

The business of making money

- In a modern monetary economy, goods are typically not exchanged for goods but for fiat money.
- Therefore, even though people are ultimately interested in getting goods, the first activity in which people must engage is raising money.
- One way of raising money consists of selling goods others want. Thus, one may sell his/her time for a wage or a good he/she can produce for a price.
- What if one has no good others may want? Then one can raise money by issuing a financial asset, which is essentially a promise to pay money.

FAss (excerpts)

Financial assets

- A financial asset is basically an IOU: a paper where someone acknowledges a debt ("I owe you").
- A financial asset is a substitute for money, as it represents a promise today to pay money in the future. It is a way of capitalizing future revenues.
- Suppose you do not have money today, but expect you will have in the future. A financial asset is like a time machine allowing you to take your money back from the future: you issue an IOU and sell it today for money. Problem: part of your future money is lost while going back to the present.

FAss (excerpts)

Rate of return of a simple asset /1

- Suppose you know you will get €1,000 in a month and need (or want) them today. You then issue a financial asset stating that you will pay €1,000 in a month to the bearer (owner) of the asset.
- But it will be illusory to expect to sell that asset for €1,000, for the buyer gives €1,000 and receives €1,000 in a month: the buyer loses the possession of €1,000 for a month in exchange for nothing.
- So the asset must be sold for less than €1,000. The interest rate of the asset is its implicit rate of return.

FAss (excerpts)

Rate of return of a simple asset /1

- Let V be the nominal (face) value of the asset: how much it promises to pay in the future.
- Let P be the price at which the asset is sold.
- Then the (implicit) rate of return i_R (or rate of profit) of the asset is the profit $V - P$ obtained from buying the asset per monetary unit invested in the purchase. The formula is (multiply the right-hand side by 100 to get a percentage):
$$i_R = \frac{V - P}{P} .$$
- For instance, if $V = 1,000$ and $P = 800$, then $i_R = 0.25 = 25\%$.

FAss (excerpts)

The role of financial assets /1

- From the perspective of the purchaser, the financial asset is a way of saving purchasing power (a way of sending it from the present to the future).
- From the perspective of the issuer (or the seller, if the original buyer becomes a seller), the financial asset is a way of acquiring purchasing power (a way of bringing it from the future to the present).
- A financial asset is an instrument to get money if you need it from someone not needing it now. In short, a financial asset is (like) a loan of money.

FAss (excerpts)

The role of financial assets /2

- Financial assets channel purchasing power (in the form of money) from those who wish to lend to those who wish to borrow.
- Those wishing to borrow have a deficit: planned expenditure larger than current income. For those wishing to lend, planned expenditure is smaller than current income: they have a surplus.
- A financial asset is a financial claim by means of which a lender has a claim on a borrower to pay a certain amount of money at a given time.

FAss (excerpts)

Properties of financial assets

- To repeat, the owner of a financial asset has a claim on someone else to pay a certain amount of money.
- Maturity. Date at which the claim must be satisfied.
- (Default) Risk. The likelihood that the claim will not be satisfied at maturity.
- Liquidity. Ease and rapidity with which the asset can be turned into money (be sold) before maturity.
- Rate of return. Ratio of the profit the asset generates to the cost of obtaining that profit.

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FAss (excerpts)

Basic types of financial assets

- Currency can be considered a financial asset with instant maturity (€1 pays €1 now), no return, no risk, and maximum liquidity.
- Financial securities (“securities”) are tradable (can be bought and sold) financial assets. A security is any fungible, negotiable financial instrument.
- Securities are divided into debt securities and equity. The market where securities are initially sold (by the issuer) is the primary market. Subsequent sales take place in the secondary market.

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FAss (excerpts)

Tradable financial assets: bonds

- Bond. Debt security that, in exchange for the face value V , pays a given amount (interest payment) at fixed periods before maturity and repays V at maturity. A 4-year €100 bond offering an annual 5% interest rate pays €5 at the end of years 1, 2, 3, and 4, and repays the €100 at the end of year 4.
- Bonds issued at discount. That is, they are sold for less than the face value. Examples: Treasury bills (or, for short, T-bills) and commercial paper, which are unsecured promissory notes issued by firms to fund operational expenses (short-term debt, like payroll) and maturity not greater than 270 days.

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FAss (excerpts)

Are shares financial assets?

- In a strict sense, shares of a firm are not financial assets, since they represent parts of a firm: the owner of shares is a shareholder (owns the firm).
- Unlike debt securities, shares do not entitle to a regular payment: the payment of dividends is discretionary. But shares typically represent such a small part of the value of a firm that they are bought and sold not because of their intrinsic value, but because of the expected evolution of their price. Money invested in shares is mostly a matter of gambling, unconcerned with the firm’s business (example: dot-com bubble of 1997- 2000).

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http://en.wikipedia.org/wiki/Dot.com_bubble
FAss (excerpts)

Goods behaving like financial assets

- Buying shares is a form of saving, and selling them is a form of raising money. Thus, shares become indistinguishable from financial assets.
- Any commodity sold and bought according to the expected evolution of its price behaves like a financial asset: it is not sold or bought due to intrinsic qualities, but as a tool for making money by exploiting price changes.
- This may generate “speculative bubbles”. Known cases: oil, real estate, raw materials, stamps...

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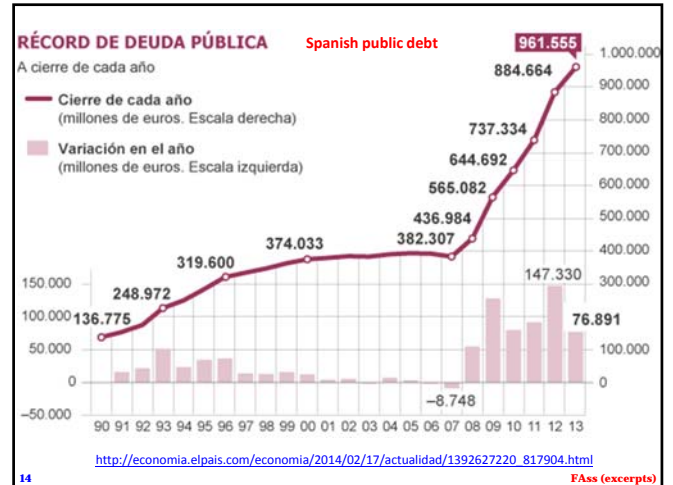
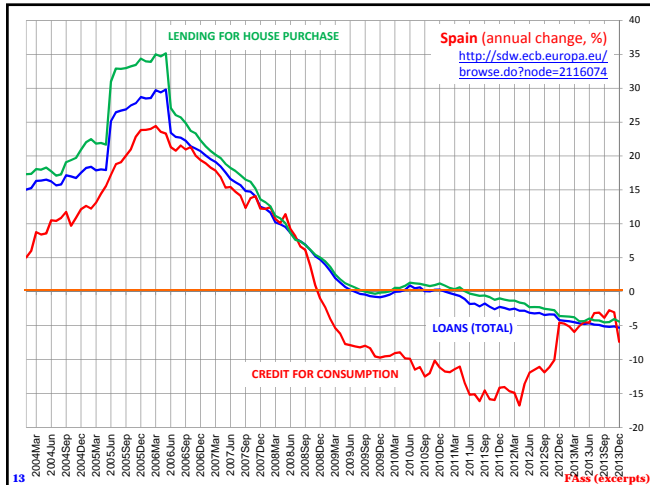
FAss (excerpts)

Non-tradable financial assets: examples

- Bank deposit. By depositing money in a bank, the depositor is purchasing an asset issued by the bank: the deposit. This asset is riskier than currency: if the bank goes bankrupt, the money is lost. Since there is no market where people can buy or sell their bank deposits, they are illiquid assets (a liquid asset may turn illiquid: preferred shares).
- Loan. The loan is the reverse of the deposit: it is as if the bank deposited money on you in exchange for a premium and the repayment of the deposit. In principle, to transform the loan into money the bank must wait until it is repaid.

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FAss (excerpts)



Securitization /1

- “Securitization is the financial practice of pooling various types of contractual debt such as residential mortgages, commercial mortgages, auto loans or credit card debt obligations and selling said consolidated debt as bonds, pass-through securities, or collateralized mortgage obligation to various investors.
- The principal and interest on the debt, underlying the security, is paid back to the various investors regularly.”
<http://en.wikipedia.org/wiki/Securitization>

15 FAss (excerpts)

Securitization /2

- Securitization means transforming non-tradable financial assets (like bank loans) into securities by creating secondary markets for them.
- Method 1 of securitizing a loan: bundle together bank loans and sell participations in the profits from the pool of loans to investors, who receive the payments from the borrowers that repay the loans.
- Hence, a new financial asset is created by combining existing financial assets and marketing different tiers of the repackaged assets to investors.

16 FAss (excerpts)

Securitization /3

- Problem: by packaging assets, relevant information about them (like risk) may be lost. Risky loans (like subprime mortgages) are easier to sell when pooling them with safer loans, but then investors may not know what they are actually buying.
- Method 2: issue debt (a bond, for instance) secured by the pool of loans (asset-backed security).
- Securitized assets typically constitute a large pool of illiquid assets (like loans). By selling the loans, the bank receives funds that otherwise would have come in the future as the loans were being repaid. The funds can be used to make additional loans.

17 FAss (excerpts)

Trade-off between properties

- Financial assets can be viewed as money imitators. But as they cannot have maximum liquidity, they must offer something in return to be attractive.
- Liquidity & profitability. If two assets differ only in liquidity and profitability, the more liquid must be the less profitable and vice versa (money vs bonds).
- Risk & profitability. If two assets differ only in risk and profitability, the riskier should be the more profitable and vice versa (shares vs deposits).

18 FAss (excerpts)

Inverse relationships

- Having more of the favourable properties is balanced by having more of the unfavourable ones.
- More profitability will in general be accompanied by less attractive qualities: more risk and/or less liquidity.
- More liquidity will be accompanied by less attractive qualities: more risk and/or less profitability.
- More risk will be accompanied by more attractive qualities: more profitability and/or more liquidity.

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Shadow banking

- The term refers to non-bank financial intermediaries that act like banks, but are not subject to bank regulations (like legal reserves) and lack access to central bank funding and deposit insurance.
- Examples: securitization vehicles, mortgage companies, investment banks, asset-backed commercial paper, money market mutual funds, markets for repos (repurchase agreements), hedge funds...
- Estimated size of the shadow banking system in 2012: over \$100 trillion. Nominal world GDP in 2012: \$72 trillion (85 at purchasing power parity).

20 http://en.wikipedia.org/wiki/Gross_world_product http://en.wikipedia.org/wiki/Shadow_banking_system (excerpts)

Shadow banking & financial crisis /1

- The 2007 – 12 financial crisis has been regarded as a “run” on the shadow banking system (see Paul Krugman, *The return of depression economics*). Moral: if it behaves like a bank, regulate it like a bank.
- Auction-rate security (ARS). Individuals lend money on a long-term basis to an institution. At some intervals, the institution holds an auction in which new investors bid for the right to replace old investors wanting to leave (does it sound familiar to the preferred shares scheme in Spain?). The interest rate of the auction determines what investors get until the next auction.

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FAss (excerpts)

Shadow banking & financial crisis /2

- For investors, interest rates on ARS were higher than on bank deposits. For the issuers, the rates paid were lower than those on long-term bank loans. How could this be? Issuers were not subject to requirements of holding liquid reserves nor had to contribute to the deposit insurance system.
- The ARS system (\$400 billion at its peak) collapsed in 2008. Not enough new investors were arriving to allow existing investors to get their money back. Fewer arrived after it was realized that the money was tied-up for decades. Without new investors, ARS turned illiquid: no one wanted to buy ARS.

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FAss (excerpts)

Financial depth

- Financial depth captures the size of the financial sector relative to the economy. More specifically, it compares the size of financial institutions and markets in an economy with (some measure of) the economic output generated by the economy. It can be viewed as a measure of the financial development of an economy.
- There are many proxy variables to measure financial depth. Among them: private credit relative to GDP and total banking assets to GDP.

<http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTGLOBALFINREPORT/0,,contentMDK:23268788~pagePK:64168182~piPK:64168060~theSitePK:8816097,00.html>

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FAss (excerpts)



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FAss (excerpts)

Private credit to GDP

- It differs across countries. It correlates strongly with income level: is 103% in high-income countries, more than four times the average ratio in low-income countries. It is closely linked to long-term economic growth and poverty reduction.
- High ratio: many European countries, Canada, Australia, South Africa, China (above Russia, Brazil, and India), and the US (below China).
- The eight countries with the highest ratio as of 2010 (CYP, IRE, SPA, NDL, POR, UK, LUX, and SWI) had a major crisis episode since 2008.

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FAss (excerpts)

Total banking assets to GDP

- According to the introduction to the World Bank's Global Financial Development Database, "it is arguably a more comprehensive measure of size, because it includes not only credit to private sector, but also credit to government as well as bank assets other than credit. However, it is available for a smaller number of economies and has been used less extensively [than private credit to GDP] in the literature on financial development. In any case, the two variables are rather closely correlated (with a correlation coefficient of about 0.9 over the whole sample).

http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTGLOBALFINREPORT/0_contentMDK:23268788~pagePK:64168182~piPK:64168060~theSitePK:8816097_00.html

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FAss (excerpts)

Fragility of the financial sector /1

- The next example illustrates the fragility of the financial sector and its power to magnify (in either direction) the outcomes the real sector generates.
- There is a firm worth €120 million that plans to carry out an investment project to enhance its productive capacity. To raise the necessary funds, shares for the 100% value of the firm are issued.
- To attract investors, the price 100 of the shares is set below the value 120 of the firm. An investment company buys all the shares.

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FAss (excerpts)

Fragility of the financial sector /2

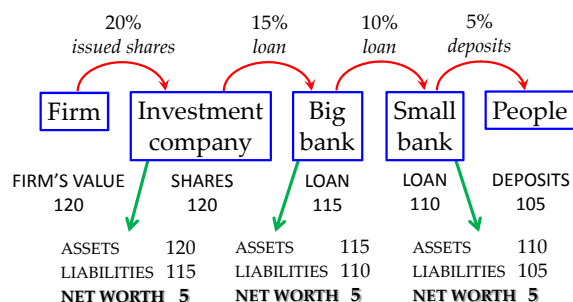
- The investors obtain a 20% rate of return: they pay 100 for something whose actual value is 120. Yet, investors run short of cash and ask a big bank for a loan. The bank grants a loan of 100 at a 15%.
- But the bank is also short of liquidity and obtains from a small bank a loan of 100 at a 10%.
- The small bank's vault is empty. The bank offers preferential clients a 5% reward for new deposits. The bank succeeds and collects 100, which are lent to the big bank, which are lent to investors, which are paid to the firm in return for the shares.

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FAss (excerpts)

Fragility of the financial sector /3

- The sketch summarizes all the transactions made and the net worth effect on investors and banks.



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FAss (excerpts)

Fragility of the financial sector /4

- Everybody gets a profit in the process: the firm funds the project, and investors, banks, and depositors earn 5 each. Thanks to the financial sector, the firm's expansion generates a profit for investors, banks, and depositors.
- The example also shows the leverage effect of the financial sector. There are assets in the economy worth 450: shares, 120; loans from the big bank, 115; loans from the small bank, 110; and deposits by clients, 105. But those assets are all backed by the firm's value, which is merely 120.

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FAss (excerpts)

Fragility of the financial sector /5

- Therefore, financial wealth (*paper wealth*) worth 450 is lifted by real wealth (wealth created by the real sector, that is, goods) worth 120.
- This is the positive magnifying effect of the financial sector: real assets worth 120 sustain financial assets worth 450.
- The magnifying effect also works in the reverse. For instance, imagine that the investment project fails because the customers that would have bought the goods produced thanks to the project are those depositing money on the small bank.

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FAss (excerpts)

Fragility of the financial sector /6

- Given that depositors put their money on the small bank, they cannot buy the new goods the firm produces using the expanded productive capacity. Let us assume that, as a result, the firm goes bankrupt and closes down.
- Shares become worthless. Investors cannot settle their debt with the big bank, which cannot repay the loan to the small bank, which cannot give back the money to depositors. In sum: everybody loses.
- Where have the depositors' funds gone? The firm made use of them to finance an unsuccessful project.

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FAss (excerpts)

Savings and financial assets

- Lending money and purchasing financial assets are both the expression of a saving decision: they are ways of using the disposable income that is left once consumption decisions have been made.
- The textbook view of the financial sector is as a set of intermediaries that channel savings from savers to investors.
- In this view, the origin of the financial activity lies in the real sector and, in particular, in those individuals having a surplus: an excess of current income with respect to planned expenditure.

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FAss (excerpts)

Expenditure categories

- National income accounting assigns each good produced to one of four categories according to the type of agent that has received the good.
 - Personal consumption expenditures or, for short, consumption (C).
 - Gross private domestic investment or investment (I).
 - Government consumption and gross investment or government purchases (G).
 - Exports of goods & services (**EX**) minus imports of goods & services (**IM**) or net exports (NX).

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FAss (excerpts)

Consumption and investment

- Consumption: value of the purchases of new goods (durable and non-durable) and services by households (no matter where the goods have been produced).
- Investment. Consists of the value of:
 - fixed investment (on new factories, office buildings, and machinery to produce goods);
 - residential investment (spending by households or firms on new homes);
 - and changes in the firms' inventories (goods that have been produced but not sold yet).

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FAss (excerpts)

Government purchases

- Government purchases: spending by all levels of government (local, regional, national) on newly produced goods and services. Includes consumption (salaries to civil servants) and investment spendings (university buildings, new submarines).
- Transfer payments (TR) are excluded. These are payments by the government without receiving anything in return. Typical transfer payments are Social Security payments to retired and disabled people and unemployment insurance to unemployed people.

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FAss (excerpts)

Net exports

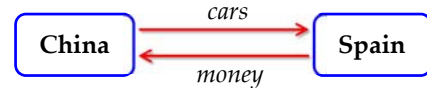
- **Net exports:** value of the exports of goods and services minus the value of the imports of goods and services (those imports have been already included in **C, I, or G**).
- A **trade surplus** occurs when exports are greater than imports (net exports are positive). A **trade deficit** is run when imports are greater than exports (net exports are negative). When exports equal imports, the trade deficit (or surplus) is zero.
- The difference “exports minus imports” is known as “**trade balance**”.

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FAss (excerpts)

Why IM – EX (or –NX) is foreign saving

- Imagine that China exports only cars to Spain and that China imports nothing from Spain.



- China runs a **trade surplus** (with Spain) and Spain a trade deficit (with China).
- China delivers goods and receives in exchange money. Thus, **China is saving and has lending capacity:** has money (in general, financial assets) to lend. **Trade surplus implies lending capacity.** Trade deficit implies financial need.

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FAss (excerpts)

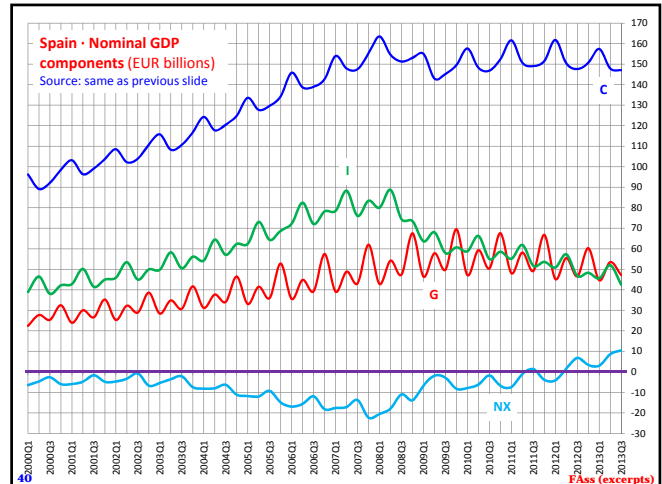
Fundamental macroeconomic identity

- The expression below is an **identity** (always true) as the values of the variables are established **ex-post** (once all spending decisions have been made).
- The supply and demand model provides an analogy: quantity demanded may be different quantity supplied, but **quantity sold is always equal to quantity bought** (someone sells because someone buys and vice versa).

$$\underbrace{C + I + G + NX}_{\text{ex-post demand for output}} \equiv \underbrace{Y}_{\text{ex-post supply of output = GDP}}$$

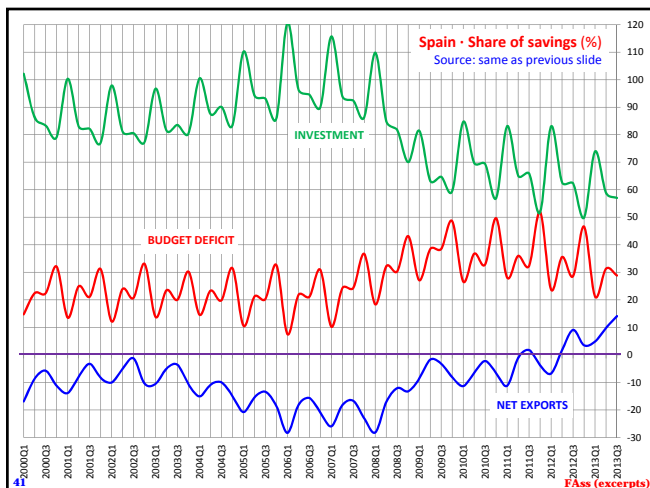
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FAss (excerpts)



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FAss (excerpts)



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FAss (excerpts)

Government budget

- Designating by **T** the **taxes** paid by households and firms to the government, the government budget (or **government saving**) is defined as

$$GB \equiv T - G - TR$$

- The government budget equals the government's **tax receipts** minus its **spending** on goods and services minus **transfer payments**.
- A **budget deficit** occurs if $GB < 0$ (spending larger than receipts). A **budget surplus** occurs if $GB > 0$. **Public debt** is the accumulation of past deficits.

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FAss (excerpts)

How income is used

- Interpreting GDP (Y) as aggregate income (GDP as net incomes earned by factors of production), then income can be used to consume, to save, and to pay taxes (net of transfers)

$$Y \equiv C + S + (T - TR).$$

- Defining disposable income Y_d as

$$Y_d \equiv Y - T + TR$$

it follows that

$$Y_d \equiv C + S.$$

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FAss (excerpts)

Savings accounting identity

- From the fundamental accounting identity

$$Y - C \equiv I + G + NX.$$

- From the income accounting identity

$$Y - C \equiv S + T - TR.$$

- The combination of the two leads to $I + G + NX = S + T - TR$. Rearranging,

$$\underbrace{S}_{\text{private saving}} \equiv \underbrace{I}_{\text{investment}} + \underbrace{(G + TR - T)}_{\text{government budget deficit (if } > 0)} + \underbrace{NX}_{\text{trade balance}}.$$

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FAss (excerpts)

Where do savings go?

- The savings identity

$$S \equiv I + (G + TR - T) + NX$$

says that there are three ways of disposing of the savings of an economy.

- Savings can go to firms to finance investment...
- ... to the government to finance a budget deficit...
- ... or to foreigners, when they buy more from the economy than the economy buys from them (trade surplus).

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FAss (excerpts)

Investment accounting identity

- The savings identity

$$S \equiv I + (G + TR - T) + NX$$

can be equivalently formulated as

$$\underbrace{I}_{\text{investment}} \equiv \underbrace{S}_{\text{private saving}} + \underbrace{(T - G - TR)}_{\text{government saving}} + \underbrace{(-NX)}_{\text{foreign saving}}.$$

- Accordingly, domestic investment is financed by private saving, public saving, or foreign saving.

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FAss (excerpts)

Twin (or double) deficits: twice the fun

- If investment equals savings, so $I = S$, the savings identity implies that the government budget deficit equals the trade balance.
- This means that if the government runs a budget deficit, then it must be financed by foreigners: if $I = S$, then $G + TR - T > 0$ implies $NX < 0$.
- In sum, the government spends more without having to increase taxes, and households and firms buy from abroad more goods than they sell. Are all of them living beyond their possibilities?

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FAss (excerpts)

Identities vs theories

- The previous identities do not establish causal connections between variables: for that, a theory is needed (a theory establishes causal relationships). Identities are not theories, but mere descriptions of what is necessarily true (theories may be false).
- By way of illustration, one cannot infer from slide 113 that a growing budget deficit caused, between 2000 and 2007, a worsening of the trade balance. That is, from $S - I \equiv (G + TR - T) + NX$ and a rise in $(G + TR - T)$, it cannot be concluded that NX falls: may be NX declines because $S - I$ diminishes.

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FAss (excerpts)