocating resources through nonmarket methods. As Zysman, Shonfield, Cohen, and others have argued, the institutions evolved by the French government for the direction of their economy can successfully allocate resources through a nonmarket mechanism. This finding is in contrast to that of scholars who have argued that French Socialist policies were ineffective (see, e.g., Balassa, 1984; Sachs and Wyplosz, 1986). We find no evidence that the previous Conservative government's policies were effective, even though much of the "French miracle" occurred during the governance of center/right coalitions. This is somewhat surprising, as most analysts stress the continuity of *dirigisme* between governments of different ideological casts. We believe that the nationalization of the banking sector allowed the government to reduce the arbitrage opportunities by reducing the number of private financial institutions with access to Euromarkets.

Britain's pre-1979 interest rate policies were not effective in influencing domestic activity. The results clearly show that changes in the external, not the domestic, interest rates mattered: firms responded to the price signals found in the "true" market. If Britain's policies were ineffective, this is not because interest rate-based industrial policies are doomed to be so: the French case shows this. Rather, the results indicate that policy effectiveness is a product of institutional arrangements and that economic policies aimed at directing investment through industrial policy require strong state capacity: financial market segmentation, limited access of private actors to international markets, a tradition of planning, and state institutions of planning. One could infer from Shonfield's argument that the absence in Britain of strong state institutions of planning and funding (and coercion) account for the differences between Britain's results and France's. We might also note that few of the many analysts who study British industrial and public policies have found Britain's policies to be particularly effective. Our finding that the British economy responded to external rather than internal market forces is also consistent with that of Alt (1987), though his study focused on exchange rates.

For Japan, in the years prior to deregulation, extensive segmentation combined with capital subsidies to private firms were credited with much of Japan's economic success. Our results, however, are consistent with the ar-

guments of economists, such as Krugman (1983, 1984), Saxonhouse (1983), and Schultze (1983), that Japanese industrial policy by itself cannot be credited for Japan's economic success. Here, state capacity and political institutions seem not to have prevailed over "market logic." Unlike the French results, we find no evidence that Japanese economic success stems from government capital subsidies. We should note, however, that our methods are unable to discern much about the effectiveness of Japanese policies after 1981. Since 1981 Japan has reordered its financial markets so that its domestic markets are now little segmented from the Euromarkets, and we find no evidence for an interest rate-based industrial policy in recent years.

Given the comparative evidence, is the United States capable of adopting an effective credit-based industrial policy? We do not think so. American financial markets are barely segmented; individual savers have many (competitive) choices of financial instruments. The American financial industry is substantially unconcentrated, and the American regulatory apparatus is fragmented. Whatever the failings of American managers and financial markets regarding their orientation to long-run investments, an interest rate-based industrial policy of the sort used in Japan and France is very unlikely to be successful in overcoming whatever problems U.S. firms may suffer from the below-market cost of capital advantage enjoyed by foreign firms.

The difficulty of implementing effective industrial policies is likely to increase. The world's financial markets are demonstrating a converging pattern of regulation, or perhaps more correctly, deregulation. The development of substantial trading in the financial Euromarket has coincided with this convergence and has contributed to the weakening of interest rate controls, though the non-dollar-denominated sections of this market are subject to some governmental influence. The development of truly global financial markets may help explain why France has apparently decided to adopt market-driven financial and banking policies, despite its successful *dirigiste* traditions. The French government intends to end France's unique financial regulatory regime by 1992, the date when each of the member countries of the European Community are to have common banking rules.

In summary, the results suggest that the question of the necessary ineffectiveness (or effectiveness) of industrial policies is misphrased. The relevant question is not Can industrial policies based on capital subsidies work? but rather What are the institutional and political arrangements that make these policies possible? The evidence is that these policies are sometimes implemented, but are rarely effective.

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