



FEDERAL RESERVE BANK  
OF DALLAS

August 25, 1989

WILLIAM H. WALLACE  
FIRST VICE PRESIDENT  
AND CHIEF OPERATING OFFICER

DALLAS, TEXAS 75222

Circular 89-50

**TO:** The Chief Operations Officer of  
all financial institutions in the  
Eleventh Federal Reserve District

**SUBJECT**

**ATMs & Currency Quality**

**DETAILS**

The Federal Reserve Bank of Dallas is pleased to send you our new brochure on "ATMs & Currency Quality." This brochure contains information on a study conducted by the Federal Reserve System concerning the use of fit recirculated currency in automated teller machines. Conclusions drawn from the study indicate that the Federal Reserve's elaborate quality control procedures regarding currency fitness are effective in the operation of ATMs.

**ENCLOSURES**

The "ATMs & Currency Quality" brochure is enclosed.

**MORE INFORMATION**

For further information, please contact the appropriate Federal Reserve office by calling Charles A. Worley (214) 698-4275 in Dallas, Jerry A. Silvey (915) 544-4730 in El Paso, Oscar A. Bryan, Jr. (713) 652-1609 in Houston, or David B. Sowell (512) 224-2141 in San Antonio.

Sincerely yours,

## Role of the Federal Reserve in Currency Production

As the nation's central bank, the Federal Reserve is responsible for meeting the currency and coin requirements of depository institutions. Currency is printed by the U.S. Treasury Department's Bureau of Engraving and Printing and issued by the twelve Federal Reserve Districts.

The quality of currency in circulation, always an important issue within the financial community, has become increasingly significant with the advent of automated teller machines (ATMs). With over 70,000 ATMs in operation today, financial institutions need to have confidence that the currency they receive is in sufficiently good condition to work properly in the machines.

## New vs. "Fit" Currency

There is nothing quite like the crisp, clean feel of a new note. Both bankers and consumers may prefer new currency over recirculated, "fit" notes. However, at a cost of approximately three cents per new note, it would be very costly for the Fed to destroy notes that still have "life" in them and replace them with new notes.

The Fed instead employs many quality control procedures designed to ensure that recirculated currency is "fit" for further circulation. Currency deemed unfit is then removed from circulation.

## Commitment to Currency Quality by the Federal Reserve

In 1978, the Federal Reserve introduced the currency verification, counting and sorting (CVCS) machine. This high-speed counting machine was designed to standardize currency processing and improve the Fed's ability to manage the quality and supply of currency in circulation.

Today, the Federal Reserve uses 116 CVCS machines to process approximately 64 million notes each day at the rate of more than 60,000 notes per hour per machine. Each of these notes is evaluated for fitness quality based on pre-determined standards. A CVCS machine, equipped with extremely sensitive electronic sensors, examines each note for holes, tears, missing or dog-eared corners, tape and excessive soil and wear. The machine automatically destroys unfit currency and rejects suspected counterfeits which are then forwarded to the U.S. Secret Service.

In 1982, the Federal Reserve established a committee to develop uniform and improved standards for recirculated currency. The committee periodically reviews these standards and makes adjustments as needed.

## The Federal Reserve Studies Currency and ATMs

In 1988, in response to concerns expressed by financial institutions, the Federal Reserve undertook a two-phased study of the effect of currency quality on the operations of ATMs. Phase I involved a controlled test using several brands of ATMs, while Phase II involved on-site field tests nationwide.

### Phase I--Controlled Laboratory Tests

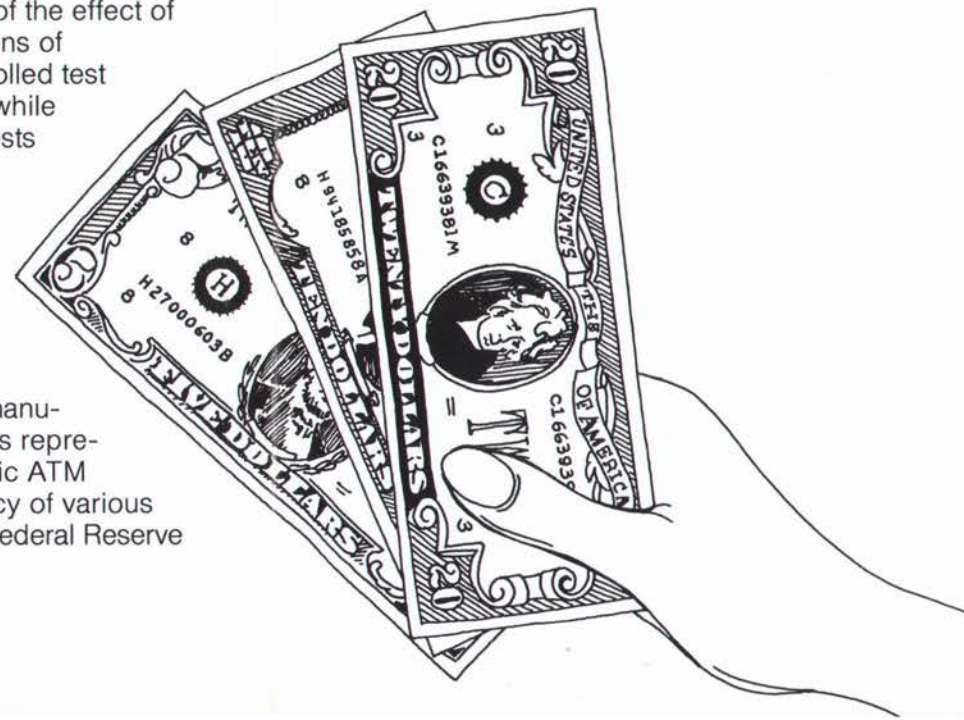
Phase I took place in January 1988 at the New Orleans branch of the Atlanta Fed. Eight ATMs, manufactured by five different vendors representing over 90% of the domestic ATM market, were tested with currency of various quality levels, above and below Federal Reserve standards.

Each ATM was put through a battery of tests involving the dispensing of 24,000 notes. Testing was observed and monitored by the Bank Administration Institute (BAI). Out of a total of 192,000 notes that passed through the eight ATMs, 11 jams occurred. Interestingly, *new currency caused more jams than fit currency*, as new currency more often sticks together.

Results from Phase I indicate that *fit currency meeting Federal Reserve standards* worked well in all the ATMs and *did not cause any jams*.

### Phase II--On-Site Field Tests

Phase II was conducted with 90 ATMs operated by financial institutions across the country. The institutions were chosen to take part in the test because they had registered concerns about currency quality. Each institution received currency conforming to Federal Reserve fitness standards. This currency was run in ATM machines nationwide under field conditions.



Test results were tabulated and showed that 40 jams occurred out of a total of 503,223 notes dispensed from the 90 ATMs. Approximately 70% of the machines experienced no jams at all. Since each ATM typically dispenses about 11,000 notes per month, Phase II results indicate that institutions using Federal Reserve fit currency may experience one jam every 12,500 notes dispensed--less than one jam per month.

### Maintaining the Standard

Maintaining the quality of currency in a cost-effective manner is a responsibility the Federal Reserve meets through extensive quality control measures and the sophisticated technology of the CVCS machines.

If your financial institution has concerns about the quality of currency you receive from the Fed, please contact the cash officer at your Reserve Bank or branch. If you wish, you can arrange a tour of the cash facilities at your local Fed and take a firsthand look at how the Fed receives, verifies, destroys and recirculates currency.



#### Federal Reserve Bank of Dallas

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**Federal Reserve System  
Subcommittee on Cash Services**

