Federal Reserve System

Cash Handling and Management in the New Millennium

A Review of Private Sector Cash Handling and Management Practices in the United States

December 2000

The Federal Reserve is grateful to all the organizations and participants who assisted with this survey. These companies and individuals (whose names and responses are confidential to the Federal Reserve) reviewed questions in advance, and participated in face-to-face interviews that lasted up to four hours each. Participants provided valuable insights into industry conditions through their willingness to share information, opinions, and suggestions, and we appreciate their candor and time commitment.

Cash Handling and Management in the New Millennium

1. Introduction

The Federal Reserve's mission in providing cash services is to furnish an elastic currency, and to ensure the efficiency, integrity, and accessibility of the nation's cash payment system. To perform this mission, the Federal Reserve continually seeks to improve its knowledge of cash processes and management practices across the nation. In particular, enhancing national efficiency in handling cash requires understanding of private sector behaviors and strategies, and insights from those involved in cash operations and management.

To expand its understanding and obtain these important industry insights, the Federal Reserve recently commissioned a series of comprehensive interviews with several private-sector organizations that use cash extensively. These interviews were conducted across the nation from August through November of 2000.

The research forms part of the System's ongoing efforts to review and understand industry conditions, and to identify potential changes to enhance effectiveness and efficiency in handling cash nationwide. The key practices, trends, and themes identified during the review are presented in this report, as part of the Reserve System's commitment to ongoing communication with those it serves.

A total of 56 face-to-face interviews (with 200 participants) were conducted. Responses were gathered from most of the largest commercial banks, other commercial banks, some credit unions and savings banks, a number of armored carriers, and a few retailers and other organizations that are heavily involved in cash handling.

A breakdown of the interview participants by organization type is shown in Figure 1 below.

Figure 1: Interview Participants by Organization Type

Armored Carrier	6
ATM Network Provider	1
Casino	2
Commercial Bank	35
Credit Union	4
Retailer	3
Savings Bank	3
Transit Authority	2
Total	**56**

While not designed to be statistically representative of the entire population of U.S. private sector firms involved in cash handling, the responses nonetheless represent a broad range of industry views and provide valuable insights into private sector cash strategies, practices, and behaviors. The research comes at a time of increased awareness of the role and impact of cash, as is evidenced by participants reporting growing efforts to manage cash and reduce excess cash holdings.

This research was sponsored by the Cash Fiscal Product Office of the Federal Reserve System, located at the Federal Reserve Bank of Philadelphia. The research was undertaken by specialist consultancy company Currency Consulting International, in conjunction with the Federal Reserve Bank of San Francisco.

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2. The Marketplace and Service Provision

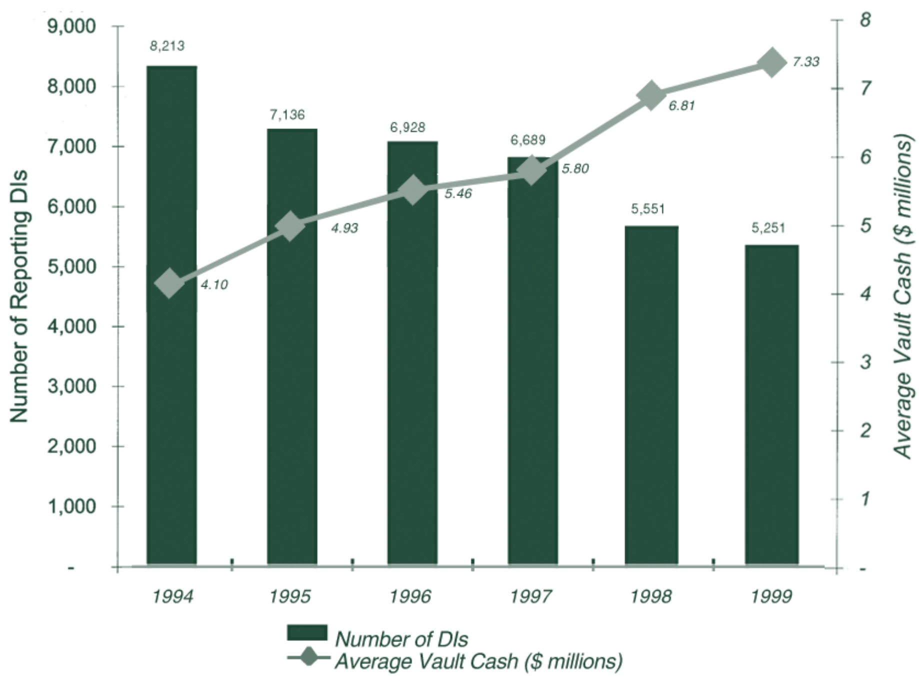
Consolidation and Expansion

One of the most striking features of the cash-handling marketplace in the past five years has been extensive merger and acquisition activity, following the lifting of restrictions on interstate banking. This period of extensive consolidation has led to the emergence of a limited number of large nationwide and super-regional banks. Depository institutions (DIs)[1] have devoted considerable resources to managing the merger of culturally and technically diverse institutions in recent years.

This consolidation trend is illustrated by the decline in the number DIs reporting vault cash balances to the Federal Reserve on a weekly or quarterly basis.[2] At the beginning of 1994, there were 8,213 reporting DIs with total vault cash holdings of $33.7 billion, or an average of $4.1 million per DI. By the beginning of 1999, the number of reporting DIs had fallen to 5,251, while total vault cash had increased to $38.5 billion. Over the five-year period, average vault cash per DI increased by nearly 80 percent to $7.3 million.

Figure 2 below illustrates this dramatic change.

Figure 2: Number of Reporting DIs and Average Vault Cash
(At End of First Quarter)



[1] When the term DIs is used in this report, it includes commercial banks, savings banks, and credit unions. Specific names are used when referring to particular organization types.

[2] DIs with deposits greater than $5 million are required to report certain financial information to the Federal Reserve; thus, these DIs represent the holders of the majority of deposit dollar value in the United States. One reported item is vault cash, which is formally defined as 'United States currency and coin owned and held by a depository that may, at any time, be used to satisfy depositors.' Vault cash may be held in centralized vaults and at other locations – including ATMs and branches – as prescribed by the regulations.

Most interviewees expect further marketplace consolidation, although they also believe this will slow as attractively priced and strategic targets become harder to find.

The primary post-merger focus has been on providing a seamless face to the customer across enlarged franchises, through creating common brand identities and integrating customer account and general ledger computer platforms. In contrast, standardizing operations with limited direct customer contact, such as cash handling and other payment operations, has been a secondary concern, in most cases. As a result, cash handling arrangements at merged institutions are typically characterized by a variety of in-house and outsourced arrangements, a wide range of manual operating procedures, and many different supporting hardware and software platforms.

The trend toward consolidation and a nationwide presence is not limited to depository institutions. Recent years have seen armored carrier consolidation, with the growth of a few large national companies and the acquisition of a number of independent carriers. The retailers that participated in the survey all spoke of ongoing plans to expand their nationwide coverage. To support a national presence, commercial banks and armored carriers are increasingly being asked by their customers to provide consistent and standardized services nationwide, or across many states.

Consolidation and a drive for countrywide standardization are also expected to affect the 37 Offices that make up the Federal Reserve's cash handling network. While a DI may have had a relationship with just one or two Federal Reserve Offices in the past, it is today increasingly common for a DI to have relationships with multiple Federal Reserve Offices across several Federal Reserve Districts.

Points of Presence and Delivery Channels

During the past three years, there has been substantial change in the locations, or points of presence, from which DIs serve their customers. In part, this is a result of the widespread merger and acquisition activity, but changes have also been driven by the cost savings that can be realized through moving away from traditional 'brick and mortar' branches.

The period has seen a modest decline in the DI participants' total number of branches, as well as a trend toward minimizing branch cash handling in order to focus on customer service and sales opportunities.

There has also been a slowing of the previous meteoric growth in the number of Automated Teller Machines (ATMs). About half of all participants' ATMs are located outside branch premises, at remote locations. Many interviewees believe that further ATM expansion will be considerably more modest than the rapid pace of the 1990s. One offset to the trend of slow or no growth are ATM surcharge[3] policies, which have and will have a bearing on ATM deployment strategies. Participants indicated that surcharge policies contributed to the recent dramatic growth of ATMs, particularly at non-traditional locations.

Surcharging has had a number of consequences. First, there has been a proliferation of third-party ATMs solely intended to generate surcharge fee income. These ATMs are often located in 'Mom and Pop' establishments and convenience stores. Secondly, DIs have increased the number of their own ATMs, both in branches and at remote sites, in order to provide additional surcharge-free ATM locations for their own customers. Third, the **average** withdrawal amount has increased in order to mitigate the fixed ATM surcharge fee (generally in the $1 to $2 range).

Another reason a few of the participants are adding ATMs is to support their Internet presence in parts of the country where they do not have branches. These DIs indicated they expect to be able to grow market share without the costs of expanding their 'brick and mortar' presence.

[3] Many DIs impose a surcharge fee when 'foreign' (other DI) cardholders withdraw cash from one of their ATMs. The lack of ATM surcharges is seen by some DIs as a competitive advantage, which they promote in advertising and customer service policies and communications. A number of credit unions mentioned their low or no surcharge policies and their affiliation with reciprocal ATM networks that expressly forbid members charging one another.

Many participants reported slowing growth in ATM withdrawal demand, as measured by number of transactions per machine. This is partly because debit card usage and the widespread ability to get cash-back at store registers – without paying a fee – is becoming more popular. Widespread use of cash-back facilities may mean that a store is likely to deposit less cash with its bank, and, as a consequence, the bank is less likely to have surplus cash to deposit at the Federal Reserve. This has the potential to reduce the number of times the Federal Reserve processes a given note, thereby extending the length of time that notes are in general circulation.

A number of participants cited opportunities associated with servicing the unbanked population in the United States. A small number of commercial banks and some credit unions are looking at ways of providing simple, lower cost, low risk products or facilities to serve the unbanked.

Customer telephone and online banking, both PC dial up and Internet, are seen by all the DIs interviewed as complementary – but not substitute – delivery channels. Accordingly, a telephone or online customer has full access to traditional branch and ATM facilities and all the existing cash services.

Cash Products and Services

Cash products and services are provided differently to individual and business customers. DIs reported that they often segment individual customers, primarily for marketing and credit risk assessment purposes, but not for making any distinction in the way cash services are provided. Much more attention is placed on segmenting business customers. Customers are usually divided into size-related categories, such as small business or large corporate.

Cash services for businesses are divided into two categories, those provided over a branch counter and those provided by a centralized vault (in-house or outsourced). Cash services are further categorized by level of deposit preparation.[4]

The schedule for passing credit is a key determinant of service fees. Since banks act as 'just in time' depositories for their customers, it is usually essential for them to process and reuse or deposit cash receipts as soon as possible. Fee arrangements often appear to be complex, being volume and/or value related, local market rate sensitive, and sometimes bundled with other services, as well as linked to when credit is applied.

Most DIs stated that cash products are not 'loss leaders,' although the lack of specific management information may mean that all costs are unable to be quantified.

3. Cash and Treasury Management

Retail Sweeping and Reserve Account Management

Since January 1994, retail sweeping has enabled depository institutions to transfer reservable transaction accounts to non-reservable savings accounts.[5] These transfers drive down reserve requirements and the consequent need to have reserve account balances or vault cash to meet those requirements.

All of the commercial banks and several of the savings banks and credit unions interviewed as part of this research have established retail sweep programs. Most participants stated that they had well-established programs in place, and that the majority of these had been installed for three to five years. They indicated that their retail sweeping programs required only occasional upgrades or adjustments. Given that in many cases, reserve requirements are already significantly below vault cash levels, further modification to sweep programs is not perceived to provide additional benefit.

[4] Deposit services can vary from 'prime count' (bank or carrier counting of multiple envelope deposits that originate at each retail store register) to deposits that are Fed-ready (prepared according to the standards set by the Federal Reserve for depositing with it). Fed-ready deposits usually incur lower fees and, depending on the customer, may be subject to minimal handling and verification by the bank or carrier before deposit at the Federal Reserve.

[5] By regulation, DIs are required to hold a specified percentage of their transaction account balances as reserves, either as a reserve account balance at the Federal Reserve or as vault cash held by the DI at its own locations.

At the same time, however, a few participants expressed a desire for legislative changes that would let them sweep accounts more frequently. This would allow them to offer services that can compete with those offered by brokerage houses and enable them to retain deposits in their communities.

Invariably, the introduction of retail sweeping was seen first and foremost as a means of significantly reducing reserve requirements, thus freeing up funds in reserve accounts at the Federal Reserve. Participants often stated that the significant savings achieved through lowering reserve account balances more than paid for the technologies employed.

From discussions with the majority of interview participants, it was readily apparent that vault cash management and a drive to reduce vault cash were often secondary concerns to reducing reserve account balances. However, some participants reported receiving corporate directives to reduce cash holdings. In addition, whereas the freeing up of reserves had been a relatively straightforward process, vault cash reduction is widely considered more complex.

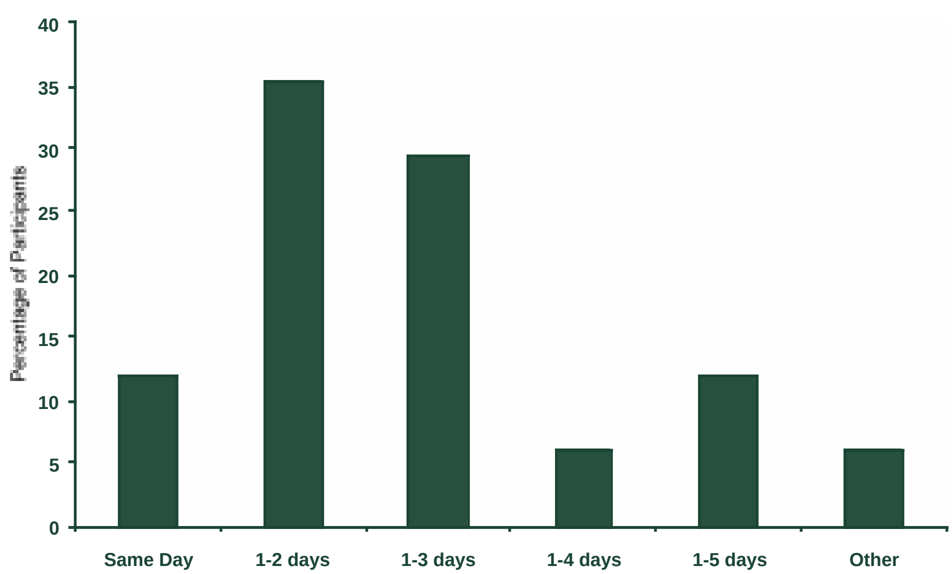
Vault Cash Management

Independent of the specific efforts to minimize vault cash for reserve management purposes, there have been various efforts undertaken to manage cash more effectively.

Where initiatives have been pursued to reduce cash, these have initially focused on reducing centralized vault balances. These are often considered the easiest locations to address first: cash holdings are largest at centralized vaults and they are managed by people dedicated to cash handling activities. Many participants have actively pursued initiatives to reduce cash holding levels and shorten the time to turn around[6] the contents of their cash vaults. Figure 3 illustrates the average turnaround time reported by the commercial bank participants. The armored carriers surveyed indicated their turnaround time was between 1 and 2 days.

Among the interview participants, about 30 percent of their total cash holdings are held in centralized vaults, with nearly 50 percent in branches and 20 percent in ATMs. Average holdings per branch are $400,000, while ATMs generally hold $68,000 each.

Figure 3: Turnaround Time for Processing Cash Deposits
(Sample Size: 34 Commercial Banks with Centralized Vaults)



[6] *Turnaround is defined as the length of time between receiving cash from a customer and depositing the 'same' money at the Federal Reserve or re-using the 'same' money for ATMs, branches, or a customer.*

Most recently, often with the aid of forecasting technology, increased attention is being focused on managing branch and ATM cash holding levels. Forecasting systems are, in most cases, a new innovation, and even the earliest adopters of this technology are still often in development or refinement mode.

4. Cash Operations

Management and Cost Structures

Participants indicated that responsibility for the management of cash crosses many departments or divisions within their organizations. A number of different models for managing cash exist, and some are quite complex, particularly at larger organizations. The multitude of departments responsible for cash poses significant challenges for many banks.

Restructuring and re-organization appears commonplace as banks apply new organizational models and adapt to changing business environments. This re-structuring has sometimes led to changes in focus and goals as cash management personnel and practices change. A few banks cited cash committees, and a few stated that they had a 'Cash Czar,' to co-ordinate or promote their bank's cash activities in a more cohesive manner.

Participants indicated that, while thankfully uneventful, Y2K contingency planning served as a watershed in the management of cash. Contingency preparations called for organization-wide cooperation, bringing together all interested parties, including Treasury Management and Cash Operations. Dialogue often extended beyond the DI and included discussions with the Federal Reserve, armored carriers and their customers. The much higher than normal levels of cash held on balance sheets over the Y2K weekend also heightened awareness of cash with their organizations. (In the New Year, nearly all DIs made strenuous efforts to remove excess cash from their locations.)

All of the DIs that participated in the survey stated that cash handling was considered a cost to their organization, and that their cash functions were invariably regarded as cost centers.

A few banks specifically stated that the provision of cash was integral to providing comprehensive banking services. Thus, offering cash services ensured that customers were retained for many other - profitable - areas of the bank. In contrast to cash operations being a cost center, most banks indicated that their ATM operations were profit centers due to the income derived from ATM interchange and surcharge revenue.

Outsourcing and In-House Operations

Whether or not a DI has in-house or outsourced cash operations is in large part determined by the extent of their cash handling activity for businesses. (Commercial banks with numerous business customers are more likely to have in-house operations, while DIs with mostly individual customers are more likely to outsource cash handling.) Where operations have been outsourced, it has been to an armored carrier or correspondent bank. Most of the commercial banks stated that they had a mixture of in-house and outsourced operations, either as a consequence of merger activity, or because limited transaction volumes in a specific location did not justify the costs of establishing their own facilities.

Of the thirty-five commercial banks interviewed, twenty-nine had in-house operations and only one of the ten largest banks had exclusively outsourced its cash business. By contrast, none of the savings banks or credit unions interviewed had their own cash operations.

Participants cited a number of reasons for preferring in-house processing. Many banks spoke of the higher quality service their own operations could provide, and the enhanced control afforded in an in-house operation. Most of the organizations that do outsource cited transfer of risk from their own employees as a main reason to outsource. For both in-house and outsourced processing, the procedures and work processes used to handle cash are very similar.

Participants indicated that they regularly review the strengths and weaknesses of in-house versus outsourced operations, and would change processing arrangements if this were considered beneficial. Whether in-house or outsourced, cash handling remains very labor intensive.

Given the strength of the American economy and its buoyant labor market at the time the survey was conducted, staff recruitment and retention were becoming increasingly problematic. There is some limited evidence of cash handlers employing technology to mitigate some of these staffing problems.

Centralized Vault Operations

Over 80 percent of the participating commercial banks operate in-house cash processing facilities. The twelve largest banks in the survey (as measured by asset size) have a total of 225 in-house processing vaults. In addition to these centralized vaults, banks often supplement coverage by using either a number of branch locations, which provide commercial teller positions and small-scale cash processing facilities, or armored carrier services.

The technology and level of staffing used in centralized vaults varies considerably depending on processing volumes and the level of business cash handling activities. In smaller operations, the typical configuration participants described is a single shift and basic cash handling hardware and software. In larger organizations, there is generally more variation in processes, which may include multiple shift operations covering nights and weekends. Only a very few of the highest volume cash handlers use sophisticated ultra high-speed equipment to process currency.

Most large centralized vaults at banks use one of a variety of Vault Management Systems (VMS); some banks have several different systems as a legacy of mergers. Sophisticated and flexible VMS is becoming increasingly important to manage complex cash handling services and to capture accurate and sustainable processing information.

Many participants cited the Federal Reserve as their ‘depositor of first resort’ and ordered from the Federal Reserve to meet the bulk of their currency requirements.

Some participants indicated that, if available, they may fill some orders from customers’ currency and coin deposits, but in the main, very little cash recirculation (recycling) is done.

Centralized vaults play the role of filling branch, ATM and customer orders and consolidating deposits from these sources, often reducing the number of end points directly transacting with the Federal Reserve.

Several participants cited limited note sorting to supplement their currency requirements, but indicated their primary source of fit currency remains the Federal Reserve. Even participants with sophisticated high and ultra high-speed note processing equipment cited note sorting as a by-product of deposit processing, and not a primary use for the equipment.

Participants indicated that their centralized vaults were the primary targets for cash reduction initiatives. Among the larger participants, most have established daily transportation arrangements to and from the Federal Reserve. Participants cited larger daily deposits and smaller daily orders to assist in managing their inventory downward. Where cost justified, logistically possible, and in line with Federal Reserve regulations, some of the smaller participants spoke of a move towards more frequent deposits and orders to and from the Federal Reserve, as well.

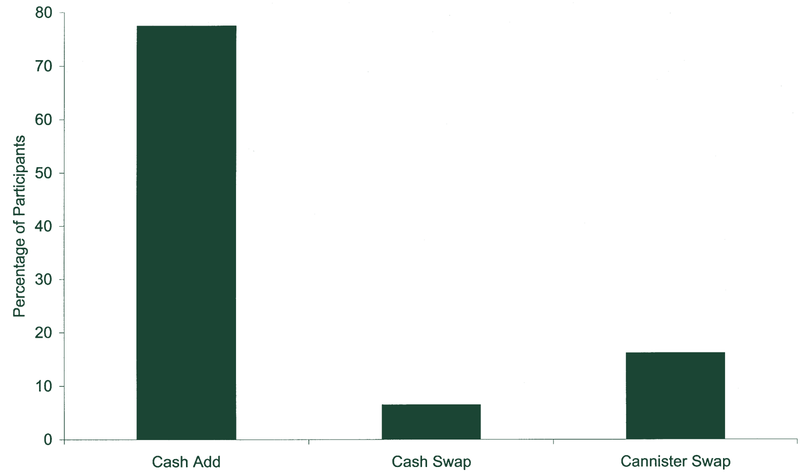
ATM Cash Operations

The deployment and management of ATMs falls into two distinct categories: in-branch ATMs, which are usually serviced by branch staff, and remote site ATMs (often including those at branch drive-through locations), which are invariably serviced by armored carrier or specialist ATM servicing companies.

A number of replenishment and balancing methods are used as illustrated in Figure 4 (in-branch locations) and Figure 5 (remote sites) on the next page.[7]

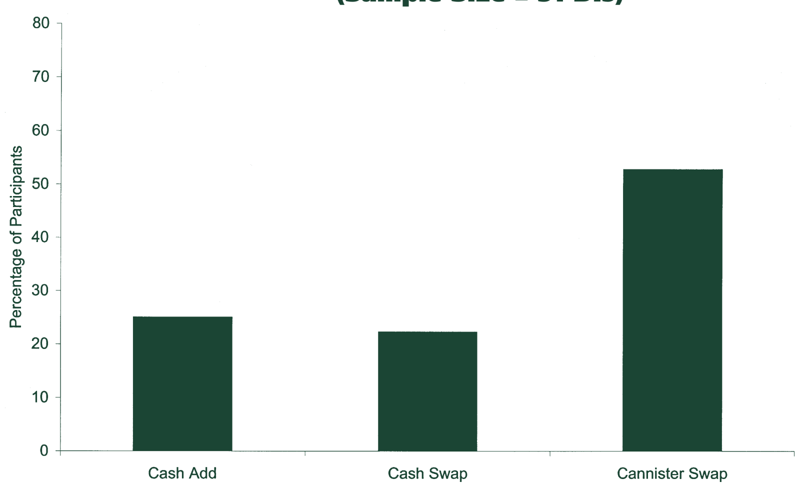
[7] ‘Cash add’ replenishment occurs when loose currency is added to any residual cash from a previous replenishment. Canisters are ‘topped up’ to a target amount. ‘Canister swap’ replenishment requires the removal of all the ATM canisters, be they empty or partially full, and replacement with new, previously filled, canisters. This method requires a substantial stock of canisters; often one or two additional sets per ATM, but is a more secure and quicker replenishment method. ‘Cash swap’ replenishment requires the exchange of residual currency and a set amount of replacement currency (and usually the use of sealed packages to secure both the old and new stock of currency), but does not require the changeover of canisters.

Figure 4: In-branch ATM Replenishment Methods
(Sample Size = 31 DIs)



Note: some DIs use a combination of replenishment methods

Figure 5: Remote Site ATM Replenishment Methods
(Sample Size = 31 DIs)



Note: some DIs use a combination of replenishment methods

'Cash add' is the most popular method of in-branch replenishment. A full cash count and reconciliation is usually completed once a week. For remote site locations, most participants chose 'cash swap' or 'canister swap' replenishment methods as a more efficient and easily audited means of managing vendor-serviced ATMs. In both cases, this leads to higher levels of cash in transit.

Survey participants confirmed that the $20 bill had become the standard bill dispensed by most ATMs. This denomination preference was reinforced when the $20 bill was used as the bill of choice to support Y2K contingency planning. It is also considered an appropriate value to meet public demand, given the current national average ATM withdrawal amount of $54 cited by the ATM network and switching provider who was interviewed.

The majority of ATM cash is sourced directly from the Federal Reserve, although a number of banks supplement their needs from in-house or third party – usually armored carrier – processing. Participants use a variety of methods to sort currency for ATMs. Methods range from the almost completely manual to the highly automated.[8]

Many banks commented that they perceived high quality of notes in circulation. Together with more tolerant new-generation ATMs, note fitness was simply not an issue that merited their concern.

Since many remote site ATM operations are centrally managed and withdrawal activity is automatically captured, this data-rich part of a DI's cash operation has lent itself most readily to the introduction of forecasting software. Several DIs spoke of the software they had introduced or were introducing. Armored carrier experience with servicing remote ATM operations indicate that opportunities for better management exist: carriers estimated that the residual currency still in machines when they made a replenishment averaged 30 to 40 percent.

ATM availability is considered of prime customer service importance. Availability is also, for a number of banks, essential in order to maximize foreign cardholder interchange and surcharge revenue. The vast majority of respondents cited that their organization had a 'zero tolerance' policy on ATM run outs, although most indicated that unplanned run outs do happen from time to time.

Branch Cash Operations

Participants cited very similar branch cash ordering, management and depositing arrangements. Much branch activity remains manual and reliant on established knowledge and experience. Amongst the participants, most of their branches pay out more cash than they take in, and consequently order cash on a regular basis in order to support over-the-counter needs and in-branch ATMs.

Branch 'cash-negative' positions are compounded by the reduced number of business deposits received at branch counters, since many businesses are encouraged to directly deposit at centralized vault facilities. Extended vault-opening hours, longer same-day credit windows, and lower cash handling charges are used to direct many customers away from branch counters to the centralized vaults.

Very recently, there have been a number of initiatives to introduce automated forecasting technologies. Branch forecasts are usually advisory, though a few systems go further in suggesting orders that are automatically placed, unless altered by the branch. Most participants that do not have or plan to obtain forecasting systems typically rely upon branch staff to judge local needs. Insurance limits and security concerns are usually the constraining factors on maximum amounts held. A few participants noted that they are starting to focus on reducing branch cash holdings for reasons other than insurance or security.

Participants cited a number of different approaches to scheduling branch cash deliveries. The majority stated that they had reduced the frequency of visits from two to three times per week to just once a week, in order to reduce transportation costs. A few banks are pursuing an opposite strategy of increasing frequency in order to hold less cash in their networks. These broad policies are being refined as transportation and interest costs are more regularly and accurately modeled through forecasting software.

The current low interest rate environment, and a general desire by banks to limit the amount of physical cash handling effort a branch has to do, sway this equation in favor of less frequent deliveries and higher cash holdings. As forecasting technology, cash management, and costing practices become more sophisticated, banks expect to be able to model and respond to interest rate variations more quickly.

[8] ATM sorting practices range from: (a) hand sorting and visual inspection to (b) basic currency counter processing – assuming that if a bill freely passes through a currency counter, then it can be dispensed through an ATM – to (c) the use of sophisticated high and ultra high-speed processing equipment, which typically has extensive counterfeit detection, mixed denomination processing and bundle strapping capabilities.

Risk Management

Participants were asked to evaluate and rate risks associated with currency handling, as well as comment on the steps taken by their organizations to manage risk. Most participants cited transportation risk – to their own organizations – as low, as they had contractual arrangements in place to cover any incidents; however, several DIs acknowledged that transportation was indeed a high risk activity, and they recognized the challenges faced by their armored carriers.

Participants cited a wide range of measures taken to reduce and manage the various risks associated with handling cash. A number of DIs and carriers cited comprehensive, time-tested operating procedures, dual control policies, camera surveillance, and far-reaching audit and investigation arrangements employed to ensure the integrity of their cash operations.

Many participating organizations have dedicated security departments that regularly review the risks associated with physical attacks and potential burglary. Interviewees reported that some ATMs and branches, and all centralized cash vaults, are equipped with closed circuit television and video recording equipment. Participants also spoke of a variety of alarm systems and other intruder detection technology, often linked to 24-hour central control rooms.

Most institutions, in part prompted by legislative requirements, cited enhanced lighting, camera coverage and clear visibility at ATM locations. Several banks spoke of regular nighttime checks of ATM locations to ensure that they are clearly lit and not obscured by trees, shrubs or other overgrowth.

The Armored Carrier Industry

The six armored carriers who participated in the interviews represented a variety of sizes and organizational structures. Each organization offered cash transportation, ATM servicing, coin services, and vault services. Services are either standard or customized as each customer requests, though transportation is usually considered a basic service and less likely to be customized. Survey respondents had 455 servicing locations across the country, with 350 of those sites offering access to vault services.

Carriers that offer vault services cite their willingness to be creative and customize products, provided that security and controls are not compromised. Most carriers also noted that their customers had a much greater interest in expeditious cash handling over the past three years, for two reasons. First, DIs are driving down cash holdings in order to reduce non-earning assets on their books and see benefits in having as little unprocessed (and therefore unusable) cash as possible. Second, retailers are demanding credit for deposits earlier in the handling cycle – sometimes as early as the deposit is given to the carrier – and banks have responded positively for competitive reasons. In recognition of their customers' interest in reducing cash holdings, carriers have begun providing occasional informal advice to banks regarding management of cash holdings, as well as raw data.

Each of the armored carriers cited the provision of management information as an increasingly important component of their product offerings. A number of the carriers also mentioned their moves toward more efficient processes; one carrier has implemented a state-of-the-art bar coding, scanning, and web-based information system in its operations. Other carriers cited new products for retailers, such as secure safes or cash acceptors/dispensers at retail locations: a feature of these products is comprehensive management information for the retailer.

5. Other Factors in Cash Handling

Federal Reserve Operating Practices

As a consequence of the significant merger and acquisition activity in recent years, many DIs have increased the number of relationships they have with different Federal Reserve Offices.

Participants commented on inconsistencies in Federal Reserve operating practices, which they consider an annoyance, as well as an obstacle in the drive by many DIs towards standardization of cash handling arrangements and services. Differences in dock closing hours, in particular, were cited as an issue, while different ordering deadlines were cited as an inconvenience.

Participants were asked whether or not they considered the Federal Reserve to be a just-in-time supplier. Most participants stated that the current order and deposit arrangements and regulations precluded the Federal Reserve from being a just-in-time supplier. However, in most cases, the Federal Reserve is considered the 'depositor of first resort' and as such, easy and timely access to the Federal Reserve – in conjunction with receiving credit the same day – is deemed essential.

Counterfeits

Participants reported higher levels of counterfeits in a few locations, but overall considered counterfeiting in the United States to be a very small problem. Participants indicated that counterfeit losses were a much smaller problem than check, credit card, and in the case of the retailer participants, merchandise losses.

DIs, armored carriers, retailers, and casino operators reported a range of measures used to detect counterfeits. Most participants cited regular staff training, many using free materials supplied by the Department of the Treasury. A number of participants used desktop counting devices with basic authentication capabilities and a few used security highlighter pens. Many relied upon staff experience to identify counterfeit notes; in fact, one participant offered incentive payments to staff who identified counterfeits.

A number of participants cited the particular efforts they take to identify counterfeits in business deposits. If audit trails are maintained, these counterfeits can be charged back to the customer.

New Series Currency

In general, participants made little comment about the new series of notes. Of more concern were the internal consequences of the new series introduction. Many organizations reported that their vendors were required to make changes to processing equipment, and that the participants had to wait until after the new notes were introduced for upgrades to be made.

A number of participants commented on the multiple upgrades necessary to accommodate the five new series denominations. While they recognize the need to stay ahead of the counterfeiter, they would nonetheless welcome a single upgrade of detector functionality.

Coin Management

A number of participants were critical of current coin handling arrangements in the United States. Participants cited poor coin distribution arrangements and consequent real or perceived coin shortages. Several commercial banks stated that they could not rely on receiving their coin orders in full, and that they could not afford the risk of being unable to satisfy business customer change orders. As a result, banks shipped coin across the country, hoarded coin, or ordered extra coin to ensure supplies.

Following initial customer interest, most participants anticipated no long-term demand for the golden dollar coin.

6. Cash and Other Payment Instruments

Cash Compared to Other Payment Instruments

Participants were asked to compare cash payment characteristics against a number of other payment instruments. Participants widely reported cash as the most popular form of payment for consumers. Cash is a preferred low-transaction-value payment method, whereas other payment instruments are typically used for higher value transactions.

Figure 6: How DI Participants Ranked Payment Instrument Costs
(Sample Size = 31 DIs)

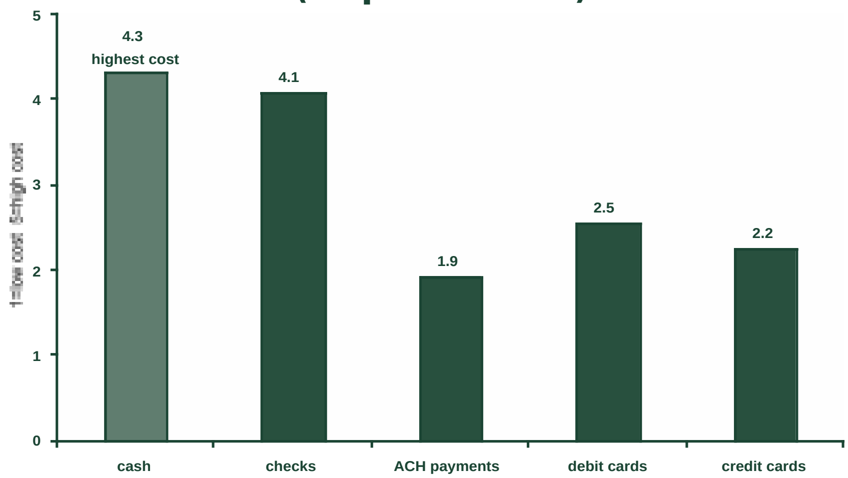
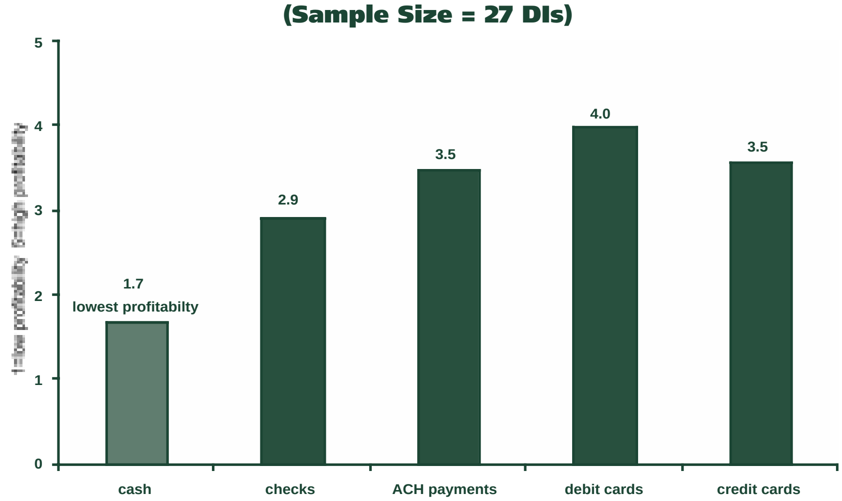


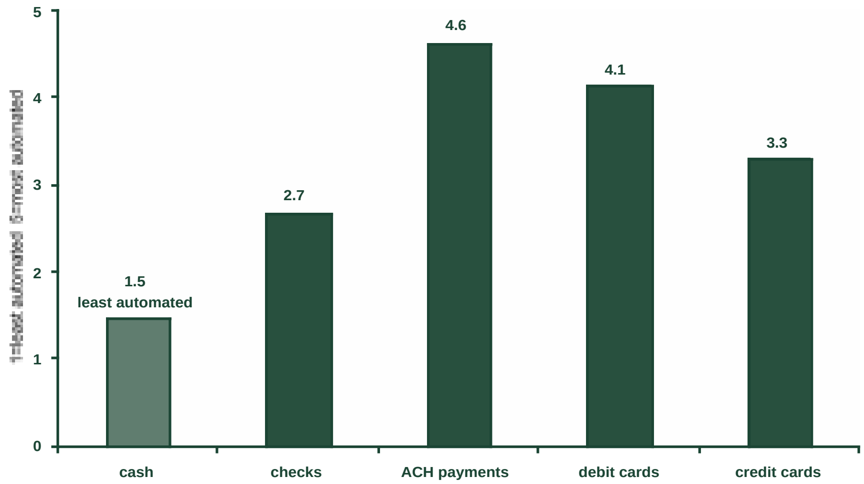
Figure 7: How DI Participants Ranked Payment Instrument Profitability
(Sample Size = 27 DIs)



DI participants cited cash as the most costly and least profitable payment instrument **at their organizations** when compared to checks, ACH payments, debit and credit cards. (In contrast, cash is often considered less costly by businesses.) This is illustrated in Figures 6 and 7 above. DI interviewees particularly cited the free or low cost provision of cash services to individual, and some business customers, as a reason for cash's poorer profitability.

The high cost of cash handling at DIs was in part attributed to a lack of automation. The majority of participants highlighted cash as the least automated payment instrument when compared to the other methods. Figure 8 on the next page illustrates the level of automation used to support the different payment types.

Figure 8: How DI Participants Ranked Payment Instrument Automation
(Sample Size = 33 DIs)



Alternative Payment Instruments

Participants also provided their views on trends in payment instruments other than cash. Most participants noted the recent rapid growth in the use of debit cards, as acceptance by retailers becomes widespread. While debit cards are seen in part as a substitute for checks, they are also widely used as a means of obtaining cash at store registers – without paying a fee – through the cash-back feature. The ATM network and switching provider interviewed stated that 25 percent of debit card point-of-sale transactions now include a cash-back element. Many participants expected to see continued strong growth in the use of debit cards, and a number are actively promoting their use with customers.

The retailer participants provided an interesting insight into sales conducted with each payment instrument. Figure 9 presents the value-weighted percentage of sales associated with each payment type.

Retailer participants further indicated that the value of cash-back dollars they gave to their customers (with the use of a debit card) constituted about two percent of sales.

Participants expressed less enthusiasm for pre-payment (or stored value) cards and smartcards. None of them believed that pre-payment or smartcard technologies would have a material impact on cash usage in the short to medium term. A number of participants cited widespread retailer acceptance and common technology standards as essential to any significant acceptance of smartcards. A few participants also cited a lack of privacy and anonymity – real or perceived - as reasons for the poor uptake of smartcards.

Participants cited a number of marketing initiatives aimed at encouraging customers to use lower cost, more automated payment methods than cash. Several DIs described marketing initiatives aimed at promoting the convenience and ease of use of debit cards and ACH payments. None of participants stated that they actively discourage cash usage.

Figure 9: Percent of Sales Conducted Using Each Payment Instrument
Measured by Value of Sales
(Sample Size = 3 Retailers)

Payment Instrument	Percent of Sales
Cash	27%
Checks	38%
Credit & Proprietary Store Cards	27%
Debit Cards	8%

7. The Future of Cash

All of the participants believed that there would be strong continuing demand for cash. However, a number of institutions believed that growth in cash usage will slow or stop, and that over the long-term, if there is greater acceptance and use of alternative payment instruments, growth may decline. A number of participants cited the large number of unbanked individuals and the underground economy as key reasons cash would remain a preferred payment instrument. Given the expected long-term future for cash, a handful of the largest commercial banks stated that they intended to invest in technology – hardware and software – to improve the efficiency and reduce the cost of their cash handling activities.

Despite universal acceptance of cash as a long-term means of payment, none of the participants spoke of explicit and comprehensive changes in current (often-implicit) cash strategies. It appears that participants have not experienced, and did not envisage, any revolutionary change in cash handling arrangements; most believe cash handling to be largely a mature business. Participants spoke of measured changes, such as a general move to automation, but rarely discussed any substantive change in the established business model.

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