



# **“INTERNATIONAL FINANCE”**

**Facilitator: Dr Kaaya, I.D**



## **INTERNATIONAL PARITY THEORIES !**



**Education is not a name of any degree or certificate that can be shown to others as a proof. Education is the name of our attitude, actions, language & behavior with others in real life.**

11/24/2023

# □ International Parity Relationship

- Similar to prices of other commodities, exchange rate is not **self standing**. There are a number of factors that explain **fluctuation or volatility** of exchange rate.



-----what are these factors ?

## ▶ Inflation rate

Inflation is the rate of change of the price level of good and services in the economy. Inflation rates variation in the market is one of the crucial factors that affect the exchange rate of a country. Practically, a country which has a continues low inflation rate will have a stronger value of the currency compared to those countries with inflation rates high, with other factors being constant.

## ▶ Interest rate (opportunity cost of money across countries)

Interest rates, inflation rates and foreign exchange rates are always co- related and play a vital role in determining the stability of the market.

Any slight changes in the rate of interest will definitely affect the value of the currency and its exchange rate in the foreign market.

# □ International Parity Relationship

## ▶ Relative changes in **economic growth and development**,

Economic growth and development can influence the chance of getting foreign capital. If economy grows, it can increase foreign capital and demand of local currency which can eventually lead to the domestic currency becoming strong.

## ▶ changes in **international trade volumes** and **movements of balance of payments**.

When the government spends more on imports as compared to the export earnings, it will create a deficit in its current account. This kind of deficit causes reduction in the value of domestic currency causing disequilibrium in the balance of payments. In such a situation volatility and unpredictability of the exchange rate of the domestic currency becomes highly noticeable.



# □ International Parity Relationship



► The **description of relationship** between exchange rate and most of the determinants of exchange rate is provided by the **international parity relationship**, which are equilibrium conditions of exchange rate.

► .....

# □ International Parity Relationship



- Supply and Demand (SD)
- Purchasing Power Parity (PPP)
- The Fisher Effect [FE]
- International Fisher Effect (IFE)
- The Interest Rate Parity [IRP]
- The Rational Expectations (RE)

# □ International Parity Relationship



## □ Supply and Demand Theory

- According to this theory, the exchange rate is determined by **the forces of demand and supply of the foreign currency.**
- Foreign currencies are **demanded by domestic households, firms, and governments** who wish to purchase goods, services, or financial assets that are denominated in the currency of another economy.
- For example, if a TZ auto importer wants to buy a car from Kenya, it must buy KZS.



# □ International Parity Relationship



## □ Supply and Demand Theory

- Foreign currencies are **supplied by foreign households, firms, and governments** that wish to purchase goods, services, or financial assets denominated in the domestic currency.
- For example, if a Kenyan bank wants to buy a TZS government bond, it must sell KZS.

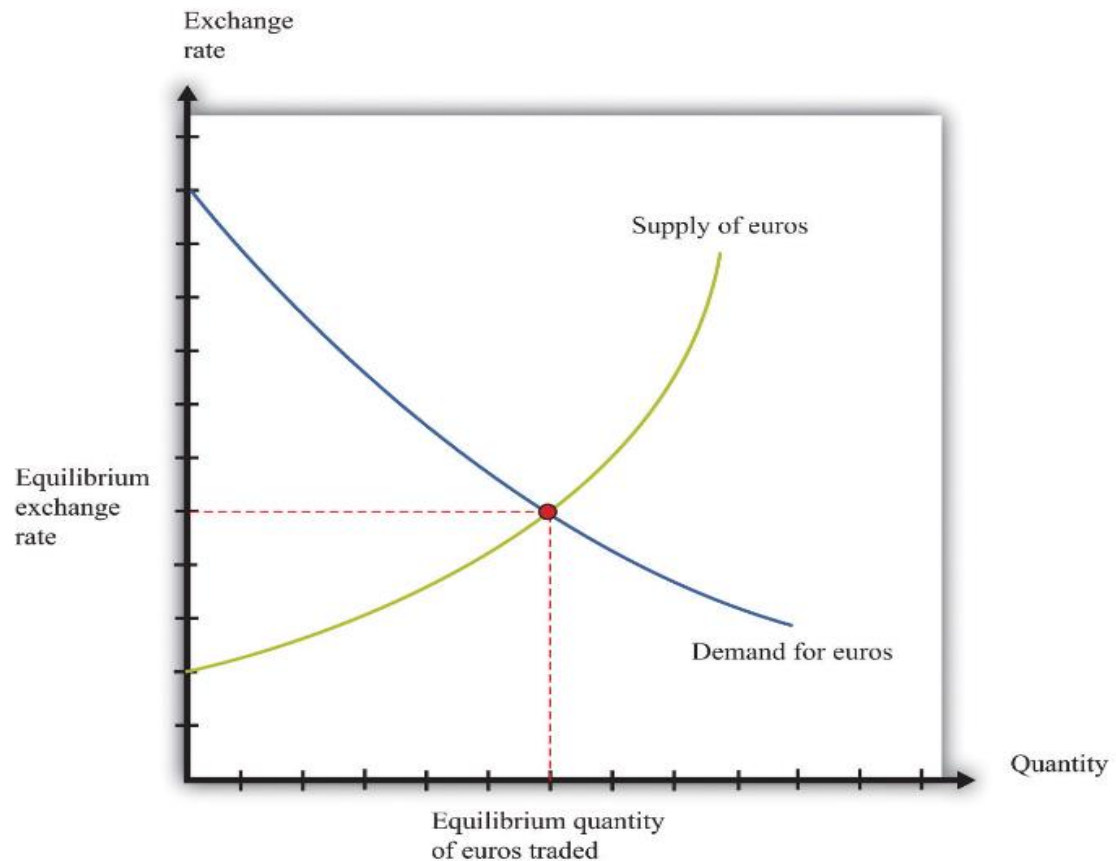


# □ International Parity Relationship



## □ Supply and Demand Theory

- Therefore, the point of intersection of the two curves will be the **equilibrium rate**.



# ❑ International Parity Relationship

## ❑ Purchasing Power Parity (PPP)



- Purchasing power parity (PPP) is an economic theory of exchange rate determination. It states that the price levels between two countries should be equal.
- There are two forms of Purchasing Power Parity (PPP), **the absolute and relative version.**

▶ .....

# ❑ International Parity Relationship

## ❑ Purchasing Power Parity (PPP)

### ▶ The Absolute Version of PPP theory.

- Absolute purchasing power parity (APPP) is the basic PPP theory. This theory is based on the **law of one price**.
- The theory states that in a **free market identical commodities** will be **priced similarly** across borders, such that if the price in Tanzanian shillings of a product is multiplied by the exchange rate, say, the USD, **it will yield the price of the product in USA**.
- **Example i-phone 15 costs US\$799** in USA. Exchange rate = TZS2500/US\$, hence i-phone in Tanzania should be  $USD799 * TZS2500/US\$ = 1,997,500$
- According to this theory the exchange rate between two countries **should equal the ratio of the two countries' price level**.

▶ .....



# □ International Parity Relationship

## □ Purchasing Power Parity (PPP)

▶ The Absolute Version of PPP theory.



- Formally the LOP is represented by the following formula:

- Basic Relationship:

- $P_{D(t)} = e_{F(t)} P_{F(t)}$

- Therefore,  $e_{F(t)} = \frac{P_{D(t)}}{P_{F(t)}}$

- Where,

- $P_{D(t)}$  = Domestic currency price of a particular commodity at time t

- $P_{F(t)}$  = Foreign currency price of a particular commodity at time t

- $e_{F(t)}$  = Exchange rate (i.e., the domestic currency value of the foreign currency) at time t

# □ International Parity Relationship

## □ Purchasing Power Parity (PPP)

► The Absolute Version of PPP theory.

Example: Price of TV in Tanzania is TZS 1,500,000 and in USA it is \$550. The exchange rate is TZS2400/USD

a) Calculate the US\$ price of TV in Tanzania

$$P_D(t) = e_F(t) P_F(t)$$

$$P_{TZS} = 2400 \times 550$$

$$P_{TZS} = 1,320,000$$

b) Calculate the equilibrium exchange rate i.e. the exchange rate implied by the LOP.

$$e_F(t) = \frac{P_D(t)}{P_F(t)}$$

$$S(\text{TZS/USD}) = \frac{\text{TZS } 1,500,000}{\text{USD } 550}$$

$$\text{TZS } 2,727 / \text{USD}$$



# □ International Parity Relationship

## □ Purchasing Power Parity (PPP)

### The Absolute Version of PPP theory

► Example: Price of TV in Tanzania in TZS 2,500,000 and in Uganda it is UGS 5,000,0000. The Exchange rate is 2 UGS/TZS

a) Calculate the Tanzanian Price of TV in Uganda

b) Calculate the equilibrium exchange rate, i.e., the exchange rate implied by LOP



# □ International Parity Relationship

## □ Purchasing Power Parity (PPP)

► The Absolute Version of PPP theory.

Example: Price of TV in Tanzania is TZS 2,500,000 and in Uganda it is UGS5,000,000. The exchange rate is UGS2/TZS

a) Calculate the Tanzanian price of TV in Uganda

$$P_{D(t)} = e_{F(t)} P_{F(t)}$$

$$P_{UGS} = 2 \times 2,500,000$$

$$P_{UGS} = 5,000,000$$

b) Calculate the equilibrium exchange rate i.e. the exchange rate implied by the LOP.

$$e_{F(t)} = \frac{P_{D(t)}}{P_{F(t)}}$$

$$S(\text{UGS}/\text{TZS}) = \frac{\text{UGS } 5,000,000}{\text{USD } 2,500,000}$$

UGS 2 /TZS





# □ International Parity Relationship

## □ Purchasing Power Parity (PPP)

### The Absolute Version of PPP theory

► Example: Price of TV in Tanzania in TZS 2,500,000 and in Uganda it is UGS 5,000,0000. The Exchange rate is 3 UGS/TZS

a) Calculate the Tanzanian Price of TV in Uganda

b) Calculate the equilibrium exchange rate, i.e., the exchange rate implied by LOP



# □ International Parity Relationship

## □ Purchasing Power Parity (PPP)

► The Absolute Version of PPP theory.

Example: Price of TV in Tanzania is TZS 2,500,000 and in Uganda it is UGS5,000,000. The exchange rate is UGS3/TZS

a) Calculate the Tanzanian price of TV in Uganda

$$P_{D(t)} = e_{F(t)} P_{F(t)}$$

$$P_{UGS} = 3 \times 2,500,000$$

$$P_{UGS} = 7,500,000$$

b) Calculate the equilibrium exchange rate i.e. the exchange rate implied by the LOP.

$$e_{F(t)} = \frac{P_{D(t)}}{P_{F(t)}}$$

$$S(\text{UGS}/\text{TZS}) = \frac{\text{UGS } 5,000,000}{\text{USD } 2,500,000}$$

$$\text{UGS } 2 / \text{TZS}$$



# □ International Parity Relationship

## □ Purchasing Power Parity (PPP)

### ► Assumptions of Absolute Version PPP (LoP).

- There are no transportation costs and no differential taxes applied between the two markets.
- There must be competitive markets for the goods and services in both countries. That is market based on the assumption that a large number of firms produce identical goods consumed by a large number of buyers.
- The LoP only applies to tradable goods; immobile goods such as houses, and many services that are local, are of course not traded between countries.

► .....



# ❑ International Parity Relationship

## ❑ Purchasing Power Parity (PPP)

### ▶ Weaknesses of Absolute Version of PPP.

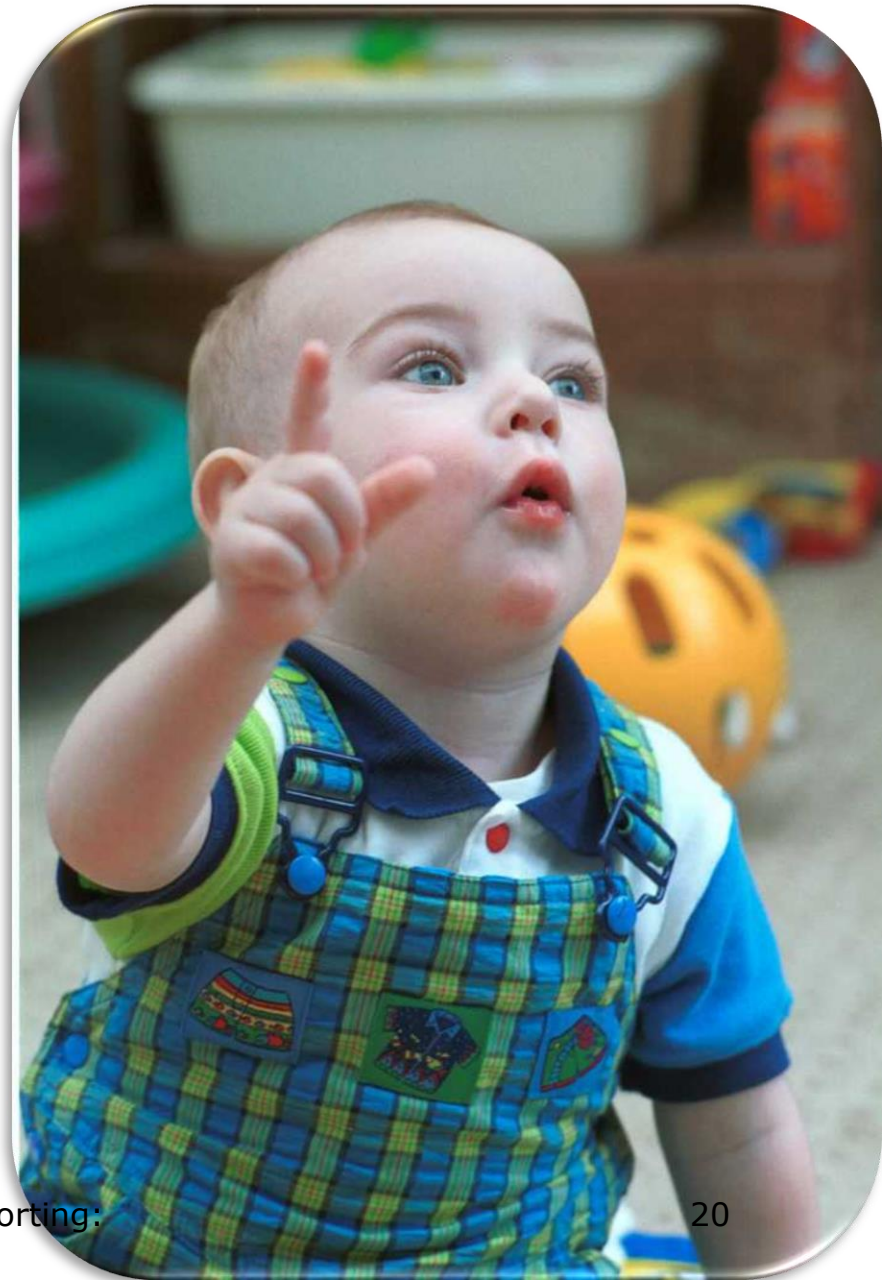
- It **ignores the effects of capital movement** on the exchange rate-trade and therefore exchange rates will only reflect the prices of goods which enter into international trade and not the general price level since this include non-tradable goods.
- It ignores the **fact that government may manage exchange rates**, e.g. through interest rate policy such that the assumption of free market defeated.
- The **transaction cost** of trading the commodities such as shipping, insurance, storage cost **do exit**.
- It **assumes that identical commodities** in the two countries (homogeneous) and that **there is no product differentiation which is unrealistic**.



Mwaka huu umeshika hela  
au umeshika adabu?



Any Questions Please?





# ❑ International Parity Relationship

## ❑ The Relative Form of Purchasing Power Parity (PPP)



▶ This version of PPP states that the **exchange rate** between the domestic currency and any foreign currency will **always adjust to reflect change in inflation/price level** in the two countries.

▶ Given, the inflation levels for two countries, and the **spot rate**, the expected exchange rate can be determined as follows using the purchasing power parity model (in relative form):

# □ International Parity Relationship

## □ The Relative Form of Purchasing Power Parity (PPP)

Formally the Purchasing Power Parity is represented by the formula:

*The Multi-Period Version*

$$\frac{e_t}{e_0} = \frac{(1+i_h)^t}{(1+i_f)^t}, \quad \text{implying that } e_t = e_0 \frac{(1+i_h)^t}{(1+i_f)^t}$$

where:  $e_t$  = the home currency value of the foreign currency at time  $t$

$e_0$  = the home currency value of the foreign currency at time 0

$i_h$  = the periodic domestic inflation rate

$i_h$  = the periodic domestic inflation rate





# □ International Parity Relationship

## □ The Relative Form of Purchasing Power Parity (PPP)

### *The One Period Version*

The one- period version of the above equation is commonly used. It is:

$$\frac{e_1}{e_0} = \frac{(1+i_h)}{(1+i_f)}, \text{ implying that } e_1 = e_0 \frac{(1+i_h)}{(1+i_f)}$$

Purchasing Power parity is often represented by the following approximation.

$$\frac{e_1 - e_0}{e_0} = i_h - i_f$$

where:  $e_t$  = the home currency value of the foreign currency at time  $t$

$e_0$  = the home currency value of the foreign currency at time 0

$i_h$  = the periodic domestic inflation rate

$i_f$  = the periodic foreign inflation rate

$$\frac{e_1 - e_0}{e_0} = \text{exchange rate change}$$

$$i_h - i_f = \text{inflation differential}$$

- The exchange rate changes during a period should equal the inflation differential for that same time period.
- In effect, PPP says that currencies with high rates of inflation should devalue relative to currencies with lower rates of inflation.



# □ International Parity Relationship

## □ The Relative Form of Purchasing Power Parity (PPP)



- $E(\Delta \%S) = E(\text{Inflation A}) - E(\text{Inflation B})$
- This is also referred as the ex-ante version of the relative PPP

# □ International Parity Relationship

## □ The Relative Form of Purchasing Power Parity (PPP)

Given: 1£=1.6\$. US inflation rate is 9%. UK inflation is 5%. Using Ex-Ante relative PPP, what is the expected spot 1£ to \$ in 1 year?

$$\begin{aligned} E(\Delta \% S) &= E(\text{Inflation A}) - E(\text{Inflation B}) \\ &= (9\%) - (5\%) \\ &= 4\% \end{aligned}$$

$$\begin{aligned} \text{Expected spot 1£ to \$} &= \$1.6 \times (1 + 0.04) \\ &= 1.664 \end{aligned}$$

The general formula is

$$e_t = e_0 (1 + (i_h - i_f))^t$$



# □ International Parity Relationship

## □ The Relative Form of Purchasing Power Parity (PPP)

Recall:  $E(\Delta \%S) = E(\text{Inflation A}) - E(\text{Inflation B})$

►  $E(\Delta \%S) = (1.664 - 1.6) / 1.6 = 0.04 = 4\%$ , hence

Therefore.  $E(\Delta \%S) = E(\text{Inflation A}) - E(\text{Inflation B})$



# □ International Parity Relationship

## □ The Relative Form of Purchasing Power Parity (PPP)



Consider the same example that is:  $1\text{£} = 1.6\text{\$}$ . US inflation rate is 9%. UK inflation is 5%. Calculate the new exchange rate for three years ahead given everything same for 3 years

# □ International Parity Relationship

## □ The Relative Form of Purchasing Power Parity (PPP)

Consider the same example

1£=1.6\$. US inflation rate is 9%. UK inflation is 5%.  
Calculate the new exchange rate for three years ahead  
given everything same for 3 years



$$e_t = e_0 (1 + (i_h - i_f))^t$$

$$e_t = 1.6(1 + (0.09 - 0.05))^3$$

$$e_1 = 1.7998$$

# □ International Parity Relationship

## □ The Relative Form of Purchasing Power Parity (PPP)

Practice again

Given:  $1\text{£} = 1.8\text{Euro}$ . Euro inflation rate is 3%. UK inflation is 1%. Calculate the new exchange rate.





# □ International Parity Relationship

## □ The Relative Form of Purchasing Power Parity (PPP)

Practice again

Given: 1£=1.8Euro. Euro inflation rate is 3%. UK inflation is 1%. Calculate the new exchange rate.

$$\begin{aligned}e_t &= e_0(1 + (i_h - i_f))^t \\e_t &= 1.8(1 + (0.03 - 0.01))^1 \\e_t &= 1.8(1 + (0.03 - 0.01))^1 \\e_t &= 1.836\end{aligned}$$



# QUESTIONS PLEASE!



**Kingereza Bhana.... Kimoyo Moyoyo  
Unaongea Vizuri tuu ila Toa Sauti  
Sasa**



# □ International Parity Relationship



## □ The Fisher Effect [FE] Theory

□ Initially developed by the US economist Irving Fisher. The theory describes the relationship that exists between **inflation rate and interest** rate.

□ It states that **investors all over** the world expect the same **real rate of return** on their investments after the effects of inflation are eliminated.

□ Therefore, while **nominal interest rates** may differ between countries this is only because of different **inflation expectations**.

► The theory states that the **nominal interest rate ( $r$ )** is made up of **two components**: The **real rate of return ( $a$ )** and the **amount of inflation ( $i$ )**.

► Hence, FE is given  **$1 + \text{Nominal Interest Rate} = (1 + \text{Real Rate})(1 + \text{Expected Inflation Rate})$** .

$$(1 + r) = (1 + a)(1 + i)$$

# □ International Parity Relationship



## □ The Fisher Effect [FE] Theory

- If expected inflation is 50% and the real required return is 9% what will the nominal interest rate be according to the Fisher effect?

# □ International Parity Relationship



## □ The Fisher Effect [FE] Theory

- If expected inflation is 50% and the real required return is 9% what will the nominal-interest rate be according to the Fisher effect?
- Solution:  $(1 + r) = (1 + a)(1 + i)$
- $r$  is nominal interest rate,  $a$  is the real interest rate and  $i$  is the inflation rate

$$(1+r) = (1+0.09)(1+0.5)$$

$$r = (1.09)(1.5) - 1$$

$$r = 0.635$$

$$R = 63.5\%$$

# □ International Parity Relationship



Recal:

$$(1 + r) = (1 + a)(1 + i)$$

- If this holds true for both domestic and foreign country than
- $E(\text{Inflation A}) - E(\text{Inflation B}) + \text{Real A} - \text{Real B} = r_a - r_b$
- i.e., Difference in expected inflation rate + Difference in real rates of returns = Difference in nominal rates
- Under real interest parity  $\text{Real A} = \text{Real B}$  (real interest rates are assumed to converge across markets –i.e., with free capital flows, funds will move to country with higher real rate until real rates between them are equated).
- Taking fisher effect and interest rate parity – you get international fisher effect
- $E(\text{Inflation A}) - E(\text{Inflation B}) = r_a - r_b$



# □ International Parity Relationship

## □ The International Fisher Effect [IFE]

For the next year, Japanese economists expect inflation in Japan to be -0.5%. Given that interest rate for JPY is 0.1% and 5.4% for CNY, what is the expected inflation for china based on IFE?

$$E(\text{Inflation A}) - E(\text{Inflation B}) = r_a - r_b$$

$$E(\text{Inflation}_{\text{China}}) - E(\text{Inflation}_{\text{Japan}}) = r_{\text{china}} - r_{\text{Japan}}$$

$$E(\text{Inflation}_{\text{China}}) - (-0.5\%) = 5.4\% - 0.1\%$$

$$E(\text{Inflation}_{\text{China}}) = 4.8\%$$





# □ International Parity Relationship



## □ The International Fisher Effect [IFE]

- This theory describes the precise relationship between the **relative nominal interest rates** of two countries and inflation rates.
- Thus, a rise in the Tanzania inflation rate relative to those of other countries will be **associated with** a rise in the Tanzanian *interest rate* relative to foreign interest rates and **a fall in the Tanzanian Shillings (TZS)'s value**.
- This implies that the **exchange rate of the country** with higher interest rates **will depreciate** to offset the interest rate advantage achieved by foreign investments.

$$\bar{e}_t = e_0 \left( \frac{(1+r_h)^t}{(1+r_f)^t} \right)$$

# □ International Parity Relationship



## ▮ The Interest Rate Parity [IRP] Theory

- Interest Rate Parity (IRP) theorem examines the **impact of nominal interest** rate differentials between two countries on the forward rate of the foreign currency.
- This theory states that premium or discount of one currency against another should **reflect the interest rate differential between the two currencies**.

$$F = S_0 \left( \frac{1 + r_h}{1 + r_f} \right)^t$$

# □ International Parity Relationship



## □ The Rational Expectations Theory

- According to this theory forward rate is regarded as **unbiased predictor of the future spot rate**. It suggests that, when the current level of risk is ignored, the equilibrium is achieved when the **forward differential equals the expected changes in the exchange rate**.
- A formal statement of the unbiased forward rate (UFR) condition is that the **forward rate should reflect the expected future spot rate** on the date of settlement of the forward contract such that incentives to buy or sell the currency forward does not exit.

$$f_t = \bar{e}_t$$

# Forward Rate Speculation!

## ❑ Forward Rate Speculations

- Speculation is the process of seeking to profit from **anticipated exchange rate fluctuations**. Forward speculation on the other hand is the process which involves **purchasing the underlying currency expected to appreciate forward** and selling it on the date of settlement of the forward contract.
- Given the followings information
- **Spot rate:** £: TZS 2350- 2500
- **1 Month Forward rate** £: TZS 2400- 2550
- **1 Month Forecast rate** £: TZS 2600-2700
- The amount for trading is given to be £1,000,000
- **Required:** Illustrate how the speculator can benefit from forward speculation and determine the amount of profit in TZS.

# Forward Rate Speculation!

❑ The speculation profit can be obtained by taking the following steps:

- The Speculator can buy the pounds 1,000,000 1 Month forward at TZS/£ 2550 (Fix the price to buy the pounds in 1 month period). Total cost payable in 1 month **TZS 2,550,000,000**.
- On the settlement date of the forward contract deliver TZS **2,550,000,000** to the counterparty (bank) and obtain 1,000,000 pounds.
- Then sell the 1,000,000 pounds spot at the forecast rate of **TZS 2600**.
- **The speculator obtains TZS 2,600,000,000.** The Expected profit shall be: TZS (2,600,000,000 – 2,550,000,000) **TZS 50,000,000**.

when you leave things for tomorrow  
and tomorrow arrives



ANY QUESTIONS ?

You Better DO Something for Tomorrow Today, Tomorrow  
May Be Too Late ? .

# Purchasing Power Parity And Interest Rate Parity And Arbitrage Profit!

- ❑ The Purchasing Power Parity (PPP) and Interest Rate Parity (IRP) are equilibrium conditions. It follows that when these theories hold **there is no opportunity for arbitrage profit**.
- ❑ Contrary, any disequilibrium (disparities) would entail that the opportunity **for arbitrage profit exist** and one can benefit from such exchange rate disparity

## ❖ Purchasing Power Parity Disequilibrium and Commodity Arbitrage Opportunity

- ❖ Assume a kilo of salt is sold for TZS 2,000 in Tanzania while the same kilo of salt is sold for KZS 125 in Kenya. Assume the actual exchange rate (Market rate) is provided to be TSZ 17/KZS and that no transportation costs. **Required:** Is commodity arbitrage possible given the above information? Calculate the arbitrage profit if a trader can purchase up to 100,000 kilograms of salt from either country.



# Purchasing Power Parity And Interest Rate Parity And Arbitrage Profit!

- ❖ The commodity arbitrage exists if the actual/provided exchange rate differs/is inconsistent with exchange rate implied by the law of one price of Purchasing Power Parity (PPP).
- ❖ The Implied exchange rate between TZS/KZS is given by a ratio between  $P_{sTZ}$  (Price of Kilo of salt in Tanzania) and  $P_{sKES}$  (Price of kilo of salt in Kenya). Thus  $E_t (TZS/KZS) = P_{sTZ}/P_{sKES}$ . Therefore:  $E_t (TZS/KES) = TZS\ 2,000/KES\ 125 = \textbf{TZS/KZS 16}$ , which differ with Actual rate of **TZS/KZS 17**. Hence the commodity arbitrage exists

# Purchasing Power Parity And Interest Rate Parity And Arbitrage Profit!

## ❑ Computation of commodity arbitrage profit:

- From the above result it is observed that the Tanzanian shillings is undervalued by the market/ actual rate hence, the procedures/steps to realize the commodity arbitrage profit would be as follows:
  - Purchase 100,000kgs of salt from Tanzania; total cost would be TZS 200,000,000 [100,000Kgs \* TZS 2000.]
  - Ship/transport the 100,000kgs of salt to Kenya to be sold at KZS 125 each kilo. Total revenue amounts to KZS 12,500,000.
  - The KZS 12,500,000 Will then is converted into TZS at the actual rate of TZS/KZS 17.
  - You obtain TZS 212,500,000 i.e. [TZS 17/KZS \* KZS 12,500,000]
  - The arbitrage profit is therefore TZS 12,500,000. [i.e. TZS 212,500,000-200,000,000].
  - Arbitrage profit per kilo would be TZS 12,500,000/Kgs 100,000, Profit per kilo = TZS 125.

# Interest Rate Parity And Arbitrage Profit!

- ❖ **Interest rate arbitrage exists** if the IRP is not holding, that is the **interest rate differentials** are inconsistent with the forward premium or discount at a given period of time.
  - The process will involve borrowing and lending currencies.
  - The arbitrageur will borrow from the country whose currency is **undervalued** and invest in the country whose currency is **overvalued...**
  - **.... then** convert the investment proceeds into the first currency borrowed and repay the loan, the difference **is arbitrage profit**.
- ❖ The Interest Arbitrage can be **Covered or Uncovered**. The Covered Interest Arbitrage ( CIA) the investment proceeds is covered in the **forward market**.
  - **Uncovered Interest Arbitrage ( UCIA)** investors borrow in countries and currencies exhibiting relatively low interest rates and convert the proceeds into currencies that offer much higher interest rates. The transaction is “uncovered” because the investor **does not sell the higher yielding currency proceeds forward**.

# Interest Rate Parity And Arbitrage Profit!

## Example:

**You are given the following information:**

- Exchange rates:      Spot rate TZS 2500/£
- 1 year forward rate = TZS 2700/£
- Interest rates:      Tanzania 20% per annum  
                                 United Kingdom 4% per annum.

**The amount available for borrowing is 1,000,000, from either country.**

**Required:**

- Does the IRP Hold? Justify your answer.
- If arbitrage opportunities exist determine the covered interest arbitrage profit.

# Interest Rate Parity And Arbitrage Profit!

❖ **Test whether the arbitrage holds. It holds if the interest rate differentials equals from forward premium or discount.**

- **Forward differentials:**
- 1 year Forward premium or discount on £ 7%.
- The interest rate differentials 16% is inconsistent with the forward premium on £ 7%.
- Therefore arbitrage opportunity does exist.

## ❖ **Calculation of interest rate arbitrage profit**

- ❖ In order to determine the direction of the fund, i.e. where one should **borrow and invest** in order to realise arbitrage profit identified in (a) above compute the covered Yield.
- ❖ This is achieved by **adding forward premium to nominal interest rate** for the currency **trading at forward premium**, and **deducting forward discount** to nominal interest rate for the currency **trading at forward discount** [note that if one currency is trading at forward premium the other one must trading on forward discount.
- ❖ Since pound is **trading at a premium of 7%** the Covered yield on Pounds (£) – United Kingdom  $4\% + 7\% = \mathbf{11\%}$ , and the Covered yield on the TZS – Tanzania  $20\% - 7\% = 13\%$ .

# Interest Rate Parity And Arbitrage Profit!

❖ **The rule:** Borrow from the country with low **covered yield and invest in a currency with high covered interest yield**. Hence the interest arbitrage is in **favour of Tanzania**. Borrow pounds and invest in TZS.

## ❖ **Covered Interest Arbitrage computation**

- **Borrow £ 1,000,000** at 4%, after a year you repay  $1,000,000 \times 1.04 = \text{£}1,040,000$ .
- Convert the borrowed amount of £ 1,000,000 into Tanzanians shilling at spot rate of TZS 2,500/£. **You obtain TZS 2,500,000,000.**
- Invest the TZS 2,500,000,000 at 20% for a year, investment proceeds will be  **$\text{TZS } 2,500,000,000 \times 1.2 = \text{TZS } 3,000,000,000$ .**
- Sell the investments proceeds of TZS 3,000,000,000 one year forward at TZS 2700/£; you obtain  $[\text{TZS } 3,000,000,000 / \text{TZS } 2700/\text{£}] = \text{£}1,111,111.1$
- The covered interest arbitrage profit = **£ 71,111** [i.e.  $\text{£}1,111,111.1 - \text{£}1,040,000$ ].

# CONFUSED?!, ANY QUESTIONS



:Fraud Control Framework and BCP:Role of the Board:



***There is no elevator to  
success. You have to take  
stairs.***

*Karlucio*



# End of presentation



**BLESSED.....**



Asante!, Thank you!, Obrigado!, Merci!,  
Cheers!.

# The End