Outline

• GDP
• Real versus nominal
• Price level, inflation
• Balance of Payments
  - Current account
  - Private financial account and official reserves transactions
GDP

- Sum of value of all goods and services produced within a given time period (usually a year or a quarter)
- If quarterly, usually adjusted up to yearly rates
- GDP = C + I + G + (Ex − Im)
- All these are “final” goods and services
GDP Components

Nominal GDP, SAAR bn. $

Nominal GDP. BEA, 2017Q2 2nd release
Real vs. Nominal

- Nominal values are expressed at values recorded. GDP is just all the values of items spent on, added up.
- Real values control for the general price level, to get in principle “quantities”.
- Nominal Value/Price index = Real Quantity
- Nominal Price/Price index = Relative Price
Nominal vs. Real

Source: BEA, 2017Q2 2nd release
Relative Price (of Oil)

Oil price, WTI

2016$/bbl (CPI deflated)
Price Level vs. Inflation

• Let $P =$ price level

• Inflation = *percent* rate of change of price level

• Standard definition: $\pi_t = (P_t - P_{t-1})/P_{t-1}$ (on annual basis)

• Sometimes, a continuously compounded definition is used:

  • $\pi_t = \ln(P_t)-\ln(P_{t-1})$

• Standard variables: CPI, core CPI, PCE
Price Levels, Normalized

![Graph showing price levels over time, normalized at 1973M01=1. The graph includes two lines: CPI and Core CPI. The y-axis represents price levels ranging from 0 to 6, and the x-axis represents years from 1975 to 2015. The CPI line starts at a lower price level in 1973 and rises steadily to the top of the graph by 2015, while the Core CPI line follows a similar pattern but stays below the CPI line throughout the period.](image-url)
Price Levels, Normalized, Logs

In logs, $1973M01=0$

- Blue line: $\log(\text{CPIAUCSL}/\text{ELEM(CPIAUCSL,73.01)})$
- Red line: $\log(\text{CPILFESL}/\text{ELEM(CPILFESL,73.01)})$
Inflation: Total vs. Core

(CPIAUCSL/CPIAUCSL(-1))^12-1
(CPILFESL/CPILFESL(-1))^12-1
Inflation: Total vs. Core

(CPIAUCSL/CPIAUCSL(-12))^1-1
(CPILFESL/CPILFESL(-12))^1-1

Inflation, y/y annualized
Balance of Payments Acc’tg

True by definition:

\[ \text{CA} + [\text{FA} + \text{ORT}] \equiv 0 \]

Current acct + [Private financial acct + official reserves transactions] \(\equiv 0\)

\[ \text{CA} \equiv (X - IM) + F + V \]

Current acct \(\equiv\) Net Exports + net income + net unilateral transfers
Current acct \(\equiv\) “trade balance” + “primary income” + “secondary income”

*Economic Indicators, July 2017*
Current Account

\[ CA \equiv (X - IM) + F + V \]

Current acct \equiv Net Exports + net income + net unilateral transfers

Current acct \equiv “trade balance” + “primary income” + “secondary income”

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### Current Account

<table>
<thead>
<tr>
<th>Period</th>
<th>Exports</th>
<th>Imports</th>
<th>Balance</th>
<th>Goods</th>
<th>Exports</th>
<th>Imports</th>
<th>Balance</th>
<th>Current Account 1</th>
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</table>

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[Millions of dollars; quarterly data seasonally adjusted]
Current Account

\[ \text{CA} \equiv (X - IM) + F + V \]

Current acct \equiv Net Exports + net income + net unilateral transfers
Current acct \equiv “trade balance” + “primary income” + “secondary income”
Financial Acct + ORT

\[ \text{CA} + \text{FA} + \text{ORT} \equiv 0 \]

Current acct + Private financial acct + official reserves transactions \equiv 0

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<table>
<thead>
<tr>
<th>Period</th>
<th>Balance on capital account</th>
<th>Net U.S. acquisition of financial assets excluding financial derivatives</th>
<th>Net U.S. incurrence of liabilities excluding financial derivatives</th>
<th>Net lending (+) or net borrowing (−) from financial account transactions</th>
<th>U.S. official reserve assets, net (unadjusted, end of period)</th>
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<tbody>
<tr>
<td></td>
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<td>[net increase in assets / financial outflow (+)]</td>
<td>[net increase in liabilities / financial inflow (+)]</td>
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<td>Balance on capital account</td>
<td>Total, Direct investment assets, Portfolio investment assets, Other investment assets</td>
<td>Reserve assets</td>
<td>Total, Direct investment assets, Portfolio investment assets, Other investment liabilities, Financial derivatives other than reserves, net transactions</td>
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</tr>
</tbody>
</table>

-ORT
Financial Acct + ORT

\[ \text{CA} + \text{FA} + \text{ORT} \equiv 0 \]

Current acct + Private financial acct + official reserves transactions \equiv 0

Difference is Negative of [FA + ORT]
Summary of BoP Acc’tg

- 2016 CA is -$451.7 billion
- 2016 FA + ORT is +$377.7 billion (need to reverse sign to match our definitions)
- 2016 statistical discrepancy is +$74.1 billion
- 2016 FA + ORT + stat. disc. = $451.8 billion