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This article examines automated trading systems for many of the world's principal organized exchanges for common stock, futures, and options contracts and for major over-the-counter markets for common stocks. The author also considers the problematic question of whether the increased trading promoted by automation generates volatility that has negative economic side effects.

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Globalization of Stock, Futures, and Options Markets

Peter A. Abken

Of the trendy buzzwords to emerge from the 1980s, "globalization" surely ranks high on the list of overused words in the business lexicon, but not without good reason. The word has become associated with financial markets' growing interconnections, facilitated largely by advances in communications and computer technology. Capital moves across national borders primarily as investment flows and secondarily as international trade financing. In dollar terms, global financial transactions today stand at a historically high multiple of world trade volume (John G. Heimann 1989). Record trade imbalances, however, have also contributed to financial interdependence, the most prominent example being the net current account surplus of Japan, leading to large overseas investments of the surplus, and the net deficit of the United States, necessitating borrowing from abroad.

Financial transactions' increasing volume and their decreasing costs have put strong competitive pressures on financial institutions to change the ways in which they intermediate credit and other financial flows. The financial industry has turned to automated securities trading, which is transforming and displacing the face-to-face and mouth-to-telephone methods of making financial transactions and strengthening the globalization or internationalization of securities markets in the process. Automation of trading encompasses a number of innovations that have improved the efficiency of making financial transactions. The technologies range from quotation and communications systems that facilitate traditional trading methods to so-called screen trading systems that supplant them. Their operation can be confined to one organized financial exchange, as the New York Stock Exchange's SuperDot system is, or can link many organized exchanges, as the Chicago Mercantile Exchange's Globex system does. For convenience in this discussion

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of the gradual automation of securities trading, these innovations will be referred to generically as automated trading systems.

This article examines currently running and proposed automated systems for many of the world's principal organized exchanges for common stock, futures, and option contracts. These exchanges are voluntary associations of members who come together to trade securities in auction markets, paying for the right to trade on an exchange—they buy a "seat" on the exchange. They generally trade for their own accounts and for outside customers. In contrast, participants in over-the-counter (OTC) markets, who are geographically dispersed, are brought together by telephone and computer lines. Over-the-counter trades go through dealers, who quote prices to buy and sell. The National Association of Securities Dealers (NASD) is one of several important OTC markets for common stocks in the United States that will be discussed below.

The article concludes with a section on market performance and regulation that takes a broader perspective on globalization. The perceived impact of globalization is closely tied to one's view of market efficiency. Integrating markets through electronic trading may reduce the magnitude of certain kinds of price shocks that propagate across markets because of a lack of information about the sources of such shocks. If markets are efficient, twenty-four-hour trading has the potential to reduce such market volatility. On the other hand, some market observers and participants, believing that markets are inefficient and excessively volatile, have proposed measures to curb speculative activity and the volatility they believe it engenders. The continuing reduction in transactions costs through technological innovation may only exacerbate market volatility. The final section considers this debate.

The Growth of International Securities Trading

Since the 1980s, securities markets of all kinds have been developing rapidly around the world. The volume of equity and bond market transactions has grown steadily, and both American purchases and sales of foreign securities and foreign purchases and sales of U.S. securities have been expanding, as Table 1 shows. A useful indicator of market activity, the growth in transactions volume coincided with increases in volatility of most financial markets, which has been attributed to causes ranging from deregulation of financial markets, fiscal and trade imbalances, and so forth, to out-and-out irrationality and a gambling-casino mentality among traders. Some economists have recommended taxing securities transactions to alleviate the apparently unnecessary volatility.[1] On the other hand, there are substantive reasons for expecting that transactions volume will increase as uncertainty about "fundamentals" rises. For one thing, trading securities is necessary to adjust portfolios optimally in response to changing expected securities' payoffs.[2] In addition, volatility is a prime factor motivating financial risk management, which has spawned a variety of derivative instrument markets. Options and futures markets, for example, deal in contracts that are valued on the basis of stock, bond, and other primary securities prices. A discussion of the growth of primary and derivative securities markets follows.

Equities. Table 1 shows international equity market transactions, comparing activity for selected countries and regions in 1980 with 1990. The sum of purchases and sales, referred to here as transactions volume, measures the total transactions in equity markets by foreigners in U.S. stock markets and by Americans in foreign stock markets.[3] The dollar volume of transactions in 1980 and in 1990 was greater for foreigners transacting in U.S. markets than for Americans dealing in foreign markets. However, the overall margin of foreign volume over domestic volume diminished from 321 percent in 1980 to 43 percent in 1990.[4] The absolute levels of dollar purchases and sales have increased markedly, well in excess of the dollar's inflation rate and twice as fast as the growth of transactions volume on domestic exchanges during this period (Joseph A. Grundfest 1990, 349).

The compound annual growth rate for foreign transactions volume in U.S. securities was 17 percent, while the growth rate for U.S. transactions volume in foreign securities was 30 percent. Japanese transactions in U.S. stock markets grew at a 41 percent compound annual rate, faster than those of all other countries or regions. Japan's percentage share of the international transactions volume has correspondingly risen from 2.5 percent to 16 percent over the decade. The United Kingdom accounts for nearly half the 1990 European volume, up substantially from 1980. Much of its transactions volume probably stems from Middle Eastern and other non-United Kingdom buying and selling of U.S. stocks that occurs through London's markets, which are the preeminent financial

Table 1
Transactions Volume in Stocks

	Foreign Transactions in U.S. Securities				U.S. Transactions in Foreign Securities			
	Purchases[a]	Sales[a]	Aggregate Purchases and Sales[a]	Percentage Share of Market	Purchases[a]	Sales[a]	Aggregate Purchases and Sales[a]	Percentage Share of Market
				1990				
France	5.82	7.01	12.83	3.55	6.05	5.90	11.95	4.72
Germany	5.90	6.27	12.17	3.37	6.69	7.45	14.14	5.58
United Kingdom	44.94	48.07	93.01	25.74	44.80	45.52	90.32	35.64
Total Europe	84.95	93.53	178.47	49.39	74.53	78.40	152.94	60.36
Japan	27.47	30.38	57.85	16.01	30.89	31.52	62.41	24.63
Canada	19.52	18.63	38.14	10.56	4.78	4.92	9.70	3.83
Total Worldwide	173.04	188.34	361.37	100.00	122.49	130.89	253.38	100.00
				1980				
France	2.73	2.24	4.97	6.60	0.47	0.67	1.14	6.36
Germany	2.75	2.56	5.30	7.05	0.24	0.22	0.46	2.57
United Kingdom	7.44	4.94	12.38	16.44	1.38	1.36	2.75	15.38
Total Europe	24.62	21.55	46.16	61.32	3.16	3.62	6.78	37.97
Japan	0.87	1.03	1.90,	2.52	0.93	1.77	2.70	15.10
Canada	6.35	5.48	11.83	15.71	3.02	3.66	6.68	37.43
Total Worldwide	40.32	34.96	75.28	100.00	7.89	9.97	17.85	100.00

Compound Annual Growth Rate, 1980-90
(percent)

	Foreign	U.S.
France	9.95	26.53
Germany	8.66	40.88
United Kingdom	22.35	41.81
Total Europe	14.48	36.56
Japan	40.73	36.92
Canada	12.42	3.80
Total Worldwide	16.98	30.38

[a] *In billions of U.S. dollars.*

Source: Derived by the Federal Reserve Bank of Atlanta from U.S. Department of the Treasury, *U.S. Treasury Bulletin* (Winter 1991), Table CM-V-5; (Winter 1981), Table CM-VI-10.

markets in Europe. From 1980 to 1990, both the United Kingdom and Japan were responsible for net inflows (cumulative excess of purchases over sales) into U.S. equity markets of about 17 billion dollars each.

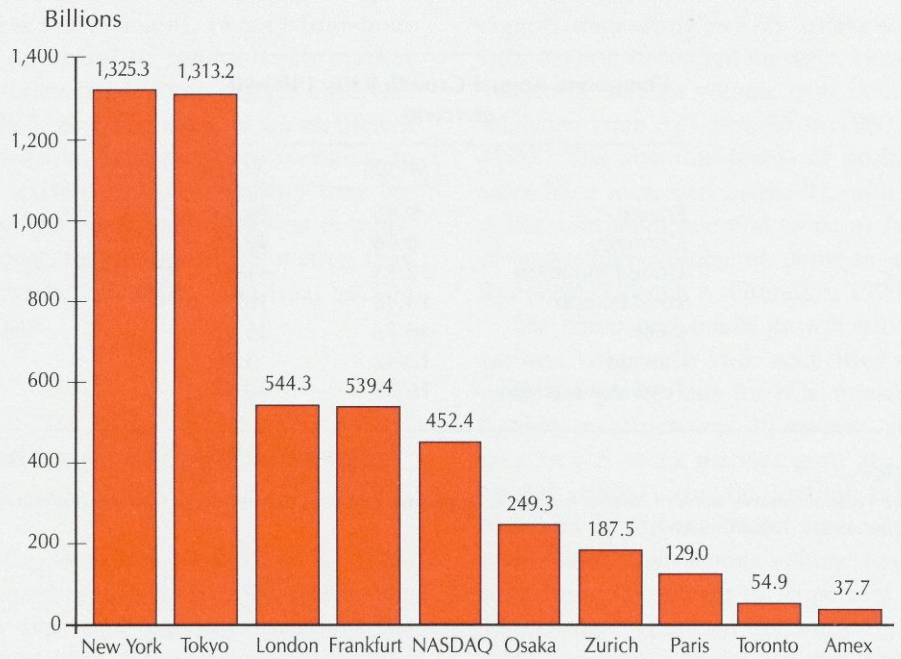
U.S. transactions volume in foreign equities also grew markedly during the decade, almost twice as fast as foreign volume. This growth rate reflects the low 1980 level of U.S. purchases and sales of foreign stocks relative to foreign participation in U.S. markets. The transactions volume shares in the United Kingdom and Japan realized significant increases from 1980 to 1990, as did the corresponding compound annual growth rates. Though the share of overall volume was still relatively low in 1990, the growth rate for German stock market participation by U.S. investors was about as rapid as the rates for the United Kingdom and Japan.

Chart 1 gives another view of world equity trading, showing the dollar trading volume in major world equity markets. Clearly, the New York and Tokyo markets surpass other world markets. Each of these will be discussed further in connection with automated trading systems.

Bonds. The dollar transactions volume for bonds was approximately ten times as large as that for stocks in 1990; they were roughly comparable a decade earlier. The domestic and foreign bonds included in Table 2 exclude short-term bonds with remaining times to maturity of less than one year. Although there is considerable trading in these short-term securities, much of that trading includes government intervention in foreign exchange markets, leading in turn to sizable purchases and sales of short-term government securities such as U.S. Treasury bills. Long-term securities better gauge the growth in private cross-border capital movements. The securities included in U.S. market transactions are marketable Treasury and federally sponsored agency bonds as well as corporate bonds.

Almost all bonds are traded over-the-counter, though some are traded on organized exchanges. Somewhat less than 10 percent of all U.S. corporate bonds are traded on organized exchanges (Jack Clark Francis 1991, 87). As seen in Table 2, most foreign transactions in U.S. bond markets are in government bonds. Although the bond market is primarily

Chart 1
Dollar Trading Volume in Major World Equity Markets in 1990[a]



[a] *Annual trading volume is the sum of each issue's daily share volume multiplied by its closing price and aggregated over all issues and trading days in the year.*
Source: NASDAQ (1991).

Table 2
Transactions Volume in Long-Term Bonds[a]

	Foreign Transactions in U.S. Securities				U.S. Transactions in Foreign Securities			
	Purchases[b]	Sales[b]	Aggregate Purchases and Sales[b]	Percentage Share of Market	Purchases[b]	Sales[b]	Aggregate Purchases and Sales[b]	Percentage Share of Market
				1990				
France	13.47	12.78	26.24	0.68	14.67	15.50	30.17	4.65
Germany	45.31	39.87	85.18	2.21	15.91	18.23	34.14	5.26
United Kingdom	564.62	555.67	1,120.29	29.08	113.95	114.16	228.10	35.12
Total Europe	804.32	773.85	1,578.17	40.97	185.46	189.78	375.25	57.77
Japan	731.08	744.96	1,476.04	38.32	36.71	43.50	80.21	12.35
Canada	66.81	69.46	136.26	3.54	54.48	56.91	111.39	17.15
Total Worldwide	1,945.19	1,906.80	3,851.99	100.00	313.58	335.93	649.50	100.00
				1980				
France	0.71	0.45	1.16	0.94	0.66	0.62	1.28	3.64
Germany	2.54	5.21	7.75	6.31	0.45	0.43	0.88	2.50
United Kingdom	22.36	20.15	42.51	34.60	6.07	6.16	12.23	34.97
Total Europe	30.29	30.37	60.65	49.37	9.09	9.59	18.68	53.39
Japan	2.59	4.21	6.81	5.54	1.35	2.65	4.00	11.44
Canada	0.96	2.39	3.35	2.73	2.20	2.42	4.63	13.22
Total Worldwide	66.61	56.25	122.86	100.00	17.07	17.92	34.98	100.00

Compound Annual Growth Rate, 1980-90
(percent)

	Foreign	U.S.
France	36.66	37.22
Germany	27.09	44.24
United Kingdom	38.70	33.99
Total Europe	38.53	34.99
Japan	71.24	34.96
Canada	44.86	37.46
Total Worldwide	41.13	33.93

[a] *Bonds having maturities of one year or greater.*

[b] *In billions of U.S. dollars.*

Source: Derived by the Federal Reserve Bank of Atlanta from U.S. Department of the Treasury, *U.S. Treasury Bulletin* (Winter 1991), Table CM-V-5; (Winter 1981), Table CM-VI-10.

over-the-counter (and thus not the point of interest in this discussion), the growing number of international transactions in bonds has stimulated derivative securities markets worldwide. Increasingly, derivative securities trade in one country on underlying securities originating in another. Several examples—including the futures contracts on U.S. Treasury bonds that trade on the Tokyo Stock Exchange (TSE) and the German government bond futures that trade at the London International Financial Futures Exchange (LIFFE, pronounced "life")—will be discussed below.

The picture of globalization that emerged from the earlier consideration of equities trading comes into even sharper relief when cross-border bond trading is examined. Aside from the greater magnitude of dollar transactions volume mentioned earlier, the most striking feature is the uniformly high growth rates across countries and regions from 1980 to 1990. Equity market growth rates, particularly for French and German involvement in U.S. markets, do not show this evenness. All but one compound annual growth rate exceeds 30 percent. The transactions volume of Japanese investors in U.S. markets increased 71 percent annually! Similar to the equity data, the Japanese share in transactions volume rose over the decade from 5.5 percent to 38 percent, while the European share declined from 49 percent to 41 percent. U.S. investor participation in foreign bond markets mirrored the increased foreign activity in U.S. markets.

Futures and Options. Exchange-traded futures contracts have a long and—to some—notorious history. Commodity futures originated at the Chicago Board of Trade (CBOT) in the 1860s (see Chicago Board of Trade 1985, 1-4). Not until 1972 were the first financial futures introduced at the Chicago Mercantile Exchange (CME, or the "Merc"). The development of these currency futures reflected the anticipated hedging needs stemming from the decision allowing the dollar and other major currencies to float against one another rather than to be maintained at fixed parities. At the time agricultural contracts accounted for 97 percent of the CME's volume (William J. Brodsky 1990). Many new financial futures and options soon followed. The CBOT established the Chicago Board Options Exchange (CBOE) in 1973 to trade options on listed stocks; they created the Ginnie Mae futures contract in 1975.[5] The CME countered with its Treasury bill futures contract in 1976; the CBOT, with its Treasury bond futures contract in 1977. The latter is the most heavily traded futures contract in the world today.

In the early 1980s, these exchanges developed futures and options contracts on equity indexes, such as the Standard and Poor's (S&P) 500 futures (CME) and S&P 100 options contracts (CBOE). At the time of the market crash of October 1987, the S&P 500 futures achieved a notoriety in the minds of many investors and stock exchange members that lingers to this day. While a number of factors had contributed to the crash, the use of index futures in conjunction with so-called program trading, which uses the automated order-routing system at the New York Stock Exchange, was widely blamed. (This subject will be considered further in a later section.) In any case, many exchanges, including the New York Stock Exchange, greatly expanded capacity through automation to handle future surges in volume.

While volume in other futures contracts has remained generally flat during the 1980s, financial futures volume has grown steadily (see Robert W. Kolb 1991, 23). For example, by 1989 financial futures volume made up 91 percent of the CME's volume, with only the remaining 9 percent accounted for by commodity futures. At all U.S. futures exchanges in 1972, the total annual volume of futures trading measured by the number of contracts traded was 18.3 million. In 1990 this volume had risen to 276.5 million contracts, a compound annual growth rate of 16.3 percent. Though the U.S. exchanges are the world's most established, foreign futures markets are rapidly making inroads in the share of trading volume. For instance, since the opening of the London International Financial Futures Exchange in 1982, thirty options and futures exchanges have opened outside the United States (Brodsky 1991).

The U.S. exchanges are still dominant in the world, but, as Table 3 shows, foreign options and futures markets that emerged in the 1980s are also well represented in the top-twenty ranks. In particular, the Osaka Securities Exchange's Nikkei 225 index futures contract and Tokyo International Financial Futures Exchange's Euroyen contract surged in volume during 1990.

Automation of Equity Markets

Individual stock exchanges everywhere have adopted some degree of automation, reflecting the exigencies of competitive pressures from domestic as well as foreign exchanges. Derivative securities markets have aggressively employed the new technologies to

Table 3
Most Heavily Traded Futures and Options Contracts

Rank				Contract Volume	
1990	1989	Contract[a]	Exchanges[b]	1990	1989
1	1	T-bond (f)	CBOT	75,499,000	70,303,000
2	2	S&P 100 (o)	CBOE	58,845,000	58,371,000
3	3	Eurodollar (f)	CME	34,694,000	40,818,000
4	4	T-bond (o)	CBOT	27,315,000	20,784,000
5	5	Crude oil (f)	Nymex	23,687,000	20,535,000
6	6	Japanese government bond (f)	TSE	16,307,000	18,942,000
7	7	Notionnel government bond (f)	MATIF	15,996,000	15,005,000
8	30	Euroyen (f)	TIFFE	14,414,000	4,495,000
9	25	Nikkei 225 (f)	Osaka	13,589,000	5,443,000
10	8	S&P 500 (f)	CME	12,139,000	10,560,000
11	18	S&P 500 (o)	CBOE	12,089,000	6,274,000
12	11	Corn (f)	CBOT	11,423,000	9,271,000
13	10	Soybeans (f)	CBOT	10,302,000	9,635,000
14	9	Gold (f)	Comex	9,730,000	9,999,000
15	26	German bond (f)	LIFFE	9,582,000	5,330,000
16	17	Nikkei 225 (o)	Osaka	9,186,000	6,610,000
17	12	Deutsche Mark (f)	CME	9,169,000	8,186,000
18	16	Short Sterling (f)	LIFFE	8,355,000	7,131,000
19	13	Yen (f)	CME	7,437,000	7,824,000
20	15	Notionnel government bond (o)	MATIF	7,410,000	7,177,000

[a] *(f) = futures contract; (o) = options contract.*
[b] *Nymex is the New York Mercantile Exchange; Comex is the Commodities Exchange (New York); other exchanges are described in the text.*
Source: *Futures and Options World: 1991 Annual Worldwide Directory and Review* (Surrey, England: Metal Bulletin Journals Ltd., 1991), 9. Data used by permission of the publisher.

link exchanges. The discussion below considers the movement toward automated trading in equity markets and derivative markets.

New York Stock Exchange. U.S. equity markets are the largest and most liquid in the world. The biggest domestic exchange, the New York Stock Exchange (NYSE), is facing mounting competitive pressures from regional domestic exchanges and from foreign stock exchanges. The heart of the New York Stock Exchange is its specialists, charged by the exchange to maintain "fair and orderly" markets in the individual listed stocks assigned to them. The New York Stock Exchange is organized as a continuous two-sided auction market, with the specialist acting as auctioneer for incoming orders to buy or sell a particular stock. The specialist conducts an auction in the sense that he or she continually adjusts a stock's price to balance supply and demand throughout the trading day. She at times may also need to take the buy or sell side to keep prices from fluctuating too greatly. Overall about 10 percent of share purchases and 10 percent of sales on the NYSE result in specialists' staking their own capital in the trade (New York Stock Exchange 1991a, 17). This role is part of their obligation to the exchange in performing the specialist's function.

Also, the specialist has access to the computerized limit-order book, which displays orders to buy or sell if the market price reaches a specified level. Because of their knowledge, specialists have an informational advantage over traders off the exchange floor.[6] Although they may profit from their inventory position, exchange rules constrain trading for their own accounts. On every trade the specialist also receives the difference between the sale price (the ask) and the purchase price (the bid). Other market participants are willing to

incur these costs in order to gain the liquidity specialists provide. However, the specialist's role is being questioned with increasing frequency: How important is it? Is the provision of liquidity worth the price?

Since the rise of institutional trading in the 1960s, the so-called upstairs market has developed, partly insulating the specialists from having to take positions in large blocks of 10,000 or more shares. Such blocks sent directly to the specialists may cause too much price fluctuation and be too risky for them to handle. Instead, block positioners match buyers and sellers and may also take positions in blocks themselves. Blocks are then sent to the specialist post for execution. Because of economies of scale, low commission rates are charged for block transactions. During the latter half of the 1980s, about half the NYSE's volume was accounted for by institutional block trading (NASDAQ 1991, 39). Preferring new, automated mechanisms that are even cheaper, institutional investors are beginning to dispense altogether with using the exchange.

More efficient handling of trading volume led to the development of the NYSE's automated routing system in 1976 called the Super Designated Order Turnaround System (SuperDot). SuperDot routes market orders of less than 2,099 shares to the specialist (or to a floor broker) for rapid execution, usually in less than a minute.[7] The system can also route large orders to the specialist. SuperDot is frequently used by program traders dealing in whole portfolios of stocks; they route lists of stocks through the system to appropriate specialists. The system handles market orders of as many as 30,099 shares and limit orders of as many as 99,999 shares of individual stocks, although the specialists are not obligated to execute these orders as rapidly as the New York Stock Exchange requires for smaller ones. Odd-lot orders of less than 100 shares are executed automatically by SuperDot at the prevailing price quote. About 75 percent of daily NYSE orders are processed through the system (New York Stock Exchange 1991a, 21).

Regionals. Regional exchanges have developed their own versions of automated order-routing and execution systems for small trades. The Midwest Stock Exchange (MSE), Pacific Stock Exchange (PSE), Philadelphia Stock Exchange (PHLX), and Boston Stock Exchange (BSE) use systems named MAX, SCOREX, PACE, and BEACON, respectively.[8] The Cincinnati Stock Exchange (CSE) is in fact an over-the-counter market with competing market makers. All trades on the CSE pass through the National Securities Trading System (NSTS), which is an order-matching system akin to the NASDAQ system to be discussed shortly (U.S. Securities and Exchange Commission 1991, 23-26).

The Securities Act amendments of 1975 mandated the Securities and Exchange Commission (SEC) to establish a national market system with the objectives of increasing competition among market makers at different exchanges and strengthening links among different exchanges (see Francis 1991, 132-33). One major change was that negotiated commissions replaced fixed commissions on securities sales and purchases. Another consequence of the act was the establishment of the "Consolidated Tape," which continuously lists the trades at seven stock exchanges and two over-the-counter markets (NASD and Instinet). Since 1978 the regional exchanges, the American Stock Exchange (Amex), NASD, and NYSE have been linked by the Intermarket Trading System (ITS), which enables a broker or specialist at one exchange to send orders to buy or sell at another exchange showing a better price.

Most of the stocks traded via the ITS communication system are NYSE-listed stocks, and a much smaller number traded are Amex-listed and regionally listed stocks. At the broker's or specialist's discretion, orders are routed to the exchange showing the best bid or offer. Once a small order is received, the BEACON, MAX, and SCOREX systems "expose" it to the specialist for fifteen seconds during which he or she may better the bid or offer price; otherwise, the order is automatically executed at the specialist's quoted bid or offer. (PACE automatically executes all small orders.) The Amex has an order-routing system called Post Execution Reporting (PER) that is very similar to the NYSE's SuperDot. Amex members can send orders for as many as 2,000 shares directly to the specialist using the system and receive an execution report for the trades (U.S. Congress 1990b, 49-50).

The regional exchanges and Amex have only a small slice of the trading-volume pie. Table 4 shows where they stand in relation to the NYSE and NASD, viewed both in terms of share volume and in terms of dollar volumes.

NASDAQ. National Association of Securities Dealers runs a telecommunications network called NASDAQ, for NASD Automated Quotations. In this over-the-counter market NASD dealers compete with one another in making bids and offers on stocks.[9] These OTC securities tend to be smaller capitalization stocks that do not meet exchange listing requirements; only a subset of them are also listed on organized exchanges.[10] To buy or sell a stock, an investor

Table 4
U.S. Equity Markets: 1990 Share and Dollar Volumes

	Share Volume		Dollar Volume	
	Millions	Percent	Millions	Percent
NASDAQ	33,380	39.2	$ 452,430	21.8
NASDAQ/OTC Trading in Listed Securities	2,589	3.0	86,494	4.2
Amex	3,329	3.9	37,715	1.8
Regionals (BSE, CSE, MSE, PSE, and PHLX)	6,208	7.3	178,139	8.5
NYSE	39,665	46.6	1,325,332	63.7
Totals	**85,171**	**100.0**	**$2,080,110**	**100.0**

Source: NASDAQ (1991).

calls a dealer, who checks NASDAQ to find the best quotation from competing dealers in a particular stock at the lowest cost (that is, lowest bid-ask spread and commission). Unlike stock exchange specialists, dealers are not obligated to provide liquidity through their own position-taking. The OTC market instead relies on interdealer competition.

About 13 percent of OTC transactions are handled by NASD's Small Order Execution System (SOES), in operation since 1985. Public buy or sell orders of as many as 1,000 shares go through SOES to the dealer offering the best price quote. However, if there are currently better price quotes on NASDAQ outside SOES, that dealer is required to fill the order at the better price.[11] In 1990 SOES added the capacity to automatically execute matching limit orders entered into the system.

Another NASDAQ system is SelectNet, which allows NASDAQ members to send buy or sell securities orders to other system members' terminals. SelectNet enables market makers to accept and execute orders partially or fully as well as to conduct price and quantity negotiations. System users are therefore not anonymous. NASDAQ securities orders must be for more than 1,000 shares.[12]

NASDAQ leads other domestic exchanges, most notably the New York Stock Exchange, in the indirect trading of foreign equities. This indirect trading is through American Depository Receipts (ADRs). Foreign corporations have American commercial or investment banks buy their equity shares and place them in a trust account, against which ADR certificates are issued. These certificates are negotiable and can be traded on exchanges and through NASDAQ. Investors find ADRs convenient because their purchase and sale and the distribution of dividend payments are entirely in dollars, not foreign currency. Foreign-currency denominated cash dividends are converted into dollars by the trustee, usually a commercial bank, and are passed on to the American Depository Receipts holders. The foreign corporation benefits by not having to comply with the SEC's disclosure requirements and other regulations enforced for domestic corporations (see Francis 1991, 62, 806-7).

In 1990 NASDAQ reached new records in ADR trading with a trading volume of 2.2 billion shares of eighty-seven ADR issues. In comparison, the NYSE had a 1.4 billion share volume for sixty-two ADR issues. NASDAQ dollar volume was 21 billion, while the dollar volume in foreign securities directly listed on NASDAQ was 7 billion.[13] NASDAQ is expanding in 1991 to offer an international quotation network based in the United Kingdom called NASDAQ International.

Instinet. NASDAQ dealers earn their livelihood from the difference in price between what they will pay for stock and their selling price, the bid-ask spread.

That spread has come under pressure to narrow because of an electronic order-execution system called Instinet, owned by Reuters Holdings PLC. Instinet is a screen trading system in that it enables subscribers to trade anonymously. These participants include not only OTC broker-dealers but also institutional investors. For example, NASDAQ dealers can trade with other NASDAQ dealers on Instinet to adjust their inventory of stocks. These trades can be accomplished within the bid-ask spread quoted on NASDAQ so that NASDAQ quotes would be unaffected. Institutional investors have also been trading actively on Instinet at much lower spreads than through NASDAQ dealers or exchange specialists. To stay competitive, dealers have had to cut their spreads.[14]

Most Instinet trades involve OTC and listed U.S. stocks, but an increasing number are in British, French, German, and other European stocks as well. The system, on-line an average of fourteen hours per day, can remain operational almost around-the-clock during periods of heavy trading.[15]

Anonymity is important to traders because a trader's identity can reveal how often and how much he or she is buying or selling, information that could move prices against the trader. For example, traders usually avoid selling large orders at once because doing so may prompt a stock's price to be bid down rapidly in the process of making the trade, on the assumption that some bad news is behind the sale. In that scenario, known as adverse selection risk, large orders will be put on the market in smaller blocks. Instinet allows traders to poll each other almost instantaneously on a prospective trade. They can send anonymous messages over the system to particular traders to negotiate quantity or price. They can see all of the bids and offers on particular stocks at a given time on the Instinet "book."

Madoff Investment Securities. This firm has set itself up in direct competition with NYSE specialists. Madoff makes a market in 350 of the S&P 500 stocks by attracting mainly retail trades from brokers, paying them a penny per share for orders. These orders are executed at prices that match the best quoted on any exchange, as reported through ITS. Madoff operates through the Cincinnati Stock Exchange's National Securities Trading System, which is essentially an over-the-counter market. Because of low overhead costs, his commission costs are much lower than for trades carried out on an exchange floor. According to a recent estimate, this firm alone generates 2 percent of the daily trading volume in NYSE listed stocks (Barbara Howard 1991, 16; William E. Sheeline 1990, 122).

Crossing Networks. To reduce transactions costs, many institutional investors have turned to so-called crossing networks, such as Instinet's The Crossing Network and Posit (Portfolio System for Institutional Trading) of Jefferies & Company, a registered broker-dealer. Many institutional investors deal in indexed equity portfolios—for example, a portfolio mimicking the S&P 500 index. These "passive" portfolio managers are not concerned about the precise timing of trade executions for individual stocks making up an index. For institutional investors seeking to trade in whole portfolios of stocks, crossing networks offer a low-cost alternative to transactions on organized stock exchanges.

The Crossing Network allows whole portfolios of stock to be bought or sold at primary markets' closing prices (for example, NYSE closing prices) and the mean of the bid-ask OTC prices. Because the trades are based on the closing price, and hence passive, there is no "market impact" on the trades themselves—that is, large buy and sell orders are matched or crossed at that price, unaffected by the unfavorable price movement such a trade might ordinarily produce. The price does not adjust to balance supply and demand, so some orders will go unmatched in a single after-hours session.

Posit is a crossing network that operates during trading hours as well as off-hours. Portfolio trades can be executed at the primary markets' opening, at prespecified times of day after the opening, or at closing prices. This system has many options that users can select; their choices affect the cost of their trades. For example, trades not matched through Posit's computer can be canceled, held for matching at a later time, sent to the primary markets for execution, or "price-guaranteed" by Jefferies (that is, Jefferies takes the other side of the trade). These alternatives entail different commission costs. The amount of information about a prospective trade, like the size of the order or identity of the investor, may be revealed or hidden from other system users (U.S. Securities and Exchange Commission 1991, 83-86).

Overseas Trading. The NYSE is also affected by the movement of institutional program trades overseas, particularly to London's over-the-counter market. A common transaction involves a stock-index futures purchase or sale on a U.S. futures exchange with a subsequent exchange-for-physicals (EFP) transaction to unwind the futures position.[16] For example, a portfolio manager who wishes to buy an S&P 500-

indexed portfolio could buy the underlying stocks on the New York Stock Exchange or alternatively buy S&P 500 contracts on the Chicago Mercantile Exchange. In the latter case, the long futures position could then be offset through an EFP over the counter in London by finding a trader (or traders) short the S&P 500 futures who holds the underlying stock portfolio. The cash prices and futures price for the EFP transaction would be determined by negotiation but typically reflect the underlying stocks' closing prices on the New York Stock Exchange, Amex, and OTC markets as well as the futures on the transaction date. The parties have traded stocks outside of the NYSE and have closed out their futures positions off the Chicago Mercantile Exchange exchange floor, saving commissions and market impact costs.[17] Similar over-the-counter program transactions also occur that do not involve index futures.

About 10 to 15 million NYSE shares currently trade after-hours in London every day (Kevin G. Salwen and Craig Torres 1991, C1). This exodus from the exchange floor was spurred in part by a postcrash NYSE rule requiring immediate display of program trades' price and volume.

SPAworks. A new system operated by R. Steven Wunsch takes after-hours trading a step further. He has designed a system, SPAworks, to trade stocks in an after-hours call market, which involves a single-price auction. This institutional arrangement was actually prevalent in the nineteenth century before the advent of continuous auction markets, and many relatively illiquid international exchanges still rely on it (see below). SPAworks has been operational since April 1991.

The system works by allowing buy and sell orders to accumulate after the NYSE closes at 4:00 P.M. (U.S. Securities and Exchange Commission 1991, 73-77; Wunsch 1991). At a predetermined time before the next day's opening, a single computerized auction of each individual stock would be held, whereby trades would be consummated at the price resulting in the largest volume of trade. Participants entering bids above or below the auction price are able to execute their trades at the auction price. Other orders go unmatched. This system saves the cost of paying for the immediate liquidity provided on the exchange floor.

Off-Hours Trading. In response to the inroads these outside trading systems have made, the NYSE announced in May 1991 that it would institute two after-hours sessions. "Crossing Session I" runs from 4:15 until 5:00 P.M. and allows investors to buy and sell at the 4:00 P.M. closing price. Once submitted by NYSE members through SuperDot, single-sided orders are matched against others based on the times they were submitted. Matched single-sided orders and paired (prearranged) orders are then executed through SuperDot at 5:00 P.M. "Crossing Session II," which operates from 4:00 to 5:15 P.M., specifically accommodates program traders. After the close New York Stock Exchange member firms place paired orders for programs that contain at least fifteen NYSE-listed stocks having a one-million-dollar market value or more. These coupled orders are executed as soon as they are received by the system. To make the new sessions attractive to program traders, the NYSE has granted a nine-month exemption from being required to report price and volume information for individual program trades. Only the aggregate volume and dollar value of program trades are disseminated at 5:15 P.M. Single-sided and coupled order volume are each reported separately for Crossing Session I, beginning at 5:00 P.M. (Salwen and Torres 1991, C1; U.S. Securities and Exchange Commission 1991, 36-39; New York Stock Exchange 1991b, 1-5).

Physical marketplaces (the trading floors) are becoming obsolete, while "virtual" marketplaces—networks of computers and computer terminals—are emerging as the "site" for transactions.

Foreign Equity Markets. Many foreign stock markets are considerably less liquid than U.S. stock markets, and their institutional arrangements reflect this fact. The Austrian and Norwegian stock markets simply hold a single daily call auction. Others use a mixed system of call auctions at some times of day and continuous trading at other times. Mixed auctions are prevalent in Belgium, Denmark, France, Italy, Spain, Sweden, and Switzerland.[18] The Australian, British, Canadian, French, and Japanese markets have automated trading systems. Four of the major automated exchanges are relatively well developed.

The Toronto Stock Exchange uses the Computer Assisted Trading System (CATS), which functions as

an electronic auction for less actively traded stocks and is being updated to handle more active stocks. Broker-dealers using the system can choose to have their trades executed by either a specialist or computer. CATS currently handles about 75 percent of trades on the exchange, a small volume compared with that of major American exchanges (Hansell 1989, 93; U.S. Congress 1990b, 63; Howard 1991, 15). CATS also displays the best five buy and sell limit orders along with the name of the broker making the order (Hansell 1989, 93; Howard 1991, 15).

The Paris Bourse (stock exchange) relies on a licensed version of CATS, which is also under consideration for use at exchanges in Madrid, Brussels, and Sao Paulo (Hansell 1989, 93, 98; Ian Domowitz 1990, 170). The system used by the French exchange is named CAC, for Cotation Assistée Continu. This exchange, overshadowed by the London market, is much less liquid. In fact, exchange member firms hold a single daily auction in stocks complemented by forward trading in listed stocks using both continuous trading and call auctions in forward contracts (Richard Roll 1988, 29).

The London International Stock Exchange is a dealer market very similar in operation to NASDAQ. The ISE is the most active world market in foreign (non-United Kingdom) stock trading, which makes up slightly more than half of the exchange's volume. The average daily foreign issue volume was 1.3 billion pounds sterling per day in 1990. ISE members have benefited from the migration of some U.S. program trading. The ISE's analog to the NASDAQ quote-display system is the Stock Exchange Automated Quotation System (SEAQ); small orders of fewer than 5,000 shares are automatically executed on the Stock Automated Exchange Facility (SAEF).

The Tokyo Stock Exchange (TSE) has a system similar to Toronto's CATS. Its Computer Assisted Order Routing and Execution System (CORES) now handles all but 150 of the exchange's most actively traded issues; however, the TSE is moving toward a fully automated system. Instead of specialists, the exchange has a group of overseers, called *saitori*, who use computer screens to monitor the trades arranged by the computer and by floor traders and to approve the prices. The saitori can also allow CORES to generate trades automatically within a specified price range. In addition, they act as human circuit breakers on the exchange floor when trading becomes too volatile; they have the authority to suspend trading briefly (Hansell 1989, 97).

Futures and Options Markets

Like prices of exchange-traded stocks, futures prices are established through an auction system, but one with no counterpart to the single individual, the specialist, making a market in a stock. Instead, futures prices are determined by an auction known as the open-outcry system. Exchange members—floor traders—congregate at designated trading pits and shout bids and offers at each other or use hand signals to indicate trading intentions. Exchange officials record the price and amount of each transaction. Effective in providing liquidity, this system is also subject to error and even abuse.[19]

As discussed above, international competition is forcing efficiency-enhancing automation. Many new overseas exchanges are fully or partially automated and trade many of the same contracts as American exchanges, although their volume levels are usually much lower. Systems emerging on futures and options markets harbinger the internationalization soon to come. In particular, the Chicago Mercantile Exchange's Globex (Global Exchange) system is being designed to handle volumes that exceed current open-outcry volume levels at peak trading times.

Globex. Globex, expected to be operable in early 1992, will automate *and link* participating exchanges. To date, the Chicago Board of Trade and Marché à Terme des Instruments Financiers (MATIF), the French financial futures market, are members of Globex. Other exchanges in the Far East are considering joining Globex, including Australia's Sydney Futures Exchange (SFE) and possibly Japan's Osaka Securities Exchange, or OSE (Ginger Szala and Amy Rosenbaum 1990, 44). Globex will operate after-hours, beginning at 6 P.M. Chicago time, when Japanese markets open.

The genesis of Globex lay in efforts to extend the futures trading day. In 1984 the CME established a relationship with the newly founded Singapore International Monetary Exchange (SIMEX), a relationship based mainly on mutual advantages gained from trading compatible Eurodollar and foreign currency futures contracts. The two exchanges set up a mutual offset permitting contracts opened on one exchange to be closed on the other and vice versa. This link effectively lengthened the trading day almost to twenty-four hours, helping the Chicago exchange to secure a foothold in booming East Asian financial markets. SIMEX enjoyed the benefits of the additional liquidity generated by the infusion of Chicago-

based trades. Also catering to growing interest from abroad, the Merc's Chicago rival, the Chicago Board of Trade, instituted nighttime trading of its Treasury bond futures contracts in April 1987. However, this insomniac trading, as one observer termed it, and the CME's mutual offset arrangement were regarded as stopgap measures ("Futures Markets" 1988). More efficient and less error-prone electronic trading seems inevitable; the Chicago Board of Trade joined with the Chicago Mercantile Exchange as a Globex partner in 1990. Up to that point the CBOT had been developing its own after-hours system, called Aurora, that would electronically emulate open-outcry trading. (See the discussion below of LIFFE's Automated Pit Trading for a similar system).

The mechanical heart of Globex is a network of computer screens. The system is a joint venture of the "partner exchanges" (CME, CBOT, and MATIF) and Reuters Holdings PLC, which already has a large presence in over-the-counter spot foreign exchange markets. The Reuters network of computer terminals in banks and brokerage firms numbers about 180,000 worldwide. The CME emphasizes that trading via Globex is an alternate method of placing an order on its exchange or on partner exchanges (Brodsky 1990, 621). Because the exchanges do not view Globex as a new kind of futures exchange, they argue that regulatory approval of the system (particularly in Japan) should be straightforward.

Globex automatically matches and executes orders entered into the system. The system first checks the credit standing of the member firm initiating a transaction and then matches orders based on the time an order was submitted and its price. Unlike standard open-outcry trading, Globex does not allow for orders to be executed at the prevailing market price (that is, there can be no market orders); all orders must be good-until-canceled limit orders (the order stays on the book until it is executed or canceled).[20]

Trades are confirmed at participants' screens, prices and quantities are reported through the system, trades are cleared, and buyers' and sellers' accounts are adjusted. Traders on Globex deal anonymously with one another, an important consideration for most participants, as mentioned earlier. However, Globex, like other automated systems, does produce a so-called electronic audit trail, which is regarded as an improvement over the open-outcry system's less accurate recording procedures. Electronic monitoring is expected to give traders more confidence in the trading process and makes the regulator's job easier.

Although trading has not yet begun on Globex, its relative performance compared with the open-outcry auction has been assessed by Domowitz (1991). Using simulated trading experiments, he finds that Globex is the more efficient trading mechanism according to a number of measures. Globex tends to result in lower price volatility and greater market liquidity, and the differences become more pronounced as the size of the market increases.

In contrast, Merton H. Miller (1990) argues that screen trading systems, especially of the order-matching type like Globex, put traders (market makers) at a disadvantage because they cannot observe the order flow on a screen as they can from the trading pit. Traders with more current information can take advantage of previously posted traders' price quotes. For this reason Miller does not believe that electronic systems will ever attract sufficient competing market-maker participation to match the liquidity of the most active trading pits. To date, most screen trading systems have been used at low-volume exchanges or for low-volume contracts. Validation of Miller's or Domowitz's predictions will have to await actual trading through Globex as well as more extensive deployment of other screen trading systems.

Domestic Options Markets. A number of automated trading systems have been introduced to facilitate options trading. The most significant of these is the Chicago Board Options Exchange's Retail Automatic Execution System (RAES), which has been in operation since 1985. The system now handles both index options, including the heavily traded S&P 100 index option, and all CBOE equity options (on individual stocks). About 3.5 percent of contract volume is currently executed through RAES (U.S. Securities and Exchange Commission 1991, 19). The Amex uses a system called AUTO-EX for market and limit orders of as many as twenty equity contracts. The system is designed for use of Amex member firms and exchange specialists. In addition, the Amex has a mutual-offset link with the European Options Exchange in Amsterdam for the stock index options contract on the Amex's Major Market Index, or MMI (U.S. Congress 1990b, 96). The Pacific Stock Exchange has a similar system for equity options called POETS (Pacific Options Exchange Trading System). The Philadelphia Stock Exchange uses AUTOM (Automated Options Market System) for equity options. The NYSE's SuperDot also routes orders for trades on its equity and equity-index options.

Delta Government Securities, a screen-based system for trading options on U.S. Treasury bills, notes,

and bonds, is operated jointly by RMJ Securities and RMJ Options, which are a registered clearing agency and registered broker-dealer, respectively. Delta always stands as the intermediary between buyer and seller using the system. It effectively operates like an electronic options exchange, issuing any options traded through the system (U.S. Securities and Exchange Commission 1991, 89).

Foreign Derivatives Markets. There is stiff competition among European futures exchanges. Marché à Terme des Instruments Financiers vies with the London International Financial Futures Exchange primarily over the three-month Euro-deutsche mark futures (a futures on the three-month rate on interbank deutsche mark-denominated deposits). MATIF, Europe's most active futures exchange, joined Globex in November 1989 and plans to list its government bond future (the Notionnel) and its short-term interest-rate future (on PIBOR—Paris Interbank Offered Rate) on the system. Part of the motivation behind MATIF's Globex membership was to boost foreign participation on the exchange and lessen London's advantage of having the offices of almost 600 international banks and brokerage firms (Janet Lewis 1990, 130).

The fact that LIFFE also offers a futures contract on the long-term German government bond, the Bund, in part spurred the creation of the first German futures market, the Deutsche Terminbörse (DTB) in 1990. A consortium of fifty-three institutions, mostly large banks, belong to the DTB. The exchange offers futures contracts to compete with LIFFE's as well as stock options on German firms (Lewis 1990, 130).

The Frankfurt-based exchange is organized as a computer network that matches and processes all trades electronically. The automated trading system employed is based on a similar system used by the Swiss Options and Financial Futures Exchange (SOFFEX), also an entirely automated order-matching system that allows member firms to be market makers, quoting bids and offers. Trades are entered anonymously, so large trades can be anonymously negotiated over the system (Hansell 1989, 93). Five fully automated futures and options exchanges now operate worldwide, as seen in Table 5.

LIFFE has a partially automated system, called Automated Pit Trading (APT), that mimics actual pit-trading (London International Financial Futures Exchange 1991). The after-hours system operates from 4:30 to 6:00 P.M. local time, with access restricted to LIFFE members. APT is not driven by quote-making dealers but by traders who post bids and offers for specified quantities. By the touch of a computer key, any trader can instantaneously accept bids and offers that appear on the screen. This system is the analog of the open-outcry method, in which bids and offers of floor traders are valid for "as long as the breath is warm." Because the futures exchanges deal in a limited set of futures contracts, liquidity is concentrated and rapid interactions between traders can be emulated on a screen. LIFFE expanded the system in 1990 to include a central limit-order book that enables purchases and sales of futures contracts if the market price reaches the posted limit price.

In Japan financial futures were banned until 1985. Regulators and legislators have gradually been deregulating and expanding their financial and derivative markets, and the Japanese have become very active in developing futures exchanges. Japanese firms are eager to use the new contracts. They may now deal directly in securities on foreign exchanges, and foreign brokerage firms may be members of Japanese futures exchanges (see Szala and Rosenbaum 1990, 42).

The first Japanese contracts were ten- and twenty-year yen bond futures, introduced on the Tokyo Stock Exchange in 1985. As of December 1989 the TSE offered U.S. Treasury bond futures equivalent to those of the CBOT. The Japanese Ministry of Finance, however, requires higher margins to be posted against Tokyo Stock Exchange futures contracts than does the Chicago Board of Trade for comparable positions. The higher margin levels apply even for Japanese firms taking positions in CBOT contracts, so these firms have little incentive to look abroad (Szala and Rosenbaum 1990, 42).

The TSE bond contracts, now the sixth most heavily traded future in the world (see Table 3), can all be traded through CORES. The TSE stock-index future on TOPIX (Tokyo Stock Price Index) is fully automated on CORES. Fully automated trading of a three-month Euroyen contract is conducted on the new Tokyo International Financial Futures Exchange (TIFFE), which competes against SIMEX in Singapore. SIMEX is still dominant in a number of contracts, including yen-U.S. dollar futures and Eurodollar futures, but it lags in Euroyen. Unlike TIFFE, SIMEX is a traditional open-outcry exchange.

The Nikkei 225 futures, the highest-volume Japanese index futures contract, trades at the Osaka Securities Exchange (OSE). The CME has acquired the rights to offer a Nikkei 225 contract on its exchange, though it would prefer to link up with the OSE through Globex (Szala and Rosenbaum 1990,

Table 5
Automated Trading Systems

System Operator	System
Equities	
American Stock Exchange	Post Execution Reporting
Amsterdam Stock Exchange	System based on MSE's MAX
Australian Association of Stock Exchanges	Stock Exchange Automated Trading (SEAT)
Boston Stock Exchange	BSE Automated Communication and Order Routing Network (BEACON)
Cincinnati Stock Exchange	National Securities Trading System (NSTS)
Instinet Corporation	Instinet The Crossing Network
Jefferies & Company, Inc.	Portfolio System for Institutional Trading (Posit)
London International Stock Exchange	Stock Automated Exchange Facility (SAEF)
Midwest Stock Exchange	Midwest Automated Execution (MAX)
National Association of Securities Dealers	Small Order Execution Service (SOES) SelectNet Private Offerings, Resales, and Trading through Automated Linkages (PORTAL)
New York Stock Exchange	Designated Order Turnaround system (SuperDot) Crossing Sessions I and II
Pacific Stock Exchange	Securities Communication Order Routing and Execution System (SCOREX)
Paris Bourse	Cotation Assistée en Continu (CAC)
Philadelphia Stock Exchange	Philadelphia Automated Communication and Execution System (PACE)
Tokyo Stock Exchange	Computer Assisted Order Routing and Execution System (CORES)
Toronto Stock Exchange	Computer Assisted Trading System (CATS)
Wunsch Auction Systems, Inc.	SPAworks
Futures and Options	
American Stock Exchange (equity options)	AUTO-EX
Chicago Board Options Exchange	Retail Automated Exchange System (RAES)
Chicago Board of Trade	Globex
Chicago Mercantile Exchange	Globex
Deutsche Terminbörse	Fully automated, integrated clearing
Irish Futures and Options Exchange	Fully automated, ATS-2
London International Financial Futures Exchange	Automated Pit Trading (APT)

(table continues)

Table 5 (continued)

System Operator	System
Futures and Options	
London Traded Options Market	Associated with LIFFE
Marché à Terme des Instruments Financiers	Globex
New York Stock Exchange	SuperDot
New Zealand Futures and Options Exchange	Fully automated ATS system
Pacific Stock Exchange	Pacific Options Exchange Trading System (POETS)
Philadelphia Stock Exchange	Automated Options Market System (AUTOM)
Stockholm Option Market	Integrated clearing facilities based on electronic trading and telephone brokering
Sydney Futures Exchange	Sydney Computerized Overnight Market (SYCOM)
Swiss Options and Financial Futures Exchange	Fully automated; integrated clearing
Tokyo Stock Exchange	Derivative markets fully automated CORES-F

Sources: U.S. Securities and Exchange Commission (1991); Angrist (1991); U.S. Congress (1990b); Kang and Lawton (1990); Rosenbaum (1990); Hansell (1989).

44). The CME's first overtures to the Ministry of Finance, one of the chief regulators of Japanese exchanges, were made in August 1988 and are still ongoing. The CBOT now lists a Japanese stock-index futures on the TOPIX and several Japanese government bond futures and options.

*M*arket Performance and Regulatory Issues

Regulation of securities markets in the United States is generally intended to ensure that securities trading is conducted openly and based on publicly available information. The Securities Act of 1933 and Securities Exchange Act of 1934 mandated extensive registration and disclosure requirements for firms issuing securities to the public. However, recent policy discussions have shifted regulators' sights to safeguarding the performance and stability of financial markets.

The Brady Commission's recommendations in the wake of the 1987 crash stand out as the most sweeping proposals for changing the ways financial markets operate and for reorganizing their regulators' responsibilities.[21] To the Brady Commission and to a large number of market observers, the crash was prima facie evidence that private financial markets can fail—spectacularly. Concerns about the flow of information and the ability of participants to act on it superseded traditional questions about fairness and honesty in the marketplace.[22] The crash underscored the potential systemic risk of market failure as trading disruptions spread from one market to another. The problems can engulf the banking system as credit demands mount, for example, because of timing differences between the receipt and disbursement of funds by clearinghouses, straining liquidity and threatening widespread defaults.[23]

An important policy challenge is determining the appropriate mix of government and private-market actions to lessen the risk of securities market failure. It is feared that the electronic globalization of financial exchanges might contribute to systemic risks. The 1987 crash broadened the concerns, touching off a debate about whether a crash in one country's markets can trigger shocks beyond domestic boundaries to other countries' markets. The desirability and feasibility of international regulatory cooperation to contain such potential problems is an open question just beginning to be addressed (see Grundfest 1990; Paul Guy 1990; and U.S. Congress 1990a).

A survey of international regulatory issues is beyond the scope of this article. Rather, the following discussion focuses on the interconnections between markets and proposals to manage the international transmission of volatility. The basic issue to be considered has to do with the source of volatility and arguments for and against counteracting it. Since the stock market crash of October 1987, and even earlier in the decade, regulators and other market observers have become concerned about market volatility and cross-market spillovers.

The increasing prevalence of cross-border trading as well as the opening of new exchanges and deepening of existing ones would seem to imply that world financial markets are becoming unified. However, the evidence of such merging is not clear-cut. In fact, the Brady Commission concluded that through 1987 correlations of price movements from different world markets provide no evidence of closer links: "The correlations between the market in the U.S. and the markets in Germany and Japan appear to form totally random series. . . . [T]here is no evidence to suggest that the association is any closer today than it was a decade ago" (Nicolas F. Brady et al. 1988, II-6). Roll (1988) has observed that the only month in the 1980s in which all major world markets moved together was October 1987.

A number of recent academic papers address the question of world financial market integration. Using a sophisticated model of global equity market equilibrium (an international capital asset pricing model with time-varying moments), Campbell R. Harvey (1991) found evidence of a lack of integration, particularly for Japanese markets with the rest of the world. The basic object of study is the reward-to-risk ratio on equities required by investors. In a world of integrated markets, the reward-to-risk ratio would be the same in every equity market. In fact, this ratio turned out to be twice as large in Japanese markets as in U.S. markets. In other words, Japanese investors require expected returns on stocks to be double the magnitude expected by U.S. investors. Complete integration across markets would equalize differences in the reward-to-risk ratio across countries because otherwise, for example, U.S. investors would skew their portfolios toward Japanese equities offering better trade-offs between return and risk than domestic equities. Increased U.S. purchases of Japanese stocks would bid up their prices and bid down U.S. stock prices, driving Japanese expected returns down and U.S. expected returns up. There are many subtleties and qualifications in this analysis, but the preponderance of evidence is against the simple hypothesis that world markets have become integrated.

The empirical work of David Neumark, P.A. Tinsley, and Suzanne Tosini reveals that price movements for U.S. stocks listed on New York, Tokyo, and London exchanges are more highly correlated during periods of high volatility than during times of low volatility because "only larger price changes pierce the transaction cost barriers between markets" (1991, 160). These authors noted that ordinarily the stock price volatility for this group of U.S. stocks (which are contained in the Dow Jones Industrial Average) is three times greater during New York trading hours than during London or Tokyo trading hours. In their view, this phenomenon occurs because the largest share of news relevant to the determination of the stock prices is disseminated during New York trading hours. This pattern was disrupted in the aftermath of the October 1987 crash when, in the authors' judgment, news was more globally dispersed and had mostly to do with "the volatile behavior of other investors" (176).

Yasushi Hamao, Ronald W. Masulis, and Victor Ng (1990) conducted another detailed study of intermarket linkages focusing on what they term price "volatility spillovers" among the New York, London, and Tokyo stock markets. For a subperiod that excludes the 1987 crash, they found that, while there was no significant transmission of volatility from Tokyo to either London or New York, the latter two cities' volatility did spill over to trading in Tokyo. When the post-1987 period is included, evidence indicates that all three markets were shocked by "volatility surprises," although Tokyo markets still did not affect New York's.

Mervyn A. King and Sushil Wadhwani (1990) have examined the market events surrounding October 1987 and offer a hypothesis about the worldwide scope of the market crash. To investigate the conundrum of

what change in market fundamentals could explain a 23 percent drop in the Dow and similar gigantic declines in other markets around the globe, the authors developed a model in which rational traders in one market have less information about stocks than traders in the home market and must infer information partly from stock price movements abroad. This situation leads to the possibility of price movement "contagion" from one market to another, which will be particularly severe during periods of high market volatility. A sharp decline in a foreign price index is a (noisy) signal of bad news, some of which home market traders may not know from other sources. While the authors' hypothesis does not shed light on the "news" that triggered the October 1987 crash, it does explain why the crash was so uniform around the world despite important differences in markets and economic circumstances.

Gerard Gennotte and Hayne Leland (1990) have also developed a model in which rational traders' lack of information can precipitate a crash. Their concern is with informationless trading associated with hedging strategies like portfolio insurance. Formal portfolio insurance techniques systematically increase exposure to the market as stock prices rise and reduce it as stock prices fall (by shifting a portfolio's mix between index stocks and bonds or by adjusting the size of a short index futures hedge against a stock index portfolio). Although portfolio insurance-related selling is strictly passive, responding to declining stock prices, it could be mistaken for selling based on adverse information, and other traders look to prices and price changes as a way to glean information that they may lack. If nonpassive traders knew that they were taking the buy side of an informationless trade, they would more likely be willing to do so and would thereby supply liquidity to the market.

Gennotte and Leland's model shows how unobserved hedging programs, though only a small proportion of total trading, can destabilize a market. The disturbance may then propagate to other world markets. Their recommendation is that informationless trades should be preannounced and that "[e]lectronic 'open books' should be a seriously considered reform [to show the buy and sell order flow], and other forms of market organization (such as single-price auctions) should be examined" (1990, 1016). Some recent institutional developments are consistent with the authors' recommendations. Toronto's Computer Assisted Trading System displays limit orders to system users, and Wunsch's after-hours single-price auctions help concentrate market liquidity.

The King and Wadhwani and Gennotte and Leland models explain how trading itself can generate intermarket volatility. Joseph E. Stiglitz (1989) and Lawrence H. Summers and Victoria P. Summers (1989), go further by asserting that financial markets are excessively volatile because of irrational traders' speculative activity. Decreasing transactions costs owing to technological innovation and derivative markets promotes this speculation. These authors recommend a transactions tax to "throw sand into the gears" of financial markets (Tobin 1984, cited in Summers and Summers 1989, 263). Each securities purchase or sale would be subject to a "small" tax—for example, 0.5 percent of the stock price. In fact, many governments around the world impose stock transaction taxes, although the trend abroad is toward eliminating such taxes (see Roll 1989, table 4).

The gradual unification of world financial markets and continuing improvement in information flows will probably reduce the information asymmetry that produces contagion effects. However, in the view of those advocating transactions taxes these developments would just exacerbate irrational trading. At the core of their argument is the belief that financial markets are inefficient—that is, asset prices do not reflect "fundamentals." A growing list of so-called market anomalies seems to contradict efficient-markets theory. The apparent excess volatility analyzed by Robert J. Shiller (1989) stands as a challenge to efficient-markets proponents. Nevertheless, the theory is only being challenged, not overturned. Transactions taxes and other remedies for supposed excess trading and excess volatility have been proposed and sometimes implemented with little regard for their efficacy or possible adverse consequences.

Trading halts or circuit breakers, margin requirements, and price limits are also suggested as means of controlling trading. Of all these devices, margin requirements have been the most extensively studied and debated. In essence this work concludes that adjustments to margin requirements have no significant impact on stock market volatility (see David A. Hsieh and Miller 1990). Using data from twenty-three stock markets, Roll (1989) undertook a cross-market study of the effects of transactions taxes, margin requirements, and price limits on market volatility and found that none effectively reduce volatility.

Circuit breakers shut down an entire market temporarily to give participants a "time-out," mainly to avoid a panic selling spree. Both the New York Stock Exchange and Chicago Mercantile Exchange have instituted such circuit breakers (see Franklin R. Ed-

wards 1988, 1989), although evidence is lacking concerning their usefulness. As Gennotte and Leland (1990) point out, the weekend of October 17-18, 1987, was an extended trading halt for the market declines of the previous week, but participants were not inclined to stage a market reversal the following Monday. It is not at all obvious that circuit breakers stabilize prices. To the contrary, they could induce traders to sell earlier and in larger quantities, fearing that a trading-halt price limit will soon be reached. This movement could destabilize prices. Sanford J. Grossman (1990) has argued persuasively that market equilibrium would be restored more quickly without halting trading. Rather than attempting to suppress mispricings, Grossman concludes that the market would be better served by being informed of them, whether they arise from panic or any other source, because better-informed traders would recognize such occurrences as profit opportunities and thus reverse the price movements.

Conclusion

The globalization of financial markets simultaneously fragments traditional financial transactions marketplaces and integrates them via electronic means. Physical marketplaces (the trading floors) are becoming obsolete, while "virtual" marketplaces—networks of computers and computer terminals—are emerging as the "site" for transactions. The new technology is diminishing the role for human participants in the market mechanism. Stock-exchange specialists are being displaced by the new systems, which by and large are designed to handle the demands of institutional investors, who increasingly dominate transactions. Futures and options floor traders also face having their jobs coded into computer algorithms, which automatically match orders and clear trades or emulate open-outcry trading itself.

International capital flows and the trading volume associated with them have been expanding over time. The internationalization of financial markets implies that investment portfolios are becoming more homogenized and creates a demand for worldwide twenty-four-hour trading. Derivative markets also benefit from this trend as multinational corporations need financial services around the clock for hedging and other reasons.

The competitive forces propelling changes in financial markets also compel changes in regulatory oversight of these markets.[24] Technology helps minimize some problems—for example, by making it possible to establish accurate audit trails of trades and thereby discouraging certain kinds of trading abuses—while it creates others, such as business being drawn to markets with the most lenient regulatory standards. Nevertheless, financial marketplaces are perhaps closest to the textbook paradigm of voluntary exchanges for mutual benefit of transacting parties. Competition among the world's financial exchanges as well as among their regulators is likely to be the most efficient way to elicit the best mechanisms for conducting and regulating transactions.

More problematic is the nature of trading and volatility associated with it. Does trading itself generate volatility that interferes with consumption, investment, and other economic decisions, in turn lowering social welfare? This article has given an overview of new automated trading systems and communications networks that are integrating markets. The technology discussed improves market mechanisms and information flows, but it may have the negative side effect of promoting "excess" trading. If markets are efficient, volatility per se is generally regarded as a neutral characteristic of markets. Derivative markets will continue developing to allow any desired degree of hedging against volatility. Only if markets are inefficient can a case can be made for curtailing volatility, but the evidence is ambiguous regarding market inefficiency. Even less clear is the efficacy of measures proposed to safeguard markets against volatility.

Notes

1. See Summers and Summers (1989) and the discussion of their proposal below.
2. Frequent trading will be necessary when the number of securities available to "complete markets" is smaller than the number of future "states." See Huang and Litzenberger (1988, chapter 7). This situation will be all the more likely if financial markets are incomplete. However, theory does not give an indication of how much trading is appropriate to allocate wealth over time efficiently.
3. The difference between purchases and sales represents the net capital flow, which is less relevant in considering the growth of securities trading and market liquidity.
4. 321% = [(75.28/17.85) − 1] * 100 and 43% = [(361.37/253.38) − 1] * 100.
5. See Smith (1991). Ginnie Mae stands for Government National Mortgage Association, a government-chartered agency that makes a secondary market in home mortgages and enhances the liquidity of that market by securitizing individual mortgages into "pass-through" certificates. The futures was on this underlying security.
6. The NYSE is in the process of instituting "A Look at the Book" program that permits public subscribers to the service to view the limit orders for 50 of the 2,370 NYSE-listed stocks. This service will be available through vendors and will show the limit-order book at three fixed times during the trading day. Currently, only the specialists and other NYSE members, such as floor brokers, on the exchange floor have access to the specialists' books.
7. Market orders specify quantity for trade at the current price. Limit orders specify price and quantity.
8. The meanings of the acronyms are given in Table 5.
9. The bid price is the price for which a dealer is willing to buy a stock, and the offer is the price for which he or she is willing to sell the stock.
10. See Bodie, Kane, and Marcus (1989) or Francis (1991) for further institutional details about organized exchanges and OTC markets and such details as listing requirements.
11. This account of SOES is based on Domowitz (1990).
12. See U.S. Securities and Exchange Commission (1991, 69); another NASDAQ system described in this source is PORTAL (Private Offerings, Resales, and Trading through Automated Linkages), which is used in the secondary market for privately placed equity and debt. See note 24 below for further description.
13. See NASDAQ (1991, 14-15). Because of differences in accounting conventions, the NASDAQ figures are inflated compared with the NYSE figures.
14. See Hansell (1989, 102). The amount of institutional participation in NASDAQ stocks as measured by the volume of block trading has been about 43 percent in recent years. See NASDAQ (1991).
15. Instinet-sponsored section in *Institutional Investor* (January 1991).
16. See Kolb (1991, 17-18) for a general discussion of EFP transactions and Miller (1990) for EFPs in connection with the CME's S&P 500 stock-index futures contract.
17. The futures exchange, however, would collect an additional fee for allowing the off-exchange or ex-pit EFP. The Commodity Exchange Act prohibits noncompetitive and prearranged transactions in futures, with the exception of EFPs. See Behof (1990, 2).
18. See Roll (1988, 29). Roll notes that the Spanish market trades groups of stocks continuously for ten minutes at a time. This article contains much interesting information about foreign stock markets.
19. See Kolb (1991, 59-61) for a succinct account of the FBI undercover sting operation at the CME and CBOT, which began in early 1987 and resulted in indictments against forty-seven traders in January 1989.
20. Information on Globex came from 1991 CME promotional literature. Domowitz (1990) provides a detailed description and analysis of the Globex trading algorithm as well as those for two other trading systems.
21. The Brady Commission's basic recommendations were: (1) to have one agency be the overarching regulator of U.S. financial markets; (2) to have a unification of clearing systems of financial exchanges and OTC markets; (3) to have "consistent" margin requirements across different exchanges; (4) to institute coordinated "circuit breakers" across exchanges; and (5) to improve information systems to monitor trading activity in related markets.
22. The Securities and Exchange Act of 1934 authorized the Federal Reserve Board to established initial and maintenance margins to prevent excessive leveraging of securities purchases on securities exchanges. (In practice, the Board has set only minimum initial margin levels.) Part of the rationale for control over margins was to limit massive selling off of leveraged positions during market downturns.
23. See Brady et al. (1988, especially 51-52). Despite the potential dangers, no defaults occurred in the clearinghouse system during October 1987.
24. The SEC's April 1990 approval of Rule 144A is an instance of a change in regulatory standards that reflect changes in the nature of financial transactions. This rule simplifies the SEC's disclosure requirements for private placement issuers (see Chu 1991). Foreign corporations are now able to raise capital in U.S. markets without having to meet the SEC's stringent financial disclosure requirements as long as transactions are limited to large institutional investors. British financial authorities have instituted a similar relaxation of regulations for institutional investors (see Grundfest 1990).

    NASDAQ's new PORTAL system is used for communicating bids and offers on privately placed securities traded under the provisions of Rule 144A.

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Europe 1992: A Closer Look

Janice L. Boucher

Imagine that it is January 1, 1993. The start of a new year, it is also the beginning of a new economic order in much of Europe. The agenda of the Europe 1992 program, begun in July 1985, will be fully in place, and its operation will begin. Goods and services will pass freely between, for example, France and Germany; no longer will truckers have to stop at border checkposts to fill out countless legal documents. Goods from Spain destined for Italy will not have to meet Italian product standards for admittance; as long as they have passed Spanish standards, the goods may not be denied entry into Italy. A Belgian purchasing a British certificate of deposit will not have to pay a tax for investing outside her own country. A Dutchman can open a bank account with a German bank. Welcome to Europe post-1992.

This vision of the new European Community (EC) may be achieved. However, the actual outcome of the 1992 program may be more or less than this goal. Many—and the most difficult—directives are still to be determined. Monetary and political union remain longer-term questions. The changing state of the world political and economic environment must be taken into account as well. There are no guarantees for what is ahead.

The purpose of this article is to review the Europe 1992 program critically. Following a brief history of the program's evolution and a comparison of the United States' historical experience and current EC attempts to form a union, the often-cited benefits anticipated with the advent of Europe 1992 are examined, along with the implicit assumptions on which these expectations are based. In a later section potential costs of the 1992 program are considered. These cost factors, which are not always quantifiable and have not received much attention, are an important aspect of assessing the plan's viability. The remaining sections consider the obstacles and issues

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still to be faced. The box below provides some facts and figures about the European Community.

The Evolution of Europe 1992

The concept of Europe 1992 is not really new. It is but one development in a dynamic process set in motion in the 1950s. Throughout its history—and still today—progress to realize a unified Europe has occurred in fits and starts.

The History. Europe 1992 had its inception in the 1957 Treaty of Rome, which established the EC with six founding members: Belgium, France, Italy, West Germany, Luxembourg, and the Netherlands. Eventually, the United Kingdom, Ireland, Denmark, Greece, Spain, and Portugal applied for and received membership into the EC. The original signers of the treaty envisioned an integrated Europe that would allow free

EC Facts and Figures

The EC member states (see table) cover a geographic area of 912,000 square miles, and, since the unification of Germany, have about 341 million people. In an area less than one-fourth the size of the United States, the EC has almost one and one-half times the United States' population, with 374 persons per square mile compared with 66 in the United States (Commission of the European Communities 1989). Significant regional disparities in inflation rates, unemployment rates, growth rates, interest rates, and tax rates still exist throughout the EC, although it is hoped that the 1992 program will at least reduce these disparities. The table compares some descriptive figures for the twelve member states for the 1985-89 period. As can be seen, unemployment rate differences on the order of 12 percent and inflation rate differences of approximately 10 percent have persisted. Cross-member differences in interest rates also remain, which lifting of capital controls and the banking directive should minimize. It is also important to note that the disparities have shrunk somewhat since 1985.

Convergence of these regional economic disparities is certainly a goal of the 1992 program. More imminent are questions concerning how to achieve it. Dialogue is ongoing about what measures might support the EC's less-developed regions without infringing on the competitive spirit of the 1992 program.

Comparative Statistics for the Twelve EC Members

Country	1985	1986	1987	1988	1989
Consumer Price Index Inflation Rates					
Belgium	4.9	1.3	1.6	1.2	3.1
Denmark	4.7	3.7	4.0	4.6	4.8
France	5.8	2.5	3.3	2.7	3.5
West Germany	2.2	−0.1	0.2	1.3	2.8
Greece	19.3	23.0	16.4	13.5	13.7
Ireland	5.4	3.9	3.1	2.2	4.1
Italy	9.2	5.9	4.7	5.0	6.2
Luxembourg	4.1	0.3	−0.1	1.5	3.4
Netherlands	2.2	0.1	−0.7	0.7	1.1
Portugal	19.3	11.7	9.4	9.6	12.6
Spain	8.8	8.8	5.3	4.8	6.8
United Kingdom	6.1	3.4	4.1	4.9	7.8
Unemployment Rates[a]					
Belgium	11.4	11.2	11.1	9.7	8.1
France	10.2	10.4	10.5	10.0	9.4
West Germany	7.1	6.4	6.2	6.2	5.6
Italy	10.2	10.9	11.8	11.0	10.9
Netherlands	10.6	9.9	9.5	9.2	8.3
Portugal	8.6	8.0	6.5	5.7	5.0
Spain	21.5	21.0	20.1	19.1	16.9
United Kingdom	11.2	11.5	10.3	8.5	6.9

Country	1985	1986	1987	1988	1989
			Real GDP Growth Rates		
Belgium	0.9	1.8	2.0	4.3	—
Denmark	4.3	3.6	−0.6	−0.2	1.1
France	1.9	2.3	2.4	3.9	3.7
West Germany	2.0	2.3	1.8	3.7	—
Greece	3.1	0.8	−0.1	3.9	—
Ireland	2.3	−0.3	4.9	3.7	—
Italy	2.6	2.6	3.0	4.2	3.2
Luxembourg	3.9	3.4	3.7	—	—
Netherlands	2.6	2.0	3.0	4.2	3.2
Portugal	3.3	4.3	4.7	—	—
Spain	3.5	2.7	5.6	5.2	4.9
United Kingdom	3.8	3.0	3.5	4.6	3.0
			Deposit Rates[b]		
Belgium	6.69	5.33	5.00	4.54	5.13
Denmark	8.21	6.58	7.07	7.75	8.27
France	6.80	5.32	5.31	5.01	5.92
West Germany	4.44	3.71	3.20	3.29	3.50
Greece	15.50	15.50	15.33	17.33	17.14
Ireland	6.98	6.50	6.21	3.63	4.54
Italy	8.09	8.89	7.01	6.69	6.93
Netherlands	4.10	3.93	3.55	3.48	3.49
Portugal	25.08	17.13	14.46	13.21	13.00
Spain	10.53	9.00	8.97	9.06	9.55
United Kingdom	8.87	6.92	5.11	4.27	6.07
			Lending Rates[b]		
Belgium	12.54	10.44	9.33	8.92	11.08
Denmark	14.65	12.98	13.62	12.59	13.44
France	17.77	16.38	15.82	15.65	16.01
West Germany	9.53	8.75	8.36	8.33	9.94
Greece	20.50	20.50	21.82	22.89	23.26
Ireland	12.44	12.23	11.15	8.29	9.42
Italy	13.36	15.93	13.58	13.57	14.21
Netherlands	9.25	8.63	8.15	7.77	10.75
Portugal	27.29	19.63	18.92	17.53	19.59
Spain	13.52	12.19	16.36	12.43	15.84
United Kingdom	12.29	10.83	9.63	10.29	13.92

[a] *No comparable data were available for Denmark, Greece, Ireland, or Luxembourg.*

[b] *No data were available for Luxembourg.*

Sources: Unemployment rates are from *Main Economic Indicators*, Organisation for Economic Cooperation and Development, Paris (published twelve times yearly; various issues from 1985-89). All other data are from *International Financial Statistics Yearbook* (Washington, D.C.: International Monetary Fund, 1985-89).

trade of goods, services, capital, and labor—the "four freedoms"—and would adopt a common policy toward nonmember trading partners and on agriculture and transport. Of course, the ultimate goals, explicitly stated in Article 2 of the Treaty of Rome, were for all member states to realize higher living standards, economic stability, and closer relations.

Unfortunately, progress in line with these principles faltered in the 1970s and early 1980s. Hit by an oil price shock in 1973 and again in 1979, and facing worldwide recession at the close of the 1970s and economic stagnation at home, the EC's member states tried to insulate themselves against competition from each other. They devised elaborate schemes for constructing a protective wall that may not have broken the letter of the laws set out in the Treaty of Rome but surely broke the spirit. Country-specific regulations and standards covered everything from the noise level emitted by lawn mowers to the wheat content of pasta, effectively limiting the entry of goods from neighboring states. "Local-content" rules specified a required amount of local goods in a finished product, and "domestic-origin" rules determined the extent to which assembly must be completed in a country for it to be considered the product's country of origin. In addition, differences in border and value-added taxes, programs of state aid and public procurement, and other nontariff barriers implicitly constituted protectionism, whether intended or not.

In July 1985, prompted by the economic malaise that had settled over Europe for almost a decade, the EC produced a White Paper titled "Completing the Internal Market," which suggested approximately 300 directives or trade reforms within the EC.[1] The White Paper forged renewed cooperation among the member states and outlined guidelines for pursuing economic reorganization. The directives dealt mostly with dismantling the nontariff barriers to trade that had cropped up to replace tariffs removed in the mid-1960s.

In 1987 the EC legislated the Single European Act, amending the Treaty of Rome to include as proposals 282 of the White Paper's 300 directives and changing the voting rule from "unanimity" to "qualified majority rule."[2] The change in the voting rule, which made it easier and quicker to put into action any directives brought before the Council of Ministers, is a key element in hastening completion of the 1992 program. The following box outlines the EC's organizational structure, and the appendix lists the key provisions of the Single European Act.

Forming a Union: Parallels with the United States. To be sure, the 1992 plan has carried with it

Organizational Structure of the European Community

Several institutions share responsibility for shaping and ultimately enacting the ideals of an integrated Europe. Six bodies carry out various legislative and advisory functions.

The European Commission has the task of ensuring that the Single European Act is carried out. The commission may make its own proposals and acts as the clearinghouse for proposals made by other EC institutions. The commissioners are appointed by their governments but are to act independently of them. Jacques Delors is the current commission president.

The European Council, sometimes referred to as the EC Summit, consists of the heads of state of the member governments, their foreign ministers, and the president and vice president of the commission. The council is responsible for establishing general guidelines on broad policy issues like monetary cooperation, fiscal harmonization, and new membership.

The Council of Ministers has decision-making authority. The council passes proposals by "qualified majority." At least fifty-four of the seventy-six possible votes must be cast for a proposal to become a directive. However, responsibility for enacting the directive into national law rests with the member states.

The European Parliament is an elected body of 518 members. It does not retain any legislative power within the EC but instead acts as an advisory board through the power of opinion. Parliament votes on positions taken by the Council of Ministers. However, the Council of Ministers is free to reject the outcome of the Parliament's vote.

The European Court of Justice litigates disputes among member states and private parties that fall within the constitution of the Treaty of Rome. Decisions reached by the Court of Justice are binding on all member states.

Finally, the Economic and Social Committee comprises representatives from various trade organizations and professional associations. The committee, whose function is advisory, discusses items such as labor laws, environmental standards, professional ethics, and culture in relation to proposals or directives.

Source: Adapted from Hufbauer (1990).

the image of creating a "United States of Europe." The analogy is more fitting than not and provides a useful construct in thinking about the 1992 vision. Indeed, many of the anticipated benefits, costs, and obstacles to the 1992 plan can be seen in the experience of the United States from its federation in 1787 through the Civil War and up to today.

Admittedly, the United States' and the European Community's experiences differ greatly. For whatever reasons—perhaps because briefer histories as independent entities gave them less time to grow accustomed to exercising their own authority—states in the United States willingly ceded some of their powers to the new federal government in 1789. External trade, for example, and foreign relations and issuance of currency became federal matters when the Constitution replaced the Articles of Confederation. More significantly, the external threat of European countries' expansionist designs provided a strong incentive for the states to join in political union. Fighting together for the same ideal in the American Revolution fostered their sense of unity. Despite vivid economic and political differences that continue to characterize individual states and regions in the United States and despite periods of heated and, in the case of the Civil War, violent disagreement, the states remain united, as evidenced by their electing a single president to represent them ("If You Sincerely Want" 1991).

What makes Europe different? First, each member state has a history rich with a distinctive heritage, language, culture, and currency. For these countries, many of which have operated independently for centuries, ceding authority to an EC institution is still viewed with reluctance. The idea of an EC head of state comparable in powers to the president of the United States is beyond most current debate (see "If You Sincerely Want" 1991). As will be discussed in this article, the issue of sovereignty is central to many of the 1992 agenda's directives. However, while the EC members' separate and distinct identities may make their union more difficult, it should not be impossible.

It is interesting to note that in the United States political union preceded economic union, and monetary union was based on a common currency, though different regions were permitted to initiate their own "monetary policy." In the early years of the Federal Reserve System, founded in 1913, Reserve Banks could set different discount rates depending on local economic and financial conditions. In contrast, the EC, prompted by the growing economic superiority of Japan and the United States, has sought economic integration before monetary and political union. As in the United States, the reality of a threat—in the EC's case economic—may serve to strengthen the ties among the member states.

Anticipated Benefits of the Europe 1992 Program: The Cecchini Report

Commissioned by the EC, the Cecchini Report (directed by Paolo Cecchini) is the most often cited analysis of the benefits and costs anticipated from European economic integration.[3] The report has much more to say about the benefits than it does the costs, projecting a one-time increase of 4.3 percent to 6.4 percent of the EC's 1988 gross domestic product (GDP), about $3,240 for a family of four. Prices are expected to fall approximately 6 percent. From two to five million jobs will be created. According to the report, these gains should be achieved over the "medium term"; no specific date is attached.[4]

The Methodology. The report is a compilation of broad and coordinated research efforts concerned with the 1992 program's impact, in terms of total expected net gains, on thirty-six different industries throughout the EC. Inherently, the task of predicting meant relying extensively on extrapolation and simulation. Gaps in data sometimes required that numbers for certain industries or member states be projected or that estimates from business surveys be used. For some industries, elasticities of demand and supply were based on previous empirical work or were extrapolated. Moreover, the study covers only seven of the twelve EC members: France, Germany, Italy, and the United Kingdom, as well as Belgium, Luxembourg, and the Netherlands, the latter three being treated as one group. Cecchini himself notes that "the research is unprecedented for various reasons—first for the sheer size of its scope, but also because of the novelty of the subject-matter and the methodological difficulties. . . . A further problem was the unevenness of the empirical data on European market fragmentation. Yet despite these fragilities, the results that emerge tell an unmistakable story" (Cecchini 1988, xviii).

Table 1 shows the Cecchini Report's projection of gains after nontariff barriers have been removed. The benefits are expected to come in four stages: the gains (or cost reductions) for intra-EC trade resulting from the removal of border controls and excess paperwork; the gains (or cost reductions) to production realized

Table 1
Potential Gains in Economic Welfare for the EC
Resulting from Completion of the Internal Market

	Billions of U.S. Dollars[a]	Percent of 1988 EC GDP
Step 1		
Gains from removal of barriers affecting trade	9.4 – 10.6	0.2 – 0.3
Step 2		
Gains from removal of barriers affecting overall production	67.3 – 83.8	2.0 – 2.4
Gains from removing barriers (subtotal)	76.7 – 94.4	2.2 – 2.7
Step 3		
Gains from exploiting economies of scale more fully	72	2.1
Step 4		
Gains from intensified competition, reducing business inefficiencies and monopoly profits	54.3	1.6
Gains from market integration (subtotal)	73.2[b] – 126.3	2.1[b] – 3.7
Total		
For twelve member states at 1988 prices	205.3 – 304.4	4.3 – 6.4
Midpoint of above	255	5.3

[a] *The numbers reported were converted to dollars at the 1988 average $/ECU rate.*
[b] *The lower estimates for the sum of stages 3 and 4 were generated together and cannot be broken down.*
Source: Adapted from Cecchini (1989, 84; originally in Commission of EC, Directorate General for Economic and Financial Affairs, *The Economics of Europe 1992—An Assessment of the Potential Effects of Completing the Internal Market* [Brussels, 1988]).

by opening up public procurement and by mutual recognition of standards and regulations for goods and services; the unit-cost reductions arising from restructuring businesses and expanding output (that is, achieving economies of scale); and the gains from more efficient production stemming from increased competition. However, there may be factors that interfere with full development of these benefits.

Merton J. Peck (1989) notes that 60 percent of the gains are expected to be concentrated in seven of the thirty-six industries studied: motor vehicles and other transport; electrical goods; mechanical engineering; food, edibles, and tobacco; credit and insurance; chemicals; and office machinery. Peck also notes that most of the gains occur in the third and fourth stages when economies of scale are exploited; for motor vehicles, 87 percent of the gains are attributed to these two stages. In reference to auto manufacturing specifically, a significant question is how likely the industry is to reach the latter two stages. Alasdair Smith and Anthony J. Venables (1990) show that the automobile industry is highly nationalistic in that automakers tend to dominate their home markets. Table 2 illustrates the pervasiveness of this tendency. For example, the two French automakers, Renault and Peugeot, capture 63 percent of the French market. While it must be acknowledged that nontariff barriers may also come into play, there seems some merit to considering Smith and Venables's view that such a national bias exists. If so, economies of scale arising from expanding production to furnish newly tapped markets may be more difficult to achieve—and, hence, the gains more elusive—than the Cecchini Report presumes.

National favoritism—and the fact that it cannot be legislated away—is also demonstrated in sales of electrical equipment. Although the industry expects to extract a substantial share of its gains from opening up public procurement, the reality is that designs to open up public procurement have been on the books since the early 1970s and, to date, only 2 percent of such contracts have been awarded to nonnationals.

Table 2
European Car Market Shares, 1988
(percent)

Automakers	European Community	France	West Germany
Fiat	16	7	5
Ford	12	6	10
General Motors	10	5	15
Japanese group	9	3	15
Peugeot group	14	34	4
Renault	11	29	3
Volkswagen group	15	9	29
Specialists	12	6	18
Others	2	1	1

Source: Adapted from Smith and Venables (1990, 121; originally in Automobile Industry Data Ltd., *1989 Car Yearbook*).

(Transport, energy, telecommunications, and water supply were exempted until recently.) As Peck has observed, "This history . . . does not augur well for other kinds of national preference" (1989, 293).

On a related point, the evolution of divergent regulations and standards within the EC was a protectionist reaction to the complete elimination of tariffs during a time of general economic lethargy. The independent mind-set that led to raising the nontariff barriers remains a loose thread in knitting together the economies of the twelve member states. In fact, as recently as February 20 of this year, European Commission President Jacques Delors remarked that another such decline in economic growth might impede progress toward the 1992 target (Knight-Ridder News Network).

These dynamics could keep actual gains from equaling the Cecchini Report's projections. In another sense it is quite possible that the Cecchini Report grossly underestimates the gains to be had. The report recognizes that the estimated gains are "static"—that is, they are generated without considering additional positive side effects that may arise in an economic environment of increased competitiveness motivating innovation and industry reorganization over time. In fact, a "virtuous circle" in which increased competition leads to innovation promoting further competition and so on is anticipated. Richard E. Baldwin (1989) has found that such "dynamic effects" could produce an additional 1.7 percent to 2.6 percent increase in GDP beyond that estimated in the Cecchini Report.

Underlying Assumptions. The popularity and press accorded the Cecchini Report does not guarantee the 1992 figures. In fact, the estimates are based on some very specific and narrow assumptions that may be misleading. For instance, two key assumptions maintained throughout the study were full employment and unchanged wages. The Cecchini Report does entertain alternative assumptions about pricing and output behavior that in some cases produce substantially disparate results.

For example, different assumptions about the pricing and output decisions of firms in the auto industry lead to widely differing estimates of the gains to be realized. Estimated gains for the auto industry range from 0.02 percent to 0.30 percent above 1988 EC GDP, depending on the pricing behavior assumed for the industry. Peck (1989) has pointed out that the estimate used in the final analysis is the latter figure.

Another assertion fundamental to the projections is that the five members not expressly included in the empirical analysis—Denmark, Greece, Ireland, Portugal, and Spain—would achieve the same percentage gains in GDP as those included. However, the industrial mixes of each member state vary widely and would seem to indicate distributional differences in the percentages. It is not a certainty that the omitted countries—the less developed economies of the EC, for whom agriculture plays a dominant role—will share equally in the anticipated gains. There has also been concern that these countries are likely to bear burdensome adjustment costs during the transitional stages of the 1992 program, which perhaps, along with questions about their share in the anticipated gains, account for the southern-rim countries' reluctance to legislate EC directives.

Additional, implicit assumptions include the following: (1) that all 282 directives would be legislated by the member states; (2) that there will be no change in the relations among the member states; (3) that there will be no change in each member's and the EC's trade relations with the rest of the world; and (4) that there will be no change in the social or political environment within the EC. Insofar as these assumptions do not prove valid, the anticipated gains stemming from the coordinated removal of nontariff barriers could be reduced.

With regard to the first assumption, the EC is well on its way to having the legislation to adopt the 282 directives passed by the Council of Ministers. To date, 184 have been enacted at the EC level. Unfortunately,

many of the member states have been reluctant to legislate them at the national level. The northern-rim members have enacted about 55 percent of the directives, and the southern-rim countries have legislated only 40 percent ("Europe's Rhetoric" 1989; Peter Brimelow 1990). In fact, only twenty-four of the directives have been legislated by all twelve members. Implementation of EC legislation in the food and consumer protection areas is lagging most. An EC vote in favor of removing a barrier is only as good as the willingness of the member states to enforce it.

The assumed stasis of the member states' relations with each other surrounding the 1992 agenda is currently being tested by major changes in leadership and structure. With a new prime minister at the helm, Great Britain's position vis-a-vis the 1992 agenda and the related topic of monetary union is expected to be more harmonious. German reunification does not appear to have altered attitudes toward 1992, nor does the demise of the communist states of Eastern Europe. The strength of Commission President Jacques Delors is thought to be a significant factor in maintaining cohesiveness. In addition, the recent decision to double the budget of the EC Structural Fund—a fund supported by tax contributions from each member state and used for agricultural policy, regional development, and social policy—may help maintain cohesiveness by offering assistance to those countries that experience the roughest transitional pains and may therefore be most likely to break the envisioned unity over the longer run.

On the other hand, the currently discussed reform of the Common Agricultural Policy (CAP)—which accounts for 60 percent of the Structural Fund's budget—is potentially divisive. Farms in southern-rim and northern-rim states tend to operate differently and to have different interests at stake under the CAP. Northern farms are often larger and more efficient than those in the south. More importantly, some countries receive lower support prices than others, and countries receiving less financial aid are willing to concede more in the GATT talks about national farming policy.[5] The resulting contention over CAP reform among the member states is an element to watch for possible spillover effects on cooperation about other 1992 items.

As for the assumed unchanged trade relations with the rest of the world, the recent scuffle over the United States–European Community agricultural policy raises questions. The problem is how to resolve differences in the systems of agricultural subsidies ingrained in the national policies of the United States and the EC members. The United States desires coordinated cuts in agricultural subsidies of 75 percent to 90 percent, while the EC has offered more modest cuts on a smaller range of goods. The concern for the 1992 agenda is that the disagreements might hamper trade negotiations in other areas. For example, the United States objects to the decision last year to deny its hormone-treated beef into the EC on the grounds that it does not meet health standards. In addition, the European Commission has recently issued a report on discriminatory U.S. trade policy practices, condemning, among other things, the U.S. Super 301 Trade Bill, which allows the United States to retaliate against countries that it deems are not trading fairly with the United States (Knight-Ridder News Network, April 18, 1991). The United States is the EC's second-largest trading partner, based on exports plus imports (the largest if the European Free Trade Association [EFTA] countries—Austria, Finland, Iceland, Norway, Sweden, and Switzerland—are not grouped; see Table 3).[6] Because of this relationship, any change in United States–European Community trade relations could substantially alter the manner in which the benefits to different sectors of the EC cited in the Cecchini Report actually play out.

Finally, the social and political environment can hardly avoid change. In fact, the Single European Act explicitly includes amendments in the area of social policy, and a treaty on political union is being discussed. Further discussion of these topics follows in a later section.

Other Estimates and Considerations. The Cecchini Report is one of several studies that project gains from the 1992 program. Peck, for instance, believes a reasonable figure is double the 1 percent of GDP realized from the removal of all tariffs in 1968.

There are other, more positive, considerations that the Cecchini Report and similar studies do not take into account. For example, because European Monetary Union is not technically part of the Single European Act, Cecchini's and others' estimates do not allow for any benefits that monetary union may yield.[7] For example, the issuance of a single currency can be expected to eliminate currency fluctuations that may deter business decisions and cut into profits.[8] Secondly, to reiterate an earlier point, the estimated gains do not take the "virtuous circle" into account. Finally, the EC's heightened sense of competitiveness with larger economies like the United States and Japan may be enough to override conflicts and solidify cooperation to put the Europe 1992 program in place.

Table 3
Trade Statistics for the EC[a]
(in millions of U.S. dollars)

Country	1985	1986	1987	1988	1989
United States					
Exports	48,993.8	53,154.5	60,169.2	75,430.9	86,570.0
Imports	71,617.4	79,520.1	84,876.0	88,844.3	88,820.9
Exports – Imports	−22,623.6	−26,365.6	−24,706.8	−13,413.4	−2,250.9
EFTA[b]					
Exports	58,145.5	71,578.1	88,485.1	99,191.8	105,681.2
Imports	63,875.2	83,728.7	102,895.3	110,434.1	115,856.2
Exports – Imports	−5,729.7	−12,150.6	−14,410.2	−11,242.2	−9,995.0
Japan					
Exports	21,128.2	31,122.1	38,305.2	47,172.1	47,986.3
Imports	9,370.5	14,173.3	17,861.8	24,162.7	28,136.9
Exports – Imports	11,757.7	16,948.8	20,443.4	23,009.4	19,849.4
NICs[c]					
Exports	12,101.7	16,292.2	24,676.1	31,989.0	24,348.9
Imports	11,452.2	13,087.3	18,128.1	23,886.9	19,882.4
Exports – Imports	649.5	3,204.8	6,548.1	8,102.1	4,466.5

[a] *Figures indicate exports and imports of the countries listed to and from the EC.*
[b] *The EFTA (European Free Trade Association) countries are Austria, Finland, Iceland, Norway, Sweden, and Switzerland.*
[c] *The NICs (newly industrialized countries) include Hong Kong, South Korea, Singapore, and Taiwan.*
Source: International Monetary Fund, *Direction of Trade Statistics*, database, 1991.

Potential Costs of Europe 1992

The Cecchini Report recognizes that, while the Europe 1992 program offers a number of potential benefits, there are also costs involved. The study portrays the costs as to be wholly borne by firms that, in the wake of fiercer competition, will see their profit margins squeezed through downward price pressure. This squeeze on profits should be balanced by downward pressure on costs as production inefficiencies are eliminated and economies of scale are realized so that on net, over the medium term, firms will enjoy gains.

Adjustment Costs. Unavoidably, as the European economy transforms from a market characterized by considerable segmentation and varieties of barriers into one that is more free and open, certain sectors, peoples, or member states are likely to experience some pain. The Cecchini Report expects these adjustment costs to come in the form of unemployment, especially as firms respond to the newly integrated market by eliminating waste built in during many years of the old regime. Sectors largely protected by public procurement initiatives will probably also suffer. The concern is that concessions intended to offset negative effects encountered during the adjustment phase may be made and may compromise the envisioned outcome of the 1992 plan.

Unfortunately, the nature of the Cecchini study precluded actually measuring the costs to be incurred during this transition. Generally, initial increases in unemployment in certain regions or sectors of the EC are to be expected as competition forces businesses to restructure or streamline. However, there seems no reason to believe that when the transition is complete unemployment will be higher than before. In fact, competition, restructuring (through new entrants), and innovation will be likely to create more job opportunities in the long term.

Implementing Mutual Recognition. The Cecchini Report anticipates that the profit squeeze on businesses will be balanced by reduced production costs and greater efficiencies. However, it does not consider the possibility that, when products meeting the standards of one country can no longer be denied entry to any other member state, the result may be a rise in consumer demand for quality excellence that will force product standards upward. As in the case of the U.S. auto industry when Japanese autos entered the U.S. market, an EC-wide move to the highest product standard would entail additional costs for all firms in member states currently meeting lower standards, thus raising production costs to a level beyond what the Cecchini Report assumes. However, consumers may be willing to pay for these costs if they reflect better quality.

Achieving Economies of Scale. The extent of the economies of scale expected to emerge from the single-market initiative is also questionable. Originally, the plan called for applying EC-wide standards to all products. Obvious economies of scale would have been reaped as all firms converted production facilities to meet a single standard. However, the task of unifying the more than 100,000 existing standards was seen as insurmountable, and the commission agreed on the "principle of mutual recognition," which may or may not result in economies of scale. If, for example, intermediate goods produced according to German standards are not coordinated with the standards of French goods in which they are components, no benefits may be realized. A German company supplying headlights to both German and British auto producers may find that the headlights for British producers still have to meet British wiring standards; two standards—requiring two smaller scales of operation—must still be met.[9] The existence of market niches that prevent mass production and mass marketing may also interfere with achieving economies of scale.

On the other hand, as businesses in each industry across the EC begin to compete with one another, an eye will be kept on the standards of products that sell the best. More than likely, businesses will adopt similar standards as they did in the United States when liquid detergent and tartar-control toothpaste proved their appeal. Mutual self-interest in having one industry standard, such as in the computer industry, may also prompt quicker harmonization of standards.

Unanticipated Administrative Costs. The Cecchini Report explicitly recognizes the cost savings that will result from the elimination of border controls and the associated paperwork and staff. However, expenditures for personnel to implement the Europe 1992 program have not been considered and will naturally offset some of the anticipated reductions. For example, the offices of the Directorate Generals (DG)—in particular the DG-4, which is responsible for monitoring, investigating, and pursuing competition policy—apparently lack sufficient staff to ensure member-by-member compliance with all aspects of the 1992 program (Douglas Rosenthal 1990). Expenditure for the necessary personnel for this and other EC agencies, such as an environmental agency or a trademark office, will require financing by the member states.

Government Procurement, Regulation, and Taxation. The most challenging issues facing the EC are probably public procurement, regulation, and taxation, not only because their resolution will require unanimous approval but also because they ultimately infringe on state law. Related cost reductions envisioned in the Cecchini Report are not in fact likely to be realized until long after the border controls are removed and mutual recognition is practiced. For example, 0.5 percent gains over 1988 GDP are anticipated from opening public procurement. However, as mentioned earlier, there is no clear indication that public contract bids will actually be awarded without national biases.

With respect to regulation, the newly adopted unified environmental, health, and safety standards are stricter than some member states had enforced and are therefore costlier than before. These potential costs were not considered in the Cecchini Report. Furthermore, enforcement will add costs. For instance, the EC Commission has taken the United Kingdom, France, and Belgium to court for failure to meet EC standards for water denitrification. According to some, this move is only the beginning; the commission is expected to investigate compliance regarding pesticides in drinking water, river quality, and sewage contamination of beaches ("British Spat" 1989).

Finally, harmonization of value-added and excise taxes may impose an additional financial burden on some member states. Currently, value-added tax (VAT) rates range from 0 percent to 38 percent across the twelve member states, as Table 4 indicates. There are three categories of rates: reduced, standard, and higher. All member states do not necessarily apply the same rates to the same good. Recently, a two-tiered system has been proposed that sets a minimum reduced rate of 5 percent and a minimum standard rate of 14 percent (rather than bands of 4 percent to 9 percent and 14 percent to 20 percent, as had been previ-

ously proposed). Member states are free to set the rates higher but may go no lower. Support for the new proposal looks promising, although nine member states would prefer a minimum standard rate of 15 percent and the United Kingdom prefers unenforced convergence of rates through cross-border free trade and competition (The Economist Intelligence Unit 1991, 14).

On paper, the new proposal solves the problem for some countries that, under the old proposal, would have had to reduce their rates and incur a loss in VAT revenue. However, as the 1992 plan becomes fully operational (perhaps well after January 1, 1993), those member states that have VAT rates well above the minimum, or even average, rates may find it necessary to lower their own rates, push for reconsideration of the minimum rates, or even reopen dialogue on which rates, reduced or standard, apply to various goods. The larger income base and corresponding tax revenue the 1992 initiative is expected to precipitate may ease disagreement somewhat about VAT rates. However, because the issue goes beyond pure monetary cost and touches on the issue of sovereignty (discussed more fully in the next section), it may take some time and effort beyond 1992 to reach an agreement that is passed into legislation.

Table 4
Value-Added Tax Rates in the EC[a]
(percent)

Country	Reduced	Standard	Higher
Belgium	1, 6	17, 19	25, 33
Denmark	None	22	None
France	2.1, 5.5, 13	18.6	28
Germany	7	14	None
Greece	3, 6	18	36
Ireland	1.4, 5, 10	25	None
Italy	4, 9	19	38
Luxembourg	3, 6	12	None
Netherlands	6	18.5	None
Portugal	8	17	30
Spain	6	12	33
United Kingdom	0	17.5	None

[a] *The reduced rates apply to "necessity items," the higher rates to "luxury items," and the standard rates to most other goods. All countries do not necessarily categorize the same goods under the same rate.*

Sources: EC Commission and Knight-Ridder News Network, various recent releases.

Obstacles and Remaining Issues

Remaining issues and additional obstacles to fulfillment of the 1992 agenda can also be viewed as potential costs, for they threaten completion of the program and realization of the gains. In part, the measure of how beneficial or costly the plan turns out to be for each member state will be reflected by how much backsliding goes on once the directives are adopted and put into practice. Moreover, obstacles still standing on the road to 1992 may indicate that some members perceive a lower-than-expected share of the gains and perhaps even too many costs—not in the form of economic burden or directly through the 1992 agenda but rather through related social and political developments, particularly having to do with the issue of sovereignty. In fact, several of the remaining issues for the EC lie outside the 1992 program set forth in the Single European Act. European monetary union and political union are examples. These issues are discussed below, along with some of the current obstacles to "completing the internal market." These stumbling blocks arise from disagreements over specifics of the Single European Act but may have their roots in concerns beyond the details of the 1992 plan. Moreover, these obstacles may be even more difficult to overcome because, like tax law changes, most of the remaining directives require unanimous approval.

Harmonization of Standards and Taxes. Mutual recognition applies to most standards except when the environment, health, or safety—so-called "essentials"—are concerned. For these, the EC has endorsed adopting a unified or EC-wide set of standards, product by product. Unanimous agreement is required and has yet to be accomplished. For example, EC regulations on the cross-border transport of animals have not been determined, and, as one EC official grumbled, "If we have to check every box, crate or trainload of goods that crosses a border to make sure they don't contain any rabid dogs, then the single market will be a farce" ("Sticking Points" 1990). Ongoing disagreement about such issues could jeopardize completion of the internal market.

As discussed above, harmonization of social security taxes, labor taxes, and corporate taxes (perhaps using some EC-wide average) remains another obstacle, one that cuts deeply into the issue of sovereignty, besides potentially imposing heavy costs on businesses

in countries with low tax rates and on governments in countries with high tax rates. In the words of the EC Commissioner of Taxation Policy, "Taxation is one of the thorniest issues, precisely because it has to do with both sovereignty and money" ("Sticking Points" 1990). Debate about the subject tends to break down to debate over whether public budget control should be exercised at the EC level or allowed to evolve through competition and the move toward monetary union. Already the EC has decided that member states receiving assistance from the EC Structural Fund must match 50 percent of the aid from their own public funds. The complexity of the issues involved can be seen in the fact that for countries like Greece, Portugal, and Ireland, such a demand restricts the funds available for other public programs (Jorgen Mortensen 1990, 38).

In the United States political union preceded economic union. In contrast, the EC . . . has sought economic integration before monetary and political union.

Quotas and Local-Content and Domestic-Origin Rules. Agreement on the handling of national quotas and the interpretation of local-content rules still has to be worked out. At present, unified positions on these seem near.

Once goods are permitted to move freely among the member states, distinct national quotas will cease to be effective. Some countries want to retain quotas on Japanese autos, for example, and object to an EC-wide quota. The solution being pursued is an export agreement between Japan and the EC in which Japan voluntarily agrees to restrict its auto exports to the EC. Member states except France and Italy have agreed to phase out the voluntary restriction over six years.

Local-content and domestic-origin rules also pose difficult problems. Rules must still be outlined regarding goods produced by nonmember affiliates in member countries or by plants located in member states but owned partly by nonmembers. For example, France recently sought to deny entry of an auto, the Bluebird, produced in the United Kingdom by the Japanese company Nissan. The French claimed that only 70 percent of the auto was "local content" while 80 percent was required for admittance. The United Kingdom rebutted, saying that because the auto satisfied British local-content rules, by mutual recognition the car could not be denied entry. The case, eventually dropped by the French, illustrates the complexities of interpreting and implementing the directives of the Single European Act.

Social Harmonization. One of the issues probably least publicized and potentially most harmful to the competitive spirit of the 1992 plan is what Paul Craig Roberts (1990) calls "social harmonization." Under the EC Social Charter or Labor Policy, social harmonization would legally bind all member states to enforce the same set of "workers' rights." These include the right to adequate health care, unemployment compensation, worker safety, and the like. Recalcitrant companies would be punished by having duties imposed on their products. As Roberts sees it, the concept of social harmonization runs completely counter to the idea of completing the internal market by unleashing market forces. Instead, he claims, it actually "reintroduces protectionism in the guise of harmonization."

As it stands, the Social Charter divides the EC members into two camps: those fearing that without unified labor policy the LDCs, as it were, of the EC, with their lower labor costs and less restrictive policies, will export unemployment to the more industrial regions of the EC; and those afraid that a unified labor policy itself will lead to unemployment throughout the EC by raising the cost of doing business. The southern-rim countries in particular fear that employment will be redistributed toward the Golden Triangle between Germany, France, and the United Kingdom. In essence, the debate focuses on the question of whether free trade exists not only in labor but in goods, services, and capital when there are country-by-country distortions in the labor market that carry over to price distortions in these other markets.

A lack of resolution on this one, very difficult issue could undermine successes in other areas. To subvert whatever labor policy is instituted, agreed-upon guidelines for industrial policy and open public procurement could be abused. Mutual recognition may be disregarded, and economies of scale may be harder to come by. Fortunately, it is not likely that progress on the timely removal of border controls or standardization of essentials will be set back or that tariffs or even capital controls will be reintroduced.

There has been some progress on the free mobility of labor: five EC members—France, Germany, and the Benelux countries—have agreed on immigration policy ("Five EC Nations" 1990). Previously, discord arose over concerns about how such potential problems as immigration, drug trafficking, and the movement of criminals and terrorists would be handled. The agreement reached is that a shared crime-intelligence data network will be used to monitor cross-border criminal activity. Participation by the other EC members is anticipated, although progress is expected to be slow. According to Ambassador van Agt, free mobility of labor will probably be the last of the "four freedoms" to be realized (speech at the Federal Reserve Bank of Atlanta, February 11, 1991).

Industrial Policy, Strategic Trade Policy, and National Security. What issues outside those raised by the Single European Act threaten attaining the four freedoms? For one, agreement on which forms of industrial policy will be acceptable in light of the Single European Act will be hard to secure. In many instances, it is not clear at what points state initiatives overstep the bounds of competition embraced by the Single European Act (Rosenthal 1990). In fact, the degree of control over national expenditure that will be ceded to the supranational EC has yet to be decided. At present, the EC has control over public expenditures at the national level on research and technological development, environment, subsidies, debt write-offs, and below-market loans to industry (Rosenthal 1990). Industrial policy encompasses more than these, however. At the national level, tax reductions, tax deferrals, worker retraining, or the creation of enterprise zones can each be used to target a particular industry a government has an interest in aiding.

The EC has energetically disciplined states that have given aid suspected to impede competition. Often, these governments are forced to reclaim their gifts. In one well-known case, the EC forced the French government to reclaim a large portion of aid given to Boussac, a textile manufacturer. To enforce some degree of preventive control, the EC has written into its books that state aid valued at more than $15 million must receive prior clearance by the European Commission. Such disciplinary measures are meant to insure against infringement of the competition policy under the Single European Act. State aid in the name of national defense, however, is exempted from any of these measures. If the Directorate General's current posture on competition policy is any guide to the way protectionist industrial policy will be handled, then it is likely that more cases will be investigated and prosecuted.

Strategic trade policy also falls under the rubric of industrial policy and may be still another obstacle to completing the internal market and realizing its benefits. Critics of strategic trade policy (and, in fact, some growth policies) argue that the defense industry, being research-and-development intensive, creates positive spillovers into other industries. These externalities come in the form of innovations useful for consumer and industrial products and thereby give a country a competitive edge. Reliance on strategic trade policy to foster national growth interferes with the competitive spirit of the 1992 program, and such national benefits may come at the expense of EC-wide growth.

On the other hand, the use of strategic alliances—those in which companies from the same or different member states but within the same industry join together (without ceding corporate control)—may overcome any nationalistic tendencies. Alliances have already been formed in the auto, semiconductor, financial services, telecommunications, electronics, civil aviation, aerospace, defense, communications, computer, chemical, and pharmaceutical industries.[10] At the same time, the EC's views on the competitive effects of strategic alliances have yet to be shaped (Rosenthal 1990). It is too early to tell whether these alliances will help or hinder competition.

A more insidious form of industrial policy that may be employed to protect domestic interests involves use of "national security" as an argument to shut out nonnational companies not only in the defense industry but also in other industries such as the airline industry, electronics, telecommunications, computers, and even textiles or footwear. Clearly, reliance on national security arguments offers a loophole allowing the appearance of compliance with free trade directives while in reality the directives are being circumvented.

European Monetary and Political Union. Outside the 1992 program, other distinct but related issues—such as monetary and political union—threaten completion of the internal market. Although European monetary union and political union are neither part of the Single European Act, treaties outlining EC positions on these issues are expected to be produced. In the meantime, the act can be fully carried out with or without monetary or political union. The threat to success lies in the possibility that member states dissatisfied with EC guidelines on political and monetary union could exert pressure by not fully implementing the internal market directives.

As for monetary union, the benefits of a single European currency in terms of eliminating transactions

costs of currency conversion and associated uncertainty about exchange rate movements seem clear. Not so certain is what monetary union would mean for monetary and even fiscal sovereignty. According to Delors's plan, the ultimate issuance of a single currency would require transferral of monetary authority to a European System of Central Banks (ESCB).[11] Considerable progress has already been made toward coordinating monetary policy under the European Monetary System; however, if monetary policy is not available to any degree as an instrument for conducting national economic policy, member countries' control over interest rates, exchange rates, inflation, unemployment, and related variables will be more difficult. A related concern is the impact that monetary union, through requiring limits on each member's government finance, would have on the taxing and spending authority of each member state.

There is currently no outline for political union like the Delors plan for monetary union. Political union inside the EC means more than adopting a common foreign policy. For countries like Italy, Holland, Denmark, and Greece, it means drafting EC stances on tourism, the environment, consumer rights, and culture. For others, particularly the United Kingdom and France, such discussion is alarming because it forebodes management emanating from Brussels and not from the capitals of each member state. Most likely, the principle of "subsidiarity"—whereby items are delegated to either the EC level or the state level, whichever can most effectively handle them—will be mandated, offering some insurance against the movement of national discretion to Brussels. Requiring a unanimous vote to confirm foreign policy decisions would also help limit a transfer of powers from the member states to Brussels.

Political union requires institutionalizing democratic and legislative procedures as well as representation and voice. Items like unanimous or majority voting, equal or weighted representation, the status of the EC Parliament, and powers of the European Court of Justice—currently determined by national bodies—all lie in the purview of political union. Revamping at both the national and EC levels is not likely to be as swift nor as consensual as the development of the Single European Act.

The eventual outcome of monetary and political union, and perhaps fiscal union, will be an amalgam of quid pro quo negotiations on each. The three are intimately tied because they all address the same fundamental issue: how much national sovereignty are the member states willing to cede to the EC? "How much" depends on the economic, social, and political costs and benefits each member expects.

Conclusion

The 1992 plan has certainly brought with it more than was originally laid out in the White Paper of 1985 when the resolve to complete full economic integration took shape. The plan has served not only as the map toward economic integration but has also pointed in the direction of monetary and political union. To be sure, Europe has been and is undergoing a metamorphosis.

Since the writing of the 1985 White Paper, EC members have taken a serious look at their ways of doing business with each other. Almost all aspects of the European economic, legal, social, and political environment have been touched. Everything from border and customs controls, banking regulation and health and safety standards to foreign policy and the penal system has been reevaluated.

Full or even partial completion of the 1992 agenda rests entirely on each member state's perceptions of the benefits and costs—economic, legal, social, and political. Anticipation of the benefits projected by the Cecchini Report must be counterbalanced by the probability that unexpected costs and obstacles may arise as the 1992 program is implemented. The ceding of sovereignty is probably the largest cost that each of the member states has to consider. Unfortunately, it is at the heart of contention over many of the remaining directives.

While some of the directives of the 1992 agenda are easy to keep separate from the sovereignty issue, others are more entwined. The removal of administrative and border controls, mutual recognition of product standards, and harmonization of trade policies with respect to nonmembers have proceeded without much discussion over sovereignty. Not surprisingly, these points are the ones on which the most progress has been made. Those items in which sovereignty is at issue—particularly industrial and national security policy, labor laws, taxation, and, outside the 1992 plan, European monetary and political union—could become big stumbling blocks to completing the internal market, especially if concessions on completing the internal market are made in return for agreement on the substance of monetary and political union. Requiring unanimous approval on the directives before they become EC law as well

as foot-dragging by the members in enacting them into national legislation will also make continued progress on the 1992 agenda more tedious and slow-moving.

Some of the benefits and costs spelled out here and in other places will not be evident until the countries have begun participation in the plans. The very fact that EC law must be written into national law gives the member states time to react to the 1992 plan and then decide whether participation is worthwhile. Furthermore, participation by each member will continue to depend on what that country considers its alternatives. It is worth remembering that each country is traveling an unknown road that is not "one way." The final destination for each member and thus for the EC as a whole may be different in its specifics than originally envisioned but no less desirable.

Appendix

Key Provisions of the Single European Act, Effective July 1, 1987

Institutional Provisions

Changes in legislative process:
- qualified majority voting in Council of Ministers
- "cooperation procedure" to increase role of European Parliament
- assent procedure for new EC membership applications
- implementing powers for rule making by Commission

Establishment of Court of First Instance under European Court of Justice

Internal Market Provisions

1992 deadline for completion of internal market

Qualified majority voting for most "1992" measures, replacing Luxembourg Compromise requirement of unanimity; exceptions for measures affecting taxes, free movement of persons, rights of employed persons

Other Amendments to EC Treaties

Economic and monetary policy:
- increase in cooperation efforts
- member state conference required for institutional changes

Social policy:
- new measures for health and safety of workers
- Commission role in labor relations
- emphasis on reduction of regional disparities and increase in structural funds for social and regional aid

Research and technological development:
- new goals for competitiveness, common standards, and research and development "framework programs"

Environmental policy:
- environmental, health, and natural resource objectives
- principles for legislative action and for liability
- action at Community level secondary to action at member-state level

Foreign Policy Provisions

European Political Cooperation (EPC) outside institutional framework of EC

Undertakings:
- member states' endeavor to achieve joint formulation and implementation of European foreign policy
- prior consultation and consideration of other member-state views
- regular meetings; involvement of Commission and Parliament
- consistency of external policies of EC and EPC; cooperation between EC and EPC delegations to third countries and internal organizations
- possible coordination on national security issues
- establishment of foreign policy secretariat in Brussels

Source: Adapted from Powers (1989).

Notes

1. A White Paper is an official government report that typically recommends changes for the topic under investigation.
2. The unanimity rule is still operative in cases in which legal issues arise regarding turnover taxes, consumer taxes, indirect taxes, health, safety and environment, and the free movement and rights and interests of workers.
3. For an expanded treatment of the European Commission's expectations for the 1992 program, see Emerson (1989).
4. For a chart that illustrates the propagation of these gains, see Cecchini (1988, 100).
5. A complex scheme of "monetary compensatory adjustments" is used to prevent exploiting cross-country support-price differentials.
6. The estimated gains are contingent upon assumed reductions in import prices.
7. Andreas van Agt, ambassador of the EC to the United States, contends that monetary union will not be achieved until the late 1990s (speech given at the Federal Reserve Bank of Atlanta, February 11, 1991).
8. Even though the EC members fix rates against each other, allowance of a ±2.25 percent change (±6.0 percent for Spain and the United Kingdom) is permitted and realignments do occur. Currency changes of this magnitude, although small, can cut into profit margins in the single digits.
9. EC standards organizations like the European Committee for Standardization (CEN) and the European Committee for Electrotechnical Standardization (CENELEC) are working to agree on EC-wide standards for some industrial products. Adherence to the standards, however, will not be compulsory.
10. Along similar lines, the pan-European initiative known as Eureka encourages industries and universities from across Europe to collaborate in research and development for commercial application in areas ranging from medicine and biotechnology to communications to lasers and robotics.
11. The Delors plan for monetary union follows three stages. The first stage calls for convergence of economic performance and cooperation in monetary and fiscal policy. All restrictions to capital mobility are to be removed. In the second stage, the ESCB would be set up and gradually begin operation. Policy-making would gradually be transferred from the members' central banks to the European Central Bank. The exchange rate banks would also be narrowed. In the third stage, there would be an irrevocable locking of exchange rates (no realignments possible) and ultimately the issuance of a single currency controlled by the ESCB.

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FYI

Commercial Bank Profitability: Hampered Again by Large Banks' Loan Problems

Robert E. Goudreau and B. Frank King

Large U.S. commercial banks recorded exceptionally high loan-loss provisions for the second year in a row in 1990. The losses flattened large banks' margins and rates of return at levels well below those of their smaller counterparts. Profitability of the smaller banks, which had improved every year since 1987, held relatively steady in 1990.[1] In the industry as a whole profitability therefore remained essentially stable, with slight declines in interest margins and return on equity and steady return on assets.

After three years of increase, profit ratios for the smallest banks (those with assets below $25 million) held steady, continuing to be below figures recorded by their most consistently profitable competitors, which during the 1986-90 period were banks with assets between $50 million and $500 million. The smallest banks' primary disadvantage was again higher noninterest costs than other banks. In each bank size group except the largest two, profitability growth stalled at the most and least profitable institutions, breaking a two-year pattern of increase. However, the least profitable of the banks with assets of more than $500 million reported sharply diminished profitability.

Southeastern banks' profitability followed the national pattern in 1990 with two notable exceptions.[2] At the largest banks, interest margins and returns on assets and equity dropped from levels well above their national counterparts in 1989 to quite similar levels. Rising provisions for loan losses, which had plagued large banks in other parts of the nation in previous years, seriously affected the regions' largest banks in 1990. The smallest banks also stood out. As profitability measures for the nation's banks with assets totaling less than $25 million leveled off, return on assets and equity for the smallest banks in the Southeast deteriorated for the fifth year in a

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row, closely approaching zero. New banks in Florida and Georgia—which have grown slowly yet incur considerable noninterest operating expenses—along with some high-loss, low-asset trust companies in Florida were primarily responsible for the poor record of the smallest banks.

The extensive tables at the end of this article contain a substantial amount of information about bank profitability in 1990 and preceding years. The remainder of this presentation highlights some of the more interesting patterns that emerged or continued last year.

Profitability at the Nation's Banks

Profitability Measures. Bank profitability can have different meanings. For the purposes of this report the focus is on three profitability measures and their components: net interest margin, return on assets (ROA), and return on equity (ROE).[3] These measures are described in detail in the appendix. Briefly, net interest margin indicates a bank's interest revenues less interest costs as a proportion of interest-earning assets. For this analysis, revenues are adjusted to take into account different proportions of tax-free interest income earned by various banks and for estimated credit risk. The credit risk adjustment is calculated by subtracting a bank's annual additions to reserves for loan losses, which are assumed to approximate expected losses, from interest earnings. Net interest margin is similar to a business's gross profit margin, differing among other ways in that it omits earnings from fees for services provided, an increasingly important source of revenue for the nation's largest banks.

Return on assets (ROA) and return on equity (ROE) are more general measures of a bank's ability to earn from its total operation. A measure of net income as a proportion of total assets, ROA gauges a bank's effectiveness in using all of its financial and real investments to earn interest and fees. ROE reflects how well a bank is using shareholders' investments.

Profitability Patterns. The adjusted net interest margin of 3.07 percent for U.S. commercial banks last year was about the same as 1989's 3.13 percent margin. Large banks again depressed overall profitability. Their large-scale additions to loan-loss provisions held their interest margin adjusted for both risk and tax-exempt income to a level well below that of other banks.[4] Interest revenue declined more than interest expense in most size classes as well, resulting in slight margin declines for other banks as well. (See Tables 1 and 3 for data on net interest margins and loan-loss expenses by size class for the years 1986-90.)

The nation's commercial banks with more than $1 billion in assets maintained 1989's relatively high additions to loan-loss reserves, and banks with assets between $500 million and $1 billion significantly increased their additions. These additions primarily reflected rising delinquencies on commercial and industrial and commercial real estate loans.[5] Adjusted margins for most other size classifications were only slightly below the levels recorded in 1989, while banks with assets less than $25 million continued a rebound begun in 1986 to record the highest margin of any size group. As in past years, declining loan losses accounted for most of their improvement.

The most significant variation in margin components (shown in Tables 2 through 4) among size groups lay between the largest banks and those in other categories. In recent years, commercial banks with assets greater than $1 billion experienced somewhat better interest earnings but markedly higher interest expenses per dollar of interest-earning assets than did banks in any other asset classification. These largest banks, which raise greater proportions of their funds in the money markets than other banks, paid interest expenses 25 percent above the average interest expense faced by smaller banks. Accordingly, interest margins for banks with more than $1 billion in assets have been substantially lower relative to other asset classes. This pattern continued in 1990.

The pattern is evident even if occasionally dramatic changes in the largest banks' loan-loss reserves are ignored. (The difference between interest revenues and interest expenses, excluding additions to loan-loss provisions, for different size U.S. banks over the 1986-90 period are displayed in Table 5.) The difference between interest revenue (unadjusted for additions to provisions for loan losses) and interest expense margins has been quite similar over time and across all size categories of banks except the largest during the past five years. Lower interest revenues minus interest-expense margins have restrained profitability for the largest banks in recent years, while abrupt changes in loan-loss provisions have made yearly profitability for this class quite variable. Moreover, changing profitability for the nation's largest banks, which account for an overwhelming majority of banking assets, has played a major role in determining annual profitability for the entire industry.

Excluding the smallest banks, which recorded stable ROA of 0.61 last year, and the largest banks, which reported an incremental increase of 4 basis

points to 0.39 percent, moderate declines in adjusted interest margins for the other bank categories generally translated into moderately lower returns on assets (see Table 6). Among the various categories, under-$25 million banks showed the highest adjusted margin and the lowest increase in loan-loss provisions, yet the aggregate ROA for these banks remained below the returns for all but their largest competitors. These under-$25 million banks seem to have earned lower returns principally as a result of higher noninterest expenses (see Table 7). Noninterest expenses for the smallest U.S. banks averaged 3.8 percent of total assets during the 1986-90 period, noticeably surpassing noninterest expense-to-assets ratios for other asset classifications.[6]

The pattern for return-on-equity changes nationwide was a magnified version of ROA changes (see Table 8).[7] ROE was down in each size class but the largest, for which it rose about 11 percent. The larger banks, which typically maintain lower equity ratios, returned more on book value of equity per every dollar of ROA.[8] The ROE for the country's smallest and largest banks remained well below that of other banks, casting some doubt on the longer-term vitality of both groups of banks as they are now structured.

Southeastern Banks

Unlike 1989, when provisions for less developed country (LDC) loans contributed to increased loan losses nationally but had only a modest impact on the Southeast's banks, additions to loan-loss reserves hit the region's largest banks as hard as they did the nation's in 1990.[9] (Data on southeastern banks' profitability are in Tables 9-15.) Consequently, last year's adjusted interest margin for the region's largest banks fell from 3.71 percent to 3.16 percent, return on assets dropped from 0.62 to 0.42 percent, and return on equity declined from 9.79 percent to 6.54 percent. Loan-loss provisions for southeastern banks with assets exceeding $1 billion jumped from 0.87 to 1.30 percent of interest-earning assets. Nonperforming real estate loans became much more prevalent in the Southeast and had a major effect on the region's large banks. Among the other banks, margins were generally steady; however, an increase in adjusted interest earnings for the $500 million-to-$1 billion category raised its margin sharply.[10]

While profitability for the nation's smallest banks has advanced to more respectable levels since 1986, earnings performance for the region's under-$25 million banks stalled at half the national level in 1989 and fell drastically in 1990. These banks returned a slim 0.07 percent on assets last year compared with 0.61 percent for national counterparts. Poor returns on assets and equity for the region's smallest banks can be traced to two sources: a concentration of small new banks in Florida and Georgia and relatively high additions to loan-loss provisions at small banks in Florida and Tennessee.

Banks established during the past five years in the Southeast are concentrated in Florida and Georgia. Many of these banks have grown slowly and are recording high noninterest expenses relative to their size. Hence their return on assets is quite low or negative. In Florida, for instance, forty-three of the seventy-five smallest banks recorded negative returns on assets in 1990. Of these forty-three banks, twenty-seven had been established since 1986. Florida's smallest banks' ROA measures were further reduced by a small group of newer banks specializing in trust business. This group recorded the high noninterest expenses associated with trust management, reported overall losses, and, because assets on their own books were low, showed unusually high negative ROAs.

Poor loan-loss experience also depressed profitability of the smallest banks in Florida and in Tennessee. Although the under-$25 million banks in neither of the two states matched the loan-loss reserve additions of the largest banks in their states, the increase in their provisions averaged more than 0.90 percent of total assets, almost twice that of their national counterparts and other small banks in the region.

Despite low returns at the smallest banks, southeastern banks as a group attained a 0.54 percent return on assets versus 0.51 percent nationwide. The region's advantage was considerably larger in 1989, but 1990 returns deteriorated sharply at banks in the $50-$100 million asset size category as well as the largest and smallest categories in the region.

Profitability patterns for the region's states changed in several ways (see Tables 16-21). Georgia banks' problems allowed Alabama banks to climb to the top in ROA and ROE after vying for several years with each other for the region's best profitability. Alabama banks as a group returned 1.03 percent on assets versus a 0.94 percent ROA for Georgia banks and only 0.54 for the region.

Returns on assets for the remaining southeastern states, except Louisiana, declined in 1990. In particular, last year's loan-loss provisions for Florida and Tennessee banks rose markedly because of now-sour

real estate loans that were made in overbuilt areas of these states. Heightened loan-loss provisions drove Florida banks' net interest margin to 3.19 percent, only a bit above Louisiana's. Florida banks' return on assets dropped to a meager 0.29 percent, again just slightly ahead of Louisiana's improved earnings.

Louisiana banks, which have struggled for years in a weak, energy-based economy, reduced statewide additions to loan-loss provisions to achieve their 0.24 percent ROA. Although this return is still modest, it represents an improvement for Louisiana banks, which as a group had not recorded discernibly positive profitability since 1985, the year before oil prices fell from previously robust levels.

The Distribution of Bank Profitability

Analyzing changes in overall profitability for banks of differing profitability levels can help evaluate the degree to which banks have been successful in responding to difficulties facing financial institutions during the 1980s. One way to analyze the distribution of bank profitability within a given asset-size category is to rank all banks in that category in ascending order of profitability, divide the group into quartiles, and describe the profitability of the most profitable bank in each quartile. For example, the banks with the best ROA in the first (lowest) quartile would be those at the 25th percentile; that is, 25 percent of the banks in a particular size category are less profitable than the bank at the 25th percentile. Comparing the profitability of the bank at the 25th percentile over time would indicate the degree to which the least profitable banks in that asset category are experiencing improvement or deterioration in earnings. Likewise, comparing the ROA for the bank at the 75th percentile over time would indicate changes in the earnings of the more profitable banks in that size category. A rise in profitability over time at the various percentiles suggests improved conditions; downward movements indicate deterioration. Tables 22 through 27 present the national profitability distribution for each of the six asset-size categories during the past five years.

Last year the three smallest categories of 25th percentile banks, those with assets under $100 million, logged returns on assets equal to or slightly below 1989 ratios. The weakest banks in the three larger asset classes experienced more clearly decreased profitability. The greatest decline occurred for the least profitable $1 billion-plus banks, for which last year's return on assets plunged to 0.10 percent, only one-fifth of the preceding year's ROA. Reversing a two-year improvement, profitability for nearly all size classes of 50th and 75th percentile banks diminished modestly in 1990. For banks in size classes with asset holdings less than $1 billion, the declines ranged from 1.0 to 9.4 percent; however, the ROA for the median $1 billion-plus bank declined by one-fourth.

Conclusion

Loan losses and thin interest margins continued to plague the largest banks in the nation and the region. The largest commercial banks in the nation recorded returns on assets less than half that of banks in the $50 million-to-$1 billion size range for the second year in a row, primarily because of continued large-scale additions to loan-loss provisions. Troubled commercial real estate loans in several regions of the country made increased provisions necessary and sharply affected large banks in the Southeast. Last year's profitability for banks in other asset categories in the nation as a whole was comparable to 1989's. Improvements in returns on assets for the two smallest bank classes stalled and still stand some 10 to 20 basis points below the returns for midsize banks, which were the most consistently profitable throughout the 1986-90 period.

Weaker banks in the small size categories held their own during 1990, while earnings of the weakest large banks moved down. The nation's least profitable $1 billion-plus banks suffered the worst decline. In fact, profitability for at least a majority of the nation's largest banks narrowed last year as the ROA for this category's 50th percentile bank fell by one-fourth.

Profitability for southeastern banks was basically the same as the nation's with two exceptions. Unlike their national counterparts, the smallest size regional banks continued to experience falling profit ratios, for the fifth year in a row. A concentration of small new banks in Florida and Georgia was responsible for much of this poor performance. In contrast to their better-than-national 1989 performance, the region's largest banks sharply increased their loan-loss provisions. Return on assets for these banks last year approximately equaled the return for national counterparts.

Alabama banks were the region's most profitable during 1990, with Georgia banks a close second. In-

creased provisions for anticipated loan losses crimped profitability for Florida, Louisiana, and Tennessee banks. However, after a lengthy, difficult workout of poorly performing loans, Louisiana banks appear to be back on track. Their combined profitability was discernibly positive for the first time in five years.

Appendix

Profitability Measures

Three different measures have been used to provide information on bank performance: adjusted net interest margin, return on assets, and return on equity. Adjusted net interest margin gauges the difference between a bank's interest income and expenses and is roughly similar to a business's gross profit margin. *Gross profit* is the amount received from sales minus the cost of goods or services sold; other expenses such as sales, advertising, salaries, and rent have not been deducted. For banks, this indicator is calculated by subtracting interest expense from tax-adjusted interest revenue (net of loan-loss provisions) and dividing that result by net interest-earning assets. For this calculation, interest revenue from tax-exempt securities is adjusted upward by the bank's marginal tax rate to avoid penalizing institutions that hold substantial state and local securities portfolios, which reduce tax burdens.

Loan-loss expenses are subtracted from interest revenue to place banks that make lower-risk loans at lower interest rates on a more equal footing with commercial banks that make higher-risk loans, which can generate greater interest income. For example, interest rates on credit cards have been substantially higher than rates on prime commercial loans, but loan losses on credit cards have also been larger. Charge-offs on credit cards were 2.9 percent of total credit card volume in 1989 for the nation's top 100 banks in credit card operations, according to "Top 100 Banks in Credit Card Operations."

Banks also bring in noninterest revenue in the form of loan origination fees; deposit service charges; charges for letters of credit, loan commitments, and other off-balance-sheet services; and gains from the sale of securities, to name a few. In addition, they incur noninterest expenses such as expenditures on employee salaries, computer equipment, and maintenance. Therefore, Bank X with a comparatively low adjusted interest margin may achieve a higher return on assets than Bank Y, which attained a larger margin. That is, Bank X may record a higher return on assets by realizing higher noninterest revenues or lower noninterest expenses.

The return on assets (ROA) ratio—the result of dividing a bank's net income by its average assets—gauges how well a bank's management is using the firm's assets. The return on equity (ROE) figure tells a bank's shareholders how much the institution is earning on the book value of their investments. ROE is calculated by dividing a bank's net income by its total equity. The ratio of ROA to ROE falls as the bank's capital-to-assets ratio rises. Smaller banks typically have higher capital-to-asset ratios.

Analysts who want to compare profitability while ignoring differences in equity capital ratios tend to focus on ROA. Those wishing to focus on returns to shareholders look at ROE. Highly capitalized banks that post the same return on assets as less well capitalized competitors will record a lower return on equity. Because return on equity is computed by dividing a bank's net income by its capital reserve, a bank's return on equity will decline as its capital reserve increases, assuming net income remains fixed.

Profitability Data and Calculations

The data in this article are taken from reports of condition and income filed with federal bank regulators by insured commercial banks. The sample consists of all banks that had the same identification number at the beginning and end of each year. The number of banks in the 1990 sample is 12,149.

The three profitability measures used in this study are defined as follows:

$$\text{Adjusted Net Interest Margin} = \frac{\text{Expected Interest Revenues} - \text{Interest Expense}}{\text{Average Interest-Earning Assets}}$$

$$\text{Return on Assets} = \frac{\text{Net Income}}{\text{Average Consolidated Assets}}$$

$$\text{Return on Equity} = \frac{\text{Net Income}}{\text{Average Equity Capital}}$$

Average interest-earning assets, consolidated assets, and equity capital are derived by averaging beginning-, middle-, and end-of-year balance sheet figures. The expected interest income component to net interest margin incorporates two significant adjustments from ordinary interest income. If profits before tax are greater than zero, the lesser of revenue from state and local securities exempt from federal tax or the bank's profits before tax is divided by 1 minus the bank's marginal federal tax rate. Loan-loss expenses are subtracted from interest revenue.

Table 1
Adjusted Net Interest Margin as a Percentage of Interest-Earning Assets
(Insured commercial banks by consolidated assets)

Year	All Banks	$0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion+
1986	3.33	3.54	3.73	3.89	3.91	3.96	3.05
1987	2.67	3.81	3.95	4.11	4.19	3.86	1.98
1988	3.74	4.04	4.15	4.25	4.28	3.84	3.53
1989	3.13	4.23	4.31	4.36	4.37	4.16	2.61
1990	3.07	4.29	4.27	4.27	4.16	3.97	2.60

Source: Figures in all tables have been computed by the Federal Reserve Bank of Atlanta from data in "Consolidated Reports of Condition for Insured Commercial Banks" and "Consolidated Reports of Income for Insured Commercial Banks," 1986-90, filed with each bank's respective regulator.

Table 2
Tax-Equivalent Interest Revenue as a Percentage of Interest-Earning Assets
(Insured commercial banks by consolidated assets)

Year	All Banks	$0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion+
1986	10.17	10.77	10.73	10.68	10.51	10.71	9.93
1987	9.85	9.94	10.00	9.99	10.04	9.99	9.78
1988	10.65	10.12	10.18	10.24	10.35	10.30	10.83
1989	11.62	10.72	10.86	10.89	11.14	11.28	11.87
1990	11.26	10.61	10.72	10.72	10.84	11.15	11.44

Table 3
Loan-Loss Expense as a Percentage of Interest-Earning Assets
(Insured commercial banks by consolidated assets)

Year	All Banks	$0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion+
1986	0.92	1.33	1.10	0.96	0.90	1.02	0.88
1987	1.48	0.94	0.83	0.68	0.69	0.90	1.84
1988	0.65	0.72	0.63	0.57	0.59	0.79	0.66
1989	1.10	0.58	0.55	0.49	0.58	0.69	1.33
1990	1.10	0.48	0.49	0.49	0.64	0.98	1.30

Table 4
Interest Expense as a Percentage of Interest-Earning Assets
(Insured commercial banks by consolidated assets)

Year	All Banks	$0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion+
1986	5.92	5.91	5.91	5.83	5.70	5.73	5.99
1987	5.71	5.19	5.23	5.19	5.16	5.23	5.96
1988	6.27	5.36	5.39	5.42	5.48	5.67	6.63
1989	7.38	5.91	6.01	6.04	6.18	6.42	7.93
1990	7.09	5.85	5.96	5.96	6.03	6.19	7.55

Table 5
Tax Equivalent Interest Earnings Less Interest Expense as a Percentage of Interest-Earning Assets
(Insured commercial banks by consolidated assets)

Year	All Banks	$0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion+
1986	4.25	4.86	4.82	4.85	4.82	4.98	3.93
1987	4.15	4.75	4.77	4.79	4.88	4.76	3.81
1988	4.39	4.76	4.78	4.82	4.87	4.63	4.19
1989	4.23	4.81	4.86	4.86	4.95	4.85	3.93
1990	4.17	4.76	4.77	4.76	4.80	4.95	3.89

Table 6
Percentage Return on Assets
(Insured commercial banks by consolidated assets)

Year	All Banks	$0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion+
1986	0.63	0.09	0.46	0.62	0.68	0.61	0.65
1987	0.99	0.26	0.46	0.66	0.75	0.51	20.15
1988	0.84	0.36	0.61	0.77	0.81	0.58	0.89
1989	0.51	0.61	0.74	0.88	0.92	0.88	0.35
1990	0.51	0.61	0.72	0.82	0.81	0.77	0.39

Table 7
Total Noninterest Expense as a Percentage of Total Assets
(Insured commercial banks by consolidated assets)

Year	All Banks	$0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion+
1986	3.1	3.7	3.3	3.1	3.2	3.4	3.0
1987	3.2	3.8	3.3	3.2	3.2	3.4	3.2
1988	3.3	3.7	3.3	3.2	3.2	3.3	3.3
1989	3.3	3.8	3.3	3.2	3.2	3.2	3.3
1990	3.5	3.9	3.4	3.3	3.3	3.5	3.5

Table 8
Percentage Return on Equity
(Insured commercial banks by consolidated assets)

Year	All Banks	$0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion+
1986	10.10	0.91	5.34	7.72	9.43	9.00	11.84
1987	1.63	2.75	5.39	8.02	10.09	7.51	−2.80
1988	13.50	3.79	6.96	9.15	10.67	8.67	16.40
1989	7.94	6.30	8.22	10.20	11.95	12.72	6.20
1990	7.91	6.17	7.96	9.41	10.37	10.40	6.89

Table 9
Adjusted Net Interest Margin as a Percentage of Interest-Earning Assets
(Insured commercial banks in the Southeast by consolidated assets)

Year	All SE Banks	$0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion+
1986	4.24	4.18	4.19	4.24	4.24	3.78	4.30
1987	4.26	4.19	4.29	4.41	4.52	3.61	4.23
1988	4.34	4.30	4.27	4.35	4.44	4.17	4.34
1989	3.91	4.20	4.35	4.29	4.32	3.59	3.71
1990	3.58	4.19	4.35	4.19	4.18	4.07	3.16

Table 10
Tax-Equivalent Interest Revenue as a Percentage of Interest-Earning Assets
(Insured commercial banks in the Southeast by consolidated assets)

Year	All SE Banks	$0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion+
1986	10.72	11.15	11.11	11.05	10.88	10.84	10.50
1987	10.27	10.34	10.43	10.32	10.28	10.04	10.26
1988	10.64	10.54	10.55	10.53	10.49	10.49	10.73
1989	11.18	11.24	11.31	11.14	11.11	11.08	11.20
1990	10.91	11.00	11.09	10.98	10.87	11.47	10.83

Table 11
Loan-Loss Expense as a Percentage of Interest-Earning Assets
(Insured commercial banks in the Southeast by consolidated assets)

Year	All SE Banks	$0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion+
1986	0.86	1.13	1.02	0.92	1.00	1.24	0.70
1987	0.80	0.98	0.88	0.69	0.68	1.22	0.80
1988	0.64	0.71	0.69	0.58	0.61	0.56	0.66
1989	0.79	0.81	0.62	0.53	0.60	0.96	0.87
1990	1.06	0.74	0.54	0.62	0.63	1.05	1.30

Table 12
Interest Expense as a Percentage of Interest-Earning Assets
(Insured commercial banks in the Southeast by consolidated assets)

Year	All SE Banks	$0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion+
1986	5.63	5.84	5.90	5.89	5.64	5.81	5.49
1987	5.20	5.18	5.26	5.22	5.09	5.21	5.23
1988	5.66	5.53	5.59	5.60	5.45	5.76	5.73
1989	6.48	6.23	6.34	6.32	6.19	6.53	6.62
1990	6.28	6.07	6.20	6.17	6.06	6.34	6.36

Table 13
Percentage Return on Assets
(Insured commercial banks in the Southeast by consolidated assets)

Year	All SE Banks	$0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion+
1986	0.82	0.33	0.63	0.74	0.74	0.55	0.94
1987	0.78	0.31	0.52	0.73	0.80	0.45	0.86
1988	0.82	0.30	0.51	0.81	0.81	0.86	0.87
1989	0.68	0.26	0.64	0.89	0.87	0.55	0.62
1990	0.54	0.07	0.67	0.71	0.84	0.65	0.42

Table 14
Total Noninterest Expense as a Percentage of Total Assets
(Insured commercial banks in the Southeast by consolidated assets)

Year	All SE Banks	$0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion+
1986	3.4	4.1	3.4	3.3	3.3	3.9	3.3
1987	3.4	4.9	3.5	3.3	3.4	3.6	3.4
1988	3.4	4.3	3.5	3.4	3.4	3.4	3.4
1989	3.3	4.4	3.5	3.3	3.3	3.4	3.3
1990	3.5	4.8	3.7	3.6	3.5	3.7	3.5

Table 15
Percentage Return on Equity
(Insured commercial banks in the Southeast by consolidated assets)

Year	All SE Banks	$0-$25 million	$25-$50 million	$50-$100 million	$100-$500 million	$500 million-$1 billion	$1 billion+
1986	11.87	3.25	7.01	8.83	10.00	8.68	15.78
1987	11.18	2.82	5.70	8.61	10.56	6.90	13.99
1988	11.64	2.80	5.48	9.41	10.56	12.85	13.69
1989	9.57	2.24	6.73	9.93	11.09	8.25	9.79
1990	7.48	0.55	7.04	8.03	10.69	7.65	6.54

Table 16
Adjusted Net Interest Margin as a Percentage of Interest-Earning Assets
(Insured commercial banks in the Southeast by state)

Year	All SE Banks	Alabama	Florida	Georgia	Louisiana	Mississippi	Tennessee
1986	4.24	4.73	4.56	4.71	2.40	4.12	4.37
1987	4.26	4.50	4.30	4.95	2.98	4.39	4.21
1988	4.34	4.47	4.37	4.98	3.41	4.21	4.11
1989	3.91	4.14	3.83	4.71	2.87	3.96	3.64
1990	3.58	4.11	3.19	4.32	3.12	3.87	3.38

Table 17
Tax-Equivalent Interest Revenue as a Percentage of Interest-Earning Assets
(Insured commercial banks in the Southeast by state)

Year	All SE Banks	Alabama	Florida	Georgia	Louisiana	Mississippi	Tennessee
1986	10.72	10.83	10.77	10.98	10.32	10.48	10.70
1987	10.27	10.11	10.13	11.06	9.91	10.33	10.04
1988	10.64	10.60	10.41	11.27	10.62	10.35	10.61
1989	11.18	11.18	10.96	11.90	10.77	10.91	11.22
1990	10.91	10.84	10.66	11.47	10.57	10.67	11.28

Table 18
Loan-Loss Expense as a Percentage of Interest-Earning Assets
(Insured commercial banks in the Southeast by state)

Year	All SE Banks	Alabama	Florida	Georgia	Louisiana	Mississippi	Tennessee
1986	0.86	0.45	0.68	0.67	2.14	0.67	0.66
1987	0.80	0.45	0.77	0.72	1.61	0.61	0.64
1988	0.64	0.32	0.59	0.54	1.30	0.46	0.74
1989	0.79	0.41	0.78	0.58	1.48	0.51	0.95
1990	1.06	0.47	1.20	0.98	1.22	0.60	1.33

Table 19
Interest Expense as a Percentage of Interest-Earning Assets
(Insured commercial banks in the Southeast by state)

Year	All SE Banks	Alabama	Florida	Georgia	Louisiana	Mississippi	Tennessee
1986	5.63	5.65	5.54	5.60	5.78	5.69	5.68
1987	5.20	5.16	5.06	5.39	5.32	5.36	5.18
1988	5.66	5.82	5.45	5.75	5.91	5.67	5.77
1989	6.48	6.62	6.35	6.61	6.42	6.44	6.63
1990	6.28	6.25	6.27	6.16	6.24	6.21	6.57

Table 20
Percentage Return on Assets
(Insured commercial banks in the Southeast by state)

Year	All SE Banks	Alabama	Florida	Georgia	Louisiana	Mississippi	Tennessee
1986	0.82	1.22	0.87	1.09	−0.22	1.00	0.98
1987	0.78	1.08	0.75	1.13	−0.07	0.88	0.89
1988	0.82	1.16	0.78	1.15	0.03	0.85	0.84
1989	0.68	1.01	0.62	1.10	−0.12	0.79	0.61
1990	0.54	1.03	0.29	0.94	0.24	0.76	0.43

Table 21
Percentage Return on Equity
(Insured commercial banks in the Southeast by state)

Year	All SE Banks	Alabama	Florida	Georgia	Louisiana	Mississippi	Tennessee
1986	11.87	15.15	14.21	16.41	−2.91	13.50	13.74
1987	11.18	13.27	12.06	16.02	−0.93	11.49	12.33
1988	11.64	14.39	12.20	15.76	0.41	10.91	11.54
1989	9.57	12.55	9.56	14.41	−1.70	9.97	8.30
1990	7.48	13.01	4.38	11.40	3.55	9.77	5.92

Table 22
Percentage Return on Assets
(Insured commercial banks with assets below $25 million)

	Percentile According to Profitability		
Year	75%	50%	25%
1986	1.12	0.65	−0.26
1987	1.09	0.67	−0.03
1988	1.14	0.78	0.20
1989	1.20	0.84	0.38
1990	1.16	0.83	0.38

Table 23
Percentage Return on Assets
(Insured commercial banks with assets of $25 million to $50 million)

	Percentile According to Profitability		
Year	75%	50%	25%
1986	1.23	0.83	0.29
1987	1.18	0.84	0.35
1988	1.24	0.93	0.53
1989	1.29	0.99	0.58
1990	1.23	0.93	0.55

Table 24
Percentage Return on Assets
(Insured commercial banks with assets of $50 million to $100 million)

	Percentile According to Profitability		
Year	75%	50%	25%
1986	1.28	0.94	0.45
1987	1.25	0.92	0.52
1988	1.28	0.98	0.64
1989	1.34	1.04	0.70
1990	1.26	0.99	0.65

Table 25
Percentage Return on Assets
(Insured commercial banks with assets of $100 million to $500 million)

	Percentile According to Profitability		
Year	75%	50%	25%
1986	1.27	0.97	0.57
1987	1.25	0.97	0.60
1988	1.33	1.04	0.71
1989	1.37	1.07	0.77
1990	1.28	1.02	0.66

Table 26
Percentage Return on Assets
(Insured commercial banks with assets of $500 million to $1 billion)

	Percentile According to Profitability		
Year	75%	50%	25%
1986	1.19	0.92	0.55
1987	1.20	0.94	0.47
1988	1.29	1.00	0.56
1989	1.30	1.06	0.64
1990	1.30	0.96	0.41

Table 27
Percentage Return on Assets
(Insured commercial banks with assets over $1 billion)

	Percentile According to Profitability		
Year	75%	50%	25%
1986	1.10	0.90	0.60
1987	1.08	0.86	0.30
1988	1.21	1.01	0.71
1989	1.20	0.96	0.50
1990	1.12	0.74	0.10

Notes

1. Six size categories of commercial banks are analyzed in this study. They are (1) banks with total assets of no more than $25 million, (2) banks with total assets exceeding $25 million and at most $50 million, (3) banks with total assets greater than $50 million and no more than $100 million, (4) banks with total assets exceeding $100 million, up to $500 million, (5) banks with total assets exceeding $500 million and at most $1 billion, and (6) banks with total assets greater than $1 billion.

   De novo banks are not included in this study. The ratios displayed are full-year profitability figures based on beginning-, middle-, and end-of-year balance sheets and income statements. Banks that commence operations during any particular year will be missing beginning-of-year data and perhaps more. See Table A on the following page.
2. In this study *Southeast* refers to the six states entirely or partially within the Sixth Federal Reserve District: Alabama, Florida, Georgia, Louisiana, Mississippi, and Tennessee.
3. The revenue, expense, and profitability figures presented are generally similar to those displayed in prior bank profitability studies published in the *Economic Review* (see Goudreau and King 1990 for the most recent study). The figures may not be identical because the data have been corrected for reporting errors. Additionally, the interest revenue as a percentage of interest-earning assets ratio and adjusted net interest margins may differ from figures reported in previous studies because of corrections in the treatment of tax-exempt interest income.
4. The term *loan-loss reserves* is used interchangeably with loan-loss provisions in this article and should not be read mistakenly to mean that a bank sets aside funds (cash) in reserve to cover its loan losses. An increase in the loan-loss account does not directly cause any change in the allocation of a bank's assets.

   An increase in loan-loss provisions reduces the net value of the bank's loans on its accounting records and its net income. Increases in provisions will also have a negative impact on a bank's equity capital as reported in its accounting records (additions to loan-loss provisions are subtracted from bank equity) and may trigger regulatory demands for additional equity. See Wall (1988, 39-41).
5. Loan problems worsened in 1990, with the bulk of troubled loans shifting generally from sour commercial real estate lending in the Southwest. The proportion of noncurrent real estate loans at the end of 1990 was the highest since banks began reporting troubled loans in 1982. The 1990 deterioration was greatest in commercial real estate loans. Although most regions' commercial real estate loans deteriorated, larger banks in the Northeast region were hardest hit ("Commercial Banking Performance" 1990, 2).
6. There are three main components of total noninterest expense. They are (1) salaries and employee benefits, (2) expenses for premises and fixed assets, and (3) other noninterest expenses. The proportion of total noninterest expense was stable for under-$25 million banks, as well as other asset classes, during the 1986-90 period. Salaries and employee benefits account for almost half the total, expenses for premises and fixed assets absorb approximately 15 percent, and other noninterest costs equal about 40 percent of the total.
7. Equity-to-assets ratios for U.S. banks as a whole from 1986 to 1990 were 6.2, 6.1, 6.2, 6.4, and 6.4 percent, respectively. For southeastern banks, respective capital-to-assets ratios were higher—6.9, 7.0, 7.1, 7.1, and 7.3 percent from 1986 to 1990, respectively.
8. Equity-to-assets ratios for banks in the six asset classifications in 1990 are shown in Table B. Equity-to-asset ratios for the different size banks took on a similar distribution during the preceding four years, but these equity ratios have risen moderately for each class over the 1986-90 period.
9. See Table C. See "Commercial Banking Performance" (1990, 2) for troubled real estate rates for other states and regions.
10. See Table D.

Table A
U.S Commercial Banks, 1990

	$0-$25 Million	$25-$50 Million	$50-$100 Million	$100-$500 Million	$500 million-$1 Billion	$1 Billion+
Number of Banks	3,204	3,134	2,741	2,449	250	371
Percent of U.S. Banks	26.4	25.8	22.6	20.2	2.1	3.1
Total Assets ($ billions)	49.0	109.7	184.7	458.4	163.8	2,327.1
Percent of U.S. Total Assets	1.5	3.3	5.6	13.9	5.0	70.7

Table B
Equity-to-Assets Ratio
U.S. Commercial Banks, 1990

	$0-$25 Million	$25-$50 Million	$50-$100 Million	$100-$500 Million	$500 Million-$1 Billion	$1 Billion+
Equity-to-Total Assets (Percent)	9.96	9.07	8.75	7.83	7.48	5.70

Table C
Troubled Real Estate Asset Rates[a]
(December 31, 1990)

	Alabama	Florida	Georgia	Louisiana	Mississippi	Tennessee
Percent	2.96	5.99	4.10	11.59	4.09	5.71

[a] *Noncurrent real estate loans (plus other real estate owned) as a percent of total real estate loans (plus other real estate owned).*

Table D
Southeastern Commercial Banks, 1990

	$0-$25 Million	$25-$50 Million	$50-$100 Million	$100-$500 Million	$500 million-$1 Billion	$1 Billion+
Number of Banks	279	494	421	334	37	50
Percent of S.E. Banks	17.3	30.6	26.1	20.7	2.3	3.1
Total Assets ($ billions)	4.5	17.1	28.3	59.4	23.9	203.7
Percent of S.E. Total Assets	1.3	5.1	8.4	17.6	7.1	60.5

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Review Essay

International Trade and Finance Information Sources: A Guide to Periodical Literature

Jerry J. Donovan

In response to the growing importance of worldwide trade and capital flows, literature about major international trade and finance areas—like the Pacific Rim, the European Community, and Latin America—is proliferating. To meet the needs of those active in foreign commerce, as well as economists and academicians interested in public policy on an international scale, a wide array of publications has appeared, disseminating theoretical, technical, and practical information. Among these are a number of periodicals that provide current information on trade and finance activity in particular world regions.

This review is focused on a selection of these international journals and magazines, many of which, though certainly not all, are relatively new. Almost half the periodicals included began publication within the last four years. Some of the titles, because of their narrow focus and relatively small readership, may be little known. (See the box on page 63 for subscription information.)

Most of the publications reviewed fall into four categories: (1) "serious" general interest magazines like *Asiaweek*, a Hong Kong publication intended to help readers develop understanding of Asia; (2) "academic" or "research" journals, like The *Journal of International Money and Finance*, containing exposition and empirical analysis of economic theory relevant to monetary and other aspects of economic policy; (3) "quasi-theoretical" publications, such as *Risk: Managing Risk in the World's Financial Markets*, that bridge the gap between the academician and the practitioner; and (4) statistical sources like *The Semi-Annual Bulletin of the Clearinghouse of the Pacific Basin Central Bank Economic Research* and the *Statistical Abstract of Latin America*, offering short facts and citations of references that provide greater detail on a topic.

The reviewer is the research librarian in the Atlanta Fed's research library. *He is grateful to a number of people in the research department—particularly Jan Boucher, Peter Abken, Mary Rosenbaum, Curt Hunter, Tom Cunningham, Aruna Srinivasan, and Larry Wall—for assistance in evaluating the publications reviewed in this article.*

A modified version of the "Structure of World Trade, 1980-87" developed by the European Community has been adopted as a handy, if somewhat arbitrary, system for classifying the periodicals in this review:[1]

- Global (for many world trade areas)
- North America (Canada, Mexico)
- Latin America (excludes Mexico)
- Western Europe (includes European Community)
- Far East/Asia[2]

As with any system, classification by geography does not result in absolute consistency. An inadvertent byproduct of this approach is a somewhat uneven distribution of publications among the geographic regions, resulting from the fact that certain areas command fewer known periodical titles focusing on the area.

This discussion of periodicals is the second part of a two-part review. Part 1, in the May/June *Economic Review*, looked at seasoned reference directories and statistical compendiums of worldwide information. Together, selections of works from these two articles would form a useful reference collection on international trade and finance.

Global (Multicountry)

To keep abreast of current developments in international finance and trade, whether for a specific trade area or the world at large, newspapers like *The Financial Times* of London (daily), the *Asian Wall Street Journal* of Hong Kong (weekly), the *Wall Street Journal/Europe* of Brussels (daily, text in English), *Le Monde* of Paris (daily, text in French), or *Frankfurter Allgemeine* of Frankfurt (daily, text in German) offer a broad range of business and economic information. For those interested in more in-depth coverage, a variety of periodicals is available.

The publications of The Economist Intelligence Unit of London (EIU), which merged in 1987 with Business International (New York), provide a far-reaching information network. *The Economist*, the oldest of EIU's publications (begun in 1843), is widely respected for its weekly review of economic developments as well as politics and general news in the United Kingdom and around the world. Although less well known, other EIU publications provide sound international economic analysis and forecasts. Notable among these are the 165 *Country Reports* that monitor political, economic, and business conditions within each country, accompanied by annual *Country Profiles*;[3] *European Trends*, a quarterly publication analyzing key issues and developments in the European Communities, the European Free Trade Area (EFTA), and the Single Market; and the EIU occasional studies, published as monographs. *How to Win in Emerging Stock Markets: Profitable Investment Strategies for the 1990s*, for example, a monograph published in collaboration with the International Finance Corporation (IFC), discusses trends in developing-country equity markets, the barrage of new country funds, and analytic tools intended to support more informed deliberation about investing in emerging markets.

A number of periodicals published elsewhere also offer perspectives on the global financial scene. Several of these are discussed below.

Economic Policy: A European Forum (Cambridge, England; semiannually; began 1985) offers articles on topics ranging from the workings of individual markets to broad interactions throughout the world economy. All articles are commissioned from "leading economists (whose) brief is to demonstrate how live policy issues can be illuminated by the insights of modern economics and by the most recent evidence." The journal's aim is to provide incisive articles written in plain language for the wide audience that participates in policy debates. The April 1991 issue (number 12), for example, contains five diverse policy articles: "Mexico and the Brady Plan," "Reputation and Credibility in the European Monetary System," "Aging Population: Problems and Policy Options in the U.S. and Germany," "Effective Demand, Enterprise Reforms and Public Finance in China," and "The British Electricity Experiment."

Prior to publication the contents of each issue are discussed by an economic policy panel, made up of distinguished economists from Europe and elsewhere who rotate memberships annually. Highlights of the panel discussions printed in each issue give the reader alternative interpretations of evidence and a sense of the liveliness of the panel's interchanges.

Although the journal's contributing authors are well known for their rigorous academic research, articles in *Economic Policy* are targeted more toward a lay audience. This "plain language" approach leaves out econometric evidence, and researchers or academicians must search for the statistical evidence elsewhere in the author's more scholarly work. *Economic Policy* offers a strictly European perspective on global developments. Unfortunately, an outgrowth of that view-

point is a rather limited scope of issues, confined to those that are salient to Europeans. Nevertheless, the journal is recommended to researchers concerned with public policy as it affects international commerce and trade.

Euromoney (London; monthly, with monthly supplements; began 1969) enjoys wide readership in the world's financial community because of its general but detailed coverage of developments in principal world financial markets. The magazine from time to time carries substantive articles that offer fresh insights into Europe's integrated financial markets. While the focus is broadly international, the emphasis is on European finance.

The magazine includes individual country and institutional surveys, biographical accounts of world financiers and bankers, financing techniques, and statistics on bond markets, such as international interest rates and comparative data on swaps. Although regular (one or more) monthly supplements are sometimes a valuable bonus, they frequently seem to be vehicles for advertising the efforts of national economic development agencies. A supplement of some interest was the March 1991 "Banking in the New Europe," which dealt with topics like the establishment of a banking presence in idiosyncratic national markets of Europe; a roundtable discussion of major French, German, and Italian bankers spelling out their new-era priorities for coping with the Common Market environment; and strategies for cross-border mergers and acquisitions.

Euromoney is essential for practitioners tracking current world capital and money markets. In addition, the publication has merit for academics who need to stay broadly conversant with developments in these areas.

The *Institutional Investor International Edition: The Magazine for International Finance and Investment* (New York; monthly; began 1976) is a practical journal designed for international money managers. It contains some of the material found in its sister publication, the *Institutional Investor*, which covers U.S. money markets, but it concentrates on international topics. Because it is heavily weighted toward the practitioner, the magazine merely reports current financial events rather than providing a thorough analysis grounded in extensive research. Such articles may be based on rumor in the financial marketplace, and it is up to the reader to sort out the substance of a story.

The magazine does not provide current data on money markets but instead offers such special statistical features as the annual summary and analysis of the year's leaders in the international bond market that appears in the February 1991 issue. Occasional special features deal with matters like the scoreboard of notable international transactions during the 1980s or a forum about national regulation of global, cross-border trading (both in the January 1991 issue).

The *Institutional Investor International Edition* is recommended for readers who wish to keep informed about forces in the international money markets—the investment banking houses and the personalities who move them.

The International Economy: The Magazine of International Economic Policy (Washington, D.C., six issues per year; began 1987) offers thoughtful, in-depth articles, often by public figures rather than journalists. Its issues tend to be thematically organized around important, but not necessarily obvious, topics. Especially useful among the regular features of *The International Economy* are the "Country Risk-Watch" tables. These tables give an evaluation of risk factors for fifteen developing national economies by relative comparison over time as well as the current year's projected external debt position and domestic indicators (see Figure 1).

The International Economy does not eschew controversy in probing economic topics of worldwide concern. The January/February 1991 issue includes a cover story discussing U.S. Treasury Secretary Nicholas Brady's work at home and abroad on matters like the savings and loan industry bailout and Third World debt. This issue also contains four articles on American banking; a consideration of three scenarios for the Soviet Union over the next three years; and "The International Economy Power Tree," a four-page diagram that portrays the relationships among national and international finance agencies and lists the names and phone numbers of these agencies' officials.

International Reports (New York; weekly, fifty-one issues per year; began 1947) always covers developments in financial and fiscal issues in the United States, Canada, Japan, Germany, and the United Kingdom. Other nations of Eastern and Western Europe, Latin America, the Pacific Rim, and the Middle East are examined with regularity according to emerging considerations. These reports follow a terse, "executive summary" format, comprehensive and offering solid, nonspeculative information. A recent issue included editorial comment on the departure of Karl-Otto Pöhl from the Bundesbank, as well as a discussion that sheds light on the changing support for a hard

Figure 1

The International Economy
COUNTRY RISK-WATCH

	TIME COMPARISON		1991 *PROJECTED* EXTERNAL ECONOMIC INDICATORS							
	Situation Compared To 1 Yr Ago	Outlook For 6 Mos From Now	Projected Trade Balance	Current Account To GNP	External Debt to GDP	Annual Debt-Service To GDP	Reserves: Months Of Imports	Total Foreign Debt	Debt To BIS Banks*	Debt To U.S. Banks**
ARGENTINA	Better	Better	+$7.0b	+$0.8%	30%	5%	6.0	$45.0b	$29.7b	$3.0b
BOLIVIA	Same	Same	+$60m	–2.2%	84%	7%	1.0	4.3b	0.3b	3m
BRAZIL	Same	Same	+$15b	+0.4%	30%	3.6%	4.0	116b	65.2b	10.5b
CHILE	Better	Same	+$1.0b	–4.0%	63%	11%	6.0	19b	8.5b	2.8b
COLOMBIA	Same	Same	+$1.5b	+1.0%	46%	8%	6.0	18b	6.6b	1.7b
ECUADOR	Same	Same	+$800m	–3.0%	107%	11%	3.0	4.0b	4.2b	0.6b
IVORY COAST	Worse	Worse	+$1.5b	–10%	190%	20%	0	18b	3.0b	71m
MEXICO	Better	Better	–$10.0b	–2.8%	40%	5%	4.0	105b	55.0b	12.3b
MOROCCO	Better	Better	–$2.0b	–3.0%	89%	10%	2.0	$26b	5.2b	575m
NIGERIA	Better	Same	+$5.0b	+1.5%	100%	15%	4.0	28b	6.8b	263m
PERU	Same	Same	+$1.0b	–1.5%	30%	3%	2.0	22b	3.8b	81m
PHILIPPINES	Better	Same	–$3.5b	–$3.5%	67%	8.5%	1.5	31b	9.3b	2.8b
URUGUAY	Better	Better	+$350m	+1.0%	77%	8%	3.5	7.5b	2.0b	0.7b
VENEZUELA	Better	Better	+$6.0b	+3.5%	60%	5%	8.0	33b	17.5b	5.8b
YUGOSLAVIA	Worse	Same	–$5.0b	–2.0%	25%	6%	1.5	19b	7.0b	2.4b

EXTERNAL POSITION						DOMESTIC INDICATORS			
Commercial Bank Credit	Official Credit Status	IMF Program Status	Eligible For Ex-Im Credit	Paris Club Reschedg	Date Of Next Election	**Political-Social Index	Exchange-Rate Appropriate?	
Large arrears	Some arrears	Pending	Yes	12-89	May 1995	2	Debatable	ARGENTINA
Arrears	Rescheduling	Program	No	Pending	May 1993	3	Yes	BOLIVIA
Large arrears	Arrears	Pending	Short-Term	7-88	Nov 1994	2	Debatable	BRAZIL
Current	Current	None	Yes	04-02-87	Dec 1993	3	Yes	CHILE
Current	Current	None	Yes	—	May 1994	2	Yes	COLOMBIA
Arrears	Rescheduling	Pending	No	Pending	May 1992	2	Debatable	ECUADOR
Arrears	Arrears	Program	Yes	Pending	Nov 1994	3	No	IVORY COAST
Current	Current	Program	Yes	9-86	1994	2	Debatable	MEXICO
Current	Current	None	Yes	9-90	1992	2	Yes	MOROCCO
Arrears	Current	Program	Short-Term	1-91	1992	2	Yes	NIGERIA
Arrears	Current	None	No	6-84	1995	1	No	PERU
Current	Current	Program	Yes	5-89	1992	1	Yes	PHILIPPINES
Current	Current	Program	Yes	—	Nov 1994	3	Yes	URUGUAY
Current	Current	Program	Yes	—	Dec 1992	3	Yes	VENEZUELA
Current	Current	Program	Yes	Seeking	Unscheduled	2	Yes	YUGOSLAVIA

*December 1990 **December 1990

GLOBAL DEBT CLIMATE:

Debtors:	Worsened
Creditors:	Worsened

Note: Country Risk-Watch is compiled by *The International Economy* on the basis of interviews with several country risk specialists. In some cases, numbers are rounded and may not add up precisely. Some items involve judgement calls. Assessment completed about one month before publication date.

**Political-social index
1 — Potential for severe political unrest
2 — Political situation not conducive to sound economic policies
3 — Adequate

Source: "Country Risk-Watch," *The International Economy* 5, no. 4 (July/August 1991): 52-53. Reprinted by permission of the publisher.

European Currency Unit (ECU) and the success of the European Monetary Union (EMU).

Each number offers an array of regular features like "The Market Report" (foreign exchange outlook and credit market outlook), "Export Credit Conditions and Collections Experiences," "Secondary Market Prices for Commonly Traded LDC Debt," the "IR Statistical Market Letter" (including interest rates on external currency funds, Euro-interest rate differentials, and export credit and collection data).

International Reports should probably not be used alone; its purpose is to provide prompt, insightful coverage of emerging conditions and events, inevitably at the expense of full background treatment. Hence, *International Reports*' (individual) subscription price of $1,075 a year will appear steep except to those who value the magazine's cogently organized coverage of current factors in worldwide finance and trade.

The *Journal of International Money and Finance* (Oxford, England; quarterly; began 1982) is an academic journal with editorial offices at Fordham University at Lincoln Center, New York City. The journal specializes in empirically oriented studies of exchange rates, financial market aspects of G-7 and G-10 country issues, and other topics related to international markets and finance. The supplement to the March 1991 issue (volume 10, number 1), which contains the proceedings of the "Conference on Political Influences in International Economic Models," is representative of the intellectual interaction between politics and economics found in this publication.

The journal, less than ten years old, suffers from the uneven quality often seen in relatively young scholarly journals. Nonetheless, it is recommended for its treatment of economic theory subjected to thorough statistical analysis.

Risk: Managing Risk in the World's Financial Markets (London; ten issues per year; began 1987) is a relative newcomer to the literature on the world's financial markets. It strikes a middle ground between theoretical and applied articles about swaps and other financial instruments. Because *Risk* is targeted toward senior-level money managers, it frequently features interviews with sellers of risk-management instruments. The magazine might be likened to a specialized version of *Euromoney*, requiring greater depth of knowledge, particularly of technical terminology. Quasi-academic articles with abundant modeling lure the reader toward the journals or papers from which the articles derive. *Risk* focuses primarily on the London, Paris, and Frankfurt markets, but it does not omit the United States. *Risk* regularly presents analyses of the savings and loan situation and discussions of such topics as foreign-exchange risk-management techniques used by U.S. firms and the challenges of risk management in dealings with less developed countries.

The mainstay of *Risk* is the continuing coverage of swaps, valuation methods (including models), market data, defaults, legal developments, forward rates, and pricing in different currencies. "The Debty Dozen" table (Figure 2), which illustrates turnover in the LDC debt market and leading traders, ranked by volume, is an example of the useful topical analysis found in this publication.

Risk is an essential tool for participants in international derivative securities markets, and it is helpful for academics and others interested in following developments in those markets. Other researchers will probably find *Risk* too technical.

Weltwirtschaftliches Archiv/Review of World Economics (Tuebingen, Germany; quarterly; text and summaries in several languages; began 1914) emphasizes empirical research, although it is somewhat less technical than the *Journal of International Economics*. Monetary policy receives much attention in this scholarly journal's international coverage. Its European perspective offers Americans an expanded view. Of particular interest in the foreign trade and finance area is 1989's *Band* 125, *Heft* 3, whose principal articles comprise nine papers presented and discussed at the first International Seminar in International Trade, held August 24-25, 1988, at St. Catherine's College, Oxford, jointly organized by the Centre for Economic Policy Research, London, and the National Bureau of Economic Research, Cambridge, Massachusetts. This conference emphasized exchange rates and trade policy.

Lengthy scholarly articles typically consume the most space in an issue, but studies and surveys appear from time to time. For example, 1990's *Band* 126, *Heft* 4 included "Post-Soviet-Type Economies in Transition: What Have We Learned from the Polish Transition Programme in the First Year?" Shorter papers and comments always follow the full-length articles. While longer articles are accompanied by a summary in German, French, and Spanish, respectively, shorter papers and comments and book reviews may appear in English or German. *Weltwirtschaftliches Archiv* is strongly recommended for researchers seeking technical treatment of monetary and other economic and financial policy.

Figure 2

THE DEBTY DOZEN

Turnover in the LDC debt market, and leading traders, ranked by volume

Trading house	Rank 1990	Rank 1989	Turnover ($bn) 1990	Turnover ($bn) 1989	Estimate of total market ($bn) 1990	Estimate of total market ($bn) 1989	Number of traders[1]
JP Morgan	1	(1)	16.0	14.0	75–100	70–80	25
Manufacturers Hanover	2	(7)	14.5	8.0	130–150	100	20
Chase Manhattan	3	(4)	14.3	9.8	90–100	70–80	12
NMB	4	(2)	12.5[3]	13.4	70–80	60–70	15
Citibank	5	(5)	10.5	8.5	80	60	11
Bankers Trust	6	(5)	10.1	8–9[2]	100	80–85	16
Chartered WestLB	7	(–)	9.4	5.3	100	80	5
First Chicago	8	(–)	9.0	4.7	100	50–60	8
Midland Montagu	9	(–)	8.8	4.2	125	80	11
Salomon Bros	10	(8)	8.5	7.5[2]	90	80–85	12
Banco Santander	11	(11)	7.5	5.5	80	50	6
Chemical Bank	12=	(11)	7.0	5.5	—	—	7
Morgan Grenfell	12=	(–)[5]	7.0[4]	—[5]	100–120	80–100	6

[1] Often includes activities other than straight trading, such as distribution and corporate structural financing; all traders worldwide
[2] Rough estimate
[3] Mid-range of market estimates ($11.5 billion–13.5 billion). No figures available from NMB
[4] Last six months of 1990 only
[5] Took over Libra team in mid-1990. In 1989, Libra's $11.5 billion turnover placed it third

Source: *RISK* market survey, February 1991: trading houses' calculations of their own turnover, and estimates of the market

Source: *Risk* 4, no. 3 (March 1991): 43. Reprinted by permission of the publisher.

North America (Canada-Mexico)

The Canadian Journal of Economics/Revue Canadienne d'Economie (sponsored by the Canadian Economics Association, Ontario; quarterly; text in English and French; began 1968) offers a useful blend of articles on theoretical as well as applied aspects of economics and finance. This hybrid quarterly covers a broad range of topics, including the economics of the environment. For example, Canadian natural resources now threatened by industrial civilization, such as fisheries, receive considerable attention.

In addition to articles of practical application, the *Canadian Journal of Economics* often contains distinguished theoretical articles. The journal also includes obituaries (biographical sketches) of prominent Canadian economists, book reviews, and announcements of conferences, prizes, and the like.

Canada's position as one of the United States' primary trading partners lends added importance to Canadian perspectives on trade and finance addressed in the *Canadian Journal of Economics*. This journal is recommended to academicians as well as practitioners with significant interest in trade and finance involving Canada.

Business Mexico: A Look at Mexico and Its Economic, Investment and Trade Prospects (The American Chamber of Commerce of Mexico, Mexico City; quarterly; began 1983; previously published under the titles *Mex-Am Review* and *Mexican American Review*) furnishes a comprehensive view of Mexico's economic, investment, and trade prospects. Its articles are grouped under broad topics listed in the table of contents: trade, agriculture, government, environment, economic analysis, and special feature reports.

Because the United States is Mexico's largest trading partner and Mexico is the United States' third-largest trading partner, *Business Mexico* is particularly important for its treatment of both American and Mexican business interests. Recent issues emphasize several aspects of the Mexican economy that could be affected by the U.S.–Mexico Free Trade Agreement—the *maquiladoras* (border-area manufacturing facilities whose products are exempt from tariffs), the computer and software industries, and direct foreign investment in Mexican agriculture.

Latin America (Excluding Mexico)

LatinFinance (Coral Gables, Florida; ten issues per year, plus supplements; began 1989) contains facts and arrays of numerical data having to do with South American finance. Its contents routinely encompass developments in equity, other financial markets, and current events in the corporate marketplace. Features include such topics as "The Enterprise for the Americas," a survey of debt traders, and Japan's Latin lending. Each issue contains a concise index to the contents of the charts and tables throughout that issue. From time to time *LatinFinance* produces a supplement, an example of which is the March 1991 "Privatization in Latin America." This publication is highly recommended to those engaged in finance in the Latin countries and to researchers.

Selected Statistical Indicators of Caribbean Countries (Port of Spain, Republic of Trinidad and Tobago; irregularly; began 1987), an official publication of the United Nations' Economic Commission for Latin America and the Caribbean (ECLAC), Subregional Headquarters for the Caribbean, presents selected authoritative statistics available to the agency. The publication covers more than twenty indicators—including national accounts (current and constant), balance of payments, main domestic exports, agricultural production, money supply, government revenues, retail price index, and measures of tourism—for twenty-one Caribbean countries. Data are provided for 1980 through 1989 in the current edition (volume 3, 1990).

The publication uses single and consistent sources of information in an effort to minimize inconsistencies in data presentation from country to country. There is a table of contents, but no index; researchers, however, should find the format easy to understand. This handy compendium is recommended to those who need background statistics on Caribbean countries and whose budget may be limited.

Statistical Abstract of Latin America (UCLA Latin American Center, Los Angeles; annually; began 1955) covers the twenty "standard definition" Latin American countries.[4] It is a well-organized compendium of data on geography and land tenure; transportation and communication; population, health, education, and crime; church and state; working conditions, migration, and housing; industry, mining, and energy; sea and land harvests; foreign trade; financial flows; and national accounts, government policy and finance, and prices. All tables give detailed sources so that a researcher can conveniently seek the primary data in fuller detail. There is a subject index at the end of the volume. Comprehensive and detailed, this one-volume statistical reference is highly recommended for both business people and researchers interested in Latin America.

Western Europe

European Affairs: The European Magazine (Amsterdam; bimonthly; text in English; began in 1987) is a journal with an insider's, often quite cerebral, view of a broad spectrum of public affairs. Contributing authors are likely to be world-renowned figures: for instance, Helmut Schmidt in the Summer 1990 issue; Zbigniew Brzezinski and Theo Sommer (editor-in-chief of *Die Zeit*) in the February/March 1991 issue.

A typical issue consists of articles on a cover theme, columns, interviews, country reports, and departments (including book reviews). Subject matter tends toward political science, economics, modern history, and the philosophical. For example, in an interview titled "Germany: United, But Not a World Power," Sommer discusses the determinants and consequences of the German reunification. In an article in the April/May 1991 issue, Lester C. Thurow (Dean of MIT's Sloan School of Management) considers the transformation from an economic world centered on the United States to one with a tripolar leadership structure including the United States, Japan, and the EEC, and how, in new "Bretton Woods" negotiations, this time in Brussels, "the European Community will effectively be writing the rules of trade for the 21st century" (page 33).

European Affairs offers extensive background information on political and economic developments

in Europe and is recommended for practitioners, business economists, and academicians.

European Economy (Luxembourg; quarterly; began 1978) contains important reports and communications from the Commission of the European Communities to the Council of Ministers of the European Communities and to the European Parliament on the economic situation and developments, as well as on the borrowing and lending activities of the European Community. *European Economy* also presents reports and studies on problems concerning economic policy. Two supplements accompany the main periodical: Series A, "Economic Trends," describes, with the aid of tables and graphs, the most recent trends in industrial production, consumer prices, unemployment, the balance of trade, exchange rates, and other indicators; Series B, "Business and Consumer Survey Results," gives results of opinion surveys of industrial chief executives (for orders, stocks, production, outlook, and the like) and of EC consumers (on such topics as the economic and financial outlook), as well as other business cycle indicators. This package of publications is a must for information to support forecasting and business planning.

Euroweek: Incorporating the International Bond and Equities Letter (London; weekly; began 1987) a Euromoney Publications title, features articles and statistics on bonds, equities, and derivatives around the world. In addition to tables of comprehensive statistical data, the regular format consists of news and analysis of factors affecting world markets, a diary of forthcoming events, new and emerging issues, ratings, call alerts, foreign-exchange forecasts, and summaries of syndicated loans arranged by country. It is recommended to both business people and researchers for its exhaustive array of information on capital issues, including ratings and prices.

Panorama of EC Industry (Luxembourg; annually; began 1989) provides a description of industry across the European Community comparable to coverage the *U.S. Industrial Outlook* gives to U.S. industry. This reference work will be useful to those interested in the current situation and the future outlook for manufacturing and service industries in the EC. The publication considers specific sectors and the implications of topical issues on European industry. Two main sources for data cited in the *Panorama* are Eurostat and industry associations. Although data are generally thought to be reliable, those for more recent periods are still being revised and should be regarded with caution. Data for all twelve member states are usually included. Where data are not available for EC12, country coverage is indicated in footnotes appearing below each table. Production figures for Japan and the United States, derived from their censuses of manufacturers, are also included.

After introductory discussions, the main body of text consists of industry reviews and forecasts, arranged in chapters, for industry sectors by NACE classification.[5] Each chapter contains a summary of recent developments in the industrial sector, consumption, trade, and employment as well as a review of structural changes and a discussion of the outlook. As a handy compendium of European Community information, *Panorama of EC Industry* is highly recommended.

Asia and the Far East (Including Pacific Rim and Newly Industrialized Economies)

The Semi-Annual Bulletin of the Clearinghouse of Pacific Basin Central Bank Economic Research (San Francisco; began 1976) is published by the Federal Reserve Bank of San Francisco as part of its Pacific Basin program, begun in 1974, to promote cooperation among central banks of the region and enhance public understanding of economic policy issues. The bulletin is a descriptive list of central banks' research publications and working papers, received over a six-month period, in accordance with participating institutions' agreement to send research products regularly to the center.[6] The center, in turn, compiles the list and disseminates it to enhance contacts among the participants through the regular exchange of information. Examples of items in the June 1990 *Bulletin* include an article from the (Bank of Thailand) *Quarterly Bulletin*, "Financing of Thailand's Current Account Deficit during 1970-1988," and "Proceedings of the Eight Pacific Basin Central Banks Conference on Economic Modelling."

While the research efforts listed in the bulletin speak explicitly to concerns of the institutional membership of the clearinghouse, they also reward researchers seeking publications, official and otherwise, covering smaller economies. The listings appeal primarily to economists and academicians, although practitioners will also find the financial research contacts within participating countries useful. The publication is highly recommended for those doing research on the Pacific Basin.

Abstracts of Recent Research by Center Associates (San Francisco; semiannually; began 1991) is published by the Center for Pacific Basin Monetary and Economic Studies, established in July 1990 by the San Francisco Federal Reserve Bank under the auspices of the bank's Economic Research Department. It disseminates information, in the form of titles, with abstracts, of current research done by Associates of the Center for Pacific Basin Monetary and Economic Studies. The research may take the form of working papers sponsored by organizations not necessarily enjoying widespread recognition or articles appearing in narrowly focused journals with small circulation (such as *ASEAN Economic Bulletin* or *Asian-Pacific Economic Literature*). The center hopes this publication will build a community of scholars—a network spanning America, Asia, and Europe—sharing a common interest in Pacific Basin monetary and economic issues. The authors' mailing addresses are provided to facilitate requesting papers and providing comments. Presenting

Subscription Information*

Abstracts of Recent Research by Center Associates. Free. Center for Pacific Basin Monetary and Economic Studies, Federal Reserve Bank of San Francisco, PO Box 7702, San Francisco, CA 94120.

Asiamoney. $195. Reed Publishing Group, 205 East 42nd Street, Suite 1705, New York, NY 10017.

Asiaweek. $130. Asiaweek Ltd., 13th Floor South, Somerset House, 28 Tong Chong, Quarry Bay, Hong Kong.

Business Mexico. $65. American Chamber of Commerce of Mexico, Lucerna 78, Mexico DF 06600, Mexico.

The Canadian Journal of Economics. $65. University of Toronto Press, Journals Department, 5201 Dufferin Street, Downsview, Ontario M3H 5T8, Canada.

Country Reports; *Country Profiles*. $255/package. The Economist Intelligence Unit, Business International, 215 Park Avenue South, New York, NY 10003.

Economic Policy. $43 (institutions), $22 (individuals). Cambridge University Press, 40 West 20th Street, New York, NY 10011-4211.

The Economist. $70. Subscription Department, PO Box 58524, Boulder, CO 80322-8524.

Euromoney. $226. Reed Publishing Group, 205 East 42nd Street, Suite 1705, New York, NY 10017.

European Affairs. $73. European Affairs, Elsevier-Bonaventura B.V., PO Box 152, 1000 AD Amsterdam, The Netherlands.

European Economy. $145. UNIPUB, 4611-F Assembly Drive, Lanham, MD 20706.

European Trends. $355. The Economist Intelligence Unit, Business International, 215 Park Avenue South, New York, NY 10003.

Euroweek. $1,107. Reed Publishing Group, 205 East 42nd Street, Suite 1705, New York, NY 10017.

Far Eastern Economic Review. $138. Datamovers, Inc., 38 West 36th Street, New York, NY 10018-8073.

Institutional Investor International Edition. $295. Institutional Investor, 488 Madison Avenue, New York, NY 10022.

The International Economy. $72 (add $15 first class postage). The International Economy Publications, Inc., 1050 Connecticut Avenue, NW, Suite 1220, Washington, DC 20036.

International Reports. $535 (schools and universities), $1,075 (regular). International Reports, Inc., 114 East 32nd Street, Suite 602, New York, NY 10016-5506.

Journal of International Money and Finance. $135. Journals Fulfillment Department, Butterworth Heinemann, 80 Montvale Avenue, Stoneham, MA 02180.

LatinFinance. $195. LatinFinance, 2121 Ponce De Leon Boulevard, Suite 505, Coral Gables, FL 33134.

Panorama of EC Industry. $140. UNIPUB, 4611-F Assembly Drive, Lanham, MD 20706.

Risk. $336. Risk Magazine Ltd., 104-112 Marylebone Lane, London W1M 5FU, England.

Selected Statistical Indicators of Caribbean Countries. Free. Economic Commission for Latin America and the Caribbean, 22-24 St. Vincent Street, Second Floor, PO Box 1113, Port of Spain, Trinidad.

The Semi-Annual Bulletin of the Clearinghouse of Pacific Basin Central Bank Economic Research. Free. Center for Pacific Basin Monetary and Economic Studies, Federal Reserve Bank of San Francisco, PO Box 7702, San Francisco, CA 94120.

Statistical Abstract of Latin America. $175. Regents of the University of California, UCLA Latin American Center, 405 Hilgard Avenue, Los Angeles, CA 90024-1447.

Weltwirtschaftliches Archiv. DM148 (deutsche marks). JCB Mohr/Paul Siebeck, Postfach 2040, W-7400 Tuebingen, Germany.

** Prices and addresses shown are current as of July 1991. Prices are annual subscription rates (in U.S. dollars) for individuals in the United States, unless otherwise specified; postage may be extra. Addresses are for subscriptions only and may differ from place of publication.*

papers that tend to be highly technical or theoretical in nature, the publication is recommended primarily for research economists and other academicians.

Asiamoney (Hong Kong; monthly except July/August and December/January; began 1989 as *Billion*) is one of the Euromoney Publications periodicals. Its format resembles the design of *Euromoney*, including special supplements from time to time. The contents of each issue of *Asiamoney* offer a consistent protocol of "Spot Reports," "Features," and "Database," providing uniform coverage of topics ranging from chatty, anecdotal reports on swap activity to serious comparative economic forecasts for the eleven countries in its specific purview.[7]

Special studies each month prove useful as reference information on such topics as the largest mergers and acquisitions in Asia in 1990, ranked in various ways. Also included is an overview of the equity and debt markets, along with an analysis of the year's worst deals. The "Database" section is a systematic tabulation of "Asian Syndicated Loans Signed and New Equity Listings" for the previous two months.

Asiaweek (Hong Kong; weekly; began 1975) offers not only broad coverage of both political and economic news but also an "almanac" replete with economic indicators (GNP per capita, GNP growth, exports, the current account, foreign debt, and the consumer price index) for forty-four countries.[8] The almanac makes it possible, for instance, for a researcher to obtain indicators for such small nations as Bhutan and to compare them with consistently configured data for the United States and Germany by consulting a one-page table. Additional tables include statistics on social indicators (population, population growth rate, infant mortality, literacy, people per doctor, and people per telephone); commodity prices given in U.S. dollars for the previous week, six months ago, and one, three, and five years ago; market trends for featured items like the cost of private hospital rooms; lending rates; and currency trends. Occasional special features list information such as public holidays throughout Asia for the upcoming month; this calendar item can be valuable for planning business interactions. *Asiaweek*, dense with factual reporting and useful statistics, is valuable for monitoring Asian trade and finance.

Far Eastern Economic Review (Hong Kong; weekly; began 1946) is the Dow Jones publication for the Far East, providing coverage of topics similar to those in *The Wall Street Journal*. Typically the contents are in four sections: "Regional Affairs," "Arts and Society," "Business Affairs," and "Regular Features" (like book reviews, letters to the editor, and comparisons of stock market action in less publicized cities like Bangkok, Kuala Lumpur, Manila, Taipei, and Bombay). The *Far Eastern Economic Review* is essential reading for all people wishing to stay current with economic and political events in the Far East.

Notes

1. Delineating a systematic geographic structure for world trade and finance regions is a complex task. Geographical and political considerations like proximity or national tariff and trade restrictions define different spheres for analysis.
2. Modified structure taken from *Panorama of EC Industry 1990*, 53. Far East/Asia includes the Pacific Rim countries (Japan, Australia, and New Zealand) and such newly industrialized economies (NIEs) as Hong Kong, Taiwan, and South Korea.
3. Together, the EIU *Country Report* and *Country Profile* provide an annual package comparable to, but possessed of greater detail than, the well-known *OECD Economic Surveys* published annually for each of the OECD's member nations.
4. The countries are Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, and Venezuela. This standard definition evolved by way of events like the creation of the Pan American Union of 1910 (of which the United States was a member); the Organization of American States (OAS), since 1948; the expulsion of Cuba in 1962; and some other changes involving former European colonies. All "standard definition" countries are sovereign nations.
5. NACE stands for *Normalisation des Activités Industrielles des Communautés Européennes*—in English, the General Industrial Classification of Economic Activities within the European Community.
6. Participating institutions are the Reserve Bank of Australia, Bank of Canada, People's Bank of China (Beijing), Hong Kong Government Secretariat, Bank of Indonesia, Bank of Japan, Bank of Korea (Seoul), Bank Negara Malaysia, the Reserve Bank of New Zealand, Central Bank of the Philippines, The Monetary Authority of Singapore, Bank of Thailand, and the Federal Reserve Bank of New York and the Board of Governors of the Federal Reserve System.
7. The countries *Asiamoney* covers are Australia, Hong Kong, Indonesia, Japan, Korea, Malaysia, New Zealand, Singapore, Taiwan, Thailand, and the Philippines.
8. *Asiaweek* keeps correspondents in twenty-two nations worldwide, including the Pacific Rim, the NIEs, Canada, the Soviet Union, Europe, and the United States.

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