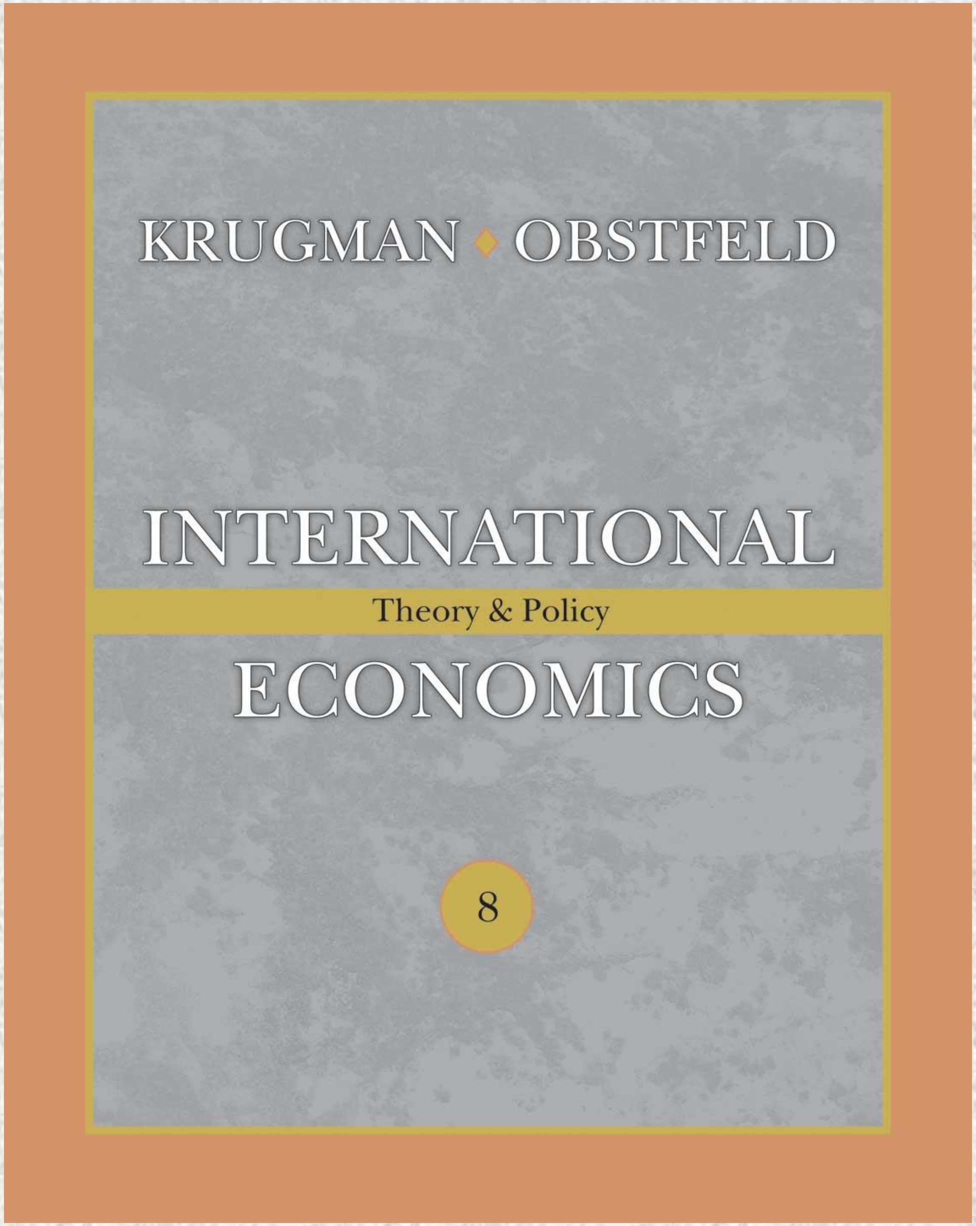


Chapter 12

National Income Accounting and the Balance of Payments

Slides prepared by Thomas Bishop

Preview

- National income accounts
    - measures of national income
    - measures of value of production
    - measures of value of expenditure
- National saving, investment, and the current account
- Balance of payments accounts

National Income Accounts

- Records the value of **national income** that results from *production* and *expenditure*.
  - Producers earn income from buyers who spend money on goods and services.
  - The amount of expenditure by buyers = the amount of income for sellers = the value of production.
  - National income is often defined to be the *income earned by a nation's factors of production.*

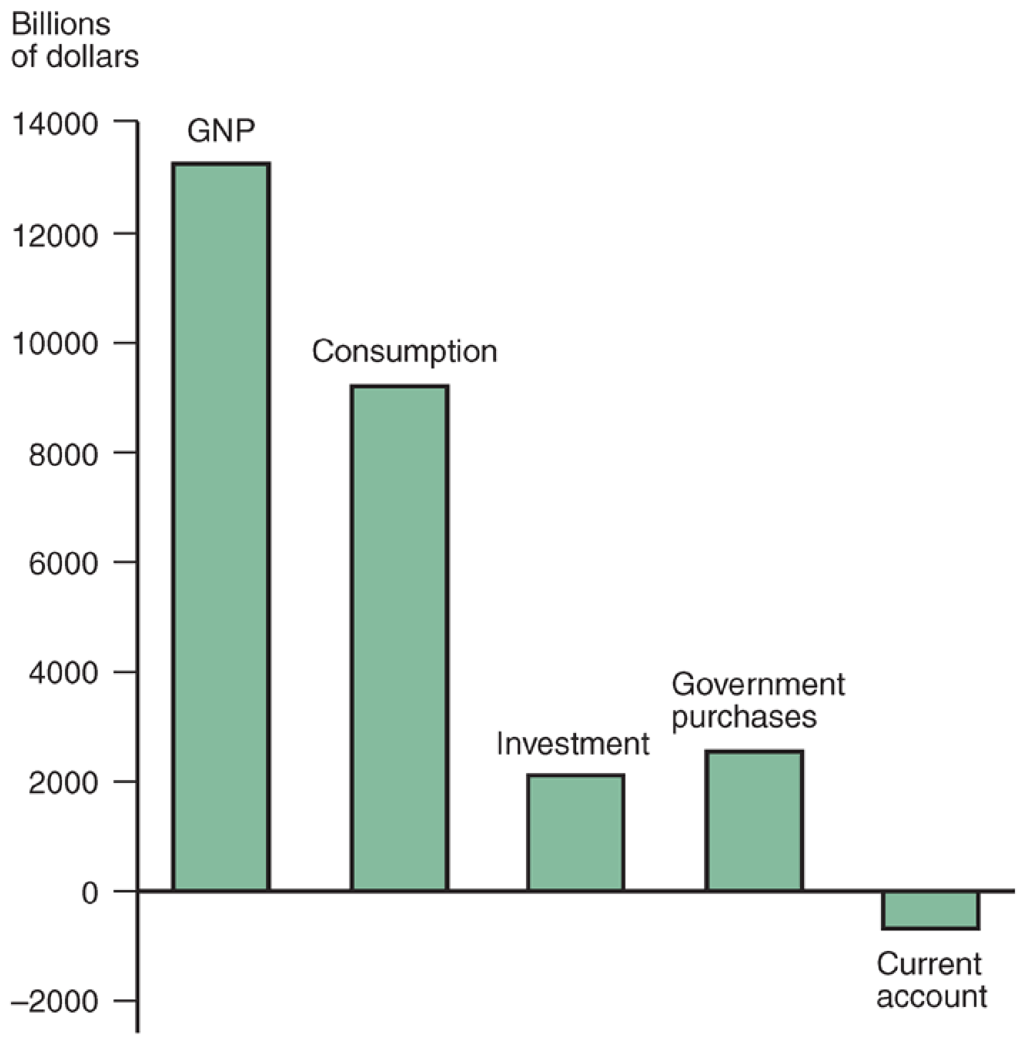
National Income Accounts: GNP

- **Gross national product** (GNP) is the value of all final goods and services *produced by a nation's factors of production* in a given time period.
  - What are factors of production? Factors that are used to produce goods and services: workers (labor services), physical capital (like buildings and equipment), natural resources and others.
  - The value of final goods and services produced by US-owned factors of production are counted as US GNP.

National Income Accounts: GNP (cont.)

- GNP is calculated by adding the value of expenditure on final goods and services produced.
- There are 4 types of expenditure:
  1. Consumption: expenditure by domestic consumers
  2. Investment: expenditure by firms on buildings & equipment
  3. Government purchases: expenditure by governments on goods and services
  4. Current account balance (exports minus imports): net expenditure by foreigners on domestic goods and services

Fig. 12-1: U.S. GNP and Its Components



Source: U.S. Department of Commerce, Bureau of Economic Analysis

National Income Accounts

- GNP is one measure of national income, but a more precise measure of national income is GNP adjusted for following:

1. **Depreciation** of physical capital results in a loss of income to capital owners, so the amount of depreciation is subtracted from GNP.

2. **Unilateral transfers** to and from other countries can change national income: payments of expatriate workers sent to their home countries, foreign aid and pension payments sent to expatriate retirees

National Income Accounts (cont.)

- Another approximate measure of national income is **gross domestic product** (GDP):
- Gross domestic product measures the final value of all goods and services that are produced *within a country* in a given time period.
- GDP = GNP – payments from foreign countries for factors of production + payments to foreign countries for factors of production

GNP = Expenditure on a Country's Goods and Services

National income = value of domestic production

Expenditure on domestic production

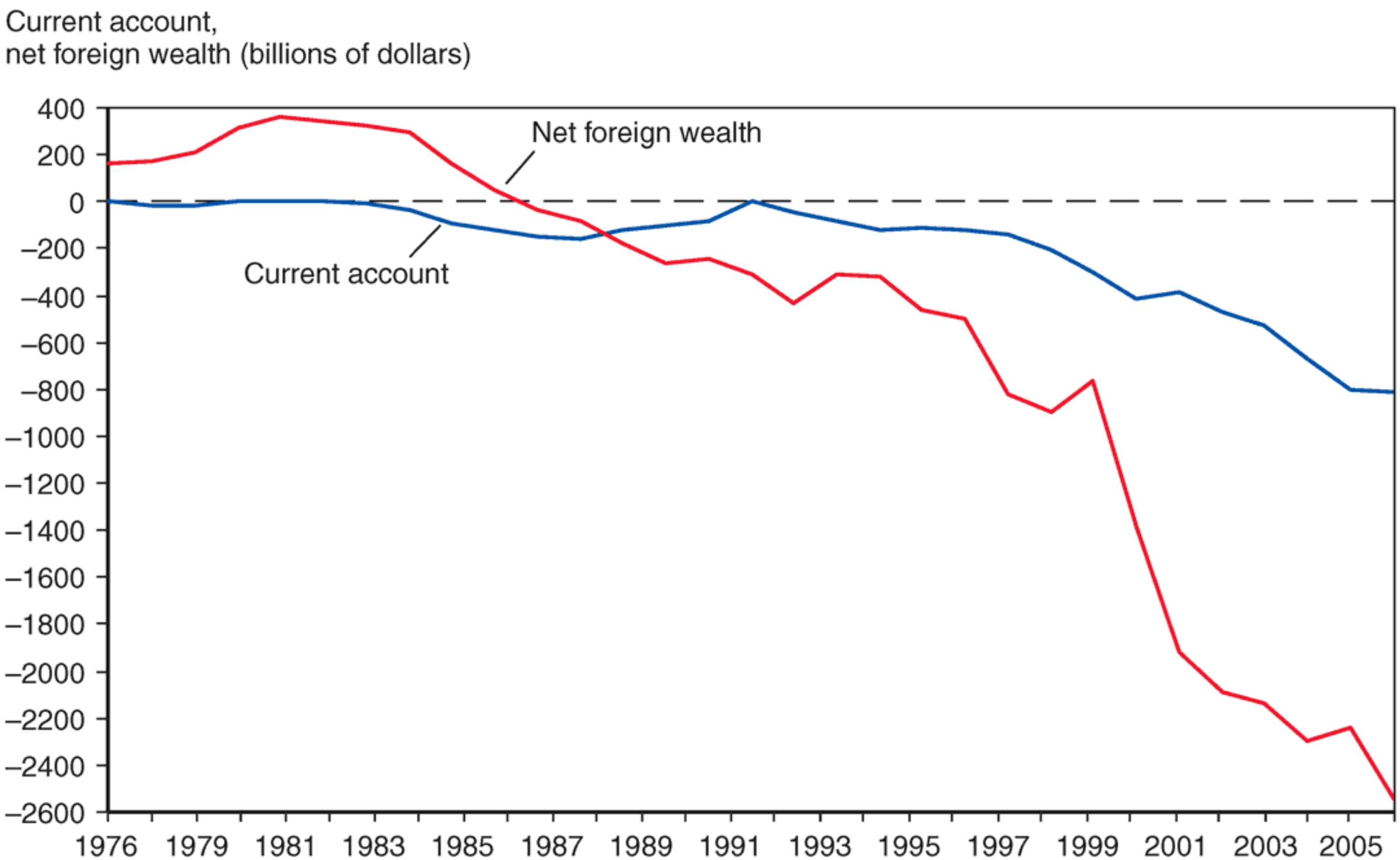
$$
\begin{aligned}
Y &= C^d + I^d + G^d + EX \\
&= (C - C^f) + (I - I^f) + (G - G^f) + EX \\
&= C + I + G + EX - (C^f + I^f + G^f) \\
&= C + I + G + EX - IM \\
&= \underbrace{C + I + G}_{\text{Expenditure by domestic individuals and institutions}} + \underbrace{CA}_{\text{Net expenditure by foreign individuals and institutions}}
\end{aligned}
$$

Expenditure and Production in an Open Economy

$$CA = EX - IM = Y - (C + I + G)$$

- When production > domestic expenditure, exports > imports: current account > 0 and trade balance > 0
  - when a country exports more than it imports, it earns more income from exports than it spends on imports
  - net foreign wealth is increasing
- When production < domestic expenditure, exports < imports: current account < 0 and trade balance < 0
  - when a country exports less than it imports, it earns less income from exports than it spends on imports
  - net foreign wealth is decreasing

Fig. 12-2: U.S. Current Account and Net Foreign Wealth, 1976–2006



Source: U.S. Department of Commerce, Bureau of Economic Analysis, June 2007 release

Saving and the Current Account

- National saving (S) = national income (Y) that is not spent on consumption (C) or government purchases (G).
- $Y - C - G$
- $(Y - C - T) + (T - G)$
- $S^p + S^g = S$

How Is the Current Account Related to National Saving?

$$\boldsymbol{CA} = \boldsymbol{Y} - (\boldsymbol{C} + \boldsymbol{I} + \boldsymbol{G})$$

implies

$$\boldsymbol{CA} = (\boldsymbol{Y} - \boldsymbol{C} - \boldsymbol{G}) - \boldsymbol{I}$$

$$= \boldsymbol{S} - \boldsymbol{I}$$

current account = ***national saving – investment***

current account = ***net foreign investment***

- A country that imports more than it exports has low national saving relative to investment.

How Is the Current Account Related to National Saving? (cont.)

$$CA = S - I \qquad \textit{or} \qquad I = S - CA$$

- Countries can finance investment either by saving or by acquiring foreign funds equal to the current account deficit.
  - ♦ a current account deficit implies a financial asset inflow or negative net foreign investment.
- When $S > I$, then $CA > 0$ so that net foreign investment and financial capital outflows for the domestic economy are positive.

How Is the Current Account Related to National Saving? (cont.)

$$CA = S^p + S^g - I$$

$$= S^p - \text{government deficit} - I$$

- Government deficit is negative government saving
  - equal to G – T
- A high government deficit causes a negative current account balance when other factors remain constant.

Balance of Payments Accounts

- A country's balance of payments accounts accounts for its payments to and its receipts from foreigners.
- An international transaction involves two parties, and each transaction enters the accounts twice: once as a credit (+) and once as a debit (-).

Balance of Payments Accounts (cont.)

- The balance of payments accounts are separated into 3 broad accounts:
  - **current account**: accounts for flows of goods and services (imports and exports).
  - **financial account**: accounts for flows of financial assets (financial capital).
  - **capital account**: flows of special categories of assets (capital): typically non-market, non-produced, or intangible assets like debt forgiveness, copyrights and trademarks.

Example of Balance of Payments Accounting

- You import a DVD of Japanese anime by using your debit card.
- The Japanese producer of anime deposits the money in its bank account in San Francisco. The bank credits the account by the amount of the deposit.

DVD purchase (current account)	–$30
Credit (“sale”) of deposit in account by bank (financial account)	+$30

Example of Balance of Payments Accounting (cont.)

- You invest in the Japanese stock market by buying \$500 in Sony stock.
- Sony deposits the money in its Los Angeles bank account. The bank credits the account by the amount of the deposit.

Purchase of stock (financial account)	–\$500
Credit (“sale”) of deposit in account by bank (financial account)	+\$500

Example of Balance of Payments Accounting (cont.)

- U.S. banks forgive a $100 M debt owed by the government of Argentina through debt restructuring.
- U.S. banks who hold the debt thereby reduce the debt by crediting Argentina's bank accounts.

Debt forgiveness: non-market transfer (capital account)	–$100 M
Credit ("sale") of account by bank (financial account)	+$100 M

How Do the Balance of Payments Accounts Balance?

- Due to the double entry of each transaction, the balance of payments accounts will balance by the following equation:

current account +

financial account +

capital account = 0

Balance of Payments Accounts

- The 3 broad accounts are more finely divided:
- **Current account**: imports and exports
  1. merchandise (goods like DVDs)
  2. services (payments for legal services, shipping services, tourist meals,…)
  3. income receipts (interest and dividend payments, earnings of firms and workers operating in foreign countries)
- **Current account**: *net unilateral transfers*
  - ♦ gifts (transfers) across countries that do not purchase a good or service nor serve as income for goods and services produced

Balance of Payments Accounts (cont.)

- **Capital account**: records special transfers of assets, but this is a minor account for the U.S.

Balance of Payments Accounts (cont.)

- **Financial account**: the difference between sales of domestic assets to foreigners and purchases of foreign assets by domestic citizens.
- **Financial inflow**
  - Foreigners loan to domestic citizens by buying domestic assets
  - Domestic assets sold to foreigners are a credit (+) because the domestic economy acquires money during the transaction
- **Financial outflow**
  - Domestic citizens loan to foreigners by buying foreign assets
  - Foreign assets purchased by domestic citizens are a debit (-) because the domestic economy gives up money during the transaction

Balance of Payments Accounts (cont.)

- **Financial account** has at least 3 subcategories:

1. **Official (international) reserve assets**
2. All other assets
3. **Statistical discrepancy**

Balance of Payments Accounts (cont.)

- **Statistical discrepancy**
  - Data from a transaction may come from different sources that differ in coverage, accuracy, and timing.
  - The balance of payments accounts therefore seldom balance in practice.
  - The statistical discrepancy is the account added to or subtracted from the financial account to make it balance with the current account and capital account.

Balance of Payments Accounts (cont.)

- **Official (international) reserve assets**: foreign assets held by central banks to cushion against financial instability.
  - Assets include government bonds, currency, gold and accounts at the International Monetary Fund.
  - Official reserve assets owned by (sold to) foreign central banks are a credit (+) because the domestic central bank can spend more money to cushion against instability.
  - Official reserve assets owned by (purchased by) the domestic central bank are a debit (-) because the domestic central bank can spend less money to cushion against instability.

Balance of Payments Accounts (cont.)

- The negative value of the official reserve assets is called the **official settlements balance** or "balance of payments."
  - ♦ It is the sum of the current account, the capital account, the non-reserve portion of the financial account, and the statistical discrepancy.
  - ♦ A negative official settlements balance may indicate that a country
    - is depleting its official international reserve assets or
    - may be incurring large debts to foreign central banks so that the domestic central bank can spend a lot to protect against financial instability.

Table 12-2: U.S. Balance of Payments Accounts for 2006 (billions of dollars)

	Credits	Debits
Current Account		
(1) Exports	+2,096.2	
Of which:		
Goods	+1,023.1	
Services	+422.6	
Income receipts	+650.5	
(2) Imports		−2,818.0
Of which:		
Goods		−1,861.4
Services		−342.8
Income payments		−613.8
(3) Net unilateral current transfers		−89.6
Balance on current account [(1) + (2) + (3)]		−811.5
Capital Account		
(4)		−3.9

Table 12-2: U.S. Balance of Payments Accounts for 2006 (billions of dollars, cont.)

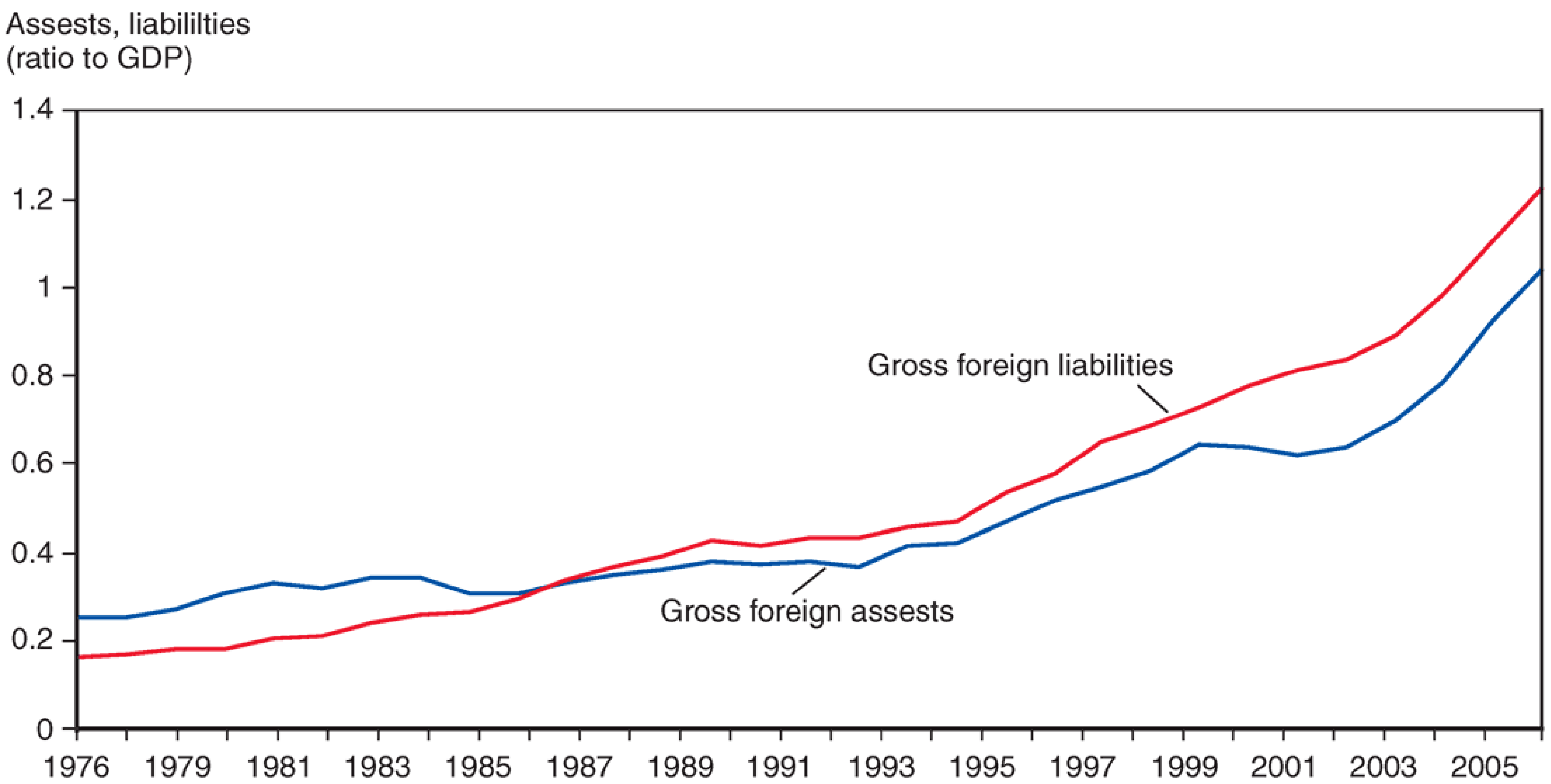
Financial Account		
(5) U.S. assets held abroad, excluding financial derivatives (increase −)		−1,055.2
Of which:		
Official reserve assets	+2.4	
Other assets		−1,057.6
(6) Foreign assets held in U.S., excluding financial derivatives (increase +)	+1,859.6	
Of which:		
Official reserve assets	+440.3	
Other assets	+1,419.3	
(7) Financial derivatives, net	+28.8	
Balance on financial account [(5) + (6) + (7)]	+833.2	
Statistical discrepancy [sum of (1) through (7) with sign reversed]		−17.8

Source: U.S. Department of Commerce, Bureau of Economic Analysis, June 15, 2007, release. Totals may differ from sums because of rounding.

U.S. Balance of Payments Accounts

- The U.S. has the most negative net foreign wealth in the world, and so is therefore the world's largest debtor nation.
- And its current account deficit in 2006 was $812 billion dollars, so that net foreign wealth continued to decrease.
- The value of foreign assets held by the U.S. has grown since 1980, but liabilities of the U.S. (debt held by foreigners) has grown more quickly.

Fig. 12-3: U.S. Gross Foreign Assets and Liabilities, 1976-2006



Source: U.S. Department of Commerce, Bureau of Economic Analysis, June 2007

U.S. Balance of Payments Accounts (cont.)

- About 70% of foreign assets held by the U.S. are denominated in foreign currencies and almost all of U.S. liabilities (debt) are denominated in dollars.
- Changes in the exchange rate influence value of net foreign wealth (gross foreign assets minus gross foreign liabilities).
  - Appreciation of the value of foreign currencies makes foreign assets held by the U.S. more valuable, but does not change the dollar value of dollar-denominated debt for the U.S.

Summary

1. A country's GNP is roughly equal to the income received by its factors of production.
2. In an open economy, GNP equals the sum of consumption, investment, government purchases, and the current account.
3. GDP is equal to GNP minus net income from foreign countries for factors of production. It measures the value of output produced within a country's borders.

Summary (cont.)

4. National saving minus domestic investment equals the current account (≈ exports minus imports).
5. The current account equals the country's net foreign investment (net outflows of financial assets).
6. The balance of payments accounts records flows of goods & services and flows of financial assets across countries.
   - It has 3 parts: current account, capital account, and financial account, which balance each other.
   - Transactions of goods and services appear in the current account; transactions of financial assets appear in the financial account.

Summary (cont.)

7. Official international reserve assets are a component of the financial account which records official assets held by central banks.

8. The official settlements balance is the negative value of official international reserve assets, and it shows a central bank's holdings of foreign assets relative to foreign central banks' holdings of domestic assets.

9. The U.S. is the largest debtor nation, and its foreign debt continues to grow because its current account continues to be negative.

Additional Chapter Art

Table 12-1: National Income Accounts for Agraria, an Open Economy (bushels of wheat)

GNP (total output)	=	Consumption	+	Investment	+	Government purchases	+	Exports	−	Imports
100	=	75[a]	+	25	+	10	+	10	−	20[b]

[a] 55 bushels of wheat + (0.5 bushel per gallon) × (40 gallons of milk).

[b] 0.5 bushel per gallon × 40 gallons of milk.

Table 12-3: International Investment Position of the United States at Year End, 2005 and 2006 (millions of dollars)

Line	Type of investment	Position, 2005 [r]	Attributable to:					Position, 2006 [p]
			Financial flows (a)	Valuation adjustments			Total (a+b+c+d)	
				Price changes (b)	Exchange-rate changes [1] (c)	Other changes [2] (d)		
1	**Net international investment position of the United States (lines 2+3)**	**-2,238,359**	**-833,183**	**347,585**	**220,653**	**-36,325**	**-301,270**	**-2,539,629**
2	Financial derivatives, net (line 5 less line 25) [3]	57,915	-28,762	(4)	(4)	[4] 29,782	1,020	58,935
3	Net international investment position, excluding financial derivatives (line 6 less line 26)	-2,296,274	-804,421	347,585	220,653	-66,107	-302,290	-2,598,564
4	**U.S.-owned assets abroad (lines 5+6)**	**11,576,336**	(3)	(3)	(3)	(3)	**2,178,654**	**13,754,990**
5	Financial derivatives, gross positive fair value	1,190,029	(3)	(3)	(3)	(3)	47,535	1,237,564
6	U.S.-owned assets abroad, excluding financial derivatives (lines 7+12+17)	10,386,307	1,055,176	675,909	268,603	131,431	2,131,119	12,517,426
7	U.S. official reserve assets	188,043	-2,374	31,123	3,092	-31	31,810	219,853
8	Gold	134,175	0	[5] 31,123	.....	[6] -31	31,092	165,267
9	Special drawing rights	8,210	223	.....	437	0	660	8,870
10	Reserve position in the International Monetary Fund	8,036	-3,331	.....	335	0	-2,996	5,040
11	Foreign currencies	37,622	734	.....	2,320	0	3,054	40,676
12	U.S. Government assets, other than official reserve assets	77,523	-5,346	.....	.....	12	-5,334	72,189
13	U.S. credits and other long-term assets [7]	76,960	-5,337	.....	.....	12	-5,325	71,635
14	Repayable in dollars	76,687	-5,337	.....	.....	12	-5,325	71,362
15	Other [8]	273	0	.....	.....	.....	0	273
16	U.S. foreign currency holdings and U.S. short-term assets	563	-9	.....	.....	.....	-9	554
17	U.S. private assets	10,120,741	1,062,896	644,786	265,511	131,450	2,104,643	12,225,384
18	Direct investment at current cost	2,535,188	235,358	46,009	39,188	-124	320,431	2,855,619
19	Foreign securities	4,345,884	289,422	598,777	198,181	0	1,086,380	5,432,264
20	Bonds	1,028,179	150,884	-12,032	13,727	0	152,579	1,180,758
21	Corporate stocks	3,317,705	138,538	610,809	184,454	0	933,801	4,251,506
22	U.S. claims on unaffiliated foreigners reported by U.S. nonbanking concerns	734,034	83,531	.....	13,075	17,824	114,430	848,464
23	U.S. claims reported by U.S. banks, not included elsewhere	2,505,635	454,585	.....	15,067	113,750	583,402	3,089,037

Table 12-3: International Investment Position of the United States at Year End, 2005 and 2006 (millions of dollars)

24	**Foreign-owned assets in the United States (lines 25+26)**	**13,814,695**	(3)	(3)	(3)	(3)	**2,479,924**	**16,294,619**
25	Financial derivatives, gross negative fair value	1,132,114	(3)	(3)	(3)	(3)	46,515	1,178,629
26	Foreign-owned assets in the Unites States, excluding financial derivatives (lines 27+34)	12,682,581	1,859,597	328,324	47,950	197,538	2,433,409	15,115,990
27	Foreign official assets in the United States	2,306,292	440,264	20,840	.....	2,769	463,873	2,770,165
28	U.S. Government securities	1,725,193	380,734	-8,563	.....	7,332	379,503	2,104,696
29	U.S. Treasury securities	1,340,598	189,181	-8,600	.....	-411	180,170	1,520,768
30	Other	384,595	191,553	37	.....	7,743	199,333	583,928
31	Other U.S. Government liabilities [9]	15,866	3,133	.....	.....	0	3,133	18,999
32	U.S. liabilities reported by U.S. banks, not included elsewhere	296,647	22,040	.....	.....	-22,000	40	296,687
33	Other foreign official assets	268,586	34,357	29,403	.....	17,437	81,197	349,783
34	Other foreign assets	10,376,289	1,419,333	307,484	47,950	194,769	1,969,536	12,345,825
35	Direct investment at current cost	1,868,245	180,580	32,495	3,916	14,190	231,181	2,099,426
36	U.S. Treasury securities	643,793	-35,931	-9,233	.....	-4,386	-49,550	594,243
37	U.S. securities other than U.S. Treasury securities	4,352,998	591,951	284,222	25,419	-26,054	875,538	5,228,536
38	Corporate and other bonds	2,243,135	449,194	-12,143	25,419	-15,789	446,681	2,689,816
39	Corporate stocks	2,109,863	142,757	296,365	.....	-10,265	428,857	2,538,720
40	U.S. currency	351,706	12,571	.....	.....	0	12,571	364,277
41	U.S. liabilities to unaffiliated foreigners reported by U.S. nonbanking concerns	557,840	235,769	.....	9,605	-62,849	182,525	740,365
42	U.S. liabilities reported by U.S. banks, not included elsewhere	2,601,707	434,393	.....	9,010	273,868	717,271	3,318,978
	Memoranda:							
43	Direct investment abroad at market value	3,570,252	235,358	393,709	179,732	-1,221	807,578	4,377,830
44	Direct investment in the United States at market value	2,806,029	180,580	226,483	.....	9,387	416,450	3,222,479

p Preliminary
r Revised
..... Not applicable

1. Represents gains or losses on foreign-currency-denominated assets and liabilities due to their revaluation at current exchange rates.
2. Includes changes in coverage, capital gains and losses of direct investment affiliates, and other adjustments to the value of assets and liabilities.
3. Financial flows and valuation adjustments for financial derivatives are available only on a net basis; they are not separately available for gross positive fair values and gross negative fair values of financial derivatives. Consequently, financial flows and valuation adjustments for financial derivatives are shown only on line 2; columns (a) through (d) on lines 4, 5 and 24, 25 are not available.
4. Data are not separately available for the three types of valuation adjustments; therefore, the sum of all three types is shown in column (d). Price changes result from changes in the value of derivatives contracts due to changes in the value of their underlying assets or reference rates, which may arise from movements in interest rates, stock prices, commodity prices, or other variables. Exchange-rate changes result from the revaluation of foreign-currency-denominated derivatives contracts at current exchange rates. "Other changes" can result when data on investment positions that had accumulated in prior periods are covered by a new or more complete survey.
5. Reflects changes in the value of the official gold stock due to fluctuations in the market price of gold.
6. Reflects changes in gold stock from U.S. Treasury sales of gold medallions and commemorative and bullion coins; also reflects replenishment through open market purchases. These demonetizations/monetizations are not included in international transactions financial flows.
7. Also includes paid-in capital subscriptions to international financial institutions and outstanding amounts of miscellaneous claims that have been settled through international agreements to be payable to the U.S. Government over periods in excess of 1 year. Excludes World War I debts that are not being serviced.
8. Includes indebtedness that the borrower may contractually, or at its option, repay with its currency, with a third country's currency, or by delivery of materials or transfer of services.
9. Primarily U.S. Government liabilities associated with military sales contracts and other transactions arranged with or through foreign official agencies.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business,* July 2007.