

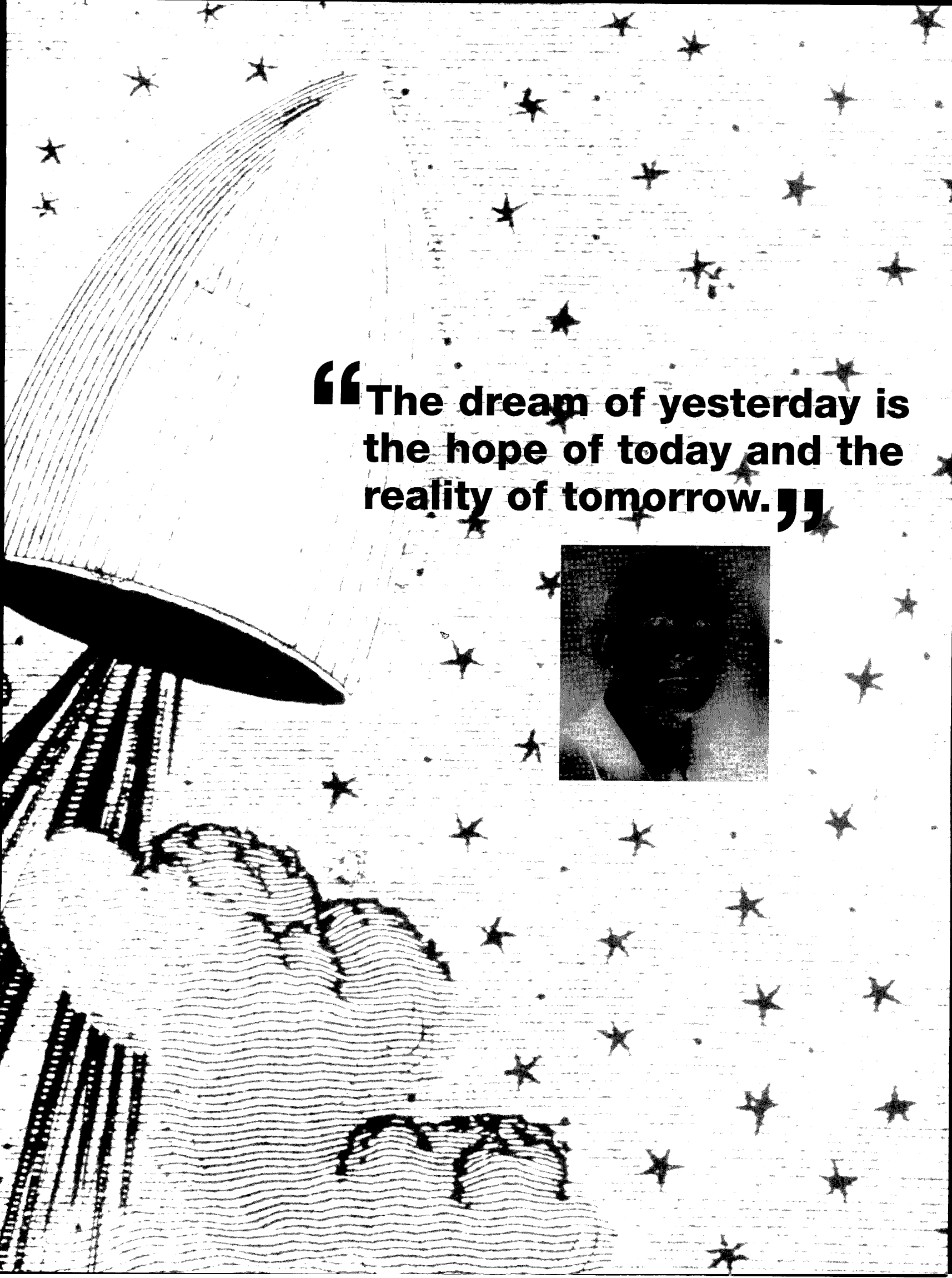
# Dr. Robert H. Goddard

A powerful  
idea that  
triumphed

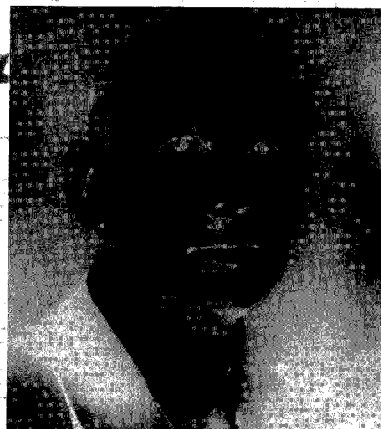
From his Aunt Effie's farm in Massachusetts, physicist Robert Goddard launched the space age in 1926 with a pipelike, ten-foot rocket that flew all of two and a half seconds. Heartily ridiculed by the New York Times some years earlier for his unorthodox idea that rockets might someday reach the moon, Dr. Goddard persevered in spite of public disbelief. In 1930, backed by financier Henry Guggenheim, he moved to Roswell, New Mexico, now best known as the place where many people believe aliens have landed. Within years, Goddard had liquid-fuel rockets climbing as high as 9,000 feet.

Before German V-2 rockets began raining down on London in World War II, Goddard went to U.S. military leaders and explained how rockets might be used to attack from long distance. They, too, dismissed him, only to discover after the war that the Germans built their rockets using Goddard's 200 public patents and technical papers. Goddard died abruptly in 1945, and never saw how his ideas became the powerful Saturn moon rocket. In 1969, after men had walked on the moon, the New York Times admitted that it had been wrong about Dr. Goddard's theories 49 years earlier, and "regretted the error". He was the original rocket scientist.

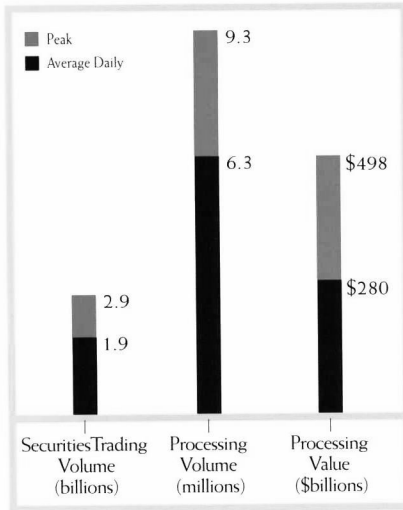




**“The dream of yesterday is  
the hope of today and the  
reality of tomorrow.”**



**1999 Peak Day vs. Average**



Georges Ugeux Group Executive Vice President, International & Research, New York Stock Exchange, Inc.

of those who led the effort. But achieving that required enormous work over a three-year period by the depository and the clearing corporation, the Securities Industry Automation Corporation (SIAC), the Securities Industry Association (SIA) and firms throughout the industry. The effort involved testing with virtually every firm in the industry that had direct connections to the depository or the clearing corporation.

Over the course of the work, programmers and systems engineers from DTCC's subsidiaries reviewed more than 23,000 programs in 294 applications involving more than 41 million lines of code to ensure they were Y2K compliant. Coupled with this extensive technology effort was the massive communication and training program by the depository and the clearing corporation to inform, educate and mobilize support from firms throughout the

industry, many with competing technology priorities, to address Y2K issues. Combined teams of staff from the depository and the clearing corporation gave more than 25 industry seminars across the country. In addition to special hot-line telephone centers, there was a flurry of newsletters, flyers, important notices, zap e-mail traffic and a Y2K Web site, all helping to galvanize attention to the need for testing procedures, deadlines and compliance requirements.

DTCC not only helped lead industry-wide planning and testing, but staffed its own command centers during the week-long transition at the end of the year and hosted the SIA's communications headquarters over New Year's weekend. The result was a seamless transition, demonstrating once again DTCC's resolve to ensure safety and soundness throughout the industry in the same way it did during the transition to T+3 and same-day funds. The Y2K preparation was also characteristic of how we work with the industry to meet industry-wide challenges.

Despite the work and time required for Y2K preparedness, the clearing corporation also launched a major redesign of its Automated Customer Account Transfer System (ACATS) in 1999. The new system will allow faster electronic account transfers with fewer errors and rejects, which is a concern of customers and regulators. In addition, the system has been expanded to handle new types of customers and assets. Both broker/dealers and, now, banks are able to take advantage of this automated service to reregister mutual fund shares, or to transfer ownership of equities, corporate bonds or municipal bonds—and to do so several days faster than before.



Peter T. Johnston Vice President, Global Equities Operations, Goldman, Sachs & Co. (L)  
 Peter J. Murray Managing Director, Americas Operations, Credit Suisse First Boston Corporation

Other industry-wide issues DTCC has been working on involve changes to smooth the way for decimalization and extended trading hours. System format changes to prepare for decimalization were undertaken and completed in 1999. Once again, DTCC collaborated on the effort with the SIA—in this case, with the member firms making up its Decimal Steering Committee. DTCC plans decimalization testing in early 2000, with industry testing anticipated in late spring. While some

after-hours activity has been accommodated by DTCC, more work is planned in 2000 to modify our systems.

Meanwhile, no less than six task forces within the company began work

during 1999 related to straight-through processing and the industry's move to T+1. DTCC plans to issue a White Paper on T+1 by the second quarter of 2000, outlining its own assessment and recommendations. In addition, DTCC has worked closely with Thomson ESG, The New York Clearing House, and the SIA's Institutional Transaction Processing Committee (ITPC) on an SIA White Paper calling for a new model for the post-trade processing of U.S. institutional transactions. We have also worked collaboratively with The Bond Market Association and regulatory agencies. DTCC's White Paper will build on the input it provided to the SIA and address specific issues of concern to its customers.

DTCC is committed to providing leadership to help define a new model for trade processing that will facilitate the continued growth of cross-border activity. Our approach is focused on leveraging the efficiency of straight-through

processing, lowering industry costs and ensuring adequate safeguards for risk management.

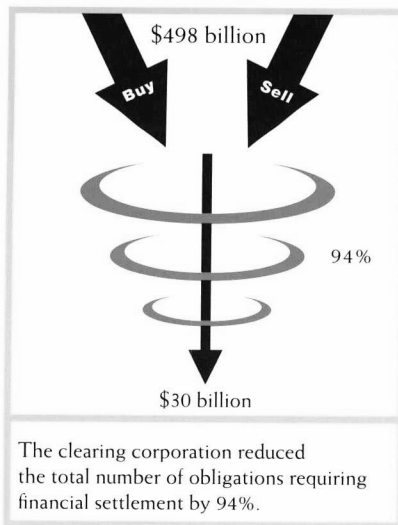
At the same time, while working on longer-range initiatives, we've taken steps in 1999 to improve the timely capture of trade information. One systems upgrade lets the clearing corporation, for the first time, capture trade data intra-day from Nasdaq and select securities firms including ECNs. The clearing corporation plans to expand this capability to NYSE, Amex and regional exchanges by mid-2000.

On the risk management front, the clearing corporation strengthened its procedures by integrating internal systems to prepare for the eventual move to risk-based margining for the entire membership. Through its Collateral Management System (CMS), the clearing corporation can now track clearing fund requirements, deposits, and surpluses or deficits, as well as customers' financial profit and loss performance and excess net capital.

CMS has added new messaging capabilities to help firms more effectively manage collateral held by the depository and by various participating clearing corporations. For example, customers can now transfer cash electronically into their clearing account, and request either the return of their excess collateral, the substitution of collateral or the use of excess cash collateral at one clearing entity to satisfy a deficit at another.

DTCC is committed to leveraging the efficiency of **straight-through processing**, lowering industry costs and ensuring adequate safeguards for risk management.

**Netting for Peak Day: Dec. 17, 1999**



**“I felt slightly queasy when at lunch Francis winged into the Eagle to tell everyone within hearing that we had found the secret of life.”**

**James Watson,  
The Double Helix, 1968.**

## James Watson and Francis Crick

Two old rogues and  
the secret of life

It was nearly half a century ago when American biologist James Watson first looked at X-ray diffraction photos of DNA. His insight – that DNA consists of a double helix – came almost immediately. But how to prove it? Working with British biophysicist Francis Crick, Watson spent 18 months furiously building and tinkering with molecular models of DNA. Finally, in the second week of 1953, Crick and Watson solved the puzzle. When the two of them, working at Cambridge, sent their paper announcing the discovery to Oxford physicist Maurice Wilkins, whose photos had first inspired Watson, he wrote back saying “I think you are a couple of old rogues....” However, it was not until 1962, nine years later, that Watson and Crick were awarded the Nobel Prize for medicine, which they shared with Wilkins. And it was not until the 1990s that the world has begun to comprehend the revolution their vision inspired. The race to decode the human genome, the digital shorthand of our genes, is now approaching the finish line. The re-engineering of genes is bound to change our lives – and certainly those of our children – in ways we cannot imagine. And it illustrates the awesome power of one visionary idea, even after half a century.



The depository also strengthened its risk management systems by expanding its use of changes to the "haircut" taken on the price of a security held as collateral on an intra-day basis rather than only at end-of-day. To ensure that the collateral used to support a customer's net debit remains at appropriate levels, the depository created a special program that immediately identifies a highly concentrated position in a given security. If concentrations appear too high, the depository can request that the customer add cash or diversify his collateral.

U.S. cross-border trading now averages in excess of 200,000 trades each day and continues to grow. To keep pace with the dramatic rise of securities trading into and out of the United States, and to reduce cross-border transaction processing costs, DTCC intensified its efforts in 1999 to create electronic links with central securities depositories (CSDs) in other markets. Electronic links can automate and streamline the pass-through of international settlement instructions

We are the first industry utility to introduce the use of **digital certificates** and pave the way for accessing our applications via the Internet.

and reports, permit the pledging of U.S. dollar collateral as well as the holding of securities at another CSD, and, in some cases, establish cross-border delivery-versus-payment capabilities.

The depository already has established links with nine foreign depositories. In 1999, we completed new agreements with Hong Kong Securities Clearing and CRESTCo, the real-time securities settlement system based in London. We also held discussions with Switzerland's SIS

SegalIntersettle. The Hong Kong arrangement permits clearance and settlement of stocks cross-listed on the Stock Exchange of Hong Kong and the Nasdaq. The CRESTCo link gives U.K. and Irish investors easier and less costly access to U.S. securities with settlement capability at CRESTCo. The link with SegalIntersettle would allow security positions to be moved by book-entry between the United States and Switzerland. DTCC also worked in 1999 with 12 depositories in the Americas to help build a new organization, the Americas Central Securities Depositories Association (ACSDA), which will strengthen information sharing and collaboration on regional issues, including the establishment of regional best practices.

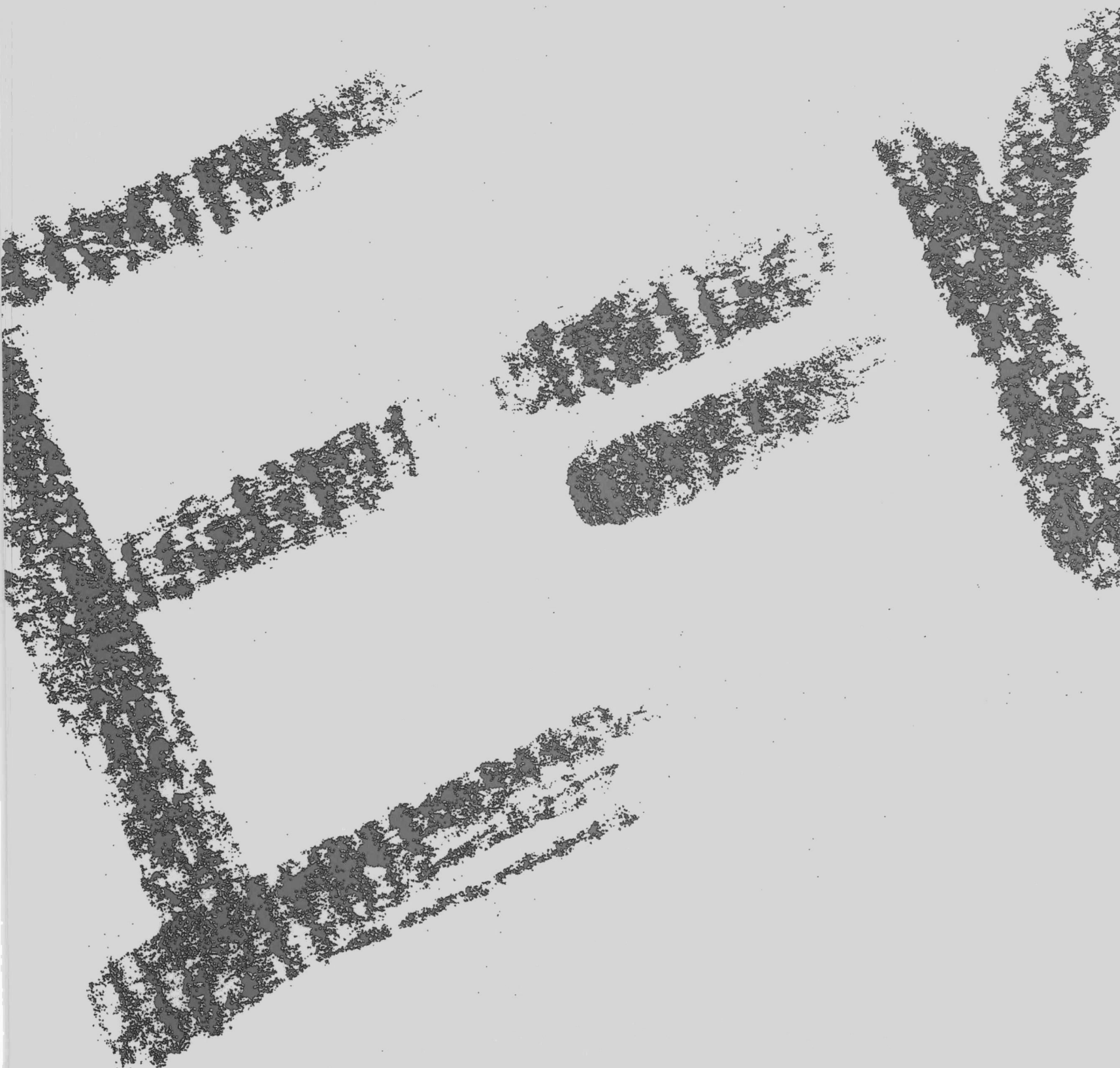
A continuing issue for the industry is whether it will have sufficient capacity to handle the growing volume of trading. Decimalization, extended hours and cross-border traffic are likely to make this even more challenging. The switch to decimal pricing alone is expected to increase trading and messaging volumes to heights never experienced before. While interest in extended-hours trading is only beginning to grow, it, too, will likely fuel added volume and raises a new challenge for the industry: defining when a trading day begins and ends. These issues all pose new risks to the safety, soundness and certainty that markets have enjoyed since DTC and NSCC helped solve the paperwork crisis of the late 1960s.

With the integration of the depository and the clearing corporation, DTCC is unifying behind a powerful vision of the future—and the role we will play in once again providing leadership—to create a new model for post-trade processing globally.

**“ I shall never believe  
that God plays dice  
with the world.”**

Albert  
Einstein  
and the bending  
of time

Albert Einstein, 1947.

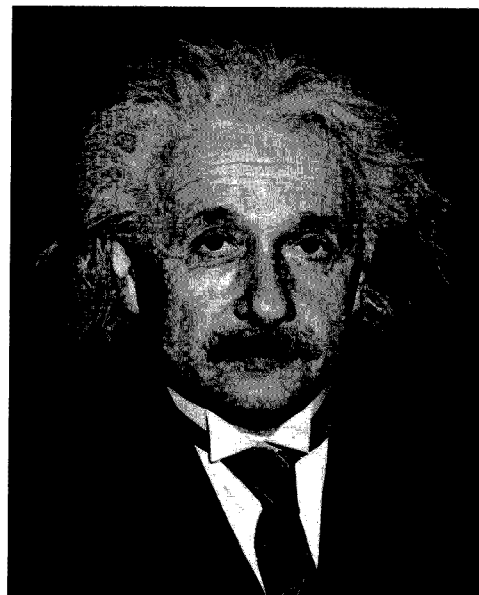


## **The violin player and the origin of the universe**

When Albert Einstein, an obscure clerk in the Swiss Patent Office, published a paper on "relativity" in 1905, he initiated a scientific revolution so profound that it eventually swept through business, art, popular culture and religion. A second major paper in 1915 detailed Einstein's theories on how gravity could bend space and time. Artist Salvador Dalí's paintings of limp clocks bent at odd angles, for example, are a popular reflection of Einstein's proposition that time is "relative" and can be warped. Black holes, a staple of modern science-fiction movies, are readily accounted for by Einstein's theory of general relativity.

Eventually Einstein's famous equation about energy and the speed of light,  $E=mc^2$ , would become a recognizable symbol worldwide. But so earthshaking was his thinking that, when the violin-playing physicist was awarded a Nobel Prize in 1921, it was for work unrelated to his theories on special and general relativity. Scientific acceptance and understanding came slowly.

Ultimately, the shaggy-haired, peace-loving professor who fled Germany when the Nazis came to power in 1933, and declined the presidency of the new state of Israel in 1952, would be both reviled and revered. His thinking touched on everything from atomic bombs to electronics to quantum physics to the origin of the universe. By the boldness of his ideas, he forever shattered accepted dogma and ushered in, as he said, "an equation for eternity".





## Streamlining and expanding effectiveness in asset servicing

For many investors, Wall Street's sizzle in 1999 was in the hot market for initial public offerings. Some IPOs tripled in value within minutes of issue and the average first-day gain was 66%. Equity IPOs raised more than \$71 billion in the U.S. market, far and away a record, and included two of the three largest IPOs in history.

For the depository, this record run of IPOs, coupled with sustained corporate underwriting of \$1.6 trillion, made for one of the busiest years ever. Despite a decline in municipal underwriting, the depository distributed an average of 138 underwritings every business day of 1999. On December 15, its peak day in 1999, the depository recorded the greatest number of underwritings ever on a single day: 500 issues valued at \$11.4 billion. For the year as a whole, the total was also a record: 34,151 underwritings, up 10% over 1998.

It's no surprise that the depository's volume in 1999 mirrored that of the market. The first stop for almost all new securities—from retail certificates of deposit to municipal bonds to equity offerings—is the depository. In preparation for these IPOs, the depository makes the initial distribution of eligible securities to the underwriter or underwriting syndicate members who then parcel the securities out to their respective customers.

But because the depository handles securities "cradle-to-grave," retaining most of them in book-entry form—and some in paper certificate form in the vault—until they are retired, its servicing of assets is one of the industry's largest, though often unsung, businesses. The depository brings high-volume processing, economies of scale and financial security to the payment of dividends and interest, the retirement of debt, the safekeeping of securities, and the reorganization of company ownership

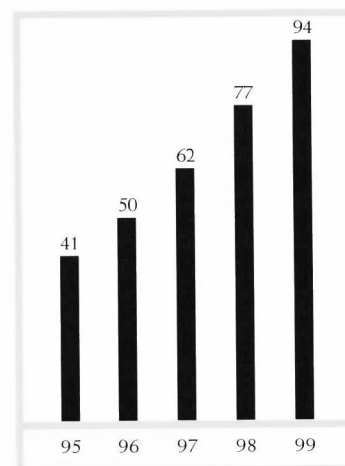
through mergers and acquisitions. In 1999, for example, the depository held nearly \$23 trillion in securities in custody and posted an average of 1.8 million changes to its customers' accounts every day.

To keep up with rising IPO and secondary issue volume in 1999, the depository upgraded its IPO tracking service through a strategic partnership with a data service company that links customers so they can transmit new issue eligibility information directly to DTC.

In addition, we launched a new pre-issuance electronic messaging service that centralizes instructions on new money market issues. The messaging service replaced a hodge-podge of faxes, phones and direct computer connections, and is already reducing costs, time and risk for issuing paying agents and dealers, especially those issuing new money market instruments such as certificates of deposit and commercial paper. By the end of 1999, pre-issuance messages flowing through the new system averaged nearly 135,000 a month.

Whether the stream of equity IPOs will remain as broad in 2000 depends on economic and market conditions. But even if municipal debt underwritings continue to decline, the percentage of munis

**Book-Entry Deliveries:  
Market Value (\$trillions)**



**Jonathan Banks** Senior Vice President, Fixed Income Services, PaineWebber Incorporated (L)

**John Cirrito** Chief Operating Officer & Managing Director, ING Barings LLC

offered in book-entry-only form is likely to go up. In 1991, for example, only about 40% of all municipal debt was issued exclusively in book-entry form. By 1999, that percentage had climbed to 88%, an indication that the long drive to eliminate problems associated with paper certificates continues to make progress. The industry has seen even greater progress toward immobilizing money market instruments. The depository's practice of accepting money market instruments solely on a book-entry basis has led to substantial reductions in servicing costs.

Collecting and disbursing dividend and interest payments is an equally large business for the depository. Reflecting the expanded size of its securities inventory, the depository handled a record \$718 billion in cash dividends and interest payments in 1999, gathering funds from thousands of paying agents and posting them to participant accounts. Tracking and apportioning interest payments for municipal debt alone generated a record of more than 2 million payments to the depository during the year—payments that then had to be allocated and credited to participant accounts.

Adding to the operational load in 1999 was the servicing of mortgage-backed securities. Servicing extended to pass-through securities and certain REMICs issued and guaranteed by the Government National Mortgage Association and other quasi-government agencies active in the secondary market. In the past, Participants Trust Company had serviced these securities, but when the company was

merged with the depository, servicing was moved to the new Mortgage-Backed Securities Division. By the end of 1999, as a result of an aggressive program to integrate processing applications and increase interest earned, the depository was able to reduce costs and refund \$23 million to participants in the mortgage-backed securities business. Additional systems integration is under way in 2000, with a final phase set for 2002.

Redemptions of securities, plus payments associated with stock tender offers, exchanges, splits and spin-offs, make up the depository's third principal servicing business. In 1999, the business generated a depository receipt and disbursement flow to participants of more than \$561 billion.

A sharp rise during 1999 in the volume of so-called "mini" tenders—offers that do not require registration with the Securities and Exchange Commission because they seek less than 5% of a company's outstanding shares—substantially increased the depository's processing costs. To offset these costs, the depository instituted a \$2,700 fee early in the year for processing the tenders. By the end of the year, volume of such tenders was declining.

One of the depository's latest tools, a system crafted especially to serve corporate reorganizations, has also earned high marks from the industry. Introduced in August 1999, the new tool automatically compares the value of potential stock conversions or warrant exercises with that of the existing securities—and then alerts participants if the action is likely to result in losses.

Mary Lou McVane Vice President, State Street



Herbert Friedman Managing Director, Pershing

To simplify its entire process of dividend, redemption, and maturity payments, we are combining

all these business lines into a **single tracking system** in 2000.

The company also conducted more than 60,000 "lotteries" in 1999 involving corporate or municipal debt issues under depository custody.

The lotteries are an impartial way of allocating a partial call—a notice to redeem some of the bonds, but not all, in a particular issue—across a wide range of bondholders.

To centralize and simplify its entire process of dividend, redemption, and maturity payments, the depository is combining all these business lines into a single tracking system in 2000. The reconstruction of its system, which will also streamline interactions with paying agents, is expected to produce meaningful operating savings annually. Another 1999 systems enhancement that cuts paperwork was the introduction of electronic redemptions for unit investment trusts. The upgrading of its Participant Terminal System in 2000, coupled with the introduction of a Web-based browser format, will also speed up and simplify communications between participants and the depository.

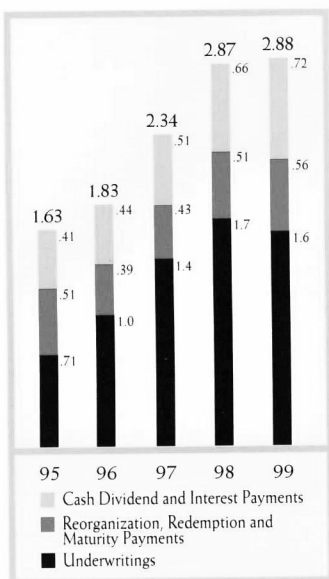
Although cross-border ownership of securities continues to grow rapidly, fostering the creation of the new S&P Global 100 Index, the securities industry has experienced difficulty in the servicing of these assets. Despite the availability of the Internet and other electronic communication channels, paper messages, faxes, cables and international phone calls are still the norm. For us at DTCC, cutting through that thicket is a major objective because one of our goals is to make the processing of securities, no matter where they're traded or deposited, as seamless as

that of domestic shares. As a result, we are introducing a new service, Global Corporate Action Hub, which uses the Internet and Web-based technologies to standardize and automate the manual methods custodians and brokers customarily use to communicate with investment managers about domestic and international corporate reorganization activities. We plan to launch a pilot program late in 2000, with the full Hub service slated to come online in the first half of 2001. The new service will substantially reduce risk and the margin for error in the expanding global business arena.

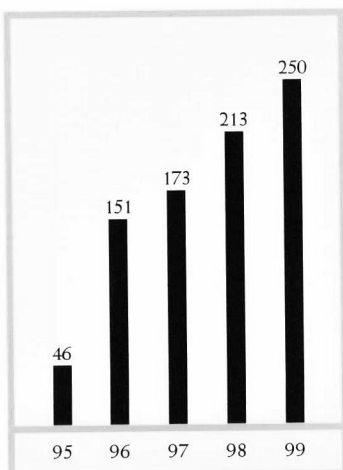
Technology also played a key part in the depository's efforts in 1999 to train its participants and upgrade its overall ability to communicate with its customers. The depository's Web site provides a paperless way for customers to find and read Important Notices, and is the host of "DTC University" which features online training and communications courses that can be accessed at any time for study and review.

As markets continue to grow worldwide, broadening the flow of global capital, the demanding business of asset servicing will necessarily grow with it. With its legacy of safety and soundness, the depository's commanding role in this business will also continue to grow. Although there has been concern in the industry that the explosion in volume over the last decade could strain the depository's systems and servicing capacity, the unrelenting effort to streamline the business remains strong, and the adoption of new technologies promises to make this business even more safe and efficient.

**Depository Asset Servicing: Dollar Volume (\$trillions)**



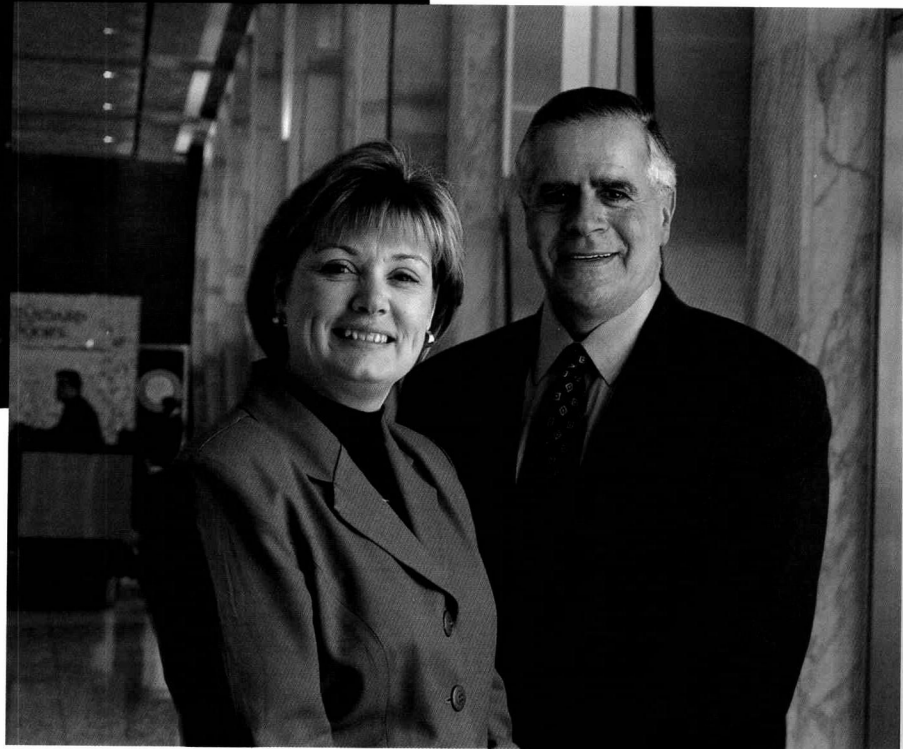
**DTC TradeSuite™ Institutional Delivery Confirmations (millions)**



Mark A. Leverenz Principal, Operations, Edward Jones



Norman R. Malo President & Chief Operating Officer, National Financial Services Corporation



Carol P. Bright Vice President & Manager, Fund Accounting and Control, Wachovia Operational Services Corporation (L)  
James Michaels Senior Vice President, A.G. Edwards & Sons, Inc.

## Developing centralized, value-added data services

In the \$6.5-billion market for price data and market analytics, customers worldwide are raising their spending levels and searching for new, reliable sources of information.

Increasingly, one of these sources is DTCC.

In fact, the market potential for data services is emerging so strong that in 1999 DTCC established it as a stand-alone business. The company is not only expanding the volume and quality of data delivered to its participants, but is also stepping up sales to outside vendors and resellers. Revenues from the business grew steadily in 1999.

As the world's largest securities depository, The Depository Trust Company is a primary source of data on nearly 1.9 million securities and the financial activities associated with these assets. In many cases, it is one of the principal sources of data on actions ranging from tender and merger offers to dividend and redemption announcements.

In the past, however, much of the depository's broad data stream was directed to customers' back offices, bypassing the executives in front offices who assess their company's data needs and typically purchase data services from commercial vendors. During 1999, the depository completed initial development and testing of a new value-added information concept called the Data Services Workstation. The Workstation will repackage data in formats that are more consistent, easier to use, better suited to the front office needs of DTCC customers, and ultimately more commercially appealing to outside vendors and resellers.

During 2000, DTCC's plans to launch an improved Corporate Action Notification and Dividend Income Collection Reporting services. In addition, we're looking to develop a Prospectus Repository System (PRS) which will allow customers to receive

newly issued prospectuses electronically and view them via an Internet database.

Initial data services product offerings will fall into four broad groupings, including equity-based products such as notices about dividends, mergers, tenders and liquidations. The service will also offer information on bond interest payments and redemptions,

The integration of the depository and the clearing corporation offers additional opportunities for developing and marketing value-added information services to mutual fund companies, insurance carriers and the myriad service organizations in those financial sectors.

DTCC is also exploring strategic partnerships and alliances with a number of specialized companies in the data services field to help broaden its reach and achieve its mission.

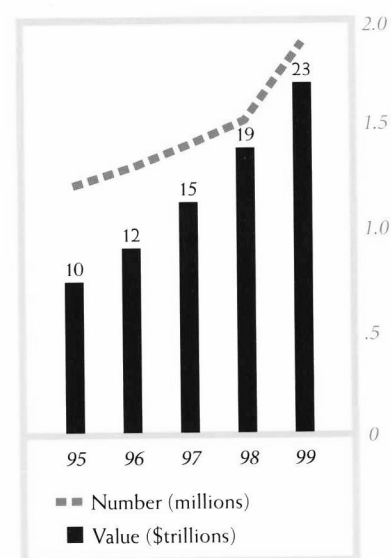
Making DTCC's extensive data files readily available for online search and query by customers will be a high priority in year 2000. DTCC plans to provide this expanded access through its new "Customer Desktop" — an Internet-based portal expected to be completed in 2000. Customer Desktop will take over the functions previously supported through the depository's proprietary Participant Terminal System (PTS).

Longer range, DTCC will pursue having its data services available via the Web on a real-time basis 24 hours a day in standardized and widely accepted formats. Our goal is to have our customers view us as a leader in this aspect of our business all across the financial services industry.

Edward R. Swantek Senior Vice President, Information Systems & Communications Division, Prudential Securities Incorporated



Eligible Securities on Deposit

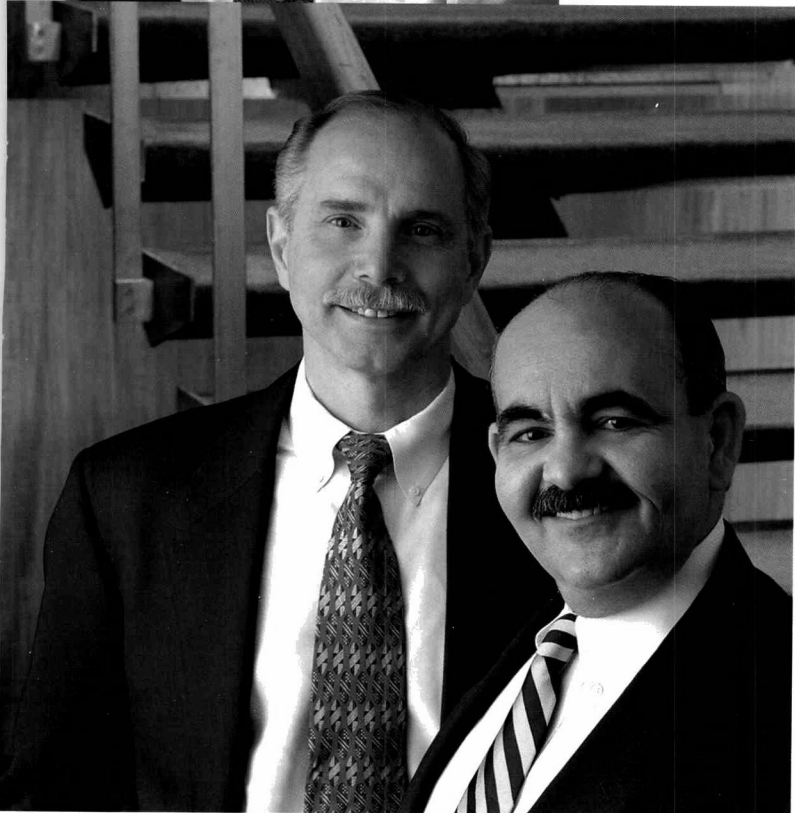


## Expanding distribution channels for mutual funds

**B**uoyed by the longest economic expansion in U.S. history, mutual fund assets climbed once again in 1999, rising to more than \$6.8 trillion. Nearly one of every three Americans—some 83 million people—now has money invested in mutual funds. In fact, the enormous flow of investment into mutual funds during 1999 for the first time outstripped assets held by U.S. commercial banks.

Through its mutual fund family of services, the clearing corporation has played a central role in facilitating much of this phenomenal growth in mutual fund investing. The corporation's Fund/SERV system has become the industry standard for automating and allowing broker/dealers, banks and other distributors to purchase and redeem mutual funds from more than 549 mutual fund families and over 18,000 individual mutual funds.

Stephen S. Hand President, American Industries Trust Company



George Hrabovsky President, Alliance Capital (L)  
Thomas Iandolo Director of Broker Dealer Operations, Lord, Abnett & Co.

During 1999, the clearing corporation handled a record 48.4 million Fund/SERV transactions, up 27% from 1998. The value of these transactions climbed to \$982 billion from \$578 billion in the year prior. On any given trading day, orders flowing through Fund/SERV averaged 192,000 transactions valued at \$3.9 billion.

In tandem with this volume growth, the number of sub-accounts managed by the corporation's Networking product climbed 22% in 1999, rising to more than 40 million. Networking provides an automated link between funds and their distributors, allowing them to update and exchange non-trade related client information.

These numbers reflect strong growth across the board in our mutual fund services' product line. Processing volume continued to climb in 1999 for mutual fund orders from the defined contribution plans supported by the clearing corporation's Defined Contributions Clearance and Settlement service, while retirement fund asset transfers nearly tripled to almost 18,000 monthly. Such volumes mirror not only the market's overall growth, but also the heightened scrutiny investors give to fund performance.

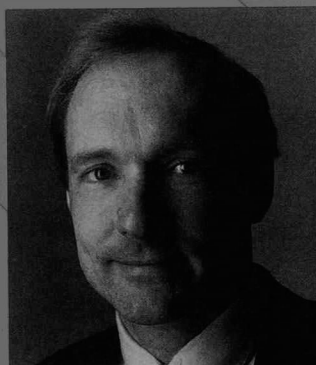
The clearing corporation's efforts have helped the mutual fund industry automate and centralize processing while minimizing the costs associated with servicing its customers and distributors.

“The Web arose as the answer to an open challenge, through the swirling together of influences, ideas, and realizations from many sides until, by the wondrous offices of the human mind, a new concept jelled. It was a process of accretion, not the linear solving of one well-defined problem after another.”

Tim Berners-Lee, *Weaving the Web*

## Tim Berners-Lee

The world-altering vision of a quiet Englishman



Working at CERN, the European Particle Physical Laboratory in Geneva, British physicist Tim Berners-Lee wrote his first Web-like program in 1980. What he sought was a way to link everyone – and everything – through an obscure academic computer network called the Internet. Although few people understood what he was driving at, by Christmas Day, 1990, he had his browser up and running on the Net.

The World Wide Web was born. Still, it was another three years before his idea began to catch on. Now, of course, the simple but universal vision of Berners-Lee is one of the most radical applications of technology in history. In just a few years, the Web has generated explosive growth in global communication, spawned huge fortunes and begun to change the very pace and face of society, business and government.

“The art was to define the few basic, common rules or ‘protocols’ that would allow one computer to talk to another in such a way that, when all the computers everywhere did it, the system would thrive, not break down.”