INFORMATION ON

TRANSACTION MECHANISMS

REPORT BY EMMA DAHL
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EXECUTIVE SUMMARY

When looking at the total value of transactions in the US economy, the day-to-day transactions that most consumers make are only a small slice of the pie. Transactions such as debit and credit purchases, person-to-person, and business-to-person transactions are all processed through Automated Clearing Houses (ACHs). ACHs process small-value direct transactions and also cover payment through mobile banking apps and transfer apps such as Venmo and PayPal. Given that these types of transactions are the kind most consumers interact with on a daily basis, it may come as a surprise that these types of payments are negligible in comparison to the total value of transactions in the US.

The largest transactions in the US, according to available data, are low-volume high-value transfers processed through the Fixed Income Clearing Corporation (FICC) and Fedwire. The exact nature of each of these transactions isn’t publicly available, but payments processed through these platforms tend to be a variety of pooled retirement savings (hence the high value), settlements between financial institutions, and commercial transfers such as loans. The commercial nature of these transactions makes them largely invisible to most consumers, but their high value dwarfs the credit and debit purchases that consumers deal with on a daily basis.

Data on large-value transactions is released by the Bank for International Settlements (BIS). While BIS does not produce exhaustive data on all transactions in the US, their data paints a picture of the nature of US transactions. Rather than tracking transactions by the purpose of the transaction, it’s easier to instead categorize by how they are cleared. Clearing houses in the US serve the important function of settling payments between financial institutions and processing high value transactions. The US financial industry is expansive and conducts both a high volume and high value of transactions, as the below data illustrates. The following report outlays selected transaction processing mechanisms and details on how they are used. This report does not address all mechanisms covered by BIS but offers a snapshot of some of the major players, such as the FICC, CHIPS, and Fedwire.

The total value of transactions in the US is estimated at over $4 quadrillion dollars (comparatively, US GDP is around $19.3 trillion). The disparity between these two values indicates that the same money is being cycled through the financial industry several times over a year. In some cases, this does mean high frequency and derivative trading, but the majority of this is money that has simply been moved from one financial product to another, such as adjustments in mutual fund allocations.
## TRANSACTION VOLUME AND VALUE FOR SELECTED PROCESSING SYSTEMS

<table>
<thead>
<tr>
<th>PROCESSING MECHANISM</th>
<th>NUMBER OF TRANSACTIONS IN MILLIONS</th>
<th>VALUE OF TRANSACTIONS CLEARED IN BILLIONS</th>
<th>AVERAGE TRANSACTION AMOUNT</th>
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<tbody>
<tr>
<td>FICC&lt;sub&gt;1&lt;/sub&gt;</td>
<td>44.2</td>
<td>$991,379</td>
<td>$22,429,389.14</td>
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<tr>
<td>FedWire&lt;sub&gt;1&lt;/sub&gt;</td>
<td>148.1</td>
<td>$766,961.5</td>
<td>$5,178,673.19</td>
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<td>CHIPS&lt;sub&gt;1&lt;/sub&gt;</td>
<td>110.8</td>
<td>$364,331.3</td>
<td>$3,288,188.62</td>
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<td>$107,504.6</td>
<td>$24,263.02</td>
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<tr>
<td>NSCC&lt;sub&gt;1&lt;/sub&gt;</td>
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<td>$243,304</td>
<td>$9,474.45</td>
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<tr>
<td>Private ACH&lt;sub&gt;1&lt;/sub&gt;</td>
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<td>$21,719.2</td>
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<td>CME group&lt;sub&gt;2&lt;/sub&gt;</td>
<td>5,011.2</td>
<td>Over $1,000,000</td>
<td>$199.55</td>
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</tbody>
</table>

1. [https://www.bis.org/cpmi/publ/d172.pdf](https://www.bis.org/cpmi/publ/d172.pdf)
Transactions per Year: 44.2 million

Total Value of Transactions: $991,379 billion

Average Transaction Value: $22,429,389.14

Transaction Type: The FICC was formed in 2006 by a merger of the Government Securities Clearing Division and the Mortgage Backed Security Clearing Corporation. The FICC provides clearing for a variety of fixed-income assets, which are low risk investments that provide returns or income at regular intervals. The FICC clears both mortgage-backed securities and government-backed securities that include “treasury bills, bonds, notes, zero coupon securities, government agency securities and inflation-indexed securities”. FICC assets come in the flavors of US government securities and mortgage-backed securities. The Government Securities Division (GID) deals with new and resold government securities like treasury bills and zero-coupon securities. The Mortgage-Backed Securities Division (MBSD) provides “real-time automated and trade matching, trade confirmation, risk management, netting, and electronic pool notification (EPN) to the mortgage-backed securities market.”

System Participants: Transactions cleared through the FICC are typically held on behalf of retired individuals because of their low-risk profile. However, the high average transaction value indicates that most of these transactions are not made by individuals, but rather by institutional investors like pension plans and mutual funds that pool risk among investors.

Transactions per Year: 148.1 million

Total Value of Transactions: $766,961.5 billion

Average Transaction Value: $5,178,673.19
**Transaction Type:** Fedwire is a public-sector funds transferring system. It deals mostly with high-value transactions between the 12 member Federal Reserve Banks. Fedwire is also used “to settle positions with other financial institutions or clearing arrangements and to submit federal tax payments.” Fedwire is an expensive means to transfer money through, often charging around $30-$40 in fees per transaction but offers the benefit of transferring money same-day in real time, rather than netting. Fedwire also operates an overdraft system for qualified accounts.

**System Participants:** Fedwire serves as the public sector counterpart to CHIPS. Fedwire allows member institutions to send and receive central bank money. Any institution that holds an account with a Federal Reserve Bank can use Fedwire. Transactions that are processed through Fedwire include the 12 central banks, as well as depository financial institutions (banks and savings associations) in the US and the US branches of some foreign banks, given that they hold an account with a federal reserve bank. While there are only 6,430 listed Fedwire participants, a large number (nearly 6,000) of these participants are US banks.

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**CHIPS**

**Transactions per Year:** 110.8 million

**Total Value of Transactions:** $364,331.3 billion

**Average Transaction Value:** $3,288,188.62

**Transaction Type:** The Clearing House Interbank Payment System (CHIPS) is the primary funds transferring system for private sector translations and operates as the private equivalent of Fedwire. Transfers made through CHIPS settle a variety of high-value payments that are both domestic and international, such as “commercial transactions, bank loans and securities transactions.” CHIPS is the private sector equivalent to Fedwire and similarly processes payments in real time. These two services make up the main system for large-value US dollar transactions. While CHIPS is less expensive than Fedwire, it also takes longer for payments to process because it nets payments (rather than settling in real time). CHIPS processes around $1.2 trillion in transactions per day.
System Participants: CHIPS “is used by depository institutions and their customers to make large-value, time critical US dollar transfers.” 3. CHIPS has only 48 participating institutions, which includes both US and international banks and trust companies.

ON-US ACH

Transactions per Year: 4,430.8 million
Total Value of Transactions: $107,504.6 billion
Average Transaction Value: $24,263.02

Transaction Type: Automated Clearing Houses (ACHs) enable electronic payments for credit and debit transfers. ACH’s commonly transfer payments of “Direct Deposit of payroll, government and Social Security benefits, mortgage and bill payments, online banking payments, person-to-person (P2P) and business-to-business (B2B) payments” 5. Those ACH payments that are categorized as “on-us” refers to the sending and receiving institutions as being the same institution. ACH payments cover a wide range of transfers and include both scheduled payments such as “Direct Deposit of payroll, government and Social Security benefits, mortgage and bill payments, [and] online banking payments” 5.

System Participants: ACH includes most day-to-day credit and debit card purchases, indicating that there are also a wide range of system participants, including both businesses and individuals.

NATIONAL SECURITIES CLEARING CORPORATION (NSCC)

Transactions per Year: 25,680 million
Total Value of Transactions: $243,304 billion
Average Transaction Value: $9,474.45

Transaction Type: The National Securities Clearing Corporation (NSCC) clears contracts and transactions that include “equities, corporate and municipal debt, American Depository Receipts, exchange-traded funds, unit investment trusts, mutual funds, insurance products and other securities”\(^1\). The NSCC clears for a variety of exchanges such as “electronic communication networks (ECNs) and other trading venues” such as the New York Stock Exchange and the NASDAQ Stock Market \(^3\), so this figure includes most stocks exchanged on major US trading platforms.

System Participants: Entities that are trading through the NSCC are “brokers/dealers, banks, other clearing agencies, investment companies, insurance companies and other similar entities”\(^3\). The NSCC also processes trades made through the New York Stock Exchange and NASDAQ.

PRIVATE ACH

Transactions per Year: 9,148.7 million

Total Value of Transactions: $21,719.2 billion

Average Transaction Value: $2,374.2

Transaction Type: Similar to on-us ACH (see above), private ACH transactions deal with high quantity low value transactions such as day-to-day purchases with credit and debit cards. The only differentiating feature from on-us ACH is that the sending and receiving banks for private ACH transactions are different institutions. Transactions of this type include direct deposits for pay when an employee’s bank is not the same as the employer’s bank. Private ACH payments also covers transfers between banks via mobile banking apps and transfer apps such as Venmo and PayPal.

System Participants: Participants in Private ACH transactions are similar and often identical to those in on-us ACH transactions. Participants include both individuals and businesses.
Transactions per Year: 5,011.2 million

Total Value of Transactions: Over $1,000,000 billion

Average Transaction Value: $199.55

Transaction Type: The Chicago Mercantile Exchange (CME) Group operates a futures and options exchange, primarily in the sectors of “agriculture, energy, stock indices, foreign exchange, interest rates, metals, real estate, and weather”. The CEM group clears independently through CME Clearing, their own clearinghouse. The CME Group also owns the Dow Jones Stock and Financial Indices and clears for this as well. The CME group is the largest options and futures exchange in the world and yearly clears over $1 quadrillion in exchanges.

System Participants: Many trades through CME group happen through brokers that act in the interests of individual traders. Some trades are also made by institutions, but details on these trades are not available.
REFERENCES


