

# THE BSP'S PAYMENTS AND SETTLEMENTS SYSTEM

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## Overview

A payments system refers to the set of arrangements for discharging obligations of economic agents whenever they acquire real or financial resources, including the institutions providing payment services, the different instruments used to bring out payment instructions, the means of transferring those instructions, and the contractual relationships among the parties involved (Amador, 2003). Financial institutions use payments systems to settle financial market transactions, such as their trades in foreign exchange, equities, bonds and money market instruments. Businesses rely on them to receive payment for goods and services, while consumers rely on them to make house purchases, receive salaries and benefits, and pay for goods and services. If transactions are considered as the lifeblood of market economies, then payments systems serve as the circulatory system for these transactions. For these reasons, central banks around the world are actively involved in ensuring a reliable, efficient and safe payments system. Listfield and Negret (1994) emphasized that “the central bank as the lender of last resort must have the information and the means to oversee and, if necessary, assist the institutions participating in the payments system.”

A central bank can influence payments system outcomes by performing three possible roles: 1) operator, 2) policymaker, or as 3) overseer. As operator, the central bank affects the system directly. As a policymaker, the central bank promotes discussions of payments system issues with its stakeholders. As the overseer, the central bank monitors and evaluates the performance of the payments system and undertakes the necessary measures to ensure its smooth functioning. The BSP, having realized the importance of an efficient payment system in promoting stability in the financial system, recognizes its mandate of ensuring the integrity of the Philippine payment system.

This article discusses the evolution of the payments system in the Philippines, its features, components, legal foundations, performance, issues and challenges going forward.

## Evolution of the Payments and Settlements System in the Philippines

The payments and settlements system in the Philippines began when banks and other financial institutions used the Enhanced Multi-transaction Interbank Payments System (MIPS2) for their interbank transactions. MIPS2 was an electronic net clearing system operated by the Bankers Association of the Philippines (BAP) and the Philippine Clearing House Corporation (PCHC), in coordination with the BSP. Both counterparties in an interbank transaction under MIPS2 had to input their transactions through the PCHC, which, in turn, verified and authenticated the transactions prior to electronic transmission to the BSP for settlement. The details of the transactions of the banks/financial institutions were obtained by the participants through the reports from MIPS2 while the balances of their demand deposits were being advised through an hourly electronic broadcast by the BSP Comptrollership Department.

However, MIPS2 had some problems that hampered the speed of transactions between banks. First, the participant banks needed to wait for the fixed hourly broadcast from the BSP thru the cc:Mail system in order to know the details of the transactions debited from and credited to their accounts and the available balances of their DDA. Second, MIPS2 had limited operating hours of between 10:00 a.m. and 4:00 p.m. daily.

Recognizing the need for a system that would enable online, real-time settlement of interbank transactions and eliminate risks in the settlement process, the BSP, in collaboration with the BAP, the

Chamber of Thrift Banks (CTB), the Rural Bankers Association of the Philippines (RBAP) and the Investment House Association of the Philippines (IHAP), formally launched on 12 December 2002 a real-time gross settlement system (RTGS). The RTGS is an automated facility for high-value payment transactions between banks effected through the Demand Deposit Accounts (DDA) that they maintained with BSP.

This RTGS was given the name Philippines Payments and Settlements System (*PhilPaSS*). As a gross settlement system, *PhilPaSS* processes and settles fund transfer instructions individually, without netting debits against credits. As a real-time settlement system, it effects final settlement continuously rather than periodically at pre-specified times provided that a sending bank has a sufficient balance in its DDA.

## Laws, Rules and Regulations Governing *PhilPaSS*

The legal basis for the creation of *PhilPaSS* is as follows:

- Article 12, Section 20 of the Philippine Constitution which provides that “the Congress shall establish an independent central monetary authority that shall have supervision over the operations of banks and exercise such regulatory powers as may be provided by law over the operations of finance companies and other institutions performing similar functions.”
- Section 1 of The New Central Bank Act (R.A. 7653) stipulates that “the State shall maintain a central monetary authority that shall function and operate as an independent and accountable body corporate in the discharge of its mandated responsibilities concerning money, banking and credit.”
- *PhilPaSS*, which operates in a highly computerized environment, is governed by the Electronic Commerce Act of 2000 (Part II, Sec. 3) which aims to facilitate domestic and international dealings, transactions, arrangements, agreements, contracts and exchanges, and storage of information thru the utilization of electronic, optical and similar medium, mode, instrumentality and technology to recognize the authenticity and

reliability of electronic documents related to such activities and to promote the universal use of electronic transaction in the government and general public.

- Section 102 (Interbank Settlement) of R.A. 7653 states that the BSP is empowered to establish interbank clearing facilities and that the Monetary Board has the authority to prescribe rules and regulations with respect to such operations. It further states that the deposit reserves maintained by the banks in the BSP in accordance with the provisions of Section 94 of the same Act shall serve as basis for the clearing of checks and the settlement of interbank balances.

To enhance its supervision of the payments system, the BSP is working on amending R.A. 7653 to include the following provision in Section 3 of said Act: “it (BSP) shall likewise promote and maintain the stability of the financial and payments system”, and on drafting the Payments Systems Act that will support and strengthen the BSP’s oversight function over all the payments system in the country.

Likewise, the Monetary Board drew up the organizational set-up of the BSP’s oversight on payments system in June 2006 as follows:

- A Payments and Settlements Steering Committee (PSSC) which recommends policy directions and formulates strategy, standards, rules and regulations;
- The Payments and Settlements Office (PSO), under the direct supervision of the Deputy Governor of the BSP’s Resource Management Sector, which is responsible for the operation of the *PhilPaSS* and its critical components; and
- The Core Information Technology Supervision Group (CITSG) of the BSP’s Supervision and Examination Sector which has oversight on all payments and settlements system of banks and industry consortia.

## Features and Components of the *PhilPaSS*

The *PhilPaSS* has the following salient and built-in security features in processing transactions:

- Transaction Validation - All settlement and payment instructions by participants are subject to verification by the system to avoid duplication

and unauthorized payments, and to reject transactions that are not in accordance with predefined values.

- **Audit Trail** - The system keeps track of transaction information to help resolve disputes regarding the processing it has performed on behalf of participants and the *PhilPaSS*. Its audit records contain the time and date of events as well as the identity of the user who initiated the transaction.
- **Transaction Status Verification** - Participants can verify the status of their settlement instructions by initiating a SWIFT (Society for Worldwide Interbank Financial Telecommunication) or PPS-FES (Philippine Payment System – Front-End System) Payment Inquiry Request.
- **System Inquiries and Reports** - Participants may issue requests/inquiries and secure various reports through the *PhilPaSS* using applicable SWIFT/PPS-FES message types. Such requests may include cancellation of payment instructions, report on details of unsettled payments, account balance, account movement details and status of unsettled payment.
- **Payment Queuing Prioritization** - Debit instructions that cannot be settled due to insufficient funds in the DDA of the participants will be held on queue until the system has determined that adequate funds for settlement are available in the DDA of the participant. Pending debit instructions that are on queue will be settled based on business priority in arrival order or on a First-In-First-Out basis.
- **Gridlock Resolution** - The system has the capability to initiate gridlock resolution every thirty minutes whenever two or more payment instructions of participants remain unsettled. Payment queues that are not settled in the initial gridlock resolution will be considered in the subsequent processing of unsettled payments by the system.
- **Intraday Liquidity Facility (ILF)** - The system also provides the processing of an ILF to ensure the continuous settlement of interbank transactions and to avoid payment gridlock in the system. Any participant that wishes to avail of the ILF would have to obtain the required documentation and approval from the BSP.

Meanwhile, the components of the *PhilPaSS* infrastructure include:

- **LOGICA Clearing and Settlement System/Central Accounting System (LCSS/CAS)** – This is the main application system that operates *PhilPaSS*. Its basic function is the processing of incoming SWIFT settlement instructions of participants and prompt accounting and recording of these transactions to the participants' DDA.
- **SWIFT Network** – This is the network which enables the participants to electronically transmit their financial transactions to *PhilPaSS*, then from *PhilPaSS* to their counterparties. The participants are required to enroll in the SWIFT FIN Copy Service to allow them to directly transmit their *PhilPaSS* transactions to the BSP for processing and settlement.
- **Data Communications** – These services provide communication link between the *PhilPaSS* and the participants' Computer-Based Terminals (CBT). The data communicators are provided by SWIFT through the SITA/EQUANT, an international voice and data telecommunications network provider.
- **Philippine Payments System – Front-End System (PPS-FES)** – This system was developed by the BSP to enable non-SWIFT participants (thrift/savings banks and non-banks with quasi-banking authority) to transmit their financial transactions to their counterparties through the *PhilPaSS*.

### Assessing the Performance of *PhilPaSS*

Figure 1 shows the volume of transactions processed by *PhilPaSS* from 2003 to 2008 which has consistently

Figure 1  
Volume of *PhilPaSS* Transactions 2003-2008



exhibited an increasing trend. The steady trend is due to the following:

- Increase in the confidence of banks in the use of *PhilPaSS* for interbank transactions.
- The implementation of the Electronic Cash Withdrawal System (ECWS) in April 2006, which eliminated the use of checks by banks to facilitate

the withdrawal of their deposits from the BSP. This system allows banks to send electronic requests for cash withdrawal through email and send payment instructions to *PhilPaSS* to debit their DDAs for the amount to be withdrawn. Upon settlement, *PhilPaSS* sends a confirmation to the BSP, which releases the cash to the recipient banks.

Table 1. **Results of PSO's Assessment on *PhilPaSS* Compliance with the Core Principles**

Core Principles	Compliance	Remarks
1. The system should have a well-founded legal basis under all relevant jurisdictions	Partially observed	The draft Payments System Act has been completed and referred to the different departments for comments. The final draft will then be submitted to the Monetary Board for approval and then endorsed to Congress for enactment.
2. The system's rules and procedures should enable participants to have a clear understanding of the system's impact on each of the financial risks they incur through participation in it.	Observed	
3. The system should have clearly defined procedures for the management of credit risks and liquidity risks, which specify the respective responsibilities of the system operator and the participants and which provide appropriate incentives to manage and contain those risks.	Observed	
4. The system should provide prompt final settlement on the day of value, preferably during the day and at a minimum, at the end of the day.	Observed	
5. A system in which multilateral netting takes place should, at a minimum, be capable of ensuring the timely completion of daily settlements in the event of an inability to settle by the participant with the largest single settlement obligation.	Not Applicable	This principle is not applicable to real time gross settlement (RTGS) systems like the <i>PhilPaSS</i> , since these systems do not defer settlement but settle transactions as they come depending on the available balances of the DDAs involved.
6. Assets used for settlement should preferably be a claim on the central bank; where other assets are used, they should carry little or no credit risk and little or no liquidity risk.	Observed	
7. The system should have a high degree of security and operational reliability and should have contingency arrangements for timely completion of daily processing.	Observed	
8. The system should provide a means of making payments which is practical for its users and efficient for the economy	Observed	
9. The system should have objective and publicly disclosed criteria for participation, which permit fair and open access.	Observed	
10. The system's governance arrangements should be effective, accountable and transparent.	Observed	

**Notes:**

**Observed** – when all assessment criteria are generally met without any significant deficiencies;

**Broadly Observed** – when only minor short comings are found, which do not raise major concerns and when corrective actions to achieve full observance of the principle are scheduled and realistically achievable within a prescribed period of time;

**Partially Observed** – when the shortcomings are sufficient to raise doubts about the ability to achieve observance within a reasonable time frame;

**Not Observed** – when major shortcomings are found in adhering to the assessment criteria; and

**Not Applicable** – when it does not apply given the structural, legal and institutional conditions.

- The implementation of a system in April 2006 which allowed the direct settlement and posting of the maturities of Repurchase/Reverse Repurchase (RP/RRP) transactions of banks with the BSP and at the same time crediting the account of each participating bank thru the *PhilPaSS*. This system replaced the manual entries made thru Core Financial Accounting System (cFAS) by the Treasury Department.

## Core Principles for Systemically Important Payments System (SIPS)

The “Core Principles for Systemically Important Payments System” was published by the Committee on Payments and Settlements System (CPSS) of the central banks of the Group of 10 countries in January 2001. These serve as universal guidelines that promote the safety and efficiency in the design and operation of systemically important payments system (SIPS) and define the responsibilities of central banks in applying the Core Principles.

*PhilPaSS*, which is considered as a SIPS, should be assessed in terms of its adherence to the G-10 CPSS core principles. This will facilitate identification of risks and vulnerabilities as well as the development opportunities needed to improve its operations. Such an assessment should also seek to determine the extent to which vulnerabilities in the system could potentially undermine the implementation of monetary policy or generate systemic disruptions in the financial markets, and more widely, across the economy.

On 3 July 2007, the PSO conducted a self-assessment of the *PhilPaSS*’ compliance with the Ten Core Principles for SIPS. The results of the assessment are shown in Table 1.

## Operating *PhilPaSS*: Issues and Challenges

*PhilPaSS* operates in a highly computerized environment. The technological components that support its operation expose the system to issues and challenges brought about by the effect of fast changing technology and the global standards and trends that *PhilPaSS* should adhere to. To ensure the security and operational reliability of *PhilPaSS*, the BSP continues to keep itself abreast with the latest trends

in technology and standards as well as to be vigilant in the proper management of the various risks that affect the operations of the system.

**Security Policy and Controls.** In addition to the built-in security measures for transaction processing, a User Profile is maintained by the BSP to ensure that access levels of users are defined in accordance with their functions. Adequate password controls and management are enforced to prevent unauthorized access to hardware, systems and data. Likewise, online participants are required to implement their own physical and logical security and management controls to protect their own hardware, software and data from unauthorized access.

**Operational Reliability.** *PhilPaSS*’ reliability depends on the availability of LOGICA-CAS, SWIFT, cFAS and the communications networks. *PhilPaSS* is considered unavailable when the participants cannot move funds into and out of their accounts because of a problem within the BSP’s control, regardless of whether it emanates from an application system or communications network. *PhilPaSS*’ operational reliability standards require that all systems be 99.5% available during operating hours. So far, the longest outage experience by *PhilPaSS* occurred on 27 April 2007 when one of its SWIFT servers experienced a technical problem. The outage lasted 4 ½ hours. However, the strength of its business continuity procedures enabled the PSO to resume its operations and was able to complete the processing of its transactions on the same day.

**Disaster Recovery and Business Continuity Readiness.** *PhilPaSS* has an alternative processing facility located off-site to ensure rapid restoration of operations in the event that its primary site becomes inoperable. If the alternative processing site also becomes inoperable due to extraordinary circumstances, the BSP can activate its existing Electronic Fund Transfer Instruction System (EFTIS) to allow the participants to send their interbank transactions to the BSP for processing and settlement. All participants will be duly advised through SWIFT and PPS-FES messages on the contingency plans that the BSP will initiate in case the primary equipment/alternative site of *PhilPaSS* encounters technical problems.



## PhilPaSS Future Directions

The BSP recognizes the pivotal role of the *PhilPaSS* in the functioning of the financial system and the economy as a whole. Going forward, the BSP will continue to work towards ensuring the reliability and efficiency of the system thru the following:

- Enhancement of the existing systems to ensure that all intraday updates to the DDA balances are forwarded directly to *PhilPaSS* on-line;
- Ensuring that the BSP's alternative processing site is efficiently running at all times to avoid any disruption of operations;
- Continuous training of the ITSS system support group on the latest trends in disaster recovery and technical troubleshooting;
- Continuous maintenance and updating of the technical support of LOGICA and SWIFT, the two major systems supporting the operations of *PhilPaSS*;
- Strengthening logical and physical access controls to the system by instituting adequate identification and authentication procedures for authorized users and acquiring the latest and most sophisticated access software; and
- Conducting systems security awareness briefings for systems users.



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## Glossary of Payments System Terms

### Automated Teller Machine (ATM)

An electromechanical device that permits authorized users, typically using machine-readable plastic cards, to withdraw cash from their accounts and/or access other services, such as balance inquiries, transfer of funds or acceptance of deposits. ATMs may be operated either online with real-time access to an authorization database or offline.

### Bankers Association of the Philippines (BAP)

An association of universal and commercial banks in the Philippines

### Business Continuity

A payment system's arrangements which aim to ensure that it meets agreed service levels even if one or more components of the system fail or if it is affected by an abnormal external event. Include both preventative measures and arrangements to deal with contingencies.

### Chamber of Thrift Banks (CTB)

An association of thrift and savings banks in the Philippines

### Check

A written order from one party (the drawer) to another (the drawee, normally a bank) requiring the drawee to pay a specified sum on demand to the drawer or to a third party specified by the drawer. Cheques may be used for settling debts and withdrawing money from banks.

### Core Financial Accounting System (cFAS)

An automated financial accounting system implemented by the BSP

<b>Credit Card</b>	A card indicating that the holder has been granted a line of credit. It enables the holder to make purchases and/or withdraw cash up to a prearranged ceiling; the credit granted can be settled in full by the end of a specified period or can be settled in part, with the balance taken as extended credit. Interest is charged on the amount of any extended credit and the holder is sometimes charged an annual fee.
<b>Daylight Credit</b>	The credit extended for a period of less than one business day; in a credit transfer system with end-of-day final settlement, daylight credit is tacitly extended by a receiving institution if it accepts and acts on a payment order even though it will not receive final funds until the end of the business day. Also called <i>daylight overdraft</i> , <i>daylight exposure</i> and <i>intraday credit</i> .
<b>Debit Card</b>	A card enabling the holder to have his purchases directly charged to funds on his account at a deposit-taking institution (may sometimes be combined with another function, e.g. that of a cash card or cheque guarantee card)
<b>Deferred Net Settlement System</b>	A system that effects the settlement of obligations or transfers between or among counterparties on a net basis at some later time
<b>Delivery versus Payment (DvP)</b>	A link between a securities transfer system and a funds transfer system that ensures that delivery occurs if, and only if, payment occurs
<b>Demand Deposit Account (DDA)</b>	Deposits held by banks with the central bank
<b>Electronic Cash Withdrawal System (ECWS)</b>	A cash withdrawal system used by the <i>PhilPaSS</i> -member banks in lieu of the use of BSP check to withdraw cash from the Cash Department. Upon approval by the Cash Dept of the cash withdrawal requests of the banks, each bank sends an electronic instruction to <i>PhilPaSS</i> to debit its account and credit the Cash Dept. Upon settlement in <i>PhilPaSS</i> , the Cash Dept receives system authenticated confirmation which serves as basis for the release of cash to the bank representatives.
<b>Electronic Fund Transfer Instruction System (EFTIS)</b>	An electronic facility that caters to banks' remittances of revenue-collections (duties, taxes) to the National Treasury
<b>Enhanced Delivery versus Payment (eDvP)</b>	The DvP settlement for public market trades (public market trades are investor trades executed through Brokers) via the Philippine Dealing and Exchange Corporation (PDEx) eDVP System and is composed of two levels: <ul style="list-style-type: none"> <li>a. <i>Investor Level DvP</i> - trade settles at the designated securities and cash settlement accounts of the INVESTOR; or</li> <li>b. <i>Broker Level DvP</i> - trade settles at the designated securities and cash settlement account of the BROKER who executed the trade for the investor.</li> </ul>
<b>Enhanced Multitransaction Interbank Payment System (MIPS2)</b>	An electronic net clearing system that was operated by the Bankers Association of the Philippines (BAP) and the Philippine Clearing House Corporation in coordination with the BSP
<b>Gridlock Resolution</b>	An algorithm in the payment system initiated to resolve a situation where there is failure of some transfer instructions to be executed (because the necessary funds or securities balances are unavailable) prevents a substantial number of other instructions from other participants from being executed
<b>Investment House Association of the Philippines (IHAP)</b>	An association of investment houses and other non-bank financial institutions with quasi-banking functions (NBQBs)
<b>Intraday Liquidity Facility (ILF)</b>	A facility that provides funds which can be accessed during the business day, usually to enable financial institutions to make payments in real time.

<b>Large-value Funds Transfer System</b>	A funds transfer system through which large-value and high priority funds transfers are made between participants in the system for their own account or on behalf of their customers. Although, as a rule, no minimum value is set for the payments they carry, the average size of payments passed through such systems is usually relatively large. Large-value funds transfer systems are sometimes known as wholesale funds transfer systems.
<b>LOGICA Clearing and Settlement System/Central Accounting System (LCSS/CAS)</b>	The main application system that operates <i>PhilPaSS</i> . Its main basic function is to process incoming SWIFT settlement instructions of participants and prompt accounting and recording of these transactions in the participants DDA.
<b>Oversight of Payments System</b>	A central bank task, principally intended to promote the smooth functioning of the Payments System and to protect the financial system from possible “domino effects” which may occur when one or more participants in the payment system incur credit or liquidity problems. Payments system oversight aims at a given system (e.g. a funds transfer system) rather than individual participants.
<b>Payment System</b>	A payment system consists of a set of instruments, banking procedures and, typically, interbank funds transfer systems that ensure the circulation of money
<b>Payment versus Payment (PvP)</b>	A mechanism in a foreign exchange settlement system which ensures that a final transfer of one currency occurs if and only if a final transfer of the other currency or currencies takes place
<b>Payments and Settlements Steering Committee (PSSCom)</b>	A committee created under MB Res. No. 847A dated 30 June 2006, responsible for recommending and reviewing policies, strategies, standards and rules and regulations on payment and settlement systems that promote and support a sound and progressive financial system
<b>PDS Settlement Highway (PSH)</b>	An infrastructure/facility owned and operated by the PDS Group; it is the gateway responsible for the transmission of data files covering the banks’ FX trades, interbank repo and eDVP transactions
<b>Philippine Dealing and Exchange Corp. (PDEX)</b>	PDEX is the operator of the electronic trading platforms for the fixed-income securities and foreign exchange markets.
<b>Philippine Clearing House Corporation (PCHC)</b>	A private corporation owned by the BAP which provides check-clearing services to banks
<b>Philippine Payment System-Front End System (PPS-FES)</b>	A messaging facility developed by the ITSS for the use of thrift/savings/rural banks to connect with <i>PhilPaSS</i>
<b>Philippine Securities and Settlement Corporation (PSSC)</b>	A corporation which serves as the technical arm of the PDS Group. It is the operation of the PDS Settlement Highway which is responsible for the transmission of data files covering the banks’ FX trades, interbank repo and eDVP transactions.
<b>Real-time Gross Settlement (RTGS)</b>	The continuous (real-time) settlement of funds or securities transfers individually on an order by order basis (without netting)
<b>Repurchase Agreement (repo)</b>	A contract to sell and subsequently repurchase securities at a specified date and price. Also known as an RP or buyback agreement.
<b>Retail Funds Payment System</b>	A payment system which handles a large volume of payments of relatively low value in such forms as cheques, credit transfers, direct debits, ATM and EFTPOS transactions
<b>Reverse Repurchase Agreement (RRP)</b>	A contract with a counterparty to buy and subsequently resell securities at a specified date and price, the mirror image of a repo
<b>Rural Bank Association of the Philippines (RBAP)</b>	An association of rural banks in the Philippines



<b>Equant/Orange</b>	A service provider that serves as the data communicator between SWIFT, the local telecommunications providers in the Philippines, the banks and <i>PhilPaSS</i>
<b>Society for Worldwide Interbank Financial Telecommunication (SWIFT)</b>	A cooperative organization created and owned by banks that operates a network which facilitates the exchange of payment and other financial messages between financial institutions (including broker-dealers and securities companies) throughout the world. A SWIFT payment message is an instruction to transfer funds; the exchange of funds (settlement) subsequently takes place over a payment system or through correspondent banking relationships.
<b>Systemically Important Payment System</b>	A payment system is systemically important where, if the system were insufficiently protected against risk, disruption within it could trigger or transmit further disruptions amongst participants or systemic disruptions in the financial area more widely.
<b>Third-Party Systems Providers</b>	These are payments system operators, the net results of their operations are finally settled in <i>PhilPaSS</i> at the end of the day. These include PCHC, Megalink, Bureau of the Treasury's Registry of Scriptless Securities (BTr-ROSS), Philippine Domestic Dollar Transfer System and the PDS Settlement Highway.

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