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deregulation. See BANKING DEREGULATION AND MONETARY POLICY; FINANCIAL DEREGULATION AND REGULATION.

deregulation of American financial markets. With the 1980s swing to the political right, deregulation became the hallmark of an ascendant political dogma. Public regulation of basic industries, cumulating since the 1930s or earlier, allegedly stifled productivity and subverted competitiveness in an increasingly open economy. Regulatory restrictions were systematically dismantled in US trucking, airlines and communications; rates and routes were deregulated and entry barriers reduced.

Similar trends were discernible among deposit-type financial institutions (DIs, for short) where cash-asset reserve requirements were reduced, empowerments expanded and barriers to entry were permitted to vanish (see Crane, Kimball and Gregor 1983). Deposit interest rate ceilings were phased out during the 1980s under the Depository Institutions Deregulation and Monetary Control Act of 1980 (DIDMCA). In the same spirit, thrift empowerments were boldly expanded by the Garn-St Germain Act of 1982. Contrary to this trend, the DIDMCA also strengthened the regulatory role of the Federal Reserve, and the International Banking Act of 1978 imposed pervasive bank capital requirements for the first time in US experience. The Financial Institutions Reform, Recovery and Enforcement Act of 1989 (FIRREA) likewise added regulations in the thrift industry, rather than the reverse. Moreover, the US Treasury's recent proposal for deposit insurance reform includes a variety of new restrictions, along with its liberalizing initiatives for the 'adequately' capitalized (see United States Treasury 1991).

As might be expected, banking deregulation was controversial, not least because of the escalating institutional failures with the large losses they imposed on taxpayers. Criminal proceedings further inflamed the controversy. Those favouring deregulation pointed to improved resource allocations, with egress seen as symptomatic. This group ascribed the public losses to the flawed design of deposit insurance, particularly to the inflated risk-seeking incentives it provided DI management, and to failure of public supervision and regulation (see Merton 1977, 1978). The litany of governmental shortcomings included inadequate examinations, misguided forbearance and corruption. Others found fault with deregulation, sometimes in principle and sometimes in its awkwardly phased implementation (see Strunk

and Case 1988). It was argued, for example, that deregulation of deposit interest rates prior to the relaxation of asset restrictions imposed huge losses on thrifts and thereby weakened their earlier aversion to risk.

Whatever one's predisposition, two points about banking deregulation stand out. First, the public regulation of US banking from which deregulation proceeds has its own unique rationale, quite distinct from that typically offered for regulating railroads, airlines, communications and public utilities (see Benveniste, Boyd and Greenbaum 1991). The regulation can be traced back to 1791 and the creation of the First Bank of the United States (see Hammond 1957). However, many of the current regulations were developed in response to the collapse of the financial markets in the 1930s. Second, macroeconomic instability, financial innovation and increased competition from foreign and domestic financial institutions characterized the 1970s and 1980s, and provided a compelling environmental explanation for banking deregulation. Thus, the relaxation of selected regulatory restrictions in banking should not be seen as merely another symptom of the contemporary political dogma.

Bank regulations are conveniently classified into consumer protection (embracing disclosure, community reinvestment and equal opportunity requirements), and those designed to contain moral hazards emanating from public sector 'safety-net' provisions. (The latter include lender-of-last-resort facilities, deposit insurance, 'too-big-to-fail' policies and payments system commitments.) Safety-net regulations include direct restrictions (e.g., asset proscriptions) as well as indirect restrictions, such as risk-based capital requirements and supervision. The distinction between indirect and direct restrictions is that the former do *not* explicitly limit the bank's asset deployment, but rather establish incentives to encourage socially desired outcomes. Direct restrictions, in contrast, explicitly limit asset choices and business activities (see Boot and Greenbaum 1991).

The special features of banking (de)regulation can be illustrated by considering a primitive fractional reserve bank. Assume away credit risk and have the bank solve for its optimal cash-asset reserve ratio, that is, its deposit multiplier. The resulting equilibrium balances the opportunity cost of holding non-earning cash assets (or, equivalently, not holding additional earning assets) against the potential stock-out cost associated with deposit withdrawals. In the absence of a lender of last resort, the bank will hold some proportion of deposits in non-earning assets in consideration of the costs associated with forced liquidation of earning assets. Now introduce a lender of last resort in the form of a central bank and further assume that the volume of bank deposits is fixed in consideration of macroeconomic stabilization. The availability of a lender of last resort, even when interest rates on advances include a 'penalty' component, will inevitably lead the bank to substitute earning for cash assets. The lender of last resort reduces the precautionary value of cash by providing an alternative source of liquidity. (The penalty rate almost certainly will be less than the potentially infinite implicit interest rate associated with forced liquidation, in the absence of the 'discount window'.) This reduction in cash assets held by the bank, pursuant to the introduction of the lender of last resort, shifts deposit seigniorage from the central bank to the private bank. This is

the primary moral hazard associated with the lender-of-last-resort facility. The obvious remedy is the cash-asset reserve requirement.

The fractional reserve bank's vulnerability to liquidity crises, with attendant externalities, provides the *raison d'être* for a governmental liquidity facility. Thus the natural emergence of fractional reserve banking from the goldsmith establishes the need for a central bank lender of last resort. Such a facility, however, weakens an individual bank's incentive to hold cash assets, and any reduction of the bank's cash assets, given the deposit size of the banking industry, shifts earning assets from the central bank to the private banks. This redistributes deposit seigniorage from the public to the private sector providing the most basic justification for the legal reserve requirement.

Similarly, the introduction of deposit insurance can weaken a bank's incentive to hold capital and motivate it to acquire riskier assets. Capital requirements, asset restrictions and supervision are the obvious response to this moral hazard.

Thus deregulation of banking must be seen in the context of the safety net provisions that society has assembled to protect the banking system. The lesson of recent banking deregulation, implemented without due regard to the moral hazards embedded in the safety net, is found in the escalating losses to the deposit insurance fund, the proliferation of bank failures and the loss of American banking competitiveness.

Deposit interest rate ceilings, entry restrictions and underpricing of deposit insurance addressed the moral hazard of the safety net more indirectly. These created monopoly rents in banking that provided risk-abatement incentives. The deposit rents served much the same role as bankruptcy costs. Given the accounting conventions, particularly as they relate to deposits, these rents provided a form of hidden capital that was forfeited in the event of accounting insolvency. Inclinations to dissipate cash assets and to elevate financial leverage and the variance of cash flows, deriving from deposit insurance and lender-of-last-resort facilities, were offset by the potential loss of future deposit rents. Also, supervision and examination provided the monitoring to attenuate further bankers' inclinations to risk taking. The combination of regulatory proscriptions, monopoly rents and governmental monitoring locked the banking system into a low-risk equilibrium in which failures were few in number and negligible in economic impact. Moreover this equilibrium was sustained for approximately 40 years, starting at the end of the Great Depression.

This low-risk equilibrium was eventually undone by the decade-long inflation of the 1970s. As the gap between market interest rates and those on deposits widened, cash management innovations spread among both businesses and households. The money market mutual fund was one manifestation, but lock-box collection systems, remote disbursements and more sophisticated monitoring were also parts of the cash-management revolution. As a result, banks' core deposits rose in cost and shrank in duration. The cost increase had a direct dissipative effect on deposit rents thereby weakening the risk-abatement incentives deriving from deposit interest-rate ceilings. The latter effect on the duration of deposits was more subtle, but probably no less

important (see Chan, Greenbaum and Thakor 1986). With deposit outflows modest and predictable and deposit interest rates stable, banks could provide longer-term credit without much interest rate risk. (Increased capital-market volatility alone would have sensitized bank cash flows for any given duration mismatch.) But the spread of cash management techniques caused banks' liabilities to reprice more frequently and this added volatility to the banks' cash flows.

Thus the combination of higher capital market volatility and the shortened duration of banks' core deposits motivated the banks to reduce the duration of their assets. This was done by indexing credits, typically to the banks' prime rate, the commercial paper rate or the London Interbank Offer Rate (LIBOR). This had two effects on the borrower clientele. Those with direct access to the capital markets, typically the better quality borrowers (see Diamond 1989; Rajan 1991), abandoned the banks while those remaining were forced to accept greater interest rate risk owing to the indexation of credits. Hence the banks suffered an adverse selection phenomenon, and remaining clients became poorer credit risks. (The latter effect also prompted an increase in asset-based lending, see Boot, Thakor and Udell 1991.)

Thus as among the proscriptions, monitoring and deposit subsidization, it was the last that disappeared owing to a decade-long inflation that elevated nominal interest rates, thereby increasing the opportunity cost of holding bank deposits subject to interest rate ceilings. To be sure, high and volatile market interest rates also spurred private-sector attacks on barriers to entry in banking. Mortgage banking, securitization, nonbank banks, nonbank credit cards, and clearing services marketed through mutual funds all developed during the period as the market shares of banks eroded. (See Keeley 1990 and Chan, Greenbaum and Thakor 1992 for, respectively, an empirical study of the deposit subsidies and a theoretical analysis.)

DIDMCA phased out deposit insurance rate ceilings, freeing the banks from destabilizing disintermediation. There was no point in having interest rate ceilings if deposits could not be retained. Garn-St Germain was similar to DIDMCA in many respects. The savings and loan industry, after traumatic losses in 1980-81 owing to a protracted yield-curve inversion, successfully argued that they could not survive financing fixed-rate home mortgages with duration-shortened and increasingly expensive deposits. Congress relented by expanding thrift empowerment in order to encourage adjustable rate mortgages along with a variety of other assets not previously authorized. This permitted the thrifts to hedge their interest rate risk, but it also permitted them to process greater amounts of credit risk. Again, as in the case of commercial banks, the loss of traditional core deposits motivated the move to greater credit risks. At the time of writing, a third movement to deregulation is winding its way through Congress. The US Treasury's deposit insurance reform proposal would permit banks to branch interstate and also to engage in investment banking, insurance and other activities. In addition, the time-honoured separation of banking and commerce is being challenged (see United States Treasury 1991).

As already mentioned, not all major legislation of the recent past is readily described as deregulatory. Thus the legislative developments relating to deposit-type financial

institutions leave us with a checkered impression. Those changes consonant with deregulation were in most instances adaptations to a decade-long inflation and to volatile asset markets. Clearly, the limits of deregulation in banking are defined by the moral hazards deriving from the safety-net provisions of government. Moreover, recent legislative and regulatory initiatives are as readily described as re-regulation as they are deregulation. Thus it is probably misguided to interpret the banking regulatory and legislative initiatives of the past decade in terms of a broader deregulatory trend, even though that may aptly describe the government's changing relationship with other industries.

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See also BANK HOLDING COMPANIES; BANKING DEREGULATION AND MONETARY POLICY; DEPOSIT INSURANCE; FINANCIAL DEREGULATION AND RE-REGULATION; FINANCIAL INNOVATION AND REGULATION IN THE UNITED STATES; FINANCIAL ZOO'S; MONITORING OF FINANCIAL INSTITUTIONS; REGULATION OF COMMERCIAL BANKING IN THE UNITED STATES.

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deregulation of European financial markets. In the period from the late 1970s, and throughout the 1980s, European financial markets have undergone significant changes which have seen numerous forms of regulation on the activities of financial institutions abolished. This process of deregulation will continue in the 1990s as the Single European Market in goods and services is established. Four major issues arise out of this. First, why and how has this process occurred? Second, what are the effects on financial firms and their customers – corporations and households? Third, what are the welfare effects of deregulation and what policy issues must European governments face? Fourth, what are the prospects for further deregulation the 1990s?

DEREGULATION: WHY AND HOW. Several causal factors can be identified behind the process of deregulation. Technological progress has so reduced the cost of marketing and trading financial claims that new products have been created at a rapid rate. The Cross Report (Bank for International Settlements 1986: 195) notes that 'Some observers have contended . . . that the costs of processing and transmitting information have declined by as much as 98 percent over the past twenty years'.

The report describes a range of new financial instruments (currency and interest rate swaps, interest rate options, new forward and futures contracts) which have extended the choices facing households and companies in raising funds and accumulating wealth. What these new possibilities have meant is that in the 1980s existing regulations designed to control a particular activity – lending to finance consumption or investment or to take advantage of yield differentials in different European financial centres – have become easier to avoid. The exposures from borrowing in a foreign currency, to avoid restrictions on domestic lending for example, can be more cheaply handled if technology allows hedging transactions to be undertaken at small cost. The increasing ability of financial and non-financial firms to fund activities in new ways (one instance of which is the process of securitization and the rise of off-balance-sheet finance) has presented monetary authorities throughout Europe with a dilemma. Either new and more wide-ranging forms of regulation would be needed to prevent existing controls (for example on bank lending) being sidestepped, thus rendering their impact merely cosmetic, or the strategy of using administrative restrictions as a tool of macroeconomic policy would have to be abandoned.

One factor has been central in explaining why European countries are following the second route – namely the increasing political support for the establishment of a Single European Market. The feasibility of national authorities preserving a regime of administrative controls aimed at enhancing their control over particular financial aggregates, most commonly measures of the money supply and credit aggregates, is simply not consistent with the goal of a free market in financial services. The experience of the UK government in the wake of the abolition of exchange controls in 1979 is instructive here. The freedom of UK financial and non-financial corporations to raise funds abroad, which is essential to the establishment of the single market, made limits on the rate of expansion of UK banks' liabilities largely ineffective as a means to control the rate of growth of