

BANKING UNDER CHANGING RULES: THE FIFTH DISTRICT SINCE 1970

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Commercial banking has traditionally been one of the most tightly regulated industries in the United States. The controversies surrounding the First and Second Banks of the United States, the National Bank Act of 1864, the Federal Reserve System, and federal deposit insurance all attest to the concern shown with banking throughout our history. Further, desire to control concentration of economic power and to keep banking responsive to local interests led to restrictions on branching and interstate operations as well as, more recently, antitrust scrutiny of bank mergers.

Despite the tradition of regulation, the 1980s have seen a call for at least partial deregulation of banking. Deregulation is aimed neither at supervision of bank soundness nor at consumer protection measures, but rather at rules that constrain what banks may sell, where they may sell it, and the interest rates they pay on their deposits. So far, the largest number of successful deregulatory efforts have loosened constraints on where banks may do business.

But banking deregulation did not begin in the 1980s. In fact, the Fifth District provides a case study of how banking laws and regulations have evolved since 1970. For example, District commercial banks have seen changes in bank holding company laws, in branching restrictions, and now in barriers to banking across state lines. And as the law has evolved, so has the structure of banking in the District.

The Fifth District Regulatory Environment in 1970

Banking, like other industries, must be responsive to both state and federal law. But banking's competitive structure, unlike that of most other industries, has been shaped to a large degree by laws that vary among states. The most important state laws affecting banking structure in 1970 were branching restrictions. Among the most important federal laws were those governing bank holding companies.

Branching Laws In much of the Fifth District in 1970, banks could branch without restriction within their states subject only to approval by their regu-

lators. Specifically, Maryland, North Carolina, South Carolina, and the District of Columbia allowed statewide branching. At the other end of the spectrum, West Virginia permitted neither branching nor multibank holding companies.

Between the statewide branching states and West Virginia stood Virginia, which allowed a bank to branch within its home city or county and within contiguous cities or counties. But the law was not quite so restrictive as it sounded because a 1962 amendment allowed a bank to expand in two other ways: First, it could merge with a bank anywhere in Virginia. Second, it could form a bank holding company which could in turn purchase banks anywhere in the state. The law actually favored the bank holding company route over the merger route because a bank acquired by merger would generally lose its branching privileges while a bank acquired by a bank holding company could still branch in its home area. In practice, then, all Fifth District jurisdictions except West Virginia had liberal laws regarding expansion of banks within their borders.

But full-service banking stopped at a state's boundaries. Whatever a state's laws regarding expansion within the state, two federal laws kept a bank from expanding into another state: First, the McFadden Act of 1927 (as amended in 1933) prohibited national banks from branching outside their home states. Second, the Douglas Amendment to the Bank Holding Company Act of 1956 forbade bank holding companies to acquire banks in other states unless the acquiree's state specifically permitted such acquisition. And in 1970, no Fifth District state extended the privilege to any other state's bank holding companies.

Bank Holding Company Laws and Regulations Another aspect of the 1970 legal environment was the impetus to growth of bank holding companies even in states permitting statewide branching. For example, a holding company could sell commercial paper and then pass the proceeds downstream to subsidiary banks. As interest rates rose in the late 1960s and banks began to face problems raising funds under

Regulation Q interest rate constraints, the holding company route presented an appealing alternative. Further, until September 1970 funds raised by a holding company and then passed downstream were not subject to reserve requirements.

There were also differences in how federal law treated different types of holding companies. Specifically, the Bank Holding Company Act subjected companies owning more than one bank to regulation by the Federal Reserve but made no provisions for companies owning only one bank. One-bank holding companies were consequently subject to fewer restrictions on activities and product offerings than were multibank holding companies. Thus there was incentive to attempt to initiate new financial services in a holding company subsidiary rather than apply for permission from regulators to conduct the activity within the bank and risk legal challenge from those threatened by the competition.

It became increasingly apparent in the late 1960s that Congress would bow to the Federal Reserve's urgings that the one-bank holding company loophole be closed. Still, the number of one-bank holding companies more than doubled between May 1968 and December 1970. Evidently, many banks felt compelled to switch to the holding company form in hopes they would be "grandfathered" under any new restrictions.

Thus the structure of Fifth District banking in 1970 reflected two main aspects of the laws in place at the time: First, multibank holding companies dominated in Virginia where they constituted a means of expanding throughout the state. But because they were regulated by the Federal Reserve, their ability to expand into new financial fields was limited. Second, one-bank holding companies were important in Maryland, the District of Columbia, and the Carolinas. Apparently, banks with statewide branching privileges were in a position to choose an organization form on the basis of product rather than geographical diversification.

Changes after 1970

The years following 1970 were a period of rapid growth for Fifth District banking. While the number of banks did not necessarily increase in all states, the number of branches did. Banking services therefore became more widely available. As one would expect, the growth occurred during a period of change in the regulatory environment.

Bank Holding Company Act Amendments The first significant change came in December 1970 when Congress amended the Bank Holding Company Act.

The amendments essentially closed the one-bank holding company loophole by subjecting almost all bank holding companies to Federal Reserve regulation. In addition, Congress gave the Board of Governors authority to approve or deny nonbanking activities on a case-by-case basis subject to the requirement that activities be "so closely related to banking . . . as to be a proper incident thereto" and that the anticipated benefits, such as convenience, competition, and efficiency, outweigh anticipated costs such as conflicts of interest and increased concentration.

The initial effect of the new legislation was diversification of bank holding companies into new financial activities. During the early 1970s, for example, the Board approved such nonbanking activities as mortgage banking, factoring, leasing, financial data processing, and credit life insurance underwriting.

But in the mid-1970s, two sets of events may have helped slow the entry of bank holding companies into new activities: First, the failures of two New York banks, Franklin National and Security National, pointed to the problems faced by banks attempting to expand without sufficient regard for their capital base. Second, during the recession of the mid-1970s many banks experienced problems with their asset portfolios. In particular, some banks that advised real estate investment trusts (REITs) committed extensive resources to keeping certain REITs afloat. While bank holding companies were ostensibly under no obligation to support the REITs, the record does show that bank earnings suffered as a result of the support they did provide.

Consequently, the Board shifted to a "go slow" policy toward diversification into new activities. But despite the announced policy of slowing entry into nonbanking activities, there was no reversal of the movement toward the bank holding company organization form. Of the one hundred largest banking organizations in the United States, the number not affiliated with a bank holding company declined from twenty-eight in 1970 to three in 1975, two in 1980, and none by the end of 1981.

Statewide Branching The next significant changes affecting bank expansion in the Fifth District involved liberalization of branching laws in two states. The first occurred in Virginia in 1978 when the legislature extended branching privileges (still limited to contiguous jurisdictions) to acquired banks. Under the amended law, a bank could acquire another bank, turn it into a branch, and still establish branches in the area of the new branch. In practice, then, Virginia had adopted statewide branching even though

(until 1986) the letter of the law limited branching to contiguous areas. By 1979, four of the five largest Virginia bank holding companies had consolidated their subsidiaries as branches under one bank. And by 1987 there were 112 fewer banks but 316 more branches operating in Virginia than there had been a decade earlier.

The other liberalization occurred in West Virginia. In 1982 the legislature voted to allow branching within a bank's home county starting in 1984 and also to permit banks to form multibank holding companies. The law was loosened again in 1984 to allow branching in contiguous counties beginning in 1987 and statewide branching in 1991. But two years later the legislature moved statewide branching up to 1987. The result is that all Fifth District states now allow statewide branching.

Interstate Banking The third event of significance to Fifth District banking structure was the passage by District state legislatures of laws permitting interstate banking. The first District state to enact such a law was South Carolina in 1984. The law provides for regional reciprocal entry, that is, it permits bank holding companies in the Southeast (defined as Maryland, West Virginia, Kentucky, Arkansas, and states to their south) to acquire South Carolina banks and bank holding companies provided their home states extend the same privileges to South Carolina banking companies. But the law effectively blocks de novo entry by prohibiting acquisitions of banks less than five years old.

Similar laws were passed in North Carolina in 1984 and Virginia in 1985. The Supreme Court gave regional interstate banking a further boost in June 1985. In *Northeast Bancorp v. Board of Governors* the Court upheld the constitutionality of state laws that limit entry to bank holding companies within a specified region. The principal losers from the decision were the money center banks, especially those in New York. The winners were regional banks hoping to build up size before any of their states got around to allowing money center banks to enter.

The approaches to interstate banking followed by Maryland, the District of Columbia, and West Virginia differ somewhat from those of Virginia and the Carolinas. Maryland's 1985 law now permits reciprocal interstate entry by banks in most of the Southeast plus Pennsylvania and Delaware. Other Maryland laws permit bank holding companies from other states to establish full-service de novo facilities provided they meet certain capital, investment, and employment requirements.

In the District of Columbia, a 1985 law permits entry by acquisition by bank holding companies from

most of the Southeast. Another law, passed in 1986, allows entry of bank holding companies agreeing to provide loans and lines of credit, jobs, and branches for specified economic development projects and areas. Finally, a law passed by West Virginia in 1986 allows reciprocal entry by bank holding companies from anywhere in the nation subject to the restriction that no company can control more than 20 percent of deposits in the state.

Fifth District Banking Today

Interstate banking has sired a new breed of banking animal: the superregional bank holding company, defined as a bank headquartered outside the traditional money center cities of New York and Chicago and operating commercial banks in more than one state. The importance of the superregionals in the Fifth District is shown by two statistics: First, by the end of 1987 about 44 percent of deposits held by the six largest Fifth District bank holding companies were in banks outside their home states. Second, 30 percent of the deposits held by those six bank holding companies were in banks located in states outside the District.

The number and location of interstate acquisitions made by Fifth District bank holding companies appear in the accompanying table. North Carolina bank holding companies have looked mostly

FIFTH DISTRICT INTERSTATE ACQUISITIONS

(AS OF OCTOBER 1988)

ACQUIREE'S STATE

	DC	MD	VA	WV	NC	SC	FL	GA	TN
DC		2	3						
MD	2		1	1					
VA	4	6		2			1	1	16
WV									
NC		1	1			9	21	10	1
SC									
FL									
GA						3			
TN									

Number of acquisitions equals number of transactions and does not necessarily reflect number of banks acquired. A transaction is omitted if it does not involve a Fifth District organization.

southward to South Carolina, Georgia, and Florida. Companies in Virginia, Maryland, and the District of Columbia have concentrated on the so-called "Golden Crescent" region stretching from Baltimore south through Washington to Richmond and Norfolk. In addition, two Virginia banks have established a substantial presence in Tennessee.

Also reflected in the table is the paucity of entry by bank holding companies from outside the Fifth District. The only acquisition of a large Fifth District commercial bank so far has been by a Georgia bank headquartered in Atlanta.

Why have so few banks entered from outside the District? One explanation is that regional interstate banking has limited the pool of entrants. But this does not explain the lack of entry from other southeastern states. It is likely that banking laws of neighboring states have been in good measure responsible. Florida had unit banking until 1977 and limited branching until 1980, while Georgia and Tennessee were and still are limited branching states. In addition, Georgia restricted multibank holding companies until 1976. In contrast, District banks had few legal obstacles to expansion within their states and thus were in a position to take advantage of interstate banking when it became legal.

But the action in Fifth District banking has not been confined to the superregionals. In West Virginia, banks have established 168 branches and formed 52 bank holding companies since the legislature relaxed branching and holding company restrictions. Over the same period, the number of banks has declined by only 14. In addition, the ranks of small Fifth District banks (those with less than \$100 million in assets) have been augmented by 18 new banks in 1985, 24 in 1986, and 21 in 1987. More important, small District banks' return on assets has averaged 1.03 percent since 1980 compared with 0.81 percent for banks with over \$1 billion in assets.

What Next?

Now that the laws governing structure and expansion within a state have been liberalized in all Fifth District jurisdictions, what lies ahead for Fifth District banks and banking laws? Nationwide interstate banking is one possibility, more de novo entry is another, and interstate branching is yet one more.

Nationwide Interstate Banking As other states catch up with those in the Southeast in enacting interstate banking laws, it is reasonable to expect some banks outside the Southeast to show interest in entering the Fifth District. But what about expansion outside the Southeast by Fifth District banks? NCNB ex-

panded into Texas in late 1988 by acquiring an interest in the failed FirstRepublic Corp of Dallas, but no other major expansion of a Fifth District bank outside the Southeast has yet occurred. Still, one might argue that it may soon be time to consider opening the region to entry from the rest of the nation, especially since the southeastern states are now lagging behind other states in providing for eventual nationwide entry. There are at least two groups of banks that could benefit from a liberalization of the interstate laws.

First, the superregionals in the Fifth District may start looking at likely markets outside the region once they have reached their desired levels of activity within the Southeast. But in many states they would be frustrated by interstate banking laws that allow entry only if banks in their own states can enter the acquirer's state. So potential acquirers may have incentives to work for abandonment of regional in favor of nationwide interstate banking.

A second group, potential acquirees, might also benefit from nationwide interstate banking. As most of the potential acquirers within the region find suitable partners, the remaining potential acquirees might wish to expand the pool of available suitors. Opening the Southeast could benefit small- and medium-sized banks in particular because some superregionals might prefer to enter on a modest scale rather than to swallow and digest another superregional.

De Novo Entry A further means of opening up interstate banking is by permitting more de novo entry. Most Fifth District interstate banking laws permit entry only through acquiring an existing bank. Indeed, blocking de novo entry probably made interstate banking laws more palatable to bankers by limiting the options of would-be acquirers and thereby raising acquisition values. But as merger premiums are bid up by entrants, the de novo option may become more attractive as an alternative to acquisition. Further, since restrictions on entry probably lead to less competition for loans and deposits, consumer advocates may push for liberalized de novo entry.

Despite advantages to consumers and to banks seeking to enter a state, it is unlikely that there will be much pressure at the state level to allow de novo entry. Acquirers come from outside a state and therefore may not have their interests represented in state legislatures other than their own. At the same time, banks that would lose from de novo entry are probably well represented at the state level. It is more likely that pressure would come at the federal level if and when Congress were to address interstate banking. In particular, both consumer advocates and

superregionals might be better able to influence the course of legislation in Congress than in the many state legislatures.

Interstate Branching A final innovation that may someday come to interstate banking is interstate branching. At present, neither federal nor state (except Massachusetts) laws permit banks to branch across state lines. As a result, the superregionals must maintain separate subsidiary banks for each state. But if the experience in Virginia is any guide, branching may be a more efficient means of expansion for many banks. Most Virginia bank holding companies consolidated their subsidiaries into branches as soon as the law allowed it. The superregionals might have incentives to do the same thing if the law so allowed. Further, consumers might benefit from interstate branching. Not only would customers have ready access to their accounts when traveling, but checks could clear faster if superregionals were to use one set of books rather than the books of several subsidiaries.

But it is unlikely there will be much pressure for interstate branching in the immediate future. One obstacle is the question of jurisdiction over out-of-state branches. That is, if a bank establishes a branch outside its home state, who regulates the branch?

Another obstacle is that it is simpler to expand by branching than by setting up subsidiaries. Potential competitors of a superregional might not be inclined to support any law that would make it easier to compete with them. As with de novo entry, the question of interstate branching might be more appropriately dealt with at the federal than at the state level.

Concluding Comment

The uncertainty of further liberalization should not cloud the central fact of the evolution of Fifth District banking: the substantial reduction in legal and regulatory obstacles to competition among banks. Future competition is likely to come from several sources: First, foreign banks may play an increasing role. Second, banks may face increased competition from the thrift industry once the current deposit insurance problems are resolved. Finally, commercial and nonbank financial corporations are attempting to encroach on commercial banks' traditional turf just as banks attempt to move beyond their own. Given such prospects, any attempts to regulate competition among banks seem beside the point. The current trend toward liberalizing restraints on interbank competition is likely to continue unabated.

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LENDER OF LAST RESORT: THE CONCEPT IN HISTORY

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Averting banking panics and crises is the job of the central bank. As lender of last resort (LLR), it has the responsibility of preventing panic-induced collapses of the money stock. Traditionally, it has discharged this responsibility by making emergency loans of high-powered money to sound but temporarily illiquid banks at penalty rates on good collateral. Ideally, the mere announcement of its commitment, by assuaging people's fears of inability to obtain cash, would be sufficient to still panics without the need for making loans.

Banking scholars agree that the Bank of England in the last third of the nineteenth century was the lender of last resort par excellence. More than any central bank before or since, it adhered to the strict classical or Thornton-Bagehot version of the LLR concept. That version, named for its principal framers Henry Thornton and Walter Bagehot, stressed (1) protecting the aggregate money stock, not individual institutions, (2) letting insolvent institutions fail, (3) accommodating sound institutions only, (4) charging penalty rates, (5) requiring good collateral, and (6) preannouncing these conditions well in advance of any crisis so that the market would know exactly what to expect. These precepts served the Bank well. So well, in fact, that the U.K. suffered no banking crises after 1866. Even today, the Thornton-Bagehot version of the LLR concept provides a useful benchmark or standard for central bank policy. It is time to document the evolution and logic of that concept in some detail.

Henry Thornton's Contribution

The term "lender of last resort" owes its origin to Sir Francis Baring, who in his *Observations on the Establishment of the Bank of England* (1797) referred to the Bank as "the dernier resort" from which all banks could obtain liquidity in times of crisis. But the concept itself received its first—and in many

respects still its most rigorous, complete, and systematic—treatment in the hands of Henry Thornton. It was Thornton who, in his testimony before Parliament, in his speeches on the Bullion Report, and in his classic *An Enquiry Into the Nature and Effects of the Paper Credit of Great Britain* (1802), identified the Bank of England's distinguishing characteristics as an LLR. It was he who also specified the LLR's primary function, who distinguished between the micro and macroeconomic aspects of this function, and who analyzed the LLR's relationship with the monetary control function of the central bank. Finally, it was he who first enunciated the so-called "moral hazard" problem confronting the LLR.

Distinctive Features Thornton identified three distinguishing characteristics of the LLR. First was its unique position as the ultimate source of liquidity for the financial system. The LLR, he pointed out, maintained and created a strategic stock of high-powered money (gold and Bank of England notes) that could be used to satisfy demands for liquidity at critical times. More precisely, it held the central gold reserve from which all banks could draw. Equally important, it supplied the non-gold component of the monetary base in the form of its own notes—notes which, by virtue of their unquestioned soundness and universal acceptability, were considered the equivalent of gold and therefore constituted money of ultimate redemption. The Bank's effective monopolistic power to issue these notes gave it sole control over an inexhaustible source of outside money—the first requisite of an LLR.

Arresting Internal Drains The second hallmark of the LLR was its special responsibilities as custodian of the central gold reserve. It must hold sufficient reserves to inspire full confidence in their ready availability in times of stress. Also it must rely on its own resources (since as the last resort, it can turn to no other source) to protect the reserve from gold-depleting specie drains. Specifically, it must stand ready to freely issue its own paper to stem the panics that produce internal drains as cashholders seek to

* This paper draws from my contribution to the article, coauthored with Robert E. Keleher, "The Lender of Last Resort: A Historical Perspective," *Cato Journal* 4 (Spring/Summer 1984): 275-318.

switch from country bank notes to gold or its equivalent. And, while relying on the Bank's monetary control function to prevent external drains caused by persistent inflationary overissue of paper, it must hold so large a gold reserve as to withstand those temporary and self-reversing external drains caused by real shocks to the balance of payments. Should the Bank nevertheless find its gold reserve depleted by an extraordinary succession of such shocks (Thornton mentions three successive crop failures), it must take steps to ensure that the eventual return flow of gold is not delayed by domestic monetary contractions that depress aggregate production and reduce output available for export. For, according to Thornton (1939, p. 118), given downward inflexibility of wages and prices in the face of a money-stock collapse:

the manufacturer, on account of the unusual scarcity of money, may even . . . be absolutely compelled by necessity to slacken, if not suspend, his operations. To inflict such a pressure on the mercantile world as necessarily causes an intermission of manufacturing labor, is obviously not the way to increase that exportable produce, by the excess of which, above the imported articles, gold is to be brought into the country.

In short, the central bank must ensure that secondary monetary shocks do not prolong temporary external drains originating in real disturbances. To do so, it must sterilize or neutralize those drains with temporary increases in its own note issue. In so doing, it maintains the base of high-powered money and prevents sharp contractions in the money stock, contractions which, by depressing manufacturing activity and thus reducing output available for export, would prolong the trade deficit and hinder the return flow of gold. By judicious expansion of its own paper, the Bank of England arrests and reverses these specie drains that imperil its gold reserve.

Public Duties The third characteristic of the LLR was that it was not just like any other bank; it had public responsibilities. Unlike an ordinary commercial banker, whose responsibilities extend only to his stockholders, an LLR's responsibility extends to the entire economy. The LLR's duties include preserving the aggregate quantity and hence purchasing power of the circulating medium during bank runs and panics, and assisting the entire financial system in times of crisis. This responsibility, Thornton argued, dictates that the LLR behave precisely the opposite of a commercial banker in times of general distress, expanding its note issue and loans at the very time the banker is contracting his. For whereas the individual banker can justify his loan and note contraction on the grounds that it will enhance his

own liquidity and safety while not materially worsening that of the whole economy, the LLR can make no such assumption. On the contrary, the LLR must assume that, because of its influence over the total money supply, any contractionary policy on its part would adversely affect the economy. Consequently, the LLR must expand its note issue and loans at a time when the prudent commercial banker is contracting his.

Policy Issues Having outlined the distinctive features of the LLR, Thornton next expounded on four policy issues pertaining to the LLR. The first concerns a possible conflict between the central bank's responsibility as controller of the paper component of the monetary stock and its function as lender of last resort. Since the central bank bears the responsibility for providing a stable framework of monetary growth, it must exercise a moderate and continued restraint on the rate of expansion of its own note issue. It must do so either to protect its gold reserves from displacement by excess paper so that it can maintain the convertibility of its currency under fixed exchange rates or to prevent domestic inflation under floating exchange rates. But coping with unusual liquidity strains or panics through exercise of the LLR function calls for abandonment of this restraint and relinquishing control over the growth rate of the Bank note component of the monetary base. Hence, some banking specialists have noted an apparent conflict between these two central banking objectives.

Monetary Control and the LLR Thornton, however, saw no inconsistency between a policy of stable monetary growth and the actions required to deal with liquidity crises. In the following passage, which Joseph Schumpeter called the "Magna Carta of central banking," Thornton distinguishes between the long-run target growth path of paper money and temporary emergency deviations from the path. The proper policy of the Bank of England, Thornton (1939, p. 259) said, is

[T]o limit the total amount of paper issued, and to resort for this purpose, whenever the temptation to borrow is strong, to some effectual principle of restriction; in no case, however, materially to diminish the sum in circulation, but to let it vibrate only within certain limits; to afford a slow and cautious extension of it, as the general trade of the kingdom enlarges itself; to allow of some special, though temporary, increase in the event of any extraordinary alarm or difficulty, as the best means of preventing a great demand at home for guineas;¹ and to lean

¹ Thornton is here referring to the public's demand for gold coin, the guinea being the name of a standard gold coin in use in England at the time.

to the side of diminution, in the case of gold going abroad, and of the general exchanges continuing long unfavourable; this seems to be the true policy of the directors of an institution circumstanced like that of the Bank of England. To suffer either the solicitations of merchants, or the wishes of government, to determine the measure of the bank issues, is unquestionably to adopt a very false principle of conduct.

Remedies for External Drains Thus, to Thornton, the main responsibility of the central bank was to regulate paper money so that it expands at a steady noninflationary pace roughly comparable to the long-term growth rate of output. The bank must also counter those specie drains that periodically threatened to deplete its gold reserve and force suspension of convertibility. As previously mentioned, these drains were of two types: external (or foreign), composed of exports of gold to cover an adverse balance of payments, and internal, consisting of panic-induced increases in the quantity of gold held by domestic residents. Now temporary (self-reversing) external drains arising from transitory real shocks to the balance of payments can normally be met from the large buffer stock of gold reserves held precisely for that purpose, the temporary runoff of gold being offset by a reverse flow later on. But an extraordinary succession of such drains, if sufficient to exhaust the metallic reserve and deplete the gold in circulation, may require expansionary policy. Such policy, Thornton argued, would neutralize (sterilize) the gold outflow, prevent needless monetary contraction and the resulting disruption of the export industries ("those sources of our returning wealth"), and thereby contribute to the prompt correction of the trade deficit and the speedy return of gold. By contrast, *persistent* external drains arising from inflationary over-issue of paper call for restrictive policy. Either by reducing inflated British prices relative to foreign prices or by creating an excess demand for money which domestic residents attempt to satisfy by selling more goods and buying less, such restrictive policy spurs exports, checks imports, eliminates the trade-balance deficit, and halts the outflow of gold. Clearly monetary contraction, he thought, is the correct remedy for persistent external drains.

LLR and Internal Drains In the case of a panic and internal drain, however, the Bank should be prepared temporarily to expand sharply both its note issue and its loans to satisfy the public's demand for high-powered money. This means that the Bank must step off its path of stable note growth to prevent the money stock from shrinking. Indeed, Thornton argued that emergency expansions of Bank of England notes were required to keep the entire stock

of paper money (Bank notes plus notes issued by country banks) on path in the face of panic-induced demands to switch out of country notes. There need be no conflict between the functions of money control and lender of last resort, however, since the first refers to the long run and the second to temporary periods of emergency that may last for only a few days. If the LLR responds promptly and vigorously to the threat of a liquidity crisis, the panic will be averted quickly. Indeed, Thornton held that the mere expectation of such a response may be sufficient to stop the panic before additional notes are issued. Thus, the deviation of the paper component of the monetary base from its long-run target path will be small, both in magnitude and duration.

Macro vs. Micro Responsibilities The second issue considered by Thornton concerns the extent of the lender of last resort's responsibility to individual banks as opposed to the banking system as a whole. Suppose these individual banks are unsound. Must the LLR act to prevent their failure; that is, are bailout operations necessary to preserve the stability of the payments mechanism? Thornton (1939, p. 188) answered in the negative.

It is by no means intended to imply, that it would become the Bank of England to relieve every distress which the rashness of country banks may bring upon them; the bank, by doing this, might encourage their improvidence. There seems to be a medium at which a public bank should aim in granting aid to inferior establishments, and which it must often find very difficult to be observed. The relief should neither be so prompt and liberal as to exempt those who misconduct their business from all the natural consequences of their fault, nor so scanty and slow as deeply to involve the general interests. These interests, nevertheless, are sure to be pleaded by every distressed person whose affairs are large, however indifferent or even ruinous may be their state.

Thornton made four key points in this passage. First, the lender of last resort's primary responsibility is to the market ("the general interests") and not to the individual bank. The central bank has no duty to sustain particular institutions. Second, the LLR must take account of the moral hazard problem. That is, it must recognize that when it makes liberal accommodation available, it may create incentives that encourage laxity and recklessness in the lending practice of individual banks. Thornton's solution to this problem was to advise against bailout operations for banks whose distress arises from "rashness," "improvidence," or "misconduct." By subsidizing the risk-bearing function of poorly managed banks, such rescue operations, he asserts, would encourage other banks to take excessive speculative risks without fear of the consequences. In short, individual imprudence

should be punished by losses. Only if the financial repercussions of such punishment threaten to become widespread should the lender of last resort intervene. His third point, however, was that even in this latter case, aid should be extended sparingly and on relatively unfavorable terms. Finally, he was skeptical of the claim that economic welfare is inevitably harmed when a bank fails. This argument, he noted, would provide every large bank, no matter how poorly run, with an automatic justification for aid. He was aware that the public interest may be better served by the demise of inefficient banks, because the resulting improvements in resource allocation may well outweigh any adverse spillover side effects of the failure.

Containing Contagion The third issue addressed by Thornton was whether the lender of last resort should try to prevent shocks to the financial system. Here Thornton answered in the negative. The lender of last resort exists, he said, not to prevent shocks but to neutralize their secondary repercussions. He argued that a panic could be triggered by any kind of "alarm"; for example, rumors of a foreign invasion, an initial bank failure, and so on. The central bank has no responsibility for stopping these triggering events, but it does have a responsibility for arresting the panic, stopping it from spreading throughout the system. "If any one bank fails," said Thornton (1939, p. 180), "a general run on the neighboring ones is apt to take place, which if not checked at the beginning by a pouring into the circulation a large quantity of gold, leads to very extensive mischief."

The proper response, according to Thornton, is not to stop the initial failure, but to pump liquidity into the market. In Thornton's view, the actual occurrence of a widespread panic would be properly attributable not to the initial bank failure, but to the central bank's failure to insulate the economy from the impact of that event. He distinguished between the effect of closing an individual bank and the policy errors of the lender of last resort. Closing an individual bank, he said, contributes very little to "general distress" or "general commercial difficulty." By contrast, policy errors of the lender of last resort create a "general shock to credit" that "produces Distress through the whole Kingdom" (Thornton, pp. 287-88, 304-5).

Protecting the Money Stock Finally, Thornton identified the paramount objective or primary purpose of the lender of last resort. That objective he specified as the prevention of panic-induced declines in the money stock, declines that could produce depressions in the level of economic activity. That is, he

viewed the LLR as essentially a monetary rather than a banking function. While recognizing that the LLR also functions to forestall bank runs and avert credit crises, he insisted that these functions, although undeniably important, were nevertheless ancillary and incidental to the LLR's main task of protecting the money supply. In other words, the LLR's crisis-averting and run-arresting duties were simply the means (albeit the most efficient and expeditious ones) through which it pursued its ultimate objective of preserving the quantity, and hence the purchasing power, of the money stock. The important point was to prevent sharp short-run shrinkages in the quantity of money, since hardship ensued from these rather than from bank runs or credit crises per se.

In this connection, he drew a sharp distinction between bank *credit* (loans and discounts) on the one hand and the stock of *money* on the other. He then argued that, while the two aggregates tend to rise and fall together, it is the fall of the money stock that does the damage to the real economy. More precisely, he asserted that, while credit indeed finances and supports business activity, such credit arises from money rather than vice versa. Since credit springs from money and not money from credit, it follows that monetary contractions rather than credit collapses per se are the root cause of lapses in economic activity. Regarding this point, Thornton (1939, p. 307) asserted that a run-induced contraction in bank credit is not as harmful as the corresponding decline in the money stock: "It is not the limitation of Discounts or Loans, but . . . the limitation of Bank Notes or the Means of Circulation that produces the Mischiefs [of unemployment and lost output]."

To show how such monetary contraction and the resulting fall in output and employment would occur in the absence of an LLR, Thornton traced a chain of causation running from an alarm or rumor to financial panic to the demand for high-powered money to the money stock itself and thence to aggregate spending and the level of real economic activity. Panics, he noted, trigger doubts about the solvency of country banks and the safety of their note and deposit liabilities. As a result, moneyholders seek to convert these assets into money of unquestioned soundness, namely gold or Bank of England notes. These two items, he noted, comprise the base of high-powered money, an unaccommodated increase in the demand for which in a fractional reserve banking system is capable of causing a multiple contraction of the money stock. The demand for base money, he said, is doubly augmented during panics. For at the same time that moneyholders are attempting to convert suspect country bank notes and

deposits into gold or its equivalent, country banks are seeking to augment their reserves of these high-powered monetary assets, both to meet anticipated cash withdrawals and to allay public suspicion of financial weakness. The result is a massive rise in the demand for base money—a rise that, if not satisfied by increased issues, produces sharp contractions in the money stock and equally sharp contractions in spending. Since Thornton contended that wages and prices were downwardly sticky and therefore responded sluggishly to declines in spending, he thought that output and employment would bear most of the burden of adjustment; that is, the monetary contraction would fall most heavily on real activity.

To prevent this sequence of events, the LLR must stand ready to accommodate all panic-induced increases in the demand for high-powered money. And this it can readily do since it has a monopoly over its own Bank note component of the monetary base. Expressed in modern terminology, Thornton's argument was essentially this: The LLR must be prepared to offset falls in the money multiplier arising from panic-induced rises in currency and reserve ratios with compensating rises in the monetary base. By so doing, it maintains the quantity of money intact and therefore also the level of economic activity.

Walter Bagehot's Contribution

After Thornton, LLR theory received its strongest and most influential exposition in the writings of Walter Bagehot. In his seminal 1873 volume, *Lombard Street*, Bagehot revived and restated many of the points made earlier by Thornton. For example, he emphasized the Bank of England's special position as the holder of the ultimate reserve. This position, he noted, rendered the central bank different from ordinary commercial banks. It also gave the Bank the power as well as the duty to lend to all solvent institutions offering good collateral in a crisis, the very time when other bankers would be contracting their loans. He also followed Thornton in advocating that the Bank of England hold large buffer stocks of gold reserves from which periodic drains could be met without adversely affecting the quantity of money in circulation. Finally, like Thornton, he distinguished between the appropriate response to internal versus external cash drains. An internal drain, he said, should be countered by a policy of lending freely and vigorously to erase all doubt about the availability of bank accommodation. An external drain, however, should be met by a sharp rise in the central bank's lending rate, the high

interest rate serving to attract foreign gold and encouraging the retention of domestic gold. This rate increase, Bagehot thought, was necessary to protect the metallic component of the monetary base. According to Bagehot (1962, p. 155), "the first duty of the Bank of England was to protect the ultimate cash of the country, and to raise the rate of interest so as to protect it."

A sufficient gold reserve, of course, was necessary both for the preservation of the gold standard and for the maintenance of public confidence in the convertibility of paper currency into gold. On the potential fragility of public confidence, Bagehot (1962, pp. 156-57) argued that "a panic is sure to be caused" if the gold reserve falls below "a certain minimum which I will call the 'apprehension minimum.'" It follows that the lender of last resort should strive to keep its gold reserves above this critical threshold.

Bagehot's Rule Bagehot (1962, pp. 27-28) thought that a persistent external drain would trigger an internal drain as the public, observing the diminution of the gold stock and fearing a suspension of convertibility, sought to convert deposits and country bank notes into gold. "Unless you can stop the foreign export," he said, "you cannot allay the domestic alarm." In this case, in which "periods of internal panic and external demand for bullion commonly occur together," the lender of the last resort must "treat two opposite maladies at once—one requiring stringent remedies, and especially a rapid rise in the rate of interest; and the other, an alleviative treatment with large and ready loans." Therefore, "the best remedy...when a foreign drain is added to a domestic drain" is the provision of "very large loans at very high rates." Here is the origin of the famous Bagehot Rule: "lend freely at a high rate."

Like Thornton, Bagehot stressed that last-resort lending should not be a continuous practice but rather a temporary emergency measure applicable only in times of banking panics. Like Thornton, he argued that if the central bank responded promptly and vigorously, the panic would be ended in a few days, by implication an interval not long enough for the paper component of the monetary base to depart significantly from its appropriate long-run growth track.

Responsibility to the Market Bagehot also viewed the role of the lender of last resort as primarily macroeconomic. The central bank, he said, bears the responsibility of guaranteeing the liquidity of the whole economy but not that of particular institutions. He prescribed last-resort lending as a remedy for

emergencies affecting the entire banking system, not for isolated emergency situations affecting an individual bank or a few specific banks. Nor did he intend it to be used to prevent very large or key banks from failing as a consequence of poor management and inefficiency. As shown below, he did not think that support of such distressed key banks was necessary to forestall panics. Like Thornton, he emphasized that the task of the central bank was not to prevent initial failures of unsound institutions but rather to prevent a subsequent wave of failures spreading through the sound banks of the system.

More generally, he believed with Thornton that the lender of last resort exists not to prevent shocks but to minimize their secondary repercussions. His views on this point are contained in his analysis of panics. Panics, said Bagehot (1962, p. 61), can be triggered by a variety of exogenous events—"a bad harvest, an apprehension of foreign invasions, a sudden failure of a great firm which everybody trusted." But "no cause is more capable of producing a panic, perhaps none is so capable, as the failure of a first-rate joint stock bank in London" (Bagehot 1962, p. 29). The shock of this initial failure must be contained before it gets out of hand, for "in wild periods of alarm, one failure makes many." The problem is how to "arrest the primary failure" that causes "the derivative failures." Bagehot's solution, quoted below (1962, p. 25), stresses the liberal provisions of liquidity to the whole system rather than loans to the distressed bank:

A panic, in a word, is a species of neuralgia, and according to the rules of science you must not starve it. The holders of the cash reserve must be ready not only to keep it for their own liabilities, but to advance it most freely for the liabilities of others. They must lend to merchants, to minor bankers, to 'this man and that man,' whenever the security is good . . . The way in which the panic of 1825 was stopped by advancing money has been described in so broad and graphic a way that the passage has become classical. 'We lent it,' said Mr. Harmon, on behalf of the Bank of England, 'by every possible means and in modes we had never adopted before; we took in stock on security, we purchased Exchequer bills, we made advances on Exchequer bills, we not only discounted outright but we made advances on the deposit of bills of exchange to an immense amount, in short, by every possible means consistent with the safety of the bank, and we were not on some occasions over nice. Seeing the dreadful state in which the public were, we rendered every assistance in our power.' After a day or two of this treatment, the entire panic subsided, and the 'City' was quite calm.

Conspicuously absent is any mention of the need to channel aid to specific institutions, as would be implied by bailout operations. Bagehot's emphasis is clearly on aid to the market rather than to the

initially distressed bank. He obviously did not think it necessary to prevent the initial failure at all costs.

Up to this point, Bagehot has been depicted largely as a follower or disciple of Thornton. But Bagehot did more than just elaborate, refine, and coordinate Thornton's analysis. He also contributed several original points that added substance to the lender-of-last-resort doctrine and advanced it beyond Thornton's formulation. At least five of these points deserve mention.

Preannounced Assurance First, Bagehot distinguished between the central bank's extending support to the market after a crisis began, and its giving assurance of support in advance of an impending crisis. He argued that the lender of last resort's duty did not stop with the actual provision of liquidity in times of crisis, but also involved making it clear in advance that it would lend freely in all future crises. As Bagehot (1962, p. 85) put it, "the public have a right to know whether [the central bank]—the holders of our ultimate bank reserve—acknowledge this duty, and are ready to perform it." This assurance alone, he thought, would dispel uncertainty about and promote confidence in the central bank's willingness to act, thus generating a pattern of stabilizing expectations that would help avert future panics.

Penalty Rate Second, he advocated that last-resort accommodation be made at a penalty rate. Borrowers should have relief in times of crises, but they should be prepared to pay a price that implied a stiff penalty. The central bank has a duty to lend, but it should extract a high price for its loans, a price that would ration scarce liquidity to its highest-valued uses just as a high price rations any scarce commodity in a free market. Moreover, a penalty rate also had the appeal of distributional equity, it being only fair that borrowers should pay handsomely for the protection and security afforded by the lender of last resort. Allocative efficiency and distributive justice aside, the penalty rate, Bagehot claimed, would produce at least four additional beneficial results. First, it would encourage the importation and prevent the exportation of specie, thus protecting the nation's gold reserve. It would achieve this result by attracting short-term capital from abroad and by exerting a deflationary influence on spending and domestic prices, thereby improving the external balance of trade by spurring exports and reducing imports. Second, consistent with the objective of maintaining stable growth of the note component of the money stock, a penalty rate would ensure the quick retirement of emergency expansions of the Bank note issue once the emergency ends. The very unprofitability of bor-

rowing at the above-market rate would encourage the prompt repayment of loans when the panic subsides, and the resulting loan repayment would extinguish the emergency issue so that the Bank note component of the money stock would return to its noninflationary path. Third, the high rate of interest would reduce the quantity of precautionary cash balances that overcautious wealth-holders would want to hold. Without the high rate to deter them, these cash-holders might deplete the central gold reserve. As Bagehot put it, the penalty rate would serve as "a heavy fine on unreasonable timidity," prompting potential cashholders to economize on the nation's scarce gold reserve. In this connection, he advocated that the penalty rate be established "early in the panic, so that the fine may be paid early; that no one may borrow out of idle precaution without paying well for it; that the Banking reserve may be protected as far as possible" (Bagehot 1962, p. 97).

Last and most important, the penalty rate would, in addition to rationing the scarce gold reserve, provide an incentive for banks to exhaust all market sources of liquidity and even develop new sources before coming to the central bank. By encouraging individual banks to develop better techniques of money management and the capital market to develop new channels to mobilize existing liquidity, the penalty rate would promote allocative efficiency in the financial system. In short, the penalty rate would protect the gold reserve, minimize deviations of the Bank note component of the money stock from its stable path, allocate resources by market price, discourage reliance on the central bank, and ensure that recourse to the latter's lending facilities was truly a last resort.

Bagehot's analysis, it should be noted, implies still another use for the penalty rate: providing a test of the soundness of distressed borrowers. A penalty rate set a couple of percentage points above the market rate on alternative sources of funds would encourage illiquid banks to turn to the market first. Success in obtaining accommodation at the market rate—defined here as the going rate on default-free short-term credit instruments—would indicate that lenders judge these borrowers to be sound risks, for the borrowers and their assets would pass the market test. On the other hand, resort to the central bank at the penalty rate would tend to indicate weakness in the borrowing institutions, suggesting that they may be unable to borrow in the market at the lower rate. Fearing default, private lenders may demand a risk premium in excess of the differential between the risk-free market rate and the penalty rate, forcing the banks

to resort to the central bank's lending facility. Thus, the penalty rate will have provided a test of the banks' soundness.

Eligible Borrowers and Collateral Bagehot's third contribution was his specification of the types of borrowers the lender of last resort should accommodate, the kinds of assets it should lend on, and the criteria it should use to determine the acceptability of those assets. Regarding the types of borrowers, he stated that the Bank of England should be willing to accommodate anyone with good security. Last-resort loans, said Bagehot (1962, p. 25), should be available "to merchants, to minor bankers, to this man and that man." The objective of the central bank in time of panic is to satisfy the market's demand for liquidity. It makes little difference, he said, whether this objective is accomplished via loans to merchants, to bankers, or to any other sound borrowers.

Concerning the type of collateral on which the central bank should lend, Bagehot's answer was clear. The bank should stand ready to lend on any and all sound assets, or, as he put it, "on every kind of current security, or every sort on which money is ordinarily and usually lent" (Bagehot 1962, p. 97). Besides the conventionally eligible bills and government securities, acceptable collateral should include "all good banking securities," and perhaps even "railway debenture stock" (pp. 97, 101). In another passage he makes the point that the "*amount* of the advance is the main consideration . . . not the nature of the security on which the advance is made, always assuming the security to be good" (p. 101). The basic criterion was that the paper be indisputably good in *ordinary or normal times*. The latter qualification is important. It implies that the lender of last resort should not be afraid to extend loans on normally sound assets whose current market value is temporarily below book value owing to depression in the securities market.

To summarize, Bagehot felt that few restrictions should be placed on the types of assets on which the central bank might lend, or the kinds of borrowers it might accommodate. This position was consistent with his advocacy of price as opposed to non-price rationing mechanisms. He recommended that the central bank eschew qualitative restraints—eligibility rules, moral suasion, administrative discretion and the like—and instead rely on the penalty rate to ration borrowing.

Unsound Institutions Fourth, Bagehot delineated the extent of the lender of last resort's responsibility to individual banks as distinguished from the banking system as a whole. Concerning the question of

whether this responsibility included assistance to insolvent banks, Bagehot's answer was an unequivocal no. The central bank's duty, he said, is not to rescue "the 'unsound' people" who constitute "a feeble minority." Such businesses, he said, "are afraid even to look frightened for fear their unsoundness may be detected" (Bagehot 1962, p. 97). In short, the job of the central bank is not to prevent failure at all costs but rather to confine the impact of such failure to the unsound institutions.

Bagehot meant for his strictures to apply even to those key banks whose failure, in the absence of central bank action, could shatter public confidence and start a falling-dominoes chain-reaction sequence of financial collapse. Thus, Bagehot (1962, p. 129) acknowledged that if:

owing to the defects in its government, one even of the greater London joint stock banks failed, there would be an instant suspicion of the whole system. One *terra incognita* being seen to be faulty, every other *terra incognita* would be suspected. If the real government of these banks had for years been known, and if the subsisting banks had been known not to be ruled by the bad mode of government which had ruined the bank that had fallen, then the ruin of that bank would not be hurtful. The other banks would be seen to be exempt from the cause which had destroyed it. But at present the ruin of one of these great banks would greatly impair the credit of all. Scarcely any one knows the precise government of any one; in no case has that government been described on authority; and the fall of one by grave misgovernment would be taken to show that the others might easily be misgoverned also. And a tardy disclosure even of an admirable constitution would not much help the surviving banks: as it was extracted by necessity, it would be received with suspicion. A skeptical world would say 'of course they say they are all perfect now; it would not do for them to say anything else.'

Even in this case, however, Bagehot did not think it appropriate for the central bank to extend aid to poorly managed key banks. It is, instead, "the 'sound' people, the people who have good security to offer" who constitute "the majority to be protected." The lender-of-last-resort function should not be interpreted to mean that unsound banks should not be permitted to fail. Instead it implies that the failure should not be allowed to spread to sound institutions. To Bagehot, the distinction is crucial. In his words, "no advances indeed need be made" on assets on "which the [central] Bank will ultimately lose." Again, in another passage, he offers assurance that if the lender of last resort "should refuse bad bills or bad securities" it "will not make the panic really worse." To arrest a panic, he says, it is sufficient that the bank guarantee to provide liquidity to the "solvent merchants and bankers" who comprise the "great majority" of the market. This policy ensures that "the

alarm of the solvent merchants and bankers will be stayed" (Bagehot 1962, p. 97).

Strengthening Self-Reliance Finally, Bagehot warned against undue reliance on the lender of last resort and stressed the need to strengthen individual banks. The lender of last resort, he pointed out, was not meant to be a substitute for prudent bank practices. Consistent with his laissez-faire, free-market philosophy, he argued that the basic strength of the banking system should rest not on the availability of last-resort accommodation, but rather on the resources and soundness of the individual banks. According to Bagehot (1962, p. 36):

[W]e should look at the rest of our banking system, and try to reduce the demands on the Bank [of England] as much as we can. The central machinery being inevitably frail, we should carefully and as much as possible diminish the strain upon it.

Bagehot (1962, p. 60) described in glowing terms the self-reliant character of a hypothetical decentralized "natural system of banking," composed "of many banks keeping their own cash reserve, with the penalty of failure before them if they neglect it." Elsewhere he pointed out that "under a good system of banking . . . a large number of banks, each feeling that their credit was at stake in keeping a good reserve, probably would keep one; if any one did not, it would be criticized constantly, and would soon lose its standing, and in the end disappear" (Bagehot 1962, p. 52). In relying on its own soundness rather than the resources of the central bank, such a system, he noted, "reduces to a minimum the risk that is caused by the deposit. If the national money can safely be deposited in banks in any way. This is the way to make it safe" (p. 53).

Providing Liquidity via Open Market Operations One final observation should be made concerning Bagehot's views on the central bank's most appropriate instrument to combat panics. Today many banking experts regard open market operations, rather than discount window accommodation, as the most effective way to deal with systemic liquidity crises. Bagehot likely would have agreed. Although he consistently prescribed loans, rather than open market purchases of assets, to stop panics, this was mainly because the latter weapon was not widely used in his day. Had the technique of open market operations been highly developed at that time, he probably would have approved of its use, at least in those cases where there was no danger of the gold stock being depleted by a foreign drain. On these occasions, Bagehot favored resorting to the most expeditious means of stopping an internal cash drain. Open

market operations are quite consistent with his dictum "that in time of panic" the central bank "must advance freely and vigorously to the public . . . on all good banking securities" (Bagehot 1962, pp. 96-97). Moreover, open market operations would have appealed to his preference for market-oriented allocation mechanisms. He would have approved of this particular policy instrument, which regulates the total amount of money but not its allocation among users or uses.²

Conclusion

Thornton and Bagehot believed the LLR had the duty (1) to protect the money stock, (2) to support the whole financial system rather than individual institutions, (3) to behave consistently with the

² Note that open market operations would render Bagehot's penalty rate inoperative. With such operations, however, penalty rates are in any case unnecessary since the market itself rations or allocates newly-created money among cashholders.

longer-run objective of stable money growth, and (4) to preannounce its policy in advance of crises so as to remove uncertainty. They also advised the LLR to let insolvent institutions fail, to lend to credit-worthy institutions only, to charge penalty rates, and to require good collateral. Such rules they thought would minimize problems of moral hazard and remove bankers' incentives to take undue risks. These precepts, though honored in the breach as well as in the observance, continue to serve as a benchmark and model for central bank policy today.

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IMPROVING AMERICA'S COMPETITIVENESS

*Address by
H. Robert Heller
Member, Board of Governors of the Federal Reserve System
to the
Richmond Society of Financial Analysts
March 23, 1989.*

America's trade balance has improved considerably in the last two years, but much work remains to be done. Today, I would like to talk with you about some of the macroeconomic causes and consequences of our trade imbalances, and explore what we can do to improve America's competitiveness in world markets.

The Dimensions of the Problem

The dimensions of the problem are enormous. Last year, we imported over \$440 billion in merchandise, but exported only \$320 billion, leaving a trade deficit of \$120 billion. That is, our imports exceeded our exports by almost 40 percent.

Bringing these numbers down to a meaningful personal level, we exported a bit more than \$1,300 of merchandise per person, while importing nearly \$1,800 per person. This leaves an international trade deficit of \$500 for every American.

A quick moment of introspection shows that most of us have personally contributed to the problem. Who did not buy a camera or a recorder made in Japan, eat Swiss cheese, or enjoyed a glass of French wine? I am sure we all enjoyed our purchases.

But we also have to ask ourselves what did we produce that was exported. Maybe Pogo was right when he said: "We has met the enemy, and it is us!"

Dollar Depreciation Is Not the Answer

Last year, the trade deficit was reduced by \$32 billion, but now several observers worry that the improvement in our trade imbalance may have stalled. They argue that a further decline in the value of the dollar is needed to bring about improvement in the trade accounts.

According to most studies, the dollar is already very competitively priced in world markets. For instance, OECD data indicate that in 1987, it cost a Japanese person the equivalent of \$148 to buy a bundle of representative goods that could be purchased with

\$100 in the United States. The same bundle of goods would have cost \$123 in France, \$138 in Germany, and \$163 in Switzerland. That is, American goods were priced very competitively compared to the goods for sale in those countries.

Canadian and British goods were priced about on par with American goods as it would have taken \$94 to buy the same bundle of goods in Canada and \$95 in the United Kingdom.

One may therefore conclude that American goods are already priced very competitively in world markets.

While it is true that at the margin a lower dollar would make American producers even more competitive, one has to question the validity of the argument that this is the proper remedy in our current situation. If we already have a 48 percent price advantage versus Japan and a 38 percent advantage versus Germany, what makes us believe that a 50 or 60 percent advantage will turn the tide?

Moreover, in the process of further depreciating the dollar we would wind up paying even more for the huge volume of goods that we are already importing. By reducing the value of the dollar we would—at least for a while—be paying an even greater amount of dollars for a smaller volume of imports.

One may argue in favor of such a policy when a country's currency is clearly overvalued, but that argument is of doubtful validity in the case of the dollar, which is already priced competitively and arguably undervalued according to the best data available.

The rising import prices that would be associated with a weaker dollar would also aggravate our current inflation problems—and this is hardly a pleasant prospect for a central banker to contemplate.

Thus, I believe that, under the present circumstances, a dollar depreciation is unwarranted and uncalled for.

Instead, we should begin to look elsewhere for reasons for the persistence of the American trade imbalance.

I will argue that we, as a nation, need to redouble our effort to enhance our competitiveness and make a concerted effort to penetrate foreign markets.

Before offering some specifics as to how we might improve our trade performance, let us look at some relevant facts and figures that may help to put our current trade problems in perspective and point the way toward possible improvement.

The Importance of Trade to the American Economy

The United States is the largest trading nation in the world, but at the same time international trade plays a rather modest role in the American economy. These seemingly contradictory statements are easy to reconcile.

The key lies in the fact that the United States is, by far, the largest economy in the world and, as a result, its absolute volume of trade is also huge. For instance, the United States imports every year more than the entire Canadian economy produces. And the total value of U.S. trade, combining exports and imports, amounts to over three-quarters of a trillion dollars, which is slightly more than the GNP of the United Kingdom.

However, U.S. merchandise exports amount to only about 6 percent of our GDP. There are only two countries in the world whose export ratio is as low as that of the United States: India and Yemen.

That I find a surprising, if not a shocking, statistic.

Just for comparison's sake, let me cite a few export ratios for other countries: Canada: 28 percent; Japan 15 percent; and Germany 30 percent.

But the true international trade wizards are among the smaller countries of the world: Belgium 73 percent; Ireland 63 percent; and the Netherlands with 62 percent.

Perhaps even more astounding is the list of developing countries in this league: the Congo and Gabon each export 64 percent of their GDP; Malaysia 57 percent; and Jamaica exports 58 percent of its GDP.

But the true world champions are Hong Kong, Singapore, and the Netherlands Antilles, all of which manage to export more than their entire GDP. They are the world trade champions par excellence.

These data show that success in the international trade field depends on how hard you try. If small, third world countries manage to export a much higher percentage of their GDP than the United States, are we trying hard enough?

These data also debunk the myth that foreign markets are closed to us and that this is the key trade problem confronting the United States. True, access

to some foreign markets is restricted, and some countries could do more to liberalize access to their markets. But how do Belgium, Malaysia, and Singapore penetrate foreign markets? What do they know that we do not?

Why Americans Don't Export

Let's examine a bit closer why Americans are not very good at exporting. Curiously, our size may be a handicap. The American market is the largest in the world. That is one of the reasons why American producers are not particularly interested in exporting, while foreigners give top priority to conquering our market.

For a manufacturer in Virginia, the market in Maryland, the Carolinas, or in Tennessee may offer just as great a potential as Denmark, Belgium, or Austria. In addition, he does not have to learn several new languages; can deal with familiar legal codes; knows the business customs and conventions; and can utilize the same currency and maybe even the same bank.

Furthermore, the technical specifications for the vast U.S. market tend to be the same, while they are often different from country to country abroad. For instance, take the frequently cited example of telecommunications. Not only does an American exporter often confront a governmental monopoly, but also the technical specifications tend to differ in never ending detail. In some countries the electrical system runs on 110 Volt and in others it is 220 Volt. In some countries the electricity runs on 50 cycles per second, and in others it runs on 60 Hertz. The internal telephone systems in some countries have 6 Volt, while in others it is 12 Volt. In some countries the zero is next to the one on the dial, in others it is next to the nine. In some countries ring-ring means the phone is busy, in others it means that the phone is actually ringing. Is it any wonder that an American manufacturer tends to get frustrated?

In that connection, the further integration of the European economies and the adoption of common standards will bring a welcome measure of relief to American exporters. They will be able to service the entire European market with increasingly uniform products as the European market is integrated and products are standardized.

In contrast, the large and fully integrated American market is extremely attractive to a foreign producer. After a local manufacturer in a foreign country has saturated his own market and looks for possible expansion opportunities, the American market is probably the most attractive and, therefore, his prime target. For a Philippine exporter, it is just as diffi-

cult to set up a new sales organization and to familiarize himself with the various rules and regulation in the United States as it is to penetrate Indonesia, Malaysia, or Korea—and the potential rewards are many times greater. Thus, the United States is everybody's prime target market.

Add to that that we are a land of immigrants eager to sell the wares produced by our former countrymen, and you have a readily available bridge to the U.S. economy.

Curious as it may seem, it is not easy to turn this advantage around and to use the immigrant population resident in this country in our export drive. If an American exporter were to offer a sales manager's job in Manila to a Filipino who has waited five years for his U.S. immigrant visa, it is likely the person would not accept the offer.

Finally, many of our most successful exporters have already set up local production facilities in foreign countries and produce the goods designed for foreign markets on location. Consequently, these sales by American companies do not enter the trade statistics.

The unexploited export potential of the United States therefore rests, to a considerable degree, in our small and medium-sized firms, who have not yet captured a significant share of the foreign markets. It is here that we should focus our efforts.

What can be done?

Improving Our Export Performance

First of all, a reduction in the federal budget deficit would also help to reduce the trade deficit. It would do so by reducing our domestic absorption of goods and services and thereby help to reduce the demand for imports.

Furthermore, lower government spending would also set free resources that could be exported or invested in additional productive capacity.

The second point to be made is that protectionism is not the answer to our trade problems. Restricting imports via trade barriers would not be to our benefit. It would deprive Americans of the goods they want to buy and drive up prices here in the United States. Moreover, we would be subject to retaliation, which would restrict our own ability to export.

Instead, we should opt for export growth by enhancing our own competitiveness and export awareness. More research and development and greater investment in plant, equipment, and human resources is needed. We need everything—from more multilingual secretaries to experts in Japanese marketing techniques and European trade law. All that represents a trade infrastructure that takes a long time to assemble and perfect.

Perhaps most important of all—success abroad requires patience. If we are just there for the quick profit and are ready to abandon our markets when temporary difficulties are encountered, foreign producers will seize the opportunity and grab our market share. And you can be sure that they plan to keep it.

This is one key reason why the 1984-85 episode of dollar overvaluation has had such lasting effects on our export markets. As the temporary dollar surge made our products uncompetitive, Americans were quick to abandon their foreign markets instead of redoubling their efforts to enhance productivity and to offer better service. Afterwards, it was difficult to again sign up the customers that we had abandoned.

But I am not here to criticize American industry over past mistakes. Instead, I would like to offer some constructive suggestions as to how we can enhance our competitiveness.

Let me offer two specific suggestions: go metric and permit nationwide branching for banks. These may seem to be unorthodox suggestions to improve our export performance, but I believe that they will work.

Here is why: Going metric will make it possible to sell our products directly abroad without further modifications. During a recent trip to Europe I heard the story of an American producer of nails and screws who attended one of the large European trade fairs. He was able to beat everybody's prices by 20 percent—in line with the data on price competitiveness that I cited earlier. But, unfortunately, he did not make a single sale. The reason? All his nails and screws were calibrated in inches, and they would not fit the metric specifications of his European customers.

Earlier I cited the fact that only Yemen and India have as low an export to GDP ratio as the United States. Would it come as a surprise to you to know that the United States and Yemen share something else in common? They are the only two countries in the world that have not yet gone metric!

If an American manufacturer has to retool first in order to sell his wares abroad, his incentive to do so is considerably reduced, and it makes his first step into export markets all that much more expensive.

Critics of the metric system scoff that it would make little sense to redraw the dimensions of our football fields and change other cherished traditions. Not so—even here are new opportunities. My daughter competes in the Northern Virginia Swim League. Half the pools are 25 yards in length and half the pools measure 25 meters. Does this represent a problem for the kids? No! They set new pool records for both the yard and the meter distances,

and they love it. But they also know that if they want to compete in the international leagues and the Olympics, it is going to be in meters.

Finally, let me turn to banking. Our American banking system is more fragmented and compartmentalized than that of any other country. State borders represent real barriers, and as a consequence, a small or medium-sized manufacturer in Iowa or Colorado will not get the support from his local bank that he needs in his first push abroad.

It may be argued that correspondent banking will enable the small town banker to offer international services also to his local customer. But does the small town banker really wish to turn his best customer over to the large multinational banks so that they can provide the foreign exchange and international trade finance that the exporter needs? Or will he be afraid that he will lose his best customer to the large bank when it comes to financing new plant expansions that will be needed for the export markets?

Contrast this situation with that prevailing in Canada, England, or Germany. There the hometown banker will also have branches and representative offices in key cities around the globe, and offer global financial services in support of the international trading efforts of his customer. When a factory owner or sales manager from a firm located in a small Swiss village or Dutch town steps off the plane in New York, he will be met by a representative from his own bank, ready to offer his services and advice as to how to conquer the American market. That is an

advantage that the typical American small-town manufacturer will not have abroad.

I recently learned that 85 percent of all small American manufacturers finance their own foreign trade. That uses up valuable capital, is cumbersome and generally inefficient. Just think how much better American exporters could do if they had the support of their hometown banker available to them on a global basis!

Conclusion

But let us not get too pessimistic. American exporters are on the come-back trail. They have already made considerable progress. In 1987, exports increased by 12 percent and in 1988 they increased by 27 percent. These are impressive figures and they show that international trade is the most vibrant sector of the American economy.

But we have a long way to go. The trade deficit still looms large, and it will take years of determined effort to close that gap.

I am confident that we can do it. We have already done so in the case of Europe, where last month's data showed a small U.S. trade surplus. In other markets, we still have a lot of work ahead of us.

But we should stop handicapping our own exporters. Let us give them a better chance to compete by converting to the accepted global standards and by giving them the opportunity to rely upon their hometown financial institutions in their export drive.

AN EXAMINATION OF INTERNATIONAL TRADE DATA IN THE 1980s

*Michael Dotsey**

Introduction

During the 1980s, the United States has experienced tremendous volatility in its exchange rate and has seen its current account balance move from a surplus to a large deficit position. These vicissitudes in turn have provoked much speculation about their probable causes. In this article I examine three competing hypotheses and their ability to explain events in international trade and financial markets. The alternative hypotheses view the trade figures as outcomes caused by either (1) large U.S. budget deficits, (2) tight U.S. monetary policy, or (3) real shocks to investment caused by changes in the U.S. tax code. Although the hypotheses are not mutually exclusive, one may usefully examine them in isolation. In this regard the analysis is similar in spirit to Blanchard and Summers (1984) who analyzed the rise in real interest rates worldwide. While no entirely consistent explanation emerges, the real-shock hypothesis seems to match the data best. The hypothesis that large U.S. budget deficits caused the current trade deficit and the large appreciation and subsequent depreciation of the dollar receives the weakest support. A tightening of U.S. monetary policy, while consistent with events in the early 1980s, is not overly persuasive either.

Characterization of the Data

Before attempting to isolate theoretically the major factors involved in the recent movements of the trade data, one must characterize those figures as well as others closely related to them, including interest rates, returns on equities, and real output growth.

One important feature of the data is that almost all of the movements in the trade-weighted nominal

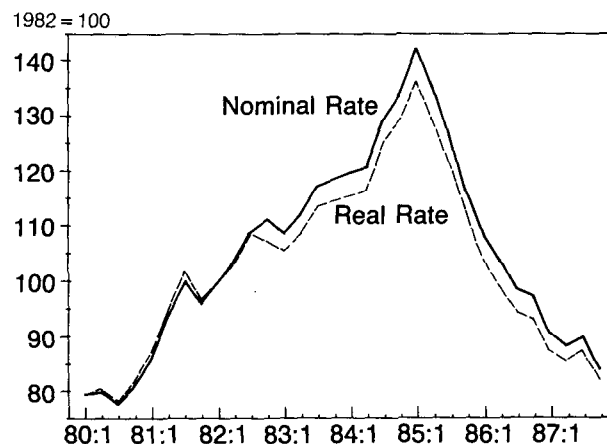
exchange are real¹ (see chart). The real nature of exchange rate movements is confirmed in Table I on a country-by-country basis. Another important feature is that both nominal and real interest rates² have fallen over the period in the United States and its major trading partners (see Table II). Inflation is also seen to be declining worldwide.

Stock market performance is observed to be highly correlated across the various stock exchanges (Table III). Most countries' stock markets, the exception being Japan, experienced declines in value in 1981 and 1982. Other than 1984, the rest of the sample

¹ The real exchange rate is the nominal exchange rate adjusted for different price level movements in various countries and, therefore, measures the amount of foreign goods that are needed to buy U.S. goods. Formally, the real exchange rate, $E = e(P/P^*)$, where e is the nominal exchange rate (i.e., units of foreign currency per dollar), P is the U.S. price level, and P^* is the foreign price level.

² The real interest rate is the nominal interest rate adjusted for inflation and represents the number of goods that must be sacrificed next year in order to consume one more unit of goods today. That is, the real rate is approximately the nominal rate minus the rate of inflation.

**NOMINAL AND REAL
TRADE-WEIGHTED EXCHANGE RATES**



Source: Board of Governors of the Federal Reserve System.

* I wish to thank Alan Stockman and Marvin Goodfriend for helpful comments and discussions. Robert Hetzel and Thomas Humphrey contributed expert editorial assistance, while Gordon Watkins provided valuable research assistance.

Table I

Nominal Exchange Rate

	Trade-Weighted	United Kingdom	Germany	Japan	Canada
1980	87.385	2.326	1.818	226.528	1.169
1981	103.261	2.028	2.261	220.451	1.199
1982	116.498	1.751	2.428	249.051	1.234
1983	125.325	1.517	2.555	237.446	1.233
1984	138.343	1.336	2.848	237.588	1.295
1985	143.235	1.296	2.944	238.472	1.366
1986	112.270	1.467	2.171	168.498	1.390
1987	96.947	1.639	1.798	144.631	1.326

Real Exchange Rate

1980	31.125	2.326	1.818	226.528	1.169
1981	37.001	2.063	2.400	232.314	1.186
1982	40.765	1.801	2.693	267.645	1.196
1983	43.020	1.581	2.920	256.653	1.181
1984	47.229	1.398	3.340	261.559	1.250
1985	48.535	1.385	3.526	266.298	1.324
1986	37.999	1.594	2.603	186.114	1.340
1987	33.305	1.795	2.238	162.138	1.273

Nominal Indexed to 1982 = 100

1980	75.010	132.893	74.869	90.956	94.775
1981	88.638	115.847	93.100	88.516	97.166
1982	100.000	100.000	100.000	100.000	100.000
1983	107.577	86.661	105.206	95.340	99.897
1984	118.751	76.338	117.304	95.397	104.967
1985	122.951	74.053	121.257	95.752	110.701
1986	96.371	83.805	89.414	67.656	112.636
1987	83.217	93.625	74.034	58.073	107.476

Real Indexed to 1982 = 100

1980	76.354	129.194	67.505	84.638	97.789
1981	90.767	114.590	89.112	86.799	99.196
1982	100.000	100.000	100.000	100.000	100.000
1983	105.533	87.808	108.425	95.893	98.762
1984	115.858	77.643	124.019	97.726	104.538
1985	119.062	76.920	130.936	99.497	110.699
1986	93.216	88.510	96.648	69.538	112.094
1987	81.700	99.692	83.087	60.580	106.481

period showed rather strong performance. The fourth quarter of 1987 shows the worldwide scope of the October crash.

Regarding current account balances, only the United States has consistently run a deficit (Table V). This fact suggests anomalous behavior of some important policy or exogenous variable in the United

States. One also observes that after 1982 real output growth has been fairly strong for all countries (Table V).

The relevant variables central to the three hypotheses, namely budget deficits, money growth, and the effective tax rate on capital in the United States are discussed next. In examining budget deficits, I emphasize the behavior of the more meaningful concept of real budget deficit (see Barro [1984] and Eisner [1989]), although data on nominal deficits are also displayed (Tables VIa and VIb). The real deficit is calculated as in Barro (1984) and measures the change in the real value of outstanding liabilities owed by the government.³ Transforming the national accounts data in this way helps to overcome some of the severe problems associated with measuring the deficit. Ideally, one would like a measure of government deficits based on the kind of accounting used by a typical business. Such business accounting treats capital expenditures differently from current outlays and depreciation. So too should they be treated in government accounting. Moreover, appreciation of the value of government assets, such as the gold stock and publicly held land, should be included. Also, changes in the present value of future obligations such as social security payments or obligations of the deposit insurance corporations in the United States should be taken into account. None of these items seem to be adequately accounted for in current measures of the deficit. Furthermore, the deficits of local governments are omitted.

Serious measurement problems also affect the data on the current account of the balance of payments. For example, these data do not include changes in asset values held by foreign

investors in each country. Eisner (1989) indicates that

³ Specifically the real budget deficit

$$b_t = \frac{B_t + H_t}{P_t} - \frac{B_{t-1} + H_{t-1}}{P_{t-1}}$$

where B is the nominal value of government bonds held by the public, H is high-powered money, and P is the GNP deflator.

Table II
Inflation and Interest Rates

	United States	United Kingdom	Germany	Japan	Canada
1981					
Nominal Interest Rate	14.08	13.03	10.57	7.43	17.72
Inflation Rate	9.63	11.89	4.03	2.69	10.55
Real Interest Rate	4.45	1.14	6.54	4.74	7.16
1982					
Nominal Interest Rate	10.72	11.47	8.02	6.94	13.64
Inflation Rate	6.43	7.60	4.36	1.87	8.65
Real Interest Rate	4.29	3.87	3.66	5.07	4.99
1983					
Nominal Interest Rate	8.62	9.59	5.64	6.39	9.31
Inflation Rate	3.86	5.24	3.26	0.78	5.06
Real Interest Rate	4.76	4.35	2.38	5.61	4.25
1984					
Nominal Interest Rate	9.57	9.30	5.66	6.10	11.06
Inflation Rate	3.87	4.27	1.99	1.25	3.11
Real Interest Rate	5.70	5.03	3.68	4.85	7.95
1985					
Nominal Interest Rate	7.48	11.56	4.96	6.46	9.43
Inflation Rate	3.68	5.89	2.22	1.52	3.26
Real Interest Rate	3.80	5.67	2.74	4.94	6.17
1986					
Nominal Interest Rate	5.97	10.37	3.85	4.79	8.97
Inflation Rate	1.96	3.67	3.08	1.86	2.45
Real Interest Rate	4.01	6.69	0.77	2.93	6.52
1987					
Nominal Interest Rate	5.82	9.25	3.28	3.51	8.15
Inflation Rate	3.58	4.43	2.06	-0.24	4.44
Real Interest Rate	2.24	4.82	1.22	3.75	3.70

Note: Nominal interest rate is 1-year Treasury bill rate, except call money rate for Japan.

Source: *International Financial Statistics*, December 1985 and February 1989.

this oversight may be of such magnitude that in reality the United States is not really a debtor nation. Given these measurement problems, one can only hope that the overall movements in the data reported for both the trade and budget deficits are roughly correlated with magnitudes that are of more economic relevance.

The reported data on budget deficits show that relative to output the real U.S. budget deficit is not particularly large. Nor does the U.S. budget deficit

relative to output move in any strikingly different way from the deficits of other countries.

Monetary data are given in Table VII. As measured by M1 growth, the United States experienced a fairly severe monetary tightening in 1981, as did Germany and Canada. After that episode M1 growth strengthened. Looking at M2 growth, one is unable to discern any pattern that distinguishes the United States from other countries.

The last bit of data concerns the effective marginal tax rate on total nonresidential business plant and equipment. These figures are taken from Hulten and Robertson (1982), who attempt to construct an index number that measures the difference between the before and after tax return on capital. Numbers for 1983-1986 are taken from the Hulten-Robertson forecasts of effective tax rates conditional on various rates of inflation. These rates are .33 (1980), .26 (1981), .047 (1982), .01 (1984-1986). The rates do not include the effects that individual tax rates have on the cost of capital and do not go beyond 1986 since tax laws were changed after that date. While no numbers are presented for

the post-1986 period, the 1986 tax law is viewed as having significantly raised the effective marginal tax rate on capital.

Confronting the Hypotheses with the Data

Having described the relevant data, I now turn to the three competing hypotheses. First I investigate the financial press's most popular explanation, U.S. budget deficits. But as mentioned above, the real U.S.

Table III
Real Stock Indexes

	United States	United Kingdom	Germany	Japan	Canada
1980					
1	82.0	91.1	99.2	95.1	92.7
2	90.6	96.9	105.3	96.0	104.9
3	93.7	100.4	104.9	98.8	106.5
4	100.0	100.0	100.0	100.0	100.0
1981					
1	96.7	99.2	97.1	108.4	99.5
2	92.5	98.3	102.5	123.4	98.4
3	79.8	85.5	93.9	113.7	77.1
4	82.8	94.6	92.1	117.9	76.4
1982					
1	75.7	95.8	95.9	107.3	61.1
2	73.1	93.8	90.0	107.1	51.2
3	79.6	105.0	92.9	105.5	59.1
4	91.1	107.7	99.0	120.1	69.4
1983					
1	99.6	114.8	115.8	123.2	75.6
2	106.0	127.7	123.1	128.9	85.3
3	105.3	123.4	120.8	136.5	87.9
4	102.9	127.7	133.4	143.3	86.8
1984					
1	97.5	141.6	130.1	165.4	81.2
2	92.3	129.7	127.7	153.2	74.7
3	98.6	143.0	134.5	159.1	81.2
4	100.0	153.6	139.6	174.4	79.9
1985					
1	107.1	159.9	149.1	191.6	86.0
2	112.9	148.4	179.1	193.9	86.6
3	106.1	154.4	196.1	188.5	84.2
4	122.7	171.3	248.3	196.2	91.0
1986					
1	138.9	201.7	266.7	242.3	94.2
2	143.6	196.9	251.4	251.3	92.9
3	131.5	182.7	250.2	305.3	89.7
4	138.4	197.3	264.1	310.1	92.5
1987					
1	161.5	234.5	226.2	376.7	113.4
2	169.2	265.9	235.7	403.3	113.1
3	174.7	273.9	242.7	414.8	117.3
4	133.0	202.1	157.7	333.1	94.1

Note: Price trends on the world's major stock markets, as calculated by Morgan Stanley Capital Perspective, Geneva, and reported in *The Wall Street Journal*. Each index is based on the close of 1980 equaling 100. Price trends are deflated by CPI in which 1980:4 equals 1.

budget deficit, relative to the real budget deficits of other countries, is not particularly large. Nor does it exhibit behavior much different from the deficits of other countries. Therefore, one would not expect it to affect the terms of trade (i.e., the real exchange rate). To the extent that budget deficits crowd out private investment, real interest rates would be expected to rise. If so, investment should fall and equity markets should perform poorly. The resulting lower investment over time would lead to a lower capital stock and reduced output. These events, however, did not occur. Instead, after 1982 investment was strong and output rose. In general, therefore, the experience of the 1980s does not conform to a theory based on the behavior of the U.S. budget deficits.

Another possibility is that the data have been generated by an unexpected monetary contraction in the United States. Indeed, such a contraction did occur in 1981. Given this unanticipated monetary contraction, one would expect output in the United States to fall and real interest rates to rise. Recession would occur if producers confused relative price level movements with movements in the aggregate nominal price level causing a fall in aggregate supply.⁴ Real interest rates would rise to equilibrate the demand for goods with the lower output. As misperceptions were corrected, output would rise and real interest rates would fall. Contrary to this hypothetical sequence of events, however, Table II shows that real rates remained high through 1984 even though output was growing strongly.

The initial U.S. monetary contraction would also be associated with both a real and nominal appreciation of the exchange rate. The real exchange rate would appreciate because U.S. goods would become relatively scarcer due

⁴ Relative price level movements refer to the change in a particular price or wage rate with respect to all other prices, while a movement in the aggregate price level refers to an equi-proportional change in all prices.

Table IV

Nominal Returns on Equity in Local Currency

	United States	United Kingdom	Germany	Japan	Canada
1980	32.6	35.4	4.0	9.5	24.0
1981	-5.0	13.7	4.9	17.3	-10.7
1982	21.6	29.2	19.4	6.0	6.5
1983	27.6	29.1	44.2	25.2	33.8
1984	6.2	31.9	11.2	26.4	-1.4
1985	31.7	20.4	87.1	15.9	22.9
1986	18.4	27.3	8.3	51.0	9.4

Nominal Returns on Equity in U.S. Dollars

1981	-5.0	-9.0	-10.4	8.3	-10.0
1982	21.6	9.3	10.5	-0.8	2.7
1983	22.6	16.0	24.0	26.7	32.2
1984	6.2	5.2	-5.3	16.9	-7.1
1985	31.7	50.4	138.3	45.3	16.2
1986	18.4	29.4	34.1	89.2	11.1

Source: *International Finance Yearbook*. London: Midland Montagu, 1987.

Table V

Current Account Balance

	United States	United Kingdom	Germany	Japan	Canada
1981	6.87	14.50	-3.31	4.77	-5.11
1982	-8.64	8.04	4.99	6.85	2.23
1983	-46.29	5.74	5.40	20.80	2.49
1984	-107.14	2.54	9.75	35.00	2.00
1985	-115.16	4.74	16.98	49.17	-1.43
1986	-138.84	-0.35	39.76	85.33	-7.54
1987	-153.95	-4.26	45.43	87.00	-7.98

Note: Current account in U.S. billions of dollars.

Growth of Real Output

1981	2.52	-1.41	0.00	4.07	3.29
1982	-2.55	1.12	-0.96	3.10	-3.39
1983	3.57	3.55	1.90	3.24	3.70
1984	6.43	2.08	3.28	5.06	6.12
1985	2.73	3.92	1.94	4.71	4.30
1986	3.57	2.93	2.32	2.51	2.96
1987	2.89	3.65	1.76	4.36	4.18

Note: Real growth in GNP, except GDP for United Kingdom.

Source: *International Financial Statistics*, December 1985 and February 1989.

to the decline in output. And the nominal exchange rate would appreciate if policy were expected to remain tight implying that the supply of dollars would be falling relative to other currencies. Finally, equity prices should fall due to lower output and higher real interest rates.

The initial movements in exchange rates, interest rates, and inflation are consistent with an unanticipated tightening of monetary policy. Subsequently, when the effects of the monetary tightening had worn off, and the economy had recovered, one would expect real rates to fall and the real exchange rate to begin returning to its initial level. After all, restoration of these real magnitudes to their natural equilibrium positions following a monetary shock is perfectly consistent with the notion that money is neutral in its effects on real variables in the long run. One would also expect the nominal exchange rate to remain high if U.S. monetary policy remained tight and, therefore, real and nominal exchange rate paths should diverge. Since these longer-run patterns are not evident in the data (see chart), it is reasonable to conclude that the time path of the data was not generated by monetary phenomena—although the initial movements in the data are consistent with the tightening of monetary policy in 1981.

One final hypothesis is based on supply side disturbances due to lower effective marginal tax rates on capital in the United States. This tax cut made investment in the United States relatively more profitable and, therefore, attractive. It seems reasonable that individuals believed that the tax cut would exhibit some degree of persistence. A belief that the tax cut would not be immediately rescinded is consistent with the general sluggishness of tax rate changes. In 1981, the tax on physical capital was lowered in the United States. As a result, the demand to invest in the United States rose and real interest rates rose to bring consumption plus

Table VI (A)

BUDGET DEFICITS**Nominal Government Budget Deficit(-)**

	United States (Billions of Dollars)	United Kingdom (Billions of Pounds)	Germany (Billions of DMarks)	Japan (Trillions of Yen)	Canada (Billions of Canadian Dollars)
1981	-72.62	-12.045	-35.86	-12.37	-8.43
1982	-125.7	-9.567	-32.02	-13.29	-20.81
1983	-202.5	-13.372	-32.95	-12.47	-25.16
1984	-178.3	-10.33	-32.29	-12.08	-28.87
1985	-212.2	-11.269	-20.26	-11.32	-28.68
1986	-212.6	-6.949	-16.34	-11.5	-20.51
1987	-156.0	-4.011	-25.44	N.A.	-17.58

Government Budget Deficit(-)/GNP

1981	-0.024	-0.047	-0.023	-0.048	-0.024
1982	-0.040	-0.034	-0.020	-0.049	-0.058
1983	-0.059	-0.044	-0.020	-0.044	-0.064
1984	-0.047	-0.032	-0.018	-0.040	-0.067
1985	-0.053	-0.032	-0.011	-0.036	-0.062
1986	-0.050	-0.018	-0.008	-0.035	-0.042
1987	-0.035	-0.010	-0.013	N.A.	-0.033

Sources: *International Financial Statistics*, December 1985 and February 1989.
Comparative Statistics and Financial Statistics: Japan and Other Major Countries.
 Bank of Japan, 1987, p. 85.

Table VI (B)

BUDGET DEFICITS**Real Government Deficit(-)**

	United States (Billions of Dollars)	Germany (Billions of DMarks)	Japan (Trillions of Yen)	Canada (Billions of Canadian Dollars)
1981	-7.6	-20.5	-9.2	-1.5
1982	-93.3	-25.8	-12.4	-10.2
1983	-120.0	-22.1	-18.9	-14.9
1984	-123.1	-20.7	-10.5	-17.1
1985	-132.4	-18.4	-12.6	-22.8
1986	-147.3	-10.8	-10.2	-10.9
1987	-56.6	-26.5	-12.6	-10.1

Real Government Deficit(-)/Real GNP

1981	-0.003	-0.014	-0.037	-0.005
1982	-0.034	-0.018	-0.048	-0.034
1983	-0.043	-0.015	-0.071	-0.048
1984	-0.041	-0.013	-0.033	-0.052
1985	-0.043	-0.012	-0.043	-0.066
1986	-0.046	-0.007	-0.034	-0.031
1987	-0.017	-0.016	-0.041	-0.027

Sources: *International Financial Statistics*, December 1985 and February 1989. Bank for International Settlements.

investment in line with output. Because investment in the United States became relatively attractive, capital gradually flowed there. This flow continued until after-tax rates of return were equilibrated worldwide. To balance the capital inflow the United States had to run a balance of trade deficit. Also, because people believed that the tax cut would persist, there were wealth effects. Even though the whole world is made wealthier (since foreigners own assets in the United States), the favorable change in the terms of trade plus the fact that U.S. residents hold proportionately more of their wealth in the United States meant that the United States became relatively wealthier. Hence U.S. consumption demand rose relative to foreign consumption and pushed the U.S. balance of trade further into deficit. The tax cut also caused equity prices to rise since after-tax earnings increased.

As the capital stock in the United States grows, more output will be produced and eventually supply-side effects will dominate causing a reversal in the initial exchange-rate appreciation. Also, the marginal after-tax rate of return on investment and thus the real interest rate will decline as the capital stock increases. Further, since more U.S. goods are being produced relative to foreign goods, the real exchange rate should depreciate to a level below its initial value. Accompanying this depreciation will be a reversal in the balance of trade. Analogously, the 1986 increase in marginal tax rates should have just the opposite effect. That is, one should observe a balance of payments surplus, falling real rates of return, and a real exchange rate depreciation.

The above explanation captures much of the movements in the data, but it obviously suffers from a few deficiencies. The biggest deficiency is the predicted similarity in the timing between real exchange rate depreciation and the movement of the balance of payments into surplus. Also, the mechanism described is not particularly successful at producing a worldwide expansion of output unless the global wealth effects are capable of generating the magnitude of expansion we have recently seen. Presumably appeal to some worldwide advances in technology would be needed to solve this particular piece of the puzzle.

Table VII
MONETARY DATA
M1 Growth

	United States	United Kingdom	Germany	Japan	Canada
1981	2.4*	17.80	-1.56	9.96	-0.32
1982	9.0*	11.31	7.14	5.75	12.21
1983	10.3*	11.14	8.38	-0.12	12.45
1984	5.94	15.42	5.97	6.93	19.97
1985	12.40	18.12	6.68	3.01	33.20
1986	16.46	22.11	8.17	10.34	14.85
1987	2.60	22.82	7.50	4.89	6.05

* These figures are for effective M1 and are taken from Broaddus and Goodfriend [1984].
Note: M1 values are in each country's own currency.

M2 Growth

1981	9.91	34.90	5.98	11.14	27.63
1982	8.93	11.39	6.75	8.51	4.88
1983	11.92	13.86	4.64	10.32	-3.93
1984	8.52	10.58	5.46	6.89	1.02
1985	8.50	7.00	8.60	11.46	-4.24
1986	9.08	22.82	5.82	8.86	3.62
1987	3.55	19.71	5.35	13.75	10.01

Note: M2 values are in each country's own currency. U.S. M2 is national definition.
Source: *International Financial Statistics*, December 1985 and February 1989.

Conclusion

After examining the three competing hypotheses one finds that they all suffer from some deficiencies when held up to the data. The most unlikely candidate for explaining what has occurred in international markets is the one that revolves around U.S. budget deficits. The tax effect story receives the most support but does not represent a complete story. However, the data do seem to be most consistent with an explanation centered on real rather than nominal causes. If that is the case, then monetary policy should not be overly concerned with current changes in the U.S. exchange rate.

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