

Inside National Payment Systems

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National payment systems are the conduits through which buyers and sellers of financial products and services make transactions and are an important component of a country's financial system. Global financial liberalization and technology advancements have enabled significant updates to the architecture of large-value, retail and securities payment systems, as well as the processes and procedures carried out by operators, administrators, regulators and users of the systems. In a large number of countries, a significant measure of responsibility for the integrity of the national payment system exists within the central bank. This article will provide an overview of financial payment systems and the role they play in the modern [global financial system](#).

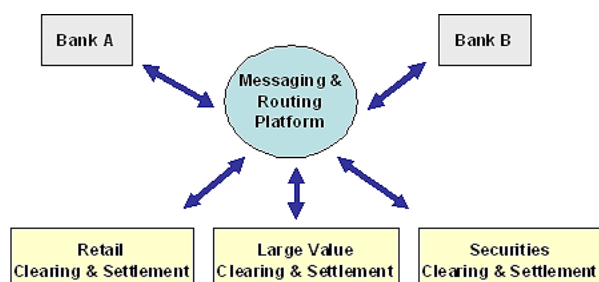
Defining Payment Systems

A national payment system is a configuration of institutions supported by an infrastructure of technology-driven processes and practices to facilitate commercial and financial transfers between buyers and sellers. A country's payment system reflects its banking and financial history and the development of supporting communications and technology platforms.

The market for payment system services operates according to supply and demand as with any market. On the demand side, users seek easy availability of payment instruments and services to meet their various financial transactions, from large-scale bank transfers to [point-of-purchase](#) transactions with retail credit instruments, such as credit and debit cards. Users favor low transaction costs, interoperability between different systems, security, privacy and legal protection. On the supply side, payment services provide a source of revenue for banks and other financial organizations and open up markets for providers of technology and communications products and services.

Institutions and Infrastructure

A typical national payment system includes the following institutions and infrastructure:



80-20 Rule

which the check is written. If your U.S. employer pays your salary via direct deposit, the transfer instructions (the messaging) are going to your bank via the [automated clearinghouse](#) (ACH), a system administered by the nonprofit National Automated Clearinghouse Association (NACHA) and operated by the U.S. [Federal Reserve System](#) (FRS) and Electronic Payments Network (EPN), a private sector payment network.

European Structure

If you happened to work for an employer in Europe but still wanted your salary paid to your U.S. bank account, the process would be similar to that described above but rather than routing through the U.S ACH system, the deposit message would most likely post through the [Society for Worldwide Interbank Financial Telecommunication](#) (SWIFT) network, a Belgium-based cooperative society linking financial institutions in more than 205 countries. The SWIFT code is similar to the ABA RTN number as a means to identify the bank initiating the transfer as well as the correspondent banks with which the bank has pre-existing agreements to facilitate international transfer and settlement of funds. The SWIFT platform is used by all central banks that are part of the Eurosystem, the monetary authority for the 15 European Union countries that are part of the Eurozone, include Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, Netherlands, Portugal, Slovenia and Spain.

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Clearing and Settlement

Clearing refers to the transmission and reconciliation of payment orders and establishment of the final positions to be settled. Settlement is the event that actually carries out the obligations - the respective debiting and crediting of the accounts of the parties to the transaction. The integrity of the global financial system relies on the proper accounting for each transaction that takes place in the system; therefore, stability depends on the reliability and accuracy of the clearing and settlement systems.

There are three main types of clearing and settlement systems.

- *Retail systems* are responsible for the processing of small-scale financial transactions. While there is no globally accepted definition of "small-scale" it often denotes individual transfers of less than \$1 million.
- *Large value systems* are responsible for the clearing and settlement of larger transactions.
- *Securities systems* handle the clearing and settlement of securities, such as [common](#) and [preferred stock](#), bonds and other types of instruments.

Clearing and settlement systems may settle on a gross or a netting basis. Gross settlement is when the settlement of funds or securities takes place individually, one transaction at a time. Netting is when large numbers of individual positions (both credits and debits) are netted together into smaller batches for processing so that settlement takes place at specified times during the business day rather than on a continual basis.

Some payment systems may operate more than one clearing and settlement platform, incorporating both [netting](#) and gross settlement. [Real-time gross settlement](#) (RTGS) has become the most widely adopted method for large value systems. Real time in this context means that transmission, processing and settlement of a transaction takes place as soon as it is initiated. The U.S. [Fedwire](#) system, the primary large value component of the U.S. national payment system, settles on a real time gross basis, as does the TARGET system, which is the main large value platform for the European Central Bank and its network of Eurozone national central banks, such as the Banque de France and the German Bundesbank.

Payment Systems and Systemic Risk

One of the major risks in a clearing and settlement environment is that one of the parties may default. If settlement takes place on a real-time gross basis then the effect of a default is limited to

This is an example of [systematic risk](#) - the risk that a failure in one part of the system will spread like a contagion throughout the system. Technology has facilitated the ability to process trillions of dollars every day through the global financial architecture. Yet each country has only a small number of individual systems and these systems interact with each other around the world, so the ramifications of a systemic failure are dramatic.

One institution responsible for the study and development of guidelines for financial system risk management is the [Bank for International Settlements \(BIS\)](#), a Geneva-based institution that acts as a bank for central banks and uses various initiatives to promote [cooperation between international financial and monetary systems](#). In 2001, the BIS Committee for Payment and Settlement Systems (CPSS) introduced a set of guidelines for high-importance payment systems called Core Principles for Systemically Important Payment Systems. This sets out 10 principles for the prudent operation and risk mitigation for those systems - in particular the large value clearing and settlement systems described above - where a failure in one part of the system could spread rapidly.

The Core Principles also set out recommendations for the particular responsibilities of the national central banks in operating, supervising and using the critical systems in their jurisdictions. The sound operation of national payment systems is often explicitly set forth in the organizational mandate of a central bank. For example, the organizational mandate of the U.S. FRS consists of four activities:

- Monetary policy
- Supervision of the banking system
- Facilitation of smooth functioning of the national payment system
- Development and administration of laws and regulations governing consumer credit

The Bottom Line

National payment systems are vital to the integrity of the global financial system. Technology and globalization have facilitated the rapid growth of systems for processing noncash electronic transfers between parties located anywhere in the world. The payment system in any country will consist of a small number of retail, large value and securities settlement systems that link into the systems of other countries through various linkage platforms and correspondent relationships. The actualization of a risk, such as a [party defaulting on a large value transaction](#), has the potential to spread throughout and thus imperil the system's integrity, making the payment system a major priority for central banks and other key institutions in the financial community.

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