Financial Markets and the Business Cycle
Economic Forecasting

- Technical Analysis can play a role in economic forecasting.

- The direction of commodities tells us something about the direction of inflation and gives us clues about the strength and weakness of the economy.

- Rising commodity prices generally hint at a stronger economy and rising inflationary pressure.

- Falling commodities usually warn that the economy and inflation are slowing.

- The direction of interest rates is affected by the direction of commodities.
Economic Forecasting

- Charts of commodities like oil and gold along with Treasury Bonds can tell us a lot about the strength or weakness of the economy and inflationary expectations.

- The direction of the $ and foreign currency futures also provide early guidance about the strength or weakness of the respective global economies.

- Trends in the foreign currency futures usually show up long before they are reflected in traditional economic indicators that are released monthly or quarterly and tell us what has already happened. Futures markets give us insights into the future.

- The S&P stock market index has long been counted as an official leading economic indicator.
Business Cycle

- Economy is rarely stable.
- It is either expanding or contracting.
- Periods of expansion generally last longer than periods of contraction.
- Financial Markets are also in a continual state of flux.
- Market participants anticipate future economic and financial developments and take action (buy/sell) with the result that markets reach major turning points well ahead of the actual development.
Economy is growing

Economy is contracting

Equilibrium

Business Cycle

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Business Cycle

- Bonds
- Stocks
- Commodities

Equilibrium (zero growth)
Business Cycle - Bonds

- Bonds are inversely related to Interest Rates.

- The Bond market is the first financial market to begin the bull phase after the growth rate in the economy has slowed down considerably from its highest point.

- Periods of expansion generally last longer than periods of contraction.

- Financial Markets are also in a continual state of flux (bull markets in equities last longer than bear markets).
Business Cycle - **Stocks**

- During recession, corporate profits decline sharply.
- Investors anticipate the future growth and start accumulating.
Business Cycle - Commodities

- After the recovery has been underway for some time, commodity prices start to rise.

- All three financial markets are in rising trend.
Bonds, Stocks, Commodities and the Business Cycle
Bonds, Stocks, Commodities and the Business Cycle

Idealized Business Cycle for the Six Stages of the Business Cycle

Stage 1: Expansion
Stage 2: Retraction
Stage 3: Bonds
Stage 4: Stocks
Stage 5: Commodities
Stage 6: Commodities

Bonds, Stocks, Commodities
Macroeconomics for Foreign Exchange
Gross Domestic Product (GDP)

- The most important measure of national economic activity.

- The market value of all final goods and services produced in a country/economy
  - Produced during the period (usually quarter or year)
  - Only goods that are valued in the market
  - Final goods and services only (not intermediate)
  - Rental value for owner-occupied housing (estimated)
  - Government services (at cost) – not transfers as they don’t create value
GDP: Expenditures Approach

- GDP = C + I + G + (X - M)

  Where

- C = consumption spending
- I = business investment (capital equipment + change in inventories)
- G = government purchases
- X = exports
- M = imports

The formula provides a rough forecast for GDP growth.
Nominal vs **Real GDP**

- **Nominal GDP** (total value in current prices)
- **Sum of all current year goods and services at current-year prices**
- **Used for ratios** (% of GDP...)
- **Real GDP** (measures increase in physical output)
- **Sum of all current year goods and services at base-year prices**
- **Usually when referrals are made to growth, real GDP growth is mentioned**
Nominal vs Real GDP

Nominal GDP$_t = P_t \times Q_t$

Where

$P_t =$ Prices in year $t$

$Q_t =$ Quantity Produced in year $t$

Real GDP$_t = P_B \times Q_t$

Where

$P_B =$ Prices in the base year
Business Cycles

Level of National Economic Activity

Time

Peak

Trough

Expansion

Growth

Contraction

Peak
Indications of **Cycle Changes**

- **Inventory / sales ratio:** Unexpected contraction in the economy. When sales decrease and inventories rise, the ratio will increase. In contrast, Unexpected recovery happens when sales increase and inventory levels down, causing the ratio to drop.

- In practice, I/S ratios are not reported in every country. Also, sometimes firms raise inventories in anticipation of a recovery. Inventory management methods also change. (Lesson: no indicator is the holy grail)

- **Labor and capacity utilization:** Firms do not hire and fire staff, or build / rent and sell / vacate plants and offices immediately. Beginning of a slowdown, labor and capital are used less intensively.

- Beginning of a recovery these resources are used more intensively. As confidence builds / evaporates, changes become more permanent. Example: hours worked vs. non-farm jobs in the United States.
# Economic Schools and Cycles

<table>
<thead>
<tr>
<th>School</th>
<th>Cause of Business Cycles</th>
<th>Recommended policy</th>
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<tbody>
<tr>
<td>Neoclassical</td>
<td>Technology changes</td>
<td>Allow wages, prices to adjust, equilibrium will come</td>
</tr>
<tr>
<td>Keynesian</td>
<td>Aggregate demand changes according to business expectations (animal spirits); contractions persist due to downward sticky wages</td>
<td>Use fiscal and/or monetary policy to restore full employment</td>
</tr>
<tr>
<td>New Keynesian</td>
<td>Same as Keynesian but other input prices also downward sticky (capital rent)</td>
<td>Same as Keynesian</td>
</tr>
<tr>
<td>Monetarist</td>
<td>Inappropriate changes in money supply growth rate (excesses or shortages). Exogenous shocks or government policy.</td>
<td>Steady, predictable growth rate of money supply in good and bad times. Allow economy to reach equilibrium</td>
</tr>
<tr>
<td>Austrian</td>
<td>Government intervention in the economy</td>
<td>Don’t force interest rates to artificially low levels. Let economy ‘cleanse’ itself.</td>
</tr>
<tr>
<td>Real Business Cycle (New Classical)</td>
<td>Responses to external shocks and technology changes</td>
<td>Don’t intervene to counteract business cycles, efficient responses to shocks</td>
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Unemployment Rate

- To count as unemployed, one must be available for work and actively looking for work. Manning the café tables doesn’t count!

- Labor force consists of those who are employed and those who are unemployed

- Unemployment rate = Number of unemployed / Labor Force
Types of Unemployment

- Frictional: Unemployment caused until workers and employers find a suitable match between them (the application and interview process for example)

- Structural: Results from long-term changes to the economy, for example by workers who used to work in sectors in long-term decline and refuse to acquire new skills. Long-term unemployed is another issue.

- Cyclical: Unemployment as a result of swings in the business cycle; at full employment this is equal to zero

- Very big focus on unemployment currently. Youth unemployment, long-term unemployment and unemployment as a policy tool.
Employment Statistics

- Participation ratio = Labor force / Total working age population. If unemployment drops while this is also falling then it is a signal to be concerned with (situation in the United States)

- Discouraged workers: available for work but neither working nor seeking employment; not in Labor Force but also not counted as unemployed.

- Part-time workers who would prefer to be working full-time another indicator
Inflation, Disinflation, Deflation

- **Inflation**: Persistent increase in price level over time
- **Inflation rate**: Percent increase in price level over a period (usually one year)
- **Disinflation**: Decrease in positive inflation rate over time
- **Deflation**: Persistent decrease in price level over time; negative inflation rate (the ultimate evil for today’s CBs ??)
- **Hyperinflation**: Out-of-control high inflation (usually double digit plus...)

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Inflation, Disinflation, Deflation

- Price index – weighted average of goods and services prices during a period, compared with a base period. The weighted average is a proxy for the overall price level.

- The consumer price index (CPI) measures the cost of a fixed “basket” of goods and services compared to the cost in a base period.

- Calculation: find cost of CPI basket in base period, cost of CPI basket in current period, calculate the index.

- CPI = (cost of basket in current period / cost of basket in base period) * 100
Other inflation indexes

- Price index for personal consumption expenditures (PCE): Surveys business instead of consumers, favoured by Federal Reserve
- GDP deflator: uses weights that are relevant to the calculation of GDP
- Producer price index: Crude materials, intermediate goods, finished goods prices. Measure of price pressures for businesses or inflation in the pipeline
- Harmonized index of Consumer Prices: produces inflation figures that are comparable across member-states of the European Union
Headline and Core Inflation

- Headline inflation includes all goods and services
- Core inflation excludes food and energy prices
- Food and energy prices subject to large short-term fluctuations that can magnify or mask the true rate of inflation
- Somewhat controversial: price of oil from $20 to $120 – short-term fluctuation or inflation?
Mechanisms that push **prices higher**

- **Cost-push inflation**: increases in wages or other producer input prices (supply side inflation)

- **Demand-pull inflation**: increase in aggregate demand above full employment

  ▪ Why is inflation so important? Isn’t inflation dead?

  ▪ Inflation is probably in hibernation during the economic crisis. Resurgence of inflation can lead to the lifting of extraordinary monetary stimulus measures and could have dramatic impact on bond prices. Worth watching.
Economic Indicators - Leading

- Turning points in these tend to precede business cycle peaks and troughs
- Leading Economic Index (US) contains:
  - Weekly hours, manufacturing (labour utilization argument)
  - Weekly unemployment insurance claims
  - Manufacturers’ new orders, consumer goods
  - Manufacturers’ new orders nondefense capital goods
  - Business confidence, building permits, stock prices
  - Money supply, yield curve, consumer expectations
Economic Indicators - Coincident

- Turning points in these tend to coincide with business cycle peaks and troughs

- Coincident Economic Index (US):
  - Nonfarm payrolls
  - Personal income less transfer payments
  - Industrial production
  - Manufacturing and trade sales
Economic Indicators - Lagging

- Turning points in these tend to follow business cycle peaks and troughs

- Unemployment rate is a lagging indicator

- Lagging economic index:
  - Duration of unemployment
  - Inventory/sales ratio, manufacturing and trade
  - Commercial and industrial loans, prime rate
  - CPI for services, manufacturing labour cost per unit of input
  - Consumer credit/personal income ratio
Economic Indicators – Example (1)

- Payroll employment up
- Manufacturing new orders down
- Average prime rate up
- Yield curve flattening
- Inventory / sales up
Economic Indicators – Example (2)

- Payroll employment up (coincident),
- manufacturing new orders down (leading),
- average prime rate up (lagging),
- yield curve flattening (leading),
- inventory / sales up (lagging)
- ... peak
Monetary Policy

- Management of supply of money and credit
  - Expansionary: Increase money supply, decrease interest rates, increase aggregate demand and boost growth (and raise inflation) **NORMALLY BAD FOR A CURRENCY**
  - Contractionary: Decrease the money supply, increase interest rates, decrease aggregate demand and slow growth (and lower inflation) **NORMALLY GOOD FOR A CURRENCY**
Fiscal Policy

- Government decisions on taxing and spending
  - Expansionary: Increase spending and/or decrease taxes, increase the budget deficit, increase aggregate demand
  - Contractionary: Decrease spending and/or increase taxes, decrease the budget deficit, reduce aggregate demand
Objectives of Central Banks

- Price stability, expressed as a low inflation rate – usually under 2% or 3%, is a common goal for all central banks. Also attempts to avoid deflation

- Other goals:
  - Maintain full employment
  - Promote economic growth
  - Keep exchange rates stable
  - Keep long-term interest rates moderate
  - Maintain financial stability

- The ECB has also said it aims to preserve the euro...
Monetary Policy Tools (1)

- **Policy rate**: Interest rate central banks charge banks for borrowed reserves
  - By raising the policy rate, the Central Bank discourages banks from borrowing reserves. This reduces bank lending
  - By decreasing the discount rate, this tends to increase the amount of lending as well as the money supply
  - In the United States the Federal Reserve sets a target for the Fed Funds rate, the rate at which banks lend overnight to each other, funds that are placed with the Federal Reserve.
  - In the Eurozone, main refinancing operations rate is the rate banks can borrow from the European Central Bank under weekly, bi-weekly or monthly repurchase agreements (cash for collateral).
Monetary Policy Tools (2)

- Open market operations: used often
  - Central bank buys (sells) government securities for cash, which increases (decreases) reserves and the money supply increases (decreases)

- Required reserve ratio: seldom changed (except maybe for emerging economies)
  - Reducing (increasing) required reserve percentage increases (decreases) excess reserves that can be loaned out and increases (decreases) the money supply
The Neutral Interest Rate

- Neutral interest rate = trend growth rate of real GDP + target inflation rate
- Policy rate > neutral rate: contractionary
- Policy rate < neutral rate: expansionary
- For economy that has trend growth rate of 2.5% and expected inflation of 2.0%, neutral rate would be 4.5%
Limitations of Monetary Policy (1)

- Long-term rates are more difficult to control (probably written before QE…) and they may move in opposite way to short-term rates because inflation expectations change.

- If monetary tightening is extreme, expectations of recession may make long-term bonds more attractive, reducing long-term rates and perhaps creating inverted yield curve.

- People in certain cases (deflation, too much uncertainty, expected adverse events such as war etc.) will hold currency even as money supply increases, referred to as a liquidity trap. Currently a big challenge for CBs.

- Loose monetary policy for periods longer than necessary can lead to bubbles. Always hard to raise interest rates – very unpopular.
Limitations of Monetary Policy (2)

- Banks may desire to improve their capital ratios (or deleverage) and not increase lending in response to expansionary monetary policy

- Short-term rates cannot be below zero – limits a CB’s ability to act against deflation

  ▪ Following the 2008 crisis, CBs (Fed, Bank of England, Bank of Japan) employed “quantitative easing” (QE), buying longer-dated government securities, mortgage securities and risky bonds

  ▪ Unprecedented actions, in theory liquidity could be quickly withdrawn if inflation rears ugly head, in practice it remains to be seen how exit will be achieved
Fiscal Policy **Schools**

- Keynesian economists believe discretionary fiscal policy can stabilize the economy, increase aggregate demand to combat recessions and when necessary, decrease aggregate demand to combat inflation.

- Monetarists believe that such effects are temporary and that appropriate monetary policy will dampen economic cycles.

- Automatic stabilizers (taxes and transfer payments such as unemployment benefits) tend to increase deficits during recessions and decrease deficits during expansions.

- Goals of fiscal policy: influence aggregate demand, redistribute wealth and change the allocation of resources to different sectors of the economy.
Fiscal Tools

- **Spending**
  - Transfer payments: cash payments by government to redistribute wealth
  - Current spending: Purchases of goods and services
  - Capital spending: investment such as infrastructure or support of research and development

- **Revenue**
  - Direct taxes – levied on income or wealth
  - Indirect taxes – levied on goods and services
  - (examples: income tax, VAT, dividend tax, corporate tax, tobacco levy)
Government Debt

- Debt ratio = government debt / GDP

- NB: If the real interest rate on government debt is less than the real rate of growth, debt ratio will decrease over time.

- That is why everyone talks about growth. Maastricht deficit criterion is related to this rule.
Policy Interaction

- Monetary loose fiscal loose: strong expansionary effect, public and private sectors grow

- Monetary tight fiscal tight: slower GDP growth, higher interest rates, public and private sectors decline (some Eurozone adjustment programs like this)

- Monetary loose fiscal tight: interest rates fall, consumption, output and private sector expand (current US, UK)

- Monetary tight fiscal loose: interest rates rise, aggregate demand likely higher, public sector portion of spending grows