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# Bank Holding Companies: Development and Regulation

*By Thomas G. Watkins and Robert Craig West*

The number of bank holding companies has increased very rapidly in the United States over the past 15 years. During this period, holding companies have grown from a position of relative unimportance in the nation's banking industry to one of dominance. A number of factors have contributed to the growth of bank holding companies. One factor is that holding companies can facilitate the expansion of banking organizations, especially where branch banking is prohibited or limited by law. Also, one-bank holding companies enjoy certain tax benefits, since the interest payments on debt created to acquire a bank can be met out of pretax income.

Throughout the 15-year period of rapid growth, bank holding companies have been supervised and regulated at the federal level. Beginning in 1956 for multibank companies and in 1970 for one-bank companies, the formation and expansion of bank holding companies have been subject to prior approval by the Federal Reserve. The objective of Federal

Reserve regulation is to ensure that the growth of bank holding companies does not impair either the financial condition of banking organizations or the competitive condition of the banking industry. Also, the Federal Reserve aims to prevent undue concentration of banking resources.

In view of the growth and dominance of bank holding companies, this article reviews the development and regulation of bank holding companies in the United States. The article first treats their historical development and regulation. It then examines the growth of bank holding companies since 1965 and geographical differences in the importance of holding companies. The article also discusses the growth of bank holding companies in the Tenth Federal Reserve District. The article concludes by offering some comments about the future growth of bank holding companies in the United States.

## **HISTORICAL DEVELOPMENT AND REGULATION OF BANK HOLDING COMPANIES**

A primary reason for the development of the bank holding company form of organization in the United States has been the historical dominance of unit banking. The performance of the banking sector during the first half of the 19th century created a political climate that

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caused most states and the federal government to restrict banks to a single office. Where banks were denied branching by law, the formation of multibank holding companies provided banks with a means to expand beyond their local banking market.

As a legal device, the holding company form of organization dates from the 1890s.<sup>1</sup> The formation of bank holding companies in the United States began during the first decade of the 20th century. In the early part of the century, bank holding companies were concentrated in the Northwest, and some of these earliest companies are still in business. For example, Union Investment Company, now a division of Banco (Northwest Bancorporation) began operation in Minnesota in 1903. As in the case of branch banking, the development of holding companies has been limited by state law and, as a result, the pattern of development has not been uniform across the nation.<sup>2</sup>

The regulation of bank holding companies at the federal level was initiated in 1914 with the passage of the Clayton Act.<sup>3</sup> Section 11 of the Act expressly gave to the Federal Reserve System the power to enforce its banking provisions. But early federal regulation of bank holding companies was not effective, and

although the Federal Reserve favored legislation placing restrictions on bank holding companies, little action was taken. The passage of the McFadden Act in 1927, while it limited the expansion of branch banking, left the holding company open to banks as a means of geographic expansion. In fact, the restrictions on branch banking contained in the McFadden Act probably stimulated the creation of bank holding companies.

Federal regulation of bank holding companies was extended under the Banking Act of 1933. This Act brought under Federal Reserve supervision all holding companies which contained a member bank. In particular, the provisions of the Banking Act of 1933 dealing with bank structure were aimed at separating banks from their security affiliates. This action marked the beginning of attempts by the federal government to determine the range of permissible activities for bank affiliates.

From 1933 through 1956, no significant legislation pertaining to bank holding companies was enacted. During the first part of this period, the growth of bank holding companies was slow, partly due to the political climate and the uncertain future of holding companies.<sup>4</sup> Beginning in 1948, however, holding companies began to expand in banking, as they did in other sectors. Many bills designed to limit the merger activity of banks were introduced during the early 1950s, and the threat of these limitations no doubt acted to stimulate preemptory acquisitions.

In 1956, Congress passed the first act dealing expressly with bank holding companies—the Bank Holding Company Act of 1956. The purposes of the Act were to define bank holding

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<sup>1</sup> Before holding companies were legalized, it was a violation of the common law for one corporation to own another. New Jersey was the first state to pass laws legalizing the holding company form, but other states followed soon after.

<sup>2</sup> A standard source on bank holding company development before 1960 is Gerald C. Fischer, *Bank Holding Companies*, New York: Columbia University Press, 1961.

<sup>3</sup> The concentration of financial power uncovered by the Pujo Committee in 1912 had created wide public concern about concentration in banking. The Pujo Committee was the half of the House Banking and Currency Committee given the task of investigating concentration in the financial sector. The other half of the committee, chaired by Carter Glass, drafted the Federal Reserve Act. The investigations of the Pujo Committee led to the Clayton Act, and the deliberations of the Glass Committee led to the Federal Reserve Act.

<sup>4</sup> In the late 1930s, President Roosevelt called for the abolition of all holding companies. The government's suit in 1948 against the largest bank holding company, the Trans-America Corporation, also made the future uncertain for bank holding companies.

companies, to control their future expansion, and to require divestiture of their nonbank affiliates. In the Act, a bank holding company was defined as any company that owned 25 percent or more of the stock of two or more banks, or otherwise controlled the election of a majority of the directors of two or more banks. The Act made it unlawful for any bank holding company to acquire 5 percent or more of another bank or for any company to become a multibank holding company without the prior approval of the Board of Governors of the Federal Reserve System. Also, bank holding companies were required to divest themselves of affiliates engaged in nonpermissible activities. In addition, the Act outlined the factors that the Federal Reserve was to consider when processing an application—the convenience, needs, and welfare of the applicant's community, along with limits on bank holding companies organization consistent with adequate and sound banking, the public interest, and the preservation of competition in banking.

One-bank holding companies did not come under the jurisdiction of the 1956 Act.<sup>5</sup> This exclusion created questions about the effectiveness of holding company regulation because the number of one-bank holding companies grew very rapidly in the 1960s. To bring one-bank holding companies under federal regulation, Congress passed the 1970 amendments to the Bank Holding Company Act of 1956. Under the amended Act, one-bank and multibank holding companies were subjected to the same regulations, and the Federal Reserve was given the responsibility of determining permissible activities for all bank holding companies. An important result of the 1970 amendments was the elimination of much of the uncertainty that had accompanied the creation of

bank holding companies before 1970. With permissible activities explicitly set out, bank holding company formation proceeded without fear of legal obstacles.

### **THE CURRENT REGULATORY ENVIRONMENT**

Under the Banking Act of 1933 and the Bank Holding Company Act of 1956 as amended in 1970, the Board of Governors of the Federal Reserve System has the responsibility for regulating bank holding companies. The regulatory policies of the Federal Reserve System, which influence the internal affairs of a holding company to promote sound banking practices and the structure of the banking industry to promote a competitive market, are imposed in two fundamental ways. First, all proposals to form a bank holding company or to acquire an additional bank or nonbank subsidiary are subject to the prior approval of the Federal Reserve. Therefore, through the application process, the operating policies of the applicant company as well as the proposal's impact upon competition are evaluated. Second, compliance with regulations is secured through ongoing supervision of the activities of the holding company.

When a company formally applies to become a bank holding company, or when a bank holding company proposes to acquire an additional bank or nonbank subsidiary, the Federal Reserve is directed by the Bank Holding Company Act to consider the effect of the proposal on banking, competition, and factors relating to convenience and needs. Where a proposal has an adverse effect upon any of these elements it will be denied if there are no counterbalancing considerations. However, a proposal to acquire a nonbank subsidiary will be approved only where there is a positive public effect.

In the case where the proposed acquisition is a bank, banking factors include an evaluation

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<sup>5</sup> A one-bank holding company contains only a single bank, although it may contain other nonbank affiliates.

of the financial and managerial aspects of the proposal. With regard to the financial aspects of the proposal, the Federal Reserve is interested mainly in the ability of the holding company to retire any debt incurred in the acquisition of the bank and the ability of the holding company to maintain adequate capital in the bank. In short, the Board of Governors wants to ensure that the holding company is a source of financial strength for the bank. Regarding managerial considerations, the Federal Reserve evaluates the managerial expertise of both the holding company and the bank by reviewing examination reports for violations of banking laws or regulations.

The Federal Reserve also assesses the probable competitive impact of a holding company proposal in order to prevent any acquisition that would tend either to create a monopoly or to cause a substantial lessening of competition. To evaluate the competitive impact, the Federal Reserve employs what is commonly known as a structural approach, where the conduct and performance are deduced from the structural aspects of the industry. Generally, the level of concentration in total deposits and the market shares in total deposits of the two firms are estimated in the relevant geographic market. Although the Federal Reserve is not bound by the merger guidelines of the U.S. Department of Justice, the guidelines are used to detect a possible anticompetitive effect.

Finally, the Federal Reserve evaluates the impact of the proposed acquisition on the convenience and needs of the community to be served. Here, the concern is whether or not the proposal will result in improved banking services. Although the application requests information on any proposed changes in banking services, the Federal Reserve also reviews prior examinations of the applicant and the target bank to check for compliance with consumer laws and regulations and with the Community Reinvestment Act. In short, the aim is to ensure that the

applicant and the bank are meeting the credit needs of their communities and doing so in a responsible manner.

With regard to an application to acquire a nonbank subsidiary, the Federal Reserve is empowered to determine the activities in which it is permissible for holding companies to engage. This "laundry list" includes activities closely related to banking or to managing or controlling banks. These include trust operations, investment or financial advising, certain leasing and insurance activities, and several other activities. The purpose of the review procedure is to guarantee that the activities of the nonbank subsidiary do not pose a potential threat to the financial stability of any bank subsidiary. The competitive impact of the acquisition is assessed and, in addition, the Federal Reserve determines whether the acquisition would result in an undue concentration of resources in an activity closely related to banking. Finally, public benefits of the acquisition are reviewed to determine if the proposal will result in greater convenience to the public, gains in efficiency, or lower charges for services.

### **THE GROWTH OF BANK HOLDING COMPANIES: 1965 TO 1980**

Although bank holding companies have existed in the United States since the early part of the 20th century, they were relatively unimportant in the banking industry until the latter part of the 1960s. In 1965, there were only 53 multibank holding companies, and they controlled only about 8 percent of all commercial bank deposits. (See Table 1.) An estimated 550 one-bank holding companies existed in 1965, controlling 4.5 percent of total deposits. Thus, in 1965, holding companies controlled slightly less than 13 percent of commercial bank deposits.

Growth was very rapid, however, in the last half of the 1960s. The number of multibank holding companies more than doubled, increasing from 53 in 1965 to 121 in 1970. The relative importance of multibank holding companies also increased as the percentage of deposits controlled by these organizations rose from about 8 percent in 1965 to about 16 percent in 1970. One-bank holding companies also grew rapidly in the 1965-70 period, increasing in number from 550 in 1965 to 895 in 1970. In terms of relative importance, one-bank holding companies grew even more rapidly than multibank holding companies. Between 1965 and 1970, one-bank holding companies increased their control of total deposits from 4.5 to 33 percent. Together, one-bank and multibank companies controlled just under 50 percent of the nation's commercial bank

deposits in 1970.

Much of the 1965-70 growth in one-bank holding companies occurred in 1968 and 1969. During the last four months of 1968, seven one-bank holding companies were formed, and an additional 76 banking organizations announced plans to form one-bank holding companies. Of these 76 banks, seven were among the 12 largest banks in the United States. This movement to form holding companies was precipitated by the possibility that federal legislation would be enacted regulating the activities of one-bank holding companies. Believing that Congress would "grandfather" some of the activities of existing organizations, many banks acted to establish holding companies before the expected legislation went into effect.

Multibank holding companies continued to grow rapidly in the early 1970s, both in

**Table 1**  
**BANK HOLDING COMPANIES**  
**OFFICES, ASSETS, AND DEPOSITS**

As of Dec. 31	Number of Bank Holding Company Groups			Commercial Banks in Holding Companies				Percentage of Total Commercial Bank Deposits in Holding Companies		
	Total	Multi	One	Banks		Offices		Total	Multi	One
				No.	%	No.	%			
1965*	603	53	550	1,018	7.4	N.A.	N.A.	12.8	8.3	4.5
1968*	847	80	767	1,396	10.2	N.A.	N.A.	39.7	13.3	26.4
1970*	1,016	121	895	1,790	13.0	N.A.	N.A.	49.2	16.2	33.0
1973	1,533	251	1,282	3,097	21.9	15,374	58.6	65.4	35.0	30.4
1974	1,616	276	1,340	3,462	23.9	17,131	60.5	68.1	38.4	29.7
1975	1,708	289	1,419	3,674	25.1	18,382	61.2	67.1	37.8	29.3
1976	1,802	298	1,504	3,791	25.8	19,203	61.7	66.0	34.1	31.9
1977	1,913	306	1,607	3,903	26.5	21,223	62.7	72.0	36.3	35.7
1978	2,113	314	1,799	4,101	27.9	22,421	62.8	72.5	33.7	38.8
1979	2,357	329	2,028	4,280	29.1	23,765	63.0	74.1	34.6	39.5
1980	2,905	361	2,544	4,954	33.9	25,948	65.5	76.7	35.4	41.3

\*For 1965, 1968, and 1970, data on the number of one-bank holding company groups are unavailable, and for these years the statistics give the number of holding companies. The basic difference is that a group takes into account tiered ownership of holding companies.

SOURCE: Board of Governors of the Federal Reserve System.

numbers and in relative importance. By 1975, these organizations controlled about 38 percent of total deposits, an increase from just over 16 percent in 1970. In contrast, while the number of one-bank holding companies rose in the early 1970s, their relative importance declined. The percentage of deposits controlled by one-bank organizations fell from 33 percent in 1970 to about 29 percent in 1975. The decline in relative importance of one-bank holding companies in the early 1970s was more than offset by the increase in the importance of multibank organizations. Thus, the percentage of deposits held by all bank holding companies rose from just under 50 percent in 1970 to 67 percent in 1975.

In the latter part of the 1970s, the number of both one-bank and multibank holding companies continued to increase rapidly. However, while the importance of one-bank holding companies declined and that of multibank companies rose in the early 1970s, the reverse occurred in the late 1970s. To some extent, the relatively rapid growth in one-bank holding companies in the late 1970s was due to a change in the state banking laws, particularly in New York. In 1975, that state enacted legislation allowing statewide branching. As a result, a number of multibank holding companies in that state changed to one-bank companies through the merger of bank subsidiaries into the lead bank.

By 1980, 361 multibank holding companies controlled about 35 percent of total deposits, a decrease from just under 38 percent in 1975. There were 2,544 one-bank holding companies in 1980 that accounted for about 41 percent of total deposits, a sharp increase from the 29 percent held in 1975. Together, the percentage of deposits held by holding companies rose from 67 percent in 1975 to just under 77 percent in 1980.

In summary, during the 15-year period from 1965 to 1980, the bank holding company form

of organization grew from a position of modest importance to become the dominant form of banking organization. While only about one-third of the commercial banks in the United States are part of either a one-bank or multibank holding company, almost all of the larger banks are members of such companies. Many of the nation's larger banks are lead banks in multibank organizations. In 1980, there were 2,410 commercial banks in the 361 multibank holding company groups, or about an average of seven banks for each group.

### **GEOGRAPHIC DIFFERENCES IN HOLDING COMPANY DEVELOPMENT**

The relative importance of multibank and one-bank holding companies varies among the different states, depending mainly on state laws concerning branching and holding companies. In 1980, statewide branch banking was permissible in 23 states and the District of Columbia. Limited branch banking was allowed in 16 states. Ten of the states that allowed limited branching also allowed multibank companies, but in six of these states, the multibank form of organization was prohibited or otherwise restricted. The laws of 11 states prohibited branch banking of any kind in 1980. In six of the unit banking states, multibank companies were allowed.

One-bank holding companies are more important in the states that allow statewide branching, while multibank holding companies are more important in those limited branching and unit banking states that allow multibank organizations. Thus, in 1980, one-bank holding companies controlled just under 52 percent of the deposits in statewide branching states, compared with only around 10.5 percent in limited branching and unit banking states that allow multibank companies. (See Table 2.) In contrast, in statewide branching states, multibank holding companies controlled only about 37 percent of total deposits, compared with 57 per-

cent in limited branching-multibank states and 60 percent in unit branching-multibank states. The greater importance of multibank holding companies in unit banking and limited branching states reflects the fact that in these states, banking organizations that want to expand use the multibank method because the branching alternative is limited or not available. On the other hand, in those states that allow branching, expansion can occur without use of the multibank method.

### HOLDING COMPANIES IN THE TENTH DISTRICT

Following the national pattern, holding companies grew very rapidly in the late 1960s and early 1970s in Tenth Federal Reserve District states—Colorado, Kansas, Missouri, Nebraska, New Mexico, Oklahoma, and Wyoming. For the District as a whole, both the number and relative importance of bank holding companies more than doubled from 1968 to 1973. The number rose from 229 to 507, while the percentage of deposits controlled by

bank holding companies increased from just under 27 percent to 56 percent. (See Table 3.) District holding companies continued to grow rapidly in the 1970s. By 1980, there were 1,058 holding companies in the District, controlling 72 percent of District deposits. Throughout the 1968-80 period, in terms of percentage of deposits controlled, holding companies were less important in the District than nationwide, although in 1980, 36 percent of all bank holding companies in the United States were located in Tenth District states.

Holding companies are especially important in four Tenth District states. In 1980, holding companies controlled 83 percent of total deposits in Colorado, 78 percent in Wyoming and Missouri, and 75 percent in Nebraska. The importance of holding companies in Colorado, Wyoming, and Missouri reflects the fact that these states allow multibank holding companies but prohibit branch banking. As shown in Table 4, in these three states, and especially in Colorado and Missouri, multibank holding

**Table 2**  
**PERCENTAGE OF TOTAL DEPOSITS CONTROLLED BY HOLDING COMPANIES IN STATEWIDE BRANCHING, LIMITED BRANCHING, AND UNIT BANKING STATES\* 1980**

	Statewide Branching		Limited Branching			Unit Banking		
	Number of Holding Companies	Percent of States' Deposits	Number of Holding Companies	Percent of Deposits		Number of Holding Companies	Percent of Deposits	
			All States	MBHC States		All States	MBHC States	
MBHC	115	36.5	142	36.8	57.4	139	30.8	59.8
1-BHC	221	51.9	786	22.7	10.6	1,537	38.5	10.4

\*As of 1980, the following states allowed:

1. Statewide branching — Alaska, Arizona, California, Connecticut, Delaware, District of Columbia, Florida, Hawaii, Idaho, Maine, Maryland, Nevada, New Hampshire, New Jersey, New York, North Carolina, Oregon, Rhode Island, South Carolina, South Dakota, Utah, Vermont, Virginia, and Washington.
2. Limited branching — Alabama, Arkansas, Georgia, Indiana, Iowa, Kentucky, Louisiana, Massachusetts, Michigan, Minnesota, Mississippi, New Mexico, Ohio, Pennsylvania, Tennessee, and Wisconsin.
3. Unit banking — Colorado, Illinois, Kansas, Missouri, Montana, Nebraska, North Dakota, Oklahoma, Texas, West Virginia, and Wyoming.

SOURCE: Board of Governors of the Federal Reserve System.

**Table 3**  
**HOLDING COMPANY DEVELOPMENT IN TENTH DISTRICT STATES**

Year	Colorado		Kansas		Missouri		Nebraska	
	Number	Percent of State Deposits	Number	Percent of State Deposits	Number	Percent of State Deposits	Number	Percent of State Deposits
1968*	46	59.6	44	7.5	51	18.8	51	34.9
1973	73	78.1	124	32.6	95	63.4	127	54.1
1974	75	79.3	136	34.3	98	67.7	140	55.8
1975	72	78.1	153	37.2	88	68.5	146	58.2
1976	75	78.5	174	40.4	96	69.6	162	59.9
1977	79	78.9	194	42.9	103	70.3	173	61.9
1978	85	78.8	233	48.2	119	73.0	196	66.8
1979	91	80.3	250	50.9	139	75.0	207	67.8
1980	112	82.7	291	56.9	161	78.0	249	74.6

Year	New Mexico		Oklahoma		Wyoming		All Tenth District States	
	Number	Percent of State Deposits	Number	Percent of State Deposits	Number	Percent of State Deposits	Number	Percent of State Deposits
1968*	7	32.9	22	26.8	9	32.8	229	26.7
1973	11	69.2	55	42.8	22	57.1	507	56.0
1974	10	67.7	63	47.6	22	56.7	544	58.7
1975	10	66.2	74	50.7	21	60.4	596	49.9
1976	9	55.8	84	52.0	21	60.0	621	60.7
1977	10	55.8	97	54.2	24	62.8	680	62.1
1978	10	55.1	112	55.6	26	65.6	781	64.6
1979	12	55.4	140	59.7	28	73.0	867	66.9
1980	17	59.4	196	67.2	32	78.2	1,058	71.6

\*For 1968 the data include an estimate of the number of one-bank holding companies.  
SOURCE: Board of Governors of the Federal Reserve System.

companies account for a very large percentage of total deposits. In New Mexico, in contrast, which is the other Tenth District state that allows multibank holding companies, the relative importance of multibank holding companies is significantly lower. In 1980, the percentage of deposits held by multibank holding companies ranged from 68 percent in Missouri to 47 percent in New Mexico. Also, the relative importance of multibank holding companies declined in New Mexico between

1973 and 1980, but rose in Colorado, Missouri, and Wyoming. The lesser importance and relatively sluggish growth of multibank holding companies in New Mexico may be due in part to the fact that this state allows limited branch banking.<sup>6</sup>

<sup>6</sup> New Mexico differs from limited branching states in general, where data show that there is little difference in the percentage of deposits controlled by multibank holding companies in limited branching and unit banking states.

In the Tenth District as in the nation, the data show that, in the states where branching is restricted but where multibank holding companies are allowed, these organizations typically account for a large percentage of total bank deposits. This predominance of multibank holding companies might indicate that their development and growth have reduced competition in banking through the concentration and ownership of control. This possibility can be explored by examining four-firm concentration ratios for the standard metropolitan statistical areas (SMSA's) in the

Tenth District. This ratio refers to the share of total bank deposits in an SMSA controlled by the four largest banking organizations. A relatively high concentration ratio indicates a greater potential for noncompetitive behavior.

In 1980, there were 22 SMSA's in Tenth District states, with 12 located primarily in multibank states and 10 located in one-bank states. As Table 5 indicates, in 1980 both average and median concentration ratios in SMSA's in multibank states were higher than the comparable ratios in one-bank states. Thus, it appears that in the Tenth District, the extent

**Table 4**  
**ONE-BANK AND MULTIBANK HOLDING COMPANIES IN**  
**COLORADO, MISSOURI, NEW MEXICO, AND WYOMING**

Year	Colorado		Missouri		New Mexico		Wyoming	
	Number	Percent of State Deposits	Number	Percent of State Deposits	Number	Percent of State Deposits	Number	Percent of State Deposits
1968 MBHC	5	45.5	4	10.1	1	14.3	2	16.8
1-BHC	41	14.1	47	8.7	6	18.6	7	16.0
1973 MBHC	8	58.9	22	53.7	4	50.0	3	29.3
1-BHC	65	19.2	73	9.7	7	19.2	19	27.8
1974 MBHC	11	67.4	22	57.8	4	51.1	3	37.0
1-BHC	60	12.2	69	10.2	6	17.5	19	19.8
1975 MBHC	10	65.5	25	59.7	4	49.5	5	42.0
1-BHC	62	12.6	63	8.8	6	16.7	16	18.4
1976 MBHC	11	65.9	26	60.5	4	49.8	5	42.1
1-BHC	64	12.6	70	9.1	5	6.0	16	17.9
1977 MBHC	13	65.8	26	61.3	4	48.6	5	41.0
1-BHC	66	13.1	77	9.0	6	7.2	19	21.8
1978 MBHC	13	65.9	31	63.5	5	48.7	6	43.7
1-BHC	72	12.9	88	9.5	5	6.4	20	21.9
1979 MBHC	13	66.4	34	64.6	5	47.5	8	49.3
1-BHC	78	13.9	105	10.5	7	7.9	20	23.7
1980 MBHC	15	66.2	37	67.5	5	47.1	10	54.1
1-BHC	97	16.3	124	10.6	12	12.3	22	24.1

SOURCE: Board of Governors of the Federal Reserve System.

**Table 5**  
**FOUR-FIRM CONCENTRATION RATIOS**  
**IN TENTH FEDERAL RESERVE DISTRICT**  
**SMSA'S 1973 AND 1980**

	1973		1980	
	One-Bank States	MBHC States	One-Bank States	MBHC States
Mean	73.0	77.3	66.6	73.4
Median	71.9	85.3	63.1	80.1

of competition is potentially lower in those states which allow multibank holding companies. At the same time, however, the extent of concentration in the District's SMSA's declined in both one-bank states and multibank states from 1973 to 1980, with concentration declining more, on average, in one-bank states. It is likely that the decline in concentration has resulted from a number of factors, such as the redistribution of population from downtown to suburban areas and the granting of new bank charters. However, the existence of a greater decline in one-bank than in multibank states suggests that the factors leading to deconcentration have had a lesser impact in multibank states. It remains true, nevertheless, that in both one-bank and multibank states, concentration ratios in Tenth District SMSA's have declined at the same time that substantial holding company expansion has occurred.

### **BANK HOLDING COMPANIES IN THE FUTURE**

Since the passage of the 1970 amendments to the Bank Holding Company Act of 1956, the environment in which bank holding companies operate has undergone substantial change. In particular, banks have come under increasing competitive pressure from other kinds of financial institutions. In the case of many recent financial innovations, banks and bank holding

company subsidiaries are prohibited from competing directly with these other institutions. As a result, money market mutual funds, mutual savings banks, savings and loans, brokerage firms, and others have become active in areas once reserved for commercial banks. Many of these institutions also operate across state borders, an opportunity largely denied to banks. One response to this changing environment often suggested by industry observers would be to allow bank holding companies to acquire money market mutual funds, thrift institutions, or brokerage firms as subsidiaries.

Several proposals currently before Congress recognize that fundamental change is under way in the financial sector. All of these bills have implications for bank holding companies. One measure, the so-called "regulators bill," introduced by Representative Fernand St. Germain, is aimed at short-term solutions to some pressing problems, mainly in the thrift industry. Insofar as bank holding companies are concerned, the bill is important because it would increase the possibility of interstate and even interindustry mergers by bank holding companies.<sup>7</sup>

Another proposal currently being discussed is a bill proposed by Senator Jake Garn, chairman of the Senate Banking Committee. Also, a bill offered by the U.S. Treasury Department proposes even more deregulation of financial markets than the Garn bill. Both bills are aimed at restructuring the financial system to take into account the changes that have occurred over the last several years. The Garn bill would greatly expand the powers of thrift institutions and

<sup>7</sup> One such merger has already occurred with the acquisition of a Dayton thrift by an Ohio bank holding company. This acquisition was approved by the Federal Reserve Board under already existing powers. While the Federal Reserve believes that it has authority to approve such acquisitions, it has expressed reluctance to approve interstate or interindustry mergers in the absence of Congressional action.

allow banks and bank holding companies to enter competition with other financial institutions in areas where they have been banned in the recent past. Under the similar Treasury Department proposal, some operations—such as limited security underwriting—could take place only in an affiliate. The merits of requiring a separate securities affiliate is still under debate with the principal issues being how to assure the safety and soundness of the bank and how best to protect depositors.<sup>8</sup>

In the past, banks have used the holding company form as a method of diversification, so it seems likely that the use of this method will continue or even expand if new laws enlarge the areas in which banks can operate. In fact, the Treasury Department bill would require the formation of affiliates, except in the case of small banks, which would be allowed to engage in some of these activities in-house.

### SUMMARY

Bank holding company development began early in this century, but holding companies did not become important in the banking sector until the late 1960s. Certain aspects of their development created a demand for regulation, which began with the Clayton Act in 1914. Over the following five decades, regulation of bank holding companies was extended, and by 1970, the Federal Reserve System had been given ex-

tensive powers to regulate the activities and formation of bank holding companies.

Bank holding development has been most rapid in the period since 1965, as the number of bank holding companies expanded from 603 in 1965 to 2,905 in 1980. During the same period, the percentage of total commercial bank deposits controlled by holding companies rose from just under 13 percent to slightly less than 77 percent. The growth rates of one-bank and multibank holding companies have not been equal, with one-bank companies growing more rapidly than multibank companies, except during the early 1970s.

There also have been geographic differences between the growth rates of one-bank and multibank organizations. In states that allow multibank holding company formation, and where branching is limited or prohibited, multibank organizations tend to dominate one-bank holding companies. In statewide branching states, one-bank holding companies hold a larger share of deposits than multibank holding companies. The pattern of holding company development in the Tenth District further illustrates the impact of state law on the relative roles of one-bank and multibank holding companies.

The rapid growth of bank holding companies is relatively recent. Likewise, effective regulation of bank holding companies has occurred only during the past 25 years. One aim of regulation has been to limit the nonbank activities of bank holding companies. However, recent developments in financial markets have spurred Congressional interest in deregulation. Bank holding companies are well placed to take advantage of any deregulation of financial activities.

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<sup>8</sup> This argument is set out very well in testimony by Franklin Edwards before the Senate Banking Committee. See Franklin Edwards, *Testimony Before the Committee on Banking, Housing, and Urban Affairs*, U.S. Senate, 97th Cong., 1st Sess., Part II, May 13, 14, 18, and 19, 1981 (Washington, D.C.: Government Printing Office, 1981), pp. 1771-84.

# Budget Deficits and Supply Side Economics: A Theoretical Discussion

By Dan M. Bechter

For many years, beginning in the 1930s with the influence of Keynes, the case for fiscal policy has been made primarily on the basis of its effect on aggregate demand. Tax cuts and budget deficits, for example, have been defended almost exclusively on the grounds that they raised the demand for goods and services, thereby stimulating economic activity. In more recent years, however, there has been a shift of emphasis to the supply side. While not necessarily challenging the principal tenets of the Keynesian theory insofar as short-run effects on demand are concerned, supply side arguments emphasize the importance of fiscal effects on aggregate supply. In particular, supply siders maintain that in the absence of encouragements to save, invest, and work harder, expansionary budgetary programs focusing solely on aggregate demand will produce no permanent increase in economic activity, but will result instead only in inflation.

Currently, the federal government is running a record deficit, and some projections show deficits climbing for the next several years.

Arising as they do from a combination of tax cuts and increases in government purchases, these deficits would appear to have all of the markings of a Keynesian stimulus to aggregate demand. Yet the fiscal program which is now in place was advocated and is still being supported as a stimulus to aggregate supply in order to promote economic recovery, growth, and reduced inflation. Another important feature of the current economic program, of course, is a monetary policy which aims at continued reductions in the growth of money and credit.

The purpose of this article is to present a theoretical economic framework that can be used to analyze the interactions of the effects of fiscal and monetary policies on the economy. As suggested above, such a framework will include both a demand side and a supply side. While definitive answers to the questions of the inflationary and growth implications of the current and projected deficits will not be given here, the key considerations upon which these answers depend will be analyzed and their net effect on the economy will be discussed.

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## FRAMEWORK FOR ANALYSIS

This section explains how aggregative concepts of supply and demand can be used to

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describe how inflation and economic growth are determined. The idea is to think of the economy as a market for the nation's output. The two determining relationships in this market are the demand for and supply of output, or aggregate demand and aggregate supply. The concept of aggregate demand is explained first, focusing on its determinants, its relationship to inflation, and how it changes. Aggregate supply is then discussed in a similar fashion. The section concludes with an examination of how the interaction of aggregate demand and aggregate supply determines short-run and long-run equilibrium rates of inflation and growth in this conceptualized framework of the economy.

## Aggregate Demand

Aggregate demand expresses how much output consumers, businesses, and governments want to buy at a given level of prices. The combined quantity of their desired purchases depends on the values of several variables or determinants of aggregate demand. A listing of these determinants and a brief explanation of their assumed effects are given in the material which follows. Also discussed is the relationship between inflation and the growth in the demand for output and how this relationship changes when the determinants of aggregate demand take on new values.

*Determinants.* A number of variables have an impact on aggregate demand. Some of these, such as interest rates, income, and prices, are obviously important. As it turns out, however, these variables are not the ultimate determinants of aggregate demand. Rather, they are intermediate variables whose values are determined by the economic model that is assumed. In this analytic framework, aggregate demand is assumed to have five ultimate determinants: (1) the total amount of nominal wealth, which is defined as the sum of the nominal values of

three assets: money, government bonds, and equities; (2) the composition of nominal wealth, or its percentage distribution among these three assets; (3) a proportional tax on income; (4) a predetermined ratio of government purchases to output; and (5) states of business and consumer confidence and expectations.<sup>1</sup>

*Relation to Inflation.* To identify the relation of aggregate demand to inflation, the values or rates of growth of the five ultimate determinants are taken as given. Assumed constants are the rate of growth of nominal wealth, the composition of nominal wealth, the tax rate, the ratio of government purchases to output, and the states of business and consumer confidence and expectation.<sup>2</sup>

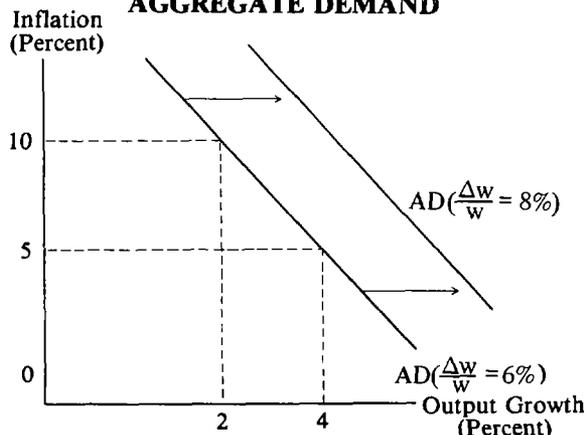
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<sup>1</sup> Still other factors, such as the distribution of income, and the level of the population may qualify as ultimate determinants of aggregate demand, but they are ignored here and therefore assumed as given, or constant in their influence. The more technically minded reader will recognize the theory underlying this model: the aggregate demand curve is derived by solving a conventional IS-LM model for income as a function of the price level and differentiating with respect to time; the aggregate supply curve is derived similarly from a production function and a labor supply function.

The income tax rate is to be interpreted as net of transfers. It can be thought of, therefore, as government's net withdrawal rate from income. For an early example of this type of dynamic aggregative model, see Challis A. Hall, Jr., *Fiscal Policy for Stable Growth*, New York: Holt, Rinehart, and Winston, Inc., 1960. The analytic framework presented here is similar to that found in modern textbooks in intermediate macroeconomic theory. See, for example, Robert J. Gordon, *Macroeconomics*, 2nd ed., Boston: Little Brown, and Co., 1981, or Rudiger Dornbusch and Stanley Fischer, *Macroeconomics*, New York: McGraw-Hill, 1978.

<sup>2</sup> A more rigorous treatment of this subject would require explicit recognition of the interdependencies among these assumptions. In particular, the assumption that nominal wealth grows at a constant rate with unchanged asset shares implies constant and equal growth rates of money, bonds, and equities. But the growth rates of money and bonds are not independent of government deficits which depend, in turn, on the income tax rate and the rate of government purchases. These complicating considerations are not crucial to a basic understanding of the analysis.

**Figure 1**  
**AGGREGATE DEMAND**



Note:  $\frac{\Delta w}{w}$  = assumed percentage change in nominal wealth.

Given these assumptions, when the rate of inflation is relatively high the demand for output will grow relatively slowly. Conversely, when the rate of inflation is relatively low the demand for output will be more rapid. The downward-sloping aggregate demand curve labeled AD in Figure 1 illustrates this negative relationship between the rate of inflation and the rate of change of output. For example, the hypothetical aggregate demand curve of Figure 1 shows that if nominal wealth is growing at 6 percent, then a 10 percent rate of inflation will be associated with a 2 percent rate of growth in the demand for output, while 5 percent inflation will be associated with 4 percent demand growth.

The reason for this inverse relationship between inflation and demand growth is that one of the intermediate variables affecting the growth in demand is the growth in real wealth. With nominal wealth assumed to be growing at a constant rate, a relatively low rate of inflation implies a relatively high rate of growth of real wealth and, therefore, faster demand growth.

*Shifts in Aggregate Demand.* An aggregate demand relationship of the type drawn in

Figure 1 is assumed to remain in place as long as its five ultimate determinants remain fixed. A change in one or more of its five ultimate determinants, however, will cause the aggregate demand curve to shift. For example, an increase in the rate of growth of nominal wealth shifts aggregate demand to the right. That is, in Figure 1, if the rate of increase in nominal wealth rises from 6 percent to 8 percent, the aggregate demand curve shifts as shown. The rightward shift in aggregate demand means that there is an increase in the rate of demand growth associated with any given rate of inflation. In Figure 1, for example, after the shift in the aggregate demand curve, 4 percent instead of 2 percent demand growth is associated with 10 percent inflation.

A change in the other determinants also will shift the aggregate demand curve. An increase in money's share of nominal wealth will shift aggregate demand to the right, but an increase in bond's share will shift aggregate demand to the left. When money grows faster than bonds, interest rates decline and this stimulates demand growth. On the other hand, a rise in interest rates occurs when bonds grow faster than money, and this slows demand growth. Finally, a decrease in the income tax rate or an increase in the ratio of government purchases to output results in a rightward shift in aggregate demand, as does an improvement in business or consumer confidence and expectations.<sup>3</sup>

## Aggregate Supply

Aggregate supply expresses how much output producers want to sell at a given level of prices. Similar to the treatment of aggregate demand,

<sup>3</sup> The impacts of changes in the income tax rate and in the ratio of government purchases to output are temporary except to the extent that they might impact wealth. These temporary fiscal effects are further discussed later in this article.

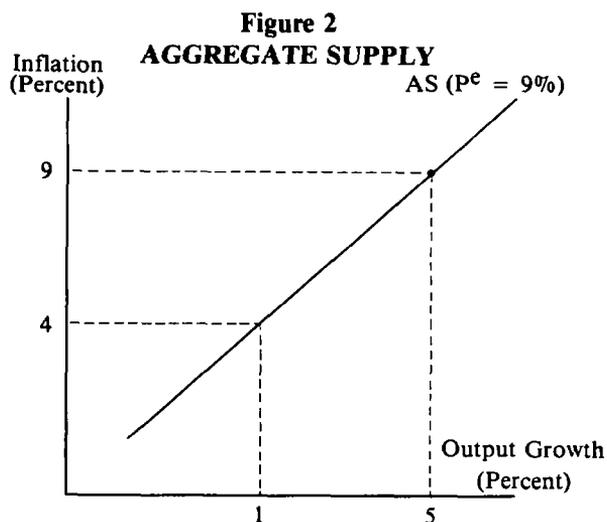
the following material examines the determinants of aggregate supply, the relationship of aggregate supply to inflation, and shifts in aggregate supply.

**Determinants.** Aggregate supply, like aggregate demand, depends on several variables. However, only five of the more important ultimate determinants are identified here: (1) the size of the population, (2) the size of the stock of productive capital, (3) the state of technology, (4) the income tax rate, and (5) the expected rate of inflation.

**Relation to Inflation.** To focus on the relationship of the growth in the supply of output to the rate of inflation, the five ultimate determinants are taken as given. In this regard, the income tax rate is assumed to be fixed, the population and the capital stock are assumed to be growing at constant rates, and the state of technology is assumed to be improving at a constant rate. Finally, workers are assumed to expect a particular rate of inflation in the period ahead, and to have contracted for a fixed rate of increase in nominal wages that reflects these expectations.

Given these assumptions, a direct or positive relationship between supply growth and inflation can be derived. That is, when the rate of inflation is relatively high, so too will be the rate of growth of output. This results from the fact that faster inflation means lower real wages, given the assumed fixed rate of increase of nominal wages. Since greater employment growth is associated with lower real wages, so is greater output growth. The upward-sloping aggregate supply curve labeled AS in Figure 2 summarizes the relationship just described. In the hypothetical numerical example shown in Figure 2, an inflation rate of 9 percent is paired with 5 percent supply growth, and 4 percent inflation is paired with 1 percent supply growth.

**Shifts in Aggregate Supply.** The aggregate supply curve shifts whenever there is a change in the assumed levels or rates of growth of one



Note:  $P^e$  = expected rate of inflation.

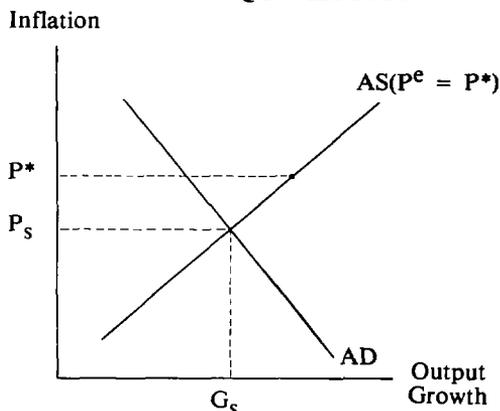
or more of the five ultimate determinants of aggregate supply.

An upward revision of inflation expectations shifts the aggregate supply curve to the left. When workers expect more inflation, they demand a faster rate of increase in nominal wages. This more rapid rate of increase in the nominal costs of production requires a higher rate of increase in output prices to maintain output growth at any level.

A faster rate of growth of the capital stock or a more rapid pace of technological advance would accelerate labor productivity and shift the aggregate supply curve to the right. Greater productivity gains mean reduced rates of escalation of labor costs associated with any rate of inflation. In addition, an increase in the rate of growth of the population, another ultimate determinant of aggregate supply, would shift the curve to the right because the resulting increase in the labor supply would depress real wages.

A decrease in the income tax rate also shifts aggregate supply to the right. A reduction in the income tax rate raises the take-home wage rate and therefore increases the labor force par-

**Figure 3**  
**SHORT-RUN EQUILIBRIUM**



Notes:  $P^e$  = expected rate of inflation.  
 $P_s, G_s$  = short-run equilibrium rates of inflation and growth.

icipation rate—the percentage of people who want to work. Unless there are continuous decreases in the income tax rate, however, the shift in aggregate supply will be only temporary since a once-and-for-all change in the level of tax rates does not affect the rate of growth of the labor force except initially.

### Equilibrium

A rate of inflation that gives rise to the same growth in output demand and output supply is called an equilibrium rate of inflation. Such a rate equates aggregate demand with aggregate supply. But since expectational shifts in aggregate supply are likely, it is necessary to distinguish between a short-run and a long-run equilibrium.

*Short Run.* A short-run equilibrium rate of economic growth and rate of inflation is illustrated in Figure 3 by the intersection of aggregate demand and aggregate supply. This equilibrium assumes that the five ultimate determinants of aggregate demand and the five ultimate determinants of aggregate supply are given. That is, it assumes constant rates of

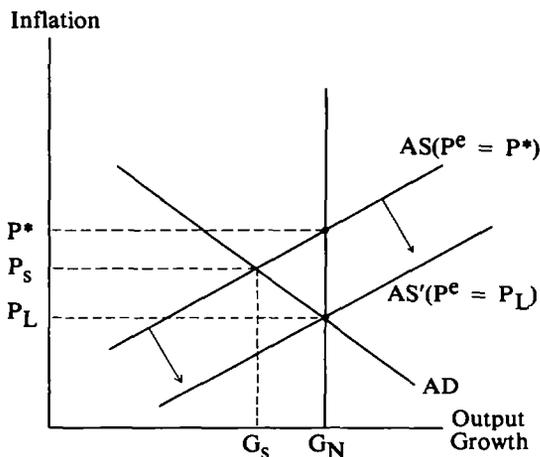
growth of nominal wealth, population, and technology, as well as fixed expectations, income tax rates, ratio of government purchases to output, and asset shares in nominal wealth.

As long as these determinants remain constrained as assumed, the economy will tend toward the rate of inflation and rate of economic growth identified as equilibrium. This equilibrium is short run, however, because the rate of inflation determined by this intersection of aggregate demand and aggregate supply may not be the expected rate of inflation. If the actual rate of inflation differs from the expected rate, then the equilibrium will not last, and both aggregate demand and aggregate supply will shift. Figure 3 illustrates a situation where the equilibrium rate of inflation,  $P_s$ , is lower than the expected rate,  $P^*$ . That is, the expected rate of inflation is higher than the actual rate determined by the intersection of aggregate demand and aggregate supply. Under such circumstances, it is reasonable to believe that workers and consumers would revise their inflation expectations downward. Such downwardly revised expectations would shift aggregate supply to the right, and perhaps cause a shift in aggregate demand as well. A new short-run equilibrium rate of inflation and rate of economic growth would result.

*Long Run.* All but one of the determinants of aggregate demand and aggregate supply that are assumed fixed in deriving short-run equilibrium are also assumed fixed in deriving long-run equilibrium. The exception is expectations, which are given time to adjust to reality. Specifically, the economy's rates of inflation and growth are said to be in long-run equilibrium when expected inflation and nominal wages have adjusted fully to the actual rate of inflation.<sup>4</sup>

<sup>4</sup> Long-run equilibrium in dynamic macroeconomic models is an elusive concept that is usually defined in terms of

**Figure 4**  
**LONG-RUN EQUILIBRIUM**



Notes: See Figure 3.

Also,  $G_N$  = natural rate of economic growth.

$P_L$  = long-run equilibrium inflation rate for AD curve assumed.

In Figure 4, a vertical line is drawn through a rate of economic growth that is assumed to be the natural rate. A vertical line through the natural rate of economic growth implies that the rate of inflation has no long-run influence on economic growth. Whenever aggregate demand and aggregate supply intersect along this vertical line, the economy is in long-run as well as short-run equilibrium. If, as noted above, aggregate demand and aggregate supply intersect at some rate of economic growth above or below the natural rate, the actual and expected rates of inflation are not equal. That is, the short-run equilibrium rate of economic growth may be different from the natural rate. Aggregate supply will shift, reflecting revised inflation expectations, until long-run equilibrium is achieved. In Figure 4, the ag-

steady-state rates of growth extending into the indefinite future. In this article, however, the phrase "long run" is to be interpreted somewhat less restrictively as a time in the not-too-distant future when the economy has adjusted to changes in economic policy and expectations.

gregate supply curve is shown shifting to the right as workers revise their expectations of inflation downward from  $P^*$  to  $P_L$ . Only when the expected inflation rate equals the short-run equilibrium rate is long-run equilibrium achieved. In Figure 4, this long-run equilibrium occurs at inflation rate  $P_L$  and economic growth rate  $G_N$ .

The long-run equilibrium rate of economic growth is not immutable. It will change if one of the four ultimate determinants changes. For example, it can accelerate if growth in the capital stock rises, or if labor productivity begins to make faster gains for other reasons, such as more rapid technological advances. These reasons for change in the natural rate of economic growth, it may be observed, are the same reasons given for increases in aggregate supply. In fact, the only difference between aggregate supply and the natural rate of growth is that aggregate supply is a short-run supply relationship, while the natural rate of growth is a long-run supply relationship. An increase in the natural rate of economic growth is represented by a shift to the right of the vertical long-run equilibrium line in Figure 4, and such a shift would be accompanied by rightward shifts in aggregate supply.

#### EFFECTS OF BUDGET DEFICITS

This section makes use of the analytic framework developed in the previous section to examine the impact of budget deficits on the rate of inflation and the rate of economic growth. From the previous analysis, it is clear that this impact will depend on how the ultimate determinants of aggregate demand and aggregate supply are affected by a budget deficit.

Assumptions about the cause of the deficit and its financing serve to identify changes in some of the ultimate determinants of aggregate demand and aggregate supply. It will be assumed that the deficit arises from a perma-

ment cut in the income tax rate. As time passes, the ratio of government purchases to output is assumed to be declining until the deficit disappears and a balanced budget is achieved. Since deficits must be financed somehow, it is assumed the deficit is financed exclusively by the sale of new issues of government securities to the private sector. That is, the deficit is assumed to be funded.

In addition, it will be assumed that the rate of monetary growth is constant. The rate of population growth, too, is assumed given. Finally, some initial long-run equilibrium position of the economy is assumed.

With all of these assumptions in mind, attention can be turned to the various ways that budget deficits, through their impact on the ultimate determinants of aggregate demand and aggregate supply, can affect economic growth and inflation. Four types of effects can be identified: (1) direct effects, (2) incentive effects, (3) funding effects, and (4) expectation effects. The short- and long-run consequences of these four types of effects are discussed below within the framework of aggregate demand, aggregate supply, and economic equilibrium.

### **Effects on Aggregate Demand**

Aggregate demand is affected by each of the four types of effects of budget deficits.

*Direct Effects.* The direct effects of budget deficits are those commonly associated with the fiscal stimulus to aggregate demand that comes from a change in either of two ultimate determinants of aggregate demand: the income tax rate and the ratio of government purchases to output. Although dissenters can be found, it is generally agreed that an increase in the ratio of government purchases to output adds directly to the level of aggregate demand. Similarly, a cut in the income tax rate adds to aggregate demand by stimulating consumer demand. The fiscal program that is assumed provides direct and immediate stimulus, therefore, through the

cut in income taxes. Over time, however, this stimulus is offset by the assumed reduction in the ratio of government purchases to output. In the long run, the tradeoff between inflation and demand growth is unaffected. In Figure 5, demand shifts to the right initially, but then settles back to its original position.

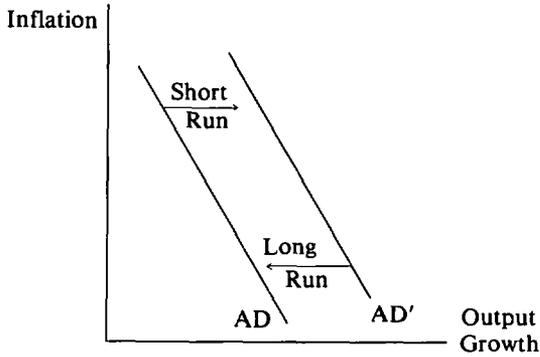
A very important implication of the assumed fiscal program, however, is its effect on investment. Since the ratio of government purchases to output is assumed to decline in the long run, it follows that the output share of either consumption or investment, or both, must rise. If investment's share rises, then the fiscal program does have a permanent expansionary effect on aggregate demand. More investment each period means a faster rate of growth of the capital stock, and since equities or ownership in capital are part of real wealth, consumer demand will grow faster too. The question of the impact on investment is therefore crucial in assessing the net effect to aggregate demand.

*Funding Effects.* A funded deficit affects aggregate demand by affecting two of its ultimate determinants: the level and the composition of nominal wealth. By increasing the nominal value of government debt outstanding, a funded deficit raises the level of real wealth of the private sector, given a rate of inflation. Aggregate demand shifts to the right due to the level-of-wealth effect. But this shift is only temporary, since a return to a balanced budget, and therefore an end to growth in the bond component of nominal wealth, is assumed. The effects arising from a change in the composition of wealth, however, are more far reaching.

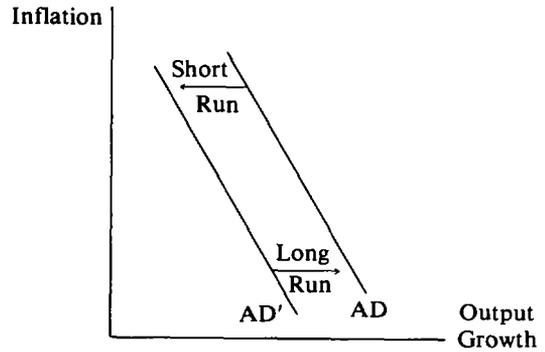
Even temporary budget deficits permanently affect the composition of nominal wealth by raising the quantity of government securities above what it otherwise would be. An increase in such securities' share of nominal wealth decreases aggregate demand and the demand curve shifts to the left. More bonds as a proportion of nominal wealth require higher interest

## EFFECTS OF BUDGET DEFICITS ON AGGREGATE DEMAND

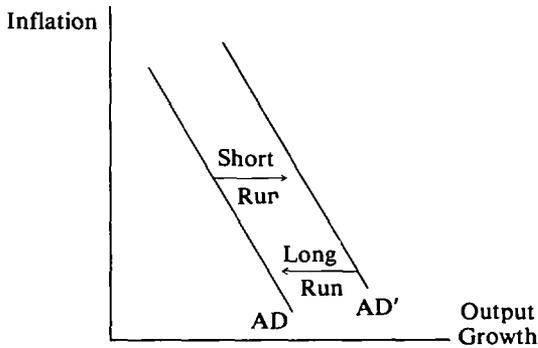
**Figure 5**  
**DIRECT EFFECTS**



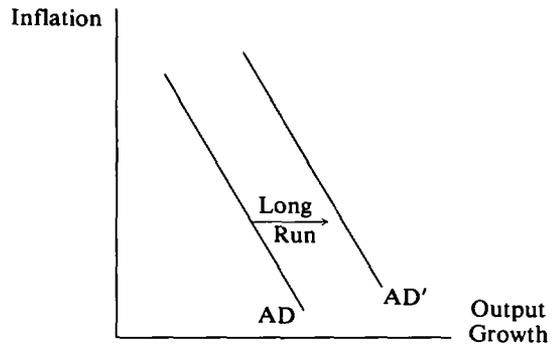
**Figure 6**  
**FUNDING EFFECTS**



**Figure 7**  
**EXPECTATIONS EFFECTS**



**Figure 8**  
**INCENTIVE EFFECTS**

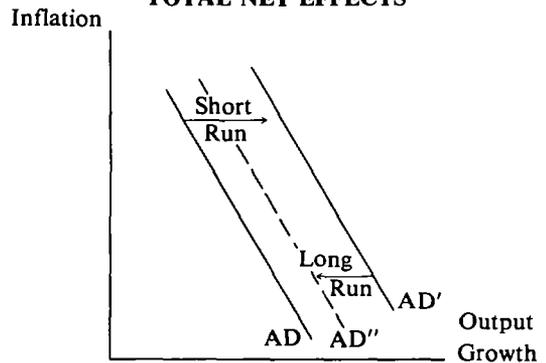


rates to maintain balance in private sector portfolios. These higher interest rates depress investment and aggregate demand.<sup>5</sup>

Depressed investment means slower growth in the capital stock. The increase in wealth that accompanies debt expansion is offset by a decline in wealth that accompanies reduced

<sup>5</sup> For a discussion of the various views on this issue, see V. Vance Roley's article in the July-August 1981 issue of this Review, "The Financing of Federal Deficits: An Analysis of Crowding Out," pp. 16-29. Also see Martin Feldstein, "Government Deficits and Aggregate Demand," *Journal of Monetary Economics* 9 (1982), pp. 1-20.

**Figure 9**  
**TOTAL NET EFFECTS**



equity expansion. Implicit in the adverse effect on investment and aggregate demand arising from the funded deficit's effect on the composition of wealth, therefore, is an additional adverse effect on aggregate demand that operates indirectly through interest rates on the level of wealth.

The net impact of the funding effects of a temporary budget deficit is by no means clear. A bias toward a contractionary influence would seem to exist in the short run. That is, aggregate demand will shift to the left. In the long run, however, this depressing effect on aggregate demand declines as the proportion of bonds in nominal wealth goes down, given constant money growth and balanced budgets. According to this line of reasoning, the funding effects of budget deficits initially set aggregate demand backward, but the contractionary effects die out over time. In Figure 6, these shifts in the aggregate demand curve are identified with arrows indicating short-run and long-run adjustments.

*Expectation Effects.* The expectation effects of budget deficits affect aggregate demand through the ultimate determinant identified with the same name. Expectation effects are temporary and can shift aggregate demand in either direction. An improvement in consumer or business confidence, for example, raises aggregate demand temporarily through its effects on consumption and investment. But this expansionary effect is erased when confidence returns to normal levels. Similarly, a drop in consumer or business confidence temporarily depresses aggregate demand.

It is not obvious just how the prospect of a funded deficit arising primarily from a tax cut will affect expectations. In this article, the expectation effects of budget deficits are assumed to raise aggregate demand temporarily, as shown in Figure 7.

*Incentive Effects.* The distinction between incentive effects and direct effects is sometimes

difficult to draw. Perhaps the easiest way to describe incentive effects is that they operate through prices, including interest rates and wages. In the case of incentive effects on aggregate demand, the transmitting variable is in all cases the rate of interest.

A reduction in the tax rate on income raises the after-tax rate of return on assets. For consumers, saving becomes more attractive.<sup>6</sup> For businesses, investment is enhanced. The net result of these two incentive effects arising from a budget deficit produced by a tax cut is to expand investment. As a consequence, for reasons explained earlier, aggregate demand shifts upward permanently, as shown in Figure 8.

*Summary of Effects on Aggregate Demand.* This evaluation of the effects of budget deficits leads to the conclusion that the assumed fiscal and monetary program associated with the deficit will have an expansionary effect on aggregate demand in both the short run and the long run, with the long-run effect being less expansionary than the short-run effect. In Figure 9, the assumed net effects are illustrated by a short-run upward shift in the tradeoff between inflation and demand growth, followed by a drifting downward of that relationship over time to a new long-run aggregate demand curve that is above the old.<sup>7</sup>

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<sup>6</sup> Higher rates of return on assets could conceivably lead to decreased saving because less wealth is necessary to provide a given amount of interest income. This income effect is assumed to be dominated, however, by the substitution effect, which encourages a shift away from present consumption because higher interest rates raise the cost of current goods relative to future goods.

<sup>7</sup> Actually, under the fiscal program described, aggregate demand would ultimately begin to drift slowly to the right over time as the constant rate of increase in the money stock continually changes the composition of nominal wealth in an expansionary way. What matters here, however, is not so much the stability of the aggregate demand curve over long periods of time as its position relative to where it would have been in the absence of a deficit in the short run and the fairly near long run.

## Effects on Aggregate Supply

The same four categories used to describe the effects of budget deficits on aggregate demand can also be used to describe the effects on aggregate supply.

*Direct Effects.* Budget deficits arising from tax cuts and increases in government purchases are usually assumed to have direct effects only on the demand side, not the supply side. However, government purchases that end up reducing production costs can have definite effects on aggregate supply. In this category, for example, are government expenditures on productive capital which, like private investment, adds to the rate of growth of the capital stock and, therefore, to supply growth. Similarly, government expenditures on research and development and job training can at least temporarily expand aggregate supply, or decrease the rate of inflation associated with growth in the supply of output, by raising labor productivity. In this analysis, however, direct effects of budget deficits on aggregate supply will be assumed to be neutral or nonexistent.

*Funding Effects.* The ultimate determinant of aggregate supply that is affected by funding a deficit is the size of the capital stock. Since debt expansion reduces investment by raising interest rates, it also reduces growth in the capital stock. A lower rate of growth in the capital stock means a reduced rate of gain in labor productivity, and a slower natural rate of growth in the economy. Aggregate supply shifts to the left in the short run. In the long run, however, the supply curve drifts back to the right as growth in money and capital dilutes the initial impact of the influx of bonds on interest rates, slowly bringing investment and capital growth back to their original levels. These short-run and long-run changes in the tradeoff between supply growth and inflation are illustrated in Figure 10.

*Expectation Effects.* Inflation expectations

are one of the ultimate determinants of aggregate supply and figure importantly in short-run adjustments in the supply curve. If the combination of a deficit together with a reduction in the income tax rate is perceived to add to inflationary pressures, workers can be expected to factor these perceptions into their demands for nominal wage increases. If deficit spending leads to aroused inflation fears, therefore, aggregate supply shifts to the left as shown in Figure 11 by the movement from AS to AS'.

On the other hand, the prospects of large funded deficits may lead to expectations of economic stagnation and reduced inflation. Such expectations might also be associated with the assumed constant rate of monetary growth, if that rate is below the amount which would validate continued inflation at existing levels given the change in fiscal policy. If the deficit and assumed economic program lead to reduced inflation expectations, therefore, aggregate supply shifts temporarily to the right, from AS to AS'' in Figure 11, because workers temper their demands for nominal wage increases.

*Incentive Effects.* The income tax rate, one of the ultimate determinants of both aggregate supply and aggregate demand, affects supply through its incentive effects on capital accumulation and work effort. For example, a cut in the income tax rate raises the after-tax rate of return on assets, thereby stimulating investment and adding to the growth in the capital stock. With the rise in capital growth, aggregate supply shifts to the right, as does the economy's natural rate of growth.

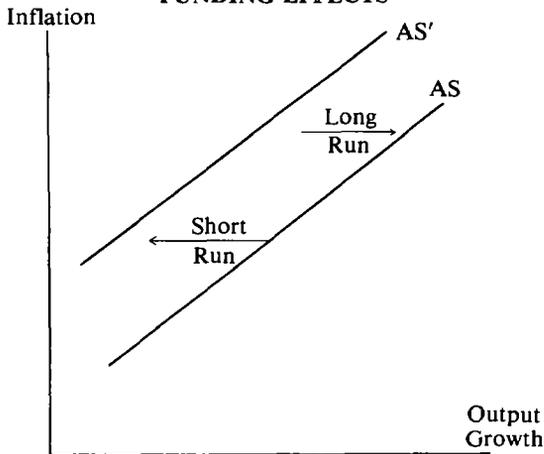
Reduced tax rates on income also provide an added incentive to work.<sup>8</sup> Higher after-tax

<sup>8</sup> An increase in the after-tax wage rate will encourage more work effort and labor force participation if, as assumed, the substitution effect which favors additional work dominates the income effect which favors additional leisure.

**EFFECTS OF BUDGET DEFICITS  
ON AGGREGATE SUPPLY**

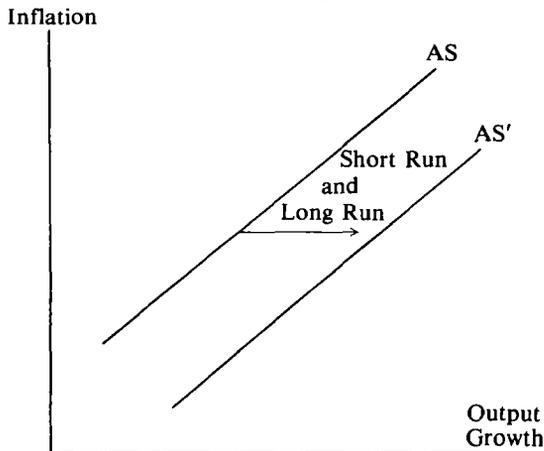
**Figure 10**

**FUNDING EFFECTS**



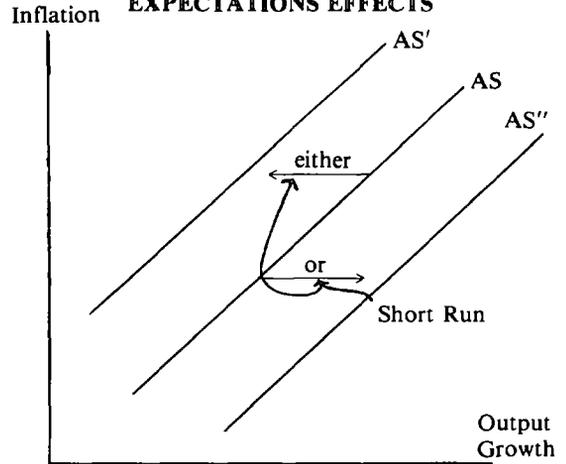
**Figure 12**

**INCENTIVE EFFECTS**



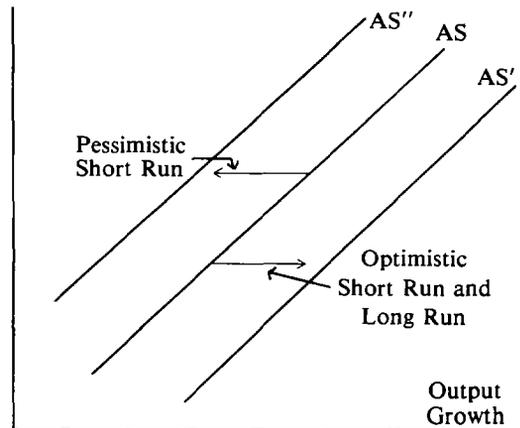
**Figure 11**

**EXPECTATIONS EFFECTS**



**Figure 13**

**TOTAL NET EFFECTS**



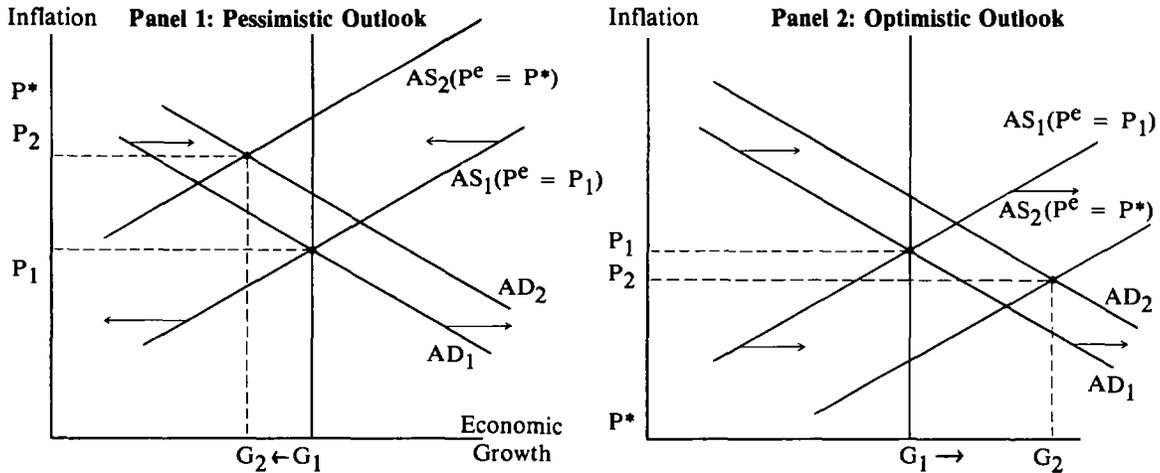
wage rates are assumed to increase labor force participation. This impact on aggregate supply, as expressed in terms of rates of change, is not permanent, however, since a once-and-for-all increase in the ratio of the size of the labor force to the size of the population does not increase the rate of growth of the labor force. In the short run, however, this incentive effect

shifts aggregate supply to the right.

The combined incentive effects shift aggregate supply to the right in both the short run and the long run, as shown in Figure 12.

*Summary of Effects on Aggregate Supply.* Long-run effects of the budget deficit and the related economic program on aggregate supply are clearly expansionary, but the short-run ef-

**Figure 14**  
**SHORT-RUN EFFECTS**



fects can work in either direction. In the short run, the funding effects and expectations of accelerating inflation and higher interest rates may dominate the incentive effects which work in the opposite direction, and aggregate supply may shift to the left, as shown by the pessimistic version of aggregate supply in Figure 13. On the other hand, confidence in a long-run trend toward reduced inflation may calm inflation fears, and shift aggregate supply to its optimistic position in Figure 13. In the long run, increases in the rate of growth of the capital stock guarantee an outward shift in aggregate supply for each and every level of inflation expectations.

### Effects on Economic Equilibrium

The effects of budget deficits on aggregate demand can now be put together with the effects on aggregate supply to determine the short- and long-run equilibrium rates of growth and inflation in the economy. In tracing shifts in equilibrium, it will be assumed for convenience that the economy is initially in long-run equilibrium and growing at its natural rate.<sup>9</sup>

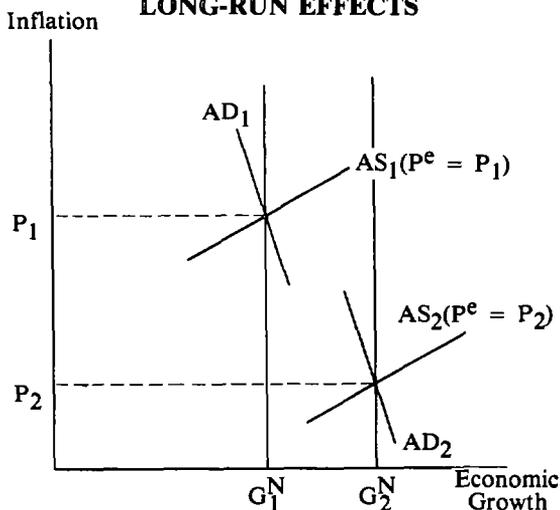
*Short Run.* In the short run, a budget deficit

can have either favorable or unfavorable effects on inflation and output growth. Aggregate demand, it was concluded earlier, will expand when the deficit is incurred. But aggregate supply may either expand or contract, depending primarily on whether inflation expectations turn optimistic or pessimistic. These two outcome extremes are illustrated in the two panels of Figure 14.

The left panel of Figure 14 shows a decline or backward shift in aggregate supply, a change consistent with upwardly revised inflation expectations. In panel 1 of Figure 14, the economy is shown to be initially in long-run equilibrium, with the actual and expected rates of inflation to be equal to P<sub>1</sub>, and the economic growth rate to be G<sub>1</sub><sup>N</sup>. When expectations of

<sup>9</sup> As suggested in footnotes 2 and 7, the assumptions made do not exclude drift in the long-run equilibrium rates of growth and inflation in the economy. In particular, the assumption of an initially and ultimately balanced budget, interrupted temporarily by deficit spending, implies a constantly changing composition of nominal wealth into the indefinite future, which has implications for aggregate demand. This article focuses on the displacement from the drift which results from the temporary deficit.

**Figure 15**  
**LONG-RUN EFFECTS**



inflation rise from  $P_1$  to  $P^*$ , aggregate supply shifts to the left. This leftward shift in aggregate supply together with the rightward shift in aggregate demand produces a higher equilibrium level of inflation than initially, and a lower equilibrium rate of growth. In the short run, therefore, a budget deficit may cause inflation to accelerate and output to grow more slowly or even decline.

The right panel of Figure 14 shows a rise or rightward shift in aggregate supply due to downwardly revised inflation expectations, from  $P^e = P_1$  to  $P^e = P^*$ . Aggregate demand is drawn to show the same shift to the right as in the left panel. The intersection of these new aggregate demand and aggregate supply curves in the right panel occurs at a lower inflation rate and higher economic growth rate than initially. Under this short-run scenario, the budget deficit improves the economic outlook.

*Long Run.* In the long run, the permanent effects of the budget deficit and the associated economic program are what matter. The permanent effects on both aggregate demand and aggregate supply, as observed earlier, are expansionary. On Figure 15, both curves are

shown shifting outward to intersect at the new, higher, natural rate of economic growth. The shift in aggregate demand is somewhat incidental; as long as the supply side effects are permanently expansionary, long-run equilibrium must necessarily be at a higher rate of economic growth.<sup>10</sup>

Unfortunately, economic theory provides no guide to how long it will take for the economy to achieve its new long-run equilibrium position. This question is of special interest, of course, if the short-run outlook is the pessimistic one. If the economy is first set back by a budget deficit, it could take several years for it to recover its previous rate of growth, and several more years to move on to its new long-run equilibrium rate.

## SUMMARY AND CONCLUSIONS

This article has presented a theoretical framework designed to analyze the effects of economic policy on inflation and economic growth. When applied to a particular policy mix that includes a constant rate of money growth and a temporary budget deficit, the analysis indicates that the long-run consequences of such a program are favorable, but that the short-run effects may be either favorable or unfavorable. Of course, the many assumptions made here to simplify the analysis mean that the conclusions can be considered as only suggestive.

<sup>10</sup> Again, it is important to emphasize that these conclusions are no better than the assumptions made in deriving them. Carried to an extreme, for example, these results imply a faster rate of growth for an economy the lower the level of taxation.

Finally, it should be noted that in most economic growth models, the rate of growth in the economy in the far-distant long run is determined by the rate of population growth. The higher rate of growth of the capital stock in the interim, however, does permanently raise the level of per capita income for the indefinite future.

On the one hand, supply side arguments are supported by the analysis in this article. That is, fiscal encouragements to saving, investing, and working do tend to reduce the rate of inflation and increase the rate of economic growth, in the long run. On the other hand, the analysis casts doubt on the more extreme supply side view that such a fiscal program can quickly bring about more rapid economic growth and less inflation.

The principal barrier to beneficial short-run adjustments from a temporary budget deficit

lies in the expectation effects. If budget deficits give rise to expectations of accelerating inflation and high interest rates, the economy may suffer both stagnation and higher inflation in the short run. The implied better path to the long run is one which preserves the incentives to save, invest, and work, but which also calms inflation expectations. In this regard, smaller deficits are to be preferred to larger ones, and taxes on consumption are to be preferred to taxes that discourage saving, investment, and work effort.

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