

Global Financial Systems

Chapter 13

Financial Regulations

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To accompany

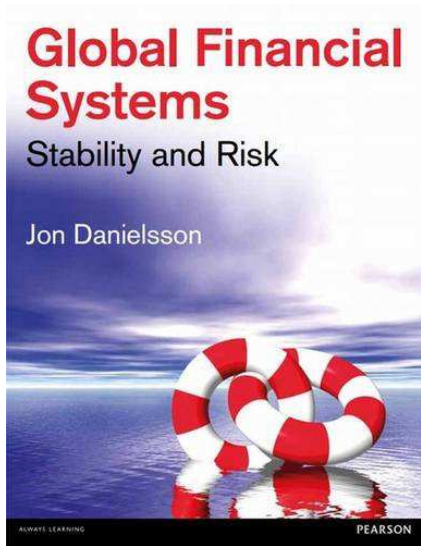
Global Financial Systems: Stability and Risk

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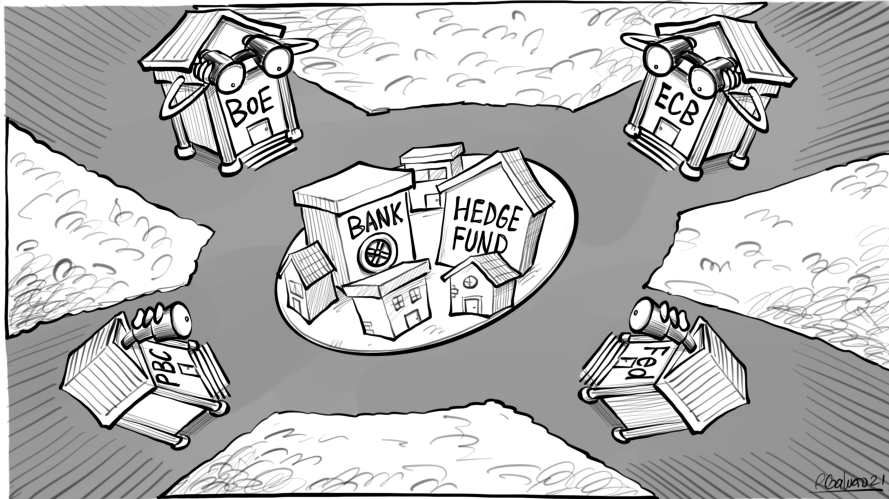
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Book and slides



- Updated versions of the slides can be downloaded from the book web page www.globalfinancialsystems.org



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Content

- These slides combine content from
- Chapter 13, “Financial Regulations” (general introduction to financial regulations and what was relevant until the 2008 crisis)
- Chapter 18, “Ongoing Developments in Financial Regulations” (how regulations were changing after the 2008 crisis from the point of view of 2012 when the book was written)
- New content on new developments

What to include

- The domain of financial regulations is vast and only a small portion can be included here
- With the main emphasis on regulations relating to financial stability
 - a. The Basel Accords
 - b. SIFI policies
 - c. MacroPru
- And ignoring most MicroPru, securities markets, insurance and other regulations

Risk Regulations

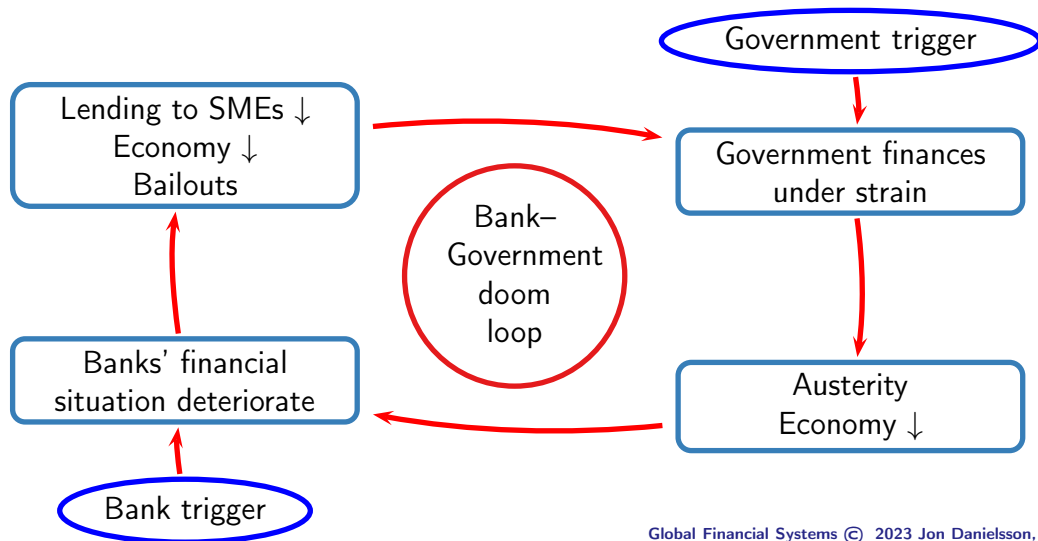
Why regulate the financial system?

- Market power
- Externalities
- Information asymmetry
- Be ready for the eventual crisis (yes, one will come)

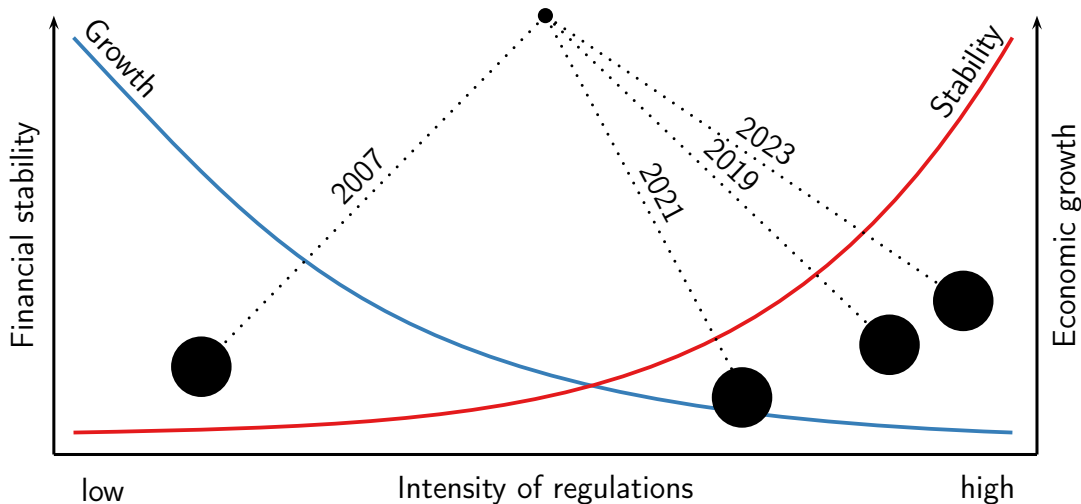
The conflict

- We want the banks to take risk
 - That is the only way to grow an economy
 - Countries with heavily regulated finance generally stagnate
- However, with risk comes the chance of failure
- We cannot have a vibrant banking system without the occasional failure

Bank–government doom loop



The regulation pendulum



Regulations and supervision

Regulations: the legal environment

Supervision: the enforcement

The focus of regulations

- *Macro-prudential regulation* – The failure of a single financial institution can bring down the financial system (systemic crisis)
- *Micro-prudential regulation* (investor/consumer protection)
 - Includes markets, insurance, pension, etc.

Note that these often conflict

Is a laissez-faire position credible?

- Banks should prosper and fail like any other enterprise
- Often prevailing policy but is not credible
- Externalities
 - When large losses, authorities have no choice but to act
 - Political pressure unbearable
 - 1866, 1907, Argentina
- Deciding not to regulate the financial sector is not a credible option for the authorities
- Being forced to intervene in times of crises without adequate preparation is a worst-case outcome
- Better to be prepared

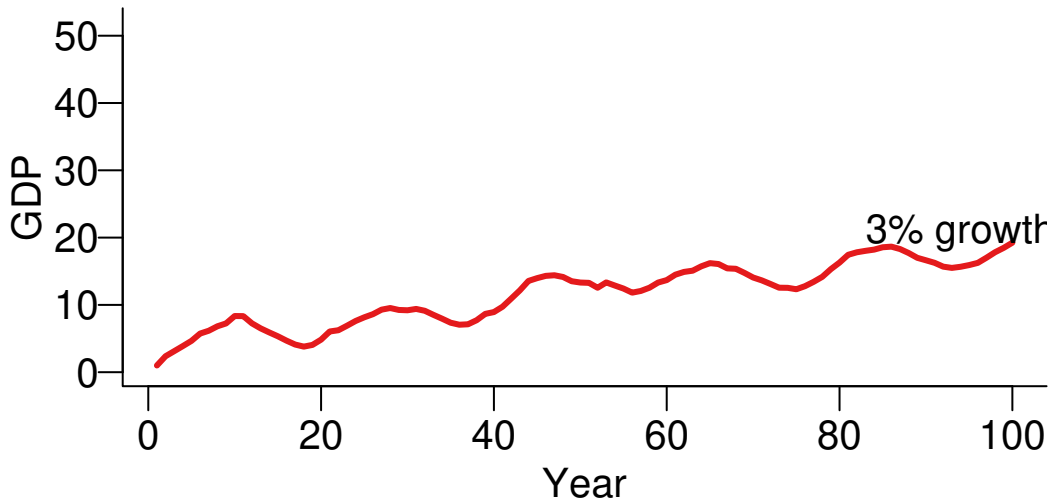
Financial policy

- Government policies targeting the financial system have three main objectives
 1. Price stability
 2. Stability of financial institutions
 3. Financial stability and prevention of systemic risk
- Each objective corresponds to one policy area
 1. Monetary policy
 2. Microprudential policy (MicroPru, or micro)
 3. Macroprudential policy (*MacroPru*, or *macro*)

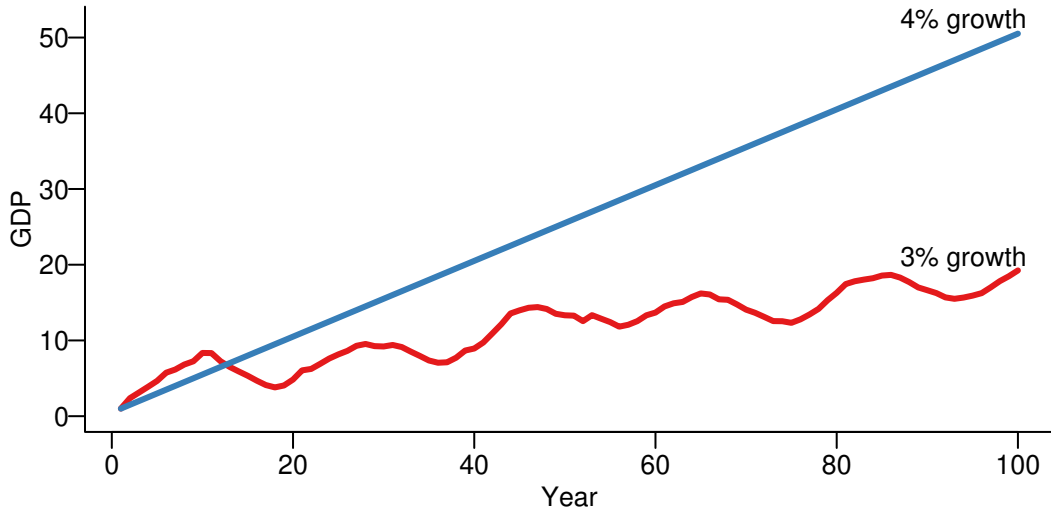
Policy objectives and tools

- Financial stability is not an objective by itself
- It is only a means to an end
- What we care about is stable and sustainable economic growth
- Therefore monetary policy, macro and micro, should be seen as ways to achieve that
- Even if many practitioners prefer not to emphasize that
- Or even reject it

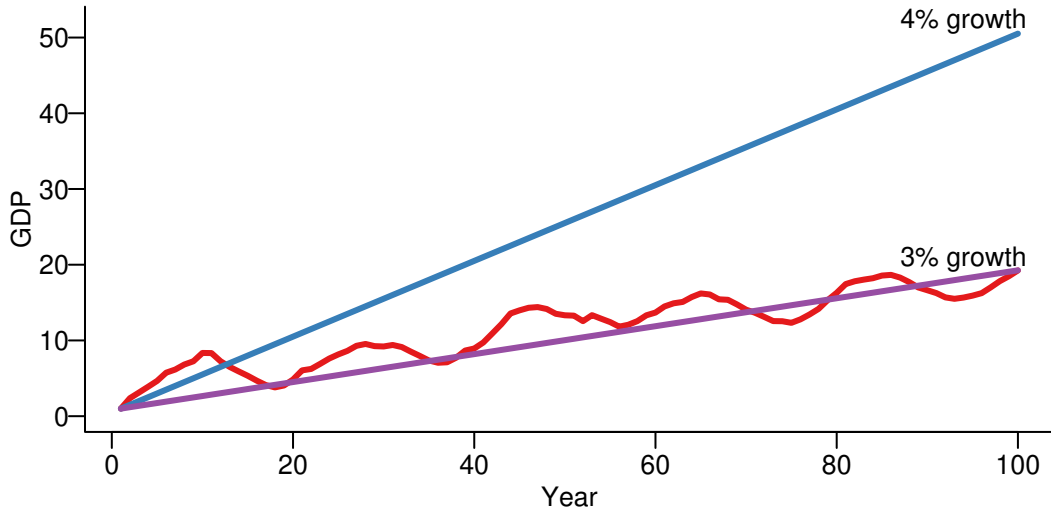
The promise: GDP over a century



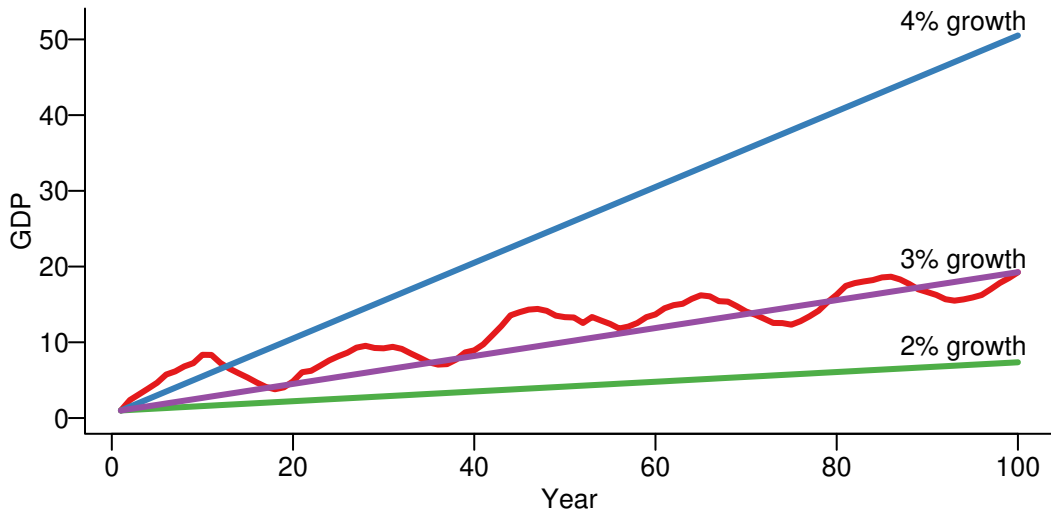
The promise: GDP over a century



The promise: GDP over a century



The promise: GDP over a century



Supervision

Supervision and regulation

- Regulations refers to the law and the interpretation of the law by regulators
- Supervision refers to the enforcement of regulations
- The boundary can be blurred — supervisors need to interpret regulations
- Becomes especially problematic if supervisors and regulators belong to different agencies
- Like in Europe — Common rulebook the goal to aspire to

Should supervision be a part of the central bank?

Arguments for separation

- *Conflict of interest*
 1. Higher rates to fight inflation vs. adverse impact on profitability of financial sector
- *Reputation risks*
 1. In case of bank failure: supervisor takes the blame, undermining a central bank's credibility
 2. e.g. BCCI in 1991
- *Too many different tasks*
 1. Not effective
 2. Politicisation of process

Arguments against separation

- *Engagement*
 1. CBs have no choice but to engage with financial stability
 2. Need to have information and power
- *Information*
 1. Supervisory information is valuable for forecasting key macroeconomic variables and thus implementing monetary policy
 2. CBs also have the responsibility to ensure the smooth working of various payment systems
 3. CBs need to be informed to act as LOLR

Supervisory structure in the US

- The Fed shares the responsibility for regulating and supervising the US financial system with other agencies
- Including the SEC, OCC and FDIC
- The Fed also serves as the umbrella supervisor of all bank holding companies

Supervisory structures in Europe

- European System of Central Banks includes the ECB and national CBs
- Single Supervisory Mechanism (SSM) established as part of Banking Union (BU)
- ECB as central supervisor for largest financial institutions
- National CBs support ECB in day-to-day supervision of national banks

Financial stability

- Policies to contain systemic risk and keep financial markets functioning
- CB has a monopoly on printing money, thus it is the only institution that can provide liquidity support in a crisis
- So generally, the central bank has the ultimate responsibility for the stability of the financial system

Foreign operations — Subsidiaries and branches

- A bank operating in a foreign country can have a branch or a subsidiary
 - A branch is a direct part of the home bank. Crucially, its liquidity and capital are a part of the home bank
 - A subsidiary is a separate legal entity, regulated as a domestic bank in the host country, with its own liquidity and capital
- The 2008 crisis, e.g. Lehman's, showed the problems with branches, see SVB
- Usually today, a branch operating in London is servicing companies from the home country — like Japanese companies with operations in London — and not domestic, British, clients
- If they service British clients, like SVB, they need to be a subsidiary

Capital

Capital

- Capital is the most important regulatory tool
- Fundamentally to both MicroPru and MacroPru
- So what is capital?

Capital In Common Usage

- Adam Smith: “That part of a man’s stock which he expects to afford him revenue”
- To Karl Marx, capital is more nefarious, as wealth that is used to create more wealth, something that only exists because of an economic exchange or the circulation of money
- Modern usage, follows both Smith and Marx, and is often quite contradictory
- Capitalisation which is the market value of a corporation
- Economists talk about capital as one of the two main inputs in production, the other being labour

Why Capital?

- *Reserves* against unexpected losses (buffer)
- *Limit to leverage* – or credit expansion

The Balance Sheet Of A Firm

Left-hand side	Right-hand side
----------------	-----------------

Assets	
--------	--

	Equity
--	--------

	Liabilities
--	-------------

$$\text{Assets} - \text{Liabilities} = \text{Equity}$$

Equity

- A bank started five years ago
- Assuming the original stock price was 1,000, and there are no dividends or taxes
- Profits in year 1, 2, 3, 5 were 100 respectively, while the loss in year 4 was 250
- In this case, the shareholders' *equity* is

$$1000 + 100 + 100 + 100 + 100 - 250$$

- Known as *Common Equity Tier 1 — CET1*

Capital Instruments

General criteria

- Loss absorption
- Permanency
- Flexibility and the ability to defer payment
- Default performance and freedom of action

The most common form of capital is equity.

The more equity-like an instrument is, the better protection it provides.

Basel Accords (BA)

Basel Committee for Banking Supervision
(BCBS)

Basel I
Basel II

Domestic To International Regulation

- National regulations up until '70s
- Bankhaus Herstatt 1974 – settlement risk
- Banco Ambrosiano 1982 – international regulation avoidance
- BCCI
- Calls for international regulation – Basel

Basel Committee on Banking Supervision (BCBS)

- 1974
- Main financial centers at the time, those making up the G10 group (Belgium, Canada, France, Italy, Japan, Germany, Sweden, the Netherlands, the UK, and the US), together with Luxembourg
- The BCBS is hosted at, but is distinct from, the Bank for International Settlements, whose head office is in Basel, Switzerland
- It does not possess any formal powers, rather, it is a vehicle for agreeing on common standards and financial regulations, and it is left up to the member countries to implement the regulations
- BCBS reports to the G20

Three Main Risk Areas Attracting Capital Charges

- Operational risk
- Banking book
- Trading book

Basel Accords

- Basel I (1992)
- Basel II (2008) Not fully implemented, for example in the US
- Basel III (Implemented in stages from 2019)
- Basel IV (in the future)

The 1988 Basel Accord (Basel I)

- Enforced in member countries in 1992
- Early 1980's global recession put competitive pressure on capital
- Japanese banks had much lower capital than European and American banks
- And hence were taking over the lending market in Europe and US
- Banks lobbied have their capital lowered to the Japanese level
- Instead the Japanese were forced to increase theirs to the European and American levels
- An important contributor to the Japanese banking crisis

Critical Evaluation Of Basel I

- Broadly successful in achieving its designated purposes
 - Defining types of eligible capital
 - Setting capital ratio at 8% of risk-adjusted assets
- Limitations
 - Ignores risks other than credit risks, e.g. market risk
 - Risk-adjustments of assets do not fully reflect riskiness, for example, AAA vs Organisation for Economic Cooperation and Development (OECD) government bonds
 - Distorts incentives and can impede effective supervision
 - Incentives for financial engineering in capital structure arbitrage

The 1996 Amendment and VaR

- Incorporates market risk
- Value-at-Risk (VaR) approach to measure market risks
- Requires banks to report daily their 10-day 99% VaR
- Using *internal risk models* audited and permitted by regulators
 - Internal rating based (IRB)

There is a 1% probability that the portfolio will fall in value by more than the VaR over a 10-day period

The Three Pillars Of Basel II

Minimum capital requirement is based on the notion that a bank is able to communicate its overall risk level via one number to the supervisors

Supervisory review process is designed to ensure that this risk number is generated in a satisfactory manner

Market discipline depends on the communication of key statistics to the community at large

Increased sophistication ↑

Credit risk	Market risk	Operational risk
Advanced internal ratings based approach	Internal models	Advanced measurement approach
Foundation internal ratings based approach		Standardised approach
Revised standardised approach	Standardized approach	Basic indicator approach

Basel III

Basel III

- Basel II was never fully implemented because of the crisis in 2008
- In response to the crisis, the BCBS was reorganised (for example, moved under the Financial Stability Board (FSB))
- It was decided to do Basel III
- Done at lightning speed (a decade)
- It has been in implementation since, mostly taking effect in 2019
- But not fully implemented then, and delayed because of Covid

Buffers

- Capital requirements are made up of a sequence of buffers
- The first is Tier 1 (T1) and Tier 2 (T2) which always apply
- Then we have two buffers that can be varied
 1. capital conservation buffer
 2. countercyclical capital buffer
- Additional capital for systemically important banks (Total Loss-absorbing Capacity (TLAC))

Total regulatory capital ratio = Tier 2+ Tier 1 + Capital conservation buffer + Countercyclical capital buffer + Capital for systemically important banks

What capital is

Capital is what the regulator chooses to call capital

- Capital is equity (CET1) plus other things
- It could be a 30 year bond
- Even better a subordinated bond (next page)
- It could be reserves
- It can include convertible bonds
- And some bonds can have a lower priority than even equity (AT1 next page)
- Items in bank capital are liabilities of the bank

AT1 and Subdebt

- Additional Tier 1 capital (AT1) is (typically) a perpetual loan sold by a bank
- It is callable — apparently the expectation is that the bank will call it 3 to 5 years after issue — surely not the intention
- It is designed so the resolving authority has flexibility — the covenant usually stipulates that at the authority's discretion, AT1 holders can take losses before shareholders
- Subordinated debt is meant to absorb losses before higher priority creditors — like depositors — take losses
- The AT1 become relevant for Credit Suisse discussed later
- The subordinated were relevant in Cyprus and Silicon Valley Bank, discussed later

Two Types Of Capital Ratios

- Leverage ratio
 - It treats all assets the same
 - A loan to a safe entity – German government or Apple computers
 - Has the same risk weight as a loan to a risky entity – Japanese government or a hot dog stand
 - Because capital is costly, can incentivise banks to seek the riskiest assets
- Risk-weighted ratio
 - If something is riskless it gets a zero weight
 - The riskier it is, the higher the weight
 - So what are the weights? We showed one example relevant for market risk in the endogenous risk chapter, the next slide shows one relevant for credit risk

Risk Weights

- The idea of risk weights is that the riskier an asset is, the bigger weight it has in the capital calculation
- Low-risk asset, A_1 and high-risk A_2

LHS	RHS
Low risk assets (A_1)	Capital (C)
High risk assets (A_2)	Non-capital

$$CR = \frac{C}{w_1 A_1 + w_2 A_2} \geq \alpha, \quad w_1 < w_2$$

- Where w_1 and w_2 are risk weights

How To Get The Weights?

- If a loan/bond is riskless in reality or by law, like government bonds, $w = 0$
- As the loan risk increases, or the credit rating on a bond gets worse, so does the risk weight
- A AAA-rated corporation might attract $w = 0.1$ while a CCC-rated gets $w = 0.6$
- A loan to a wealthy borrower and a steady job with plenty of collateral might have $w = 0.15$ while a loan to someone with no assets and irregular employment might have $w = 0.7$
- The high-risk loans are often called *sub-prime*

Risk weighted capital requirements in Basel III

- Tier 1
 1. 4.5% of *CET1*
 2. 1.5% of additional capital instruments
 - *AT1*, retained earnings, can include preference shares
- Tier 2
 - 2%
 - Revaluation reserves, hybrid capital instruments, *subordinated debt*, general loan-loss reserves, and undisclosed reserves
- Capital conservation buffer — 0%-2.5% of CET1
- Countercyclical capital buffer — 0% – 2.5% of CET1
- Globally systemically important bank (G-SIB) buffer 0%-2.5% (TLAC)

The Leverage Ratio

- Keep in mind that the term “leverage ratio” and even “leverage” can mean different things elsewhere
- In banking regulations

$$\text{Leverage ratio} = \text{LR} = \frac{T1}{\text{Total assets}} = \frac{T1}{TA} \geq 3\%$$

Liquidity Coverage Ratio

- The LCR came into effect in January 2015
- The Basel Committee issued the final form of Basel III's LCR in January 2013
- The stock of high-quality liquid assets (HQLA) divided by the total net cash outflows over the next 30 days
- The ratio ensures that a bank has sufficient liquid assets to meet its liquidity needs over a 30-day period in a liquidity stress scenario

Net Stable Funding Ratio

- The ratio of the amount of available stable funding for the next year over the amount of required stable funding for the next year

G-SIBs

Bucket	G-SIBs
5 (3.5%)	Empty
4 (2.5%)	HSBC, JP Morgan Chase
3 (2.0%)	Barclays, BNP Paribas, Citigroup, Deutsche Bank
2 (1.5%)	Bank of America, Credit Suisse, Goldman Sachs, Mitsubishi UFJ FG, Morgan Stanley
1 (1.0%)	Agricultural Bank of China, Bank of China, Bank of New York Mellon, BBVA, Groupe BPCE, Group Credit Agricole, Industrial and Commercial Bank of China Limited, ING Bank, Mizuho FG, Nordea, Royal Bank of Scotland, Santander, Societe Generale, Standard Chartered, State Street, Sumitomo Mitsui FG, UBS, Unicredit Group, Wells Fargo

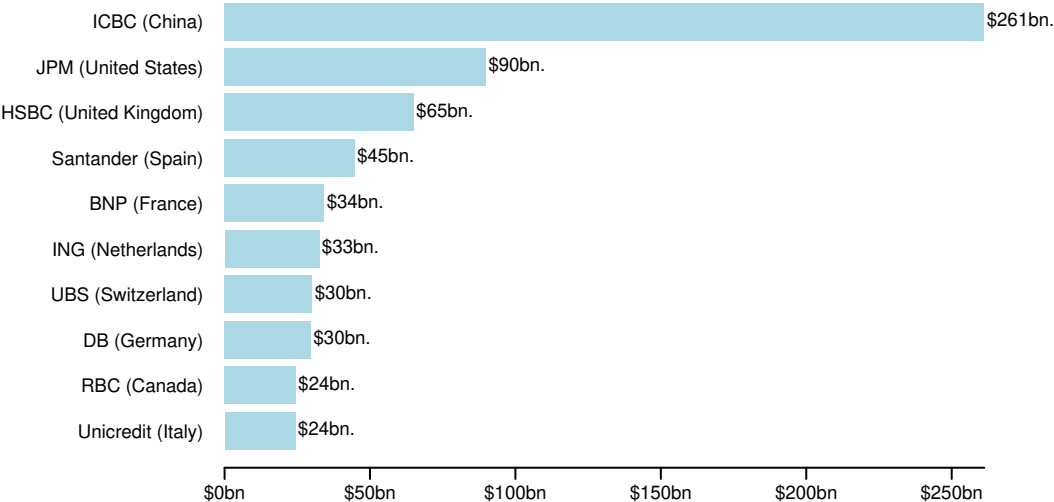
HSBC At The End Of 2016

- Tier 1, £172 billion
- Total assets £2,375 billion
- Is the LR then $172/2,375$? No
- Minute accounting rules for classifying assets and liabilities (and GAAP vs. IFRS)
- The leverage ratio of HSBC is 5.4%
- Risk weighted assets, RWA £857 billion
 - Lending to corporations, £583 billion
 - Retail loans, £367
- Under the most generous definition of capital, CR=17%

Largest Systemically Important Financial Institution (SIFI) Per Country End Of 2022

Bank	Country	LR	TA(tr.)	TA/GDP	Distance to default (bn.)
JPM	United States	5.40	\$3.7	16%	\$89.8
ICBC	China	7.80	\$5.5	31%	\$261.2
DB	Germany	4.90	\$1.6	37%	\$29.8
Unicredit	Italy	5.20	\$1.1	52%	\$24.4
RBC	Canada	4.80	\$1.4	68%	\$24.5
HSBC	United Kingdom	5.20	\$3.0	93%	\$65.1
ING	Netherlands	5.90	\$1.1	111%	\$32.6
Santander	Spain	5.40	\$1.9	132%	\$44.7
UBS	Switzerland	5.70	\$1.1	137%	\$30.2

Loss To Default/Systemic Crisis (end of 2022)



Capital Ratio

- So

$$\text{Capital} \geq \text{Assets} - \text{Liabilities}$$

- Or

$$\text{Capital} = \text{Equity} + \text{other things (see next section)}$$

- Then the key concept is:
- The capital (adequacy) ratio – *CAR*

$$\text{CAR} = \frac{\text{Capital}}{\text{Assets}} = \frac{C}{A} \geq \alpha$$

- Which has to exceed some threshold, α (for example, 8%)

Example with T1 and T2

- Bank has risky (A_2) and riskless (A_1) assets
- Risk-weighted capital ratio $\geq 8\%$

$$\text{Capital ratio} = \frac{C}{\text{RWA}} = \frac{T_1 + T_2}{0 \times A_1 + w_2 \times A_2} \geq 8\%$$

Example

- $C = \$12$, $A = \$100$, $\alpha = 8\%$

$$CR = \frac{\$12}{\$100} = 12\% > \alpha$$

- Leverage of

$$\frac{\$100}{\$12} = 8.3$$

Loss

- Suppose the bank loses 3% of its assets (\$3)

$$\frac{\$12 - \$3}{\$100 - \$3} = 9.3\% > \alpha$$

- Note how the \$3 affects both the numerator and denominator by the same amount
- But because the former is smaller, the ratio goes up
- Therefore, it can take a relatively small amount of losses for a bank to hit α

Continuing With Example From Page 63

- Before the shock the risk weight is 1, so $w = 1$

$$\frac{\$12}{w \times \$100} = \frac{\$12}{\$100} = 12\% > \alpha$$

Because of the shock, the risk weight increases to $w = 1.5$, and

$$\frac{\$12 - \$3}{w(\$100 - \$3)} = \frac{\$12 - \$3}{1.5(\$100 - \$3)} = 6.1\% < \alpha$$

The CR fell further

- The bank is no longer meeting its regulatory constraint, either causing it to be shut down by the authorities or to receive a bailout or be taken over

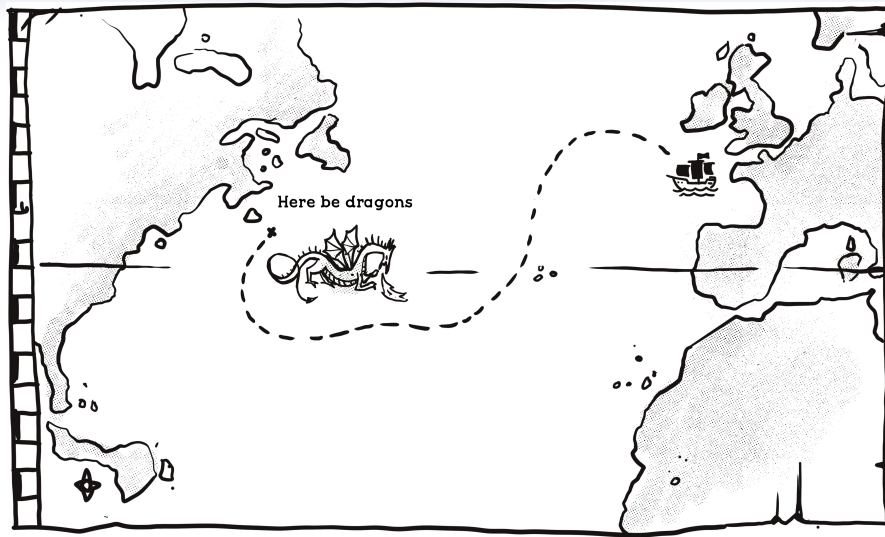
Impact of the Business Cycle

- Suppose a company is in the business of selling luxury goods, having $w = 0.2$ as the economy is doing well
- Suppose the economy enters into a recession
- Then the company may be expected to sell less, but it still has the same amount of debt, so weights increase to $w = 0.4$

The Problem With The Risk-Weighted Capital

- Suppose some asset is hit by a shock
- Then its price will fall and the risk weight will increase
- Why? It happens mechanically the way we usually calculate risk weights
- The problem is that the impact on the CA will be larger

Challenges in financial regulations



Challenges in financial regulations

- a. Holistic
- b. Resources
- c. Responsibility transfer
- d. The incentives of supervisors
- e. Tick-the-box
- f. Regulatory capture
- g. Perverse consequences
- h. The SIFI problem
 - i. What is the purpose of capital?
 - j. Capital arbitrage
- k. Measuring risk weights
 - l. Procyclicality
- m. Cliff effects

a. Holistic

- It is not enough to identify a particular problem
- and remedy that with regulations
- Secondary consequences
- Such as how the proposed regulations change bank behavior and the impact on the relationship between the government and the banking system
- Need to be considered

b. Resource problems

- Government pays much less than the banks
- With fewer staff members
- Seriously outgunned when dealing with the banks

c. Transfer of responsibility to government

- Supervisors get confidential information
- If banks fail, the authorities are partly to blame
- Banks of course fully know this
- Are incentivized to behave in a way that internalizes the possibility of burden-sharing with the government

d. Incentives of supervisors

- Air traffic in China
- Supervisors don't get credit when things go well and everybody complains about excessive regulation
- After a failure, head of agency called to parliament — pilloried in the press
- The supervisors had all the information about the bank but did not act
- Incentives of supervisors are to prevent failure at all costs — become *too risk-averse*
- Incentive problem of the supervisor is *inverse* to bankers
- Need mechanisms in place to prevent excessive supervisory risk aversion
- Cost-benefit analysis on regulations?
- Very hard

e. Tick the box and legal approaches

- After its 2008 failure, the Icelandic supervisor said the purpose of the supervisor is “to ensure the banks don’t break the law”
- That is not correct, the purpose of the supervisor is to prevent harm to society and help economic development
- Danger of excessively legalistic or formulaic approach to banking regulations, often referred to as *tick-the-box regulations*
- Principle-based regulations vs. tick-the-box based regulations
- Latter is much easier to implement, and often ends up being the default approach
- SEC

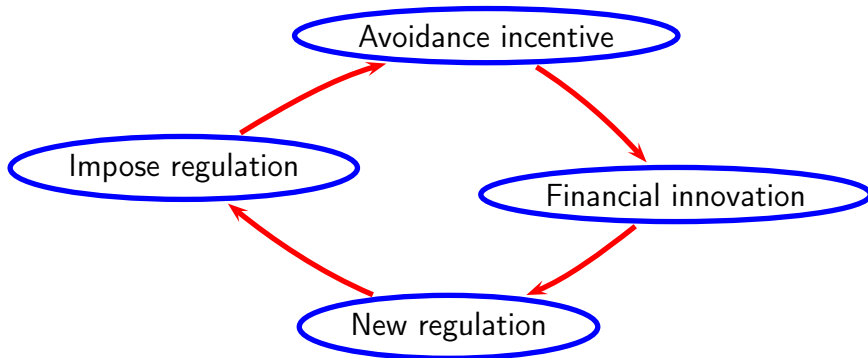
f. Regulatory capture

- Many reasons for why the government chooses to regulate the banking system
 - unprofitable banking services to disadvantaged sectors of society
 - national champions
 - bank lobbying is also quite strong and aims at creating banking regulations that favor the incumbents, discouraging entry into the banking system, providing protection for banks' profits and even the odd bailout
- Supervisory agency no longer works for society, instead it in effect works in the interest of the banks
 - banks recruit staff out of supervisory agencies
 - banks go directly to the politicians
- Can be hard to verify. SEC? S&L?

g. Perverse consequences of regulation

The circle of financial innovation and regulation

- E.g. Reg Q → money market account
- Restricted dollar lending to foreigners → Eurodollar markets



h. SIFI problem

- The failure of SIFI banks will be very traumatic
- This is well understood
- But the problem becomes worse
 - a. fixed and variable costs (see slide below)
 - b. mergers and takeovers to resolve failing institutions

Fixed cost and variable cost

- Complying with regulations is very costly
- With both very high fixed and variable cost
- The high variable cost benefits the largest financial institutions
- And hence reduces competition and makes the SIFI problem worse

Too big to jail

“I am concerned that the size of some of these (financial) institutions becomes so large that it does become difficult for us to prosecute them
— Eric Holder, Attorney General of the US”

- HSBC failed to monitor transactions of US dollar purchases with drug trafficking proceeds in Mexico
- Illegal in the US
- US officials refused to prosecute bank for money laundering in 2012
- Trade-off between rigorously enforcing regulations and risking systemic failure
- In 2016, reports and emails from UK and US officials showed that they were concerned about “financial calamity”

i. Goodhart's metaphor

What is the purpose of capital that cannot be used?

A weary traveler arrives by train to an unknown town late at night. Seeing one taxi outside the train station, the traveler asks the driver to take her to her hotel. The driver responds that he cannot do so, and points to a sign on the wall saying "local regulations require that at least one taxi be outside the station at all times"

j. Capital structure arbitrage

- Before 2008, the capital structure was aggressively manipulated — maximizing the numerator and minimizing the denominator of the CR
- For example by risk weights and hybrid instruments
- Much harder to do in Basel III
- Especially the leverage ratio (recall the table above)
- But there are still many ways to manipulate capital, both the numerator and denominator

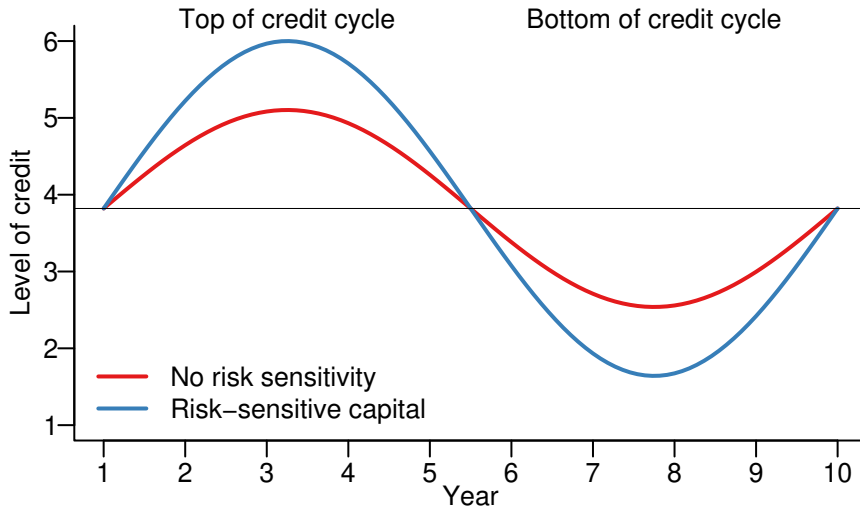
k. Calculating the risk weights

- Can either use a standardized approach — supervisor decides on one-size-fits-all
- Basically a risk bucket approach
- Or internal models (for the largest banks only)
- Risk models can strongly disagree and there is no way to decide on which is correct
- If we harmonize risk models we create procyclicality
- And if we allow banks to make their own models we create scope for manipulation

I. Procyclicality

- Bank lending is inherently pro-cyclical
- Chasing increasingly marginal credits in upturns — asset price bubble
- Bubble bursts and everything goes into reverse but at a much faster pace
- Risk-sensitive capital exacerbates the problem
- Criticism:
 1. no limit to credit expansion during boom
 2. too little attention on incentives and sanctions
- Banks behavior more homogeneous → Danger of endogenous risk

Procyclicality and risk sensitivity



Procyclicality in regulations

- During upswings, regulations become increasingly lax, amplifying the boom
- After a crisis, they become excessively strict, magnifying the downturn
- There are clear signs of this in the current cycle

m. Cliff effects

- If CAR falls below α , bank shut down
- Before that, increasing unwanted scrutiny from the authorities
- Banks prefer to keep a significant buffer above the minimum, generally around 12% – 13% before 2007

- Ratio falling: increase capital by selling equity
- Happens only in times of difficulty, costly, even impossible
- Can also reduce the amount/riskiness of assets— *deleveraging*
- In a crisis, firesale
- Bank may also refuse to provide new loans and roll over existing loans — credit crunch
- SMEs
- Exacerbate the crisis —endogenous risk

Macroprudential Policies/Regulations

MacroPru

Emergence of MacroPru

- After the 2008 crisis, recognition that:
 - a. Monetary policy had focused too much on price stability
 - b. Micro prudential regulators had mistakenly thought that if each individual institution was safe, the entire system was safe — *fallacy of composition*
- The crisis in 2008 proved both wrong

MacroPru objectives

- There are many definitions of MacroPru, and even the same government institution can have multiple conflicting definitions
- Most say something about lowering or eliminating systemic risk
- Some mention the real economy
- My definition
 - a. Prevent excessive risk accumulating
 - b. Contain financial crises when they happen
 - c. Ensure the financial system contributes to growth

MacroPru directions

- *Passive*
 - Crisis resolution and fixed rules that hold through the financial cycle
- *Ambitious* — lean against the wind in a discretionary manner
 - Discretion to deviate from rules
 - Tighten capital and liquidity requirements during upswings and relax the same rules during and after a crisis
 - Cut through the amplifying feedback loops
- Discretionary MacroPru policies aim to be countercyclical
- If successful, of considerable benefit to the wider economy

Institutional design

- The question of who should be in charge of macro-prudential policies is unsettled
- In most Asian/Latin countries the central bank is in charge
- In the UK it is now mostly the central bank (PRA, but FCA also claims some oversight)
- In the US it is split among various bodies — turf fight
- In the EU the nation states are in charge (usually the central bank)
- But the European Systemic Risk Board (ESRB) and ECB also claim oversight

Why the central bank?

- The main reason to leave it to the central bank is that it is the only institution that can create liquidity on demand
- And therefore is at the center of fighting any financial crisis
- And the hope is that its credibility in monetary policy has positive externalities for macropru

The toolkit

- Instruments must be flexible with country differences
- Identifying the right tool is difficult
- Monetary policy uses the inflation rate as its target variable, and interest rates are the main tools
- MacroPru tools must target multiple sources of risk simultaneously
- Like risky behavior, SIFIs, asset price bubbles, ...
- Try to:
 1. Make financial institutions more resilient
 2. Reduce leverage
 3. Reduce interconnectedness between financial institutions
 4. Ensure the supply of credit and liquidity to the real economy in case of a crisis

The macro real estate toolkit

1. LTV, loan-to-value ratios
2. DTI, debt-to-income ratios
3. DSTI, debt-service-to-income ratios
4. Tax-deductible interest rates
5. Stamp duty

Countercyclical capital instruments

- Dynamic provisioning
- Countercyclical capital buffer
- Capital increases in good times
- and falls in bad times
- At least in theory

Flow management

- EMEs remain fragile to volatile capital flows
- Hot money inflows followed by a sudden stop
- Capital controls 2.0
- Tax short-term inflows
- This may work in the short term, but exposes the central bank to political risk
- The governor becomes the *FX police chief*
- And over time loopholes will be found and controls become increasingly ineffective

Yellen

Macro-prudential Challenges

Effective MacroPru authorities need

VoxEU.org (2016) Jon Danielsson and Robert Macrae

- a. Estimates of systemic risk (and its impact on the real economy)
 - from the early signs of a build-up of stress to
 - the post-crisis economic and financial resolution
- b. Tools to implement effective policy remedies
- c. Legitimacy, a reputation for impartiality, and political support

Where is the power?

- Off the three policy domains, monetary is the most prestigious and has most power
- Micro is seen as very important and for most parts is quite separate from monetary
- MacroPru can easily be in conflict with the other two
- And is usually subservient
 - Interest rates are set without regard to financial stability (usually by law)
 - While macropru must take monetary policy into account
 - Becomes very clear in real estate macropru (next slides)

Real estate macropru

- Housing prices in some countries, and especially regions, are rising rapidly
- A major reason is very low interest rates
- And others include government policies that encourage prices to go up (like zoning restrictions and tax deductible interest rates)
- The various real estate tools therefore are just mopping up after these other policy domains

b. How to measure systemic risk?

- The ESRB has identified over two dozen variables that it considers for financial stability, like
 1. Deviations in credit-to-GDP ratios
 2. Change in price trends
 3. Change in credit spreads
 4. Credit risk conditions
- The FSOC and BoE have similar lists
- At any point in time one measurement tool will indicate the world is about to end and another that everything is fine

Macro-micro conflict

- Macro focuses on financial stability and the reduction of systemic risk
- Micro aims at consumer and client protection and to encourage confidence in banking services
- The micro could argue that if each institution acts safely, then the entire system is safe
- Macro might say that it is important to let institutions fail
- They have been in sync from the crisis
- And now are increasingly out of sync
- Consider the European problem of micro being in the ECB and macro in the nation states

Central banks and monetary policy

- The powers given to central banks are *extraordinary* for a democratic society
- Who is more powerful, Governor of the Fed or the chairman of the Joint Chiefs of Staff?
- Justified by the importance of politicians not manipulating monetary policy for short-term gains
- But it is relatively straightforward
 - a. One measurement (inflation)
 - b. Two tools (price and quantity of money)
- *Clear objective, target and tools*

By contrast

- Macropru is complex and ill-defined
- Indicators are imprecise and conflicting
- Surgical tools are ineffective
- Powerful tools too blunt
- Identifies clear winners and losers (lobbying and politics)

Central bank independence

VoxEU.org (2013) Jeff Chwieroth and Jon Danielsson

- We make central banks independent because we don't trust politicians to set interest rates
- Only works because of the clarity of the mission
- Macropru is much more political and cannot be, and will not be left in the hands of the central banks no matter what fancy structure we create
- The hope is that the credibility of monetary policy rubs on to MacroPru
- The fuzziness of the MacroPrudential agenda and the interplay of political pressures may undermine monetary policy

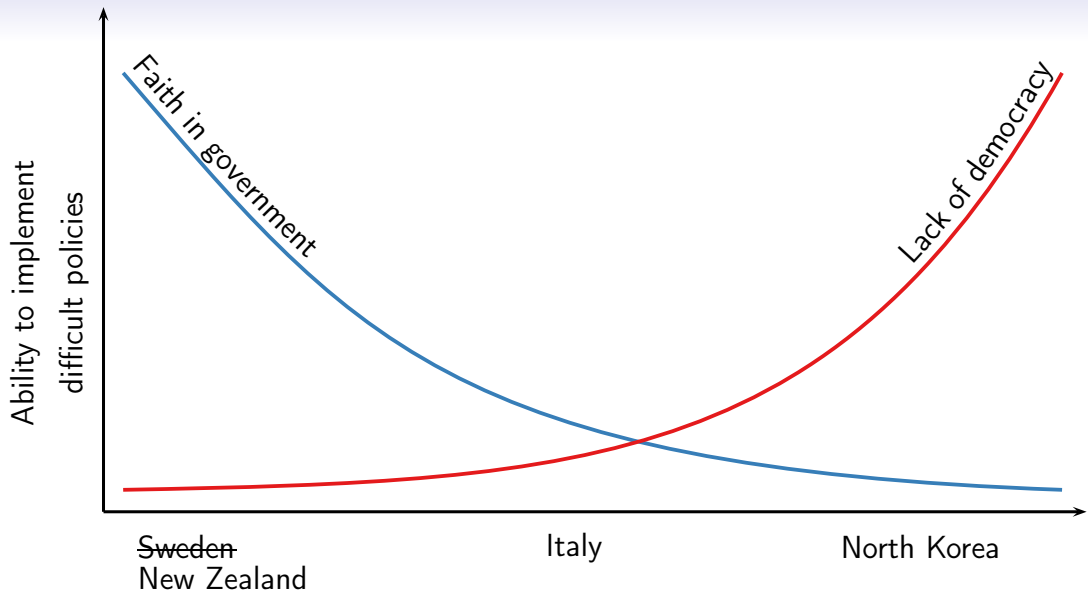
Major financial stress events

- Very few stress events arise purely from excessive risk (I can only think of one)
- Most are strongly influenced by politics
 - a. Wars
 - b. Venezuela
 - c. Transition between political systems
 - d. Populism and anti-globalism
 - e. Government policies promoting home ownership
- The MacroPru event is only a consequence of something bigger

The dilemma of political risk

VoxEU.org (2016) Jon Danielsson and Robert Macrae

- Can a nonpolitical entity legitimately implement MacroPru policies that affect democratic outcomes?
- Recall Bank of England and Brexit
- Does the mandate given by the political leadership to the regulator extend to the behavior of the political leadership?
- If the MacroPru authorities are not able to incorporate political risk in their analytic frameworks, how effective can they be?
- And how legitimate?



The potential for procyclical MacroPru

VoxEU.org (2016) Jon Danielsson, Robert Macrae, Dimitri Tsomocos, Jean-Pierre Zigrand

- Minsky — stability is destabilizing
- Homogenization of the financial system
- Measurement
 - Most current indicators of systemic risk only identify perceived risk
 - Reacting with lag to indicators measured with a lag
 - Out of cycle response

- Transparency
 - When MacroPru policy is known to the market, banks will schedule risk-taking around indicators, stress tests and expected policy reaction
- Symmetry
 - The authorities should be willing to *reduce* aggregate risk-taking and leverage during booms and *increase* it in times of stress
 - Post 2008 response

All of these objections call for a procyclical policy response

- “Banks are failing because they already extended too much credit””
- “Surely bank capital needs injections rather than allowing the banks’ capital to absorb losses””
- “Helping the City to increase lending now leads to even bigger moral hazard””
- “Macropru is discredited because it was supposed to have prevented this credit event in the first place, why should it do better this time?”

Financial policy response to Covid-19

- Focus here is on macro prudential and monetary policy
- We start seeing the responses come in February, with most in March and April
- Most, But not all, countries did something
- (See next like)

Types of responses

- Wider economy support
 1. credit to households, businesses and government sectors
 2. mostly just pain relief
- Financial institutions support
 1. lowering interest rates
 2. quantitative easing
 3. relaxing of regulations (see next slide)
 4. foreign exchange swap lines, discussed in the FX chapter

Regulation changes

- Mostly relaxation of capital buffers
- Both the countercyclical and capital conservation buffers
- The idea being that banks will find it easy to lend to companies in difficulty
- Early indications are that these are not very effective