



# Balance of Payments Statistics Workshop

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Portfolio Investment and Financial Derivatives

# Financial Account (functional categories)

- Direct Investment
- Portfolio Investment
- Financial Derivatives
- Other Investment
- Reserve Assets

# Portfolio Investment (definitions)

- Crossborder transactions and positions involving debt or equity securities, other than those included in direct investment or reserve assets.
- Equity securities: They represent ownership rights on a company or on other financial securities.
- Debt instruments: They give the holder the right to receive future payments of resources and its yield (principal and interest) for having previously made funds available to another economic agent.

# Specific Features of Portfolio Investment

- The existence of a financial infrastructure (legal, regulatory, for settlements, etc.).
- A substantial number of sellers and buyers which produces generally anonymous relationships among issuers and holders.
- High degree of liquidity for trade.
- There can be several holders during the life of the instrument.
- The investor/holder does not have to be part of the management of the firm he/she partially owns.
- Various combinations of risk and yield.

# Debt Instruments

- Compared to equity they are less risky.
- Payments are not contingent on the gains/losses that accrue to the issuer.
- Profitability:
  - ✓ Fix: A nominal interest rate previously agreed.
  - ✓ Variable: Linked to some other indicator such as the interest rate of another instrument or to another price.

# Debt Instruments (special cases-exceptions)

- Debt instruments between affiliated enterprises are classified, in most cases, as FDI. Only in the case of financial sector firms these instruments are regarded as portfolio investment.
- Debt instruments owned by the central bank are recorded under the functional category of reserve assets.

# Equity Securities

- Instruments that acknowledge, once all other creditors' rights have been settled, a right on the residual value of a corporation.
- In order to be classified as portfolio investment securities must:
  - ✓ stand for property rights below 10% of the value of the issuing corporation (from 10% onwards an FDI relationship is established),
  - ✓ not be property of the central bank. If so, they are classified as reserve assets.

# Equity Securities

- The mere holding of these securities implies a risk.
- Its profitability is linked to the performance of the economic unit in whose property the holder participates and is, therefore, uncertain.
- It provides a right on the residual value of the assets of an economic entity, but it does not represent a guarantee on future compulsory payments, such as principal or interest.



# Financial Instruments (functional categories classification)

The key to establish the appropriate functional category of financial instruments has to do with the kind of relationship between the creditor (investor) and the debtor (issuer):

- **Direct investment**: The existence of a lasting relationship and decisive power (more than 10% of voting power).
- **Other investment**: Loans and deposits.
- **Reserve assets**: The creditor is a monetary authority, or the assets are under the effective control of a monetary authority.
- **Portfolio investment**: No lasting relationship and/or decisive power and the instruments are easy to sell (tradable and generally 10% or less of the voting power).

# Portfolio Investment (BPM6 presentation)

Portfolio Investment (BOP presentation)		
	Net Acquisition of Financial Assets	Net Incurrence of Liabilities
<b>Equity and investment fund shares</b>		
Central Bank		
Deposit-taking corporations		
General Government		
Other sectors		
Other financial corporations		
Nonfinancial corporations,households,and NPISHs		
<b>Debt securities</b>		
Central Bank		
Short term		
Long term		
Deposit-taking corporations		
Short term		
Long term		
General Government		
Short term		
Long term		
Other sectors		
Short term		
Long term		
Other financial corporations		
Short term		
Long term		
Nonfinancial corporations,households,and NPISHs		
Short term		
Long term		

# Valuation

- Financial instruments must be valued at market prices.
- The ideal source of information for such prices, in the case of debt instruments, is the market price of the same kind of instrument in an organized market where these instruments are heavily traded.
- Other options are:
  - ✓ Prices of recent transactions for non-quoted equity securities
  - ✓ Reasonable Value: The amount at which an asset could be exchanged or a liability settled among two well informed and willing parts in a fair transaction.

# Special Cases: Direct/Portfolio Investment

When a transaction implies that a resident investor moves from a share of 10% or less to a share of more than 10%, a new FDI relationship arises and the previously existent portfolio investment one is extinguished. BOP and IIP records would show the following:

- An increase in FDI assets in the BOP, equivalent to the value of the transaction.
- The extinction of portfolio investment under “Other Changes in Financial Assets and Liabilities Account” in the integrated statement of the IIP equivalent to the value of the previous share.
- An increase in FDI under the “Other Changes in Financial Assets and Liabilities Account” in the integrated statement of the IIP equivalent to the value of the previous share.

# Special Cases: Direct/Portfolio Investment

IIP Integrated Statement						
	Initial Position	Transactions (BOP)	Other Changes Assests/Liabilities due to:			End Position
			Exchange rate variations	Price changes	Volume changes	
<b>Assets</b>						
Financial Account						
Direct investment	0	40	0	0	80	120
Equity						
Portfolio investment						
Equity	80	0	0	0	-80	0

# Special Cases: Residence

- Two cases are common with public debt securities issued by the local government:
  - ✓ Resident investors who purchase foreign currency denominated debt securities issued abroad by the local government.
  - ✓ Non-resident investors who purchase domestic currency denominated debt securities issued in the country by the local government.

Securities issued by the Local Government		
	External Debt	Internal Debt
<b>Locally issued in domestic currency</b>		
Purchased by:		
Residents		X
Non Residents	X	
<b>Issued abroad in foreign currency</b>		
Purchased by:		
Residents		X
Non Residents	X	

*Note: The criterion used in BOP/IIP statistics gives precedence to the residence criterion over the place of issuance of an instrument or the currency of denomination.*

# Data Sources

- Data on portfolio investment draw mainly from official sources and surveys, usually depending on the degree of regulation and the scope of cross border activities.

# Data Sources (MFS)

- Monetary and Financial Statistics (MFS) provide position data on the financial assets and liabilities of depository corporations.
- MFS are statistics generally produced within specific areas of central banks which draw data from regulatory and supervisory official agencies.
- However, the difference between initial and end of period positions provided by MFS cannot be taken as transactions. So OCAL (valuation and volume) explained variations need to be estimated in order to exclude them and remain only with the transaction component for BOP purposes.



# Data Sources (MFS-ITRS)

- There are other limitations in using MFS to compile IIP:
  - ✓ Shares and other equity are valued at book prices in MFS, IIP needs to be valued at market prices.
  - ✓ MFS do not use functional categories to classify financial assets and liabilities. That makes it challenging to compile FDI positions.
  - ✓ Maturity breakdown is not required in MFS (except for central bank liabilities).
- For transactions, ITRS can be used For both, financial and non-financial corporations. In the case of financial corporations, OCAL can be estimated as a difference between positions data from MFS and transactions data from ITRS.

# Data Sources (SBS)

- Security by security (SBS) databases have become increasingly widespread, they are used in several countries as the basis for recording/estimating BOP and IIP entries.
- An SBS database stores statistics at an individual equity and/or debt security level.
- This information is classified according to a range of attributes or characteristics that may vary depending on the purpose of the database.
- The SBS reference database generally covers various categories of financial instruments, such as debt securities, equity securities, investment fund shares or units, and financial derivatives.

# Data Sources (surveys)

- In some economies, data are collected through surveys. The surveys target the holders of the securities (end-investor approach) and/or the custodians (custodian approach).
- This kind of surveys are targeted at the collection of the asset side (holdings of resident investors).
- For the liability side, data can be obtained from surveys on private resident firms.

# Data Sources (surveys)

- Information on cross-border assets and liabilities of the public sector (government, banks and enterprises) is normally available in areas responsible for public debt and/or public finances data. These areas are usually part of ministries of finance and/or central banks.

# Data Sources (surveys)

- Information on transactions conducted through an economy's stock exchange may also be collected. However, in some cases the data may be based on the nationality of participants in the transactions, and adjustments may be necessary to ensure the BPM6 based residency criterion is observed.
- Securities issued in the domestic market and purchased by nonresidents on the secondary market may also present similar challenges, and adjustments to data collected from the stock exchange may be necessary to ensure the BPM6 based residency criterion is observed.

# Data Sources (CPIS)

- For partner economy data, the IMF's Coordinated Portfolio Investment Survey (CPIS) can be a source.
- Participant countries of the CPIS show their holdings of foreign assets (equity and debt) by country of the issuer.
- In most cases, CPIS data would be a lower limit of the total portfolio liabilities of the compiling economy.

# Data Sources (CPIS)

- In general, portfolio investment assets are easier to follow than liabilities. The holder of the instrument is aware of who the issuer is and is, therefore, easy to know if he is a resident or not.
- In contrast, the counterpart of portfolio investment liabilities, when tradable, is not easy to identify because of the existence of secondary markets. The issuer does not necessarily know who holds the instrument.

# CPIS (introduction)

- The Coordinated Portfolio Investment Survey (CPIS) is a voluntary data compilation process Promoted by the IMF.
- It is meant to improve the quality of Portfolio Investment (PI) by compiling full data with geographical breakdown.
- Recording criteria for the CPIS are those set forth by the BPM6 in terms of valuation, residence and institutional sector classification.
- The CPIS covers the asset\* positions with non affiliated non residents of portfolio instruments classified according to:
  - ✓ Equity
  - ✓ Long term debt instruments
  - ✓ Short term debt instruments

*\*Participating countries are suggested to grow their survey by covering equity and debt instruments issued by residents held by non residents (liabilities).*



# CPIS (introduction)

The CPIS must comply with some specifications for every kind of instruments:

- Market price valuation.
- Holdings breakdown of resident investors according to the residence country of the issuer of the instrument.
- Biannual periodicity (at least).
- Breakdown:
  - ✓ By type of instrument
  - ✓ By currency
  - ✓ By institutional sector of the resident holder
  - ✓ Liabilities by the country of residence of the non resident holder (new)
  - ✓ By sector of the non resident issuer (new)

# CPIS (Conceptual aspects)

- The CPIS follows the same general criteria of residence, valuation, and sector classification of the rest of the international accounts set forth by BPM6.
- The residence criterion is particularly relevant because the information has to be shown with the identification not only of these instruments issued by non residents, but specifying the country of residence of the issuer, which is not necessarily the same as the country where the instrument was issued and placed.

# CPIS (Conceptual aspects)

- The purchase of instruments that are a part of a non resident investment fund implies that the investor holds shares of that fund, despite the nature and characteristics of the instruments included in the fund.
- Likewise, the country attribution corresponds to the collective investment scheme and not to the issuer of every particular instrument.

# CPIS (Conceptual aspects)

- There are international coding systems for securities like the ISIN code (International Securities Identification Number). These systems tend to enhance consistency among CPIS participant countries on the country of residence attribution of the issuer.

# CPIS (modalities)

## Coverage

- Investors
  - ✓ Banks
  - ✓ Broker houses
  - ✓ Pension funds
  - ✓ Insurance companies
  - ✓ Investment funds
  - ✓ Enterprises
  - ✓ Households
- Custodians
- Combined

# CPIS (modalities)

## Information recollection

- Security by security: Respondents provide information on their specific holdings detailed one by one.
- Aggregated: Information is collected in an aggregated fashion by type of instrument, country of residence and currency.
- Combined

# CPIS (Table 1)

## Compulsory

Total	Equity	Debt Instruments		
		Total	Long Term	Short Term
Country 1				
:				
:				
:				
Country N				

# CPIS (Table 2)

## Recommended

Total	Participaciones de Capital y en Fondos de Inversión (Equity)	Instrumentos de Deuda		
		Total	Largo Plazo	Corto Plazo
Dólar de EE.UU.				
Euro				
Renminbi chino				
Yen japonés				
Libra esterlina				
Dólar australiano				
Dólar canadiense				
Franco suizo				
Otras				



# CPIS (Table 3) Recommended

Total	Sector del Tenedor Residente										
	Banco Central	Corporaciones de Depósito	Otras Corporaciones Financieras	De las cuales:			Gobierno General	Corporaciones no Financieras, Hogares e ISFLSH	De las cuales:		
				Aseguradoras y Fondos de Pensiones	Fondos del Mercado Monetario	Otros			Corporaciones No Financieras	Hogares	ISFLSH
País 1											
:											
:											
:											
País N											

# CPIS (Table 4-Liabilities) Recommended

Total	Participaciones de Capital y en Fondos de Inversión (Equity)	Instrumentos de Deuda		
		Total	Largo Plazo	Corto Plazo
País 1				
:				
:				
:				
País N				

# CPIS (Table 5) Recommended

Total	Sector del Emisor No Residente							
	Banco Central	Corporaciones de Depósito	Otras Corporaciones Financieras	De las cuales:			Gobierno General	Corporaciones no Financieras, Hogares e ISFLSH
				Aseguradoras y Fondos de Pensiones	Fondos del Mercado Monetario	Otros		
País 1								
:								
:								
:								
País N								

# CPIS (Table 6) Recommended

Países Seleccionados por el FMI	Sector del Emisor No Residente	Sector del Tenedor Residente																					
		Banco Central	Corporaciones de Depósito	Otras Corporaciones Financieras	De las cuales:			Gobierno General	Corporaciones no Financieras, Hogares e ISFLSH	De las cuales:													
					Aseguradoras y Fondos de Pensiones	Fondos del Mercado Monetario	Otros			Corporaciones No Financieras	Hogares	ISFLSH											
País 1	Total Banco Central Corporaciones de Depósito Otras Corporaciones Financieras Gobierno general Corp. No Financieras, Hogares e ISFLSH																						
:																							
País N	Total Banco Central Corporaciones de Depósito Otras Corporaciones Financieras Gobierno general Corp. No Financieras, Hogares e ISFLSH																						

# Financial Derivatives

- Functional category now separately identified from portfolio investment, because it is mainly related with the transfer of risks and not with the provision of financial funds.
- Derivatives contract:
  - ✓ Financial instrument that is linked to another specific financial instrument or indicator or commodity (underlying item).
  - ✓ By means of these contracts specific financial risks (such as interest rate risk, foreign exchange risk, equity and commodity price risks, credit risk, and so on) can be traded in their own right in financial markets.
  - ✓ Transactions and positions in financial derivatives are treated separately from the values of any underlying items to which they are linked.

## Financial Derivatives (types of contracts)

- **Forward-type:** They are unconditional and state an obligation to settle the contract at an agreed-on contract price (the strike price) on a specified date for the exchange of a specified quantity of an underlying item (real or financial).
- Any of the parts of the contract can be debtor or creditor (the position changes throughout the life of the contract).
  - ✓ Forwards and Futures: The parts agree to exchange a real or financial underlying asset (gold, shares, etc.) at a specified price and quantity.

# Financial Derivatives (types of contracts)

- **Options**: the purchaser acquires from the seller a right, but not an obligation;
  - ✓ to buy (call) or sell (put) a specified underlying item;
  - ✓ at a strike price;
  - ✓ on or before a specified date;
  - ✓ in exchange for the premium that the purchaser pays to the writer/seller.
- The purchaser gets an asset and the writer takes a liability (in exchange for the premium).
- The purchaser can obtain unlimited gains whose size are unknown at inception, as well as the losses of the writer.
- The gain of the purchaser, as well as the loss of the writer of the option are limited by the size of the premium.
- At maturity, the option can be worthless if the market price of the underlying item turns out to be such that the purchaser decides no to exercise the option (in these circumstances options need not to be settled).

## Forward-type Contracts (example)

In year 1 a resident firm enters a contract to export goods by 1,200 euros and to deliver them in year 3. In order to face the exchange rate risk, this firm enters a forward contract with a non-resident by which it agrees to buy 1,000 US dollars in year 3 by paying 1,200 euros.

Year	Exchange Rate (euros per dollar)
1	1.2
2	1.1
3	1.0
Interest Rate	6%



# Forward-type Contracts (example)

## Entries in year 1

No transactions occur, therefore no entries are recorded in the BOP. The value of the contract is zero, hence no entries in the IIP.

## Entries in year 2

No transactions occur, therefore no entries in the BOP.

IIP Integrated Statement				
	Initial Position	BOP Transactions	OCAL (exchange rate)	Final Position
Financial Account Liabilities				
Derivatives	0	0	85.8	85.8

In year 2 the exchange rate is (1.1/1.0), therefore the value of the contract is now 100 euros as a liability. Capitalizing at 6% ( $100/1.06=94.3$ ) and making the conversion to US dollars ( $94.3/1.1=85.8$ ) the contract is now worth 85.8 by the end of year 2.

# Forward-type Contracts (example)

## Entries in year 3

There is an export of goods for 1,200 (1,200 euros at market price in year 3). Because in year 3 the exchange rate is 1/1, the derivatives liability is now worth 200 US dollars that must be paid because the forward is already due. Therefore, the available resources once the market value of the goods is received and the derivative settled is 1,000 US dollars.

Balance of Payments (US dollars)			
	Credits	Debits	Net
Current Account	1,200	0	1,200
Goods	1,200	0	1,200
	Assets	Liabilities	Net
Financial Account	-1,000	-200	-1,200
Derivatives		-200	-200
Currency and Deposits	1,000	0	-1,000

## Forward-type Contracts (example)

Settling the derivative which by the end of year 2 was worth 85.8 US dollars by paying 200 US dollars means that in order to become zero by the end of year 3 it was revalued by 114.

IIP Integrated Statement					
	Initial Position	BOP Transactions		OCAL (exchange rate)	Final Position
		Assets	Liabilities		
	Financial Account	86	-1,000	-200	
Derivatives	86		-200	114	0
Other Investment					
Currency and Deposits	0	1,000			1,000

# Options (example)

A resident firm needs to buy one million gallons of gasoline for the next year. In the current year the price is 2.20 dollars per gallon. The firm wants to be sure that will be the price it will pay the coming year, for that reason it buys an option that guarantees that price for the required physical volume. It pays a premium of 80 thousand dollars.

## Current Year

Balance of Payments			
	Assets	Liabilities	Net
Financial Account	0		0
Other Investment			
Currency and Deposits	-80		80
Financial Derivatives	80		-80

IIP Integrated Statement					
	Initial Position	BOP Transactions		OCAL (other prices)	Final Position
		Assets	Liabilities		
Assets	5,000	0			5,000
Other Investment	5,000	0			4,920
Currency and Deposits	5,000	-80			4,920
Financial Derivatives	0	80			80

# Options (example)

The next year the price of the gallon rises to 2.5 dollars. Therefore, the firm decides to exercise the option.

## Next Year

Balance of Payments			
	Credits	Debits	Net
Current Account		2,500	-2,500
Goods and Services		2,500	-2,500
Goods		2,500	-2,500
	Assets	Liabilities	Net
Financial Account	-2,500		2,500
Other Investment	-2,200		2,200
Currency and Deposits	-2,200		2,200
Financial Derivatives	-300		300

IIP Integrated Statement					
	Initial Position	BOP Transactions		OCAL (other prices)	Final Position
		Assets	Liabilities		
Assets	5,000	-2,500		220	2,720
Other Investment	4,920	-2,200			2,720
Currency and Deposits	4,920	-2,200			2,720
Financial Derivatives	80	-300		220	0

# Financial Derivatives (recording)

- Forward-type contracts: At inception they have zero value (there are no debtor –liability- or creditor –asset- positions for the parts).
- Options: At inception, the premium is an asset for the purchaser and a liability for the writer.
- The transactions recorded under the functional category of derivatives are;
  - ✓ Payments to settle derivatives
  - ✓ Operations in the secondary market (mainly futures and swaps)

# Financial Derivatives (recording)

- Settlements consist of net payments (difference between the strike price and the market price of the underlying item multiplied by the volume).
- Derivatives are recorded as settlements in gross figures; payments as a reduction of a derivative liability and incomes as a reduction of derivative assets.
- Any changes not originated in transactions are recorded as holding gains or losses (other changes in assets and liabilities) not as BOP transactions.
- The transaction (physical movement) of the underlying item is recorded at market price in the corresponding BOP line (goods, portfolio investment, etc.).

# Forward-type Contracts (recording)

## At inception:

- Risk exposure exchange at the same market value, therefore, its value is zero.
- No transactions recorded in the financial account.
- No debtor/creditor relationship is established.

## During the life of the contract:

- As the contract acquires a value (with the changing of market prices) a debtor/creditor relationship arises.
- The debtor/creditor relationship may change in size and direction with time.



# Options (recording)

## At inception:

- The purchaser has an asset equivalent to the premium.
- The writer has a liability equivalent to the premium.
- Both entries are recorded in the balance of payments.

## At the end of the contract:

- The owner of the option decides if he exercises it.
- Exercising the option implies the extinction of the asset/liability.