



THE DEPOSITORY TRUST COMPANY





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The Depository Trust Company, a service company owned by members of the financial industry, is a national clearinghouse for the settlement of trades in corporate and municipal securities. DTC also performs securities custody services for its participating banks and broker-dealers. In 1990, those Participants delivered \$8.8 trillion of securities through the depository's book-entry system, and securities in its custody reached \$4.1 trillion at yearend.

DTC's primary mission is to reduce the cost of securities services offered to the public by its Participants. It does so through its automated systems, its telecommunications links with more than 550 Participants and others, and its relationships with the hundreds of firms that serve as transfer agents, paying agents, exchange agents, and redemption agents for securities issuers.

HIGHLIGHTS

TOTAL FOR THE YEAR	<u>1990</u>	<u>1989</u>
Book-entry deliveries		
Market value (<i>In trillions</i>)	\$8.8	\$9.2
Number (<i>In millions</i>)	72.6	73.9
Cash dividend and interest payments (<i>In billions</i>)	\$238.2	\$207.7
Reorganization, redemption, and maturity payments (<i>In billions</i>)	\$196.7	\$229.3
AT YEAREND		
Eligible securities issues	827,910	723,839
Value of securities on deposit (<i>In trillions</i>)	\$4.10	\$4.02
Number of shares on deposit (<i>In billions</i>)	117.9	116.5
Principal amount of corporate debt on deposit (<i>In trillions</i>)	\$1.2	\$1.0
Principal amount of municipal debt on deposit (<i>In billions</i>)	\$860.5	\$750.9
Participants	568	606
Broker-dealers	379	408
Banks	181	189
Clearing agencies	8	9

A MESSAGE FROM MANAGEMENT

For the securities industry, 1990 may go into the records as the most difficult of several difficult years immediately following the 1987 market break, with transactions and profitability down in many business lines. The weakness in trading volume was mirrored in several DTC services over the year, though it was mitigated by the effect of making more issues eligible for DTC services and complemented by frequent double-digit percentage increases in the depository's custody-related services. This overall transaction growth helps explain why 1990 was the fourth consecutive year in which DTC did not have to raise fees to Participants—indeed could slightly reduce them—and why its financial plan for 1991 repeats that performance.

Among the issues made eligible beginning in October were commercial paper (CP) issues, upon inauguration of the depository's commercial paper program. The product of more than two years of study and interaction with Participants and an expert industry committee, this program, when fully expanded, could add over \$50 billion a day to a DTC daily settlement volume that averaged approximately \$35 billion a day during 1990. The cost-saving efficiencies of a book-entry-only commercial paper program, with no paper available to investors to create processing risks and costs, had long been attractive to the industry, but risk-management controls had to be identified and installed before DTC, market participants, and regulatory authorities were willing to sign off on the program.

At the other end of DTC's service delivery spectrum, though lacking the single identity and billion-dollar numbers associated with the CP program, was a plethora of small operational changes that allows Participants to process transactions through DTC with less time, effort, and internal cost. Typically, these changes give users an automated way to direct the disposition of their securities positions at DTC and gain access to DTC's extensive on-line data base of their accounts' activity history. When taken together, the total of such changes during any year provides value to DTC users at least equal to the introduction of any major new depository service.

At least two other areas of depository activity in 1990 merit attention. One was the role played by DTC in the U.S. Working Committee of The Group of Thirty, to encourage careful industry consideration of recommendations to convert the five-day trade settlement cycle soon to three days, and to settle all trades in same-day, instead of next-day, funds. The industry has enough information now to decide the settlement cycle issue, and DTC has undertaken to help develop a same-day funds settlement proposal for industry evaluation in 1991.

Noteworthy also was DTC's review of its future role in the settlement of international trades. Part of the impetus for that review was the issuance of several global debt issues in book-entry-only form, with no certificates for investors; these issues can be held entirely or partly at DTC and settled in DTC, and in CEDEL and Euroclear, international securities depositories located in Europe. The greater impetus, however, came from the steadily increasing appetite of U.S. investors for foreign securities, an appetite that seems certain to grow despite associated costs and problems. At yearend, DTC announced its intention to explore with national depositories in major foreign markets the considerations involved in future inter-depository linkages.

No reference to DTC's annual activity would be complete without acknowledging the countless industry officers and committees that helped shape DTC's programming efforts. The Public Securities Association Task Force on Commercial Paper merits special mention.

We express our gratitude also to all of the men and women of DTC who make possible the efficiency of the depository's efforts to serve its Participants across the country. You give meaning and expression to DTC's corporate culture: to offer quality service to its users.


William T. Dentzer, Jr.
Chairman and Chief Executive Officer


Conrad F. Ahrens
President and Chief Operating Officer

MISSION AND EVOLUTION

Depository Trust's mission is to reduce the cost of securities processing by financial intermediaries serving the public while increasing accuracy, security, and speed. DTC accomplishes this by continually making more issues eligible for depository services in order to reduce the number of certificates handled within the financial community; automating and standardizing the flow of information; achieving economies of scale; and acting as a central "switch" for the flow of data, securities, and funds between its Participants and agents for issuers of those securities.

DTC's services begin when participating banks and broker-dealers deposit securities with it, or when an underwriting is distributed through the depository. Participants can then affect the resulting securities positions through instructions to the depository to perform various functions, such as deliver securities to another party by book-entry on DTC's records and collect payment for that delivery.

The depository can best be understood as performing three functions:

- It is a custodian for the securities of its Participants—\$4.1 trillion at yearend 1990.
- It is an accounting system whose books record all activity affecting the securities in its custody, such as deliveries between its users—\$8.8 trillion in 1990—and the collection of cash dividends and interest—over \$238 billion last year resulting in more than 14.3 million disbursements to users.
- It is a group of communications systems for post-trade processing through which its Participants reach and can be reached by DTC, other depository users, transfer agents, and other agents acting for securities issuers.

In the early 1970s, DTC's emphasis was on adding banks to its original broker-dealer base in order to immobilize stock certificates held by banks and substitute book-entry deliveries for the physical exchange of certificates. At that time, DTC's intermediary role with issuers' agents was as a kind of central post office through which users could route paper instructions seeking newly registered certificates from transfer agents for customers, and

receive payments due from paying agents.

As the depository expanded, it sought ways to make it unnecessary for Participants to withdraw certificates from DTC in order to present them to agents for tender offers and other reorganization activity. This meant establishing means for users to reach those agents through DTC under procedures that protected all concerned, given the large sums involved.

In more recent years, after DTC took on more such custody-related processing tasks for Participants, the depository added to user efficiencies by giving them on-line access to DTC's data base for quick answers to queries about their account activity.

In order to maximize its utility to Participants, DTC continually has sought to make more securities issues, and more types of securities, eligible for its services. Having begun initially with NYSE-listed stocks, the depository added stocks listed on the American Stock Exchange, then over-the-counter and other equity issues, and then listed and unlisted corporate debt.

In 1981, the depository began to make bearer municipal bonds eligible for its services, followed by registered municipal bonds. A number of types of securities that settle only in same-day (rather than next-day) funds were added, beginning in 1987. That process is continuing, with commercial paper becoming eligible in October 1990. With the addition of more than 100,000 municipal bond and other issues each year for the last six years, more than 825,000 security issues are now eligible for book-entry and other DTC services.

Another continuing DTC effort has been to reduce paper instructions and reports to and from Participants and to replace them with electronic communications. Beginning with the exchange of magnetic tapes, migrating to dedicated and dial-in telecommunications networks, and then exchanging data computer-to-computer, each step was designed to help users reduce costs and errors wherever possible. The great bulk of depository services are now accessed and delivered through DTC's Participant Terminal System of more than 1,300

terminals and printers across the country and computer-to-computer interfaces with almost 300 Participants.

With Participants' customers wanting several million newly registered certificates each year, bringing efficiencies to the transfer process has been a continuing DTC priority. The means of achieving those efficiencies were first spelled out by DTC to the industry in 1974: Where possible, DTC would place securities in its custody with their transfer agents under its Fast Automated Securities Transfer (*FAST*) program; collect transfer data from Participants in automated form and distribute them to transfer agents in similar form, with analytical programs at DTC standardizing these data to meet transfer agent requirements; and encourage agents to mail new certificates to users' clients directly, with safeguards and necessary reporting to Participants. Progress along those lines is continuing. As 1990 closed, DTC had almost \$1.8 trillion of securities with *FAST* agents, received over 99% of Participant transfer instructions in automated form, had 41 transfer agents accepting automated instructions comprising about 66% of its transfer volume, and helped make 36% of newly registered certificates from agents available to users' clients by direct mail.

As a result of the growth described above, at yearend 1990 the market value of DTC Participant bank and broker assets held at DTC, and held for DTC's account by its depository counterparts in Chicago and Philadelphia, amounted to \$4.06 trillion, 98% of the total market value of securities held by all three depositories.

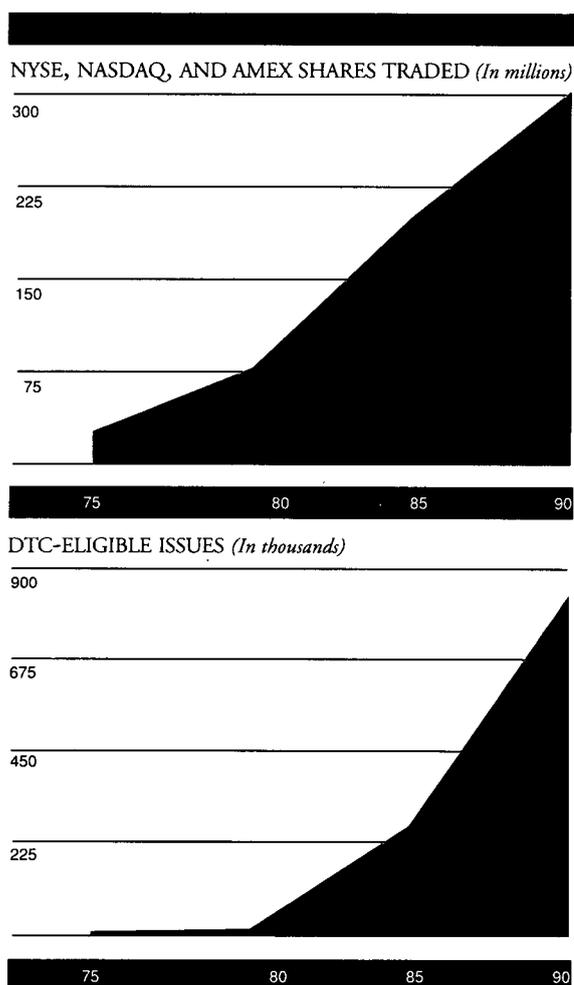
More important, the depository's 568 Participants, acting for themselves and almost 4,000 bank and broker-dealer correspondents and their customers, had immobilized virtually all institutionally owned eligible securities and a rising percentage of securities owned by retail investors in a system that could safely accommodate peak levels of trading volume.

While data are not available on the extent to which some types of securities are immobilized in

DTC, the depository now holds for its Participants approximately:

- 73% of the shares of companies represented in the Dow Jones Industrial Average,
- 66% of the shares of all NYSE-listed U.S. companies,
- 41% of the shares of NASDAQ- and 43% of American Stock Exchange-listed U.S. companies,
- 77% of the corporate debt listed on the NYSE, and
- 87% of the principal amount of outstanding municipal bonds.

The table on the following page indicates DTC's growth since 1975 as seen by activity in selected services at five-year intervals.



DTC SERVICE GROWTH*

	<u>1975</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>
<u>AVERAGE DAILY</u>				
NYSE shares traded <i>(In millions)</i>	18.6	44.9	109.2	156.8
NASDAQ shares traded <i>(In millions)</i>	5.6	26.5	82.1	131.9
AMEX shares traded <i>(In millions)</i>	2.1	6.4	8.3	13.1
<hr/>				
<u>AT YEAREND</u>				
Participants	255	333	521	568
Eligible issues	8,165	14,233	262,081	827,910
Market value on deposit <i>(In billions)</i>	\$60	\$493	\$2,010	\$4,097
<u>TOTAL FOR THE YEAR</u>				
Book-entry deliveries				
Value <i>(In billions)</i>	\$210	\$1,260	\$5,460	\$8,822
Number <i>(In millions)</i>	14	28	56	73
Cash dividend & all interest payments				
Value <i>(In billions)</i>	\$2.1	\$19.3	\$95.2	\$238.2
Payments to DTC <i>(In thousands)</i>	18	29	250	1,509
Reorganization, redemption, & maturity payment value <i>(In billions)</i>	NA	NA	NA	\$197
Total underwritings				
Value <i>(In billions)</i>	NA	\$40	\$291	\$354
Number	NA	900	9,871	15,981
Underwritings of book-entry-only issues				
Value <i>(In billions)</i>	0	0	\$2.6	\$212
Number	0	0	55	10,449
Institutional delivery system				
Users (at yearend)	67	424	6,520	7,790
Total confirmations <i>(In millions)</i>	‡	2.4	14.0	19.8
Total affirmations <i>(In millions)</i>	‡	.7	8.0	12.5
Deliveries <i>(In millions)</i> ♦	‡	.5	6.4	9.2

* Some figures rounded

‡ Pilot program only

♦ Scheduled automatic deliveries only

OWNERSHIP AND POLICIES

*G*overnance of the Depository

DTC's governance is carefully framed to reflect the need for objectivity in serving diverse users in the financial community. The right to purchase DTC capital stock is based on a formula that considers each Participant's use of the depository during the preceding calendar year: 80% on fees paid to DTC and 20% on the market value of long securities positions in DTC at the end of each month.

The amount of stock each Participant may purchase is recalculated each year to reflect variations in depository usage. Participants may purchase any, all, or none of the stock to which they are entitled, at a price based on the stock's yearend book value.

Stock is reallocated before the annual stockholders meeting in late March, so stockholders may vote newly acquired shares toward electing the Board of Directors at that meeting. Elections are conducted by cumulative voting, so no combination of stockholders controlling a simple majority of stock can elect all Directors. Board representation is thereby available to users from various sectors of the financial community in proportion to their use of the depository.

At yearend 1990, after retirement or merger of various stockholders subsequent to the completion of the 1990 stock reallocation, there were 140 DTC stockholders: 49 broker-dealers, 85 banks, and six self-regulatory organizations and clearing agencies. Broker-dealer Participants owned 14.5% of DTC stock, while bank Participants owned 42.0%. Ownership interests of the self-regulatory organizations on behalf of broker-dealer Participants were 34.5% for the New York Stock Exchange, 4.5% for the American Stock Exchange, and 4.5% for the National Association of Securities Dealers.

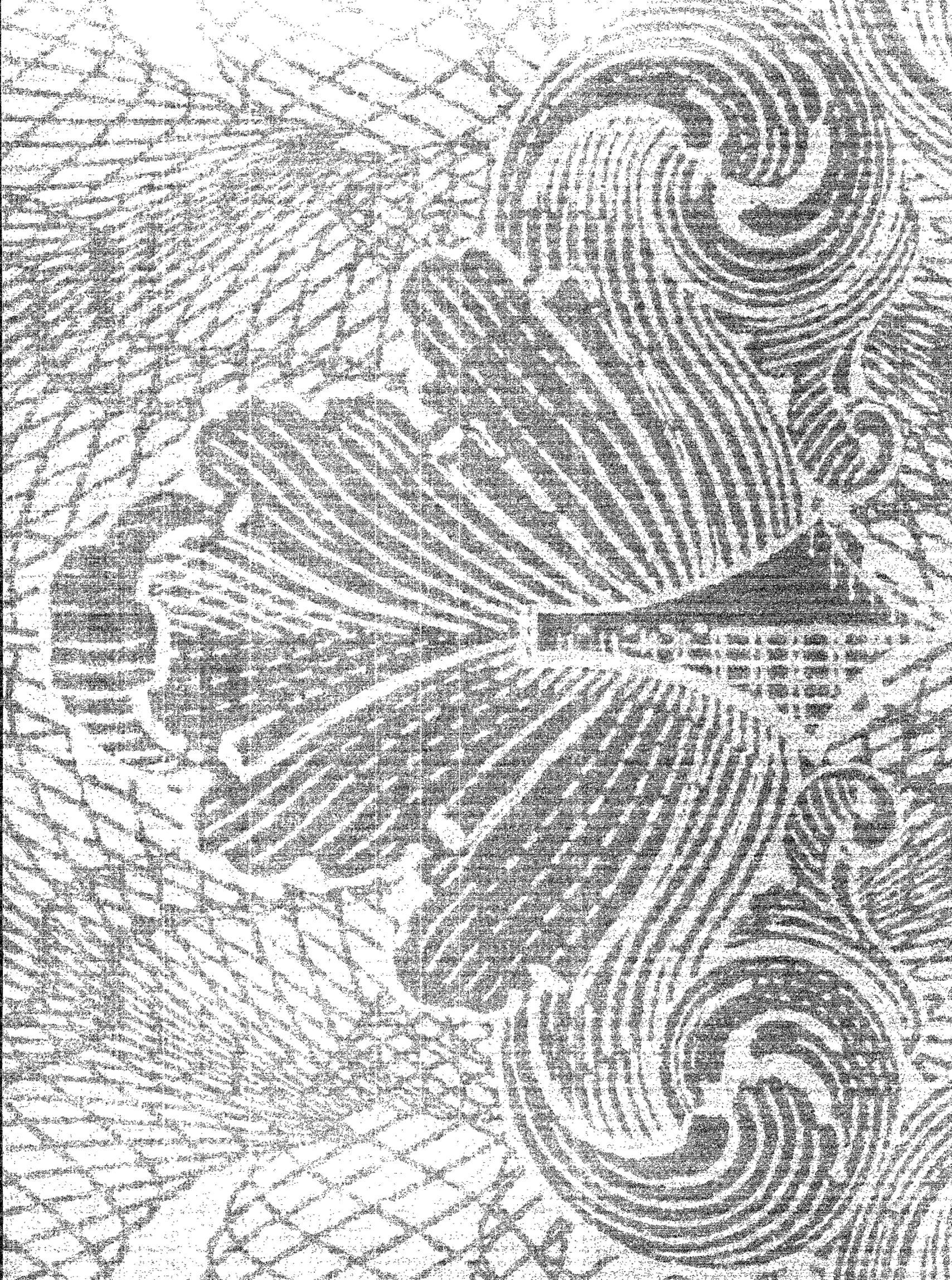
DTC policy prohibits dividend payments to stockholders, since DTC believes that depository ownership is not an investment vehicle, but a means for diverse users to encourage DTC's responsiveness to their needs through exercise of their cumulative voting rights to elect Directors.

DTC policy also limits its annual profit, so the depository returns to Participants revenues that the Board determines exceed the funds required for the depository's operation.

As a registered clearing agency, DTC is regulated by the Securities and Exchange Commission under the Securities Exchange Act of 1934, as amended. As a member of the Federal Reserve System and a New York State limited-purpose trust company, DTC is also regulated by the Board of Governors of the Federal Reserve System and the New York State Banking Department.



THE DTC MATTERS
COMMITTEE OF THE NEW YORK
CLEARING HOUSE
ASSOCIATION'S SECURITIES
COMMITTEE, AFTER MEETING
WITH DTC'S GLENN E.
MANGOLD, CLOCKWISE FROM
FRONT CENTER: FRANK M.
FARSI, JR., MARINE MIDLAND
BANK, N.A.; SUSAN B. PAGE,
UNITED STATES TRUST
COMPANY OF NEW YORK;
RICHARD M. DIMAIO,
CITIBANK, N.A.; ANGELO
VALLENTE, MANUFACTURERS
HANOVER TRUST COMPANY;
JOHN DASHNER, BANKERS
TRUST COMPANY; JOSEPH
DI MAIUTA, MORGAN GUARANTY
TRUST COMPANY; GLENN
MANGOLD; MICHAEL
ANDERSON, THE BANK OF NEW
YORK; BRUCE BUSKARD
(COMMITTEE CHAIRMAN),
MARINE MIDLAND BANK, N.A.;
DOMINICK FRAGALA, CHASE
MANHATTAN BANK; AND
ANGELINA MADERA, CHEMICAL
BANK.



SERVICES



DTC'S NEIL BRANDER,
VICE PRESIDENT—
FLANKED BY ROBIN S
MIDKIFF, PRESIDENT OF
THE TRUST & CUSTODY
GROUP OF WELLS FARGO
INSTITUTIONAL TRUST
COMPANY, AND DTC'S
RUSSELL FERRO,
DIRECTOR—REVIEW III
ACTIVITY STATISTICS
FOR 1990.

The services provided by the depository are briefly described below, followed by a listing of 1990 volumes in selected services.

Deposits

Certificate deposits in eligible securities issues can be made at the depository or at various banks and clearing corporation offices nationwide that cooperate with DTC as Depository Facilities. Nearly 21 million certificates were deposited with DTC in 1990.

Deliveries

Changes of securities ownership are made by book-entry deliveries on DTC's accounting records. They may be with or without an accompanying money payment and are reported to Participants daily. Deliveries against payment in 1990 were valued at \$8.8 trillion.

Pledges

Securities may be pledged by book-entry on DTC's accounting records to banks and other entities that have agreed to accept them as collateral. Banks participating in the depository's pledge program

numbered 92 at yearend. In addition, the Federal Reserve Banks of Birmingham, Boston, Kansas City, New York, Philadelphia, Richmond, and St. Louis accept pledges to their DTC accounts from member banks to secure Treasury Tax and Loan accounts and deposits of public money, as well as advances at the discount window and intraday overdrafts. In addition, the Options Clearing Corporation (OCC) accepts pledges to its DTC account. Total pledges outstanding at yearend were \$19.5 billion.

Underwriting Distributions

Underwriters of new and secondary issues distribute them by book-entry against payment, whether or not certificates are available to investors. Last year, 372 lead managers used DTC to distribute nearly 16,000 new corporate and municipal underwritings valued at \$354 billion.

Custody

This service enables Participants to reduce their costs of handling and safeguarding securities by leaving them with DTC, and to further reduce costs by using other DTC custody-related services described here. At yearend, DTC held Participant securities valued at \$4.1 trillion.

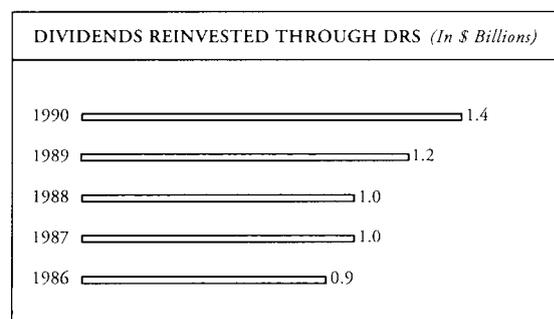
Dividends and Interest

This service eliminates the need for Participants to collect dividend and interest payments directly from many sources by allowing DTC to do so for all securities in its custody. In 1990, DTC received 1.5 million payments for Participants—nearly 116,000 on peak days—with corporate cash dividends and interest reaching \$183.2 billion and municipal bond interest reaching \$55.0 billion.

The timeliness of corporate cash dividends and interest payments remained strong, with 99.1% of these funds received on payable date, and 99% of their value in same-day funds. With municipal bonds, DTC receives virtually all payments on payable date.

Dividend Reinvestment

When permitted by an issuer's reinvestment plan, the Dividend Reinvestment Service (DRS) allows Participants, for interested customers, to reinvest dividends on some or all shares without withdrawing them from DTC. In 1990, DRS included 305 participating plans and helped reinvest \$1.4 billion of dividend distributions.



Change Mode of Payment Service

DTC's Change Mode of Payment (CMOP) service enables Participants to change by book-entry the frequency (mode) of dividend payments on securities that permit such changes: unit investment trust (UIT) issues and variable mode preferred stock issues.

At yearend, 7,651 UIT issues (nearly 21,000 CUSIPs) were eligible for CMOP, as well as 240 variable mode preferred stock issues (roughly 480 CUSIPs). DTC processed 10,689 CMOP instructions in UIT securities and 930 in variable mode preferred stock issues during the year.

Voluntary Offerings

Tender and Exchange Offers: Participants may accept tender and exchange offers for securities in their accounts and deliver them to agents through DTC. The value of such acceptances in 1990 was \$24.1 billion.

DTC's Automated Tender Offer Program (ATOP) enables Participants to send electronic acceptance instructions on tender and exchange offers over the Participant Terminal System (PTS) for transmission to tender and exchange agents, streamlining the process by replacing hard-copy instructions and reducing paper-related risks. ATOP also lets agents review information about the receipt of instructions, on an up-to-the-minute basis, throughout the offering period—enabling them to better serve offerors. ATOP processed 45% of the approximately 62,000 Participant instructions received in 1990.

Conversions: Participants may instruct DTC to surrender convertible debt and equity securities in their accounts to conversion agents by book-entry for same-day credit in the underlying securities, usually common stock. Approximately 187 million shares resulted from such conversions in 1990.

Redemptions

When a security in the depository's custody matures or is fully or partially called by the issuer, DTC presents it for redemption and pays the proceeds to affected Participants. With more issues DTC-eligible, the number of issues in which DTC processed redemptions grew 28% in 1990, to over 87,600, while the dollar value redeemed rose 13%, to almost \$151 billion. These figures include maturities of municipal issues, which reached over 47,000. In addition, partial calls in municipals increased to 22,920 and partial calls in corporates climbed to almost 1,600.

Puts

"Put" provisions allow holders to obtain, on demand, payment for the principal value of their securities on a predetermined number of days' notice. DTC's Repayment Option Procedures enable Participants to submit put instructions

through the depository in eligible issues. Those issues totaled 4,059 in 1990 and include many municipal and corporate issues, mortgage-backed bonds, and floating-rate notes and securities with similar repayment options. In 1990, DTC received 19,375 instructions to exercise Participant puts and allocated \$10.7 billion in next-day-funds payments and \$4.5 billion in same-day-funds payments. In addition, DTC processes optional repayments on certificates of deposit and rollover instructions on T-bills.

Units

Participants can separate units—such as a share and a warrant, or a bond and a put option—into their components, or combine the components into units and deliver them through DTC by book-entry. DTC received 16,789 such instructions in 1990.

Warrant Subscriptions

Warrants for common stock may be exercised by book-entry through DTC. Almost 2,900 subscriptions in 135 eligible warrant issues were processed in 1990, resulting in the issuance of 60 million shares.

Options

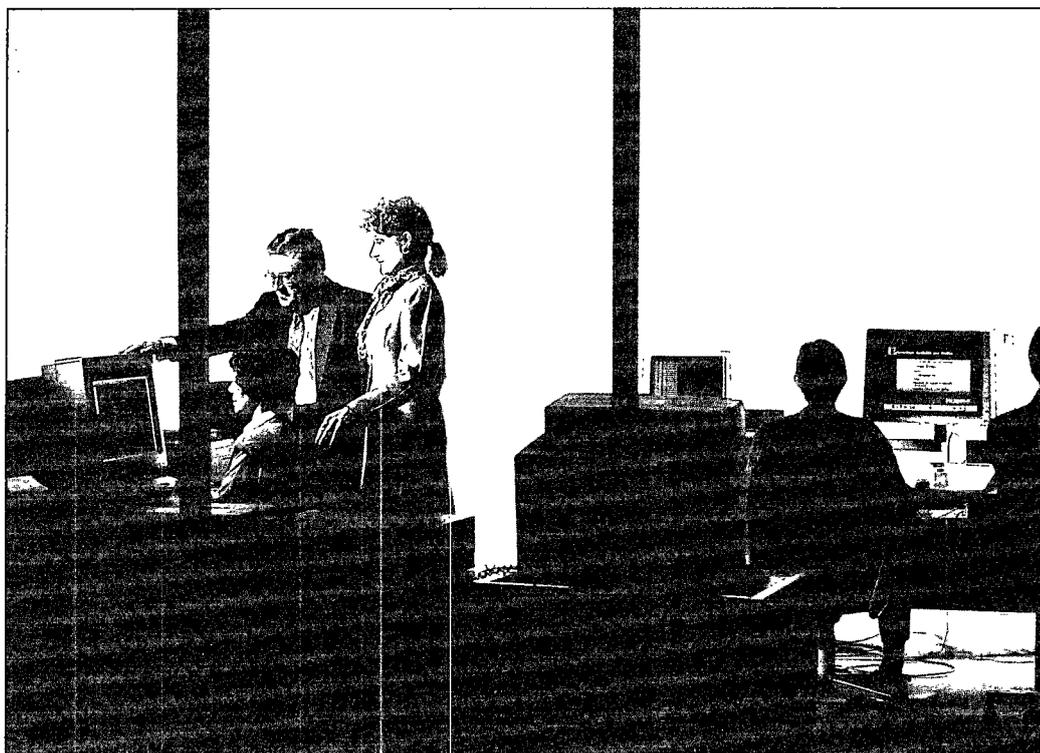
More than 200 banks and broker-dealers used DTC to deposit securities to satisfy OCC margin or clearing fund requirements in 1990. The value of these “pledged” securities totaled \$5.6 billion at yearend.

Through the Third-Party Pledge System, banks may pledge securities on deposit at DTC to the Options Clearing Corporation on behalf of a broker-dealer to satisfy OCC requirements for a call option writer. The system also allows a put option writer to instruct its bank to move Treasury bill positions to the depository and pledge them to OCC for the account of the OCC clearing member carrying the writer’s short position, reducing the clearing member’s margin requirements.

Withdrawals

Certificates can be withdrawn from DTC custody in three ways:

Withdrawals-by-Transfer (WTs): When a Participant’s customer desires a certificate registered in any



UNITED STATES TRUST
COMPANY OF NEW YORK
VICE PRESIDENTS WILLIAM
WALSH AND SUZANNE
WINTER JOIN DTC'S
CONNIE CHEN,
MANAGER—SYSTEMS AND
COMPUTING (SEATED),
TO VIEW THE
NEW *PTS* “LENP”
FUNCTION, WHICH IS
REPLACING THE
AUTOMATIC
DISTRIBUTION
OF HARD-COPY
LEGAL NOTICES.

particular name, DTC arranges with the appropriate transfer agent for its issuance. In 1990, 5.4 million new certificates were created this way. Depending on the issue, its transfer agent, and the agent's location, newly registered certificates are generally available one to two weeks after DTC has received instructions for these routine transfers.

Urgent COD Withdrawals: In many issues, Participants can obtain certificates quickly and directly from the depository. Urgent certificates-on-demand (CODs) are available from DTC in all full-Fast Automated Securities Transfer (*FAST*) securities, all corporate debt securities eligible for DTC's Same-Day Funds Settlement system, and all registered and bearer municipal issues.

The Rush Withdrawal-by-Transfer (RWT) Service: RWT enables DTC to expedite the processing of Participants' transfers when certificates are needed urgently and CODs are not available.

In recent years, DTC has been gradually eliminating urgent COD withdrawals in corporate debt and equity securities eligible for its Next-Day Funds Settlement system. Participants used to need these urgent withdrawals primarily to complete deliveries-versus-payment (DVPs) not settling in a book-entry environment. This need diminished, however, as book-entry delivery grew and rules of self-regulatory organizations were amended to mandate book-entry settlement of DVPs in corporate securities.

As a result, in July 1989 DTC generally began eliminating its urgent COD withdrawal service for corporate securities settling in next-day funds. These securities are now handled through RWT.

To use RWT, Participants submit rush transfer registration instructions to DTC via the Participant Terminal System. If the issue is RWT-eligible, the transfer agent receives these instructions from DTC the next day. After rush reregistration by the agent and retrieval by DTC, the depository promptly notifies the Participant that the securities are available.

Participants can withdraw securities quickly through the service because RWT instructions are

segregated for priority treatment by DTC and the agent, and an overnight express courier service is used between DTC and agents outside of New York City. Securities are generally available within two days if the agent is located in New York City and within three days if the instructions are sent to an agent outside of New York City.

Fast Automated Securities Transfer (FAST)

Through the *FAST* program, DTC reduces certificate movement by leaving some securities with transfer agents as balance certificates registered in its nominee name, Cede & Co. Balance certificates are adjusted daily for DTC deposit and withdrawal activity.

Agents can participate in the WT portion of the program only, or they can also handle urgent COD withdrawals by taking part in the full-*FAST* program.

Direct Mail Service

A Participant can speed newly registered certificates to its customers or third parties by having transfer agents or DTC mail them directly, rather than returning them to its offices before mailing. More than 1.9 million certificates were handled this way in 1990.

When agents mail certificates, DTC first receives registration information from Participants by automated means, reformats it if needed, and forwards it to agents in machine-readable form. The agents then issue certificates and return transaction details to DTC for its records and for reporting to Participants. When a Participant wishes all transferred certificates mailed, DTC assumes the responsibility whenever transfer agents do not provide direct mail service.

Training

Training for Participant employees has grown in importance as more issues with special features become eligible and exception processing becomes more complex. The depository's training programs, given at both DTC and Participant sites, are designed to help Participants communicate with



A PARTICIPANT
TRAINING
VIDEO
PRODUCTION
SHOOT IN
PROGRESS AT
DTC.

DTC in the most effective and cost-efficient manner. In 1990, nearly 3,000 employees, representing over 300 Participants, were instructed in the use of DTC's Next-Day and Same-Day Funds Settlement systems, *PTS*, and Participant Operating Procedures (POP). A catalogue describing these programs is available.

In addition, two telephone numbers have been established to help with *PTS* or POP questions—in New York State: (212) 709-1135; outside of New York State: (800) 545-1276.

Developments in '90

▪ Certain Rule 144A securities became eligible for DTC services when, in April, the Securities and Exchange Commission (SEC) adopted Rule 144A, which provides an exemption from the application of the registration requirements of the Securities Act of 1933 for sales of certain securities to "qualified institutional buyers." In a related action, the SEC approved the National Association of Securities Dealers, Inc.'s, electronic trading and comparison system—PORTAL—for primary placements and secondary-market trading of

Rule 144A securities.

The first PORTAL offering under Rule 144A was delivered in book-entry-only (BEO) form through DTC in June. By yearend, there were five such issuances, all American Depositary Receipts representing foreign ordinary shares and all settling in DTC.

At yearend, the depository was awaiting SEC action on a rule filing it made in April 1990, which would allow DTC to make eligible any new domestic or foreign issue of Rule 144A securities. The depository also would be able to settle trades in NYSE System 144A under a pending rule filing by the New York Stock Exchange.

▪ DTC's Automated Tender Offer Program (ATOP) processed its largest completed tender offer, in 1990: Matsushita Electric Industrial Co., Ltd.'s, \$3.9 billion offer for MCA INC. Participants tendered some 60 million of the 92 million outstanding shares, with 1,245 instructions received at DTC.

In addition, DTC enhanced ATOP to handle Participant requests for withdrawal of some or all securities previously tendered; process offers

involving securities with associated “poison pill” rights; and offer an agent-side capability for use by lower-volume tender agents for which the expense of a hard-wired *PTS* terminal is not justifiable.

▫ The liquidation and closing of some savings and loan institutions that had issued DTC-eligible certificates of deposit (CDs) resulted in DTC’s processing redemptions and other activities relating to 14 CD issuers totaling \$1.8 billion.

The sudden increase in this type of activity—due to action by the Resolution Trust Corporation (RTC)—required DTC to work with the RTC and others to standardize handling of these redemptions, often under urgent time limitations.

▫ The first rights offerings were exercised through DTC—rights for the purchase of American Depositary Receipts of Attwoods PLC in July and American Depositary Shares of Elan Corporation in November. In both cases, DTC modified existing procedures to accommodate the offerings. A formal rights exercise system is planned.

▫ Information on all reorganization and redemption functions (except put bonds, scheduled to be added in mid-1991) became available over the Computer-to-Computer Facility (CCF) and over *PTS* through the RIPS (Reorganization Inquiry for Participants System) function.

▫ DTC developed a repurchase agreement (repo) tracking system, which enables Participants to track their future principal and interest entitlements on certain securities (in 1990, collateralized mortgage obligations and medium-term notes eligible in the Same-Day Funds Settlement system).

With repo tracking, Participants selling securities under a repurchase agreement enter their repo transactions via *PTS* and have DTC track their original ownership interest, although the securities are not in their DTC accounts on record date. The seller instructs DTC to transfer the securities by book-entry and credit to it all future distributions.

▫ DTC introduced the first phase of its Participant Exchange Service (PEX), which enables Participants to send and respond to buy-in notices over *PTS*, replacing hard copy.

PEX provides pre-formatted screens for Participants to send original NASD and NSCC (Balance Order) buy-in notices via *PTS* to Participants that have not delivered a security by a prescribed time. The receiver, in turn, can retransmit the notice to another Participant that owes it the security. Participants reconcile the buy-in themselves, outside of DTC; therefore, notices involving DTC-eligible and -ineligible securities may be sent over PEX.

▫ DTC began a pilot program that will make its Direct-Mail-by-the-Agent service available to transfer agents that do not participate in the Fast Automated Securities Transfer program.



GEORGE ZEIMER, VICE PRESIDENT, LTCB TRUST COMPANY (SEATED);
ANGELINA MADERA, ASSISTANT VICE PRESIDENT, CHEMICAL BANK,
AND PAUL FALANGA, VICE PRESIDENT, BANKERS TRUST COMPANY,
DURING A DTC PARTICIPANT TRAINING SEMINAR.

SELECTED 1990 SERVICE STATISTICS

Deposits *(Total for the Year)*

Daily Average Certificates	
For Registered Securities	62,500
Total Registered Certificates	15.8 million
Daily Average Certificates	
For Bearer Securities	20,200
Total Bearer Certificates	5.1 million

Deliveries *(For the Year)*

Number	72.6 million
Value	\$8.8 trillion

Pledges *(At Yearend)*

To Banks	\$9.5 billion
To Options Clearing Corporation	\$5.6 billion
To Federal Reserve District Banks	\$4.4 billion
Total	\$19.5 billion

Underwriting Distributions

Number of Underwritings	15,981
Number of Issues (by CUSIP)	92,130
Total Value	\$354 billion

Dividends and Interest

Number of Payments Received	1,509,000
Number of Paying Agents	2,611
Total Corporate Cash Dividends	
And Interest	\$183.2 billion
Total Municipal Bond Interest	\$55 billion
Total Stock Dividends	4.9 billion shares

Change Mode of Payment Instructions

In UIT Securities	10,689
In Variable Mode Preferred Stock Issues	930

Tender and Exchange Offers

Offers Processed and Allocated	537
Agents Involved	79
Value of Acceptances	\$24.1 billion

Conversions

Eligible Issues	468
Number of Resulting Shares	187 million

Redemptions

Full Calls and Maturities	63,123
Municipal Partial Calls	22,920
Corporate Partial Calls	1,560

Puts

Eligible Issues	4,059
Instructions to Exercise	19,375
Total Value of Allocations	\$15.2 billion

Units

Eligible Issues	699
Instructions to Combine	5,205
Combining 522 million components into	
134 million units	
Instructions to Separate	11,584
Separating 123 million units into	
520 million components	

Warrant Subscriptions

Eligible Issues	135
Subscriptions Processed	2,889
Resulting Shares	60 million

Certificate Withdrawals

Daily Average Withdrawals-by-Transfer	19,600
Total New Registered Certificates	5.4 million
Daily Average Certificates-on-Demand	
For Registered Securities	840
Total Certificates Withdrawn	255,000
Daily Average Certificates-on-Demand	
For Bearer Securities	760
Total Certificates Withdrawn	1,025,000
Total Certificates Withdrawn through RWT Service	26,500

Direct Mail Service

Number of Participants	108
Participating Transfer Agents	16
Certificates Mailed by Agents	720,005
Certificates Mailed by DTC	1,221,999
Total Certificates Mailed	1,942,004
% of All WT Certificates Sent by Direct Mail	36

CHART 1
Market Value of Securities on Deposit
(In \$ trillions)

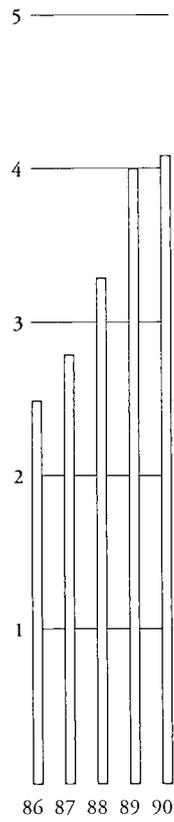


CHART 2
Equity Securities On Deposit
(In billions of shares)

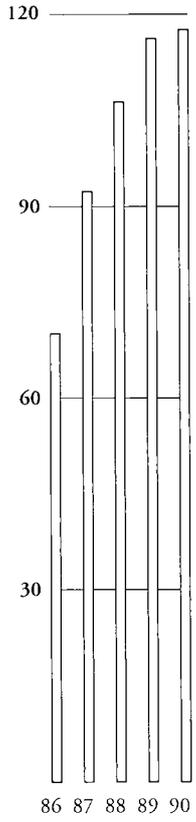


CHART 3
Corporate Debt Securities on Deposit
(In \$ billions/principal amount)

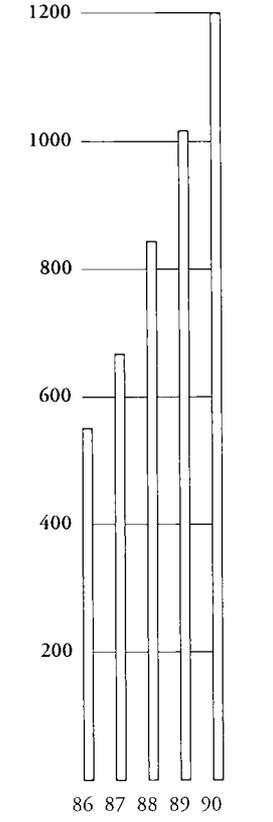


CHART 4
Municipal Bonds On Deposit
(In \$ billions/principal amount)

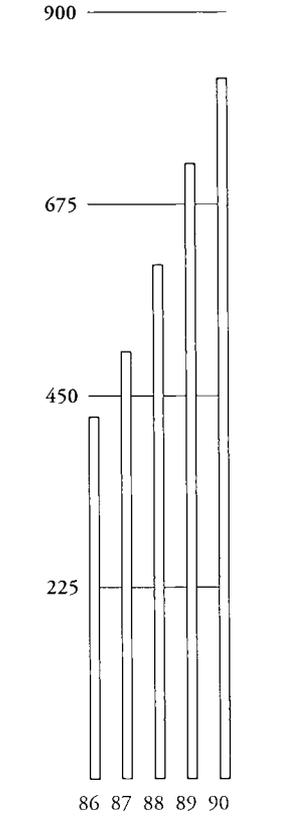


CHART 5
Book-Entry Deliveries

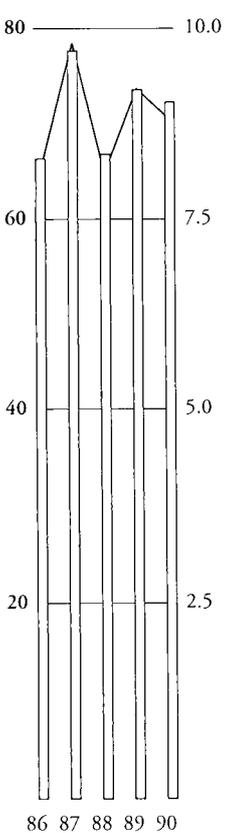


CHART 6
Book-Entry-Only Municipal Bond Issuance

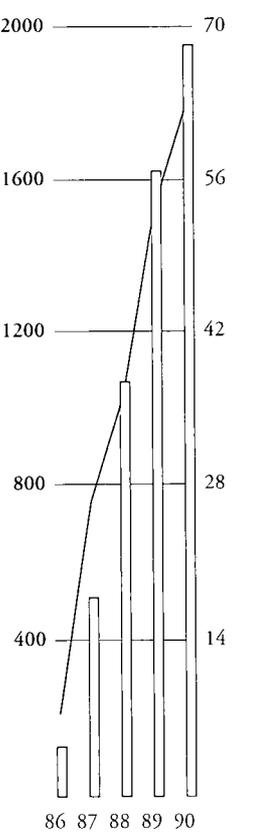


CHART 7
Tender and Exchange Offers Processed

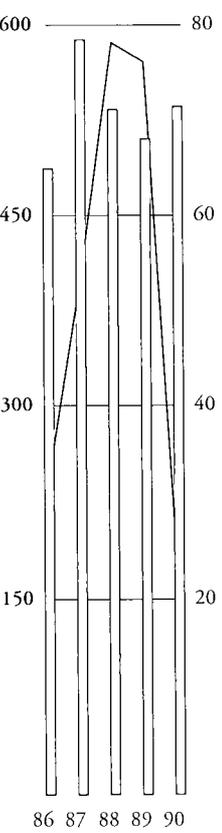
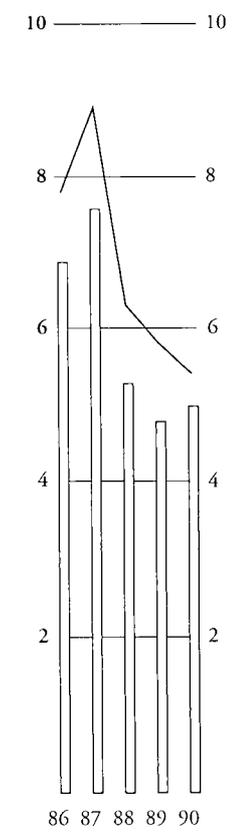


CHART 8
Withdrawals-by-Transfer



□ Number (In millions)
□ Value (In \$ trillions)

□ Number of New Issues
□ Principal Amount (In \$ billions)

□ Number of Offers
□ Value of Acceptances (In \$ billions)

□ Instructions (In millions)
□ Certificates Obtained (In millions)

CHART 9

*Urgent COD Withdrawals
In Registered Issues
(In millions)*

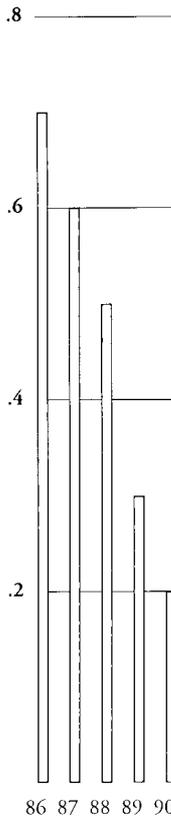


CHART 10

*Underwriting
Distributions (In thousands)*

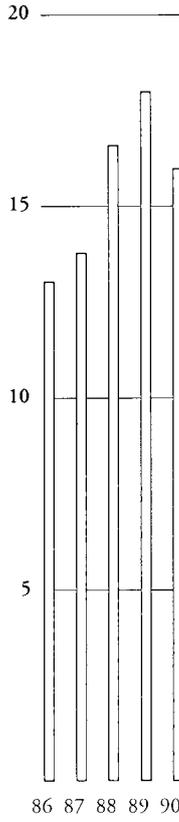


CHART 11

*Cash Dividends and
Interest Received for
Participants (In \$ billions)*

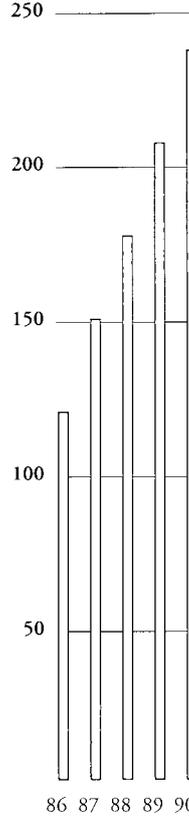


CHART 12

*Municipal Bond
Interest Received for
Participants (In \$ billions)*

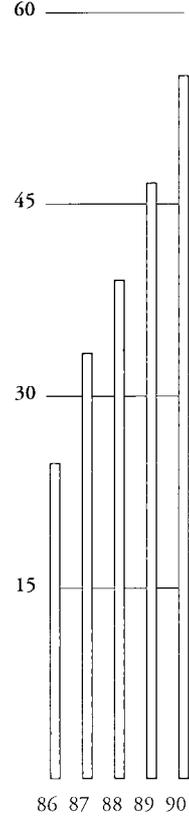


CHART 13

*Value of Outstanding
Pledges (In \$ billions/yearend)*

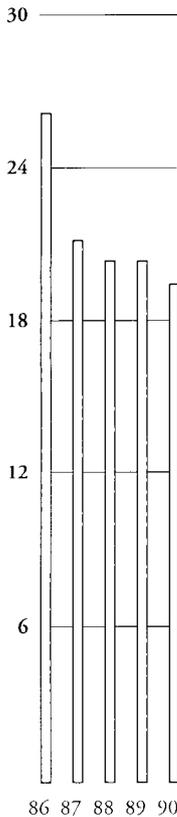


CHART 14

*Corporate Call Lotteries
(In thousands)*

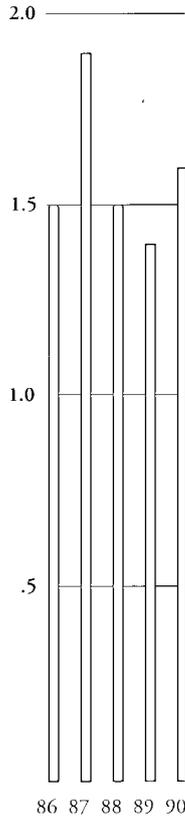


CHART 15

*Lotteries for Partial
Municipal Redemptions*

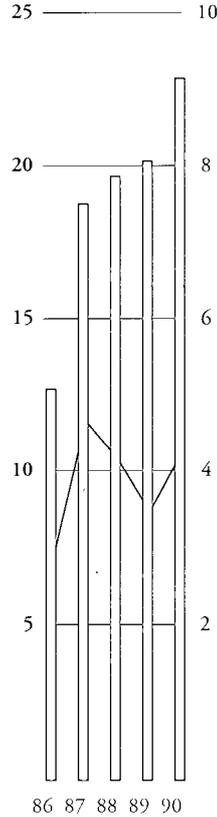
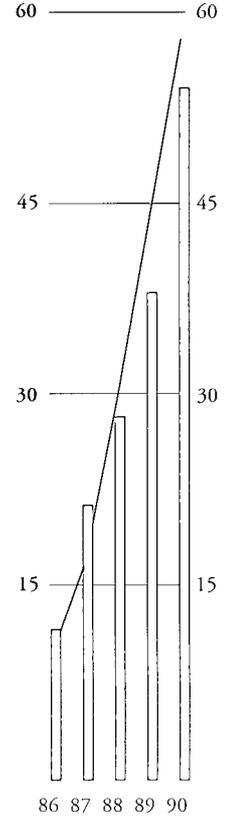


CHART 16

*Majorities and
Full Redemptions
Of Municipal Securities*



□ Number of Issues Called (In thousands)
■ Value of Redemptions (In \$ billions)

□ Number of Issues (In thousands)
■ Value of Redemptions (In \$ billions)

ELIGIBLE ISSUES

The more issues made eligible for DTC services, the more useful the depository is to its Participants. DTC originally made American- and New York Stock Exchange-listed equities eligible, then over-the-counter (OTC) equities, and listed and unlisted corporate debt. Municipal securities followed in 1981 with the start-up of DTC's municipal securities program. And in 1987, DTC began its Same-Day Funds Settlement (SDFS) system, in order to increasingly make eligible those types of securities that settle in same-day funds.

During 1990, DTC made almost 187,000 issues eligible, bringing the total number of issues to 827,910 by yearend, a 14% increase over 1989. Of that gain, 80,444 were in serial or term issues of municipal bonds distributed by underwriters through the depository. Of the newly eligible issues, 10,178 were securities that settle in same-day funds.

The following table shows the number of eligible issues by security type:

ELIGIBLE ISSUES *

<u>CORPORATE</u>	
Listed Equity Issues	3,130
OTC Equity Issues	22,907
Corporate Debt Securities	21,816
Collateralized Mortgage Obligations	3,976
Units	699
Warrants	1,588
American Depositary Receipts	863
Unit Investment Trusts	20,575
Certificates of Deposit	16,147
Other	167
Total Corporate	<u>91,868</u>
<u>MUNICIPAL</u>	
Registered Bonds	448,316
Bearer or Interchangeable Bonds	284,469
Notes	728
Total Municipal	<u>733,513</u>
<u>GOVERNMENT</u>	
U.S. Treasury and Federal Agency Issues	2,529
Total	<u>827,910</u>

* By CUSIP number, as of December 31, 1990

Eligibility for New Issues

DTC's *Operational Arrangements for Issue Eligibility* memorandum outlines criteria that must be met to ensure a new issue's eligibility for depository services. The arrangements, which include observance of Securities and Exchange Commission-endorsed call notification standards for municipal bonds, aim to maximize the number of eligible issues while maintaining orderly processing and ensuring timely dividend, interest, principal, and redemption payments. DTC internal planning consultants often help investment bankers and their legal and operations staffs apply the arrangements to new issues during structuring, whether certificates are available to investors or an issue is in book-entry-only (BEO) form.

ISSUES MADE ELIGIBLE IN 1990

Equity	5,200
Corporate Debt and	
Certificates of Deposit	18,100
Registered Municipal Securities	96,300
Bearer Municipal Bonds	66,400
U.S. Treasury and Federal Agency	700
Total	<u>186,700</u>

Voting Rights

The registration of deposited securities in DTC's Cede & Co. nominee name gives the depository the ability to:

- promptly determine whether certificates are transferable;
- permit retransfer of certificates quickly and simply, when necessary;
- ensure receipt of dividends, distributions, and voting rights to the depository for their allocation to Participants properly and without delay.

Although these reasons require it to be the owner of record, DTC's objective is to avoid being a barrier to communications between issuers and beneficial owners. Indeed, the existence of the depository in some cases may assist a corporate issuer in keeping up with changes in ownership of its voting stock.

The *Omnibus Proxy* enables Participants to exercise voting rights of their securities on deposit at the depository.

It is, in effect, an assignment: Cede & Co., the holder of record, assigns each Participant the voting rights on securities in that Participant's DTC account as of record date.

The depository forwards the *Proxy*, with a list of Participants, to the issuer, while notifying each Participant listed there that it has sent the *Proxy* and specifying the quantity of securities the Participant is entitled to vote.

After DTC completes these steps—soon after record date—communication between issuers and beneficial owners occurs as if the depository did not exist.

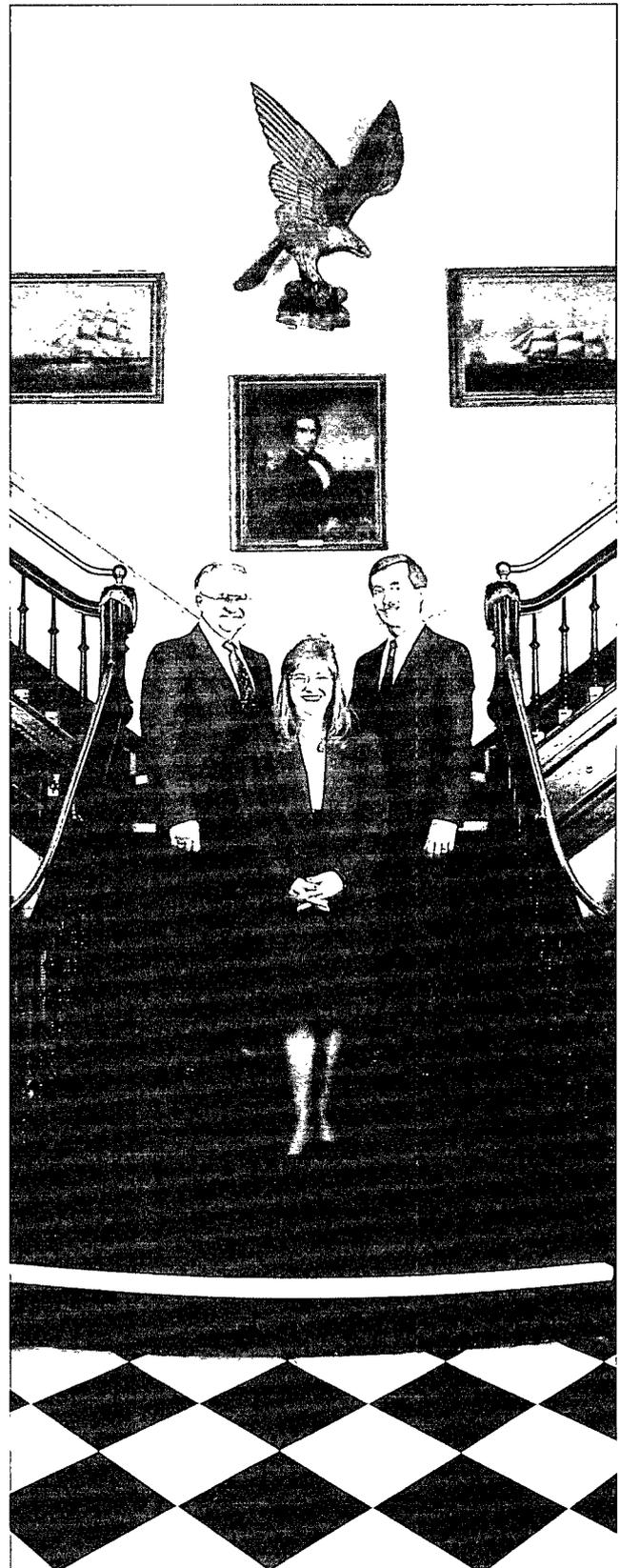
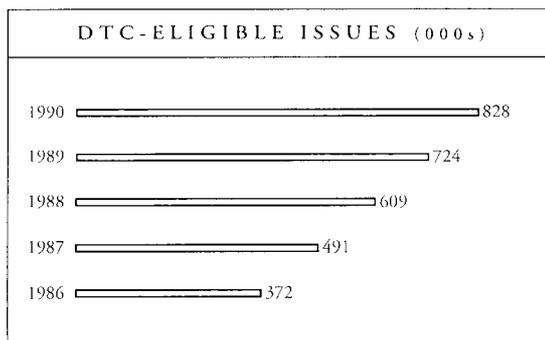
Other reports also serve issuers:

- The *Security Position Listing* shows the total amount of a security issue on deposit at DTC and each Participant's account number(s).

DTC sends this report to each equity issuer annually, indicating Participant record-date positions for the issuer's annual meeting. Issuers may also obtain daily, weekly, monthly, or dividend-record-date listings, for a modest fee.

- DTC's *Participant Proxy Contact List* specifies each Participant's name and address for purposes of handling proxies, and the name and phone number of a contact person there. The depository updates this list quarterly and sends it to issuers.

In addition, DTC's brochure *Shareholder Communications and The Depository Trust Company* is available on request.



FROM LEFT: DTC'S VINCENT MAURO, VICE PRESIDENT—SETTLEMENT, WITH LEHMAN BROTHERS'S DOROTHY MELARAGNO, VICE PRESIDENT, AND MICHAEL BRENNAN, FIRST VICE PRESIDENT—BOTH OF THE MUNICIPAL BOND DEPARTMENT.

MUNICIPAL SECURITIES PROGRAM



FROM LEFT: DTC'S
KATHRYN CAZIARC,
SUPERVISOR—
REORGANIZATION;
AGOSTINO M. RICCI,
VICE PRESIDENT
OF PRUDENTIAL
SECURITIES
INCORPORATED AND
PRESIDENT OF THE SLA'S
REORGANIZATION
DIVISION, AND DTC'S
WILLIAM HODASH,
DIRECTOR—
REORGANIZATION,
REVIEW A PARTICIPANT
TENDERS TRAINING AID
OVER PTS.

Issuers, their underwriters, and other Participants are by now well aware of the advantages of using DTC for municipal securities. The volume of municipal bond, note, and variable-rate demand obligation (VRDO) underwritings distributed through the depository in 1990 increased 10%, to nearly \$147 billion, out of \$162 billion of municipal securities issued last year. The principal amount of municipal securities on deposit at DTC was nearly \$861 billion—15% above the 1989 figure.

In addition to the usual benefits of depository services, use of DTC is of special value for bond redemptions—particularly for partial calls—to reduce or eliminate problems and losses from delayed or missing call notifications. The problems such redemptions present for the industry and investors where issues are not depository-eligible should diminish as future underwritings are distributed through DTC, as more bearer bond issues become depository-eligible, and as older issues mature.

Last year, 5,961 new issues of municipal bonds—80,444 CUSIP numbers—with a principal amount of \$116 billion were distributed through DTC. Based on data from the Public Securities Association

(PSA) and other sources, they represent 75% of all new, long-term bond issues last year and 94% of their principal amount.

DTC's municipal note program, which uses its Same-Day Funds Settlement (SDFS) system, has attracted all sizes of municipal note issues nationwide. For example, in 1990 issues ranged from distributions of \$200,000 (one each for Lowell, Massachusetts; Revere, Massachusetts; and Claremont, New York) to a \$4.1 billion New York State offering.

Four hundred sixteen issuers used DTC's muni note program in 1990, up from approximately 130 in 1989. They distributed 704 issues, with a par value of \$27.2 billion, representing 21% of all such issues last year and 78% of their par value, based on PSA figures. Ninety-four percent of the par value of note issues through DTC was in book-entry-only (BEO) form.

VRDOs became eligible for DTC's municipal program in SDFS during 1988. Twenty-two VRDO issues were distributed through the system that year, with a total principal amount of more than \$400 million. Last year, 155 issues totaling \$3.1 billion were distributed through the system. Municipal note and VRDO activity may also be

found in the “Same-Day Funds Settlement System” section, page 22.

New issues distributed in BEO form, with no certificates available to investors, reduce underwriting and ongoing costs to issuers. In 1990, of new municipal bond issues distributed through DTC, 33% of the issues and 54% of their principal amount—\$62.7 billion—were distributed in BEO form. For municipal notes, the corresponding figures for BEO were 80% and 94%, or \$25.6 billion, while VRDOs distributed BEO accounted for 76% of the issues and 84% of their principal amount—\$2.6 billion. Municipal securities in BEO form are also discussed in the “Securities in Book-Entry-Only Form” section, page 25.

DTC’s municipal bearer bond exchange program continues, with 3 million certificates exchanged in 1990, approximately 10% more than in 1989. Here, DTC surrenders to exchange agents batches of bearer interchangeable certificates and, generally, converts the certificates into a “jumbo” registered certificate.

Over the years, DTC has converted 17.3 million bearer certificates, at an estimated annual savings in handling, storage, and other costs of 77 cents per certificate. In addition to these savings for Participants, registered certificates offer better call notification, better interest-payment collection, no risk of coupon theft or loss, and reduced risk of certificate theft or loss.

MUNICIPAL STATISTICS

	<u>1990</u>	<u>1989</u>
<u>BONDS</u>		
Principal Amount of Municipal Bonds on Deposit <i>(In Billions)</i>	\$824.2	\$723.8
Municipal Bond Underwritings Distributed through DTC	5,961	6,454
Total Principal Amount <i>(In Billions)</i>	\$116.4	\$113.1
Eligible Municipal Bonds (by CUSIP Number)	731,749	634,528
Daily Average Municipal Bond Book-Entry Deliveries	14,300	13,300
Municipal Bond Issues with Partial Redemptions For Which Lotteries Were Run	22,920	20,156
Resulting Call Proceeds <i>(In Billions)</i>	\$4.4	\$3.9
Bond Coupons Cut <i>(In Millions)</i>	40.8	41.2
<u>NOTES</u>		
Municipal Note Issues Distributed through DTC (By CUSIP Number)	704	436
Total Principal Amount <i>(In Billions)</i>	\$27.2	\$19.8
Eligible Municipal Note Issues at Yearend (by CUSIP Number)	728	425
Principal Amount on Deposit <i>(In Billions)</i>	\$22.2	\$17.4
<u>VRDOs</u>		
VRDO Issues Distributed through DTC (by CUSIP Number)	155	98
Total Principal Amount <i>(In Billions)</i>	\$3.1	\$1.4
Eligible VRDO Issues (by CUSIP Number)	1,036	792
Principal Amount on Deposit <i>(In Billions)</i>	\$14.1	\$9.7

SAME-DAY FUNDS SETTLEMENT SYSTEM

DTC's Same-Day Funds Settlement (SDFS) system offers depository services to certain types of securities that settle in same-day, or Federal, funds.

Inaugurated in 1987, the system provides significant control features for trade settlement that place a limit (cap) on and require collateralization of each Participant's intra-day net settlement debit.

In 1990, the system grew to 383 direct and indirect Participants and \$432.2 billion in principal amount of securities on deposit at yearend—a 76% increase over yearend 1989. The number of underwritings distributed through the same-day funds system rose 169%.

Three security types were added in 1990—retail certificates of deposit, corporate bonds, and commercial paper.

Commercial paper came on board in October, after the Federal Reserve System and the Securities and Exchange Commission approved the depository's commercial paper program. Five months later, \$78 billion—or 14% of the estimated commercial paper outstanding—was already on deposit at DTC. (See "Commercial Paper Program" section, page 23.)

The largest principal amount on deposit of any Same-Day Funds Settlement system security type was represented by collateralized mortgage obligations, which rose from \$67 billion at yearend 1989 to \$124 billion at yearend 1990. Short- and medium-term notes also increased significantly, from \$16 billion to more than \$51 billion over the same period. In addition, medium-term-note issuers numbered 225 at yearend 1990, compared with 136 at yearend 1989.

The year also had the first distributions of book-entry-only (BEO) global debt issues wholly or partially through DTC, beginning with Citicorp's \$1.4 billion issue in June. By yearend, 11 such issues, all with no certificates available to investors, had been processed through the system. These BEO global debt issues are also eligible for settlement at the international depositories CEDEL and Euroclear.

SDFS GROWTH	1990	1989
Direct Participants	200	181
Indirect Participants	183	189
Settling Banks	86	73
Total SDFS Accounts	386	321
Principal Amount of SDFS		
Securities on Deposit (<i>In Billions</i>)	\$432.2	\$245.6
SDFS-Eligible Issues (CUSIPs)	17,675	9,746
Value of Transactions		
Settled (<i>In Billions</i>)	\$960.1	\$429.2
SDFS Underwritings	1,659	616
Their Total Principal Amount (<i>In Billions</i>)	\$103.2	\$54.7

SDFS - ELIGIBLE ISSUES *

Security Type	Issues (CUSIPs)	Principal Amount On Deposit **
Asset-Backed Securities	116	43.4
Auction-Rate and Tender-Rate Preferred Stock and Notes	630	26.6
Collateralized Mortgage Obligations	3,028	124.3
Commercial Paper	1,274	30.8
Corporate Bonds	72	12.4
Corporate and Municipal Variable-Mode Obligations	35	1.2
Government Agency Securities	565	23.2
Government Trust Certificates	301	14.5
Municipal Notes	728	22.2
Municipal Variable-Rate Demand Obligations	1,036	14.1
Retail Certificates of Deposit	327	2.0
Short- and Medium-Term Notes	6,670	51.4
Zero Coupon Bonds	2,893	66.2

* As of December 31, 1990 ** In \$ billions

COMMERCIAL PAPER PROGRAM

DTTC's commercial paper (CP) program began on October 5, following its approval by the Federal Reserve System and the Securities and Exchange Commission. CP is unsecured, unregistered, short-term promissory notes typically issued by leading U.S. corporations to reduce their financing costs, though issuers can also be foreign, municipal, and marginally creditworthy. CP eligible for DTC's program is generally rated in one of the top two ratings categories by at least one of the largest ratings agencies.

Initially, DTC's program had six issuing/paying agent (IPA) banks and four dealers participating, and 13 programs representing 11 issuers. As of March 31, 1991, nine IPA banks and 17 dealers were participating, with 195 programs representing 180 issuers. A total of \$78 billion was on deposit—14% of the estimated CP outstanding.

With the addition of programs came steady increases in:

- ▀ daily average CP issuances through DTC (see chart);
- ▀ daily average presentments of maturing CP, as more CP was issued through DTC (see chart);
- ▀ the face amount of CP on deposit (see chart).

The gradual expansion of the CP program is expected to continue throughout 1991, under deliberate constraints on its growth. DTC-eligible CP is issued in book-entry-only form, with no certificates available to investors, and settles in the Same-Day Funds Settlement system. (For a current list of DTC-eligible CP programs and their IPA banks and dealers, refer to the depository's monthly *SDFS Eligible Securities* book.)

DTC's program was developed with a task force formed by the Money Market Committee of the Public Securities Association. It is designed for rapid-fire, "hands-off," electronic CP issuance and settlement. The process starts with an issuer's (or dealer's) computer describing to the computer of the issuer's IPA the commercial paper to be issued and delivered. The IPA's computer edits, adds to, and reformats those instructions, and communicates with DTC's computer.

Once DTC's computer takes over, it interacts with the dealer's and custodian bank's computers to complete the delivery and settlement parts of the process. As an alternative to direct computer-to-computer links, IPAs, dealers, and custodians may communicate with DTC over its Participant Terminal System.

DTC sweeps maturing CP from Participant accounts and initiates book-entry deliveries versus payment to paying agent Participant accounts on maturity date for inclusion in that day's regular settlement.

ISSUING/PAYING AGENTS USING DTC'S CP PROGRAM*

The Bank of New York
Bankers Trust Company
The Chase Manhattan Bank, N.A.
Chemical Bank
Citibank, N.A.
The Dai-Ichi Kangyo Bank, Limited,
New York Branch
The First National Bank of Chicago
Manufacturers Hanover Trust Company
Morgan Guaranty Trust Company of New York

* As of March 31, 1991

DEALERS USING DTC'S CP PROGRAM*

BT Securities Corporation
Bank of America NT & SA
Bear, Stearns & Co., Inc.
Chemical Bank
Citicorp Securities Markets, Inc.
Continental Bank, N.A.
Daiwa Securities America Inc.
The First Boston Corporation
First National Bank of Chicago
Goldman Sachs Money Markets
Kidder, Peabody & Co. Incorporated
Lehman Brothers
Merrill Lynch, Pierce, Fenner
& Smith Incorporated
J.P. Morgan Securities Inc.
Morgan Stanley & Co. Incorporated
Nikko Securities Co.
Toronto-Dominion Securities, USA, Inc.

* As of March 31, 1991

COMMERCIAL PAPER PROGRAM GROWTH

	<u>10/31/90</u>	<u>11/30/90</u>	<u>12/31/90</u>	<u>1/31/91</u>	<u>2/28/91</u>	<u>3/31/91</u>
<u>ISSUANCES</u>						
Dly. Av. No.	27	114	191	290	325	342
Dly. Av. Face Amt. (In billions)	\$.3	\$ 1.2	\$ 2.4	\$ 3.7	\$ 3.9	\$ 4.3
<u>MATURITIES</u>						
Dly. Av. No.	6	46	145	235	302	339
Dly. Av. Face Amt. (In billions)	\$.04	\$.5	\$ 1.7	\$ 2.6	\$ 3.2	\$ 3.6
<u>ISSUERS</u>	28	72	105	135	159	180
<u>PROGRAMS</u>	33	82	118	148	174	195
<u>ON DEPOSIT</u>						
CUSIPs	184	886	1,274	2,172	2,766	3,124
Face Amt. (In billions)	\$ 4	\$ 19	\$ 31	\$ 53	\$ 65	\$ 78
Percentage Of Market	0.7	3.4	5.5	9.4	11.6	14.0



FROM LEFT: ROBERT L. WELLS, JR., MANAGER-BANKING, WESTINGHOUSE ELECTRIC CORPORATION; AND JP MORGAN'S CARL W. DESCH, JR., VICE PRESIDENT, AND S. MICHAEL BARNES, VICE PRESIDENT, DISCUSS THE DEVELOPMENT OF DTC'S COMMERCIAL PAPER PROGRAM.

SECURITIES IN BOOK-ENTRY-ONLY FORM

The issuance of debt securities in book-entry-only (BEO) form continues to increase as issuers reduce expenses and investors grow more comfortable owning securities without holding certificates. In 1990, issuers distributed BEO securities valued at \$325.6 billion through DTC, the great bulk of them being debt securities.

With book-entry-only, issuers authorize the deposit at DTC of a single “global” certificate for each issue (each maturity of a debt issue). This certificate is issued in DTC’s nominee name and held by the depository or its custodian bank for the issue’s life. Changes in ownership are recorded by book-entry at DTC and, in turn, reflected on the records of its Participants and their customers. These records are used to allocate income distributions and principal redemptions. Investors receive transaction confirmations and periodic statements from the bank or broker-dealer reporting activity and balances in their securities accounts.

Since DTC often holds more than 80% of the principal amount of debt issues in which certificates are available to investors, BEO is attractive to municipal issuers, who can completely avoid the continuing cost of certificate issuance and reissuance to investors. It is attractive also to corporate issuers when their paper—such as commercial paper—is bought almost entirely by institutional investors. BEO is acceptable as well to many individual investors, who reduce or eliminate the risk, expense, and inconvenience of safekeeping their certificates.

Book-Entry-Only in '90:

Municipal Bonds

- 48% of the principal amount of all new municipal bond issues in the U.S. during 1990 was distributed through DTC in BEO form, up from 40% in 1989.
- 54% of the total principal amount of all new muni bonds distributed through DTC in 1990—\$62.7 billion—was in BEO form, up from 47% in 1989.

Municipal Notes

- 94% of the principal amount of all note issues distributed through DTC in 1990—\$25.6 billion—was BEO. This accounted for 73% of the principal amount of all new muni notes issued in the U.S. last year, compared with 66% in BEO form during 1989.

Corporate Securities

Corporate security types distributed BEO through DTC are:

- American Depositary Receipts
- Asset-Backed Securities
- Auction-Rate and Tender-Rate Preferred Stock and Notes
- Certificates of Deposit
- Commercial Paper
- Conventional Corporate Notes
- Medium-Term Notes
- Mortgage-Backed Securities
- Warrants Linked to Currency Exchange Rates

The great bulk of these securities are debt securities. The equity securities issued in book-entry-only form are bought overwhelmingly by institutional investors—ADRs for shares in Rule 144A securities and auction- and tender-rate preferred stock.

- At yearend, 225 issuers had used DTC’s medium-term note (MTN) program, compared with 136 issuers at yearend 1989. MTNs are corporate debt securities with maturities that range from nine months to 40 years, but are usually between one and seven years. Shelf-registered and continuously offered, MTNs have a flexibility that permits issuers to match the funding of assets and liabilities. More than \$51 billion in MTNs (face value) was on deposit at yearend.

Information Available

DTC has book-entry-only publications and a video presentation designed for issuers available on request.

RECENT DTC GROWTH BY SECTOR IN SELECTED SERVICES

<u>ELIGIBLE ISSUES</u>	<u>1990</u>	<u>1989</u>	<u>1988</u>
Equities	28,488	28,726	24,125
Corporate debt	25,792	21,097	16,152
Municipal debt	733,513	635,745	532,979
Other	40,117	38,271	35,660
Total	827,910	723,839	608,916
<u>SELECTED SERVICES</u>			
Value of securities on deposit <i>(In trillions)</i>			
Banks	\$3.10	\$3.06	\$2.49
Broker-dealers	.96	.93	.76
Other depositories	.04	.03	.03
Total	\$4.10	\$4.02	\$3.28
Shares on deposit <i>(In billions)</i>			
Banks	55.4	51.3	44.6
Broker-dealers	60.9	63.3	61.0
Other depositories	1.6	1.9	1.0
Total	117.9	116.5	106.6
Principal amount of corporate debt on deposit <i>(In billions)</i>			
Banks	\$ 941.8	\$ 804.0	\$663.0
Broker-dealers	243.3	203.7	170.4
Other depositories	15.3	10.1	11.4
Total	\$1,200.4	\$1,017.8	\$844.8
Principal amount of municipal debt on deposit <i>(In billions)</i>			
Banks	\$613.7	\$566.5	\$471.0
Broker-dealers	239.4	176.3	144.0
Other depositories	7.4	8.1	8.8
Total	\$860.5	\$750.9	\$623.8
<u>PARTICIPATION*</u>			
DTC Participants	568	606	607
Broker-dealers	379	408	415
Banks	181	189	183
Clearing agencies	8	9	9

* Excludes indirect participation in DTC, including for 1990 1,275 banks and approximately 2,500 broker-dealers that are correspondents of Participants.

INSTITUTIONAL USE OF DTC

Custody of *Institutional Assets*
Banks and their institutional customers continued to take advantage of depository services in 1990, with equity assets on deposit climbing 8%—to 55.4 billion shares valued at \$1.5 trillion—and debt assets climbing 13.1%, to \$1.55 trillion of principal amount.

Pension Fund Assets

Bank Participants continued to deposit private pension fund assets into their DTC accounts in 1990, though most assets had been previously placed in the depository.

Growth also continued in the deposit of state and municipal retirement system assets. Historically, state and municipal pension fund assets were sometimes required to be kept in state by state laws or regulations—most of which were enacted long before the development of the depository system.

Following a wave of legislation aimed at bringing state laws in line with modern financial practices, all states and the District of Columbia now permit their state and municipal pension fund assets to be placed in a depository. At yearend 1990, 49 states and the District of Columbia had all or part of their pension fund assets in eligible securities on deposit at DTC through custodian banks.

Insurance Company Assets

Through custodian banks, several hundred insurance companies have their securities on deposit at DTC. As with public pension funds, many states in the past restricted depository custody of insurance-company-owned securities. Typically, a statute required that assets be physically kept within the state.

At yearend 1990, the District of Columbia and all states but Wyoming permitted their domestic insurance companies to deposit their assets out of state and at DTC.

Investment Company Assets

Virtually 100% of DTC-eligible investment company assets are on deposit. In addition, as more securities become DTC-eligible, custodian banks

can deposit eligible instruments such as medium-term notes, variable-rate demand obligations, and mortgage- and other asset-backed securities that settle in same-day funds.

Institutional Delivery (ID) System

The *ID* system, a method for reporting and settling institutional trades in U.S. securities, reduces costs and increases assurance of timely settlement. It introduces a single, automated entity—DTC—to coordinate all clearance and settlement activity of broker-dealers, institutions, and their agents.

Briefly, here's how the *ID* system works: A broker-dealer or dealer bank executing an institutional trade furnishes DTC with transaction details—such as price, quantity, and date—which the depository passes on as a legal trade confirmation to the broker's institutional customer, the customer's agent, and other interested parties. If the *ID* confirmation accurately reflects the institution's order, the institution sends an affirmation to DTC, which forwards settlement instructions to the agent and submitting broker. If the security is DTC-eligible and the deliverer has sufficient securities in its DTC account, the depository can automatically complete delivery by book-entry on the morning of settlement date. If the security is not DTC-eligible, the deliverer and receiver settle the transaction outside DTC based on depository instructions that facilitate the delivery's completion on settlement date.

ID in '90

- The *ID* system expanded by yearend to include 7,790 institutions, broker-dealers, custodian banks, and other agents. Average monthly volume of *ID* confirmations processed through the system was 1.7 million for the fourth quarter, up 6% from the comparable 1989 period. For the year, 41.6 million confirmations, affirmations, and prescheduled deliveries were processed through *ID*, a 6% increase from 1989.
- At yearend, the industry affirmation rate of trade confirmations in DTC-eligible securities reported by broker-dealers through the *ID* system was 93% for corporate debt and equity securities, compared

with 92% the year before; and 75% for municipals, compared with 73% for 1989.

- DTC completed the conversion of more than 1,400 *ID* dial-in users to a personal computer (PC) environment through EZTym, a new software communications package. EZTym extends the benefits of DTC's Participant Terminal System (*PTS*), including new *ID* functions and *PTS* screen formats, to *ID* dial-in users that use an IBM or IBM-compatible PC.

International ID System

DTC's International Institutional Delivery (*IID*) system extends certain *ID* system benefits—trade confirmations, affirmations, and receive/deliver instructions—to trades executed outside the U.S. in non-U.S. securities.

The "International *ID*" initiative stems from cross-border trade clearance and settlement problems in non-U.S. securities, which result in high costs for broker-dealers, custodians, and investors. Since *IID* is used for issues that are not DTC-eligible, this service stops short of DTC book-entry delivery and settlement.

However, use of *IID*'s standardized receive/deliver instructions can assist the international broker and global custodian in communicating settlement instructions to local markets. *IID* enables intra-day turnaround of confirmations, affirmations, and receive/deliver instructions; investment managers can append funding instructions for trade settlement at the time of affirmation. In addition, confirmation fields on items such as currency codes and alternate currency instructions, as well as International Standards Organization receive/deliver instruction formats, are provided.

IID in '90

International *ID* began as a pilot program in 1988 with a dozen users, expanded to 68 users in 1989, and to 150 in 1990. With an increasing number of major firms serving the international market adapting to its use, International *ID* is positioned for continued growth in 1991 and beyond. This interest is apparent from widened systems testing efforts of broker-dealers, global custodians, and investment managers, as well as by the commitment

of data-processing resources of Participants that will be among the system's largest users.

- While use of *IID* is not mandated, as is the domestic *ID* system, 1990 saw a growing number of U.S. investment managers send letters of support for *IID* to broker-dealers. More than 20 investment managers, in fact, formed a group called the Investment Managers For the Development of International *ID* to advocate use of *IID*. This initiative is expected to grow in 1991.

- During 1990, *IID* processed its first securities transactions from brokers in the U.K., involving investment managers in the U.S. and U.K. and global custodians in Luxembourg, the U.K., and the U.S.

- The number of trade confirmations processed per week grew by a factor of five, to roughly 1,000.



FROM LEFT: DIANE M. BUTLER, INVESTMENT COMPANY INSTITUTE; GORDON M. MARCHAND (GOVERNOR, INVESTMENT COUNSEL ASSOCIATION OF AMERICA, INC.), YEAGER, WOOD & MARSHALL INCORPORATED, DTC'S RICHARD BEDNARZ, DAVID H. CARNAHAN, JR., VILAS-FISCHLER ASSOCIATES, AND DTC'S JOSEPH J. ARSEY.

AUTOMATION OF DEPOSITORY SERVICES



Automating depository operations and communications links with Participants, transfer agents, and other users remains a high priority at DTC. By continuing to expand the capabilities of its computer systems, the depository reduces its operating costs and, more important, makes it possible for Participants to reduce their processing costs.

DTC has five principal means of automated communications with Participants:

Computer-to-Computer Facility

The Computer-to-Computer Facility (CCF) is used for direct computer-to-computer communication between DTC and user IBM mainframes. CCF provides about 50 input and output functions, with others to be added. CCF II serves the same purpose and can communicate with non-IBM user mainframes, as well. All output files available through CCF are available through CCF II, which also allows mainframe users to transmit highly compressed data in much less time.

Participant Terminal System

Linked directly to DTC's computers, the Participant Terminal System (PTS) is a network of over 1,300 computer terminals in Participant offices throughout the U.S. and Canada. Participants use PTS to send instructions, inquiries, and other messages to DTC, and to receive depository messages and reports.

PTS Jr.

An alternative to PTS, PTS Jr. is available to low-volume users—195 at yearend 1990. It performs all PTS functions at lower cost, though at reduced line speed. PTS Jr. requires only a user's compatible personal computer, DTC-supplied software, a modem, and a telephone connection.

Mainframe Dual Host

Mainframe Dual Host (MDH), a mainframe-to-mainframe communications system, enables users to transmit and receive deliver order (DO), night deliver order, and payment order instructions in "real-time" for quick turnaround and automated matching of deliver order receives. MDH DOs can settle in same-day, as well as next-day, funds.

MDH users can send and receive machine-readable data, eliminating the intermediate mini-

computer that another DTC system, Dual Host PTS, requires. MDH reduces costs and potential hardware problems and will replace Dual Host PTS.

Automated Participant Interface

The Automated Participant Interface (API) allows Participants or their data-processing service bureaus to enter instructions directly into DTC's computer system by hand-delivered or electronically transmitted magnetic tape. API capabilities include magnetic tape instructions for routine withdrawals-by-transfer, Institutional Delivery (ID) system trade confirmations, and ID affirmations. Because Participants are migrating to other, more efficient means of transmitting data, DTC expects to discontinue this service in the near future.

Automation in '90

Computer-to-Computer Facility

- Participants can now access notices of reorganization activity over CCF and CCF II, as well as information about issues for which certificates are available only in restricted denominations.
- Participants can now send issuance instructions for commercial paper over CCF and CCF II.
- CCF and CCF II now enable commercial paper paying agents to receive their end-of-day commercial paper maturity obligation balances. Identified in this transmission are all commercial paper CUSIPs that affect paying agents' maturity obligation accounts at DTC.

Mainframe Dual Host

- Participants and their service bureaus that are MDH users can obtain updated notifications from DTC of data transmitted from and received by service bureaus acting on behalf of Participants.
- Issuing agents of commercial paper can now submit issuance instructions for discount commercial paper, or commercial paper issued at face value with interest to be added at maturity.
- MDH also allows Participants to process dealer-submitted commercial paper deliver orders, and forwards maturity presentment deliver orders initiated by the depository.

Participant Terminal System

- A new repurchase agreement (repo) system enables Participants to enter repo DO transactions for same-

day funds securities and have DTC track the transferers, even though the securities are not in their DTC accounts on record date. Selling Participants instruct DTC to transfer the securities by book-entry and credit them all future distributions on the securities.

- Participants can now send instructions to DTC to receive interest payments in the foreign currency in which a security issue is denominated.
- Participants can view called certificates by accessing DTC's Automated Called Lottery data bases.
- DTC enhanced *PTS* for Participants to review past and present reorganization activities by means of a series of inquiries. Also, Participants can now withdraw previously sent instructions to tender securities, and tender agents can accept or reject withdrawal requests. Shares with associated (poison pill) rights can now be tendered through *PTS*'s Automated Tender Offer Program.

Securities Transfer System (STS)

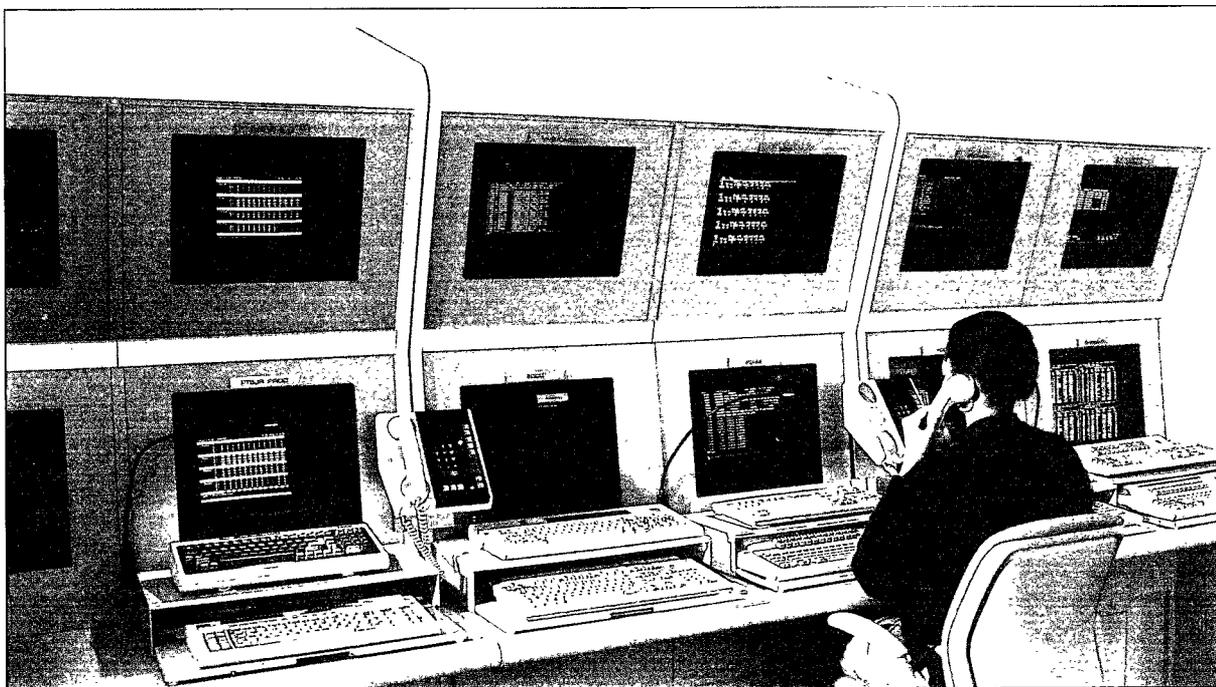
To help speed securities transfer and quickly resolve problems that arise in the transfer process, DTC has expanded its *PTS* network to include applications for transfer agents in DTC's Fast Automated Securities Transfer (*FAST*) program. One *PTS* application, the Fast Balance Confirmation System, enables agents to immediately confirm daily *FAST* balances to DTC, eliminating the expense and delay of balancing by hard-copy reports. Imbalances are

thus more quickly resolved.

Last year, DTC added another *PTS* application, the *FAST* Reject and Confirmation System, through which agents electronically report the completion of individual transfers the same day they are processed. Notification of transfers that cannot be completed and are being returned to DTC is also transmitted and passed on to Participants. The transmission of completed and rejected transfers immediately updates DTC's Securities Transfer System. Twenty-four of the 45 agents participating in *FAST* are using one or both of these applications.

AUTOMATION STATISTICS	1990	1989
Number of CCF Users	660	662
Number of CCF II Users	188	170
Average Daily Number of CCF/CCF II Records*	6.8	4.4
Number of <i>PTS</i> Terminals	1,311	1,281
Average Daily Number Of <i>PTS</i> Transactions	736,800	749,200
<i>PTS Jr.</i> Users:		
Participants	162	160
Pledgee Banks	18	21
Others	15	8
MDH Users	31	19
Dual Host <i>PTS</i> Users	2	5

* In millions; includes MDH.



DTC
MONITORS
PARTICIPANT
TERMINAL
SYSTEM
TRANSMISSIONS
FROM ITS
NETWORK
OPERATIONS
DEPARTMENT.

THE NATIONAL CLEARANCE AND SETTLEMENT SYSTEM AND INTERNATIONAL LINKS

DTC's interfaces with other U.S. clearing agencies are a major part of the national securities clearance and settlement system. They are based on the close working relationship between DTC and the National Securities Clearing Corporation (NSCC), which permits hundreds of broker-dealers that participate in both NSCC and DTC to conveniently use NSCC's trade comparison and clearing facilities and DTC's trade settlement and securities custody services.

Through interfaces between clearing corporations and securities depositories, users of any of them can settle with users elsewhere, without shipping certificates. These links also permit users of more than one depository—DTC, Midwest Securities Trust Company, or Philadelphia Depository Trust Company—to move securities positions between depositories. Moreover, DTC uses its Institutional Delivery system to process the institutional trade data reported to other depositories for clearance and settlement through their systems.

Fund/SERV Interface

DTC's efforts to facilitate Participant processing of mutual fund transactions for their customers produced the depository's Fund/SERV Interface in 1989, which electronically links Participants directly to NSCC's automated Fund/SERV program.

This service enables Participants to input purchase, redemption, and registration data, and receive output; dispatches information from DTC to NSCC and then to the mutual funds; and returns trade confirmation information to Participants. Purchase and redemption transactions are settled by Participants in DTC's daily net settlement system. DTC, in turn, settles with NSCC.

In 1990, DTC enhanced the Fund/SERV Interface so that confirmed order and settlement tickets may be printed at one of several Participant Terminal System (*PTS*) locations in a Participant's offices. Participants executed 6,679 transactions through the Fund/SERV Interface in 1990 to 25

fund groups. These modest volumes are expected to increase once no-load fund groups begin using NSCC's Fund/SERV program.

The Options Clearing Corporation

A DTC account for the Options Clearing Corporation (OCC) enables banks and brokers to pledge securities to satisfy segregation and margin requirements on put and call option contracts, as well as their obligations to OCC's clearing fund. This eliminates repeated paper movements between parties to pledge transactions and provides an alternative to issuing escrow receipts. Under the OCC/DTC Participant Terminal System pledge/release program, Participants can input pledges of securities and release requests over their *PTS* terminals.

International Links

The Canadian Depository for Securities Limited (CDS), NSCC, and DTC maintain an interface to assist Canadian broker-dealers that participate in DTC. In addition, CDS operates a Tax Exempt Dividend Service (TEDS), in cooperation with DTC, which accommodates withholding exemptions at source—that is, permits full payment of dividends without withholding—on Canadian dividend and interest payments for certain U.S., Canadian, and other tax-exempt beneficial owners whose securities are deposited with DTC. In 1990, Participants presented instructions on 970 million shares to avoid reclaiming withholding taxes of \$30.9 million on \$576.6 million of dividends on Canadian shares.

An NSCC subsidiary, the International Securities Clearing Corporation, sponsors accounts in DTC for the Central Depository (Pte.) Ltd. of Singapore and the Japan Securities Clearing Corp. to support the settlement of trades in U.S. securities in Singapore and Tokyo.

Developments in 1990 expanded DTC's ability to serve its Participants in certain cross-border transactions. In June, the depository processed its first book-entry-only (BEO) global debt issuance—Citicorp's \$1.4 billion Standard Credit Card Trust

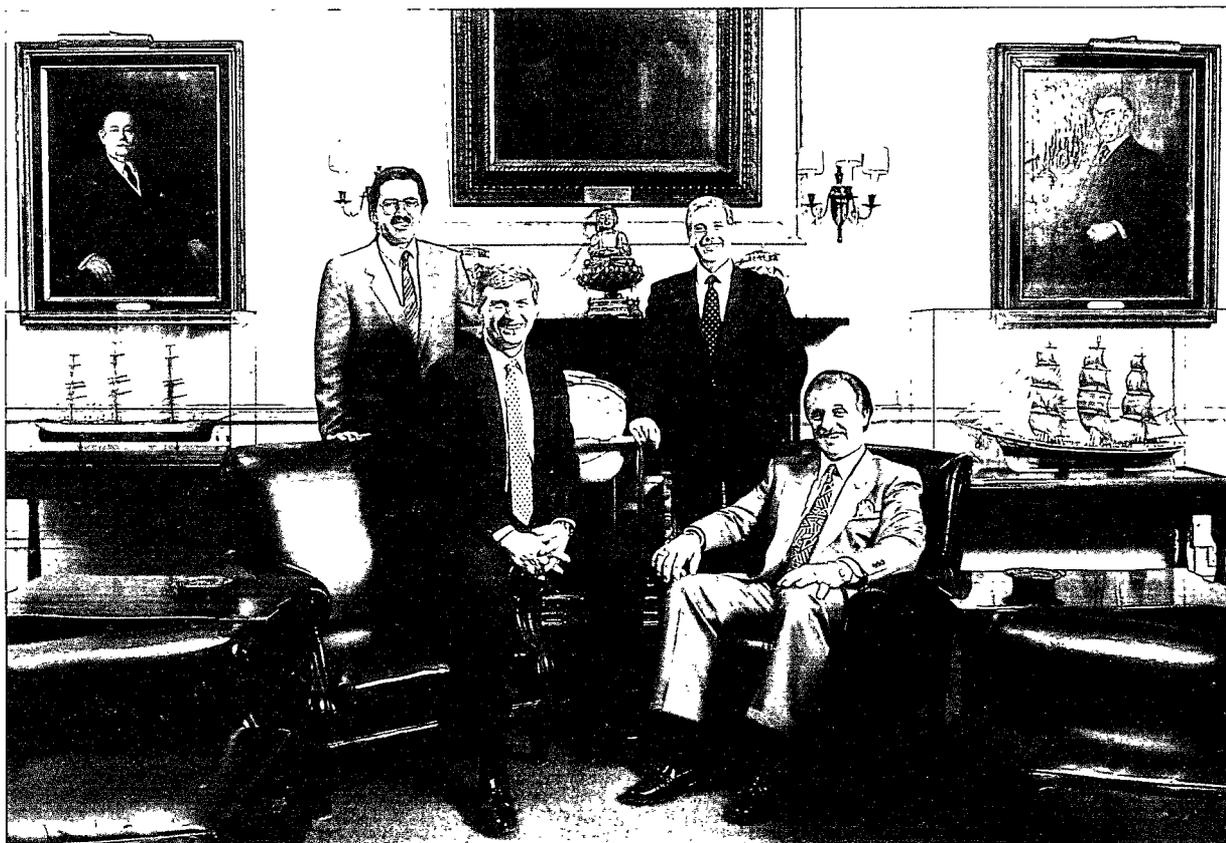
1990-5 Participation Certificates. The issue was eligible for settlement at DTC, and at CEDEL and Euroclear. By yearend, 11 BEO global debt issues, with a total principal amount of \$9.4 billion, had been distributed wholly or partially through DTC.

With BEO global debt issues, no certificates are available to investors. DTC or its custodian bank holds a single global certificate representing all or a portion of each issue. Deliveries by DTC Participants to a participant in CEDEL or Euroclear are made by book-entry to the DTC accounts of CEDEL's and Euroclear's U.S. depository banks—adding to their long positions at DTC and allowing them to hold those positions for CEDEL and Euroclear in support of book-entry deliveries in those systems. Cross-border deliveries into DTC reverse this procedure.

DTC's links with CEDEL and Euroclear had been in place to accommodate interdepository deliveries of Yankee bonds over the years through the DTC accounts of CEDEL's and Euroclear's depository banks in the U.S.

Also in 1990, \$50 million of a New Zealand dollar-denominated World Bank bond issue was distributed through DTC. DTC's custodian bank holds one global certificate representing a portion of the issue; the Reserve Bank of New Zealand holds the other global certificate, representing CEDEL's and Euroclear's positions, as well as those of New Zealand investors.

As the year ended, DTC announced its intention to explore with established national depositories in major markets during 1991 the operational and other considerations involved in future interdepository linkages.



CLOCKWISE FROM LOWER LEFT: DAVID TRUBICA, SENIOR VICE PRESIDENT, WACHOVIA BANK OF NORTH CAROLINA, N.A.; BRUCE GARLAND, VICE PRESIDENT, DTC; VINCENT GRIPPA, PRESIDENT, STATE STREET BANK AND TRUST COMPANY, N.A.; AND JOSEPH ANASTASIO, MANAGING DIRECTOR, SALOMON BROTHERS INC. AT THE INDIA HOUSE IN NEW YORK.

PROTECTION FOR PARTICIPANTS' SECURITIES

The Depository Trust Company—the world's largest custodian of corporate equity and debt securities and municipal securities—has an elaborate safeguard system widely regarded as the most comprehensive for monitoring securities movement and custody.

Internal Controls

The depository records the movement and location of each certificate in its custody, helping to resolve processing errors and facilitate reconciliation and audits.

- An automated certificate-number control system cross-indexes certificates by issue, number, denomination, date of receipt, and—for bearer bonds—the depositor's identity. This lets DTC control and rapidly reconstruct paper flow, regardless of volume.
- On receipt of registered certificates, quick transfer into DTC's nominee name, Cede & Co., allows for prompt validation of certificates and enhances timely dividend and interest collection and disbursement to Participants.
- "Jumbo" certificates are used to consolidate securities into large denominations, making unauthorized negotiation extremely difficult, as well as conserving vault space.
- Restrictive endorsements on the back of certain jumbo certificates help prevent unauthorized negotiation.
- Registered certificates remain in non-negotiable form while in DTC custody.
- The depository microfilms registered and bearer certificates and related data that enter and leave its premises.
- Duplicate computer files of transactions, stored in various locations, permit prompt file reconstruction if processing is interrupted. These and the microfilm records supplement comprehensive files of original documents and production reports.

- Backup computer and communications arrangements help ensure DTC's data-processing functions throughout an emergency. Periodic tests of these contingency facilities are conducted with Participants.

Physical Security

DTC's physical security program combines an extensive electronic security system with a thoroughly trained uniformed guard force.

- The Controlled Access System restricts entry into sensitive areas to authorized personnel and is actively monitored by control room operators.
- A closed circuit television system operates throughout DTC, monitoring all securities handling areas, vaults, entry points, and common hallways.
- Alarm systems, which use motion and vibration sensors, as well as heat detectors, are monitored locally and at a central station. Line encryption protects individual control panels from compromise.
- A professionally trained security force monitors the many systems, and screens persons and packages entering and leaving restricted areas.
- Special wastepaper treatment and disposal methods help prevent unauthorized release or accidental disposal of certificates.
- Deposited securities are stored in various locations, with special access requirements and extensive controls.
- Registered securities are in non-negotiable form when delivered to or from transfer agents and other parties.

Recordkeeping Systems

Double-entry recordkeeping systems help ensure that all Participant input is recorded, that the location of underlying certificates is known, and that moneys are properly transferred to and between Participants. DTC uses the recordkeeping systems to report to Participants and to research differences detected by Participants or by DTC control mechanisms.

User Verification

User verification of DTC records (users compare their activity records with depository reports) helps ensure the integrity of the depository's system and encourages maximum operational cooperation. Each morning, Participants and pledgees receive a DTC report, which itemizes and summarizes their previous day's account activity. In addition, DTC sends daily reports of cash transactions and a monthly statement showing each Participant's and pledgee's securities positions.

DTC Rules require Participants to report differences between their records and DTC statements; Participants and pledgees also must confirm the accuracy of their monthly position statements. DTC's research staff helps reconcile differences.

Internal and External Audits

DTC's internal auditors and its independent accountant, Price Waterhouse, review internal controls.

- The internal audit program is used to review and test controls in key operating areas and in automated systems (including those being developed). Certificates in selected issues are counted daily through random sampling techniques.
- Price Waterhouse examines DTC's financial statements, and performs an annual study and evaluation of the internal accounting control system. Participants, pledgees, and their accountants may request copies of Price Waterhouse's report on the system.
- The Audit Committee of DTC's Board of Directors oversees the General Auditor and the Auditing Department. The Audit Committee reviews the scope of the Price Waterhouse audits and meets with them periodically to discuss their findings. In addition, the Board of Directors receives results of the New York State Banking Department's and the Federal Reserve Bank of New York's annual regulatory examinations of the depository.

Participants Fund

The Participants Fund exists to satisfy any uninsured loss or liability suffered by DTC. DTC's Rules provide that any such loss may be charged against undivided profits or retained earnings, or to the Participants Fund, at the discretion of the Board of Directors.

Should DTC sustain a loss because of a Participant's failure to satisfy obligations to the depository related to the Next-Day Funds Settlement (NDFS) system or the Same-Day Funds Settlement (SDFS) system, DTC would first charge the loss to that Participant's deposit to the Fund. Should the loss exceed the deposit (or should it be sustained for reasons other than Participant failure), DTC might then charge (pro rata) the excess to all other Participants' deposits to the Fund. Should DTC make a charge against a Participant's deposit to the Fund (pro rata or otherwise), the Participant must make an additional deposit to the Fund in an amount equal to the charge.

The Fund has two components. One component, which currently exceeds \$200 million, is allocated to DTC's NDFS system. The other



SAMUEL COOPER IS PART OF DTC'S SECURITY FORCE

component of the Fund, which currently exceeds \$400 million, is allocated to the SDFS system, with a further allocation between commercial paper activity and activity of all other issues settling in same-day funds.

There has never been a pro rata charge to the Participants Fund.

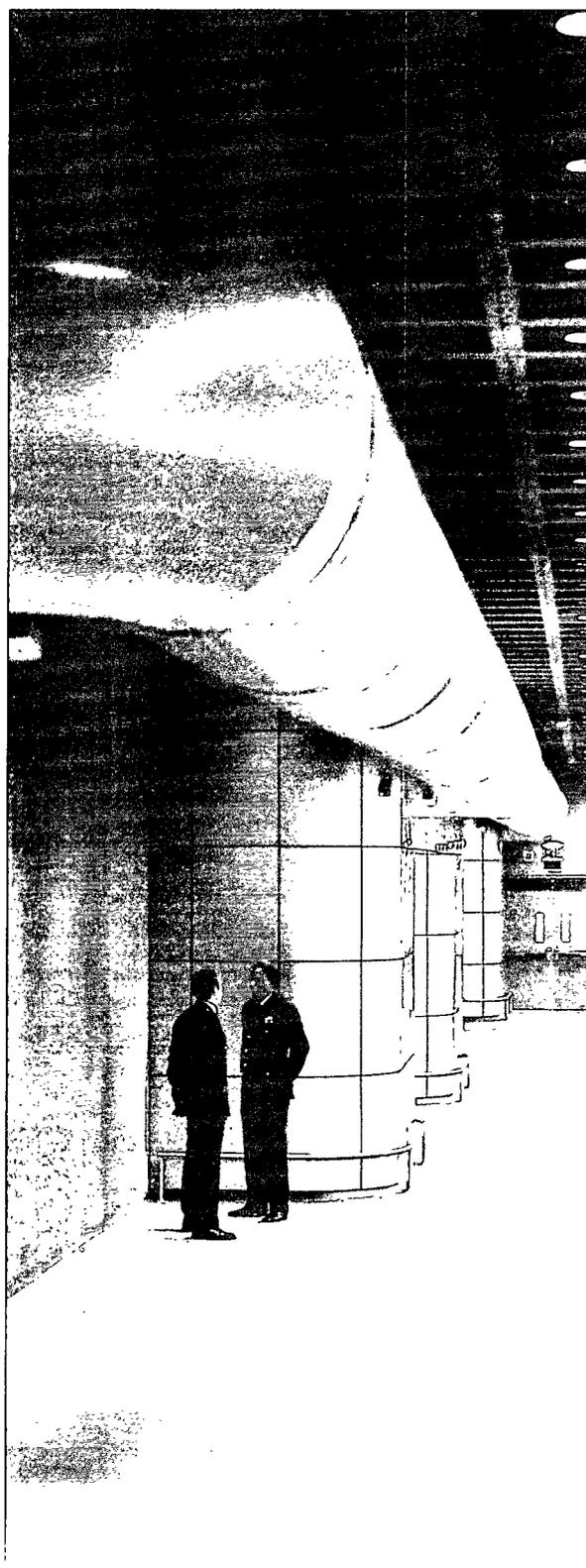
Other Protective Procedures

Additional procedures protect Participants by minimizing the possibility of loss from a Participant's unexpected insolvency. If DTC learns of a possible operational or financial inadequacy, it carefully monitors that Participant's activity and takes protective steps as events warrant.

Insurance Coverages

DTC's insurance coverage program for securities is one of the most extensive programs for private institutions in the financial industry. Through a combination of interlocking blanket bonds and all-risk insurance policies involving both the London and United States domestic insurance markets, DTC's coverage provides:

- \$250 million for loss of securities in transit;
 - \$200 million for loss of securities on premises.
- In addition:
- For any loss of non-negotiable securities being moved by certain modes of transportation, additional coverages are provided by DTC's insurers.
 - For any loss of securities moving by armored car carrier service, \$500 million is provided by the armored car carrier's insurance.
 - For any loss occurring in the mail, DTC's mail policy provides:
 - \$15 million in coverage for non-negotiable securities sent by registered mail, express mail, or express courier;
 - \$1 million for non-negotiable securities sent by first-class mail;
 - \$1 million for negotiable securities sent by registered mail, express mail, or express courier.



THE ENTRANCE TO DTC'S MUNICIPAL VAULT IN GARDEN CITY.

OFFICERS OF THE DEPOSITORY TRUST COMPANY



William T. Dentzer, Jr.
*Chairman and Chief
Executive Officer*



Conrad F. Ahrens
*President and Chief
Operating Officer*



William F. Jaenike
*Executive Vice
President*



Thomas J. Lee
*Executive Vice
President*



Thomas C. Cardile
Senior Vice President



Dennis J. Dirks
Senior Vice President



Michael Fedorochko
Senior Vice President



Glenn E. Mangold
Senior Vice President



Richard B. Nesson
*Senior Vice President
and General Counsel*



Edward J. McGuire, Jr.
Secretary

Vice Presidents

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Joseph J. Arney
Nicholas J. Arrigan
Joseph J. Bellantoni
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James V. Reilly
John L. Scheuermann
Kenneth M. Scholl

Comptroller

Gary J. LaCara

Treasurer

Philip E. Plasencia

Assistant Secretary

Jane C. Klueger

Assistant Treasurer

Leonard A. Miele

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of Directors**

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Chairman
John F. Lee
Richard S. Pechter
H.J. Runnion, Jr.

Audit Committee

C. Howell Scott,
Chairman
Sheldon Harrison
Richard F. Morrison
DuWayne J. Peterson

**Compensation
Committee**

Richard S. Pechter,
Chairman
Michael Minikes
Thomas C. Schneider
C. Howell Scott

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William T. Dentzer, Jr.
*Chairman and Chief
Executive Officer,
The Depository
Trust Company*



Conrad F. Ahrens
*President and Chief
Operating Officer,
The Depository
Trust Company*



William F. Aldinger
*Executive Vice
President, Wells Fargo
Bank, National
Association*



Richard V. Fulp
*Executive Vice
President, Bank
of America
NT & SA*



Richard A. Grasso
*Executive Vice
Chairman, President,
and Chief Operating
Officer, New York
Stock Exchange, Inc.*



Sheldon Harrison
*Senior Executive Vice
President, The Bank
of New York*



C. Richard Justice
*Executive Vice
President, National
Association of
Securities Dealers, Inc.*



John F. Lee
*President, New York
Clearing House*



Michael Minikes
*Senior Managing
Director and Treasurer,
The Bear Stearns
Companies Inc.*



Richard F. Morrison
*Senior Executive
Vice President,
Shearson Lehman
Brothers Inc.*



Richard S. Pechter
*Chairman, DLJ
Financial Services
Group*



DuWayne J. Peterson
*Executive Vice
President, Merrill
Lynch & Co., Inc.*



H.J. Runnion, Jr.
*Director, Wachovia
Bank & Trust
Company, N.A.*



Thomas C. Schneider
*Executive Vice
President and Chief
Financial Officer,
Dean Witter Financial
Services Group Inc.*



C. Howell Scott
*Executive Vice
President, Bankers
Trust Company*

Retiring from the Board during 1990, at the end of their terms, were Robert A. Friedman, Partner, Goldman, Sachs & Co., and Peter E. Madden, President and Chief Operating Officer, State Street Bank and Trust Company.

REPORT OF INDEPENDENT ACCOUNTANTS



*To the Board of Directors
And Stockholders of The Depository
Trust Company*

In our opinion, the accompanying statement of condition and the related statements of revenues and expenses and undivided profits and of cash flows present fairly, in all material respects, the financial position of The Depository Trust Company at December 31, 1990 and 1989, and the results of its operations and its cash flows for the years then ended in conformity with generally accepted accounting principles. These financial statements are the responsibility of the Company's management; our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits of these statements in accordance with generally accepted auditing standards which require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for the opinion expressed above.

Price Waterhouse

153 East 53rd Street, New York, NY, February 1, 1991

FINANCIAL INFORMATION

Statement of Condition

December 31,

	1990	1989
	<i>(Dollars in thousands)</i>	
Assets		
Cash and money market accounts	\$ 53,872	\$ 5,778
Repurchase agreements	2,025,327	1,526,323
Receivables:		
Participants:		
For settlements	25,598	40,146
For services	23,456	22,703
Dividends, interest and other	183,028	307,787
Deferred income taxes	10,566	7,323
Prepaid expenses	3,643	2,721
Equipment and leasehold improvements, less accumulated depreciation of \$59,503,000 in 1990 and \$50,974,000 in 1989	49,201	56,484
Contributions to Participants Funds, callable on demand	447,370	351,085
	<u>\$2,822,061</u>	<u>\$2,320,350</u>
Liabilities and stockholders' equity		
Liabilities:		
Drafts payable	\$1,276,003	\$1,194,365
Accounts payable and accrued expenses	103,873	65,533
Payable to Participants:		
For refunds	16,101	30,134
On settlements	286,125	1,742
On receipt of securities	79,762	87,989
Dividends, interest and other	394,459	442,581
Notes payable, including \$5,178,000 in 1990 and \$3,004,000 in 1989 due within one year	18,363	8,749
	<u>2,174,686</u>	<u>1,831,093</u>
Participants Funds:		
Deposits received	181,247	120,675
Contributions callable on demand	447,370	351,085
	<u>628,617</u>	<u>471,760</u>
Stockholders' equity:		
Capital stock—18,500 shares authorized, issued and outstanding	1,850	1,850
Surplus	950	950
Undivided profits	15,958	14,697
	<u>18,758</u>	<u>17,497</u>
	<u>\$2,822,061</u>	<u>\$2,320,350</u>

The accompanying notes are an integral part of the financial statements.

**Statement of Revenues
And Expenses and
Undivided Profits**

For the years ended
December 31,

1990 1989

(Dollars in thousands)

Revenues		
Services to Participants	\$252,218	\$241,856
Interest income	89,703	127,199
	<u>341,921</u>	<u>369,055</u>
Less—Refunds to Participants	87,928	121,253
	<u>253,993</u>	<u>247,802</u>
Expenses		
Employee costs	154,401	148,371
Rent, maintenance and utilities	37,117	37,475
Data processing rentals and supplies	14,343	15,637
Professional and other services	14,371	12,576
Depreciation and amortization	9,322	9,480
Interest	1,989	966
Other expenses	21,189	22,004
	<u>252,732</u>	<u>246,509</u>
Excess of revenues over expenses and refunds	1,261	1,293
Undivided profits, beginning of year	14,697	13,404
Undivided profits, end of year	<u>\$ 15,958</u>	<u>\$ 14,697</u>

The accompanying notes are an integral part of the financial statements.

Statement of Cash Flows

	<i>For the years ended December 31,</i>	
	1990	1989
	<i>(Dollars in thousands)</i>	
Cash flows from operating activities		
Excess of revenues over expenses and refunds	\$ 1,261	\$ 1,293
Adjustments to reconcile excess of revenues over expenses and refunds to net cash provided by operating activities:		
Depreciation and amortization	9,322	9,480
Pension and deferred compensation	3,576	2,602
Provision for uncollectible dividend receivables	(141)	305
Provision for deferred taxes	(3,243)	(875)
Decrease in receivables from Participants	13,795	17,633
(Increase) decrease in dividends, interest and other receivables	124,760	(250,108)
Increase (decrease) in accounts payable, accrued expenses and other, net	33,982	(7,634)
Increase in Participants Funds deposits received	60,572	40,734
Increase in drafts payable	81,638	318,799
Increase in payables to Participants	214,001	49,111
Total adjustments	<u>538,262</u>	<u>180,047</u>
Net cash provided by operating activities	539,523	181,340
Cash flows from investing activities		
Purchases of equipment and leasehold improvements	(2,039)	(9,707)
Cash flows from financing activities		
Proceeds from borrowing	15,000	—
Principal payments on notes	(5,386)	(2,886)
Increase in cash and cash equivalents	547,098	168,747
Cash and cash equivalents, beginning of year	<u>1,532,101</u>	<u>1,363,354</u>
Cash and cash equivalents, end of year	<u>\$2,079,199</u>	<u>\$ 1,532,101</u>

The accompanying notes are an integral part of the financial statements.

Note 1—Business and Ownership:

The Company is a limited purpose trust company providing central securities depository and related services to the securities, banking and related industries. At December 31, 1990, the New York Stock Exchange owned approximately 34% of the capital stock of the Company, with the remainder owned by the American Stock Exchange, National Association of Securities Dealers and a number of Participants or their representatives. A Stockholders Agreement provides for an annual reallocation of the entitlement to purchase outstanding capital stock by eligible Participants or their representatives based on relative depository activity of Participants during the prior year.

Pursuant to a policy adopted by the Board of Directors, the Company does not pay dividends to stockholders, but refunds to all of its Participants each year revenues in excess of current and anticipated needs. In 1990, this refund amounted to \$19,420,000 (1989—\$21,840,000). The Board of Directors also adopted an additional refund policy to provide for a monthly refund to Participants of income earned from the overnight investment of cash dividend and corporate interest and reorganization payments to the Company for Participants, reduced by certain related expenses. Such net monthly refunds totaled \$68,508,000 in 1990 (1989—\$99,413,000).

Note 2—Summary of Significant Accounting Policies:

A. Securities on deposit:

Securities held by the Company for Participants are not recorded in the accompanying financial statements. Cash dividends and interest received or due on such securities and in process of distribution or awaiting claim are recorded in the statement of condition.

B. Cash, short-term investments and cash flows:

Repurchase agreements represent U.S. Government and U.S. Government Agency securities purchased under agreements to resell at predetermined prices, generally over periods of three days or less. These agreements, primarily with a small number of money center financial institutions, are recorded at cost and interest is accrued as earned.

The Company invests available federal funds in repurchase agreements and money market accounts and at the same time makes

disbursements to Participants in clearinghouse funds. The resulting book overdrafts are included in drafts payable and are eliminated the next business day when the repurchase agreements and money market accounts are converted back to cash.

For cash flow reporting, cash and cash equivalents include cash on hand, money market accounts and repurchase agreements.

C. Equipment and leasehold improvements:

Equipment and leasehold improvements are recorded at cost. Equipment is depreciated over estimated useful lives ranging from five to eight years, using principally accelerated methods. Leasehold improvements are amortized on the straight-line method over the lives of the related leases or the useful lives of the improvements, whichever is less.

D. Income taxes:

Provision is made for deferred income taxes applicable to revenues and expenses reported in the financial statements in periods which differ from those in which they are subject to taxation.

Note 3—Participants Funds:

Participants in the depository are required to deposit to one or both of two Participants Funds amounts which relate to their activity in the depository. The Funds are available to satisfy the Participants' obligations to the Company, and to satisfy certain uninsured losses, if such should occur, of the Company. Required deposits are received in cash or in securities of the United States Government, its agencies or instrumentalities, states and political subdivisions or certain eligible nonconvertible registered corporate debt securities, that are held by the Company or pledged to it and callable on demand.

Note 4—Dividends and Interest on Securities on Deposit:

The Company receives cash and stock dividends and interest on securities registered in the name of its nominee and interest on bearer securities which it distributes to its Participants for the owners of the securities. Amounts received on registered securities withdrawn before the record date but not transferred from the name of the Company's nominee cannot be distributed unless claimed by the owners of the securities through a Participant or other financial institution. At December 31, 1990, cash dividends and interest payable amounted to

\$245,748,000, of which \$151,935,000 was awaiting distribution to Participants and \$93,813,000 was held pending claim on behalf of the record date owners of the applicable securities. Stock dividends payable and unclaimed are not recorded in the accompanying financial statements. Unclaimed cash and stock dividends and interest on securities registered in the name of the Company's nominee and interest on bearer securities are transferred to New York State when required by abandoned property laws.

Cash dividends and interest receivable at December 31, 1990 amounted to \$124,410,000 (1989—\$288,815,000) before reduction by an allowance of \$525,000 (1989—\$1,035,000) for possible losses. Stock dividends receivable are not recorded in the accompanying financial statements.

Note 5—Pension Plan:

The Company has a noncontributory defined benefit pension plan covering substantially all full-time employees. Plan benefits are based on a formula percentage of annual earnings for each year of continuous participation with vesting after five years. The Company's funding policy is to contribute annually the maximum amount that can be deducted for federal income tax purposes.

Net pension costs for 1990 and 1989 included the following components:

	1990	1989
	<i>(Dollars in thousands)</i>	
Service cost—benefits earned during the year	\$4,139	\$3,509
Interest cost on projected benefit obligation	3,157	2,651
Actual return on assets	(887)	(5,200)
Net amortization and deferral	(3,490)	1,207
Net periodic pension cost	<u>\$2,919</u>	<u>\$2,167</u>

The following table sets forth the plan's funded status and amounts recognized in the Statement of Condition at December 31:

	1990	1989
	<i>(Dollars in thousands)</i>	
Plan assets at fair value, primarily equity securities and deposits under group annuity contracts	<u>\$38,205</u>	<u>\$37,630</u>
Accumulated benefit obligation for service rendered:		
Vested	28,253	23,391
Non-Vested	2,722	2,592
	<u>30,975</u>	<u>25,983</u>
Additional amounts related to projected compensation increases	<u>13,185</u>	<u>11,247</u>
Projected benefit obligation for service rendered	<u>44,160</u>	<u>37,230</u>
Plan assets (less than) in excess of the projected benefit obligation	(5,955)	400
Unrecognized net asset remaining from the initial application of FAS No. 87	(8,837)	(9,640)
Unrecognized net loss from past experience different from that assumed and the effects of changes in assumptions	<u>5,119</u>	<u>2,282</u>
Unfunded accrued pension cost included in accounts payable and accrued expenses	<u>(\$ 9,673)</u>	<u>(\$ 6,958)</u>

The discount rate used in determining the actuarial present value of the projected benefit obligation was 8.5% (1989—8.75%). The assumed rate of future compensation levels was based on anticipated inflation and merit increases. The expected long-term rate of return on assets was 10% (1989—10%). The unrecognized net asset that existed when Statement of Financial Accounting Standards No. 87 was adopted, as of January 1, 1986, is being amortized over 16 years.

Note 6—Income Taxes:

Income taxes are included in other expenses. The income tax provisions for 1990 and 1989 are summarized as follows:

	1990	1989
	<i>(Dollars in thousands)</i>	
Current provision:		
Federal	\$3,298	\$1,431
State and local	684	502
Deferred (benefit):		
Federal	(2,589)	(912)
State and local	(654)	(314)
	<u>\$ 739</u>	<u>\$ 707</u>

The primary difference between pretax accounting income and taxable income relates to unfunded pension expense.

Income taxes paid during 1990 totaled \$4,124,000 (1989—\$2,240,000). The Company also received refunds of \$433,000 in 1990 reflecting a reduction in the allocation of income subject to local taxes (1989—\$1,109,000 from the utilization of net operating loss carrybacks).

A recent decision by the Financial Accounting Standards Board would modify Statement of Financial Accounting Standards No. 96, "Accounting for Income Taxes," and require its adoption by 1993. The adoption of this standard is not expected to have a material effect on the Company's financial condition.

Note 7—Notes Payable:

The Company has notes payable totaling \$18,363,000 at a weighted annual rate of 8.9%. The notes are being repaid in monthly installments. Interest paid during 1990 totaled \$1,805,000 (1989—\$987,000).

Aggregate maturities of notes payable as of December 31, 1990 are summarized as follows:

	<i>(Dollars in thousands)</i>
1991	\$ 5,178
1992	4,964
1993	4,393
1994	3,521
1995	307
Total notes payable	<u>\$18,363</u>

The Company has available with commercial banks two short-term lines of credit of \$5 million each at rates approximating the prime rate, and a revolving credit loan agreement of \$50 million at the federal funds rate plus .375%. A commitment fee of .125% is required on the \$50 million revolving credit loan agreement which is available to support the Same-Day Funds Settlement system. These facilities were not utilized during 1990.

Note 8—Leases and Other Commitments:

The Company has entered into leases for office space and data processing and other equipment. Leases for office space and various data processing and other equipment are classified as operating leases. The leases for office space provide for rent escalations subsequent to 1990. Rent expense in 1990 was \$30,972,000 (1989—\$29,826,000) for office space and \$12,967,000 (1989—\$13,702,000) for data processing and other equipment.

Presented below are the future minimum payments, by year and in the aggregate, under operating leases having noncancelable lease terms in excess of one year as of December 31, 1990:

	<i>(Dollars in thousands)</i>
1991	\$ 33,061
1992	33,261
1993	32,821
1994	32,781
1995	32,825
Thereafter	95,705
Total future minimum lease payments	<u>\$260,454</u>

PARTICIPANTS†

Banks

Amalgamated Bank of New York (The)
American National Bank & Trust Company
of Chicago
AmeriTrust Company National Association
AmSouth Bank, N.A.
Bank IV Wichita, National Association
Bank of America NT & SA
Bank of Bermuda International Limited
Bank of California (The)
Bank of Montreal, New York Branch
Bank of New England, N.A.
Bank of New York (The)
Bank of Nova Scotia (The), New York Agency
Bank of Oklahoma, N.A.
Bank of St. Louis National Association
Bank of Tokyo Trust Company (The)
Bank One Trust Company, N.A.
Bank One Wisconsin Trust Company, N.A.
Bank South, N.A.
Bankers Trust Company
Barclays Bank PLC, New York Branch
Barnett Banks Trust Company, N.A.
Bessemer Trust Company
Boatmen's National Bank of St. Louis (The)
Boston Safe Deposit and Trust Company
Brown Brothers Harriman & Co.
Canadian Imperial Bank of Commerce—
N.Y. Agency
Capital Trust Company
Central Bank of Denver
Central Bank of the South
Central Fidelity Bank, N.A.
Central Trust Bank (The)
Chase Lincoln First Bank, N.A.
Chase Manhattan Bank, N.A. (The)
Chemical Bank
Citibank, N.A.
Citizens and Southern National Bank (The)
Citizens Fidelity Bank and Trust Company
City National Bank
Citytrust
Comerica Bank—Detroit
Commerce Bank of Kansas City, N.A.
Connecticut Bank and Trust Company (The)
Connecticut National Bank (The)
Continental Bank, National Association
CoreStates Bank, N.A.
Crestar Bank
Custodial Trust Company
Dai-ichi Kangyo Bank, Limited (The),
New York Branch
Daiwa Bank, Limited (The), New York Agency
Denver National Bank
Dominion Trust Company
Fidelity Bank, National Association
Fiduciary Trust Company International
Fiduciary Trust Company of Boston
Fifth Third Bank (The)
First American Bank, N.A.
First City, Texas-Houston, N.A.
First Fidelity Bank, National Association,
New Jersey
First Interstate Bank of Arizona, N.A.
First Interstate Bank of California
First Interstate Bank of Denver, N.A.
First Interstate Bank of Oregon, N.A.
First Interstate Bank of Washington N.A.
First Kentucky Trust Company (The)
First National Bank and Trust Company
of Tulsa (The)
First National Bank of Atlanta
First National Bank of Boston (The)
First National Bank of Chicago (The)
First National Bank of Maryland (The)
First National Bank of Omaha
First of America Bank—Illinois, N.A.
First Tennessee Bank N.A. Memphis
First Trust Corporation
First Trust National Association
First Union National Bank
First Wisconsin Trust Company
Fort Wayne National Bank
French American Banking Corporation
Frost National Bank
Fuji Bank & Trust Company (The)
Harris Trust & Savings Bank
Hibernia National Bank
Huntington National Bank
IBJ Schroder Bank & Trust Company
IDS Bank & Trust
INB National Bank
Imperial Trust Company
Industrial Bank of Japan Trust Company (The)
Investors Bank and Trust Company
Investors Fiduciary Trust Company
Kellogg-Citizens National Bank
Key Trust Company
Key Trust Company of the Northwest
LTCB Trust Company
LaSalle National Bank
Liberty National Bank and Trust Company
of Louisville
Liberty Street Trust Company
Lincoln National Bank & Trust Company
of Fort Wayne
Lloyds Bank Plc
M&I Marshall & Ilsley Bank
Manufacturers and Traders Trust Company
Manufacturers Hanover Trust Company
Manufacturers National Bank of Detroit
Marine Midland Bank
Marquette Bank Minneapolis, N.A.
Mellon Bank, N.A.
Mercantile—Safe Deposit and Trust Company
Merchants National Bank & Trust Company
of Indianapolis
Michigan National Bank
Midlantic National Bank
Morgan Guaranty Trust Company of New York
Morgan Stanley Trust Company
NBD Bank, N.A.
NCNB National Bank of North Carolina
NCNB Texas National Bank
National City Bank
National Westminster Bank N.J.
National Westminster Bank PLC
National Westminster Bank USA
Nationar
Norstar Trust Company
Northern Trust Company (The)
Norwest Bank Minnesota, National Association
Old Kent Bank and Trust Company
Old Kent Bank—Chicago
Pittsburgh National Bank
Provident Bank (The)
Provident National Bank
Republic National Bank of New York
Riggs National Bank of Washington, D.C. (The)
Royal Bank of Canada (The)
Santa Barbara Bank & Trust
Sanwa Bank California
Seattle-First National Bank
Security Pacific Bank Washington, N.A.
Security Pacific National Bank
Security Trust Company, N.A.
Seligman (J. & W.) Trust Company
Shawmut Bank of Boston, N.A.
Signet Trust Company
Society Bank
Society National Bank
Southeast Bank, N.A.
SouthTrust Bank of Alabama, N.A.
Sovran Bank, N.A.
Star Bank, National Association, Cincinnati
State Street Bank and Trust Company
Stock Yards Bank and Trust Company
Sumitomo Bank of California
Sumitomo Trust & Banking Co. (USA)
Summit Bank
Summit Trust Company (The)
Swiss Bank Corporation New York Branch
Texas Commerce Bank National Association
Toronto Dominion Bank (The)—
New York Branch
Toyo Trust Company of New York
Trust Company Bank
Trust Services of America, Inc.
Trustmark National Bank
U.S. Bank of Washington, N.A.
Union Bank
Union Bank of Switzerland
Union Planters National Bank
Union Trust Company
United Bank of Denver, National Association
United Jersey Bank
United Missouri Bank of Kansas City, N.A.
United States National Bank of Oregon
United States Trust Company of New York
Valley Bank of Nevada
Valley National Bank of Arizona
Valley Trust Company
Wachovia Bank & Trust Company, N.A.
Wells Fargo Bank, National Association
Wheeling Dollar Bank
Wilmington Trust Company
Women's Federal Savings Bank
Wyoming National Bank Casper
Yasuda Bank and Trust Company (U.S.A.)
Zions First National Bank

† As of December 31, 1990

Broker-Dealers

ABD Securities*
ABD Securities Corporation
AGF Securities Inc.*
Acorn Trading, Inc.
Adams-Fastnow Company Inc.*
Adams, Harkness & Hill, Inc.
Adler, Coleman & Co., Inc.
Advest, Inc.
Affina Brokerage Services Inc.
Alexander (J.) Securities, Inc.*
Alger (Fred) & Company, Incorporated
Allen & Company Incorporated
Alpine Associates
American Enterprise Investment Services Inc.*
American Securities Corporation
Arnhold and Bleichroeder (S.), Inc.
Asiel & Co.
BHC Securities Inc.
BHF Securities Corporation
BSE Specialist Account*
BT Securities Corporation
Baer (Julius) Securities Inc.
Baird, Patrick & Co., Inc.
Baird (Robert W.) & Co. Incorporated
Banc One Capital Corporation
Bankers Systems Brokerage Services, Inc.
Barr Brothers & Co., Inc.
Baum (George K.) & Company
Bear, Stearns & Co. Inc.
Bernstein (Sanford C.) & Co., Inc.
Bidwell & Company*
Blair (Charles M.) & Co., Inc.*
Blair (William) & Company
Bodell, Overcash Anderson & Co., Inc.*
Bradford (J.C.) & Co.
Brault, Guy, O'Brien Inc.*
Brawley Cathers Limited*
Brounoff, Claire, & Co., Inc.
Brown (Alex.) & Sons, Inc.
Brown & Company Securities Corporation
Brown, Lisle/Cummings, Inc.
Bunting Warburg Incorporated*
Burke (P.R.) & Co., Inc.
Burns Fry Hoare Govett Inc.
Burns Fry Limited*
Burns, Pauli & Co., Inc.
Butler (K.R.), Inc.*
Butler, Wick & Co., Inc.
Campbell (D.A.) Co., Inc.*
Campbell, Waterman, Inc.*
Cantella & Co., Inc.
Cantor Fitzgerald & Co.
Cantor Fitzgerald Corporate Brokers, Inc.
Cantor (S.B.) & Co., Inc.*
Capital Group Securities Limited*
Capital Shares, Inc.*
Carr Securities Corporation
Carroll McEntee & McGinley Securities, Inc.
Carty & Company, Inc.
Cassels Blaikie & Co., Inc.*
Cazenove Incorporated
Chapdelaine & Co.*
Charles-Bush (JW) Securities, Inc.
Charles Schwab & Co., Inc.
Chase Securities, Inc.
Chicago Corporation (The)
Chicago Corporation (The)*
Childs (S.W.) Management Corporation
Citicorp Securities Markets, Inc.
Coast Options, Inc.*
Commerzbank Capital Markets Corporation
Connor, Clark & Co. Limited*
Coughlin and Company, Inc.*
County NatWest Securities Corporation USA
Cowen & Co.
Craig-Hallum, Inc.
Craigie Incorporated
Cresvale International, Limited
Crews & Associates, Inc.
Crowell, Weedon & Co.*
Dain Bosworth Incorporated
Daiwa Securities America Inc.
Darier Canada Inc.*
Datek Securities Corporation
Daugherty, Cole Inc.*
Davenport & Co. of Virginia, Inc.
Davidson (D.A.) & Co., Inc.*
Davis (Shelby Cullom) & Co.
Deacon, Barclays, Dezoete, Wedd Limited*
Deltac Securities Corporation*
Desjardins, Deragon, Langlois Ltd.*
Deutsche Bank Capital Corporation
Diamant Investment Corp.*
Dillon, Read & Co. Inc.
Disnat Investment Inc.*
Doft & Co., Inc.
Dominick & Dominick, Incorporated
Donaldson, Lufkin & Jenrette Securities Corp.*
Donaldson, Lufkin & Jenrette Securities Corporation
Drexel Burnham Lambert Incorporated
Easton & Co.
Edwards (A.G.) & Sons, Inc.
Egan, Marrin & Rubano Inc.*
Einhorn & Co.
Elwood (R.W.) & Co., Inc.
Equity Securities Trading Co., Inc.*
Ernst & Co.
Exchange Services, Inc.*
Execution Services Incorporated
Fagenson & Co., Inc.
Fahnestock & Co., Inc.
Fechtor, Detwiler & Co., Inc.*
Fernandez, Bartsch & Mirra
First Alabama Investments, Inc.
First Albany Corporation
First Boston Canada Limited*
First Boston Corporation (The)
First Investors Corporation
First Manhattan Co.
First Marathon Securities Limited*
First of Michigan Corporation*
First Options of Chicago, Inc.*
First Southwest Company
First Wachovia Brokerage Service Corporation
Frank (Walter N.) & Co.
Frankel (Wm. V.) & Co., Inc.*
Freeman Securities Company, Inc.
Freeman Welwood & Co., Inc.
Fried (Albert) & Co.
Fundamental Corporate Bond Brokers, Inc.
Gage-Wiley & Company, Inc.*
Gant (J.W.) & Associates, Inc.*
Garat & Co.*
Geldermann Securities Inc.
Glickenhau & Co.
Goldberg Securities, Inc.*
Goldman Sachs Canada*
Goldman, Sachs & Co.
Goldman Sachs Money Markets, Inc.
Gordon & Co.
Gordon Capital Corporation
Gradison & Company Incorporated
Greenline Investor Services Inc.*
Greenwich Capital Markets, Inc.
Gruss (Oscar) & Son Incorporated
Guardian Trust Company*
Hamilton Investments, Inc.
Hanauer (J.B.) & Co.
Hancock (John) Clearing Corporation
Hanifen, Imhoff, Inc.*
Hartfield (J.F.) & Co., Inc.*
Heitner Corporation (The)*
Henderson Brothers, Inc.
Henry Krieger/DBI, L.P.
Herzog, Heine, Geduld, Inc.
Hibbard Brown & Co., Inc.
Hill, Thompson, Magid & Co., Inc.*
Hilliard (J.J.B.), Lyons (W.L.), Inc.
Hoelscher (Shiels) & Co.*
Hopkins, Harbach & Co.*
Hough (William R.) & Co.
Howard, Weil, Labouisse, Friedrichs Incorporated
Hummer (Wayne) & Co.
Huntleigh Securities Corporation
Hutchinson, Shockey, Erley & Co.
Icahn & Co., Inc.
Ingalls & Snyder
Instant Funds Incorporated*
Instinet Corporation
Interstate/Johnson Lane Corporation
InvestNet Corporation
Jacobson (Benjamin) & Sons
Janney Montgomery Scott Inc.
Jefferies & Company, Inc.
Jefferies & Company, Inc.*
Jesup Josephthal & Co., Inc.
Jones (Edward D.) & Co.
Josephthal & Co. Incorporated
Judah (S.A.) & Co., Inc.*
K.K. & Company*
Kalb, Voorhis & Co.
Kankaku Securities (America) Inc.
Kawano (H.) & Co., Inc.*
Keeley (K.J.) & Co., Inc.*
Kellner, DiLeo & Co.
Kemper Clearing Corp.
Kenny (J.J.) Drake, Inc.*
Kessler Asher Clearing, Inc.
Kidder, Peabody & Co. Incorporated
Kimball & Cross*
King (C.L.) & Associates Inc.
Knox (W.L.) & Company
Koonce Securities, Inc.*
LIT America Inc.
L.O.M. Western Securities Ltd.*
LaBranche & Co.
Lafferty, Harwood & Partners Ltd.*
Larkin (Emmett A.) & Co., Inc.*
Lasker, Stone & Stern
Lawrence (C.J.), Morgan Grenfell, Inc.
Lawrence, O'Donnell, Marcus & Co.
Lazard Frères & Co.
Legg Mason Wood Walker, Inc.
Lehman Special Securities Inc.
Lerner (David) Associates, Inc.
Levesque, Beaubien Inc.*
Lewco Securities Corp.

Loewen Ondaatje, McCutcheon & Company Ltd.*
 MKI Securities Corp.
 Mabon, Nugent & Co.
 MacAllaster Pitfield Mackay, Inc.
 MacDougall, MacDougall & MacTier, Inc.*
 Madoff (Bernard L.)
 Manufacturers Hanover Securities Corporation
 Marcus Schloss & Co., Inc.
 Mayer & Schweitzer, Inc.
 McCourtney-Breckenridge & Company*
 McDaniel Lewis & Co.
 McDonald & Company Securities, Inc.
 McNeil Mantha Inc.*
 Meehan (M.J.) & Company
 Melville (Ronald E.) Inc.*
 Mercator Partners
 Mericka & Co., Inc.*
 Meridian Asset Management, Inc.
 Meridian Securities International Ltd.*
 Merit Investment Corporation*
 Merrill Lynch, Pierce, Fenner & Smith Incorporated
 Merrill Lynch Specialists Inc.*
 Merrimack Valley Investment Inc.*
 Mesirow Capital, Inc.*
 Mesirow Capital, Inc.
 Midland Walwyn Capital Corporation
 Midland Walwyn Capital Corp.*
 Mitchum, Jones & Templeton, Inc.*
 Montgomery Securities
 Morgan (J.P.) Securities Inc.
 Morgan, Keegan & Company, Inc.
 Morgan Stanley & Co. Incorporated
 Murphey, Marseilles, Smith & Nammack
 Murphy & Durieu
 N.B. Clearing Corporation
 National Financial Services Corporation
 Nesbitt Thomson Deacon Inc.*
 Neuberger & Berman
 New Japan Securities International, Inc.
 New Windsor Associates, L.P.
 Newbridge Securities Inc.
 Newhard, Cook & Co. Incorporated
 Nikko Securities Co. International, Inc. (The)
 Nomura Securities International, Inc.
 Nuveen (John) & Co. Incorporated
 O'Connor & Associates
 Odlum Brown Limited*
 Offerman & Co., Inc.*
 Olde Discount Corporation
 Oppenheimer & Co., Inc.
 Pacific Brokerage Services, Inc.
 Paine Webber Incorporated
 Paine Webber Specialists Inc.*
 Parker (S.C.) & Co., Inc.*
 Payson (H.M.) & Co.*
 Pflueger & Baerwald Inc.*
 Pforzheimer (Carl H.) & Co.
 Pictet (Canada) and Company, Limited*
 Piper, Jaffray & Hopwood Incorporated
 Porter, White & Yardley, Inc.
 Preferred Technology, Inc.*
 Principal/Eppler, Guerin & Turner, Inc. (The)
 Prudential Bache Securities Canada Ltd.*
 Prudential-Bache Securities Inc.
 Quinn (E.J.) & Co., Inc.*
 RAF Financial Corporation*
 RBC Dominion Securities Corporation
 RBC Dominion Securities, Inc.*

RSF Partners
 Ragen MacKenzie Incorporated
 Rauscher Pierce Refsnes, Inc.
 Raymond, James & Associates, Inc.
 Reaves (W.H.) & Co., Inc.
 Refco Securities, Inc.
 Regional Clearing Corp.
 Research Capital Corporation*
 Richardson Greenshields of Canada, Ltd.*
 Richardson Greenshields Securities, Inc.
 Rimson (M.) & Co., Inc.
 Robb, Peck, McCooney Clearing Corporation
 Robertson, Stephens & Company
 Rodman & Renshaw, Inc.
 Roney & Co.
 Roosevelt & Cross Inc.
 Rothschild Inc.
 Rothschild (L.F.) & Co. Incorporated
 Roulston Research Corp.
 SBCI Swiss Bank Corporation Investment Banking Inc.
 SLS Securities Limited Partnership
 Sage Clearing Corporation*
 Sage Clearing/Executions*
 Sage, Ruttly & Co., Inc.
 Salomon Brothers Inc
 Sanwa McCarthy Securities Limited*
 Schapiro (M.A.) & Co., Inc.
 ScotiaMcLeod Inc.*
 ScotiaMcLeod (USA) Inc.
 Scott & Stringfellow Investment Corporation
 Seasongood & Mayer
 Seattle-Northwest Securities Corporation
 Seidel (Morton) & Co. Inc.*
 Seidler Amdc Securities Inc.*
 Shearson Lehman Brothers Inc.
 Shearson Lehman Brothers Inc.*
 Shelter Rock Securities Corporation*
 Smith Barney, Harris Upham & Co. Incorporated
 Smith, Moore & Co.*
 Smith New Court, Carl Marks Inc.
 Societe Generale Securities Corporation
 Southwest Securities, Inc.
 Spear, Leeds & Kellogg
 Spear Securities, Inc.*
 Steichen (R.J.) & Company*
 Stephens, Inc.
 Stern & Kennedy
 Stern (M.L.) & Co., Inc.*
 Sterne, Agee & Leach, Inc.
 Stifel, Nicolaus & Company Incorporated
 StockCross, Inc.*
 Stoeber, Glass & Co., Inc.
 Stokes, Hoyt & Co.
 Stone & Youngberg*
 Streicher (J.) & Co.
 Swift (Henry F.) & Co.*
 Swiss American Securities Inc.
 TCW Inc.*
 Thomson Kernaghan & Co., Ltd.*
 Timber Hill Inc.
 Titus & Donnelly Inc.*
 Transatlantic Securities Company
 Trust La Laurentienne du Canada*
 UBS Securities Inc.
 U.S. Clearing Corp.
 Universal Securities Corporation
 Vail Securities Investment, Inc.
 Van Kampen Merritt Inc.

W&D Securities
 WSI Stock Loan*
 Wachtel & Co., Inc.
 Wagner Stott & Co.
 Wagner Stott Clearing Corp.
 Wall Street Investment Services
 Wall Street Equities Incorporated*
 Walsh, Greenwood & Co.
 Warburg (S.G.) & Co. Inc.
 Waterhouse Securities Inc.
 Weber, Hall, Sale & Associates, Inc.
 Wechsler & Krumholz, Inc.
 Wedbush Morgan Securities Inc.*
 Weeden & Co.*
 Weiss, Peck & Greer
 Wellington (H.G.) & Co. Inc.
 Wheat, First Securities, Inc.
 Whitaker (Don C.) Inc.*
 White (Thomas F.) & Co., Inc.*
 Williams Securities Group, Inc.*
 Wilshire Associates Incorporated*
 Wilson (L.W.) & Co., Inc.*
 Witter (Dean) Reynolds (Canada) Inc.*
 Witter (Dean) Reynolds Inc.
 Wolfe & Hurst Bond Brokers, Inc.
 Wolfe & Hurst Bond Brokers, Inc.*
 Wood (Arthur W.) Company*
 Wood Gundy Corp.
 Wood Gundy Inc.*
 Yamaichi International (America), Inc.
 Yamaichi International (America), Inc.*
 Yorkton Securities Inc.*
 Ziegler (B.C.) and Company
 Ziegler Thrift Trading, Inc.*

Clearing Agencies

Canadian Depository for Securities Limited (The)*
 Central Depository (Pte.) Ltd. (Singapore)**
 International Securities Clearing Corporation
 Japan Securities Clearing Corp.**
 Midwest Securities Trust Company
 National Securities Clearing Corporation
 Options Clearing Corporation (The)
 Philadelphia Depository Trust Company

Excludes some firms with limited activity

* National Securities Clearing Corporation Sponsored Account

** International Securities Clearing Corporation Sponsored Account

**Participants in the Same-Day
Funds Settlement System §**

Adams, Harkness & Hill, Inc.
Advest, Inc.
Amalgamated Bank of New York (The)
American National Bank & Trust
Company of Chicago
AmeriTrust Company National Association
Asiel & Co.
BT Securities Corporation
Baird, Patrick & Co., Inc.
Baird (Robert W.) & Co. Incorporated
Banc One Capital Corporation
Bank of America NT & SA
Bank of New England, N.A.
Bank of New York (The)
Bank of Tokyo Trust Company (The)
Bankers Trust Company
Baum (George K.) & Company
Bear, Stearns & Co. Inc.
Blair (William) & Company
Boston Safe Deposit and Trust Company
Bradford (J.C.) & Co.
Brown (Alex.) & Sons, Inc.
Brown Brothers Harriman & Co.
Central Bank of the South
Central Fidelity Bank, N.A.
Charles Schwab & Co., Inc.
Chase Manhattan Bank, N.A. (The)
Chase Securities, Inc.
Chemical Bank
Chicago Corporation (The)
Citibank, N.A.
Citicorp Securities Markets, Inc.
Citizens and Southern National Bank (The)
Citizens Fidelity Bank and Trust Company
City National Bank
Connecticut Bank and Trust Company (The)
Connecticut National Bank (The)
Continental Bank, National Association
CoreStates Bank, N.A.
Cowen & Co.
Craigie Incorporated
Crestar Bank
Custodial Trust Company
Dai-Ichi Kangyo Bank, Limited (The),
New York Branch
Dain Bosworth Incorporated
Daiwa Bank, Limited (The), New York Agency
Daiwa Securities America Inc.
Davenport & Co. of Virginia, Inc.
Davis (Shelby Cullom) & Co.
Deutsche Bank Capital Corporation
Dillon, Read & Co. Inc.
Dominick & Dominick, Incorporated
Donaldson, Lufkin & Jenrette Securities
Corporation
Drexel Burnham Lambert Incorporated
Edwards (A.G.) & Sons, Inc.
Fahnestock & Co., Inc.
Fidelity Bank, National Association
Fiduciary Trust Company International
Fifth Third Bank (The)
First Alabama Investments, Inc.
First Albany Corporation
First Boston Corporation (The)
First City, Texas-Houston, N.A.
First Fidelity Bank, National Association,
New Jersey
First Interstate Bank of California
First Interstate Bank of Denver, N.A.
First Interstate Bank of Washington N.A.
First National Bank of Atlanta
First National Bank of Boston (The)
First National Bank of Chicago (The)
First National Bank of Maryland (The)
First Tennessee Bank N.A. Memphis
First Trust National Association
Freeman Welwood & Co., Inc.
Fried (Albert) & Co.
Fuji Bank & Trust Company (The)
Goldman, Sachs & Co.
Goldman Sachs Money Markets, Inc.
Gradison & Company Incorporated
Greenwich Capital Markets, Inc.
Gruntal & Co. Incorporated
Hamilton Investments, Inc.
Hancock (John) Clearing Corporation
Harris Trust & Savings Bank
Herzog, Heine, Geduld, Inc.
Hibernia National Bank
Hilliard (J.J.B.), Lyons (W.L.), Inc.
Hough (William R.) & Co.
Howard, Weil, Labouisse, Friedrichs
Incorporated
Hummer (Wayne) & Co.
Huntington National Bank
Hutchinson, Shockey, Erley & Co.
IBJ Schroder Bank & Trust Company
IDS Bank & Trust
Interstate/Johnson Lane Corporation
Janney Montgomery Scott Inc.
Jefferies & Company, Inc.
Jesup Josephthal & Co., Inc.
Jones (Edward D.) & Co.
Kellogg-Citizens National Bank
Kemper Clearing Corp.
Key Trust Company
Kidder, Peabody & Co. Incorporated
LaSalle National Bank
Lazard Frères & Co.
Lehman Special Securities Inc.
Lerner (David) Associates, Inc.
Lewco Securities Corp.
MKI Securities Corp.
Mabon, Nugent & Co.
Manufacturers and Traders Trust Company
Manufacturers Hanover Securities Corporation
Manufacturers Hanover Trust Company
Manufacturers National Bank of Detroit
Marine Midland Bank
McDonald & Company Securities, Inc.
Mellon Bank, N.A.
Mercantile—Safe Deposit & Trust Company
Merchants National Bank & Trust Company
of Indianapolis
Merrill Lynch, Pierce, Fenner & Smith
Incorporated
Mesirow Capital, Inc.
Midlantic National Bank
Morgan Guaranty Trust Company
of New York
Morgan (J.P.) Securities Inc.
Morgan, Keegan & Company, Inc.
Morgan Stanley & Co. Incorporated
N.B. Clearing Corporation
NBD Bank, N.A.
NCNB National Bank of North Carolina
National City Bank
National Financial Services Corporation
National Westminster Bank N.J.
National Westminster Bank USA
Natonar
Neuberger & Berman
New Japan Securities International, Inc.
Newbridge Securities Inc.
Nikko Securities Co. International, Inc. (The)
Nomura Securities International, Inc.
Northern Trust Company (The)
Norwest Bank Minnesota, National
Association
Nuveen (John) & Co. Incorporated
Old Kent Bank—Chicago
Olde Discount Corporation
Oppenheimer & Co., Inc.
Paine Webber Incorporated
Philadelphia Depository Trust Company
Piper, Jaffray & Hopwood Incorporated
Pittsburgh National Bank
Principal/Eppler, Guerin & Turner, Inc. (The)
Provident Bank (The)
Provident National Bank
Prudential-Bache Securities Inc.
RBC Dominion Securities Corporation
Rauscher Pierce Refsnes, Inc.
Raymond, James & Associates, Inc.
Refco Securities, Inc.
Rodman & Renshaw, Inc.
Roney & Co.
SBCI Swiss Bank Corporation Investment
Banking Inc.
Salomon Brothers Inc
Sanwa Bank California
Scott & Stringfellow Investment Corporation
Seattle-First National Bank
Security Pacific Bank Washington, N.A.
Security Pacific National Bank
Shawmut Bank of Boston, N.A.
Shearson Lehman Brothers Inc.
Smith Barney, Harris Upham & Co.
Incorporated
Societe Generale Securities Corporation
Society National Bank
Southwest Securities, Inc.
Sovran Bank, N.A.
State Street Bank and Trust Company
Stephens, Inc.
Sterne, Agee & Leach, Inc.
Stifel, Nicolaus & Company Incorporated
Swiss American Securities Inc.
Swiss Bank Corporation New York Branch
Trust Company Bank
UBS Securities Inc.
U.S. Clearing Corp.
Union Planters National Bank
United Bank of Denver, National Association
United Missouri Bank of Kansas City, N.A.
United States National Bank of Oregon
United States Trust Company of New York
Van Kampen Merritt Inc.
Wachovia Bank & Trust Company, N.A.
Wagner Stott Clearing Corp.
Wall Street Investment Services
Weber, Hall, Sale & Associates, Inc.
Weiss, Peck & Greer
Wells Fargo Bank, National Association
Wheat, First Securities, Inc.
Wilmington Trust Company
Witter (Dean) Reynolds Inc.
Yamaichi International (America), Inc.
Ziegler (B.C.) and Company

§ As of December 31, 1990

Indirect SDFS Participation* **

ABD Securities Corporation
Adler, Coleman & Co., Inc.
American Securities Corporation
American Security Bank, N.A.
AmSouth Bank, N.A.
BHF Securities Corporation
Baer (Julius) Securities Inc.
Bank IV Wichita, National Association
Bank of Bermuda International Limited
Bank of California (The)
Bank of Montreal, New York Branch
Bank of Oklahoma, N.A.
Bank One Trust Company, N.A.
Bank One Wisconsin Trust Company, N.A.
Barnett Banks Trust Company, N.A.
Bernstein (Sanford C.) & Co., Inc.
Bidwell & Company
Boatmen's National Bank of St. Louis (The)
Canadian Imperial Bank of Commerce—
N.Y. Agency
Cantor Fitzgerald Corporate Brokers, Inc.
Central Bank of Denver
Central Trust Company
Chapdelaine & Co.
Charles-Bush (JW) Securities, Inc.
Chase Lincoln First Bank, N.A.
Citytrust
Comerica Bank—Detroit
Commerce Bank of Kansas City, N.A.
Commerzbank Capital Markets Corporation
Craig-Hallum, Inc.
Crews & Associates, Inc.
Davidson (D.A.) & Co., Inc.
Denver National Bank
Doft & Co., Inc.
Dominion Trust Company
Easton & Co.
Equity Securities Trading Co., Inc.
Ernst & Co.
FKT—First National Bank of Louisville
Fiduciary Trust Company of Boston
First Interstate Bank of Arizona, N.A.
First Interstate Bank of Oklahoma City
First Interstate Bank of Oregon, N.A.
First Kentucky Trust Company (The)
First Manhattan Co.
First National Bank and Trust Company
of Tulsa (The)
First National Bank Chicago/First Chicago
Capital Markets, Inc.
First National Bank of Colorado Springs (The)
First National Bank of Omaha
First of Michigan Corporation
First Southwest Company
First Trust Corporation
First Union National Bank
First Union National Bank of Florida
First Wachovia Brokerage Service Corporation
Fort Wayne National Bank
Freeman Securities Company, Inc.
Frost National Bank
Fundamental Corporate Bond Brokers, Inc.
Gruss (Oscar) & Son Incorporated
Hanifen, Imhoff, Inc.
Imperial Trust Company
Indiana National Bank (The)
Josephthal & Co. Incorporated
Kalb, Voorhis & Co.
Kenny (J.J.) Drake, Inc.
King (C.L.) & Associates Inc.

Knox (W.L.) & Company
Larkin (Emmett A.) & Co., Inc.
Lawrence (C.J.), Morgan Grenfell, Inc.
Legg Mason Wood Walker, Inc.
Liberty National Bank and Trust Company
of Louisville
Lloyds Bank Plc
M&I Marshall & Ilsley Bank
Mercantile Trust Co.
Mercantile Trust Company National Association
Michigan National Bank
Morgan Stanley Trust Company
Murphy, Marseilles, Smith & Nammack
NCNB Texas National Bank
Nationar
New Jersey National Bank
Norstar Trust Company
Offerman & Co., Inc.
Old Kent Bank and Trust Company
Payson (H.M.) & Co.
RAF Financial Corporation
Ragen MacKenzie Incorporated
Republic National Bank of New York
Riggs National Bank of Washington, D.C. (The)
Robb, Peck, McCooley Clearing Corporation
Royal Bank of Canada (The)
SLS Securities Clearance
Seattle-Northwest Securities Corporation
Signet Trust Company
Southeast Bank, N.A.
Star Bank, National Association
Steichen (R.J.) & Company
Stern (M.L.) & Co., Inc.
Summit Bank
Summit Trust Company (The)
Team Bank, N.A.
Texas Commerce Bank National Association
Toronto Dominion Bank (The)—New York Branch
Trust Services of America, Inc.
Trustcorp Bank, Ohio
U.S. Bank of Washington, N.A.
Union Bank
Union Bank of Switzerland
Union Trust Company
Valley National Bank of Arizona
Valley Trust Company
Wedbush Securities, Inc.
Wellington (H.G.) & Co. Inc.
Wheeling Dollar Bank
Williams Securities Group, Inc.
Wyoming National Bank Casper
Ziegler Thrift Trading, Inc.
Zions First National Bank

* These firms are also direct Participants in DTC's Next-Day Funds Settlement system.

** As of December 31, 1990

DTC STOCKHOLDERS †

American Stock Exchange Clearing Corporation
American Stock Exchange, Inc.
AmeriTrust Company National Association
AmSouth Bank, N.A.
Arnhold and Bleichroeder (S.), Inc.
BT Securities Corporation
Baer (Julius) Securities Inc.
Bank of America NT & SA
Bank of California (The)
Bank of Montreal, New York Branch
Bank of New York (The)
Bank of Tokyo Trust Company (The)
Bank One Trust Company, N.A.
Bankers Trust Company
Barclays Bank PLC, New York Branch
Barnett Banks Trust Company, N.A.
Bear, Stearns & Co. Inc.
Boatmen's National Bank of St. Louis (The)
Boston Safe Deposit and Trust Company
Brounoff, Claire, & Co., Inc.
Brown (Alex.) & Sons, Inc.
Brown Brothers Harriman & Co.
Carty & Company, Inc.
Cazenove Incorporated
Central Bank of the South
Central Trust Bank
Chase Lincoln First Bank, N.A.
Chase Manhattan Bank, N.A. (The)
Chemical Bank
Cincinnati Stock Exchange (The)
Citibank, N.A.
Citicorp Securities Markets, Inc.
Citizens and Southern National Bank (The)
City National Bank
Connecticut National Bank (The)
Continental Bank, National Association
CoreStates Bank, N.A.
County NatWest Securities Corporation USA
Craigie Incorporated
Crews & Associates, Inc.
Denver National Bank
Dominion Trust Company
Donaldson, Lufkin & Jenrette Securities Corporation
Edwards (A.G.) & Sons, Inc.
Execution Services Incorporated
Fagenson & Co., Inc.
Fahnestock & Co., Inc.
Fidelity Bank, National Association
Fiduciary Trust Company International
Fiduciary Trust Company of Boston
First Albany Corporation
First Boston Corporation (The)
First City, Texas-Houston, N.A.
First Fidelity Bank, National Association, New Jersey
First Interstate Bank of California
First Interstate Bank of Denver, N.A.
First Interstate Bank of Oregon, N.A.
First Interstate Bank of Washington N.A.
First National Bank and Trust Company of Tulsa (The)
First National Bank of Boston (The)
First National Bank of Chicago (The)
First National Bank of Maryland (The)
First Tennessee Bank N.A. Memphis

First Trust National Association
Fort Wayne National Bank
Frost National Bank
Goldman, Sachs & Co.
Gradison & Company Incorporated
Gruss (Oscar) & Son Incorporated
Hough (William R.) & Co.
Huntington National Bank
IDS Bank & Trust
Imperial Trust Company
Investors Bank and Trust Company
Jesup Josephthal & Co., Inc.
Key Trust Company
LaBranche & Co.
Lehman Special Securities Inc.
Lewco Securities Corp.
MacAllaster Pitfield Mackay, Inc.
Manufacturers and Traders Trust Company
Manufacturers Hanover Trust Company
Marcus Schloss & Co., Inc.
Marine Midland Bank
Mayer & Schweitzer, Inc.
Mellon Bank, N.A.
Merchants National Bank & Trust Company of Indianapolis
Merrill Lynch & Co., Inc.
Michigan National Bank
Midlantic National Bank
Morgan Guaranty Trust Company of New York
Morgan Stanley & Co. Incorporated
NCNB National Bank of North Carolina
NCNB Texas National Bank
National Association of Securities Dealers, Inc.
National City Bank
National Westminster Bank N.J.
National Westminster Bank PLC
National Westminster Bank USA
New York Stock Exchange, Inc.
Nikko Securities Co. International, Inc. (The)
Nomura Securities International, Inc.
Norstar Trust Company
Northern Trust Company (The)
Norwest Bank Minnesota, National Association
Oppenheimer & Co., Inc.
Pforzheimer (Carl H.) & Co.
Reaves (W.H.) & Co., Inc.
SBCI Swiss Bank Corporation Investment Banking Inc.
Salomon Brothers Inc
Santa Barbara Bank & Trust
Sanwa Bank California
Scott & Stringfellow Investment Corporation
Seattle-Northwest Securities Corporation
Security Pacific National Bank
Security Trust Company, N.A.
Shawmut Bank of Boston, N.A.
Smith New Court, Carl Marks Inc.
Sovran Bank, N.A.
Star Bank, National Association, Cincinnati
State Street Bank and Trust Company
Stock Clearing Corporation
Stock Yards Bank and Trust Company
Swiss American Securities Inc.
Swiss Bank Corporation New York Branch
Team Bank, N.A.
Texas Commerce Bank National Association

Timber Hill Inc.
Trust Company Bank
United Missouri Bank of Kansas City, N.A.
United States Trust Company of New York
Valley National Bank of Arizona
Van Kampen Merritt Inc.
Wachovia Bank & Trust Company, N.A.
Waterhouse Securities Inc.
Wechsler & Krumholz, Inc.
Wells Fargo Bank, National Association
Wilmington Trust Company
Wood Gundy Corp.
Zions First National Bank

† As of December 31, 1990





The Depository Trust Company
55 Water Street, New York, NY 10041
(212) 898-1200

