

Chp 4. ECONOMICS FOR VALUATION

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UNIVERSIDADE DE LISBOA



Master in Finance
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CFA Institute

CONTENT

- 1. The Firm and Market Structures**
- 2. (Quickly) Understand Business Cycles**
- 3. Currency Exchange Rates**

1

The Firm and Market Structures

ECONOMICS FOR VALUATION

THE FIRM AND MARKET STRUCTURES



The market structure and the degree of competitiveness in the industry affect a firm's pricing and output strategy and, eventually, its long-run profitability.

ANALYSIS OF MARKET STRUCTURES

Perfect Competition

- Large number of firms
- Homogeneous product
- Single producer unable to influence market prices

Monopolistic Competition

- Large number of firms
- Product differentiation

Oligopoly

- Small number of firms
- High barriers to entry
- Nonprice competition
- Interdependence of firms (e.g., retaliation)

Monopoly

- Single firm
- Exercises power in pricing and output
- Restricted entry

DETERMINANTS OF MARKET STRUCTURES

Number and relative **size** of firms

Degree of product **differentiation**

Power of the seller over **pricing** decisions

Relative strength of **barriers** to market entry and exit

Degree of **nonprice** competition

CHARACTERISTICS OF MARKET STRUCTURE

Market Structure	Number of Sellers	Degree of Product Differentiation	Barriers to Entry	Pricing Power of Firm	Nonprice Competition
Perfect competition	Many	Homogeneous/ Standardized	Very Low	None	None
Monopolistic competition	Many	Differentiated	Low	Some	Advertising and Product Differentiation
Oligopoly	Few	Homogeneous/ Standardized	High	Some or Considerable	Advertising and Product Differentiation
Monopoly	One	Unique Product	Very High	Considerable	Advertising

2

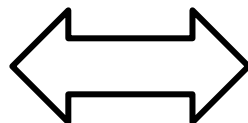
(Quickly) Understand Business Cycles

ECONOMICS FOR VALUATION

BUSINESS CYCLE ANALYSIS

Inventory Cycle

2-4 years



Business Cycle

9-11 years



The cycle measured in terms of fluctuation in inventories – caused by companies trying to keep inventories at desired levels as the expected level of sales change.

Usually, it takes about a year or two to adjust inventory levels after an inflection point. Why?

Inventory/Sales ratio is a good indicator.

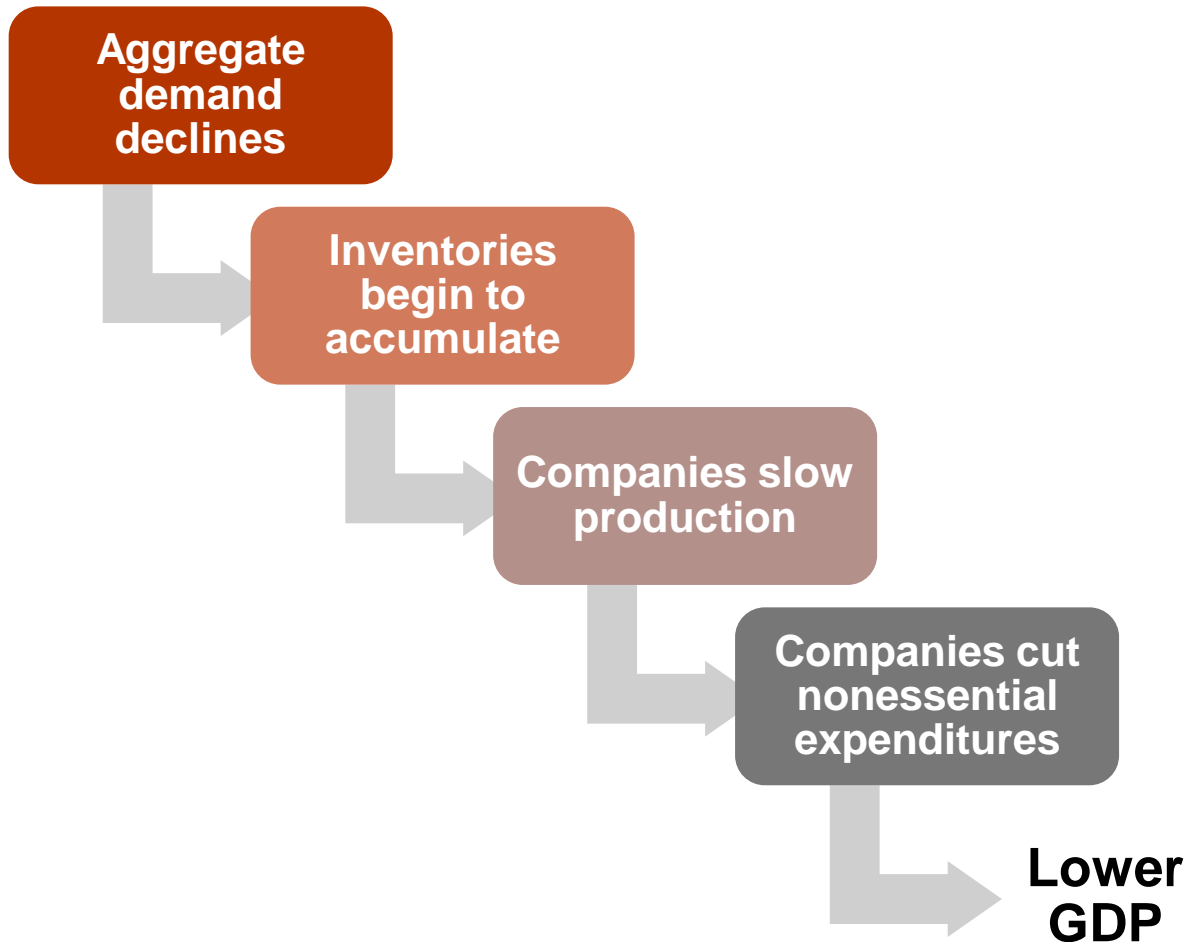
BUSINESS CYCLE ANALYSIS

Exhibit 14. US Inventory/Sales Ratios

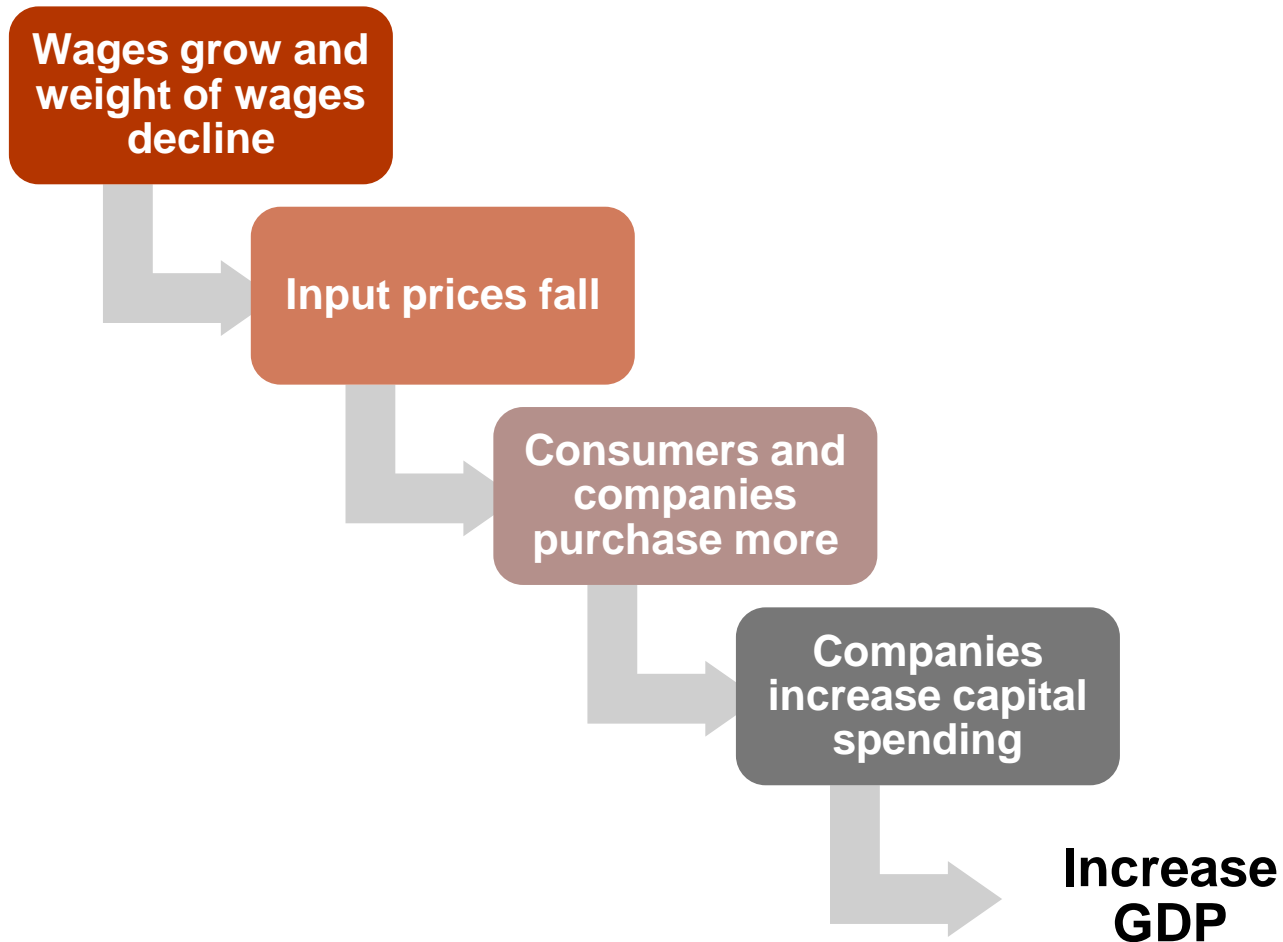


Source: FRED, Federal Reserve Economic Data, Federal Reserve Bank of St. Louis: Inventory to Sales Ratio: Total Business (ISRATIO); US Department of Commerce: Census Bureau.
<http://research.stlouisfed.org/fred2/series/ISRATIO>; accessed 21 December 2011.

TYPICAL SCENARIO: RECESSION



TYPICAL SCENARIO: EXPANSION



BUSINESS CYCLE SUMMARY

Characteristic	Early Expansion (Recovery)	Late Expansion	Peak	Contraction (Recession)
Economic activity	Economic activity changes from decline to expansion.	Accelerating rate of growth	Decelerating rate of growth	Declines
Employment	Layoffs slow, but new hiring does not yet occur and the unemployment rate remains high.	Unemployment rate falls to low levels.	Unemployment rate continues to fall.	Unemployment rate rises.
Consumer and business spending	Upturn is often most pronounced in housing, durable consumer items, and orders for light producer equipment.	Upturn becomes more broad based.	Capital spending expands rapidly, but the growth rate of spending starts to slow down.	Cutbacks appear most in industrial production, housing, consumer durable items, and orders for new business equipment, followed by a lag via cutbacks in other forms of capital spending.
Inflation	Inflation remains moderate and may continue to fall.	Inflation picks up modestly.	Inflation further accelerates.	Inflation decelerates but with a lag.

ECONOMIC INDICATORS, EXAMPLES

Leading Economic Indicators

- Average weekly hours
- Average weekly initial claims for unemployment insurance
- Manufacturers' new orders for consumer good and materials
- Vendor performance, slower deliveries diffusion index
- Manufacturers' new orders for nondefense capital goods
- Building permits for new private housing units
- S&P 500 Index
- Money supply, real M2
- Interest rate spread between 10-year Treasury yields and the federal funds rate
- Index of Consumer Expectations

Coincident Economic Indicators

- Aggregate real personal income
- Employees on nonfarm payrolls
- Industrial Production Index
- Manufacturing and trade sales

Lagging Economic Indicators

- Average duration of unemployment
- Inventory-to-sales ratio
- Change in unit labor costs
- Average bank prime lending rate
- Commercial and industrial loans outstanding
- Ratio of consumer installment debt to income
- Change in consumer price index for services

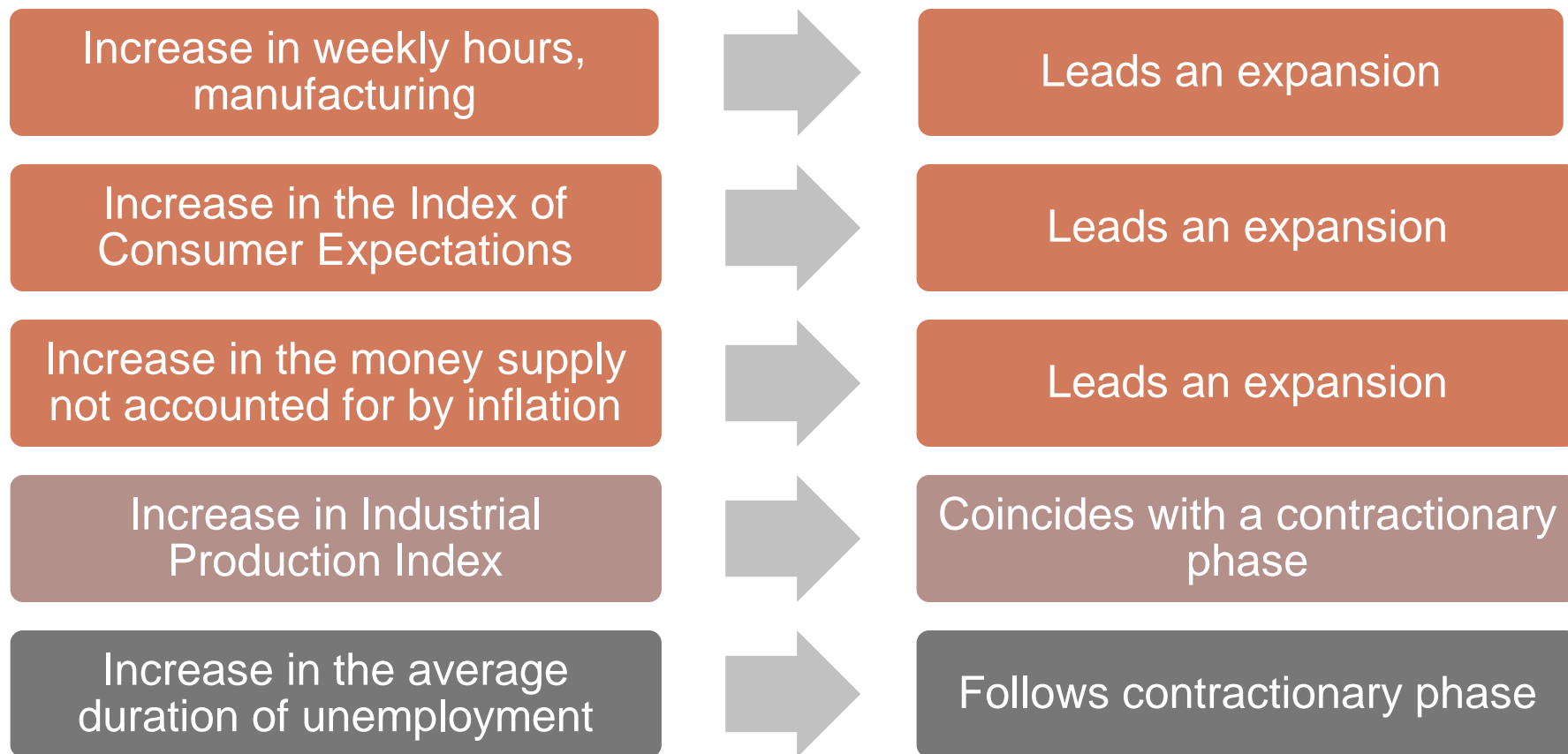
ECONOMIC INDICATORS

Exhibit 22. US Composite Indexes: Components and Standardization Factors

Leading Index	Factor
1. Average weekly hours, manufacturing	0.2552
2. Average weekly initial claims for unemployment insurance	0.0307
3. Manufacturers' new orders, consumer goods and materials	0.0773
4. Vendor performance, slower deliveries diffusion index	0.0668
5. Manufacturers' new orders, non-defense capital goods	0.0183
6. Building permits, new private housing units	0.0271
7. Stock prices, 500 common stocks	0.0391
8. Money supply, M2	0.3550
9. Interest rate spread, 10-year Treasury bonds less federal funds	0.1021
10. Index of consumer expectations	0.0284
Coincident Index	
1. Employees on nonagricultural payrolls	0.5426
2. Personal income less transfer payments	0.1890
3. Industrial production	0.1493
4. Manufacturing and trade sales	0.1191
Lagging Index	
1. Average duration of unemployment	0.0373
2. Inventory/sales ratio, manufacturing and trade	0.1239
3. Labor cost per unit of output, manufacturing	0.0615
4. Average prime rate	0.2822
5. Commercial and industrial loans	0.1112
6. Consumer installment credit to personal income ratio	0.1880
7. Consumer price index for services	0.1959

Source: Conference Board, www.globalindicators.org.

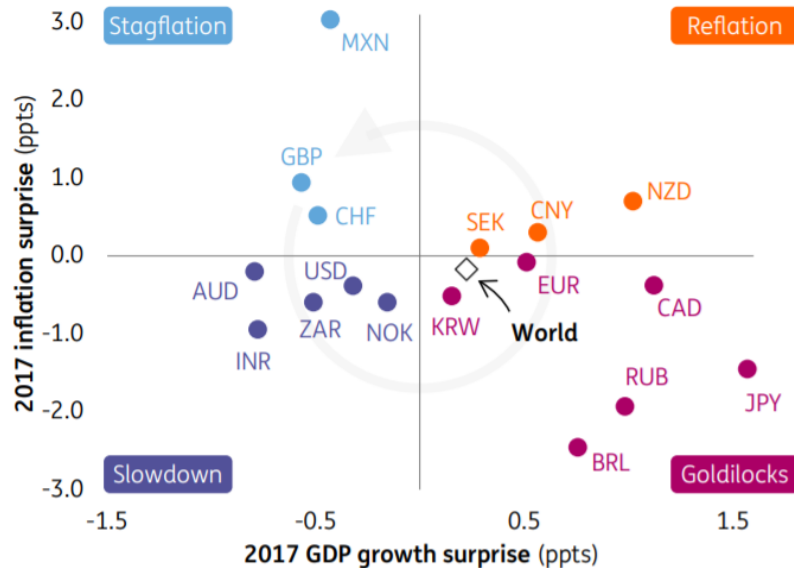
ECONOMIC INDICATORS AND THE BUSINESS CYCLE



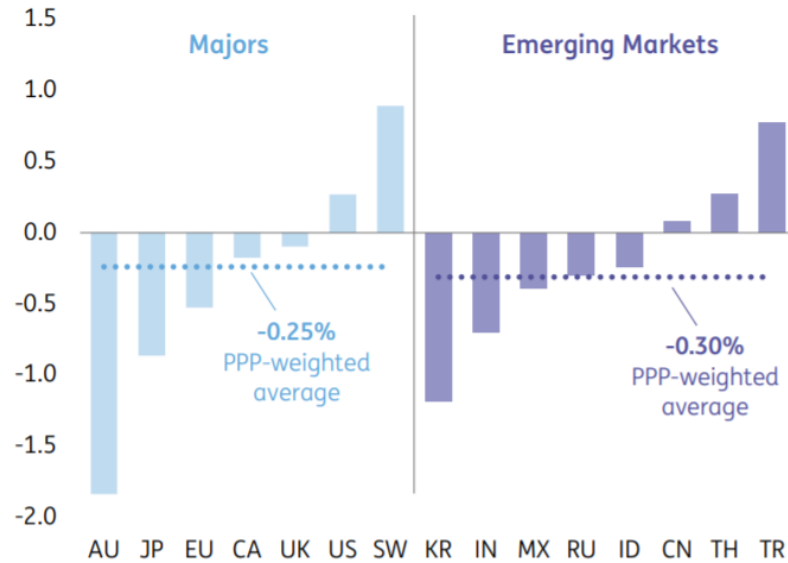
ECONOMIC CYCLES AND EXCHANGE RATE EFFECTS

Fig 11 ING Economic Cycle Dashboard: World economy likely to remain in 'Goldilocks' mode given negative output gaps

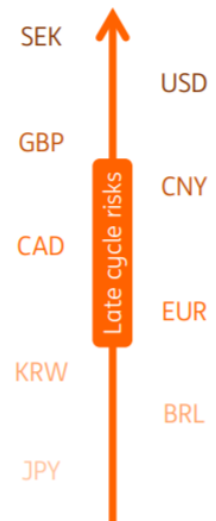
Economic cycle characteristics exhibited by economies in 2017



Output gap estimates for select countries (% of potential GDP)



ING assessment of economic cycle



Note: Left hand chart shows the revision to IMF country forecasts for inflation and growth between April 2016 and October 2017

Source: ING, IMF.

This may affect interest rates. Review the Taylor Rule:

$$r_{target} = r_{neutral} + [0.5(GDP_{expected} - GDP_{trend}) + 0.5(i_{expected} - i_{trend})]$$

3

Currency Exchange Rates

ECONOMICS FOR VALUATION

THE FOREIGN EXCHANGE MARKET

- Currencies are referred to by their **ISO code** (e.g., USD, CHF, EUR).
- **Exchange rate:** The number of units of one currency (the price currency) that one unit of another (the base currency) will buy.
- Convention for exchange rate:

A/B = Number of units of A that one unit of B will buy.

A = Price currency

B = Base currency

Example:

INR/USD = 66.9100

- This means that one US dollar will buy 66.91 Indian rupees.
- If this exchange rate falls to 65, the dollar will buy fewer Indian rupees. In other words,
 - The **US dollar is depreciating** relative to the rupee or
 - The **rupee is appreciating** relative to the US dollar

Important note : There are many different conventions that are used around the world, but this presentation uses the conventions displayed by the authors in the chapters' examples.

REAL EXCHANGE RATES

PURCHASING POWER PARITY

- A real exchange rate is an exchange rate that has been adjusted for the relative purchasing power of the two currencies' home countries.
 - Quoted exchange rates are **nominal exchange rates**.
 - We calculate a real exchange rate by adjusting the exchange rates for the relative price levels of the countries in the pair.
- The real exchange rate, using AUD and USD, is the spot rate adjusted for the relative price levels:

$$\text{Real exchange rate}_{AUD/USD} = \frac{S_{AUD/USD} \times P_{USD}}{P_{AUD}} = S_{AUD/USD} \times \frac{P_{USD}}{P_{AUD}}$$

where

$S_{AUD/USD}$ is the nominal or spot exchange rate and

$\frac{P_{USD}}{P_{AUD}}$ is the relative price level.

CURRENCY EXCHANGE RATE QUOTES

- A **direct currency quote** uses the domestic currency as the price currency and the foreign currency as the base currency.
- An **indirect currency quote** uses the domestic currency as the base currency and the foreign currency as the price currency.

Example

Consider the quote **BRL/USD = 3.1912**

- The base currency is the US dollar (USD).
- The price currency is the Brazilian real (BRL).
- BRL/USD is a **direct currency** quote from the Brazilian perspective.
- BRL/USD is an **indirect currency** quote from the US perspective.

From the Brazilian perspective, we can convert the BRL/USD into indirect quote of USD/BRL by inverting:

$$\text{USD/BRL} = \frac{1}{3.1912} = 0.3134$$

IN PRACTICE

- There are a number of conventions, which simply refer to a particular exchange rate [see Exhibit 9-6 for a more comprehensive list].

FX Rate Quote Convention	Name Convention	Actual Ratio (Price currency/Base currency)
EUR	euro	USD/EUR
JPY	dollar–yen	JPY/USD
GBP	sterling	USD/GBP

- Dealers will quote a **bid** (at which the dealer will buy) and an **offer** price (at which the dealer will sell). [Note: bid < offer]

APPRECIATING OR DEPRECIATING

Appreciation or depreciation is with respect to the **base** currency relative to the price currency.

- **Appreciation** is a gain in value of one currency relative to another currency.
- **Depreciation** is the loss in value of one currency relative to another currency.

The percentage change is the ratio of the exchange rates minus one:

$$\% \text{ change} = \frac{(A/B)_{New}}{(A/B)_{Old}} - 1$$

Example:

Suppose **CZK/USD** is 24.20 and increases to 24.40.

- The percentage change is

$$\frac{24.4000}{24.2000} - 1 = 0.8264\%$$

- This means that the 'base' currency in the quote, **the US dollar (USD)**, has **appreciated 0.8264% against the Czech koruna**.

- It takes fewer US dollars to buy each koruna.

- This also means that **the Czech koruna depreciated** (invert the rate and treat CZK as the 'base currency') by

$$\frac{1/24.40}{1/24.20} - 1 = \frac{0.04098}{0.04132} - 1 = -0.8228\%$$

relative to the US dollar.

FORWARD RATE QUOTATIONS

- Forward exchange rates are quoted in terms of points (**pips**: points in percentage).
If forward rate > spot rate, the base currency is trading at a **forward premium**.
If forward rate < spot rate, the base currency is trading at a **forward discount**.
- Points are 1:10,000 (move the decimal place four places).
- Forward quotes can be specified as the number of pips from the spot rate or as a percentage of the spot rate.

Example: Using pips

Suppose that the **USD/EUR spot rate is 1.1200** and that the one-month forward **premium is 47 pips**. Therefore, the forward rate is

$$\begin{aligned}\text{Forward rate} &= 1.1200 + \frac{47}{10,000} \\ &= 1.1200 + 0.0047 \\ &= \mathbf{1.1247}\end{aligned}$$

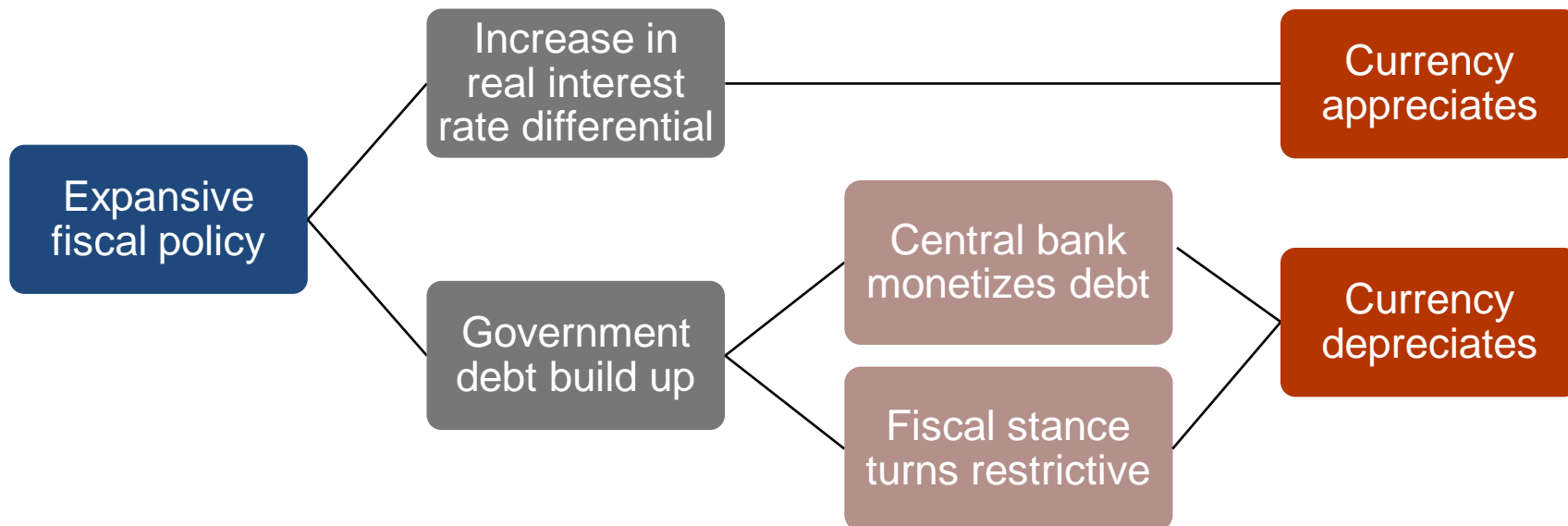
Example: Using a percentage

Suppose that the spot rate of **MXN/USD is 18.1000** and that the one-month forward premium as a percentage of the spot rate is **0.4%**. The one-month forward rate is

$$\begin{aligned}\text{Forward rate} &= 18.1000 \times 1.0040 \\ &= \mathbf{18.1724}\end{aligned}$$

FISCAL POLICY AND EXCHANGE RATES

- Fiscal policy effects on exchange rates are ambiguous because of the many channels possible.
- The **portfolio balance approach** to exchange rates assumes that investors hold diversified portfolios of stocks and bonds, domestic and foreign.
 - When a country runs sustained deficits, investors require higher returns, which leads to higher interest rates and/or the depreciation of the currency.



EXCHANGE RATES AND EQR

How to account for exchange rate effects in an Equity Research Report?

EXCHANGE RATES AND EQR



EXCHANGE RATES AND EQR

Eurex EUR vs USD Currency Future Chain Contracts

Contracts from Oct 2018 to June 2021

O#/FCEU:	FX EURUSD/d			DTB/EUX EUR		
Name	Mth	Last	Net.Ch	Bid	Ask	Settle
FX EURUSD OCT8/d	OCT8	*				1.14841
FX EURUSD NOV8/d	NOV8	*				1.14871
FX EURUSD DEC8/d	DEC8	*				1.14891
FX EURUSD MAR9/d	MAR9	*				1.14859
FX EURUSD JUN9/d	JUN9	*				1.14863
FX EURUSD SEP9/d	SEP9	*				1.14869
FX EURUSD DEC9/d	DEC9	*				1.14875
FX EURUSD JUN0/d	JUN0	*				1.14941
FX EURUSD DECO/d	DECO	*				1.15050
FX EURUSD JUN1/d	JUN1	*				1.15284

Eurex is “A leading global derivatives exchange trading, amongst others things, the most liquid EUR-denominated equity index and fixed income derivatives.” (www.eurexgroup.com)