



***Financial System:  
What, How, Why, Who (does it?)***

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# SECTORS' FINANCIAL BALANCE (FB)

- SECTORS CAN BE DEFINED AT DIFFERENT GRANULARITY
  - PRIVATE PUBLIC REST OF THE WORLD
  - HOUSEHOLDS FIRMS PUBLIC ROW
  - HOUSEHOLDS NON FINANCIAL FIRMS (NFC) FINANCIAL FIRMS  
CENTRAL GOVERNMENT LOCAL GOVERNMENT,  
OTHER EUROZONE (EZ) NATIONS NON EZ NATION
- YET, THE SUM OF THEIR FINANCIAL BALANCES IS ALWAYS = 0
$$(S - I)_{\text{HOUSEHOLDS}} + (S - I)_{\text{FIRMS}} + (T - G) + (M - X) = 0$$
in the entire economy: Total Lending = Total Borrowing
- BUT EACH SECTOR FB IS ALMOST ALWAYS  $\neq 0$ 
  - $FB > 0 \rightarrow$  THE SECTOR IS IMPROVING ITS FINANCIAL POSITION
  - $FB < 0 \rightarrow$  THE SECTOR IS WORSENING ITS FINANCIAL POSITION

# SECTORS' FINANCIAL POSITION (FP)

FP = FINANCIAL ASSETS (FA) – FINANCIAL LIABILITIES

- FINANCIAL ASSETS
  - LOANS GRANTED
  - BONDS
  - STOCKS
  - BANK DEPOSIT
  - .....
- FINANCIAL LIABILITIES
  - LOANS RECEIVED
  - BONDS ISSUED
  - STOCKS ISSUED
  - .....

$$FB = \Delta FP = \Delta FA - \Delta FL$$

- FB is a «FLOW» variable, i.e. it is defined over a period of time
- FP is a «STOCK» variable, i.e. it is defined at a moment in time
- FB > 0 means ...
- FB < 0 means ...

**Financial assets and liabilities of households (1)**  
(millions of euros and per cent)

	End-of-period stocks		Flows		
	2017	Percentage composition		2016	2017
		2016	2017		
<b>ASSETS (2)</b>					
Bank deposits (3)	1,167,926	27.0	26.5	43,874	21,577
Italian	1,137,398	26.3	25.8	44,033	22,336
Sight deposits	687,452	15.3	15.6	62,694	35,699
Other deposits	449,946	10.9	10.2	-18,662	-13,363
Foreign	30,528	0.7	0.7	-159	-759
Debt securities	304,947	8.6	6.9	-61,871	-41,774
Italian	220,705	6.5	5.0	-59,883	-38,456
<i>of which: issued by the public sector</i>	122,171	3.1	2.8	-8,673	2,622
<i>issued by banks</i>	88,600	3.2	2.0	-47,154	-42,448
Foreign	84,242	2.1	1.9	-1,988	-3,318
Investment fund units	537,059	11.2	12.2	12,295	57,047
Italian	261,246	5.7	5.9	-2,665	21,245
Foreign	275,813	5.5	6.3	14,960	35,802
Shares and other equity	1,062,409	23.3	24.1	-15,011	-41,276
Italian	991,050	21.7	22.5	-14,683	-41,743
Foreign	71,360	1.6	1.6	-328	467
Insurance, pension funds and severance pay entitlements	996,174	22.2	22.6	41,626	32,733
<i>of which: life insurance reserves</i>	677,669	14.7	15.4	36,173	25,349
Other assets issued by residents (4)	338,178	7.7	7.7	16,240	13,097
<b>Total assets</b>	<b>4,406,694</b>	<b>100.0</b>	<b>100.0</b>	<b>37,153</b>	<b>41,404</b>
<b>LIABILITIES</b>					
Short-term debt	51,273	5.9	5.5	-2,049	-751
<i>of which: to banks</i>	49,094	5.8	5.3	-2,153	-1,845
Medium- and long-term debt	658,077	70.4	70.9	10,521	18,642
<i>of which: to banks</i>	580,322	62.5	62.6	9,755	12,011
Other liabilities (5)	218,372	23.6	23.5	3,611	3,081
<b>Total liabilities</b>	<b>927,722</b>	<b>100.0</b>	<b>100.0</b>	<b>12,083</b>	<b>20,972</b>
<b>BALANCE</b>	<b>3,478,972</b>			<b>25,070</b>	<b>20,432</b>

Source: Bank of Italy, financial accounts.

(1) Consumer households, producer households and non-profit institutions serving households. Rounding may cause discrepancies in totals. – (2) Individually managed portfolios are not shown; their assets are included under the individual types of investment. – (3) Includes liabilities of Cassa di Risparmio di Roma SpA. – (4) Accounts receivable, BancoPosta current accounts, banknotes, coins and other minor items. – (5) Accounts payable, severance pay and pension provisions and some minor items.

# Composizione delle attività e passività finanziarie delle famiglie (1)

(consistenze di fine periodo)

PAESI E ANNI	Circolante e depositi	Titoli pubblici e altre obbligazioni	Azioni, altre partecipazioni e quote di fondi comuni		Riserve assicurative e previdenziali (2)	Attività	Passività (3)			Ricchezza finanziaria netta	
			<i>di cui:</i> quote di fondi comuni				<i>di cui:</i> debiti finanziari		<i>di cui:</i> mutui		
	<b>Quote percentuali sul totale delle attività</b>					<b>In rapporto al reddito disponibile</b>					
<b>Italia</b>											
2015	30,6	9,9	34,8	11,0	21,7	3,73	0,82	0,62	0,33	2,90	
2016	31,9	8,7	33,5	11,5	22,9	3,69	0,82	0,62	0,33	2,87	
<b>Francia</b>											
2015	28,5	1,4	27,9	7,0	36,7	3,46	1,03	0,88	0,63	2,43	
2016	28,7	1,3	26,7	6,0	37,2	3,49	1,02	0,89	0,65	2,46	
<b>Germania</b>											
2015	39,1	3,2	20,2	9,9	36,9	2,86	0,85	0,84	0,56	2,01	
2016	39,2	2,8	20,4	10,2	37,1	2,89	0,86	0,85	0,57	2,03	
<b>Spagna</b>											
2015	42,2	1,9	37,2	12,5	16,6	2,94	1,15	1,07	0,81	1,80	
2016	42,8	2,0	35,5	13,0	17,7	2,86	1,11	1,03	0,77	1,76	
<b>Area dell'euro</b>											
2015	33,2	3,9	27,5	9,0	32,8	3,42	1,07	0,95	0,61	2,35	
2016	33,4	3,4	26,8	8,9	34,1	3,46	1,06	0,95	0,61	2,40	
<b>Regno Unito</b>											
2015	24,3	1,6	11,5	2,9	59,4	4,86	1,40	1,29	0,89	3,47	
2016	22,8	1,8	9,5	1,7	62,9	5,41	1,45	1,32	0,90	3,96	
<b>Stati Uniti</b>											
2015	13,5	6,2	45,6	10,6	31,6	5,20	1,07	1,02	0,69	4,14	
2016	13,7	5,6	46,4	10,4	31,3	5,29	1,06	1,02	0,68	4,23	

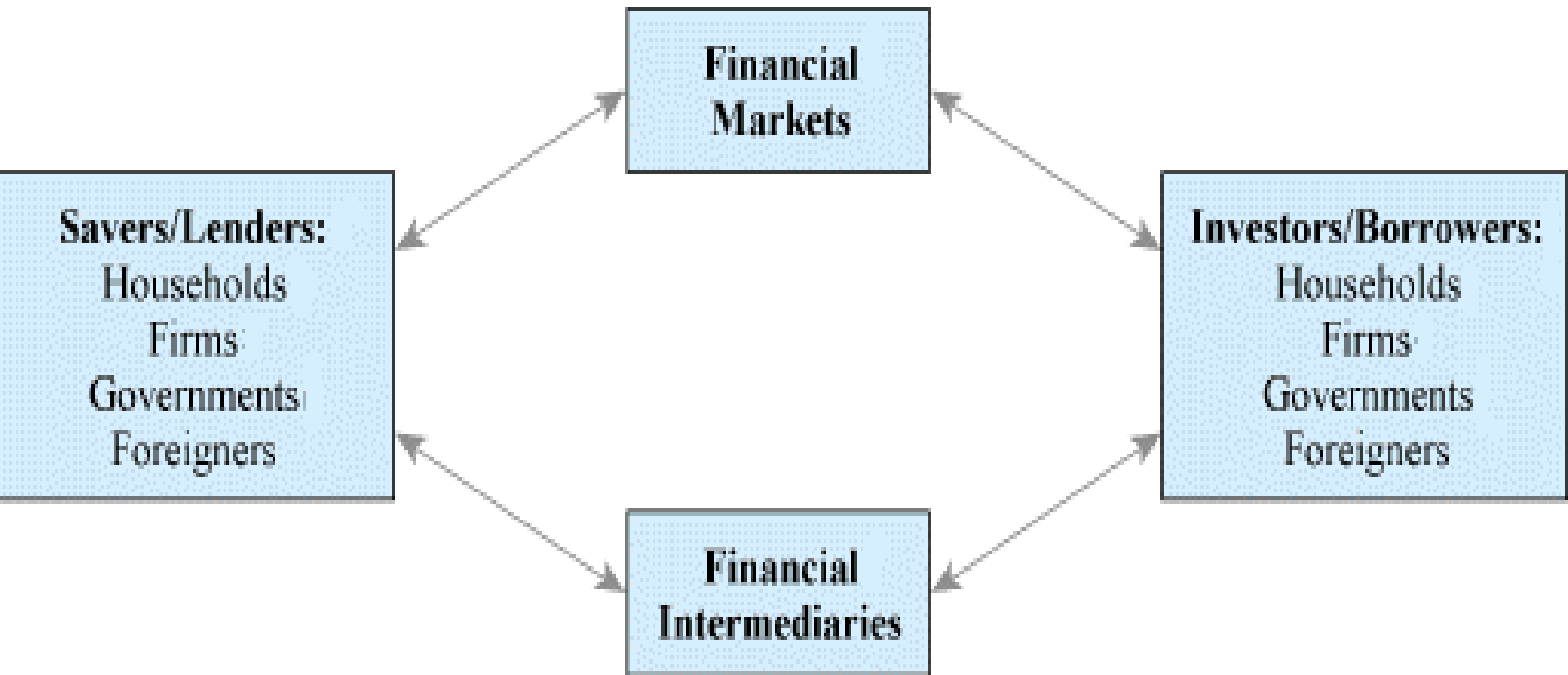
**Financial assets and liabilities of firms (1)**  
(millions of euros and per cent)

	End-of-period stocks			Flows	
	2017	Percentage composition		2016	2017
		2016	2017		
<b>ASSETS</b>					
Cash and deposits	349,310	19.4	19.2	22,979	27,711
Securities	65,571	3.9	3.6	5,014	-2,446
<i>of which: Italian public sector</i>	52,811	3.1	2.9	4,660	1,526
Shares and other equity	687,560	36.1	37.9	31,550	33,424
Trade receivables	584,971	32.6	32.2	-26,716	50,020
Other assets (2)	128,835	8.1	7.1	11,055	-3,122
<b>Total assets</b>	<b>1,816,246</b>	<b>100.0</b>	<b>100.0</b>	<b>43,882</b>	<b>105,587</b>
<i>of which: external</i>	486,930	28.7	26.8	12,068	8,746
<b>LIABILITIES</b>					
Financial debt	1,246,929	33.7	32.1	-6,344	16,697
Bank loans	726,612	21.1	18.7	-11,283	-34,668
Other loans (3)	354,477	8.7	9.1	7,072	30,252
Securities	165,839	3.9	4.3	-2,133	21,113
Shares and other equity	1,904,081	47.8	49.0	38,757	22,070
Trade payables	537,681	13.2	13.8	-18,267	50,618
Other liabilities (4)	197,309	5.3	5.1	4,404	4,111
<b>Total liabilities</b>	<b>3,885,999</b>	<b>100.0</b>	<b>100.0</b>	<b>18,551</b>	<b>93,496</b>
<i>of which: external</i>	671,007	17.1	17.3	12,987	23,508
<b>BALANCE</b>	<b>-2,069,753</b>			<b>25,331</b>	<b>12,091</b>

Source: Bank of Italy, financial accounts.

(1) The data refer to the non-financial corporations sector. Rounding may cause discrepancies in totals. – (2) Short-term foreign claims, intra-group claims, insurance technical provisions, domestic derivatives and other minor items. – (3) Includes financing provided by leasing and factoring companies, intra-group loans and securitized loans. – (4) Postal current accounts, severance pay and pension provisions, domestic derivatives and other minor items.

# Financial System



- Financial Functions are stable through time;
- Financial Institutions (markets, intermediaries, instruments) constantly change (process of «financial innovation»)



# ***Aims & Scope of the Financial System***




- Transfer of resources through time
  - STOCK MKT                      BOND MKT                      BANK LOAN
  - CURRENCIES MKT
- Ensure an optimal allocation of resources
  - Best and most profitable investment project
  - Life cycle consumption smoothing
- Provide an optimal allocation of risk across agents
- Ensure the best possible use of resources by the borrowers
- Support the payment system
  - providing means of payment
  - providing the infrastructure to run it efficiently
- Support the monetary policy
  - Transferring policy actions to the economy



# Financial System's Functions

- TRANSFER RESOURCES AMONG SECTORS OF THE ECONOMY
  - PRIMARY TRANSACTIONS / ACTIVITY / MARKETS
  - NEW FAs/FLs CREATED
  - E.E.E., THE LARGER THE FBs, THE BIGGER THE FINANCIAL SYSTEM
  - PRIMARY ACTIVITY MAY OCCUR EVEN WITH SECTORS' FBs = 0
- REBALANCING OF EXISTING FINANCIAL POSITIONS
  - SECONDARY TRANSACTIONS / ACTIVITY / MARKETS: OWNERSHIP OF EXISTING ASSETS IS TRANSFERRED
- RISK SHIFTING SERVICE (EITHER HEDGING OR SPECULATION)
  - LOAN COMMITMENTS, AVAL, DERIVATIVES CONTRACT
- MONITORING THE USAGE OF BORROWED RESOURCES
- PROVIDING PAYMENT MEANS AND INFRASTRUCTURE

- **Suppliers of capital**
  - households with saving
  - firms with cash
- **Intermediaries (dealer)**
  - commercial banks
  - savings & loans
  - insurance companies
- **Users of capital**
  - firms (RE<investment)
  - Households / Government

- **Suppliers of capital**
  - Institutional investors**
    - mutual funds
    - pension funds
- **Markets (with brokers)**
  - Government/corporate bond
  - Equity
  - Asset backed securities
  - [Derivatives]
- **Users of capital**

# ***Why Financial Intermediaries?***

- Operational efficiency
  - Gains from division of labor (scale, scope, continuity)
- Dealing with uncertainty
  - reducing the cost of looking for the best deal (not readily observable)
  - Information reusability (through time, cross section)
  - confidentiality
- Mitigating imperfect information problems
  - adverse selection & moral hazard
- Expanding contracting capacity
  - limited enforceability of legal contracts
  - transactions not perfectly divisible
  - limited foresight of all future possible states of the world

# ***FIs: Imperfect Information & Contracting Capacity***

- Screen potential borrowers through a proper menu of contracts
- Reducing the signaling cost for the borrower
  - Reputation
  - Repetition
- Less costly and more efficient in performing (delegated) monitoring and auditing function
  - but who monitors the monitors?
- Overcome the divisibility problem allowing diversification
- Offer their reputation as a substitute of limited legal protection
- Establishing long term relationship on a wide range of issues
  - they can implement strategic contracting where legal contracting fails
- Adjust legal & strategic contracts at low cost when need arises

# ***Activities of FI***

- Monetary function
    - money transfers, checks, card, SDD (SEPA direct debit), ATM withdrawals
  - Asset servicing
    - Safekeeping
    - Custody
      - collecting, tracking & remitting payments on mortgages, bonds equities,..)
  - Brokerage activities
    - placement, stockbroking, financial advising, certification
- ***FIs which engage in these activities only bear business, operational & reputational risk and earn fees***

# Activities of FI - Qualitative Asset Transformation

- Act as a principal between final lenders & borrowers
- Attributes of lender's asset diverge from those of borrower's liability
  - **duration** = term to maturity
    - FI 's assets have longer duration than FI's liabilities
  - **divisibility** = unit size
    - FI 's assets have larger unit size than FI's liabilities
  - **liquidity** = easiness to cash in on demand
    - FI 's assets are more illiquid than FI's liabilities
  - **credit risk** = uncertainty of the debt service
    - FI 's assets are riskier than FI's liabilities
  - **numeraire** = currency of denomination
- *FIs in QAT are financial risk managers, bearing financial risks and earning capital income (interests, dividends, capital gains)*

# QAT: Risk & Reward for FIs

- Reward given by: earnings on assets - cost of liabilities
- Besides business & operational risk they are exposed to financial risks due their balance sheet mismatches:
  - Interest rate risk (adverse change in interest rate)
  - market risk (adverse change in asset market price)
  - currency risk (adverse change in foreign currency value)
  - liquidity risk (bank runs)
  - inventory risks (because of different unit size)
  - credit risk (monetary loss, replacement cost)
  - country risk (sovereign state default)
  - transfer risk (sovereign state forbidding its resident to pay)
- ***QAT FI are producers of both “information services” and “financial risk management services”***

# From Stylized Facts to the Real Thing

- Distinction between brokerage & QAT is not always clear-cut
  - investment companies / mutual funds in Italy
- Sometimes performed in combination in the same transaction
  - placement of securities with a firm commitment clause
  - banker's acceptance
- A FI may run concurrently both lines of business
  - Banks which are active in the deposit-loan market & in stockbroking / asset management / custody space



# Types of FIs

- Depository institutions (DIs)
  - performs monetary functions since their liabilities can be used as means of payment
  - (Commercial) Banks - Thrifts (S&L)- Credit unions (CU)
    - their deposit can be withdrawn on demand with certainty of the sum received
- Non-depository institutions (NDIs)
  - Investment banks
  - Asset Managers of collective investment scheme (funds)
  - Pension Funds
  - Insurance Companies
  - Finance companies (factoring, leasing,.....)
- The distinction is becoming less clear-cut
  - Money market mutual fund, investment banks

# Depository Institutions

- Distinction among types of DIs was based on:
  - diversity of assets                      role in payment system
  - ownership structure
    - One head, one vote w/o profit motives
- These differences are disappearing:
  - all DIs diversify their assets, offer checking and cash management services and mostly have a corporate for profit structure
- Hereafter, a single term for all of them: ***banks***

	Banche	Sportelli
Società per Azioni	198	22.419
Banche Popolari	37	5.442
Banche di credito cooperativo	391	4.433
Branches of foreign banks	78	323
<b>TOTALE</b>	<b>704</b>	<b>32.617</b>

# Types of Banking Systems

- According the permitted business model:
  - specialized banking: banks may engage only in QAT activities (deposit taking & granting loans)
  - universal banking: banks may engage both in QAT and brokerage activities (so called *investment banking*)
- According the ownership structure
  - separation of banking and commerce: corporations can neither own/control or be owned/controlled by banks
  - coexistence of banking and commerce: corporations may either own/control or be owned/controlled by banks
- Huge historical differences
  - Japan: specialized banking with coexistence of bank and commerce
  - USA: specialized banking with separation of banking & commerce
  - Germany: universal banking with coexistence of banking & commerce

# ***Great Recession (2008-2012): Before & After***

- **Before**

- trends towards universal banking
  - too much economic and liquidity risk taken by depositary institutions
- «Too big to fail»
- Development of the shadow banking
  - too much (liquidity) risk outside depositary institutions

- **After**

- universal banking is here to stay, but more regulated
- “bail in” vs. “bail out”
- system less centered on banks, but without “*shadow banking*”

# Current dominant model

- Universal banking, with partial co-existence of banking & commerce, is gaining ground worldwide
- Universal banking may occur in two forms:
  - pure universal bank
    - the same legal entity operates all lines of business
  - banking group / bank holding company
    - different lines of business operated by different corporations under the ownership and the control of a bank holding company
    - legal ring fencing: why?
      - i.e brokerage activities are run through subsidiaries
- Ownership
  - banks may own/control firms with limitations (% shares; timing) and penalized in terms of capital requirement
  - firms may own, but not control, banks (ownership ceiling)

# Comparing financial system models

- Pros (+) & Cons (-) of the universal banking system:
  - economies of scope are fully exploited (+)
  - information asymmetry are reduced (+)
  - Strategic focus may be lost (-)
  - DIs may undertake too much risk (-)
  - systemic risk is larger (-)
  - conflict of interest risk (-)
- Pros & Cons of the combining banking & commerce
  - information asymmetry is reduced (+)
  - investment decision can be more far sighted (+)
  - greater financial system risk (-)
  - risk of suboptimal credit decision (-)

# Banking Group

- Holding Bank (banca capogruppo)
  - the holding bank is an operating company
  - operating subsidiaries
- Financial Holding Company (FHC)
  - the holding bank is a pure holding
  - operating subsidiaries with a dominant banking activity
- *Total assets of the subsidiaries operating outside the banking and financial sectors (and not functional to them) do not exceed 15% of the total consolidated assets (holding company + its subsidiaries).*

# Stability of Banking System

- Regulation on market structure
  - barriers to entry
  - restrictions on permitted activities (legal boundaries)
    - compress competition to prevent excessive risk taking
    - prevent moral hazard to prevent excessive risk taking
- Regulation on manager's discretionary power
  - portfolio restriction
    - regulatory limits on large credit exposure, equity holdings in firms,...
  - regulatory capital requirements
    - maximum risk exposure is a function of bank's loss absorbing capital which prevents the risk of default ( $\approx$  equity capital)
  - supervision by the banking authority
  - transparency requirements which fosters market discipline
  - **idea:** make risk taking activities more costly to shareholders



# Form of Regulations by Aims

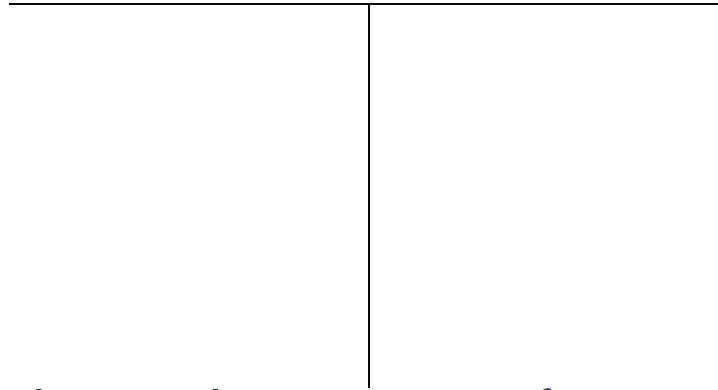
- System Safety & Soundness (Stability)
- Monetary Policy Transmission
- Amount of Credit
- Allocation of Credit
- Investor Protection (adequacy, risk)
- Consumer Protection (transparency, pricing)
- Antitrust
- Anti Money Laundering (AML)
- International harmonization

# Banking System Infrastructure

- Central bank
  - Lender of last resort
  - Monetary policy maker
- Supervisory Authority (one or more)
  - by aim                      by institutions                      by activities
  - In federal states same supervision power may be split among authorities
    - US: Federal Reserve Comptroller of the Currency, State Authorities
    - Eurozone: ECB (large banks) and national authorities (small banks)
- Resolution Authority
- Deposit Insurance (in the EU, € 100.000 euro per deposit holder)
  - on registered deposit in €/fx, cashier check and similar securities, but:
    - Bonds, repos and deposits held by the public sector
    - deposit held by directors, top managers, equityholders (if > 5% of bank capital)
    - deposits at non market conditions that contributed to the bank failure

# Banking & Money Creation

- Central bank creates monetary base (not money)

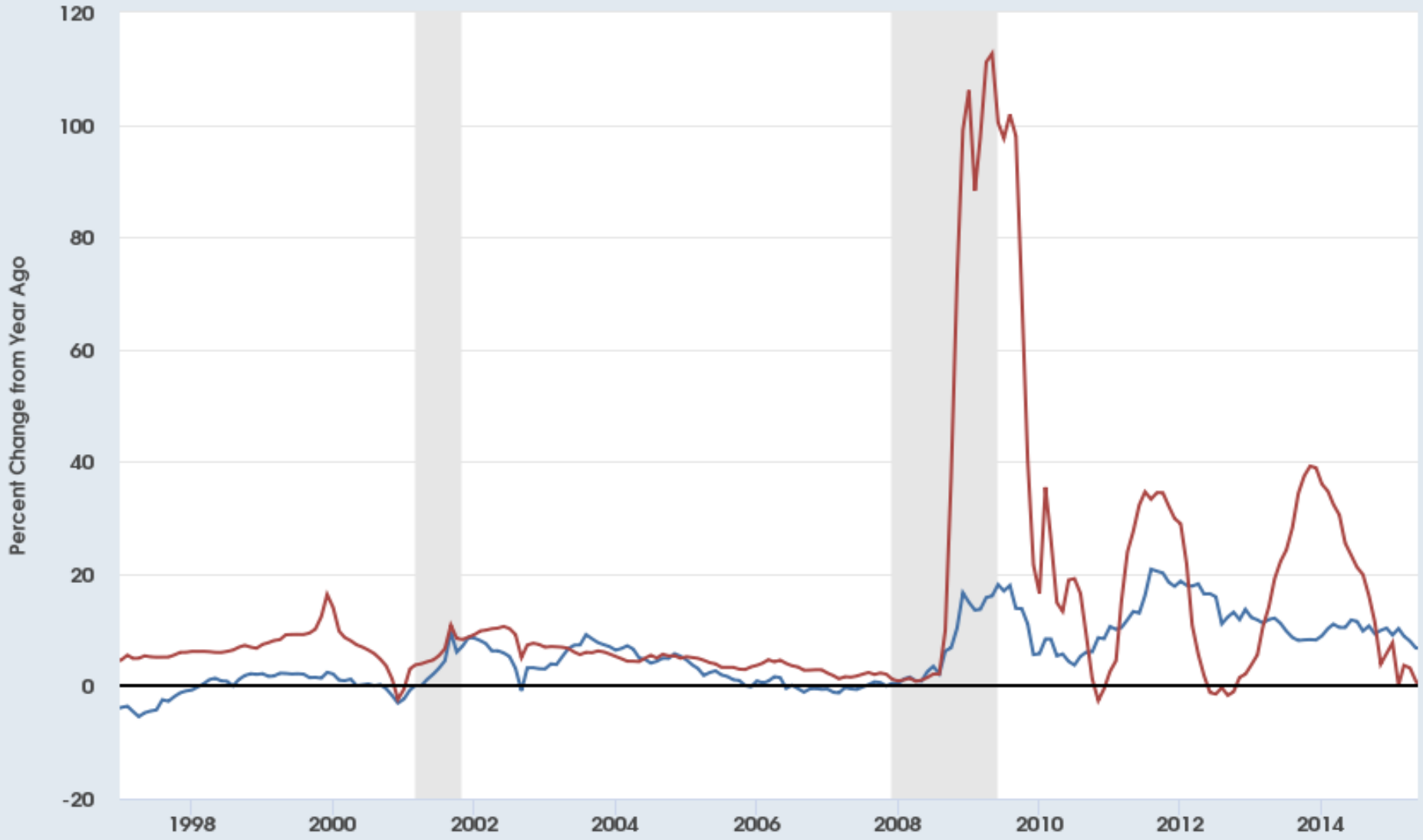


- Given the monetary base, the amount of money (M) depends on the deposit taking & lending activity of the banks (multiplication process)
  - Different definitions of money (M1,M2,M3)
  - Money multiplier  $m = [(1+c)/(c+r)]$
  - M depends on:
    - currency holdings by the public (-)
    - reserve holdings by the banks (-)

# Money vs. Monetary Base: Growth Rate

**FRED**

- M1 Money Stock
- Monetary Base; Total



Shaded areas indicate U.S. recessions

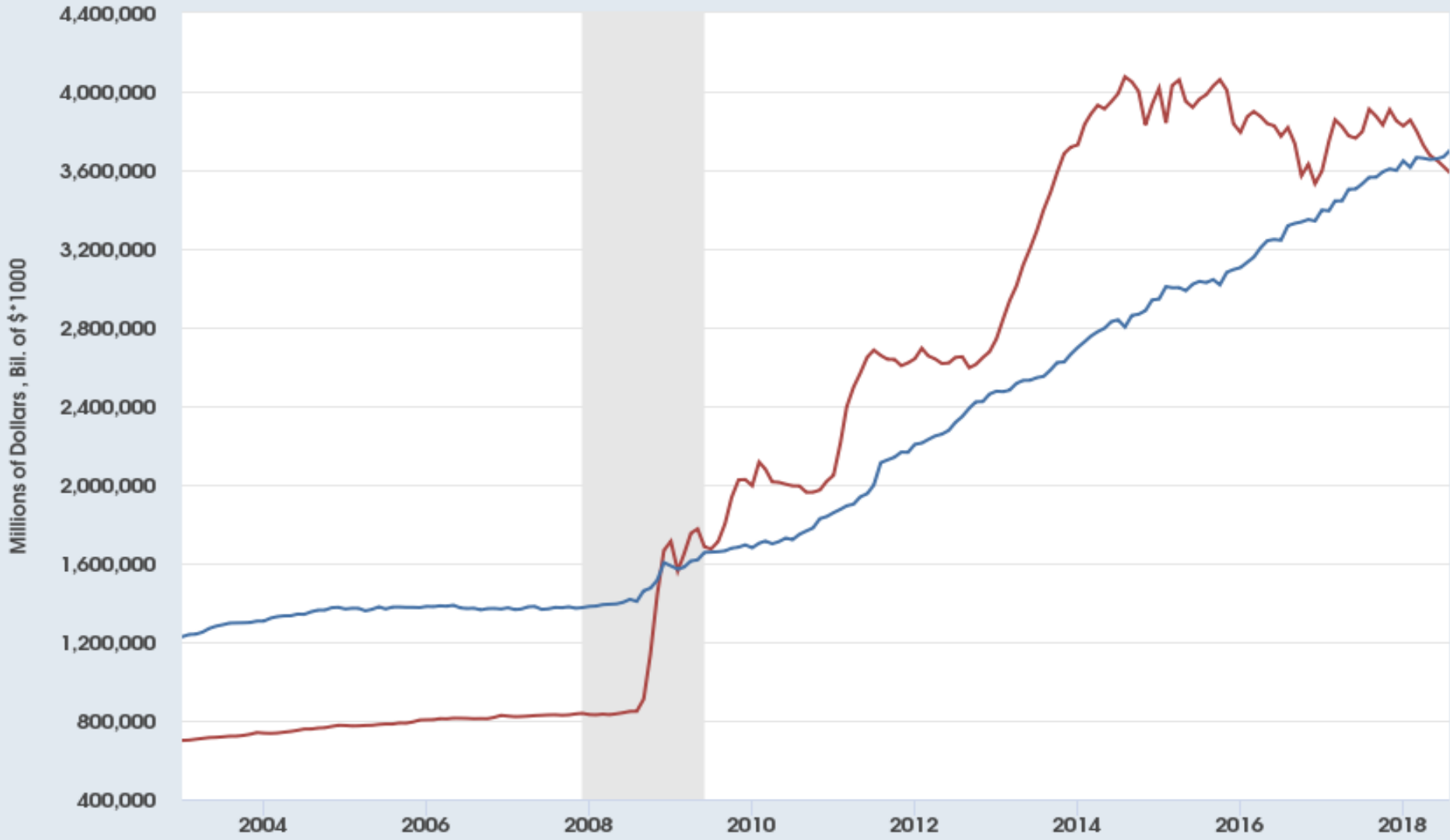
Source: Board of Governors of the Federal Reserve System (US)

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# Money vs. Monetary Base: Levels

**FRED**

- Monetary Base; Total
- M1 Money Stock\*1000




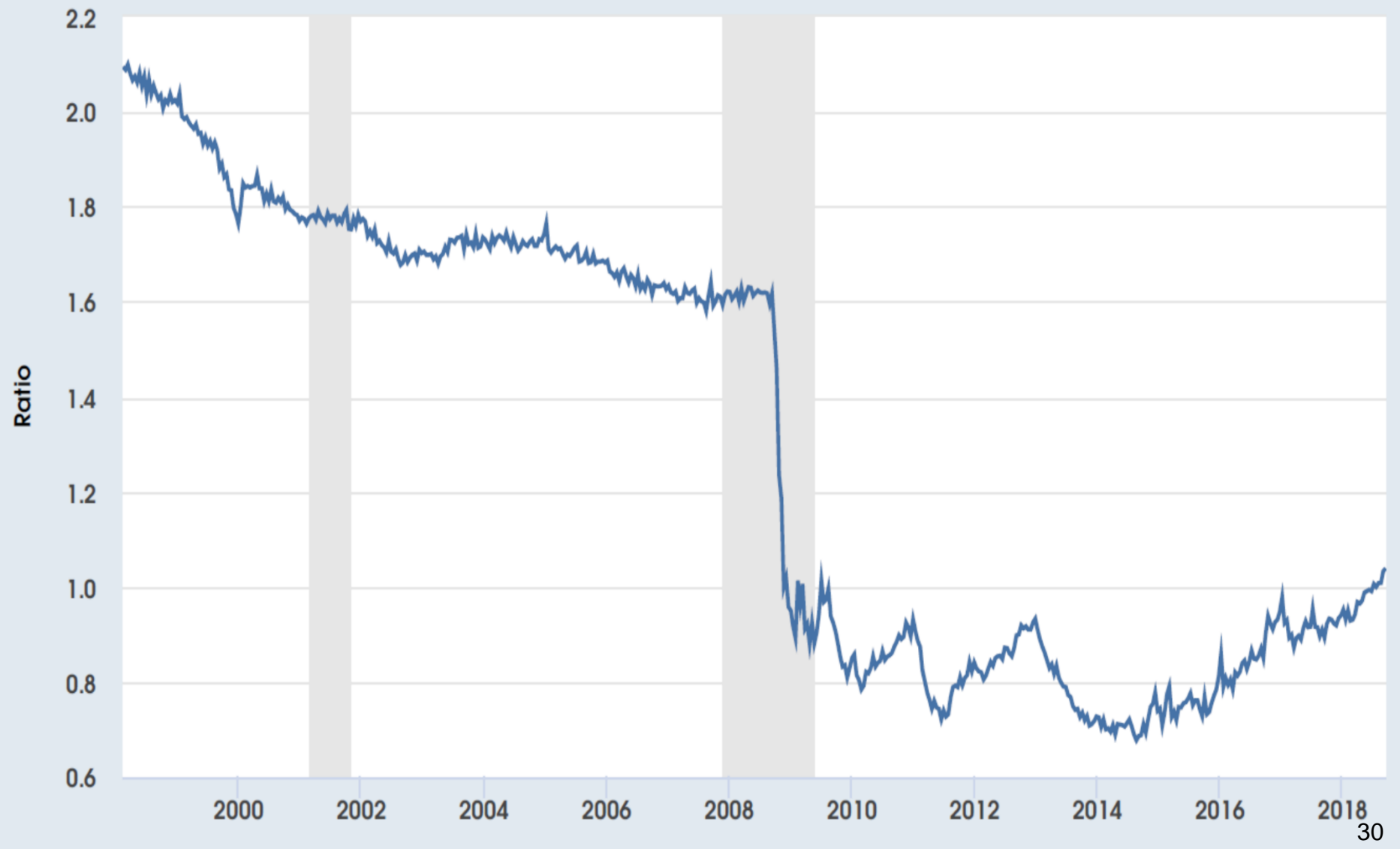
Shaded areas indicate U.S. recessions

Source: Board of Governors of the Federal Reserve System (US)

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# Money Multiplier Is Not Stable

**FRED**  — M1 Money Multiplier



# Velocity of M1 Is Not Stable

**FRED**  — Velocity of M1 Money Stock

