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Target2-balances and financial stability

Dr. Albrecht Sommer, Regional Office in Berlin and Brandenburg of the Deutsche Bundesbank

The views expressed here are those of the author and not necessarily those of the Bundesbank.

Propositions on Target2-balances

Balance sheet analysis of the origins of Target-balances

Exit risk of Target-balances

Profit and loss distribution in the Eurosystem with ELA

Illiquidity of a central bank in its own currency?

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Target2-balances – Propositions (Sinn 2018)

- Target balances arise when cross-border payments between banks are settled via national central banks in the Target-system and do not balance.
1. **Target-balances imply an exit risk!** If a country with Target-liabilities leaves monetary union a strong devaluation of the new national currency can be expected, thereby rendering these Target-balances unsustainable.
 - Currently, Germany has a net-exposure in Target of around 800 bn Euro. Bundesbank's capital amounts to almost 120 bn Euro.
 2. **National central banks** are allowed to conduct **refinancing operation at their own risk (ELA-loans)** if banks lack eligible collateral for refinancing operations with the ECB.
 - If ELA-loans defaulted (caused by a severe financial crisis), Target-claims would default as well. Obviously, the alleged risk shield of ELA-loans does not hold and **Target-balances may default even without exit.**

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Emergence of Target2-balances - 2007 to 2011 (capital flight)

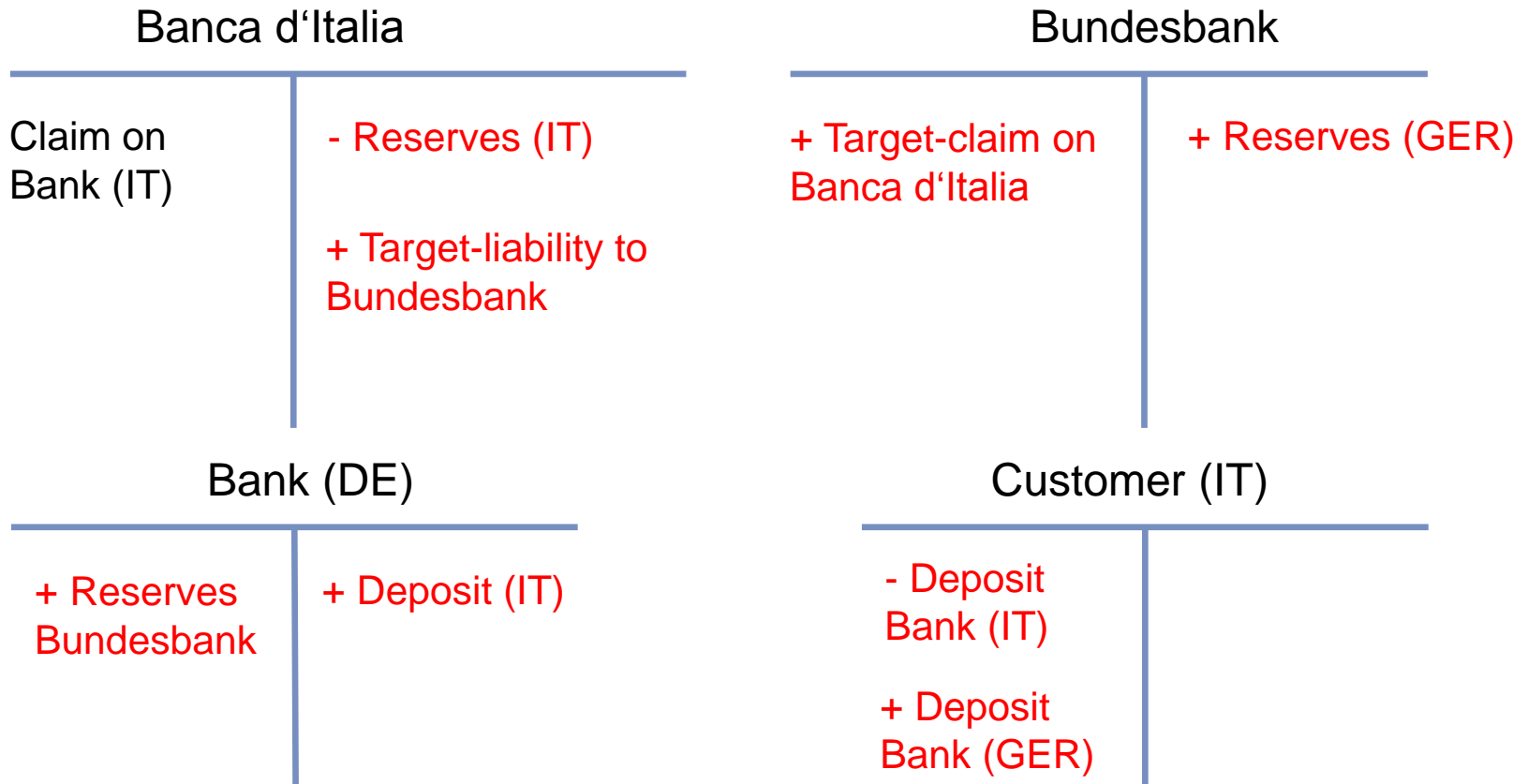
1. Transfer by Italian bank customers to Germany via Target-system (base money creation in Italy)

Bank (IT)		Banca d'Italia	
Loans (IT)	Deposits (IT)	+ Claim on Bank (IT)	+ Reserves (IT)
+ Reserves Bd'I	+ Liability to Bd'I		- Reserves (IT)
- Reserves Bd'I	- Deposit (IT)		+ Target-Liability to Bundesbank

To carry out cross-border payments, a bank needs liquidity, which is provided by refinancing with the central bank (IT). The transfer via Target2 causes a Target-liability for the Banca d'Italia.

Emergence of Target2-balances - 2007 to 2011 (capital flight)

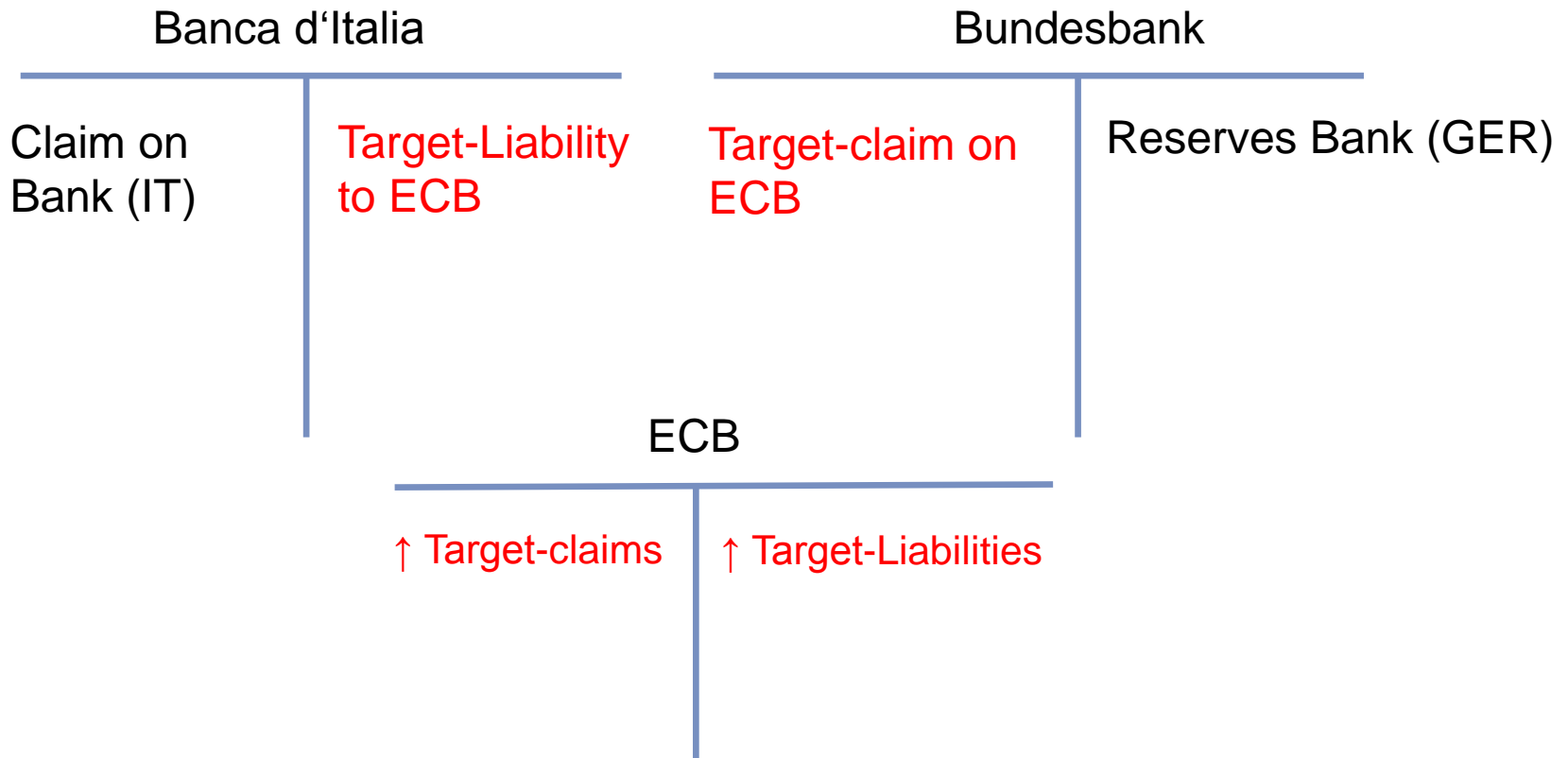
2. Settlement of the money transfer via Target-system (redistribution of liquidity from Italy to Germany)



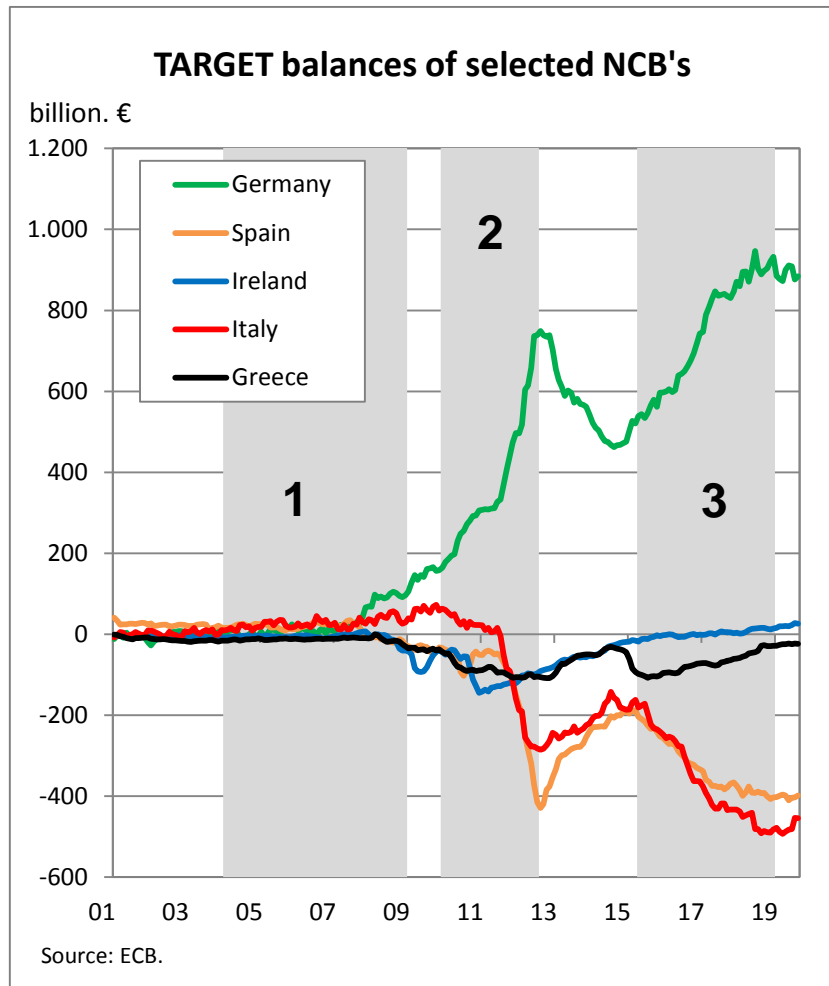
As the result of a cross-border money transfer, a Target-claim remains with the Bundesbank and a Target-liability with the Banca d'Italia.

Emergence of Target2-balances - 2007 to 2011 (capital flight)

3. Reclassification to ECB



Target2-balances – Huge diversity in EMU



- **Phase 1 (2004 to 2008):** Growing current account imbalances are causing Target balances to rise only moderately.
- **Phase 2 (2010 to 2012):** Rising government debt and under-capitalized banks triggered capital flight from peripheral countries in EMU.
- **Phase 3 (2015 to 2018):** The purchase program of the Eurosystem caused capital inflows into core countries from abroad. Capital flight continued.

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Exit risk of Target Balances – Accounting treatment of an exit

1. Neutralization of a write-down of Target-claims by use of “Equalization claims for losses on Target-balances”.

Bundesbank	
Refinancing operations (GER)	Reserves Bank (GER)
- Target-claims on ECB	Deposit Government
+ Equalization claims (revaluation account)	Capital

Details of this revaluation account have to clarified:

- **Claim against whom?** (originally the ECB, which, however, belongs to national central banks, whose shareholders are in turn the national governments)
- **Interest and repayment modalities.**

Target Balances – Accounting treatment of an exit (transfer of sovereign bonds)

2. Bundesbank receives a fixed-term bond of a weak state instead of an indefinite claim on governments of Euro area countries.

Bundesbank (1)

Refinancing operations (GER)	Reserves Bank (GER)
Revaluation account (compensation claims) on Target-claims	Deposit Government
	Capital

Bundesbank (2)

Refinancing operations (GER)	Reserves Bank (GER)
↓ Target-claims (IT)	Deposit Government
↑ Sovereign bonds (IT or pooled bonds (Krahen))	Capital

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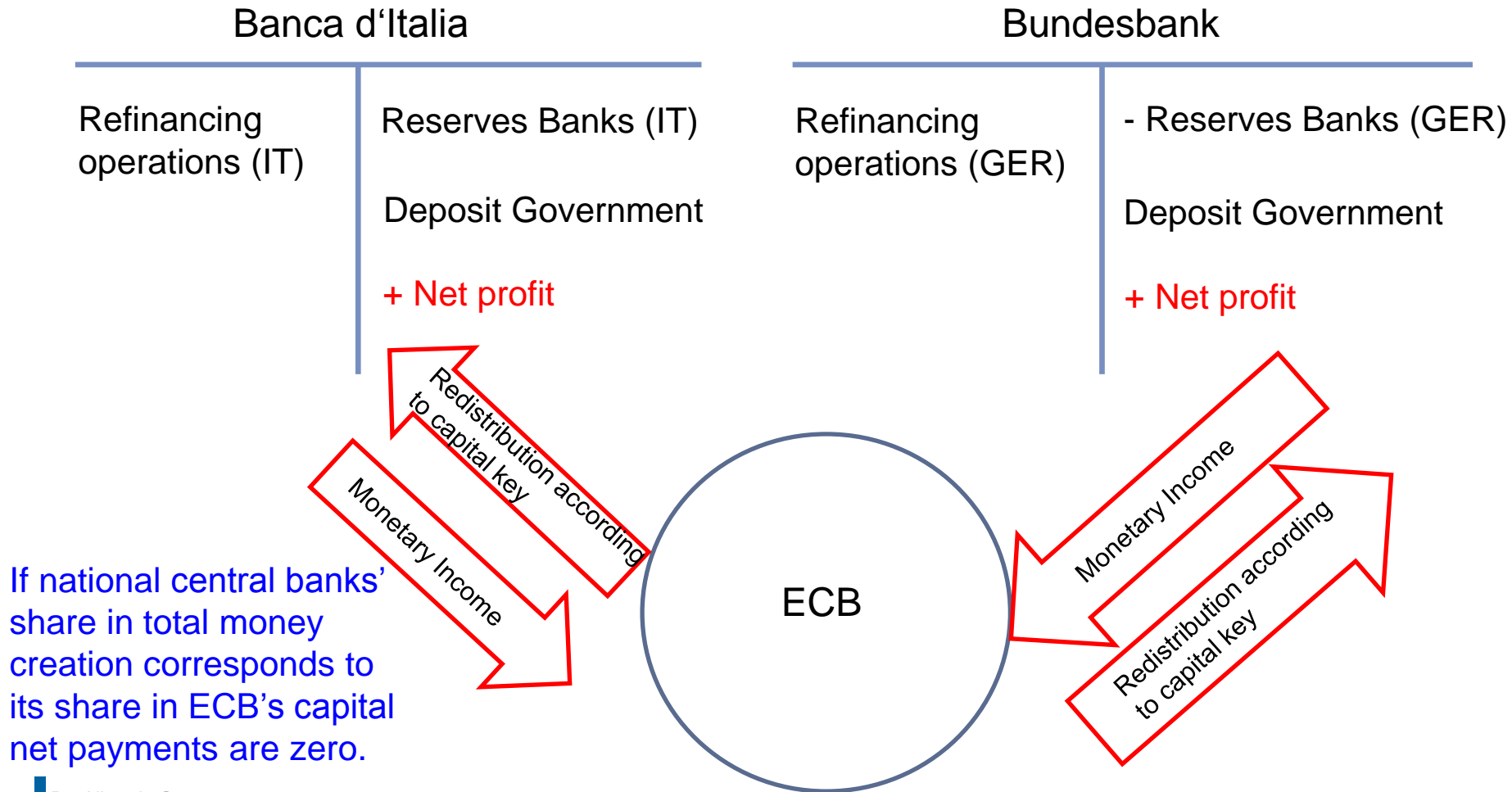
Illiquidity of a central bank in its own currency?

Distribution of profits in the Eurosystem - Monetary income of central banks

- Firstly, profits of national central banks (monetary income) from monetary policy operations are pooled at the ECB and then redistributed according to the NCBs' shares in ECB's capital.
- **Monetary income** is calculated as **interest revenues from refinancing operations minus interest payments incurred by the NCB**. In normal times interest costs consist of interest paid on minimum reserves and the deposit facility (if negative: interest receipts).
 - In addition, there are **interest costs (or interest receipts)** resulting from excessive (or disproportionately low) cash issuance (measured against the share in ECB's capital) and **from Target-claims or -liabilities** that bear interest at the main refinancing rate.
 - As interest on Target-liabilities reduces the transfer of Bd'I into the profit pool a penalty rate on Target liabilities (Meyer/Hansen (2019); FDP) is neutralized.

Distribution of profits in the Eurosystem

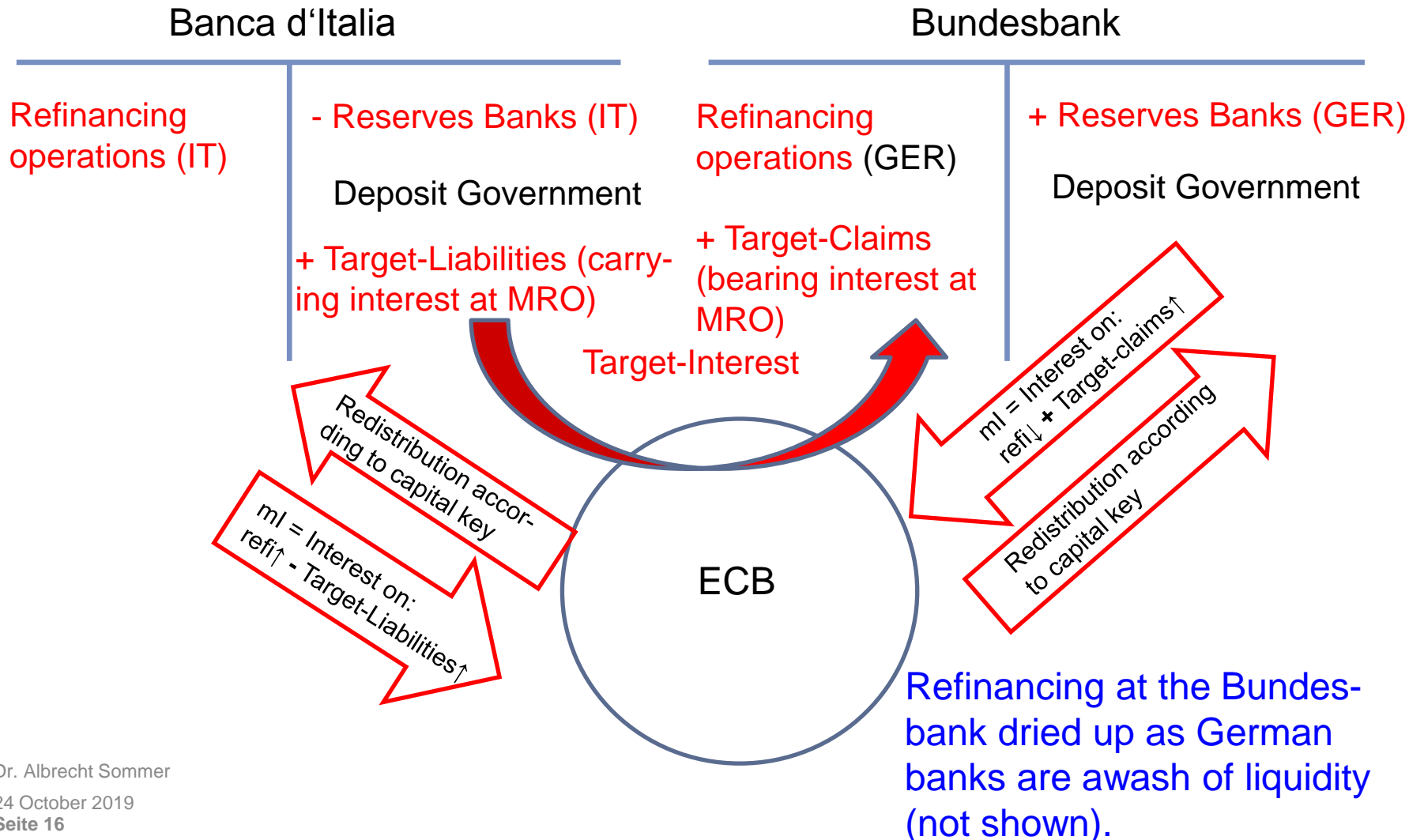
Profit transfer to the ECB and redistribution according to capital key.



If national central banks' share in total money creation corresponds to its share in ECB's capital net payments are zero.

Distribution of profits in the Eurosystem

Profit transfer to the ECB (compensation for redistribution of central bank liquidity from IT to DE due to capital flight)

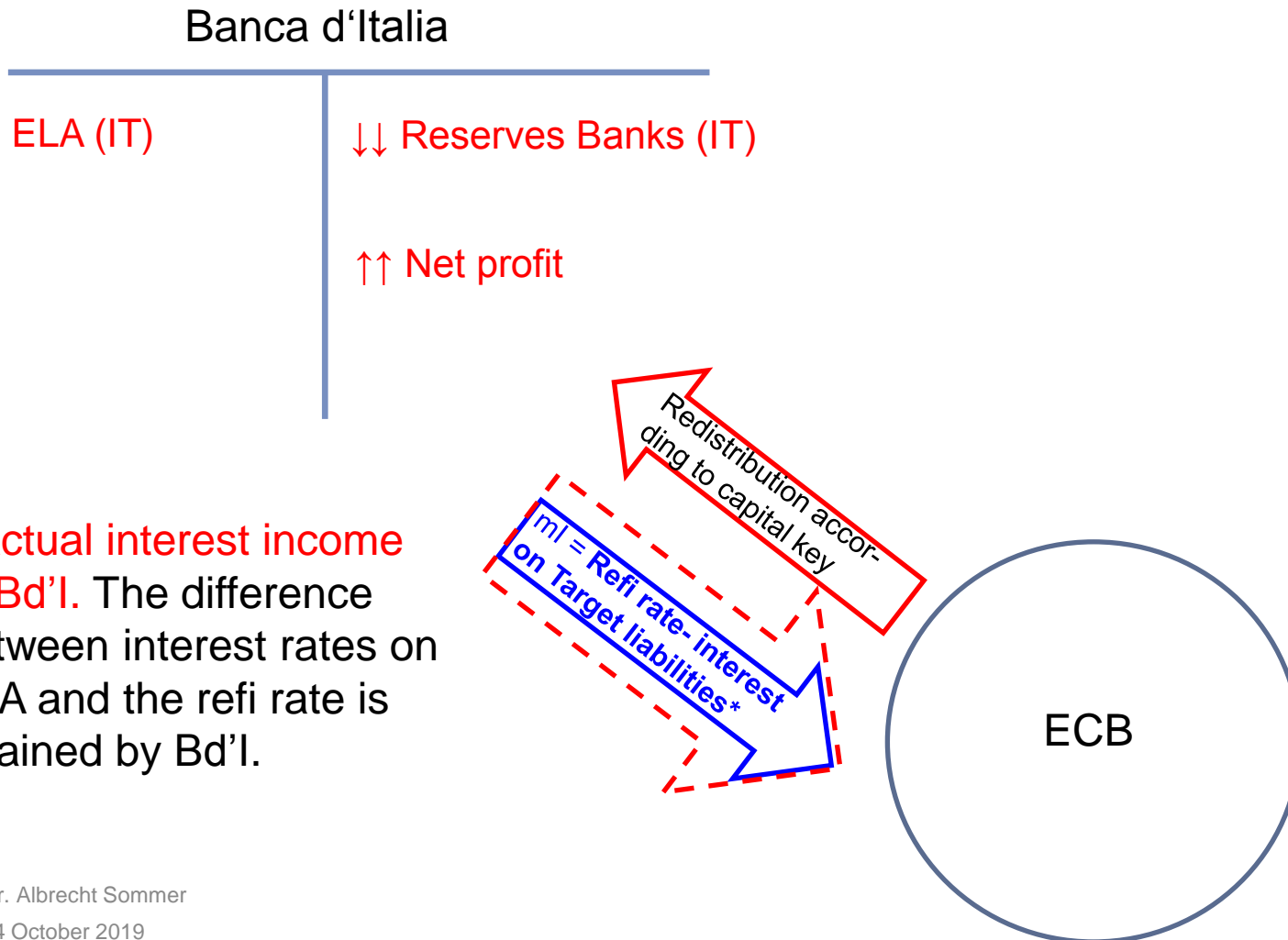


Profit distribution in the Eurosystem – ELA-loans

- Refinancing by **emergency liquidity assistance (ELA)** is carried out on the basis of guidelines issued by the national central bank regarding collateral, **(higher) interest rates** and maturities.
- As NCB's set the conditions for ELA-loans they are not subject to loss sharing in the event of default.
- ELA loans are interest-bearing. ELA loans that serve monetary policy purposes generate **monetary income**, which is determined by **imputing the rate on MRO** on them. These revenues – as with refinancing operations – are pooled at the ECB. The remainder of interest income may be retained by the NCB.
- This rule makes sense as all national central banks continue to participate in the distribution of profits according to their ECB capital key (**those who are paid out must also pay in**).

Profit distribution in the Eurosystem – ELA-loans

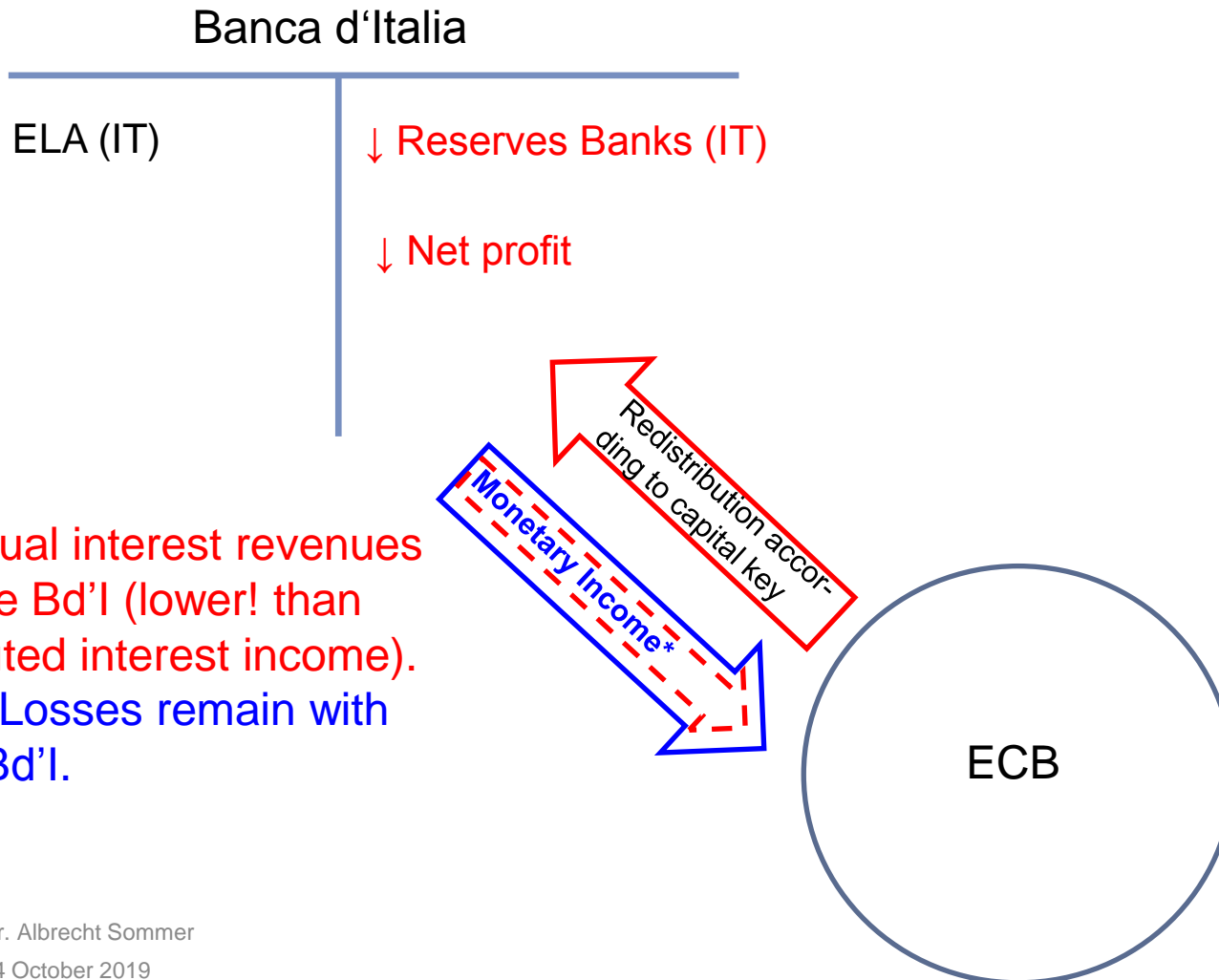
Profits on ELA-loans: Interest from ELA loans is only included in the interest pool at the main refinancing rate.



* Actual interest income of Bd'I. The difference between interest rates on ELA and the refi rate is retained by Bd'I.

Profit distribution in the Eurosystem – ELA-loans

Losses on ELA loans: Interest payments (imputed) irrespective of the amount of actual interest income.



* Actual interest revenues of the Bd'I (lower! than imputed interest income).
But: Losses remain with the Bd'I.

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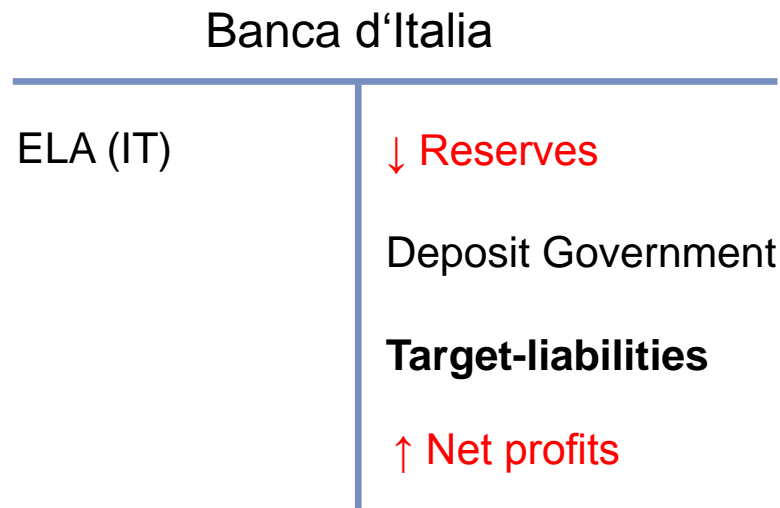
Illiquidity of a central bank in its own currency?

Discussion - Can central banks become insolvent in their own currency?

- **Thesis 2:** Sinn (2018) claims that in case of ELA-default the Bd'I is **not able to transfer:**
 - **2a.** Interest payments imputed on ELA loans all as well as
 - **2b.** Interest on Target-liabilities to the ECB!
- Without interest income on ELA-loans there is no money to be transferred to the ECB. Concerning imputed interest payments, Sinn proposed to dispense of all claims on the interest pool at the ECB forever.
- But this does not work with Target-balances. As debt service on Target-liabilities dries up, Target-claims default. Accordingly, **Target-balances pose a risk to creditors countries even if all countries stay in the Euro area.**
- **Interestingly, Sinn's assertion implies that a central bank can become illiquid in its own currency!**

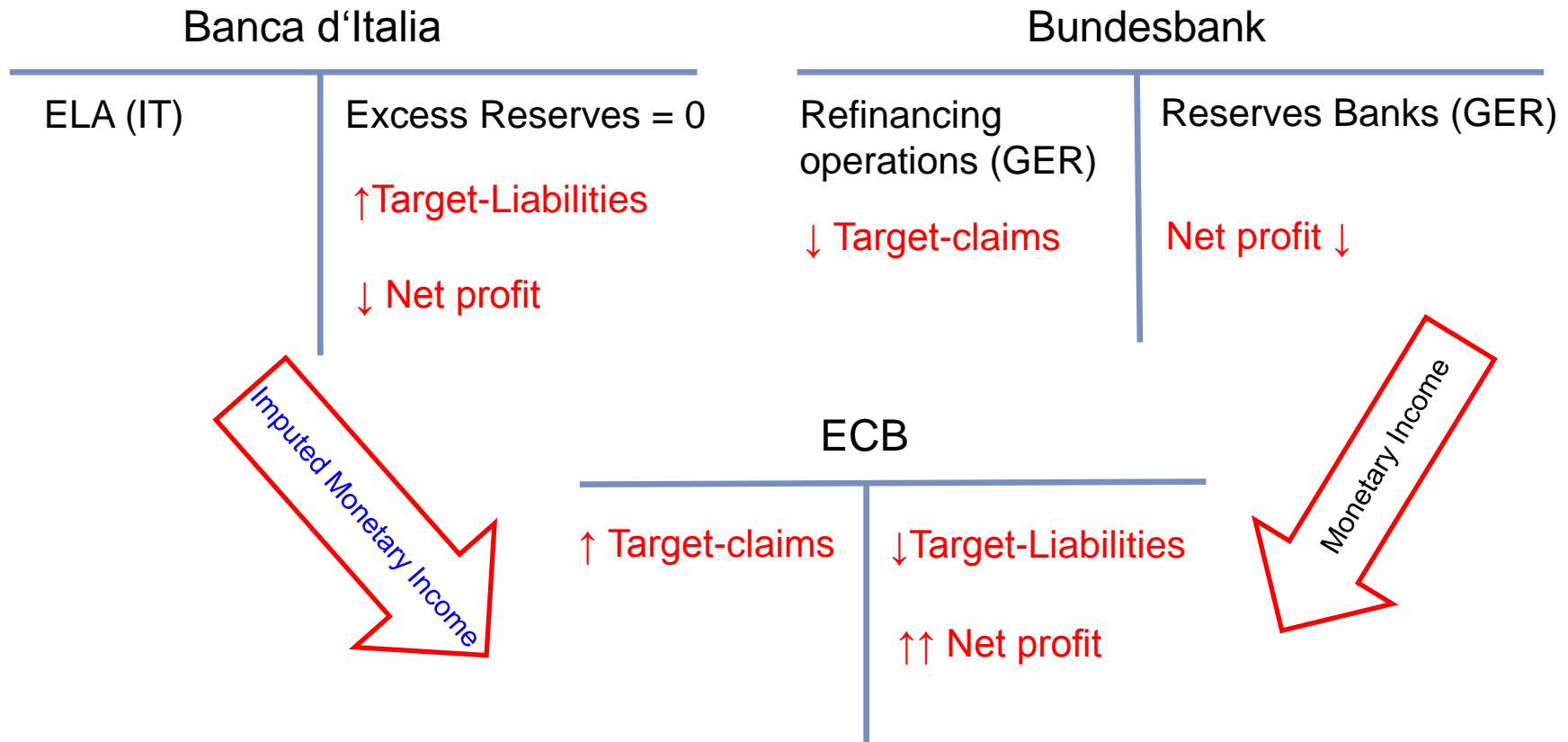
Discussion - Can central banks become insolvent in their own currency?

If banks pay interest their account at the central bank is debited. Central bank's profits increase. National central banks do not receive any assets which they could pass on to the ECB!



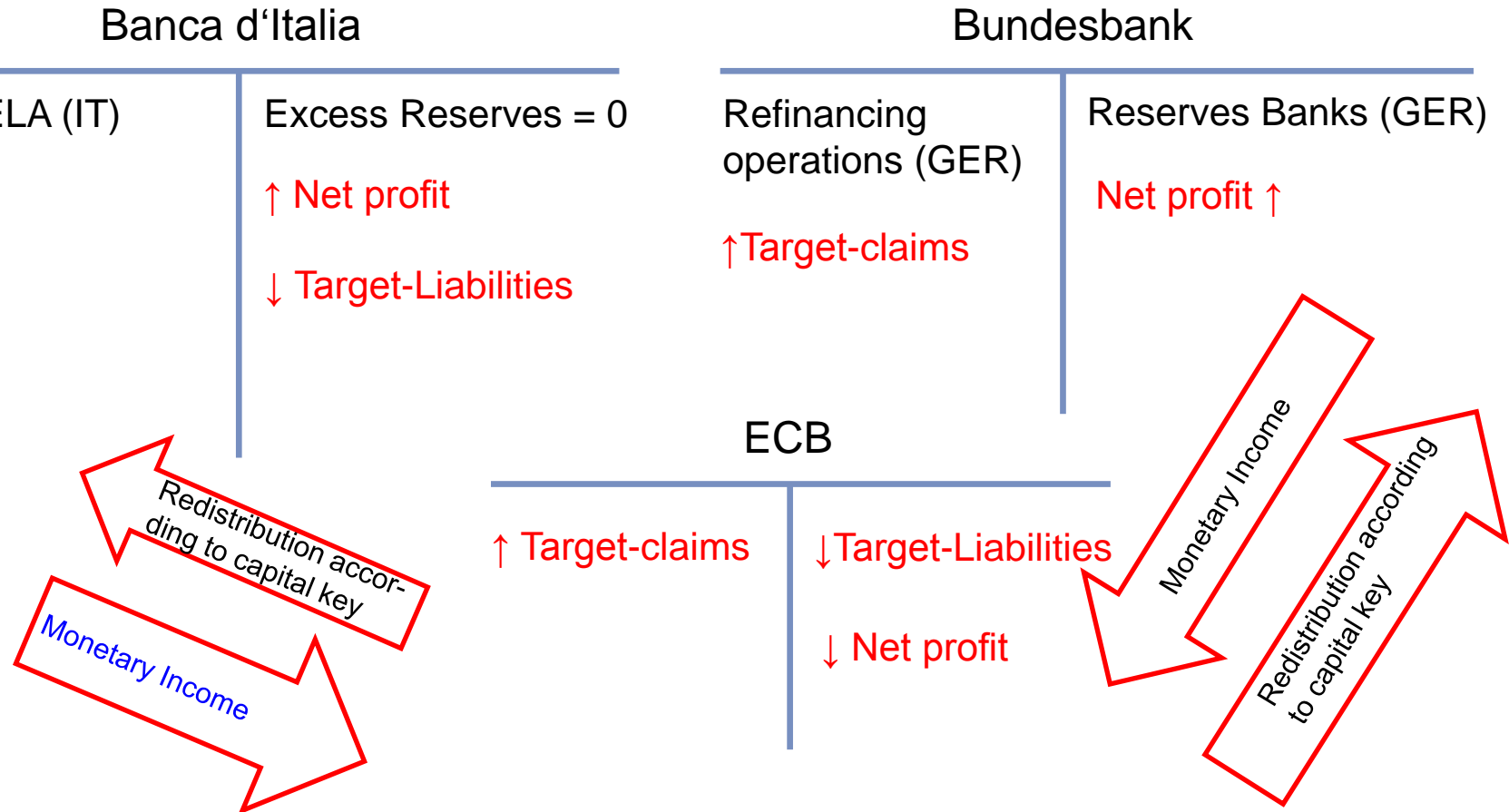
Discussion - Can central banks become insolvent in their own currency?

2a. Bd'I carries out imputed interest payments to the ECB via the Target system **although** interest payments on ELA loans have dried up!



Is an insolvent central bank illiquid?

2a. Money flows back from the pool via Target system (capital key!) – Sinn's proposal of pledging all claims on the interest pool is completely meaningless. Accordingly, there is no need to write off Target-claims.



Is an insolvent central bank illiquid?

2b. Does a complete write-off of ELA loans imply that Target claims also have to be written off?

Banca d'Italia		Bundesbank	
+ ELA (IT)	Reserves Banks (IT) ↓ Capital <0 Target-liabilities	Refinancing operations (GER) Target-claims	Reserves Banks (GER) Capital

The default on ELA-loans is fully matched by a capital loss.
Target-balances are not affected.

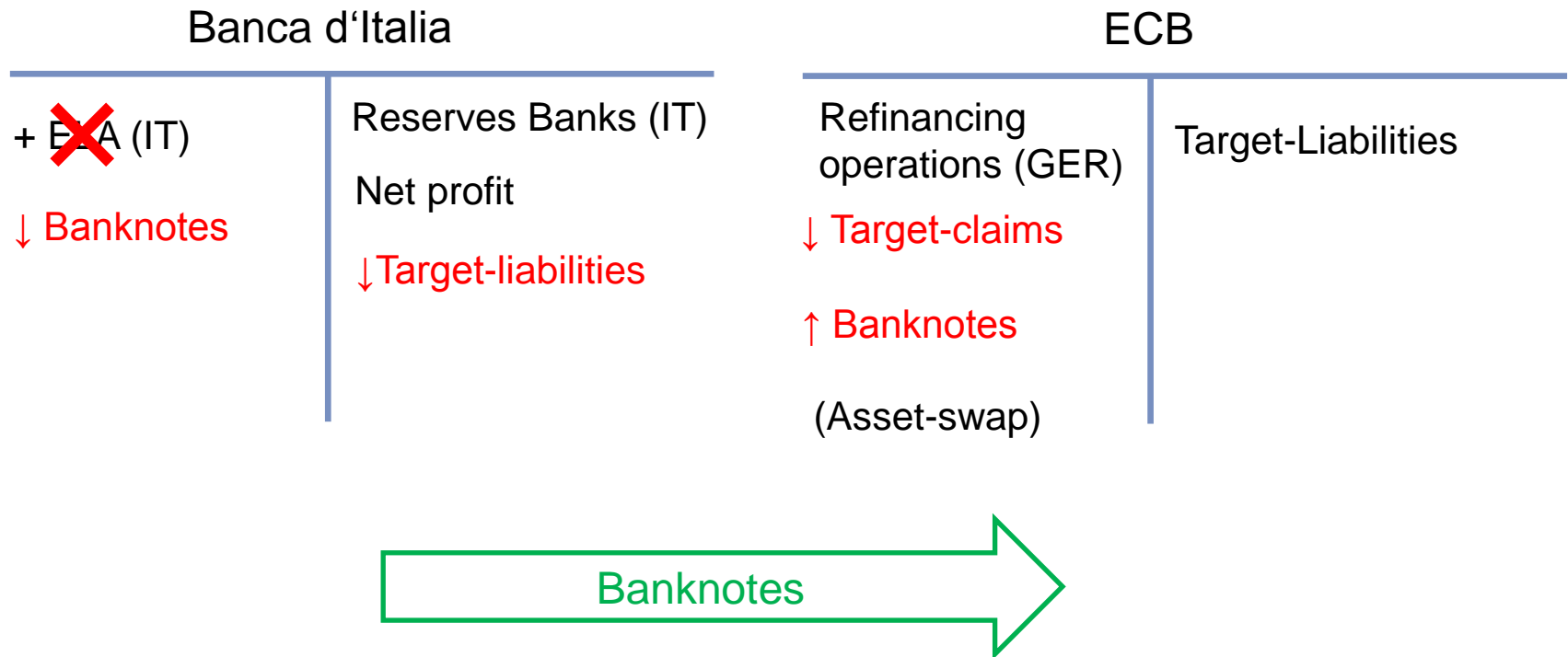
Settlement of Target-balance by an insolvent central bank – Transfer of banknotes

2b. If nevertheless a settlement of Target-balances is deemed necessary, Bd'I might temporarily activate banknotes in its balance sheet

Banca d'Italia		Bundesbank	
+ E.A (IT)	Reserves Banks (IT)	Refinancing operations (GER)	Reserves Banks (GER)
↑ Banknotes	↑ Net profit	Target-claims	Capital
	Target-liabilities		

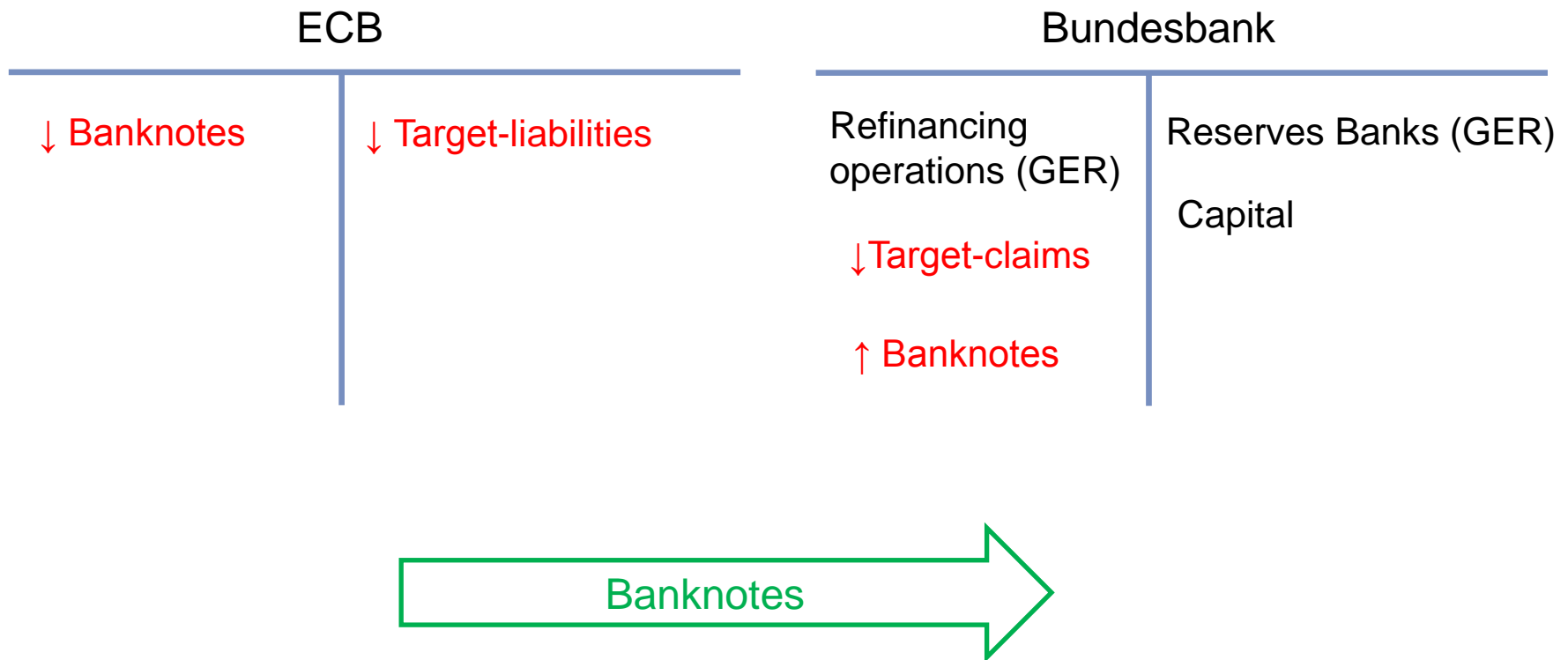
Settlement of Target-balance by an insolvent central bank – Transfer of banknotes

2b. Banca d'Italia settles its Target-liabilities by transfer of banknotes to the ECB



Settlement of Target-balance by an insolvent central bank – Transfer of banknotes

2b. ECB transfers banknotes to the Bundesbank to settle its Target-liabilities with the Bundesbank



Settlement of Target-balance by an insolvent central bank – Transfer of banknotes

2b. Extinction of banknotes from the Bundesbank balance sheet

ECB		Bundesbank	
0	0	Refinancing operations (GER)	Reserves Banks (GER)
		↓ Banknotes	↓ Net profit

Note: There is neither an extension nor a reduction of **currency in circulation** involved.

Conclusion

- **Default on ELA-loans does not cause Target-claims to default as well.** The Banca d'Italia is able to pay interest regardless of the value of its net-assets. If it is deemed necessary it can redeem its Target-liabilities by transferring banknotes.
 - As a consequence the Bundesbank incurs a loss.
- However, the loss of the Bundesbank does not result from uncollectible Target-claims. On the contrary, the Bundesbank only makes a loss as its Target-claims are settled (**with banknotes!**).
- Maybe it is better to leave the Target balances as they are. They include a claim on central bank money, which the central bank can create free of charge in unlimited quantities, i.e. a right to something that is of no value to the central bank.



Thank you!



EUROPEAN CENTRAL BANK

EUROSYSTEM

Non-banks in the EU: transition to CMU and macroprudential perspective

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Financial Market Regulation in Europe and China

20th Monetary Policy Workshop , 24 October 2019

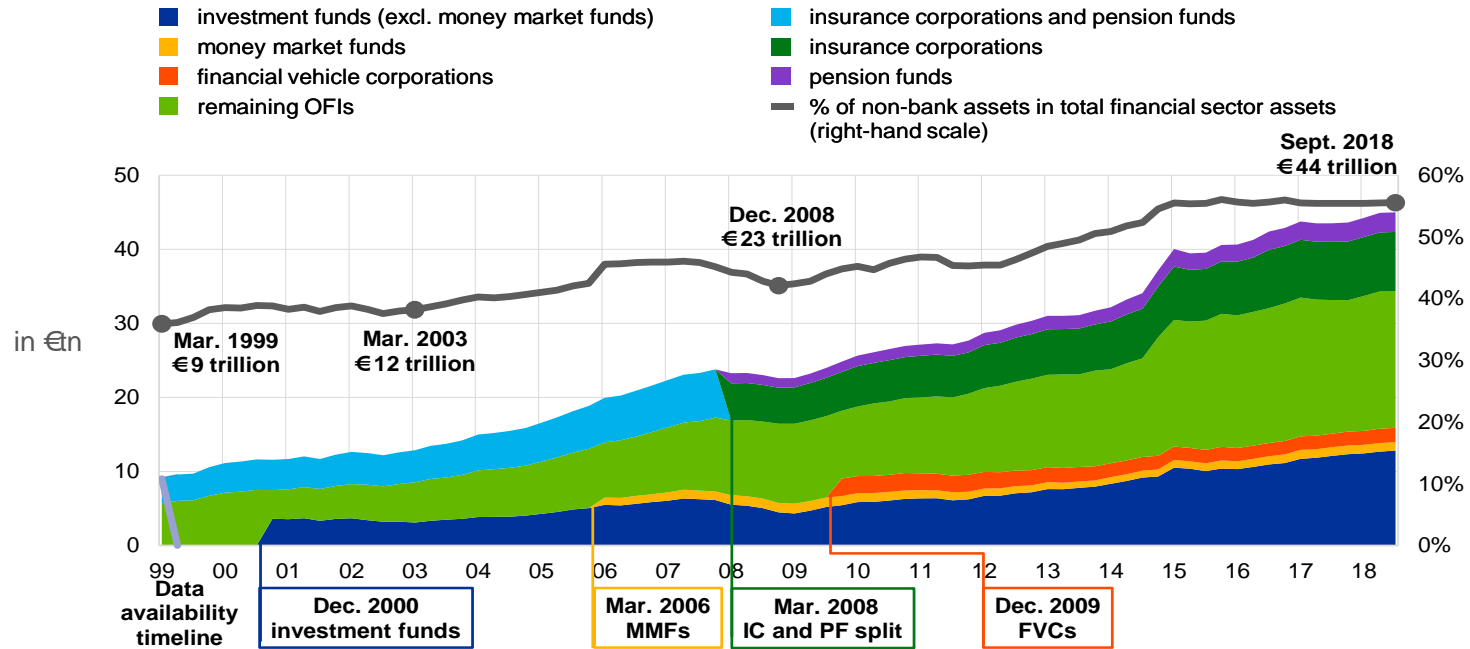
Disclaimer: This presentation should not be reported as representing the views of the European Central Bank (ECB). The views expressed are those of the authors and do not necessarily reflect those of the ECB.

Overview

- 1 Increasing relevance of non-bank financial intermediation
- 2 Growing importance of the investment fund (IF) sector
- 3 Evolving financial stability vulnerabilities in the IF sector
- 4 Designing a macroprudential framework
- 5 Conclusion

1. Increasing relevance of non-bank financial intermediation

Growing non-bank financial sector in the Euro Area



- The structure of the EU financial sector is changing

1. Increasing relevance of non-bank financial intermediation

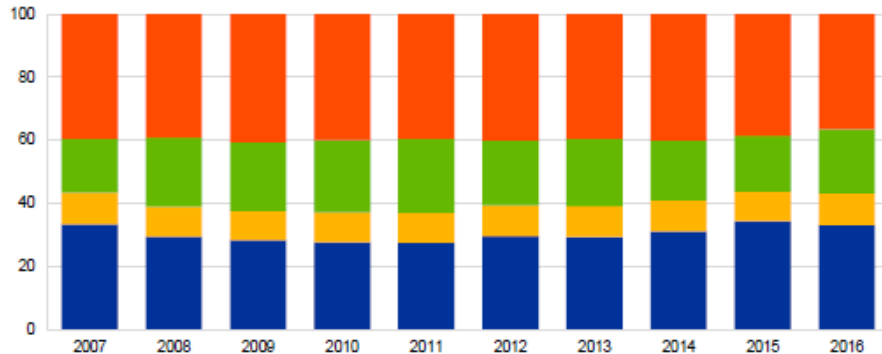
Potential role in shock absorption

- In US, 60% of the shocks to GDP are smoothed; in EA only 20%
- Risk sharing takes place mainly via private channels, with capital market channel explaining largest share of overall inter-state smoothing of shocks
- Credit channel accounts for app. 20% of risk sharing in the US; in EA its contribution is negative

Consumption risk sharing in the United States and its channels

(percentages)

■ capital channel
■ fiscal channel
■ unsmoothed
■ credit channel

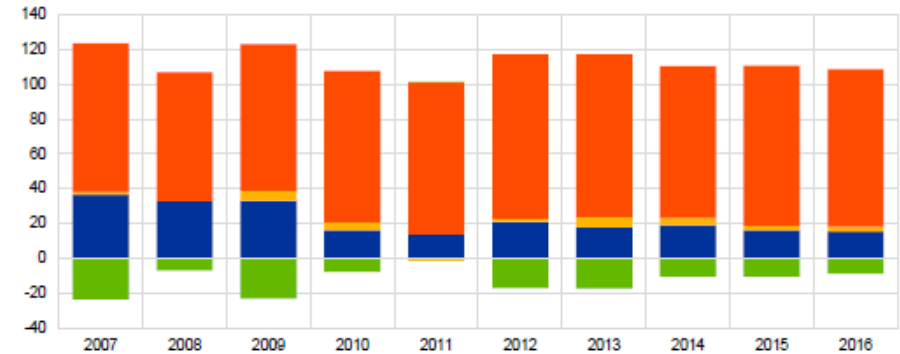


Source: ECB calculations.

Consumption risk sharing in the euro area and its channels

(percentages)

■ capital channel
■ fiscal channel
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■ credit channel



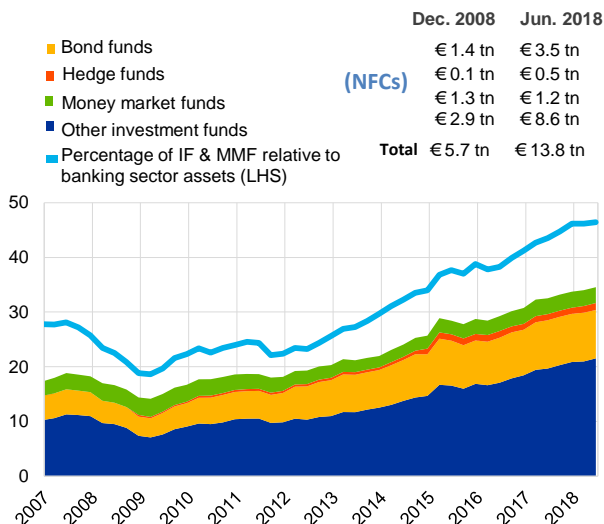
Source: ECB calculations.

2. Growing importance of the investment fund sector

...in supporting the financing of the real economy

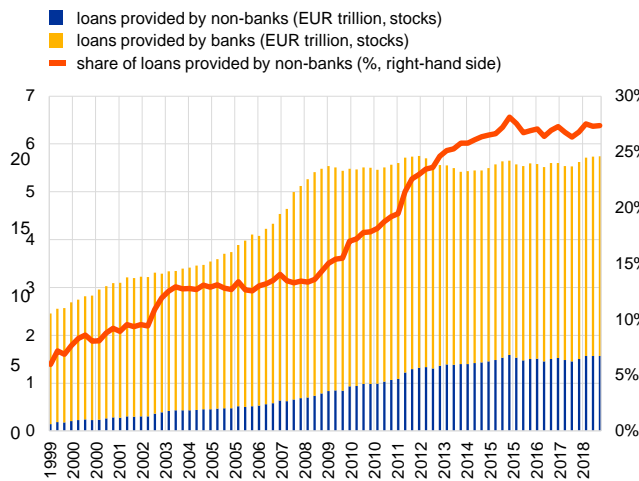
Total assets of euro area investment funds

Q1 2007-Q2 2018, percentages, €tn



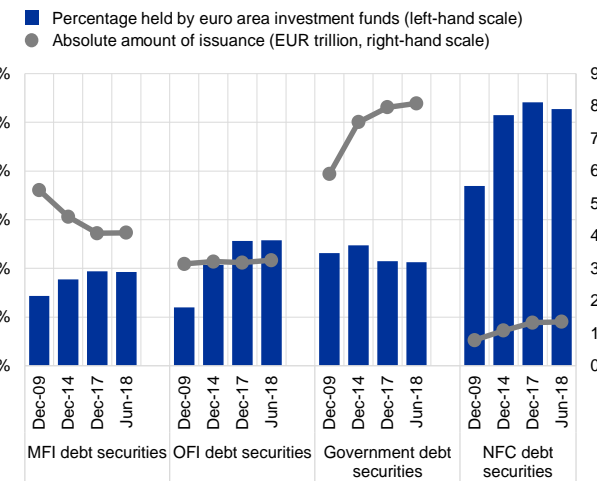
Loans provided to NFCs

1999 -2018, €tn



Euro area investment funds' holdings of euro area debt securities

in €tn



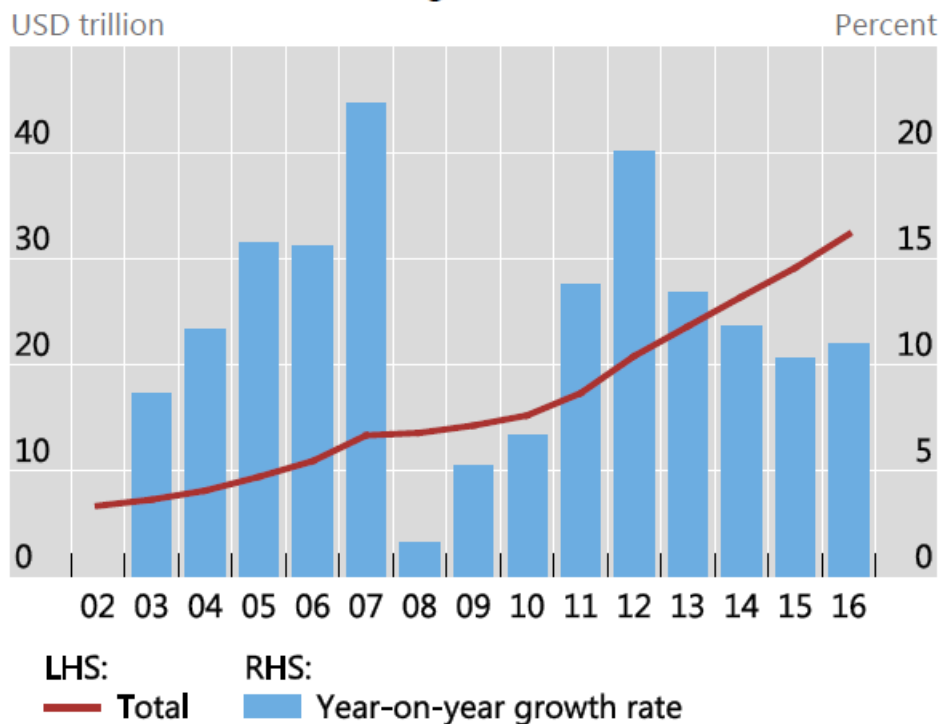
3. Evolving financial stability vulnerabilities in IF sector

IFs offering daily redemptions can be subject to run risk, in particular if they invest in illiquid assets

Developments for run-sensitive investment funds

2002 -2016, Dollar tn

Financial assets level and growth¹



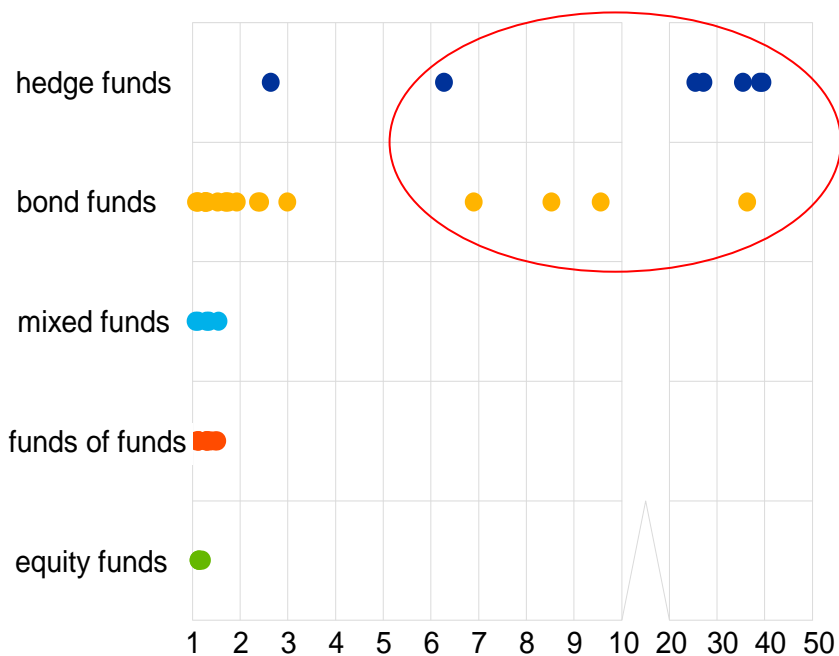
Source: FSB (2018). Notes: Economic Function 1 (EF1) relates to collective investment vehicles (CIVs) with features that make them susceptible to runs.

3. Evolving financial stability vulnerabilities in IF sector

Leverage ... is low on average, but with few relevant outliers, and may increase procyclical behaviour among investors

Example: Leverage among Dutch AIFs

(average quarterly values in 2016; y-axis: net exposure/net asset value)

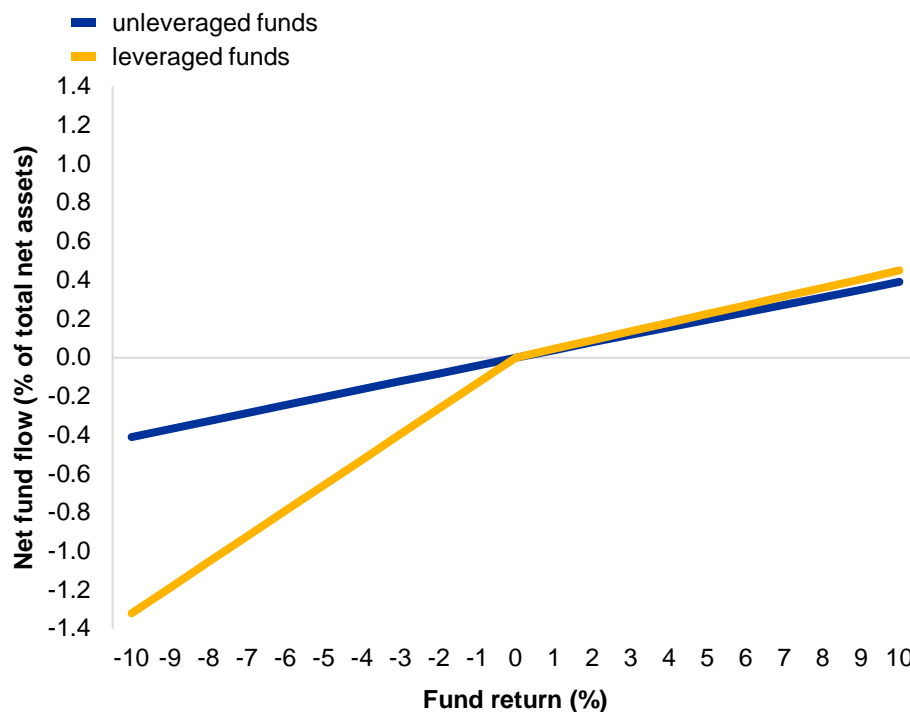


Sources: DNB, and DNB and ECB calculations.

Notes: Data on net exposure and fund's net asset value from the AIFMD reporting framework. Substantial leverage is defined under the AIFMD as net exposure exceeding three times a fund's net asset value.

Leverage of investment funds and the flow-performance relationship

x-axis: lagged fund performance in percent; y-axis: net fund flows in percent of lagged total net assets



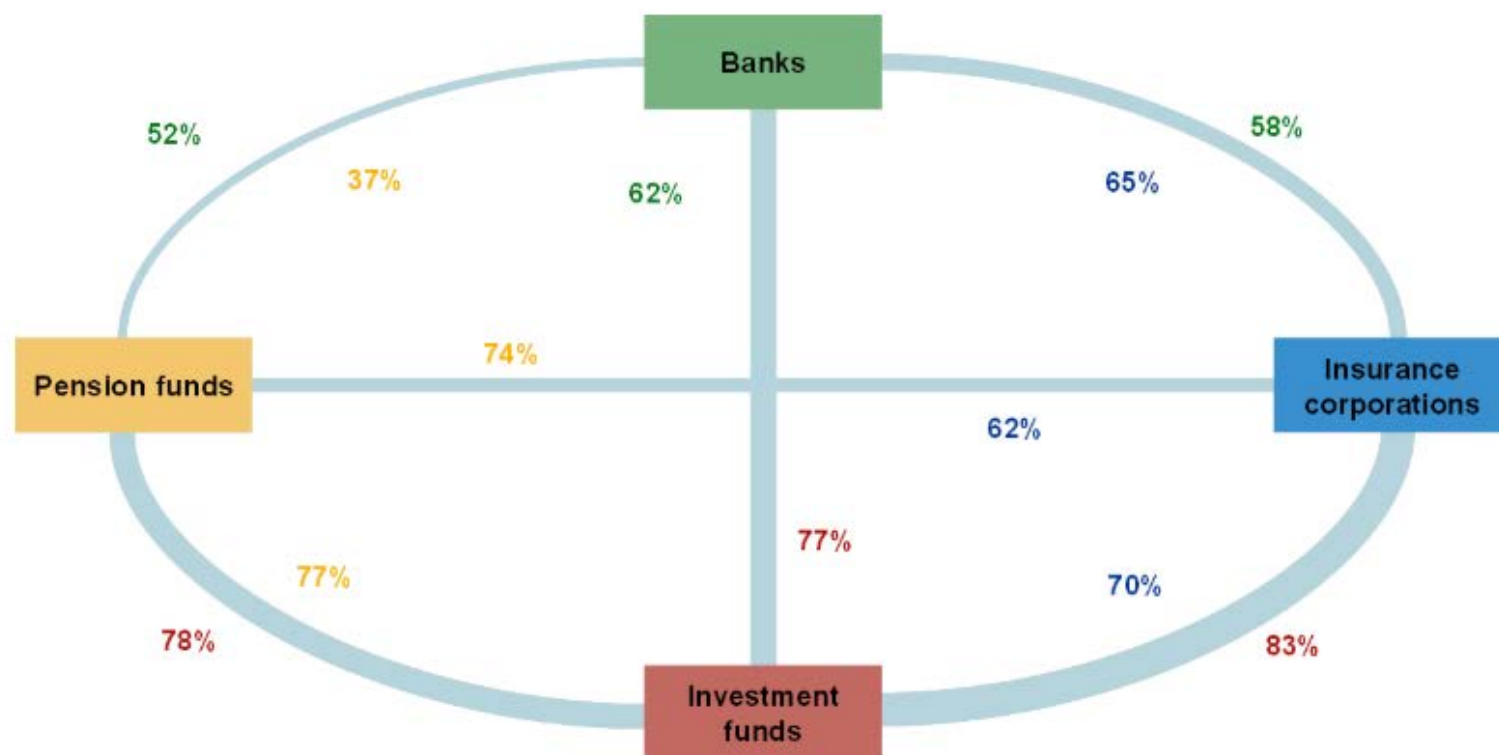
Source: ECB calculation/estimation based on Lipper for Investment Management Database (Thomson Reuters).

3. Evolving financial stability vulnerabilities in IF sector

Common holdings create potential contagion channel between bank and non-bank sectors

Common securities holdings of euro area financial sectors

Q2 2018, percentage of the sector's total securities holdings



Sources: ECB SHSS and ECB calculations.

Notes: Each node represents a financial sector. Green denotes banks, blue insurance corporations, red investment funds and orange pension funds. A link between a pair of nodes represents the sum of the common holdings of two euro area financial sectors (i.e. holdings of securities that are held by both sectors). Percentages denote the common holdings as a percentage of total holdings of the sector.

4. Designing a macroprudential framework

...the importance of having a macroprudential perspective

- **Improve reporting and enhance monitoring**
 - Broader and more granular data – particularly on OFIs
 - Consistent set of leverage metrics that captures risk
 - Standardised granular data infrastructure to map micro structure of financial system
- **Enhance understanding of behaviour through macroprudential stress tests**
 - Aim is to capture endogenous nature of systemic risk caused by interaction of institutions and markets in financial system instead of only ensuring resilience of individual entities
 - Mapping of system-wide key players
 - ECB internal work on system-wide stress testing framing key capital market interactions among different entities and sectors
- **Macroprudential instruments for non-banks (ESRB, 2016)**
 - Ex ante perspective to ensure resilient provision of financial services from the non-bank financial sector
 - Operationalise macroprudential leverage limits for AIFs (Article 25 AIFMD)
 - Operationalise existing liquidity tools for both AIFs and UCITS;
 - Consider additional macroprudential liquidity tools which are usable under stress

5. Conclusion

- Benefits of a well-functioning, diversified and integrated euro area capital market are clear
 - Provides for increased role in financing of the real economy – “spare tyre”
 - Enhances the shock absorption capacity of the EA economy
- But financial stability concerns also increase
 - The growing fund sector could harbour vulnerabilities from a system-wide perspective and for the financing of the economy more broadly
 - Need to monitor vulnerabilities, better understand contagion channels and behaviour
- As CMU is pursued, a broader and strengthened macroprudential framework beyond the banking sector is warranted
 - Developing macroprudential policies at system level will ensure that non-bank financing will be able to absorb shocks, rather than amplify exuberance and stresses

Quote and Introduction

The Diversity-Stability Nexus

Banking sector diversity: Is there a stability dividend in crisis times?

Empirical analysis

Baseline Results

Summary and Conclusions

References

Banking Sector Diversity and Bank Stability

Christopher F Baum, Caterina Forti Grazzini, Dorothea Schäfer

Financial Market Regulation in Europe and China, 20th
Monetary Policy Workshop at the Berlin School of Economics
and Law 24-25 October 2019

Quote

... excessive homogeneity within a financial system – all the banks doing the same thing – can minimize risk for each individual bank, but maximize the probability of the entire system collapsing.

*Andrew G. Haldane
Robert M. May*

Introduction

- The Lehman Collapse in 2008 and the successive global financial turmoil reminded us that individual banks and complete financial systems can turn from stable into unstable literally over night. The question of what makes banks and banking systems more resilient is thus ultimately important. There is an increasing interest in the role of institutional diversity in the bank sector, and how this affects bank stability.
- **However, we know surprisingly little about the importance of institutional banking sector diversity for the economy despite the prominent role that this issue plays in the economic-policy debate during the financial crisis.**

Introduction

- So far, the debate on financial systems' role in bank stability across countries revolves around the capability of market-*vis-à-vis* bank-based systems to absorb shocks, see e.g. Baum, Schäfer and Talavera (2011) and Levine (2002).
- Our main objective is to present data-driven evidence on the question of whether distinct levels of institutional diversity in EU countries' banking sectors matter for individual bank stability.
- **Does a diversity-bank stability nexus exist in the sense that higher institutional diversity in the banking sector shields the banks better from the adverse impact of an idiosyncratic shock?**

The Diversity-Stability Nexus: Internal diversification vrs. institutional diversity

- Bank-internal diversification: economies of scale and scope premium
- But: monitoring loss, banks become increasingly more similar.
- Diversity: An institutional diverse banking sector may have a better chance of remaining stable throughout turbulent times because less affected bank types may be able to compensate for the distorted deposit and credit flows in heavily affected bank types (see Ayadi et al 2009, 2010 and Haldane et al 2011).

The Diversity-Stability Nexus: Channel Competition

- A more competitive and less concentrated banking system is more fragile and less stable (Beck et al 2005, Berger et al 2008, Beck et al 2013).
- In contrast: threat of market entry and increased competition could stimulate bank efficiency, monitoring and screening - keeps loan default rates low, fosters innovation (e.g. Schaeck et al 2009). Both have beneficial effects for financial stability, while 'too big to fail'-banks, with implicit government guarantees, are likely to take excessive risk, thus potentially endangering stability.
- Despite the often assumed close link between diversity and competition we know little about their relationship.

Banking sector diversity: Is there a stability dividend in crisis times?

- We hypothesize that diversity is a kind of insurance mechanism particularly valuable in financial turmoil.
- It insures banks and the economy to some extent against the risk of all facing at the same time severe financial shortage which threatens to dry up the funding and the earning potential of the entire banking sector.
- Accordingly, when the crisis hits individual bank stability should benefit from a higher diversity in the local banking sector.
- **We examine the proposition of a stability dividend, focussing on banking sectors in the European Union.**

Data Sources

- Bankscope 1998-2014: bank-level variables, diversity indicators
- Global Financial Development Database (GFDD): country-level variables
- Eurostat: Inflation
- Acute Crisis Data from ECP Paper: Lo Duca et al (2017)
- Focus on commercial, cooperative and savings banks, which comprise more than 88% of all included banks.
- The final sample includes 38729 bank-year observations

Measuring bank sector diversity

- *Shannon* Index:

$$\text{FinStruct}_{c,t} = - \sum_{j=1}^J S_{j,c,t} \ln S_{j,c,t} \in [0, \ln(J)]$$

with S_{jct} as the share of group j 's total assets over the country's c total banking sector assets in year t . *FinStruct* quantifies the uncertainty in predicting the group identity of a bank that is taken at random from the dataset. This uncertainty is maximal (**minimal**) if each bank type has the same chance of appearing, that is, if the country's banking sector assets are equally distributed across the J distinct bank types (**if all assets are concentrated in one group**).

Measuring bank sector diversity

- *Gini-Simpson* Index

$$\text{FinDivers}_{c,t} = 1 - \sum_{i=1}^N \left(S_{i,c,t} \right)^2 = 1 - \text{Herfindahl Index}$$

where S_{ict} is the individual bank i 's share in the domestic banking sector assets. *FinDivers* is zero if the country's banking sector comprises only one bank. The maximal value is $(N - 1)/N$ so that *FinDivers* increases with the number N of banks in a country, and, for a given N , with a more even size distribution.

Shannon Index versus Gini-Simpson Index

- The *Shannon* Index is calculated on the basis of the three bankings groups ($J = 3$). The *Gini-Simpson* Index is calculated using market shares of single banks (without grouping them into banking groups).
- Everything else equal, the *Shannon* index values the occurrence of "small players" higher than the *Gini-Simpson* Index since the logarithm of small fractions becomes very high in absolute values.

Measuring bank stability

- As many others (e.g. Leroy et al 2017, Goetz 2018, Beck et al 2013, Schaeck et al 2012, Berger et al 2009) we use:

$$Z\text{-Score}_{i,t} = \frac{\left(ROA_{i,t} + \frac{Equity_{i,t}}{Assets_{i,t}} \right)}{\sigma(ROA)}, \text{ where}$$

$\sigma(ROA)$ is the SD of ROA over a rolling window of 3 years.

- The $Z\text{-Score}$ indicates how much variability in returns can be absorbed by capital plus current net profits without the bank becoming insolvent. A higher $Z\text{-score}$ implies a larger distance to insolvency and a greater financial stability for the individual bank.

Measuring market power



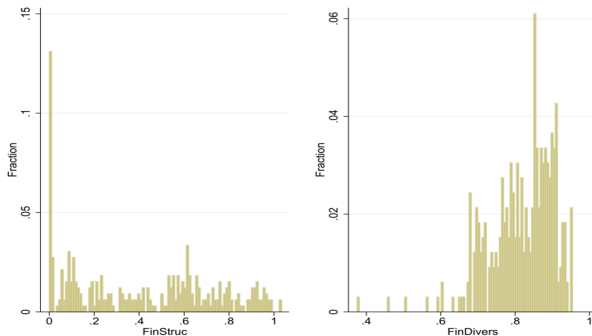
$$Lerner\ Index_{i,t} = \frac{P_{i,t} - MC_{i,t}}{P_{i,t}}$$

The index captures the bank's price setting power (the deviation of the price charged by a firm in a normal market from the price that would emerge in case of perfect competition).

- Further covariates: Internal diversification, efficiency, size, size growth, wholesale funding, liquidity, leverage. Country level: sector size, financial depth, financial structure, inflation

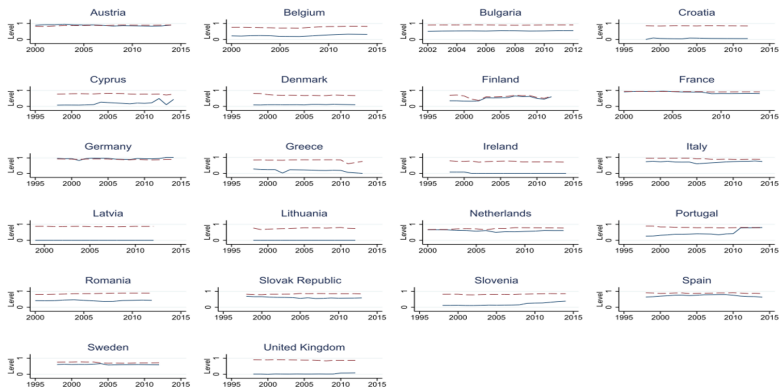
Distribution of Diversity Indicators over Years 1998-2014

Figure 1: The Distribution of Countries' Banking Sector Diversity



Note: The Figure shows the distribution between 1998 and 2014 of our variables of interest: the two measures of banking sector diversity. The first measure, *FinStruct*, is calculated as the Shannon Index and it quantifies the uncertainty in predicting the group identity of a bank that is taken at random from the dataset. *FinDivers* is calculated as $1 - \text{HHI}$, where HHI is the *Herfindahl Index*. For a detailed explanation of the construction of the two measures, please refer to Section [3.2](#)

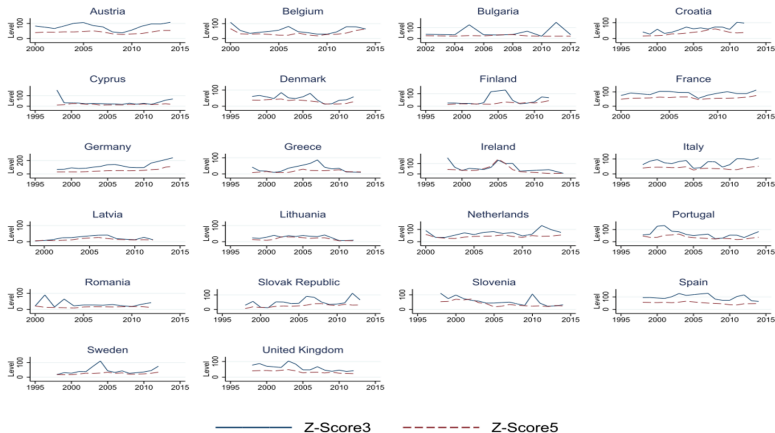
Banking Sector Diversity by Country over the Years 1998-2014



— FinStruct

- - - FinDivers

Bank stability by Country over the Years 1998-2014



Estimation model

Difference-in-Difference analysis

$$\text{Z-Score}_{i,c,t} = \alpha_i + (\beta_1 \text{DIV}_{c,t} + \beta_2 X_{i,c,t-1} + \beta_3 Z_{c,t}) * \text{BankType} * \text{Post2007} \\ + \gamma_t + \epsilon_{i,c,t}.$$

The estimated average marginal effects (AME) represent for each subgroup

$$\frac{\partial \text{Z-Score}_{i,c,t}}{\partial V} \text{ with } V \in [\text{DIV}_{c,t}, X_{i,c,t-1}, Z_{c,t}].$$

Baseline Results

Banking Sector Diversity Effects on Bank Stability, Baseline Results

	(1)	(2)	(3)	(4)	(5)	(6)
	Z-Score3	Z-Score3	Z-Score3	Z-Score3	Z-Score3	Z-Score3
	Full Sample	1998-2006	2007-2014	Full Sample	1998-2006	2007-2014
FinStruct	0.195*** (4.01)	0.141** (2.56)	0.247*** (4.99)			
FinDivers				0.0480 (1.53)	0.0170 (0.55)	0.0781* (1.85)
Internal Divers	-0.180* (-1.91)	-0.0754 (-0.75)	-0.281** (-2.17)	-0.188* (-1.96)	-0.0699 (-0.69)	-0.302** (-2.26)
Lerner Index	0.0291* (1.94)	0.0158 (1.05)	0.0420** (2.07)	0.0286* (1.88)	0.0113 (0.75)	0.0454** (2.19)

Baseline Results

Other Covariates' Effects on Bank Stability, Baseline Results

Asset Growth	-0.629*** (-12.26)	-0.654*** (-10.99)	-0.605*** (-7.46)	-0.605*** (-11.17)	-0.634*** (-10.47)	-0.577*** (-6.66)
Sector Size	-0.0147*** (-4.20)	-0.0156*** (-2.94)	-0.0138*** (-4.35)	-0.0153*** (-3.93)	-0.0171*** (-3.32)	-0.0135*** (-3.12)
Financial Depth	0.0140*** (3.28)	0.0148** (2.36)	0.0131*** (3.56)	0.0131*** (2.75)	0.0150** (2.43)	0.0113** (2.24)
Credit to MarkCap	-0.0315*** (-2.60)	-0.00918 (-0.81)	-0.0531*** (-2.84)	-0.0187* (-1.80)	0.00450 (0.49)	-0.0411** (-2.36)
Inflation	0.0325** (2.41)	0.0156 (0.71)	0.0489*** (3.37)	0.0282** (2.05)	0.00580 (0.28)	0.0499*** (2.99)
Bank FE	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes
Observations	38729	19059	19670	38729	19059	19670

Is the diversity-stability relationship homogeneous across bank type?

Non Crisis Times

	1998-2006					
	(1)	(2)	(3)	(4)	(5)	(6)
	Z-Score3	Z-Score3	Z-Score3	Z-Score3	Z-Score3	Z-Score3
	Coop Banks	Sav Banks	Comm Banks	Coop Banks	Sav Banks	Comm Banks
FinStruct	0.214*** (2.59)	0.156** (2.56)	-0.0716** (-2.08)			
FinDivers				0.0666 (1.35)	-0.0583 (-1.46)	0.0123 (0.75)
Covariates	yes	yes	yes	yes	yes	yes
Bank FE	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes
Observations	9422	5985	3652	9422	5985	3652

Is the diversity-stability relationship homogeneous across bank type?

Crisis Times

2007-2014

	(7) Z-Score3 Coop Banks	(8) Z-Score3 Sav Banks	(9) Z-Score3 Comm Banks	(10) Z-Score3 Coop Banks	(11) Z-Score3 Sav Banks	(12) Z-Score3 Comm Banks
FinStruct	0.328*** (4.78)	0.257*** (3.43)	-0.0632* (-1.69)			
FinDivers				0.119* (1.80)	0.0127 (0.29)	0.0410** (2.13)
Covariates	yes	yes	yes	yes	yes	yes
Bank FE	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes
Observations	11267	5284	3119	11267	5284	3119

Is Diversity associated with Risk Smoothing ?

Diversity Effects on the Volatility of ROA (ROA Risk)

Non Crisis and Crisis Times

	(1)	(2)	(3)	(4)	(5)	(6)
	ROA Risk	ROA Risk	ROA Risk	ROA Risk	ROA Risk	ROA Risk
	Full Sample	1998-2006	2007-2014	Full Sample	1998-2006	2007-2014
FinStruct	-0.0646 (-1.28)	0.0438 (0.74)	-0.170*** (-2.62)			
FinDivers				-0.100* (-1.90)	-0.0146 (-0.27)	-0.183*** (-2.70)
Internal Divers	0.246** (1.98)	0.0970 (0.79)	0.391** (2.21)	0.241* (1.92)	0.0681 (0.56)	0.408** (2.28)
Lerner Index	-0.0556*** (-2.93)	-0.0659** (-2.43)	-0.0457** (-2.44)	-0.0564*** (-3.01)	-0.0603** (-2.28)	-0.0525*** (-2.80)

Summary

- Positive and significant relationship between diversity and stability. In crisis times consistent over both diversity measures.
- Effects are stronger in the crisis period, suggesting that diversity is especially important in period of crisis.
- 2007-2014: A one standard deviation increase in *FinStruct* and *FinDivers* produces an average marginal increase of 0.247 and 0.0781 standard deviations in the *Z-score3*, respectively.
- Diversity effect depends on bank type.
- Diversity reduces the ROA risk.

Conclusions

By disentangling the diversity-stability relationship across non crisis and crisis periods we find that **in crisis times** banks in more diverse banking systems are more stable (see Haldane and May's proposition). Cooperative banks seem to benefit in general but the diversity-stability relationship for savings and commercial banks is sensitive to the "nature" of diversity. A more even distribution of bank specializations increases the savings banks' stability while commercial banks gain in crisis' years from a more even bank size distribution. Furthermore, inspecting different points of bank size and asset growth distributions reveals that diversity promotes the stability of smaller and slowly-growing banks more than that of large and fast growing ones. The findings call for caution when designing capital markets and banking regulation to avoid unintended side effects that could endanger banking sector diversity.

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中國人民銀行
THE PEOPLE'S BANK OF CHINA

Further Opening Up of China's Financial Sector

Feng Runxiang

Director-General of International Department,
PBC Shanghai Head Office

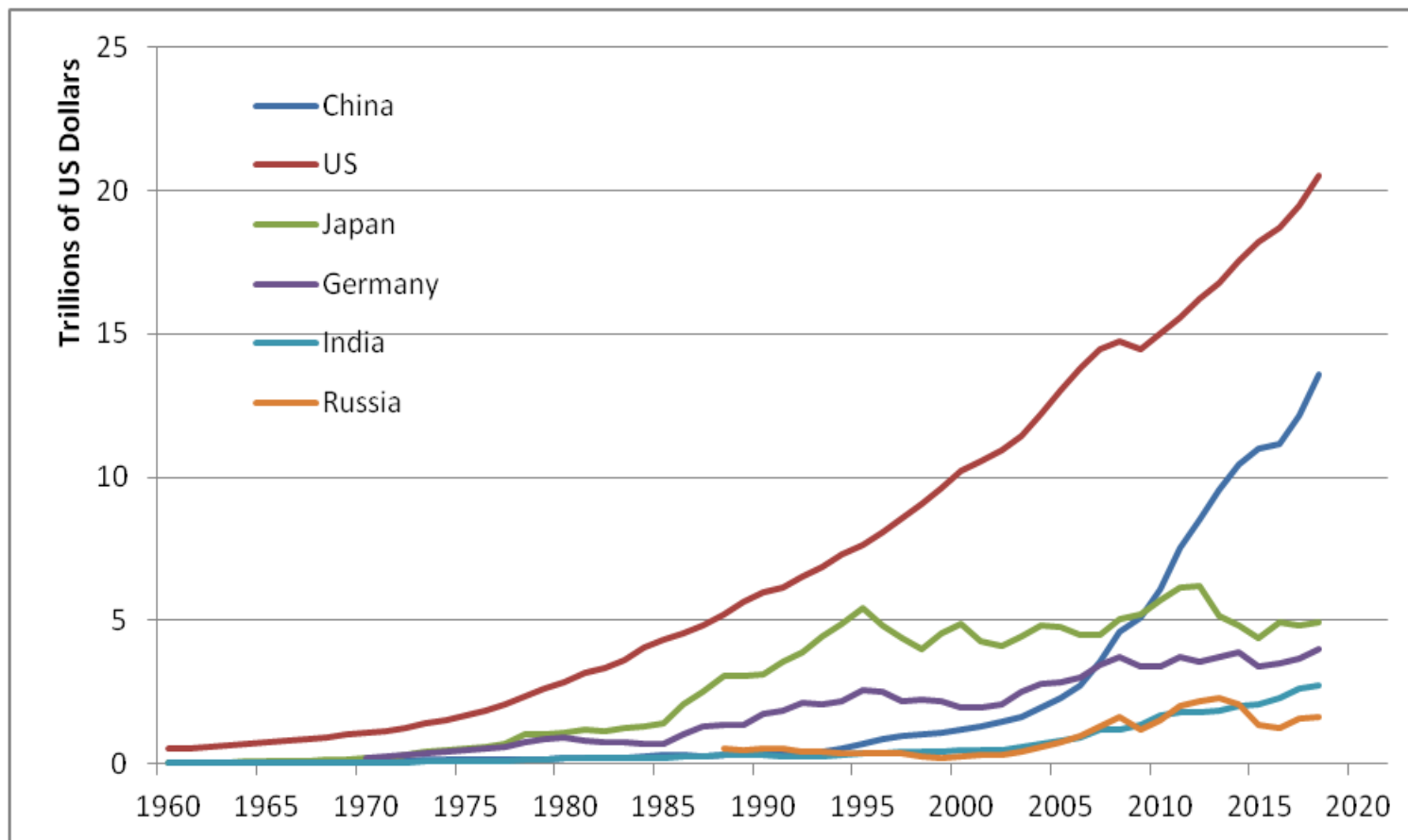
October, 2019

Outline

- The reform and opening up is the major driving force behind China's rapid growth over the past 40 years
- A new round of continuous opening-up measures & policies are in operation
- Conclusions: Further deepening reform and opening up is an optimal choice for addressing the Sino-US trade friction

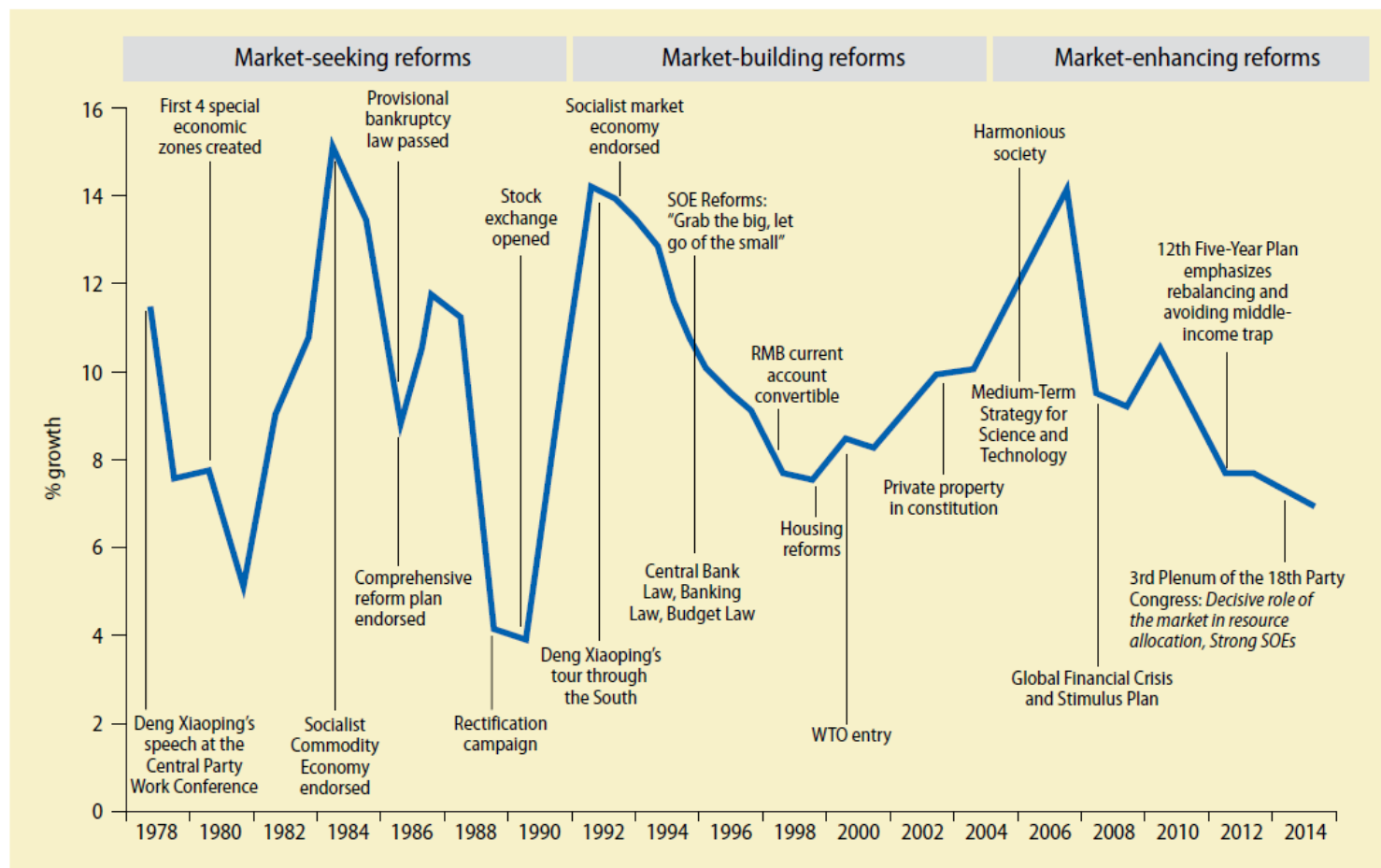
I. The economic reform and opening up to the outside world is the major driving force behind China's rapid growth during the last 40 years

GDP Growth Trend from 1960-2018



Source: World Bank

The Path of Economy Reforms and GDP Growth in China, 1978-2014

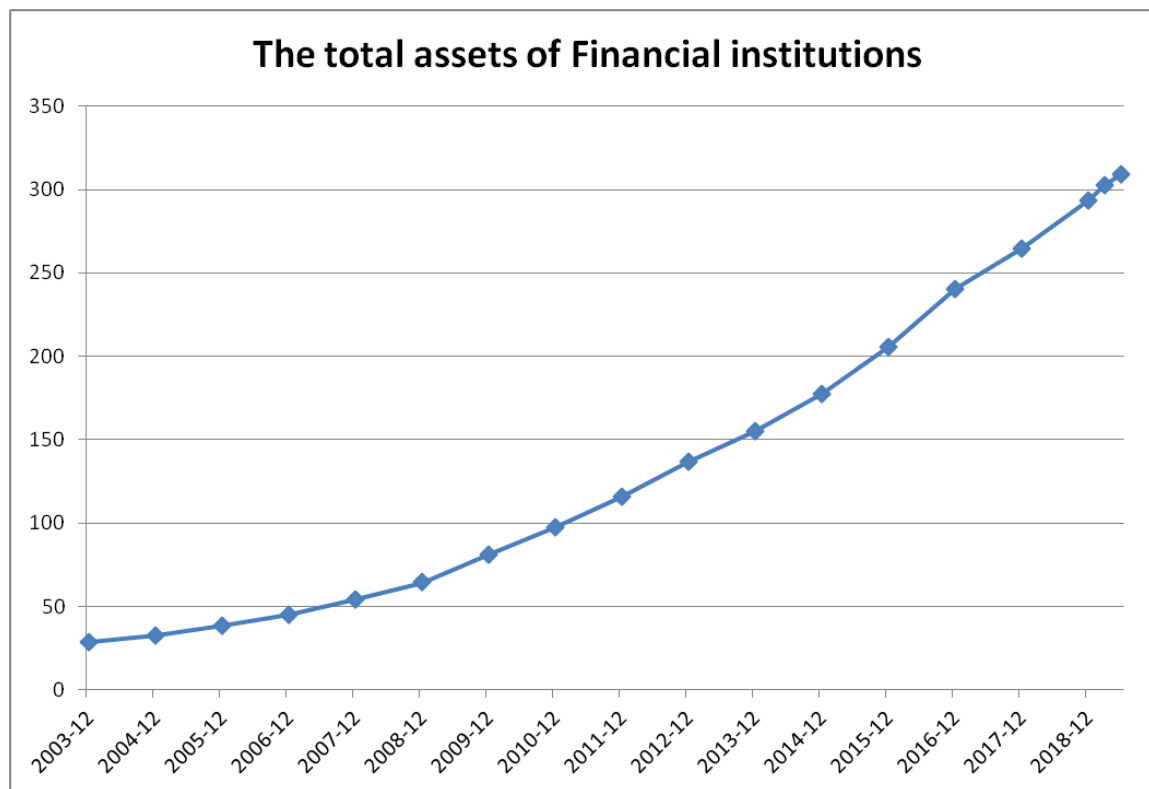


Source: Hofman 2018.

Note: SOE = state-owned enterprise. RMB = renminbi. WTO = World Trade Organization.

China's Opening Up of the Financial Sector Makes Great Achievements

- Financial institutions' total assets reached 308.96 trillion yuan at end-Q2 2019



Source: PBC, CBIRC

II. A new round of continuous opening-up measures & policies are in operation

2.1 Further opening up measures of the financial sector has been launched

- In July 2019, the State Council's Office of Financial Stability and Development Committee issued 11 measures for further opening up the financial sector:
 - 1. Foreign-funded institutions will be permitted to conduct credit rating business on all types of bonds in China's inter-bank and exchange bond markets.
 - 2. Overseas financial institutions will be encouraged to participate in the establishment of and equity investment in asset and wealth management subsidiaries of commercial banks.
 - 3. Overseas asset management institutions will be permitted to co-establish foreign-controlled asset management companies together with subsidiaries of Chinese banks or insurers.

-
- 4. Overseas financial institutions will be permitted to invest in the establishment of or make equity investment in pension management companies.
 - 5. Foreign capital will be supported in wholly-owned currency brokerage establishment and equity participation.
 - 6. The transitional period for raising the foreign ownership cap on life insurers from 51 percent to 100 percent will be brought forward to 2020 from 2021.
 - 7. The requirement that the total share of an insurance asset management company held by domestic insurers shall be no less than 75 percent will be removed, and the foreign ownership will be permitted to exceed 25 percent.

-
- 8. Access conditions of foreign insurers will be eased by removing the requirement of over-30-year operation.
 - 9. The removal of overseas ownership limits on securities, fund management and futures companies will be advanced by one year to 2020.
 - On October 11, 2019, the China Securities Regulatory Commission (CSRC) announced that ownership limits in futures companies will be scrapped on January 1, 2020; limits on foreign ownership of securities firms will be removed on December 1, 2020, while such limits will be scrapped for mutual fund companies on April 1, 2020.
 - 10. Foreign institutions will be permitted to obtain Type-A lead underwriting licenses in the inter-bank bond market.
 - 11. China will further facilitate the investments of overseas institutions in the inter-bank bond market.

-
- On Sept. 10, 2019, the State Administration of Foreign Exchange (SAFE) decided to remove the investment quota limitations for qualified foreign institutional investors (QFII) and RMB qualified foreign institutional investors (RQFII).
 - On Oct. 15, 2019, the State Council announced the revision of regulations on foreign banks and insurers to relax market access rules. The new policy also liberalized requirements on stakeholders that plan to set up foreign-invested banks and insurance companies in mainland China.
 - For more information please refer to the PBC English website at <http://www.pbc.gov.cn/en/3688006/index.html>

2.2 Other policies for further reform & opening up are also in operation

- ❑ Further reducing tariffs (even cutting to zero within FTZ)
- ❑ Green light to overseas investment in services sectors such as training and education, medical and health care, tourism, culture (film, digital video, animation, internet literature) and sports activities, etc.
- ❑ In line with the request of WTO, striving to improve the business environment
 - Pre-establishment national treatment
 - Negative list management
 - Intellectual property protection
 - Ecological and environmental protection
 - Labor rights protection
 - Introduce the neutral principle for enterprise competition
 - Gradually opening up digital trade

2.3 The new road map of further reform and opening up has been clearly re-marked

- ❑ Establishing pilot free-trade zone in Shanghai and applying nationwide (17 cities)
- ❑ Supporting Shenzhen to build a demonstration pilot zone for socialism with Chinese characteristics (close to Hong Kong)
- ❑ Approving a plan for the China-Shanghai Cooperation Organization demonstration zone in Qingdao
- ❑ Hainan Island free-trade port project
- ❑ Hengqin new area of Zhuhai (near Macao)
- ❑ The inland cities along the BAR initiative opening up programme.
- ❑ Integrated development of three important economic regions in China: Yangtze River Delta, Guangdong-Hong Kong-Macao and Beijing-Tianjin-Hebei

China's new road map of further reform and opening up



III. Conclusions

Deepening economic reform and opening up to the outside world is not only an important force to promote the high-quality development of China's economy and financial industry, but also an optimal choice for addressing the Sino-US trade friction.

Conclusions

- There are arguments that China-US trade friction has gone beyond the scope of trade and is a conflict between two systems, while others regard it as a dispute between two civilizations
- However, most of us still insist that 40 years of reform and opening-up have made China the world's second-largest economy
- Next, if China continues creating more domestic and international demand by opening our markets wider in more ways, it is possible to ease the friction with the United States and make due contributions to the recovery of the global economy and financial sector while maintaining China's high-quality economic growth

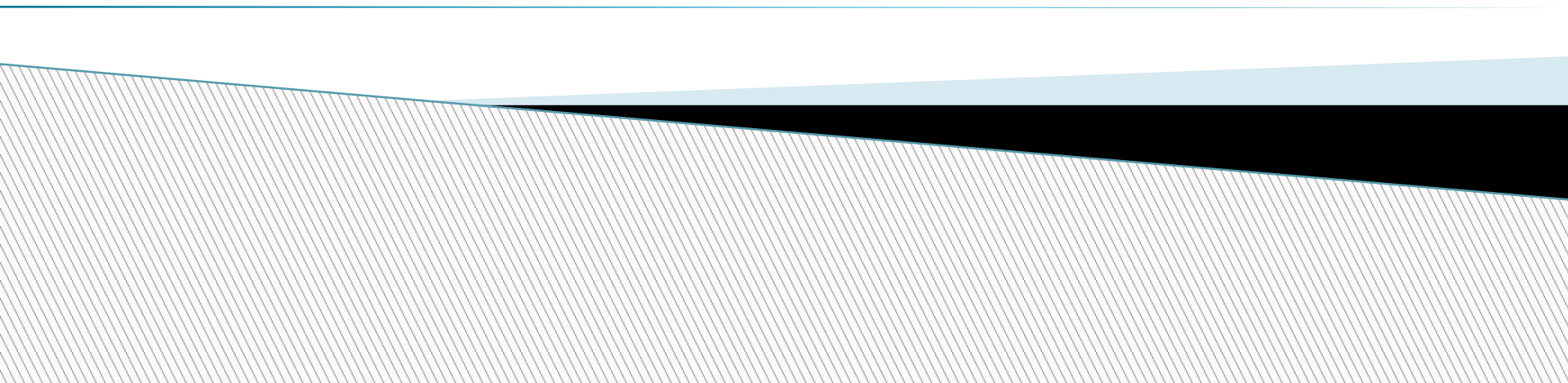
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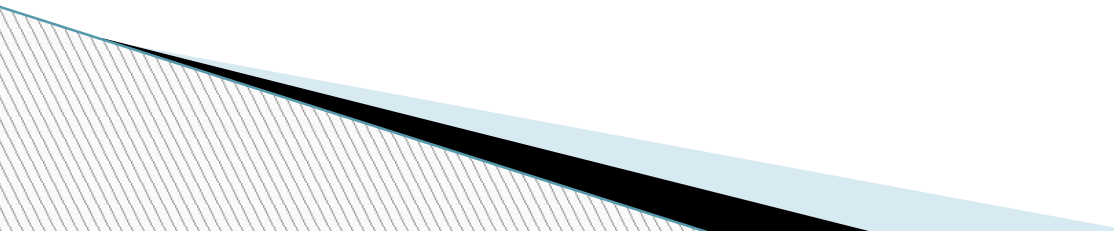
Improvements and Shortcomings of Financial Market Regulation after the Great Recession

20th Monetary Policy Workshop 2019

Hansjörg Herr
Berlin School of Economics and Law



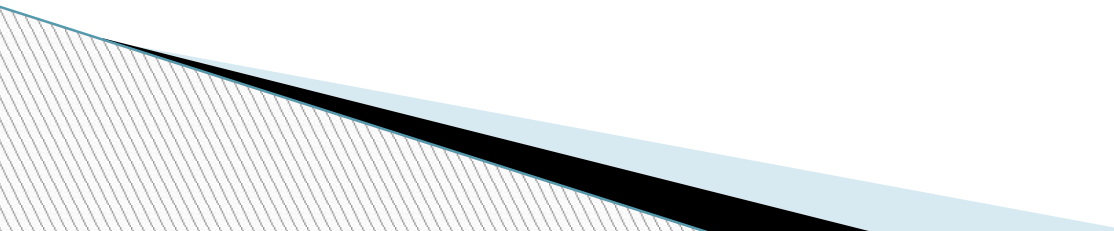
Structure

- ▶ What was planned?
 - ▶ Theoretical background of existing regulation
 - ▶ What should be the theoretical background of regulation?
 - ▶ What should be the principles of regulation?
- 

What was planned after the Crash 2007 / 2008

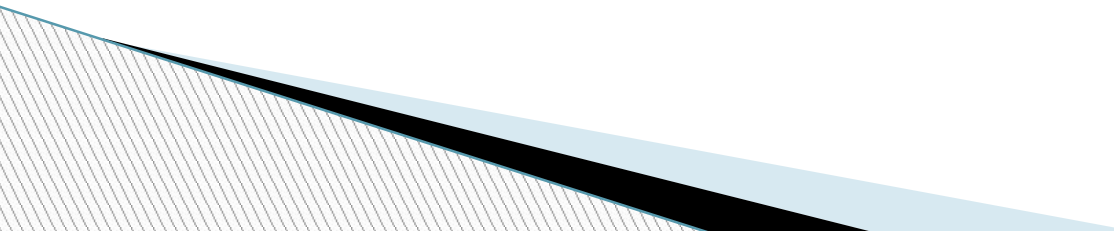
G20 Meeting Washington 2008

“We will make regulatory regimes more effective over the economic cycle, while ensuring that regulation is efficient, does not stifle innovation, and encourages expanding trade in financial products and services” (G20, Declaration following the Washington meeting, November 2008:3).



G20 Meeting London 2009

“Financial markets will remain global and interconnected, while financial innovation will continue to play an important role to foster economic efficiency.” (G20 Meeting London, Enhancing sound regulation and strengthening transparency. Working Group 1, Final Report, March 25 2009: v)



What is the theoretical background of regulation?

- ▶ Financial markets are efficient
 - but even if financial markets are efficient they may not reflect fundamentals
- ▶ Rational expectations
 - but the expectations of economic agents are not identical with the equilibrium of economic models

What should be the theoretical background of regulation?

- ▶ Financial markets are endogenously unstable
 - Different agents have different expectations
 - Agents do not know fundamentals
 - Agents have a short-term time horizon
 - Herding is widespread
 -
 - Read: Robert Aliber and Charles Kindleberger, Manias, Panics and Crashes: A History of Financial Crises, Sixth Edition, 2011
- ▶ Flexible exchange rates and a global financial markets are a contradiction

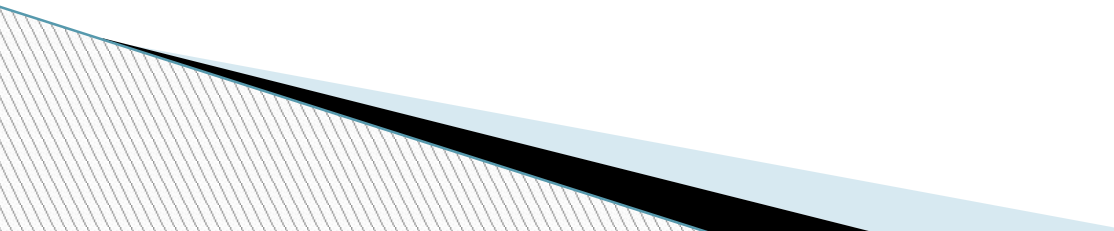
- ▶ There is historical time

Paul Samuelson thought the neoclassical model makes an interesting assumption: In the neoclassical paradigm the world is “ergodic”.

This excludes “how it the Bible does when it says: ‘we go this way only once’.” Samuelson, Paul A. “Nonoptimality of Money Holding under Laissez Faire.” *The Canadian Journal of Economics / Revue Canadienne D'Economique*, vol. 2, no. 2, 1969, pp. 303–308. *JSTOR*, www.jstor.org/stable/133642.

- ▶ Risk models are misleading for regulation

What should be the principles of financial market regulation?

- ▶ A) Risk models
 - Risk models should not play any role in regulation
 - Why not going back to a standard approach without risk models?
 - The existing leverage ratio is not sufficient
- 

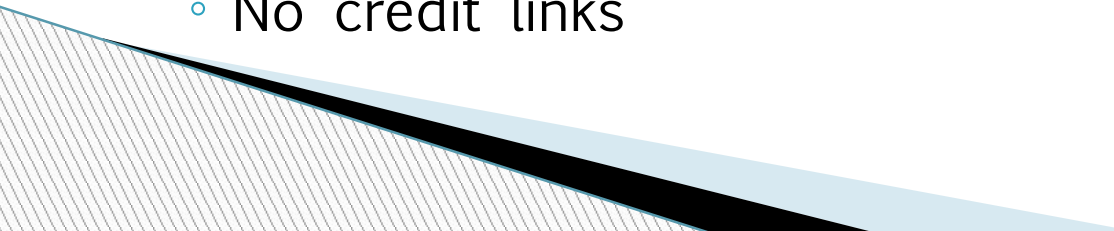
▶ B) Currency mismatch

- Financial market regulation should sharply reduce any currency mismatch – and reduce international capital flows
- A reduction of financial integration is beneficial

(Dani Rodrik, *The Globalisation Paradox*, London 2011)

- ▶ C) The Shadow financial system has to be regulated in the same ways as the commercial banking system

or

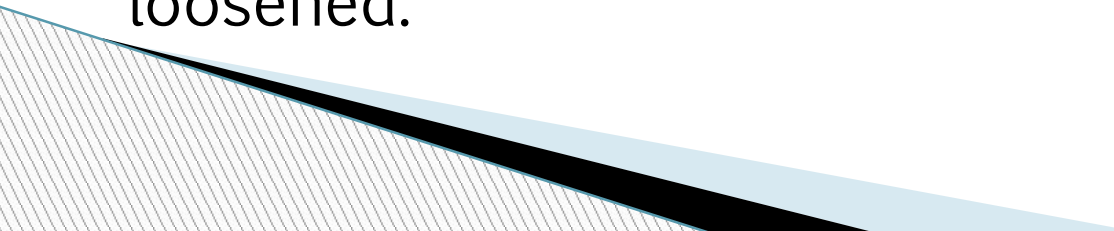
- ▶ Cut all links between commercial banks and the shadow financial system
 - No ownership links
 - No credit links
- 

- ▶ D) Reregulation of real estate market is desirable
 - The old Fannie Mae (Federal National Mortgage Association) was a good system
 - The high market share of German building associations was a good system
(in 2014 45.% of Germans live in own flat / house)
 - Prevent foreign investment in the real estate sector - Denmark is a good model

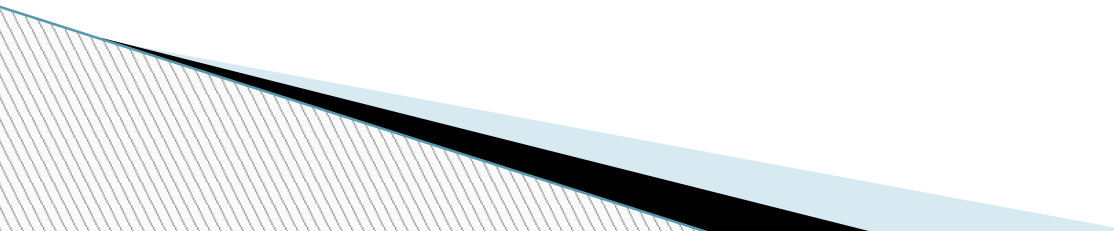
(Foreign investors or private persons not living in Denmark are not allowed to buy real estate)

“The Bank estimates that the global stock of leveraged loans has now reached an all-time high of US\$ 3.4 trillion, equivalent to 11% of total advanced economy credit to non-financial corporates. The share of corporate debt owed by highly leveraged companies is now very close to or above pre-crisis levels in major advanced economies

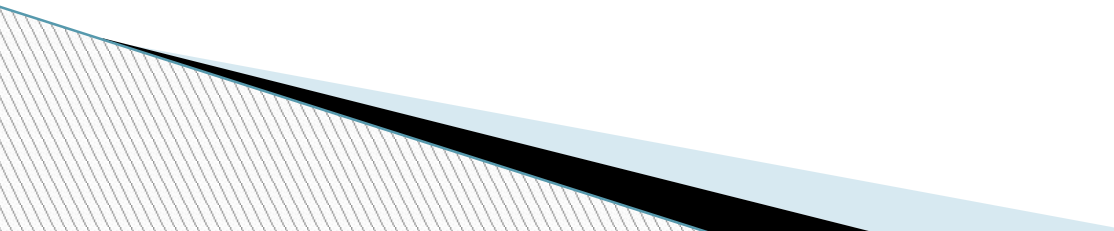
We have also seen an increase in sales of complex products as investment banks try to boost their income in a challenging trading environment. And in some countries, retail lending conditions have loosened.”



“From a financial stability perspective, a key risk is that insurance companies and pension funds encounter higher losses in stressed markets and become forced sellers or bystanders rather than buyers, so amplifying market vulnerabilities.”

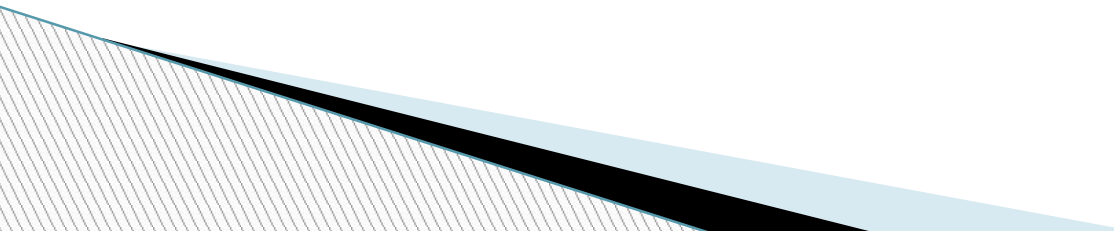


“Other non-bank financial firms such as investment funds have also turned increasingly to less liquid and riskier investments. Investment fund flows now account for one third of total portfolio flows to emerging market economies (compared to one tenth before the crisis). Bank analysis suggests that non-banks now hold around 40% of the rapidly growing global leveraged loan market. More than US\$ 30 trillion of global assets are now held in open-ended funds that offer short-term redemptions while investing in longer-dated and potentially illiquid assets.”



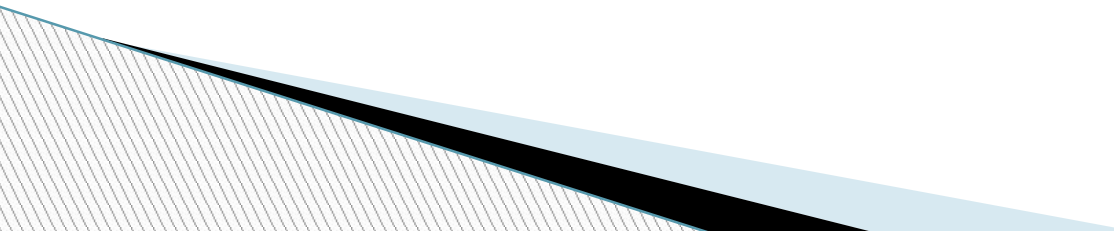
Speech by Sir Jon Cunliffe, Bank of England

Deputy Governor Financial Stability, Member of the Monetary Policy Committee, Member of the Financial Policy Committee and Member of the Prudential Regulation Committee Society of Professional Economists Annual Conference, London, 14 October 2019 <https://www.bankofengland.co.uk/-/media/boe/files/speech/2019/financial-stability-and-low-for-long-speech-by-jon-cunliffe.pdf?la=en&hash=D8721FC53A74F611335548FB350264BD2AEC0C2B>

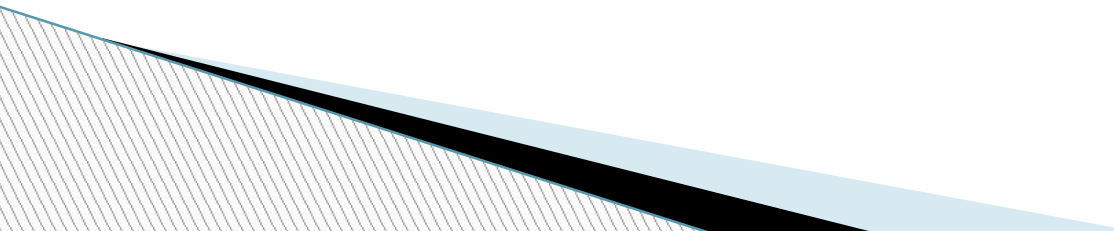


- ▶ The Bank of England has issued a stark warning over the rapid growth in lending to indebted companies around the world, drawing parallels with the US sub-prime mortgage market that triggered the 2008 financial crisis.

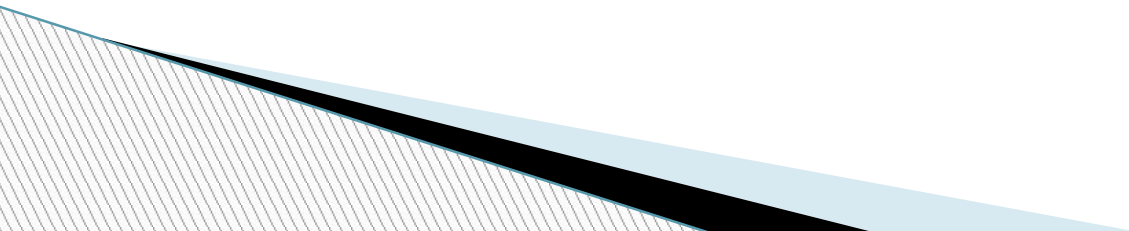
<https://www.theguardian.com/business/2018/oct/17/bank-of-england-high-risk-lending-leveraged-loans>



A word to China

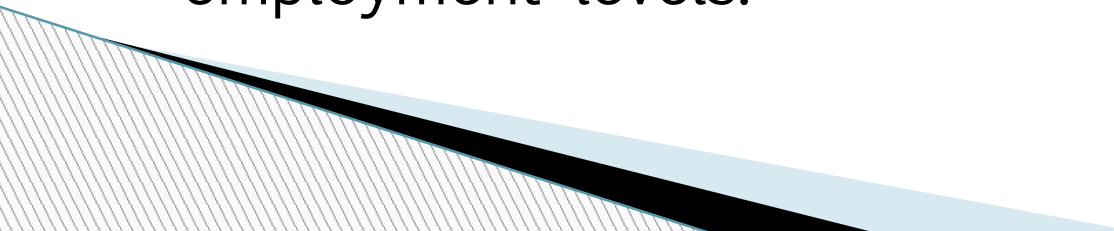
- ▶ China is a socialist market economy
 - ▶ China is on the way to socialism – I was told many times
 - ▶ China should search for a own model of financial market regulation and globalisation – it could become the leader of the Global South
- 

Thanks

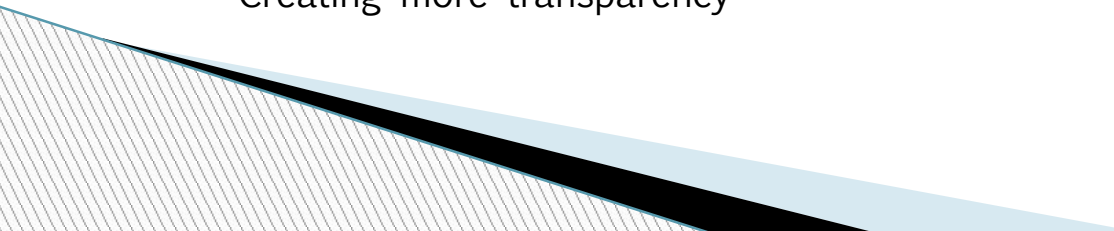


Major results from work package 3

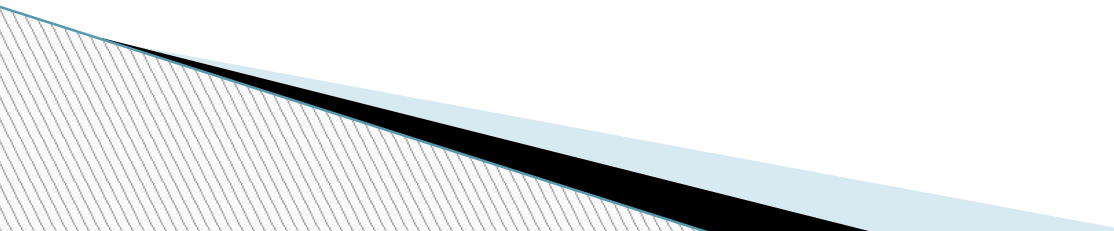
The following major policies has to be followed to create prosperous development

- ▶ Re-regulating and downsizing of the financial sector,
 - ▶ Changing the logic of corporate governance away from shareholder value,
 - ▶ Re-distribution of income (and wealth),
 - ▶ Re-creation of international monetary and economic policy coordination,
 - ▶ Re-orientation of macroeconomic policies towards stabilizing domestic demand at non-inflationary full employment levels.
- 

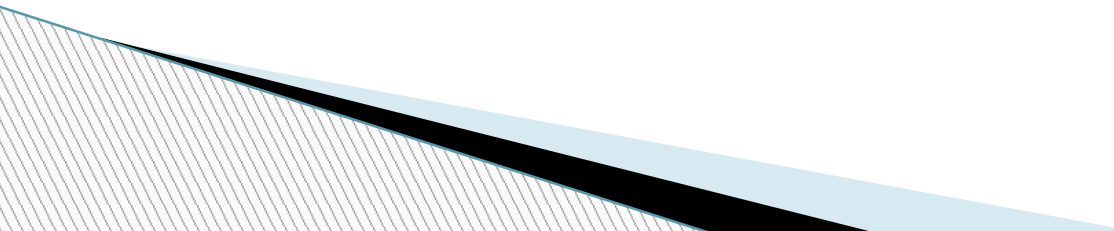
What was done?

- ▶ Institutional changes concentrated almost entirely on the financial system (excluding international capital flows and exchange rates)
 - ▶ Philosophy of reform
 - “We will make regulatory regimes more effective over the economic cycle, while ensuring that regulation is efficient, does not stifle innovation, and encourages expanding trade in financial products and services.” (G20 2008: 3)
 - “Financial markets will remain global and interconnected, while financial innovation will continue to play an important role to foster economic efficiency.” (G20 2009: V)
 - ▶ Major financial market reforms
 - Increased volume and quality of capital and liquidity holding of banks and reduced the role of risk models
 - Tried to tackle the Too-Big-to-Fail problem (last will of banks, plan not to save owners and creditors of banks again, build-up of a fund to help failed institutions)
 - Partly but not consequently cut the links between commercial banking and the shadow financial system (mainly in US)
 - Trading of derivatives as much as possible on organised exchanges
 - Binding rules of management remunerations
 - Creating more transparency
- 

What was not done?

- ▶ No fundamental restructuring of the financial system
 - ▶ No change in corporate governance
 - ▶ No reform of the international financial and exchange rate system
 - ▶ No re-regulation of labour market to establish a nominal wage anchor and reduce wage dispersion
 - ▶ No change in income inequality
 - ▶ No demand management to create full employment
- 

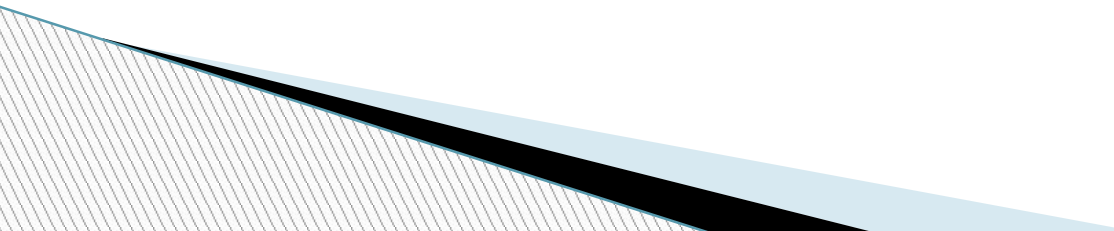
Fundamental restructuring of financial system

- ▶ Strict separation between commercial banks and shadow financial institutions
 - no ownership relation, no credit relation and no proprietary trading of banks
 - This would lead to a radical shrinking of shadow institutions
 - ▶ Strong instruments are needed to influence credit allocation (for example curb credit to the real sector or consumption credit, support Green New Deal projects, etc.)
 - ▶ Too big to fail: For example, financial institutions should be reduced to liabilities of 2 or 3 per cent of GDP in big countries
 - ▶ Financing of the real estate sector should be especially regulated
 - ▶ Derivative products have to be simplified and approved by supervisors
 - ▶ Securitisation has to be regulated and restricted
 - ▶ Over the counter derivative trading has to be forbidden
 - ▶ Offshore centres have to be pressured to follow international rules
- 

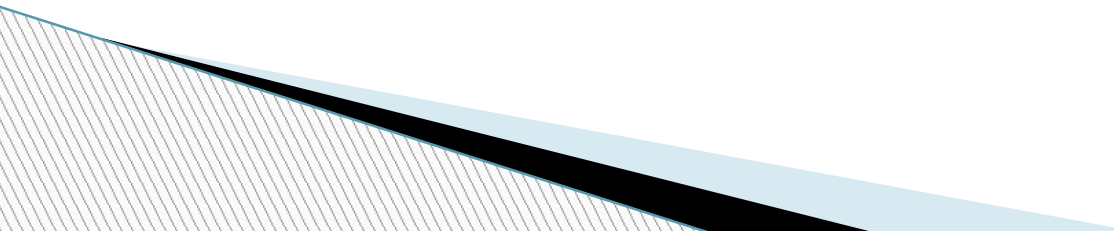
Change in corporate governance

- ▶ Share buy back has to be generally forbidden
- ▶ Unfriendly takeovers have to be made very difficult
- ▶ Distribution of profits to shareholders have to be limited, for example no dividends if the company makes losses.
- ▶ Payment schemes of management have to be changed and top management salaries radically cut
- ▶ Different stakeholders, especially unions, should be able to influence management decisions
- ▶ Multinational companies should be
 - taxed on world level
 - exposed to anti-trust policy
 - exposed to transparency

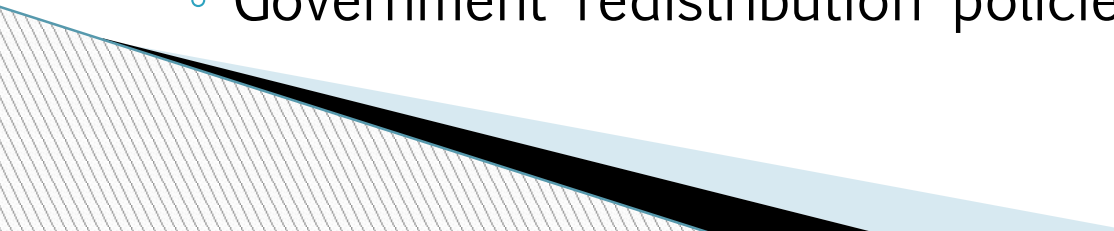
A reformed international monetary order

- ▶ The present international financial system is characterised by unstable international capital flows, exchange rate volatility, currency competition and periodically unsustainable current account imbalances
 - ▶ Overall a regulated globalisation and no hyper-inflation should be the guideline for reforms (Dani Rodrik)
 - ▶ Needed is an exchange rate system with more stable exchange rates and limited current account imbalances – a new type of Bretton Woods system
 - ▶ International capital controls are a precondition for more stability of capital flows and exchange rates
 - ▶ Part of international capital flow do not serve a positive purpose – for example short-term speculative flows and part of portfolio flows
 - ▶ Currency mismatch especially in developing countries has to be avoided
- 

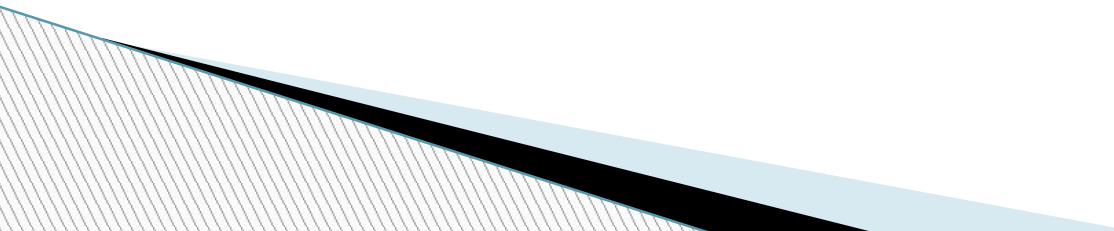
Re-regulation of labour markets

- ▶ The nominal wage level is important for the stability of the inflation rate
 - ▶ Wage norm: the nominal wage level should increase according to trend productivity growth and target inflation rate of the central bank
 - ▶ Wage dispersion has to be reduced
 - ▶ A re-regulation of labour market and strengthening of trade unions and employers' association is needed to achieve these goals
- 

Make societies again more equal

- ▶ High income inequality leads
 - to a lack of aggregate demand and the danger of stagnation
 - to a lack of spending for education (the poor cannot afford investment in education, increasing criminality, incoherent dysfunctional societies, etc.)
 - ▶ Income inequality has to be reduced by
 - Reducing wage dispersion
 - Reducing the power of financial markets (reducing the profit mark-up)
 - Government redistribution policies
- 

Macroeconomic demand management for full-employment

- ▶ Income distribution has to be changed to create sufficient consumption demand out of income
 - ▶ Investment demand has to be stabilised and regulated in proportion of other demand elements
 - Big state owned enterprise sector in the area of public goods and public utilities
 - Green New Deal could stimulate investment and sustainability
 - Development banks to stimulate socially preferable investment in different areas (real estate, new energies, etc.)
 - ▶ No big current account imbalances should be allowed – no export driven accumulation models
 - ▶ International coordination of demand management should be tried to achieved
- 

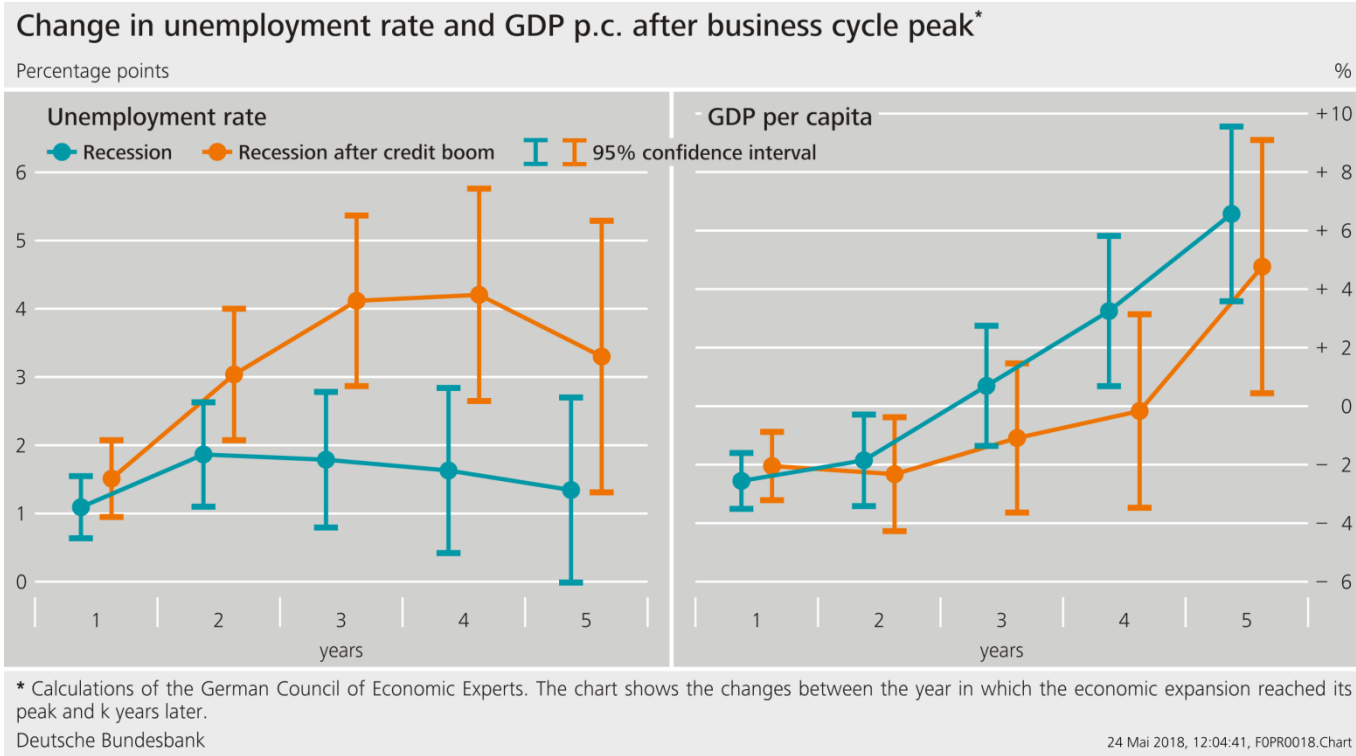
Macroprudential Policy: Safeguarding Financial Stability

Dr. Jens Reich, Deutsche Bundesbank, DG Financial Stability

Berlin – October 24th, 2019

Financial crises are costly for the real economy...

Change real economic indicators during standard recessions and recessions that were preceded by a credit boom, 150 countries 1970-2011.



...have long and lasting effects on public finances...

Which measures effected public debt more intensely in Germany?

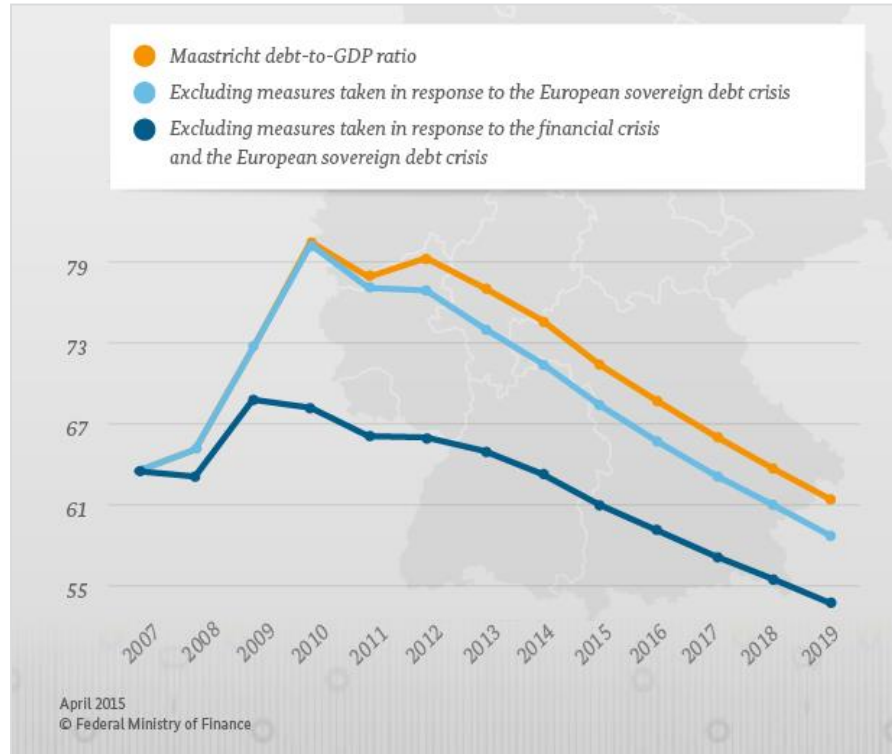
1. Support of the banking sector during and after the financial crisis.
2. Measures teaken in the context of the european government debt crisis.
3. The impact of both were almost identical.

To answer the questions please open www.menti.com and enter the following Code: 10 59 94.

[Results](#)

...have long and lasting effects on public finances...

Debt impact of stabilization measures taken in connection with the financial crisis and the European sovereign debt crisis.



Source: Ministry of Finance (2018). Graphics: Fiscal and budgetary policy. [Link](#).

Macroprudential Policy: Safeguarding Financial Stability

- I. **Financial stability**
- II. **Macroprudential policy**

Macroprudential Policy: Safeguarding Financial Stability

- I. **Financial stability**
- II. Macroprudential policy

Systemic risks and financial (in)stability

Definition and sources of systemic risk.

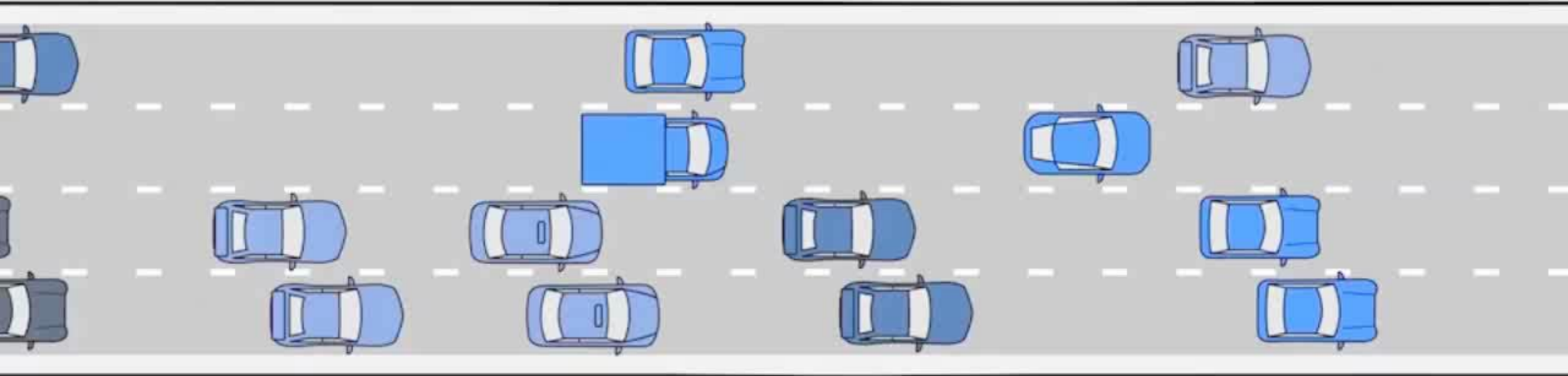
We consider the financial system stable if

- it provides its functions while market participants constantly adjust to changing economic conditions.

A stable financial system

- is able to absorb idiosyncratic and macroeconomic shocks – in particular in times of economic upheaval.
- mitigates contagion and feedback effects, i.e. the FS neither triggers an economic contraction nor amplifies an exogenous shock.

A financial system is instable if shocks hit vulnerabilities.



Dr. Jens Reich
June 17th, 2019
Seite 8

The Simple Solution to Traffic

8.797.698 Aufrufe



CGP Grey

Am 31.08.2016 veröffentlicht

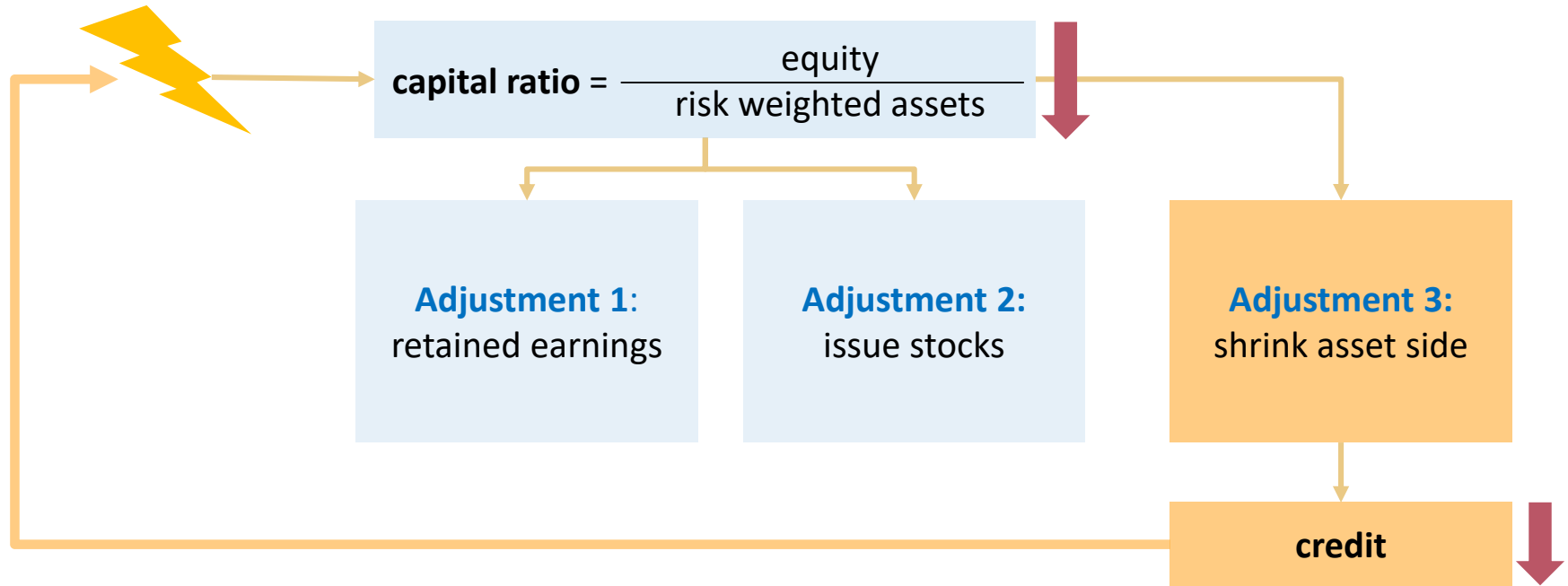
The way we can make traffic disappear.

Discuss this video: <http://reddit.com/r/cpggrey>

Brought to you in part by: <http://www.audible.com/grey>

Systemic risks and financial (in)stability

Definition and sources of systemic risk.







Dr. Jens Reich
June 17th, 2019
Slide 11

Systemic risks and financial (in)stability

Definition and sources of systemic risk.

Systemic risk arises from **(structural) vulnerabilities of systemic risk**:

- excessive risk taking of large banks and implicit government guarantees for these institutions („too big to fail“),
- the nature of the financial system as an interconnected network („too connected to fail“),
- many banks making the same kinds of bad bets („too many to fail“);

Cyclical vulnerabilities of systemic risk (excessive credit growth); and

vulnerabilities with structural and cyclical elements:

- systematic underestimation of (in particular credit) risk,
- overvaluation of assets and loan collateral, e.g. real estate, or
- excessive period transformation (in particular interest rate risk).

No traffic...



... or make traffic safe again.



safety distance



speed limits



Macroprudential Policy: Safeguarding Financial Stability

- I. **Financial stability**
- II. Macroprudential policy

Macroprudential Policy: Safeguarding Financial Stability

I. Financial stability

II. **Macroprudential policy**

Macroprudential Policy

...and its toolkit.

**Financial
Stability**

Financial System

Banks

Insurer

Markets

Infrastructur

Vulnerabilities

credit growth
and leverage

maturity/liquidity
transformation

exposure
concentration

SII, incentives/
moral hazard

financial market
infrastructures

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...and its toolkit.

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3 main categories of macroprudential instruments:

1. **soft**: communication
2. **intermediate**: warnings and recommendations („formal“ communication)
3. **hard**: interventions (e.g. capita-related instruments, sustainability-related instruments, liquidity and funding ratios)

Macroprudential Policy

...and its toolkit.

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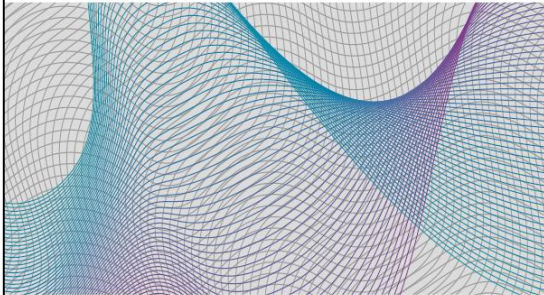
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Macroprudential Policy

...and its toolkit: **communication**.



Finanzstabilitätsbericht
2018



Key messages:

- **Cyclical risks have built up in the German financial system during the long period of growth and low interest rates:**
 - Potential underestimation of credit risk
 - Potential overvaluation of assets and loan collateral, e.g. real estate
 - Interest rate risk
- **If economic conditions deteriorate unexpectedly, these risks may occur at the same time, reinforce each other, and lead to herding behavior in the financial system (aggravating negative developments).**
 - The existing buffers may not be enough to limit contagion effects within the financial system or negative feedback effects to the real economy.
- **Now is the time to build sufficient buffers against unexpected developments.**

Macroprudential Policy

...and its toolkit.

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Macroprudential Policy

...and its toolkit.

Financial Stability

Vulnerabilities

credit growth and leverage

maturity/liquidity transformation

exposure concentration

SII, incentives/moral hazard

financial market infrastructures

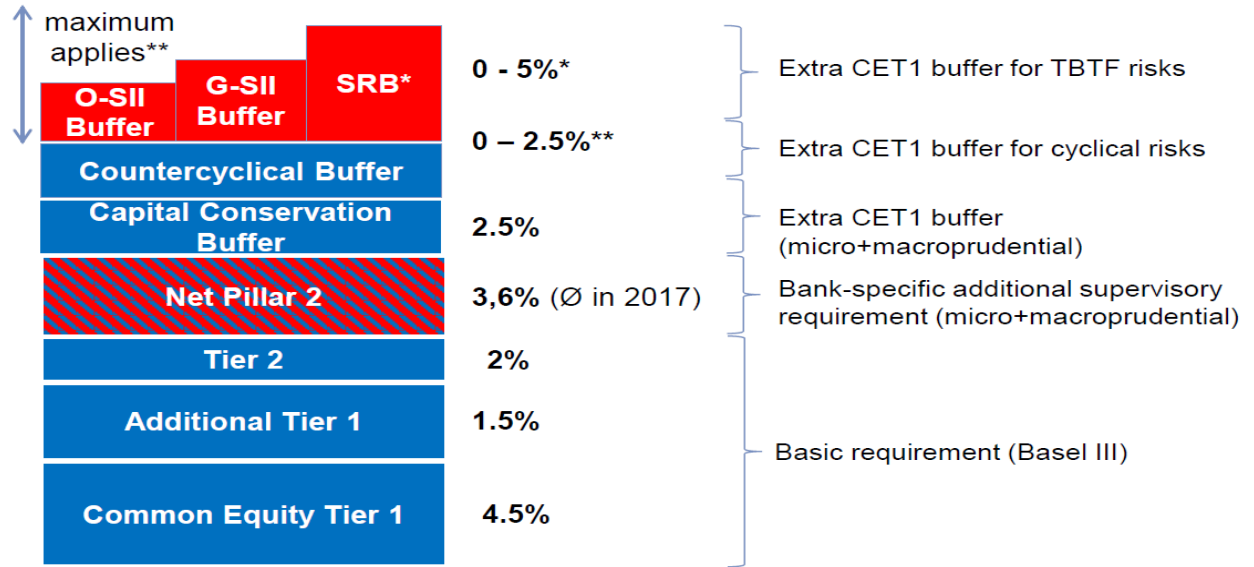
Financial System

Banks

Insurer

Markets

Infrastructur



* Systemic risk buffer.

** In certain cases can be the sum of SII & systemic risk buffer.

*** Assumed upper bounds (values can be higher).

Macroprudential Policy

...and its toolkit.

Financial Stability

Vulnerabilities

credit growth and leverage

maturity/liquidity transformation

exposure concentration

SIIs, incentives/moral hazard

financial market infrastructures

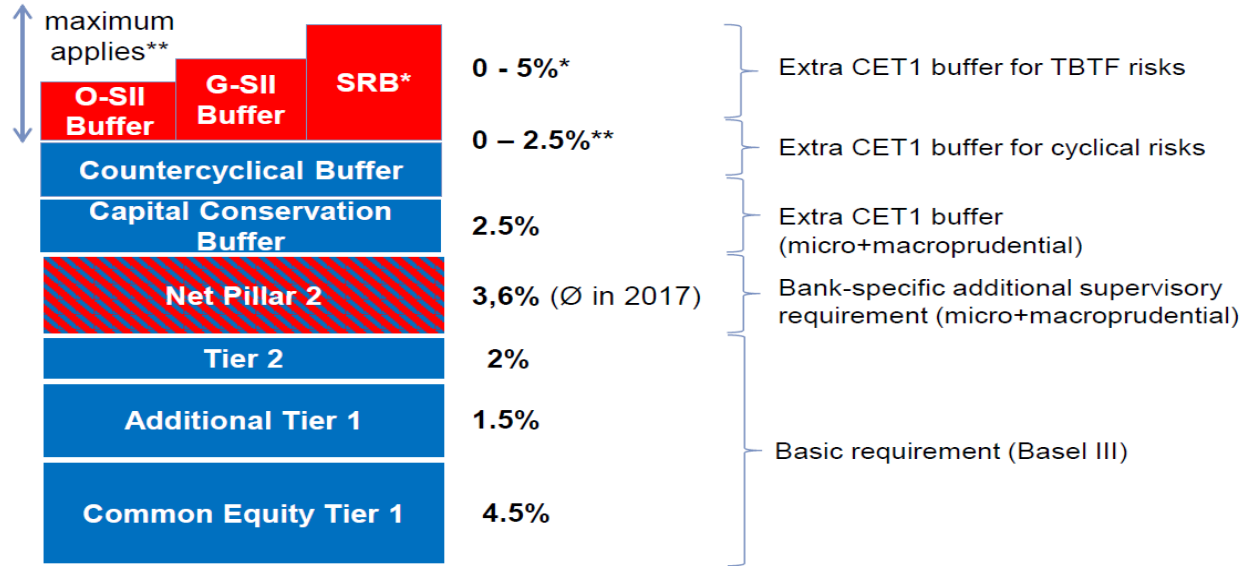
Financial System

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Macroprudential Policy: Safeguarding Financial Stability

Dr. Jens Reich, Deutsche Bundesbank, DG Financial Stability

Frankfurt - July 17th, 2019

Macroprudential Policy: Safeguarding Financial Stability

Backup

Macroprudential Policy

...and its toolkit.

Financial
Stability

Banks

Insurer

Markets

Infrastructur

credit growth
and leverage

maturity/liquidity
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exposure
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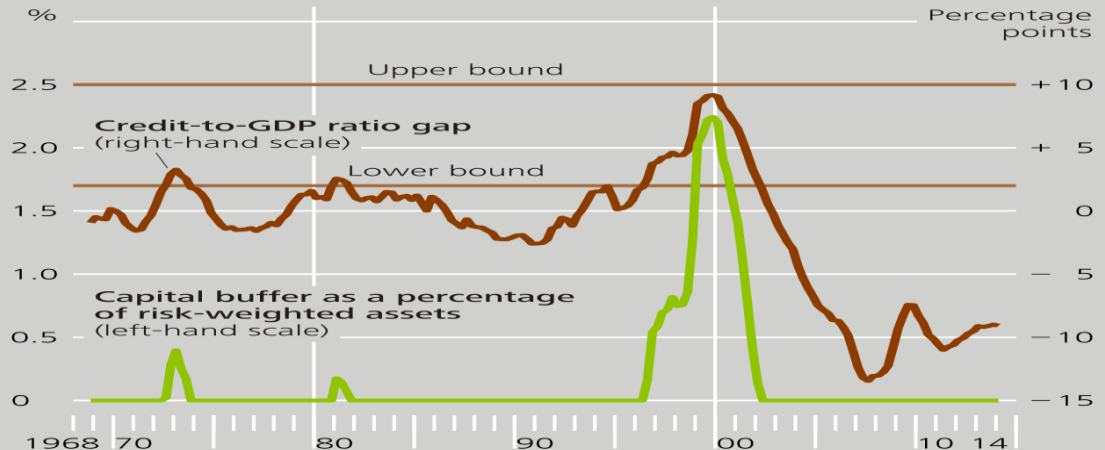
Vulnerabilities

Financial System

BCBS: L=2; CCCB=0 and H=10; CCCB=2,5

Countercyclical capital buffer for Germany

Quarterly data



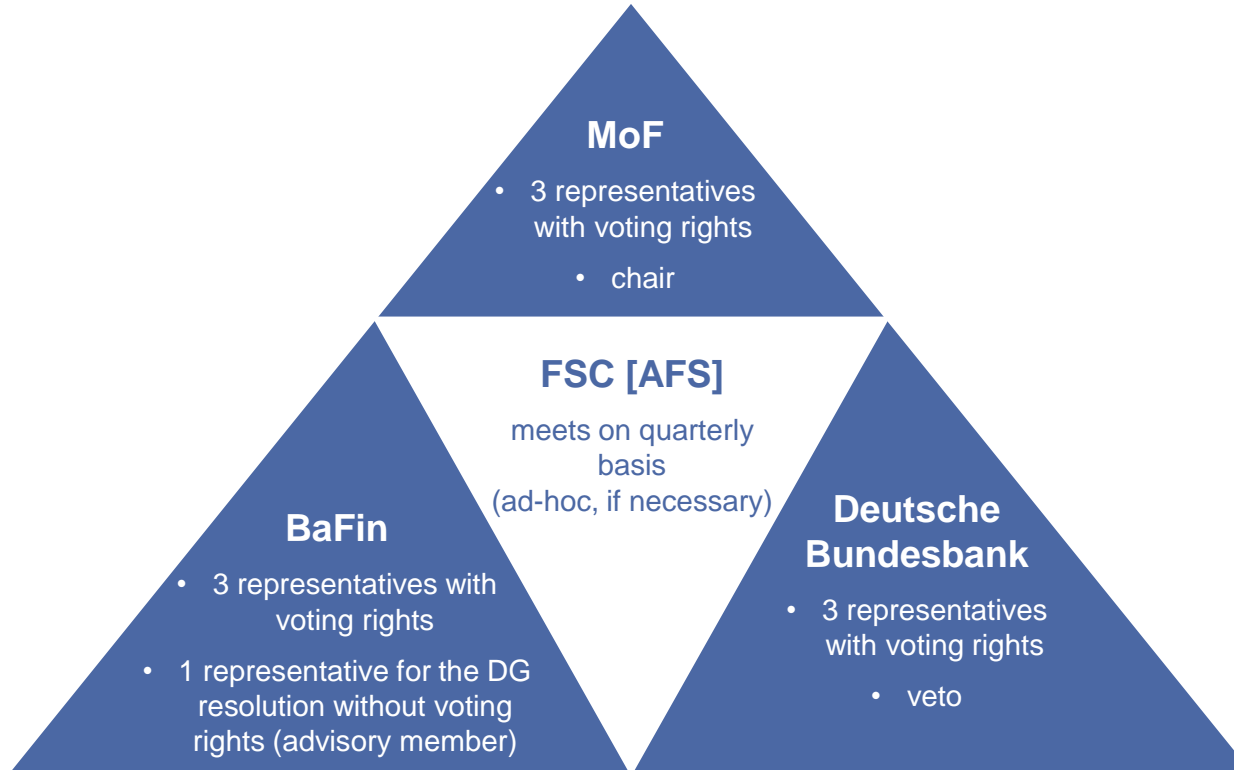
Deutsche Bundesbank

3 Jun 2014, 13:40:24, F1PR0030.Chart

“Operationalising the countercyclical capital buffer” ESRB Occasional Paper Series No. 5 / June 2014

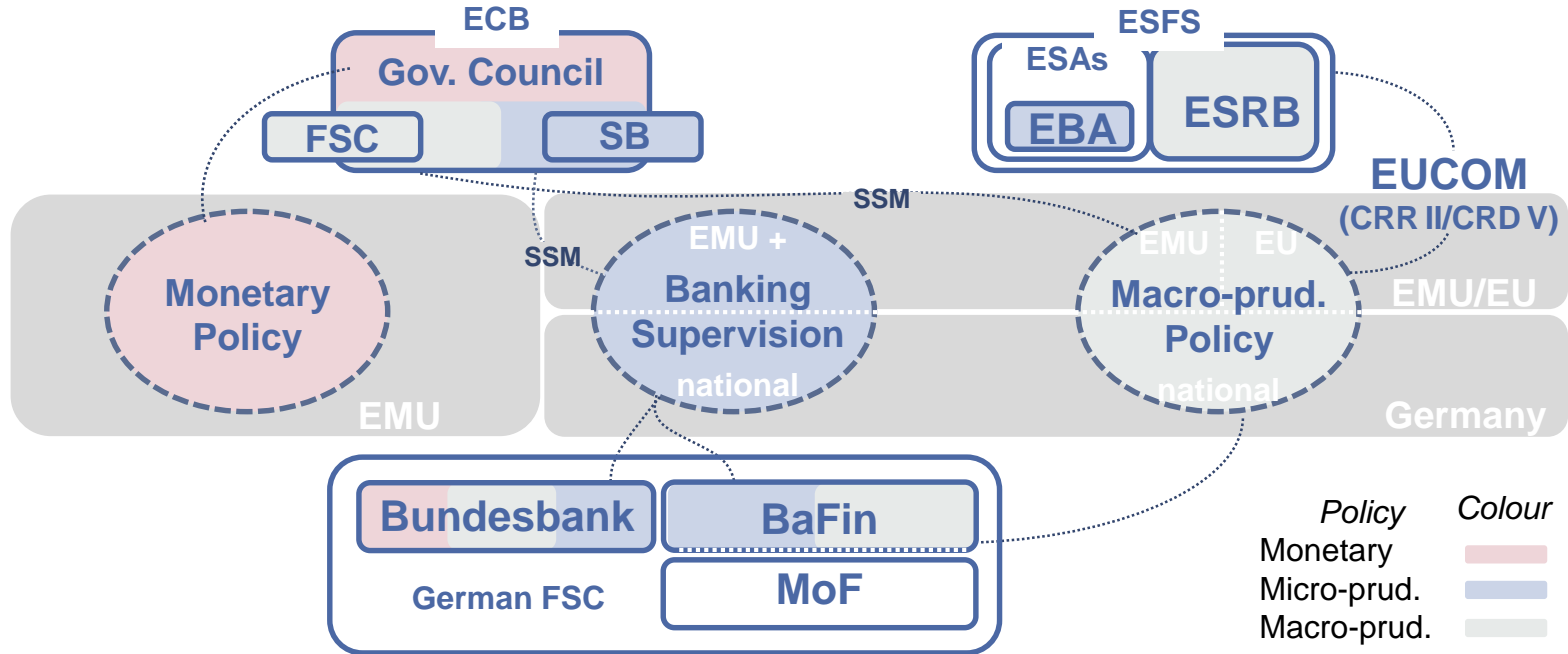
Macroprudential Policy

...and its toolkit: **warnings and recommendations.**



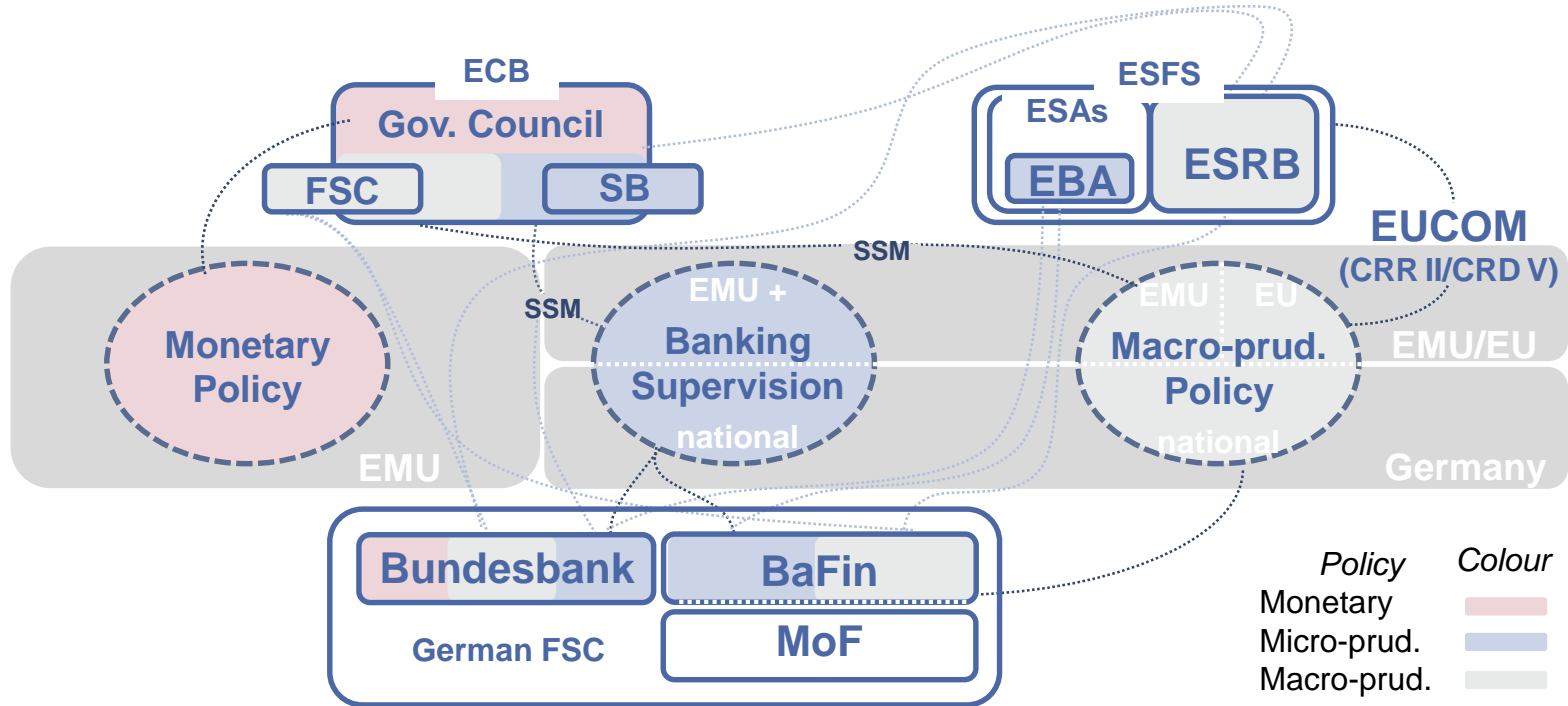
Macroprudential Policy

...and its coordination in Germany ... in its European context.



Macroprudential Policy

...and its coordination in Germany ... in its European context.



Macroprudential Policy

...and its toolkit: **warnings and recommendations.**

AUSSCHUSS FÜR FINANZSTABILITÄT

Empfehlung

vom 30. Juni 2015

zu neuen Instrumenten für die Regulierung der Darlehensvergabe
zum Bau oder Erwerb von Wohnimmobilien

AFS/2015/1

Erster Teil

Der Ausschuss für Finanzstabilität (im Folgenden „Ausschuss“) hat auf der Grundlage von § 3 Absatz 2 des Gesetzes zur Überwachung der Finanzstabilität vom 28. November 2012 (BGBl. I, S. 2369), geändert durch Artikel 21 des Gesetzes vom 4. Juli 2013 (BGBl. I, S. 1961) (im Folgenden „Finanzstabilitätsgesetz“), folgende Empfehlungen beschlossen:

Empfehlung A – Neue Instrumente für die Regulierung der Darlehensvergabe zum Bau oder Erwerb von Wohnimmobilien

Der Bundesregierung wird empfohlen,

1. die Schaffung von Rechtsgrundlagen zu initiieren, die der Bundesanstalt für Finanzdienstleistungsaufsicht (im Folgenden „Bundesanstalt“) die Befugnis einräumen, unter grundsätzlicher Berücksichtigung etwaiger einschlägiger Empfehlungen des Ausschusses gewerblichen Darlehensgebern nachfolgend aufgeführte Beschränkungen bei der Vergabe von grundpfandrechlich besicherten Darlehen zum Bau oder zum Erwerb von im Inland belegenen Wohnimmobilien aufzuerlegen, wenn dies erforderlich ist, um einer drohenden Störung der Funktionsfähigkeit des Finanzsystems oder einer Gefahr für die Finanzstabilität in Deutschland entgegenzuwirken:
 - a. Vorgabe einer Obergrenze für den Quotienten aus dem gesamten Fremdkapitalvolumen einer Wohnimmobilienfinanzierung und dem Marktwert der als Sicherheit verwendeten Wohnimmobilien zum Zeitpunkt der Darlehensvergabe (im Folgenden „Kreditvolumen-Immobilienwert-Relation“);

1

Recommendation to the German government to establish a legal foundation for the creation of **borrower-based macroprudential instruments for the housing sector:**

- capping the LTV ratio
- setting an amortisation requirement
- capping the debt service to income ratio
- capping the debt to income (DTI) ratio

Macroprudential Policy

...and its toolkit: **warnings and recommendations.**

Empfehlung

des

Ausschusses für Finanzstabilität

vom 27. Mai 2019

zur Erhöhung des antizyklischen Kapitalpuffers

AFS/2019/1

A) Empfehlung zur Quote für den antizyklischen Kapitalpuffer

Der Ausschuss für Finanzstabilität (im Folgenden „Ausschuss“) hat auf der Grundlage von § 3 Absatz 2 des Gesetzes zur Überwachung der Finanzstabilität vom 28. November 2012 (BGBl. I, S. 2369), zuletzt geändert durch Artikel 24 Absatz 35 des Gesetzes vom 23. Juni 2017 (BGBl. I S. 1693) (im Folgenden „Finanzstabilitätsgesetz“ oder „FinStabG“), folgende Empfehlung beschlossen:

Der Bundesanstalt für Finanzdienstleistungsaufsicht (im Folgenden „Bundesanstalt“) wird empfohlen,

gemäß § 10d Absatz 3 Satz 2 des Kreditwesengesetzes (KWG) die Quote für den inländischen antizyklischen Kapitalpuffer in Höhe von 0,25 Prozent des nach Artikel 92 Absatz 3 der Verordnung (EU) Nr. 575/2013 ermittelten Gesamtforderungsbestands ab dem 3. Quartal 2019 festzulegen.

Recommendation to the Federal Financial Supervisory Authority to increase the countercyclical capital buffer from 0% to 0,25%, due to:

- low interest rates and growth: credit risks might be underestimated; resilience of the financial system could be overstated,
- revaluation of assets, the value of collateral might be overestimated,
- interest rate risk and credit risk could occur simultaneously,
- risks can be mutually reinforcing in the financial system.

1

Xuelian Li, Jyh-Horng Lin (2019)

How does shadow banking wealth management product affect bank performance under government capital injection?

XUELIAN LI

SCHOOL OF ECONOMICS, SOUTHWESTERN UNIVERSITY OF FINANCE AND
ECONOMICS; COLLABORATIVE INNOVATION CENTER OF FINANCIAL SECURITY

1. Introduction

Background:

Why the shadow banking activities involved by banks?

- The ratio of shadow banking to commercial banks' total financial assets was rising from approximately 52% in 1990s to 200% in 2007. (Panetti , 2014)
- The collapse of shadow banking in 2007 to 2008 played a critical role in undermining the regulated banking sector, and in bringing about the financial crisis(Gennaioli et al. 2013).
- Offer rate of return well above regulated deposit interest rate and are often used to fund investments in sectors where bank credit is restricted (Plantin, 2015).

- Financial institutions received a government aggregate infusion of \$125 billion on October 14, 2008 (Bayazitova and Shivdasani, 2012).
- Capital enhances a bank's survival probability (Allen et al, 2011).
- A growing body of literature examines capital affecting bank performance during a financial crisis. Our study focuses on one related issue: bank efficiency gain/loss from shadow banking activities and bankruptcy prediction under government capital injections.

4

There are at least two reasons where a thorough understanding of WMPs is essential.

- Actively managed by banks, a part of the shadow banking system in China, few are recorded on banks' balance sheets.
- Issuance of Chinese WMPs has grown rapidly in recent years, around 17-19% . it does represent a part of the shadow bank activities that have been particularly important at some point in time (Perry and Weltewitz, 2015).

5

Bank performance

Two key issues that concern bank managers:

- **Bank interest margin**, as a proxy for the **efficiency** (Saunders and Schumacher, 2000).
- **Bank survival** related to **default risk** is central for banks and regulators in banking stability (Berger and Bouwman, 2013)

6 | Purpose of the paper

We develop a contingent claim model to examine how shadow banking wealth management products (WMPs) affect a bank's performance (efficiency, default risk) under government capital injection.

Contributions to the literature

- 1) the growing literature linking bank interest margin and WMPs, particularly a deeper justification about the collapse of shadow banking in 2007 to 2008.
- 2) an alternative explanation of deteriorating bank interest margins by focusing on WMPs .
- 3) an alternative explanation of the viewpoint from Pozsar et al., 2013.

(the link between the regular banking and the shadow banking may create higher contagion and systemic risks, which in turn may affect banking stability.)

8

Framework of paper

- Section 1: introduction
- Section 2: literature review
- Section 3: basic structure of the proposed model
- Section 4: derives model solution and comparative static analysis
- Section 5: numerical analysis
- Section 6: conclusion

2. Related literature: three related strands

- 1) regular banks with shadow banking activities:
 - # Pozsar et al. (2013): features of shadow banks, economic roles, relation to traditional banks.
 - # Jeffers and Baicu (2013): interconnections between affect the stability of the financial system.
 - # Li and Lin (2016): bank interest margin management when the bank conducts regular lending and shadow-banking entrusted lending activities under capital regulation.
- Our focus:** bank interest margin management aspects of shadow-banking WMPs

2. Related literature: three related strands

- 2) interest margin:
- #Wong (1997): is positively related to the bank's market power, credit risk, and interest rate risk.
- #While Williams (2007): negative relationship between credit risk and bank interest margin.
- #Hawtrey and Liang (2008): negative impact of managerial efficiency on bank interest margins.
- #Ewijk (2012): an explanation for the decline in bank interest margins in many developed countries.
- Our focus: effects of shadow banking activities on bank interest margin under government capital injection that these papers are silent on.

2. Related literature: three related strands

- 3) government capital injection:
- #Bayazitova and Shivdasani (2012): less stable funding mixes more likely receive government capital infusions.
- # Chang and Chen (2016): interactions between government capital injections and credit risk transfers.
- # Chen and Lin (2016) :impacts on bank interest margin, bank default risk, and borrower default risk from government's capital injection.
- Our focus: commingling of regular banking with shadow banking under government capital injection, and in particular, the emphasis we put on the interconnections between the two systems in the context of bank interest margin management.

3. Model framework

Our model proceeds in the following main **assumptions** to capture all the real-life dimensions of bank valuation and regulation:

- Except the loan market faced by the bank, perfectly competitive markets are assumed for all financial assets.
- Financial markets are assumed to be complete.
- Investors and regulators are risk-neutral
- The Federal Deposit Insurance Corporation (FDIC) plays both the roles of insurer and receiver for administering and resolving failing banks.
- We only focus on direct government capital injection

3. Model framework

- a. Equity valuation
- b. Efficiency gain from shadow banking
- c. Default risk

3. 1 Equity valuation

Table 1Simplified balance-sheet and shadow banking activities at $t = 0$.

Assets		Liabilities	
Balance-sheet activities:			
Loan	L	deposit	D
liquid asset	B	government equity	
		capital injection	θK
		equity	K
Shadow banking activities:			
risky asset	αW	wealth management	
liquid asset	$(1 - \alpha)W$	product	W

Notes: $\theta > 0$, and $0 < \alpha < 1$.

3.1 Equity valuation

- Consider a bank that makes decisions in a single period horizon with two dates, 0 and 1, $t \in \{0, 1\}$. The bank, at $t=0$, has the following balance sheet:

$$L + B = D + K + \theta K \quad (1)$$

L : risky loans B : liquid assets D : deposits

K : government capital injections

θK :

3.1 Equity valuation

- The bank's loans mature at $t = 1$.
- Equity capital with government capital injections $(1 + \theta)K$ held by the bank is tied by regulation to be fixed proportion q of its deposits
 $(1 + \theta)K \geq qD$ (Wong, 1997).

when the capital constraints binding, Eq.(1) can be expressed as

$$L + B = (1 + \theta)K \left(\frac{1}{q} + 1 \right)$$

In addition to balance-sheet activities, at $t = 0$, the bank also holds an amount of WMPs $w > 0$

3. 1 Equity valuation

$$(1+\theta)K = L + B + \alpha W + (1-\alpha)W - D - W \quad (2)$$

$$L = L(R_L)$$

where

W : WMPs αW : Risky assets in WMPs R_L : loan rate chosen by bank

This paper takes a path-dependent barrier option approach to the market valuation of equity in a bank.

The default can occur at any time before the maturity date. Bank equity can be priced as a down-and-out call (DOC) option.

When the value of the bank's assets is less than the strike price, the value of the bank's equity is zero.

3. 1 Equity valuation

The market value of the bank's underlying assets follows a geometric Brownian motion of the form :

$$dV = \mu V dt + \sigma V dM \quad (3)$$

where

$$V = (1 + R_L)L + \alpha(1 + R_W)W$$

V : the value of the asset portfolio

R_W : constant market rate of WMPs return

3. 1 Equity valuation

The market value of the bank's equity S :

$$S = SC - DIC \quad (4)$$

where

$SC = VN(d_1) - Ze^{-\delta} N(d_2)$, as the market value of the bank's assets and present value of the net-obligation payments using the standard call option view of the bank.

$DIC = V\left(\frac{H}{V}\right)^{2\eta} N(a_1) - Ze^{-\delta} \left(\frac{H}{V}\right)^{2\eta-2} N(a_2)$, down-and-in call activated only if the barrier is breached.

$H = \beta Z$: the knock-out value of the bank. β is the barrier-to-debt ratio, and $N(\cdot) \equiv$ the standard normal cumulative distribution function.

3. 2 Efficiency gain from shadow banking activities

- variance of the bank return (Ronn and Verma 1986):

$$\sigma_s = \frac{\partial S}{\partial V} \frac{V}{S} \sigma \quad (5)$$

- efficiency gain from WMPs can be measured by the RV differential (Ergungor, 2005):

$$\Delta RV = RV(WW) - RV(OW) \quad (6)$$

where

$$RV(WW) = \frac{S(W > 0)}{\sigma_s(W > 0)}$$

$$RV(OW) = \frac{S(W = 0)}{\sigma_s(W = 0)}$$

$\Delta RV > 0$ can be explained as efficiency gain from involving the shadow banking activities, whereas $\Delta RV < 0$ can be explained as deficiency.

3.3 Default risk

- The \mathbb{Q} framework offers a very useful measure for predicting bankruptcy.
- probability of default (risk-neutral):

$$P_S = N(h_1) + e^{h_2}(1 - N(h_3)) \quad (7)$$

where

$$h_1 = \frac{1}{\sigma} \left(\ln \frac{\beta Z}{V} - \delta + \frac{\sigma^2}{2} \right)$$

$$h_2 = \frac{2}{\sigma^2} \left(\delta - \frac{\sigma^2}{2} \right) \ln \frac{\beta Z}{V}$$

$$h_3 = -\frac{1}{\sigma} \left(\ln \frac{\beta Z}{V} + \delta - \frac{\sigma^2}{2} \right)$$

3.3 Default risk

- **It is important to note that we use our measure of default risk to examine the relation between default risk and equity returns rather than price.**

4. Solution and result

The first-order condition for the equity maximization are:

$$\frac{\partial S}{\partial R_L} = \frac{\partial SC}{\partial R_L} - \frac{\partial DIC}{\partial R_L} = 0 \quad (8)$$

Eq.(8) determines the optimal loan rate, thus the optimal bank **interest margin**, proxy **efficiency** of the banking intermediation

4.1 Increases in **risky investment** from WMPs funding :

$$\frac{\partial R_L}{\partial \alpha} = - \frac{\partial^2 S}{\partial R_L \partial \alpha} / \frac{\partial^2 S}{\partial R_L^2} \quad (9)$$

$$\frac{dP_S}{d\alpha} = \frac{\partial P_S}{\partial \alpha} + \frac{\partial P_S}{\partial R_L} \frac{\partial R_L}{\partial \alpha} \quad (10)$$

4.2 Increases in WMPs

$$\frac{\partial R_L}{\partial W} = -\frac{\partial^2 S}{\partial R_L \partial W} / \frac{\partial^2 S}{\partial R_L^2} \quad (11)$$

$$\frac{\partial \Delta RV}{\partial W} = \frac{\partial \Delta RV}{\partial W} + \frac{\partial \Delta RV}{\partial R_L} \frac{\partial R_L}{\partial W} \quad (12)$$

$$\frac{\partial P_S}{\partial W} = \frac{\partial P_S}{\partial W} + \frac{\partial P_S}{\partial R_L} \frac{\partial R_L}{\partial W} \quad (13)$$

4.3 Increases in government **capital injection**

$$\frac{\partial R_L}{\partial \theta} = - \frac{\partial^2 S}{\partial R_L \partial \theta} / \frac{\partial^2 S}{\partial R_L^2} \quad (14)$$

$$\frac{\partial P_S}{\partial \theta} = \frac{\partial P_S}{\partial \theta} + \frac{\partial P}{\partial R_L} \frac{\partial R_L}{\partial \theta} \quad (15)$$

27 | 5. Numerical results

Table 2
Responsiveness of bank interest margin to allocated coefficient.

α	$(R_L (\%), L)$						
	(4.50, 200)	(4.60, 199)	(4.70, 197)	(4.80, 194)	(4.90, 190)	(5.00, 185)	(5.10, 179)
	<i>DIC</i> (10^{-6})						
0.30	3.9776	3.8626	3.6996	3.4925	3.2459	2.9652	2.6563
0.32	4.0105	3.8950	3.7313	3.5234	3.2759	2.9939	2.6836
0.34	4.0436	3.9275	3.7632	3.5545	3.3059	3.0227	2.7110
0.36	4.0767	3.9602	3.7952	3.5856	3.3360	3.0517	2.7386
0.38	4.1100	3.9929	3.8273	3.6169	3.3663	3.0808	2.7663
0.40	4.1433	4.0258	3.8595	3.6483	3.3967	3.1100	2.7941
0.42	4.1768	4.0587	3.8918	3.6797	3.4272	3.1393	2.8221
	<i>S = SC - DIC</i>						
0.30	38.0025	38.0140	37.8954	37.6454	37.2625	36.7459	36.0947
0.32	38.0772	38.0887	37.9700	37.7197	37.3366	36.8197	36.1682
0.34	38.1520	38.1634	38.0445	37.7941	37.4108	36.8935	36.2417
0.36	38.2269	38.2381	38.1191	37.8685	37.4849	36.9674	36.3153
0.38	38.3017	38.3128	38.1937	37.9429	37.5591	37.0414	36.3888
0.40	38.3766	38.3876	38.2684	38.0174	37.6334	37.1153	36.4624
0.42	38.4515	38.4624	38.3430	38.0918	37.7076	37.1893	36.5361
	$\partial R_L / \partial \alpha$ (10^{-3})						
0.30 → 0.32	-	-3.9719	-5.3715	-6.9023	-8.6468	-10.7130	-
0.32 → 0.34	-	-3.9446	-5.3311	-6.8469	-8.5736	-10.6180	-
0.34 → 0.36	-	-3.9176	-5.2911	-6.7923	-8.5013	-10.5230	-
0.36 → 0.38	-	-3.8908	-5.2516	-6.7382	-8.4298	-10.4300	-
0.38 → 0.40	-	-3.8643	-5.2125	-6.6847	-8.3592	-10.3380	-
0.40 → 0.42	-	-3.8381	-5.1738	-6.6319	-8.2893	-10.2470	-

Notes: Unless otherwise indicated, $R = 3.50\%$, $R_D = 2.50\%$, $R_W = 4.00\%$, $R_P = 3.00\%$, $W = 30$, $K = 15$, $q = 8.00\%$, $\sigma = 0.30$, $\theta = 0.10$, and $\beta = 0.50$. The computed results of $\partial^2 S / \partial R_L^2 < 0$ meet the required second-order condition. The shaded areas indicate that the optimal loan rate is approximately at the rate of 4.60%.

Result 1. An increase in bank investment funded by the shadow banking WMPs leads to increase bank loan portfolio at a reduced margin.

Table 3

Responsiveness of default risk to allocated coefficient.

α	$(R_L (\%), L)$						
	(4.50, 200)	(4.60, 199)	(4.70, 197)	(4.80, 194)	(4.90, 190)	(5.00, 185)	(5.10, 179)
	$P_S (10^{-2})$						
0.30	1.0805	1.0664	1.0476	1.0241	0.9958	0.9623	0.9233
0.32	1.0835	1.0694	1.0507	1.0272	0.9990	0.9656	0.9267
0.34	1.0865	1.0725	1.0538	1.0304	1.0021	0.9688	0.9301
0.36	1.0895	1.0755	1.0568	1.0335	1.0053	0.9721	0.9335
0.38	1.0925	1.0785	1.0598	1.0366	1.0085	0.9754	0.9369
0.40	1.0955	1.0815	1.0629	1.0396	1.0116	0.9786	0.9402
0.42	1.0984	1.0844	1.0659	1.0427	1.0148	0.9819	0.9436
	$dP_S / d\alpha$: total effect (10^{-3})						
0.30→0.32	-	1.5218	1.5455	1.5796	1.6251	1.6833	-
0.32→0.34	-	1.5165	1.5400	1.5740	1.6193	1.6772	-
0.34→0.36	-	1.5111	1.5346	1.5684	1.6135	1.6712	-
0.36→0.38	-	1.5058	1.5292	1.5629	1.6078	1.6652	-
0.38→0.40	-	1.5005	1.5238	1.5574	1.6021	1.6592	-
0.40→0.42	-	1.4953	1.5185	1.5519	1.5964	1.6532	-

Notes: Unless otherwise indicated, $R = 3.50\%$, $R_D = 2.50\%$, $R_W = 4.00\%$, $R_P = 3.00\%$, $W = 30$, $K = 15$, $q = 8.00\%$, $\sigma = 0.30$, $\theta = 0.10$, and $\beta = 0.50$. The shaded areas demonstrate that the values are computed at the optimal loan rate of 4.60%. Both the direct effect, $\partial P_S / \partial \alpha$, and the indirect effect, $(\partial P_S / \partial R_L)(\partial R_L / \partial \alpha)$, are positive.

Result 2. An increase in the bank investment funded by the shadow banking WMPs increases the default risk in the bank's equity returns.

Table 4
Responsiveness of bank interest margin to WMP_s .

W	$(R_L (\%), L)$						
	(4.50, 200)	(4.60, 199)	(4.70, 197)	(4.80, 194)	(4.90, 190)	(5.00, 185)	(5.10, 179)
S							
30	38.0025	38.0140	37.8954	37.6454	37.2625	36.7459	36.0947
32	38.0831	38.0945	37.9759	37.7256	37.3426	36.8257	36.1742
34	38.1637	38.1751	38.0563	37.8059	37.4226	36.9055	36.2538
36	38.2443	38.2556	38.1367	37.8862	37.5027	36.9854	36.3333
38	38.3250	38.3362	38.2172	37.9665	37.5829	37.0653	36.4129
40	38.4057	38.4168	38.2977	38.0468	37.6630	37.1452	36.4925
42	38.4864	38.4974	38.3781	38.1272	37.7432	37.2251	36.5722
$\partial R_L / \partial W (10^{-5})$							
30→32	-	-3.2916	-4.4658	-5.7616	-7.2524	-9.0351	-
32→34	-	-3.2696	-4.4336	-5.7175	-7.1939	-8.9584	-
34→36	-	-3.2478	-4.4016	-5.6739	-7.1361	-8.8826	-
36→38	-	-3.2263	-4.3700	-5.6308	-7.0790	-8.8077	-
38→40	-	-3.2049	-4.3388	-5.5881	-7.0225	-8.7337	-
40→42	-	-3.1838	-4.3078	-5.5459	-6.9667	-8.6606	-

Notes: Unless otherwise indicated, $R = 3.50\%$, $R_D = 2.50\%$, $R_W = 4.00\%$, $R_P = 3.00\%$, $\alpha = 0.30$, $K = 15$, $q = 8.00\%$, $\sigma = 0.30$, $\theta = 0.10$, and $\beta = 0.50$. The computed results of $\partial^2 S / \partial R_L^2 < 0$ meet the required second-order condition. The shaded areas indicate that the optimal loan rate is approximately at the rate of 4.60%.

Result 3. Increases in WMPs decrease the bank interest margin.

Table 5Responsiveness of bank efficiency gain to WMP_s .

W	$(R_L (\%), L)$						
	(4.50, 200)	(4.60, 199)	(4.70, 197)	(4.80, 194)	(4.90, 190)	(5.00, 185)	(5.10, 179)
	ΔRV						
30	0.8394	0.8363	0.8320	0.8263	0.8190	0.8097	0.7979
32	0.8957	0.8924	0.8878	0.8817	0.8740	0.8641	0.8516
34	0.9520	0.9485	0.9436	0.9372	0.9290	0.9186	0.9053
36	1.0083	1.0046	0.9995	0.9927	0.9841	0.9731	0.9591
38	1.0646	1.0607	1.0554	1.0483	1.0392	1.0276	1.0130
40	1.1210	1.1169	1.1113	1.1039	1.0943	1.0822	1.0669
42	1.1774	1.1732	1.1673	1.1595	1.1495	1.1369	1.1208
	$d\Delta RV / dW : \text{total effect } (10^{-2})$						
30→32	-	2.8280	2.8318	2.8337	2.8324	2.8265	-
32→34	-	2.8296	2.8333	2.8353	2.8339	2.8281	-
34→36	-	2.8312	2.8349	2.8368	2.8355	2.8297	-
36→38	-	2.8328	2.8364	2.8383	2.8370	2.8313	-
38→40	-	2.8343	2.8380	2.8398	2.8386	2.8329	-
40→42	-	2.8359	2.8395	2.8413	2.8401	2.8344	-

Notes: Unless otherwise indicated, $R = 3.50\%$, $R_D = 2.50\%$, $R_W = 4.00\%$, $R_P = 3.00\%$, $\alpha = 0.30$, $K = 15$, $q = 8.00\%$, $\sigma = 0.30$, $\theta = 0.10$, and $\beta = 0.50$. The shaded areas indicate that the optimal loan rate is approximately at the rate of 4.60%. The direct effect, $\partial\Delta RV / \partial W$, and the indirect effect, $(\partial\Delta RV / \partial R_L)(\partial R_L / \partial W)$, are consistently positive in sign.

Result 4. Increases in WMPs increase the bank's efficiency gain from shadow banking involvement.

Table 6Responsiveness of bank default risk to WMP_s .

W	$(R_L (\%), L)$						
	(4.50, 200)	(4.60, 199)	(4.70, 197)	(4.80, 194)	(4.90, 190)	(5.00, 185)	(5.10, 179)
	$P_s (10^{-2})$						
30	1.0805	1.0664	1.0476	1.0241	0.9958	0.9623	0.9233
32	1.0830	1.0689	1.0502	1.0267	0.9984	0.9651	0.9262
34	1.0855	1.0714	1.0527	1.0293	1.0011	0.9678	0.9291
36	1.0880	1.0739	1.0553	1.0319	1.0038	0.9706	0.9320
38	1.0904	1.0764	1.0578	1.0345	1.0065	0.9733	0.9348
40	1.0929	1.0789	1.0603	1.0371	1.0091	0.9761	0.9377
42	1.0953	1.0814	1.0628	1.0397	1.0117	0.9788	0.9405
	$dP_s / dW : \text{total effect } (10^{-5})$						
30→32	-	1.2625	1.2868	1.3209	1.3659	1.4230	-
32→34	-	1.2576	1.2817	1.3157	1.3605	1.4173	-
34→36	-	1.2527	1.2767	1.3106	1.3551	1.4116	-
36→38	-	1.2479	1.2718	1.3055	1.3498	1.4060	-
38→40	-	1.2430	1.2668	1.3004	1.3445	1.4004	-
40→42	-	1.2382	1.2619	1.2953	1.3392	1.3948	-

Notes: Unless otherwise indicated, $R = 3.50\%$, $R_D = 2.50\%$, $R_W = 4.00\%$, $R_P = 3.00\%$, $\alpha = 0.30$, $K = 15$, $q = 8.00\%$, $\sigma = 0.30$, $\theta = 0.10$, and $\beta = 0.50$. The shaded areas indicate that P_s and dP_s / dW are evaluated at the optimal loan rate of 4.60%. Both the direct effect, $\partial P_s / \partial W$, and the indirect effect, $(\partial P_s / \partial R_L)(\partial R_L / \partial W)$, are positive.

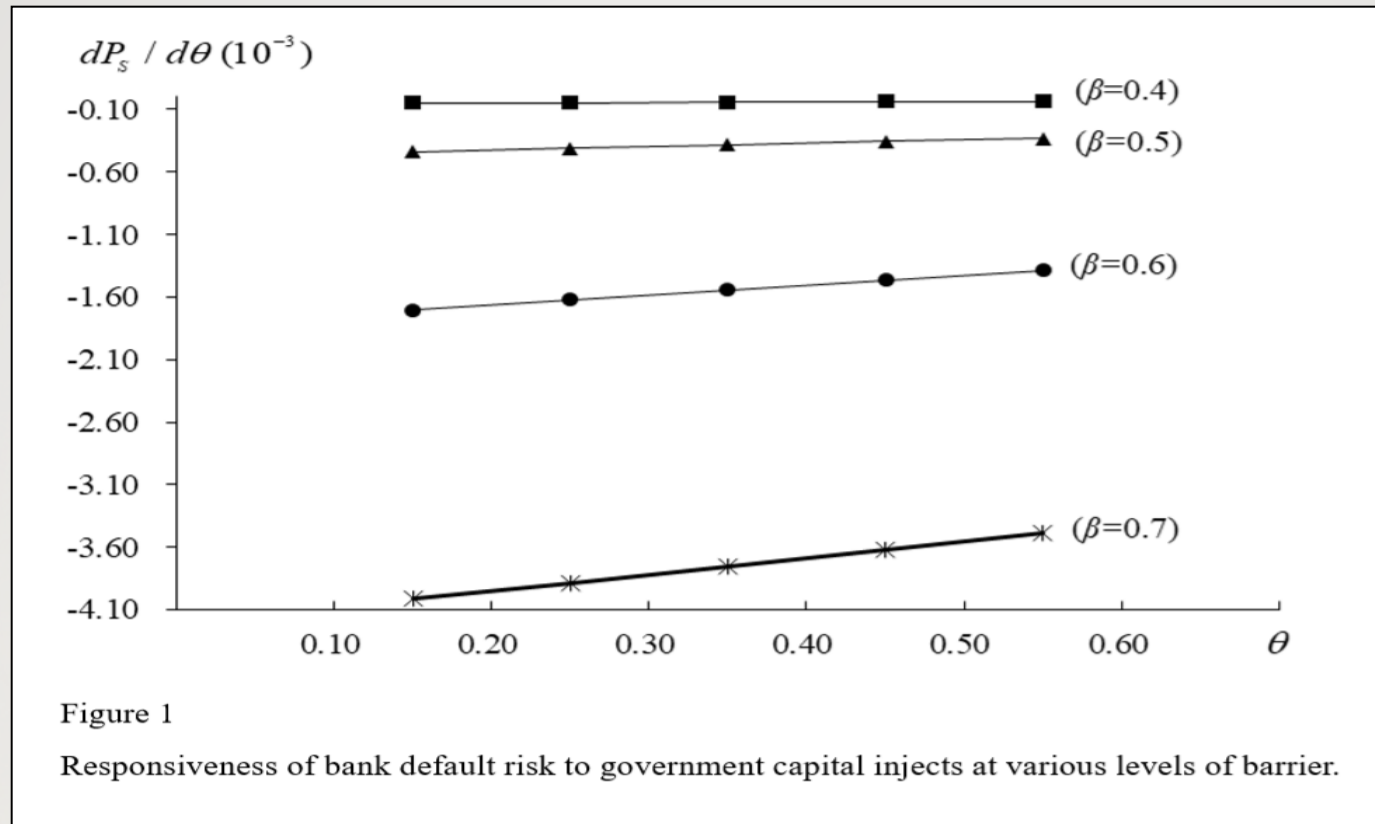
Result 5. Increases in WMPs increase the default risk in the bank's equity returns.

Table 7
Responsiveness of bank interest margin and bank default risk to government capital injections.

θ	$(R_L (\%), L)$						
	(4.50, 200)	(4.60, 199)	(4.70, 197)	(4.80, 194)	(4.90, 190)	(5.00, 185)	(5.10, 179)
<i>S</i>							
0.10	38.0025	38.0140	37.8954	37.6454	37.2625	36.7459	36.0947
0.20	39.0277	39.0424	38.9281	38.6834	38.3073	37.7988	37.1575
0.30	40.0727	40.0906	39.9807	39.7418	39.3728	38.8730	38.2421
0.40	41.1375	41.1587	41.0534	40.8205	40.4590	39.9683	39.3485
0.50	42.2220	42.2466	42.1461	41.9194	41.5658	41.0848	40.4768
0.60	43.3263	43.3543	43.2588	43.0386	42.6933	42.2225	41.6267
$\partial R_L / \partial \theta (10^{-3})$							
0.10→0.20	-	1.2040	1.6170	2.0477	2.5127	3.0327	-
0.20→0.30	-	1.2458	1.7004	2.1750	2.6885	3.2645	-
0.30→0.40	-	1.2883	1.7853	2.3048	2.8683	3.5023	-
0.40→0.50	-	1.3314	1.8716	2.4372	3.0521	3.7463	-
0.50→0.60	-	1.3751	1.9594	2.5722	3.2399	3.9967	-
$P_S (10^{-3})$							
0.10	10.8050	10.6640	10.4760	10.2410	9.9575	9.6226	9.2329
0.20	9.9289	9.7935	9.6106	9.3796	9.0993	8.7674	8.3807
0.30	9.1094	8.9798	8.8022	8.5761	8.3004	7.9733	7.5919
0.40	8.3441	8.2204	8.0484	7.8279	7.5581	7.2372	6.8631
0.50	7.6305	7.5126	7.3466	7.1324	6.8694	6.5562	6.1912
0.60	6.9662	6.8541	6.6943	6.4870	6.2316	5.9274	5.5730
$dP_S / d\theta$: total effect (10^{-4})							
0.10→0.20	-	-4.3694	-4.3585	-4.3561	-4.3623	-4.3776	-
0.20→0.30	-	-4.0854	-4.0732	-4.0679	-4.0697	-4.0789	-
0.30→0.40	-	-3.8140	-3.8008	-3.7930	-3.7909	-3.7948	-
0.40→0.50	-	-3.5552	-3.5411	-3.5313	-3.5258	-3.5251	-
0.50→0.60	-	-3.3087	-3.2939	-3.2823	-3.2740	-3.2695	-

Notes: Unless otherwise indicated, $R = 3.50\%$, $R_D = 2.50\%$, $R_W = 4.00\%$, $R_P = 3.00\%$, $\alpha = 0.30$, $W = 30$, $K = 15$, $q = 8.00\%$, $\sigma = 0.30$ and $\beta = 0.50$. The computed results of $\partial^2 S / \partial R_L^2 < 0$ meet the required second-order condition. The shaded areas indicate that the optimal loan rate is approximately at the rate of 4.60%. Both the direct effect, $\partial P_S / \partial \theta$, and the indirect effect, $(\partial P_S / \partial R_L)(\partial R_L / \partial \theta)$, are negative.

Result 6. Increases in the capital injection by the government increase in the bank interest margin, and decrease the default risk in the bank's equity returns



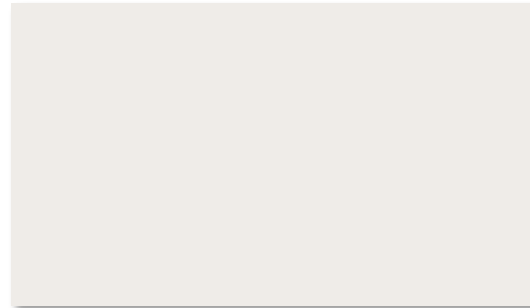
Results 7. Higher government capital injection has a significant effect on a bank's survival likelihood in particular during a financial crisis.

6. Conclusions

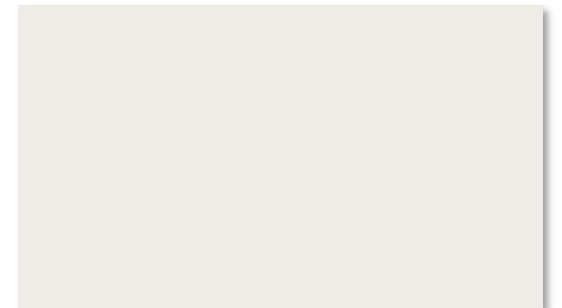
- 1) Increases in WMPs increase bank loan portfolio at a reduced interest margin. WMPs hurt the bank to decrease its probability of survival.
- 2) Increases in the government's capital injection decrease bank loan portfolio at an increased margin. Government capital injection helps the bank to increase its probability of survival particularly during a severely financial crisis.
- 3) We suggest that shadow credit intermediation should be regulated.
- 4) Our suggestion contributes to the growing literature on explaining the collapse of shadow banking in 2007 to 2008.
- 5) Several results are derived that should be of interest to investors, analysts, and policy makers.



THANKS



European perspective on the BRI



Max J. Zenglein
October 25th 2019



BRI as part of China's global ambitions

- **Anniversary targets drive economic policies**
 - 2021: Moderately prosperous society
 - 2049: Strong, modern socialist country
- **Impressive “to-do” list:**

Domestic

- 2020 targets
- Middle-income trap
- Environment
- Poverty
- Quality growth

Technology

- Innovation
- Made in China 2025
- Digital economy
- Defense technology

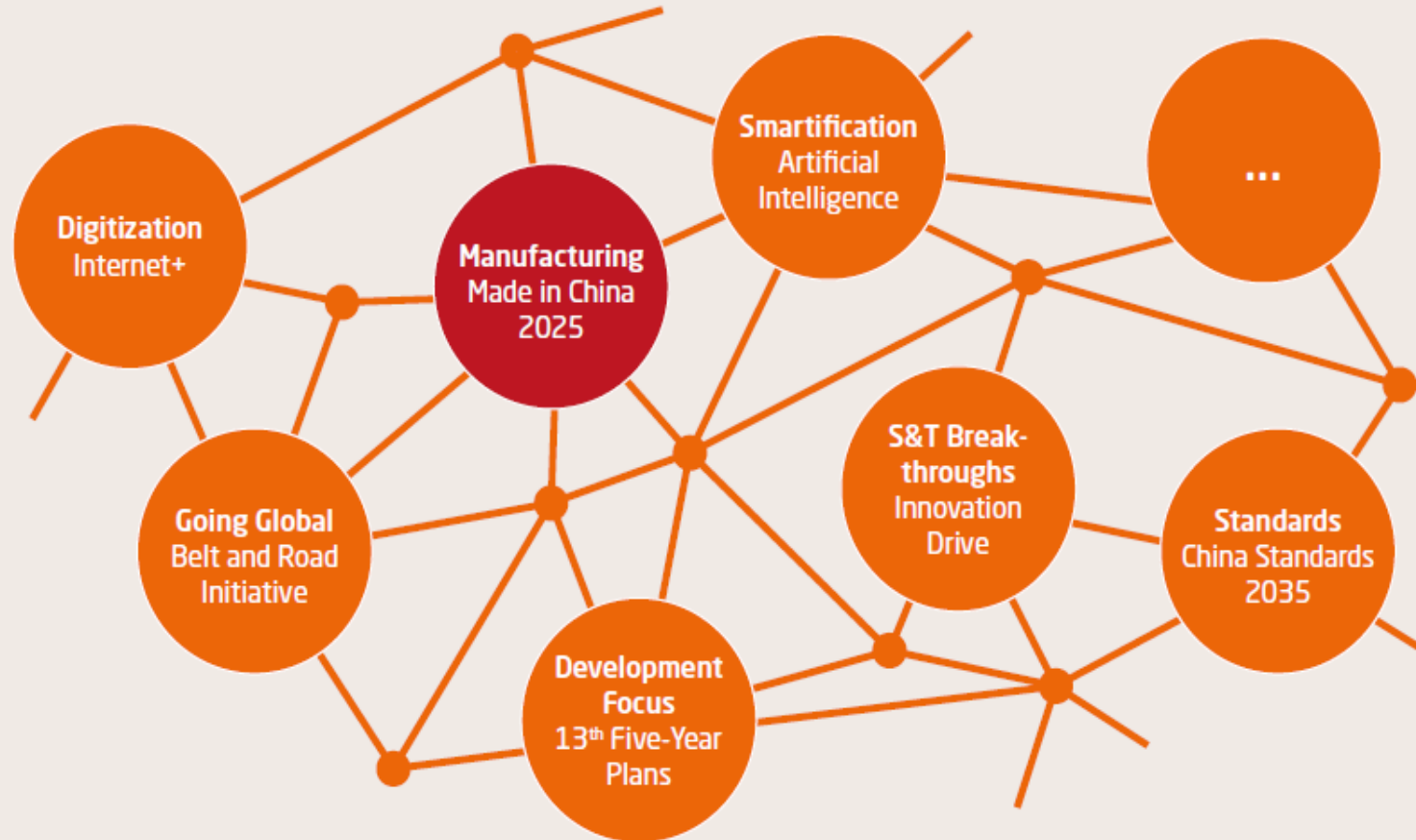
Global

- Belt and Road
- OFDI
- Going global by companies

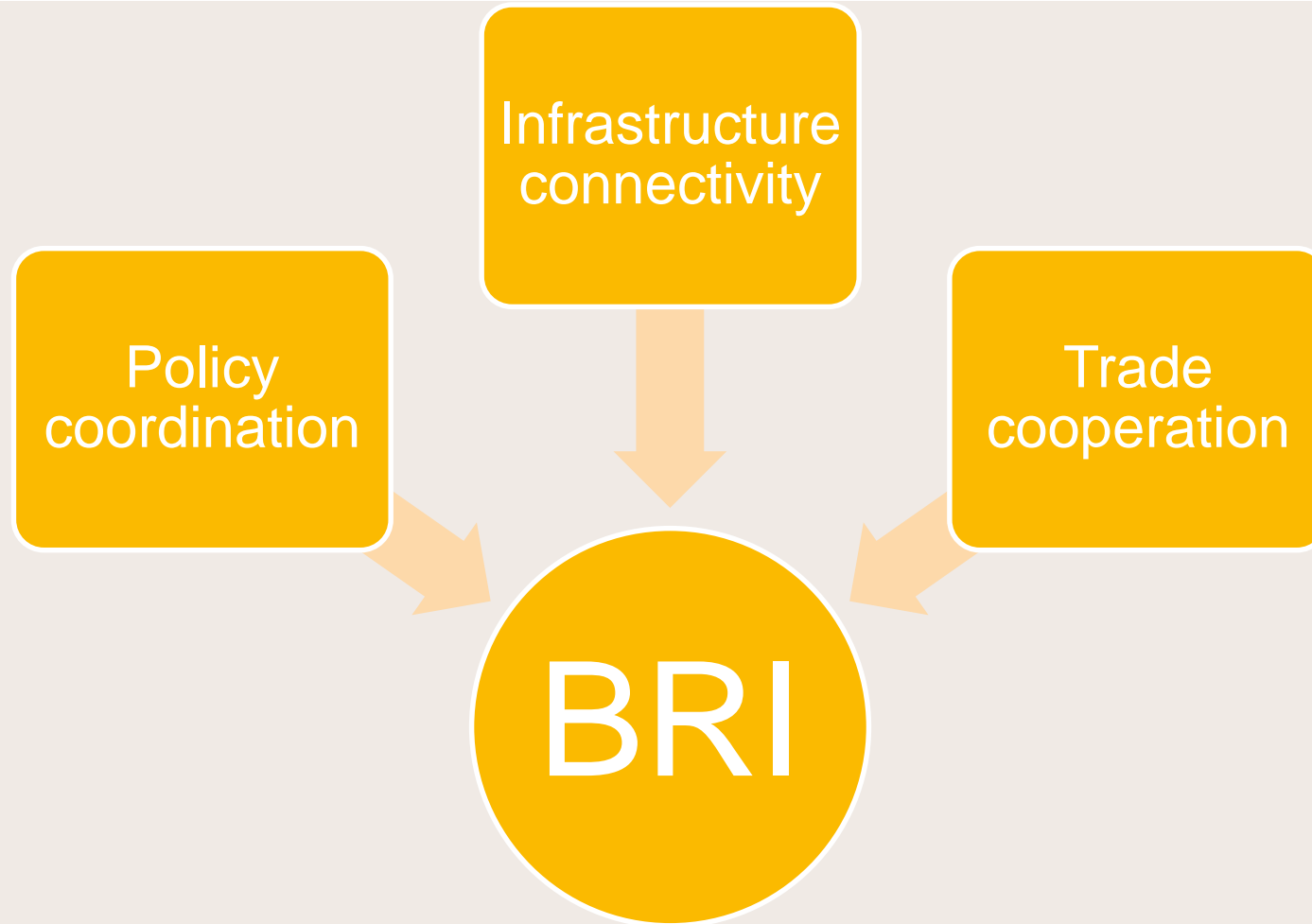
Geopolitical

- Restore global leadership
- Rival US
- Defense interests

BRI is part of a strategic network to build a competitive economic system



Drivers of the BRI



Vision and goals

(„Vision and Actions“ 2015, „Maritime Vision“ 2017, „Progress, Contributions and Prospects“ 2019)

Economic development

- Signing of FTA and BITs
- Develop new markets
- Secure energy
- Re-arrange global supply chains around China
- Explore new investment opportunities
- Export overcapacities

Geopolitical development

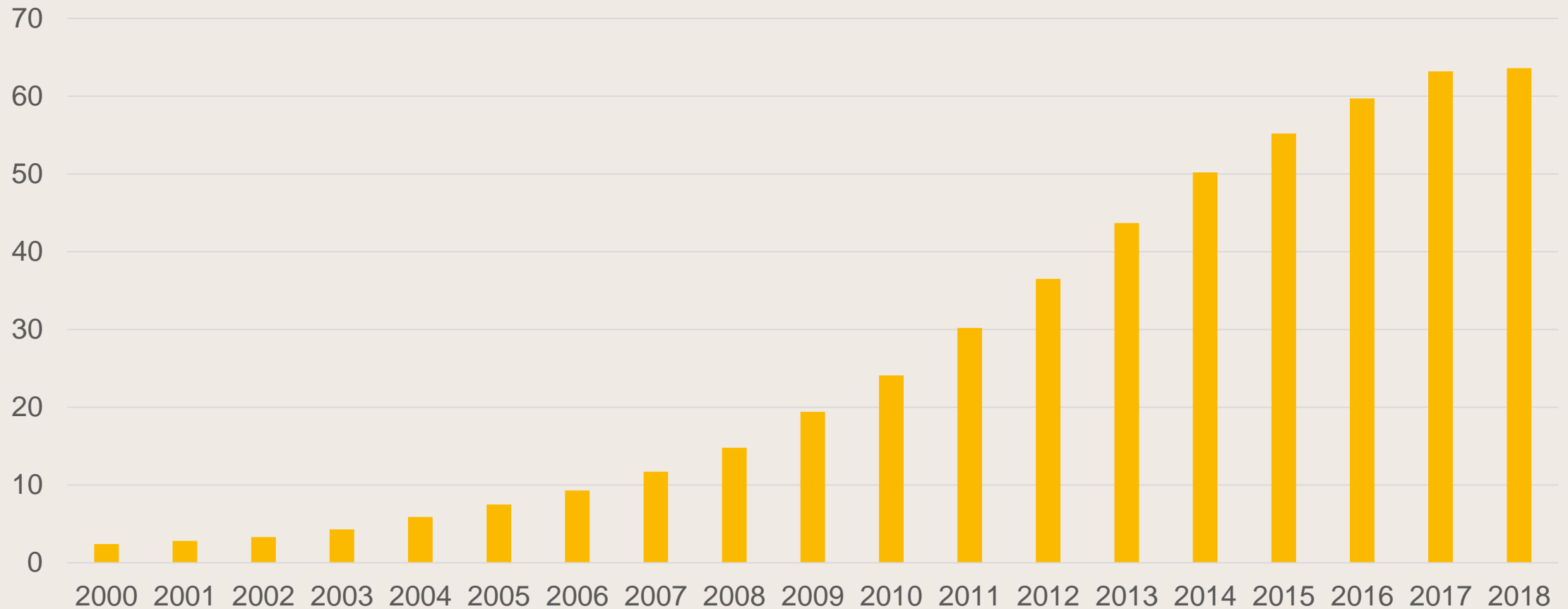
- Signing of bilateral MoUs
- Statements endorsing BRI on (sub-)regional forums (e.g. 17+1)
- International BRI summits
- UN resolutions

Taking stock after 5 years

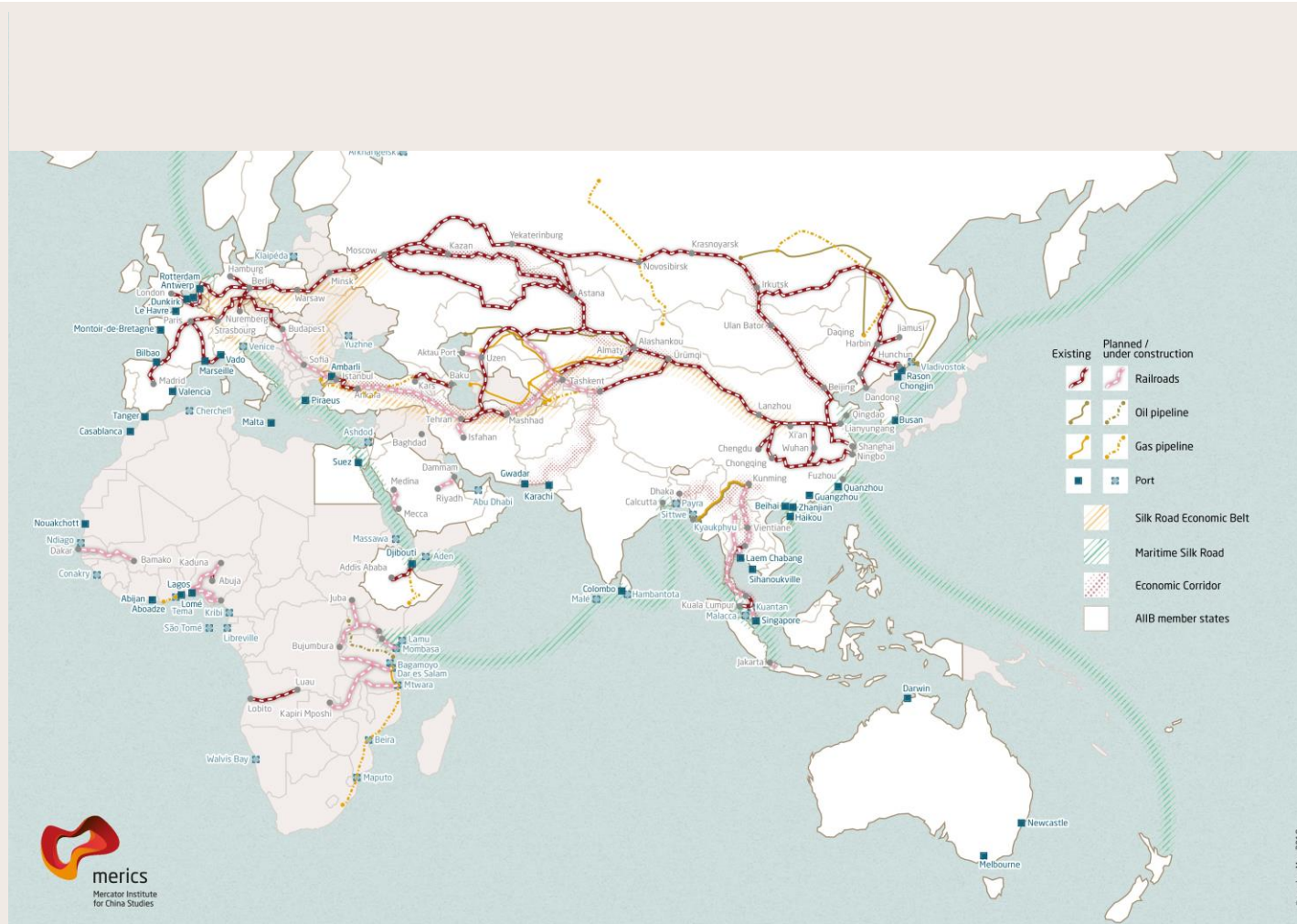
- Consolidation, expansion and counter actions

Putting it in perspective: Domestic investment dwarfs BRI

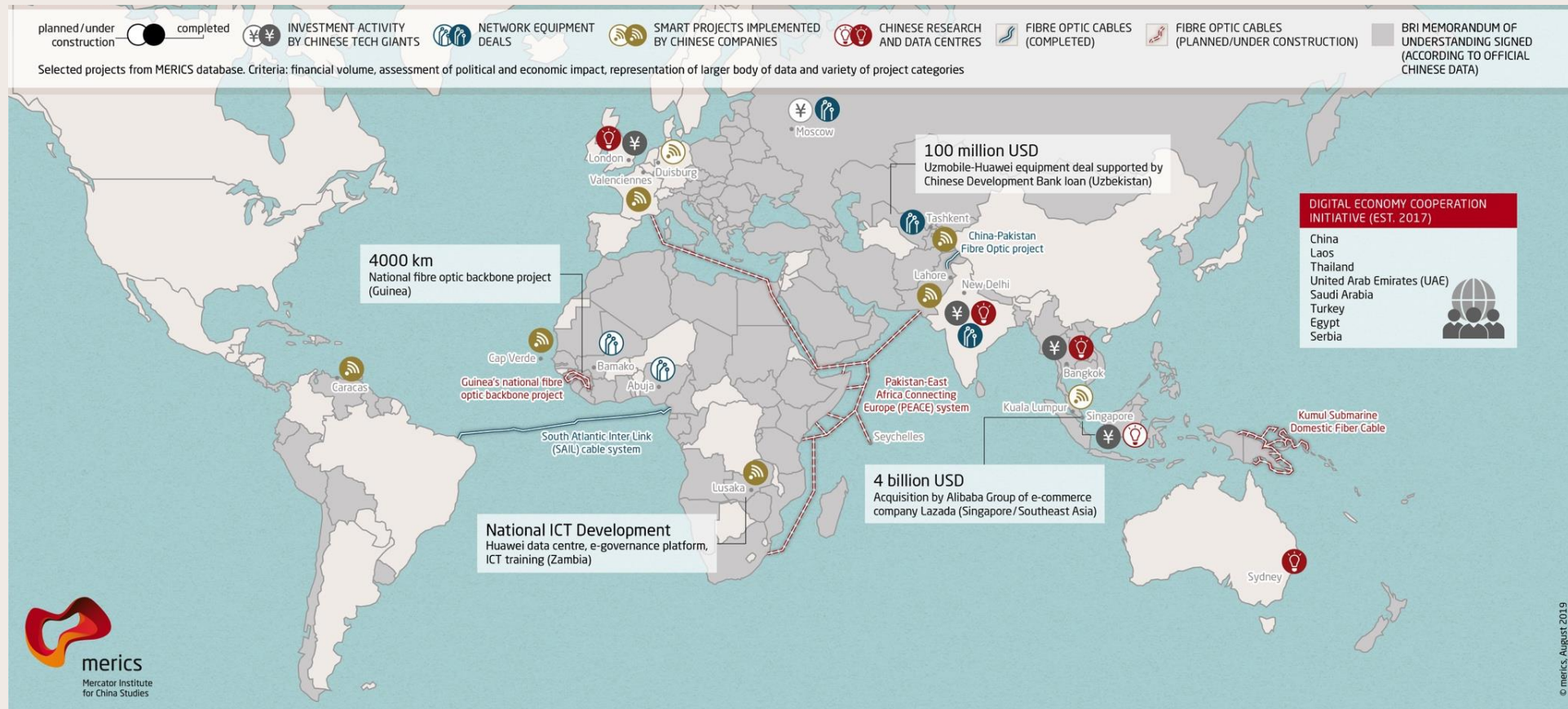
FAI in trillion CNY



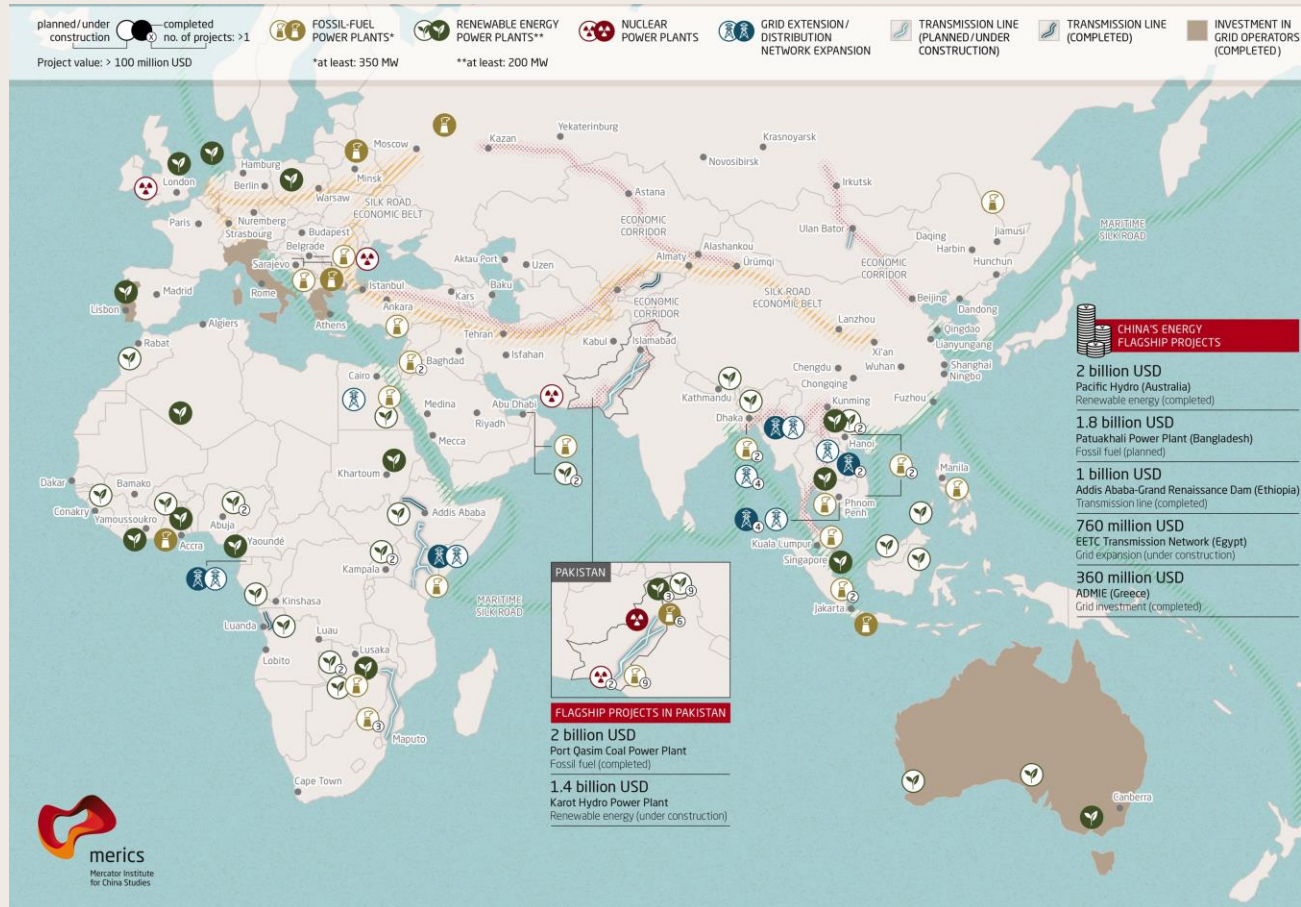
Linking existing infrastructure together



Fostering demand for China's tech giants



Powering up the BRI – and the energy sector

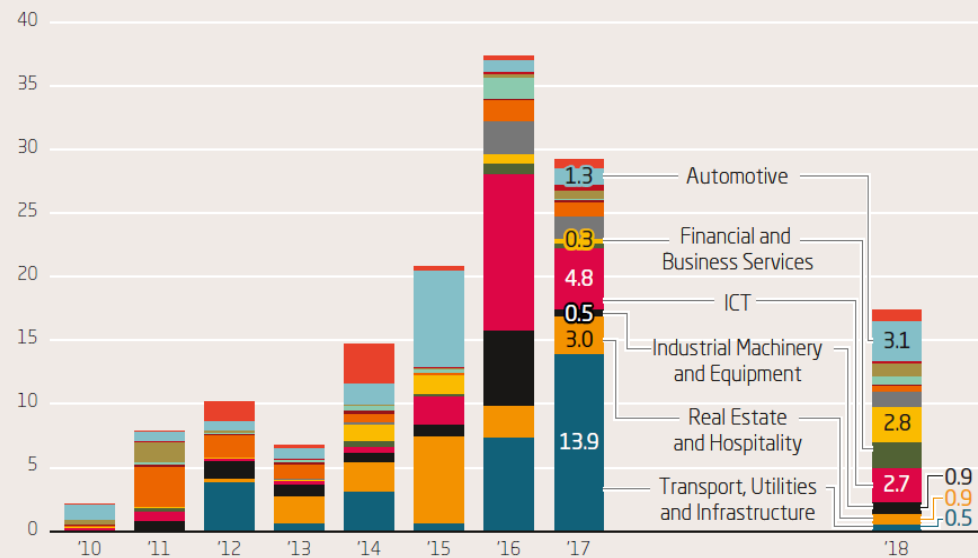
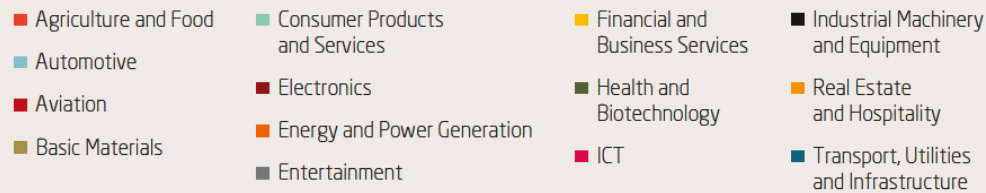


Flagship project: China-Pakistan Economic Corridor



Tech acquisitions main focus

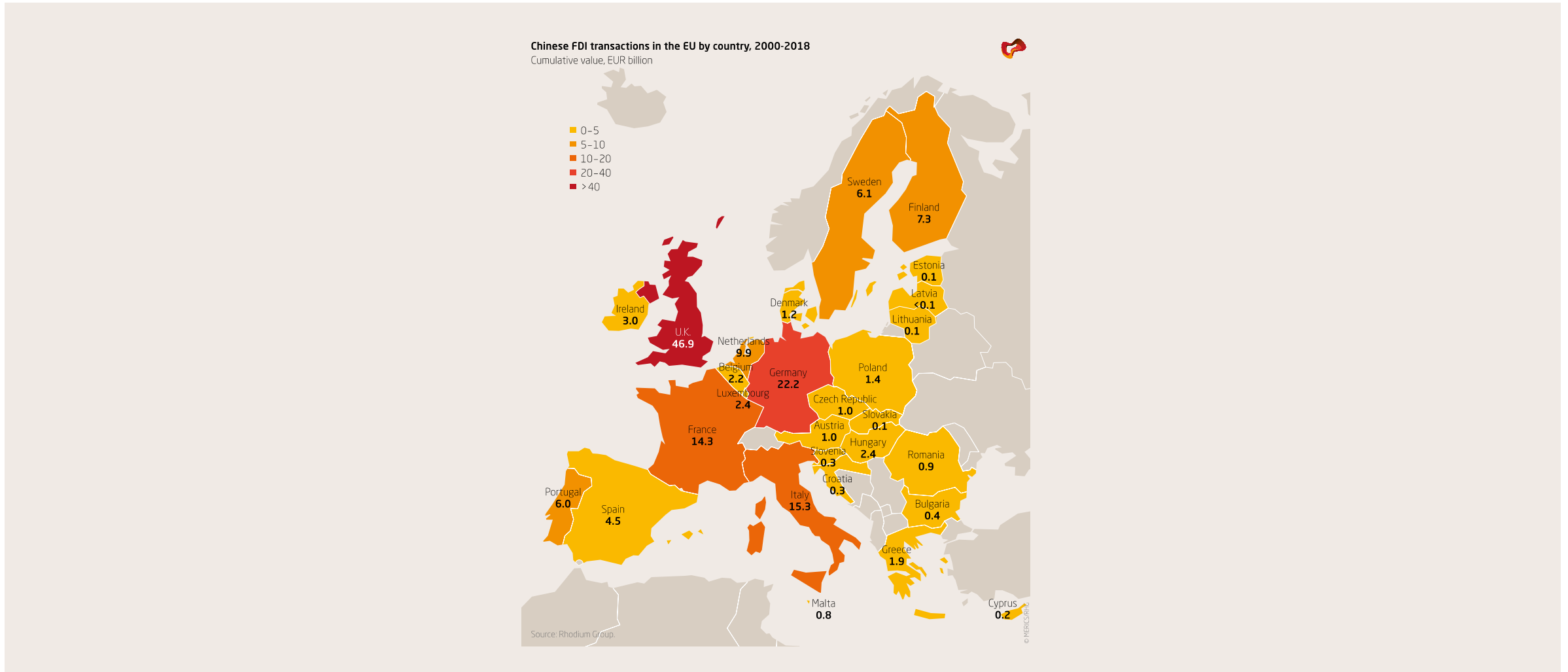
Chinese FDI transactions in the EU by sector, EUR billion



Source: Rhodium Group.

© MERICS/RHG

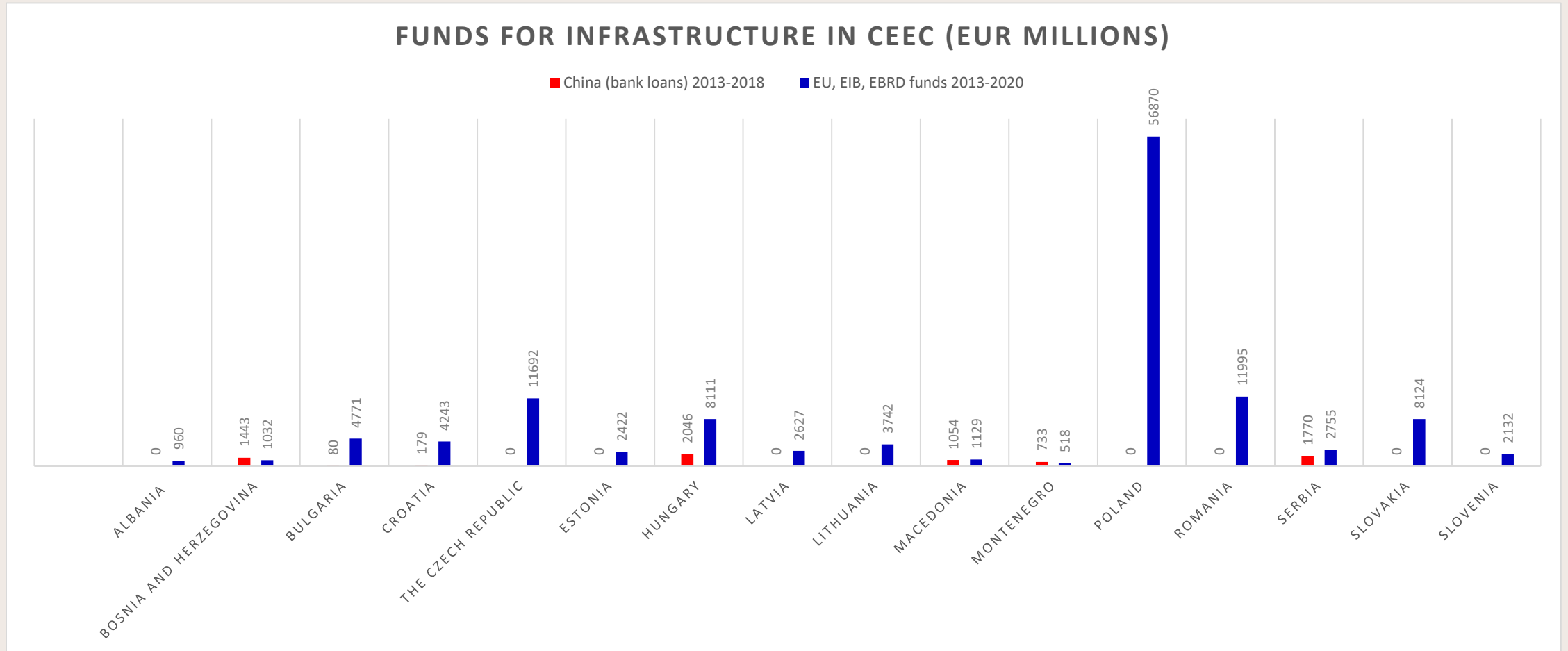
Investment in Central and Eastern Europe remains small



Focus on Europe's periphery via infrastructure

FUNDS FOR INFRASTRUCTURE IN CEEC (EUR MILLIONS)

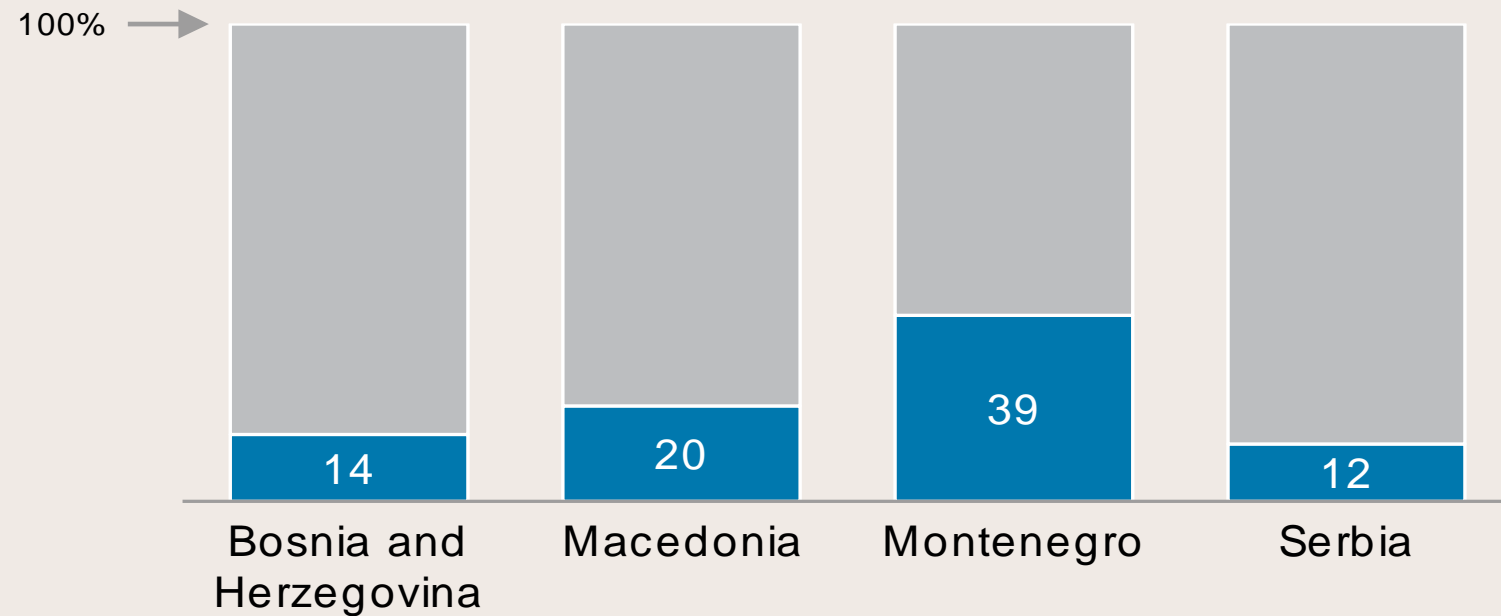
■ China (bank loans) 2013-2018 ■ EU, EIB, EBRD funds 2013-2020



Build up of Chinese debt

HOW MUCH DO
WESTERN BALKAN
16+1 COUNTRIES
OWE TO CHINA?

Share of committed Chinese infrastructure loans in relation to other externally held debt, 2018, percent*

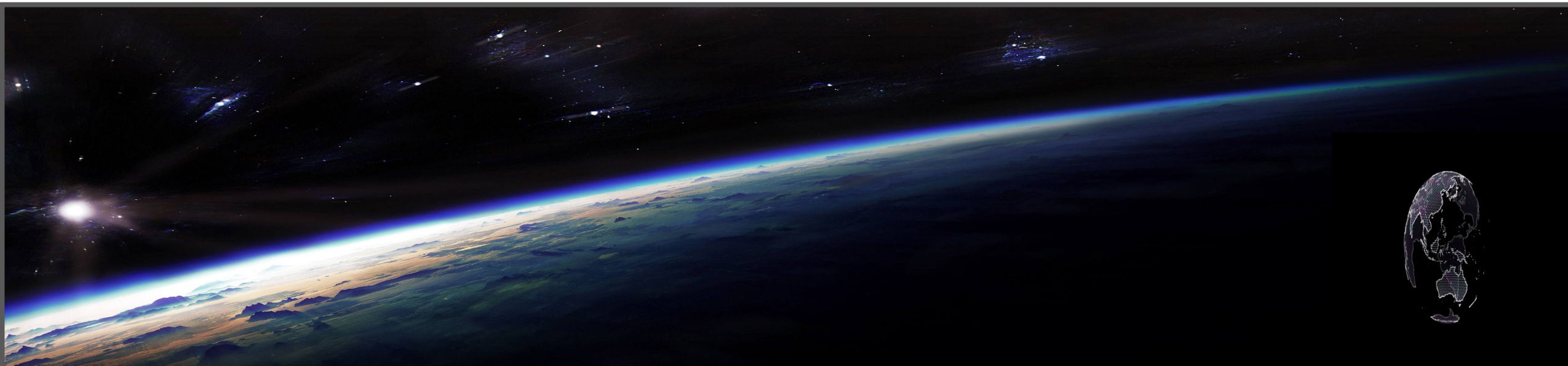


* Most recent data from respective national banks: Bosnia and Herzegovina (2017), Macedonia (2018), Montenegro (2017), Serbia (2018)

Source: Munich Security Report 2019, p 35 (based on MERICS research)

“一带一路”倡议背景下的金融安全思考

Thoughts on Financial Security under the Belt and Road Initiative



汤继强

Prof. Tang Jiqiang



西财智库
— 西南财经大学 —
SWUFE INSTITUTE



• 汤继强 (Thomas)

• Professor Tang Jiqiang



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PART 1: “一带一路”倡议及相关区域基础设施建设投资背景

OBOR Initiative & the Background of Infrastructure Investment



PART2: “一带一路”倡议区域金融风险问题

Resources of Financial Risks in the OBOR area



PART3: “一带一路”倡议区域金融风险防控对策与建议

Suggestions for Financial Risk Control in the OBOR Area



PART4: “一带一路”发展展望

Perspective



PART 1: “一带一路”倡议及相关区域基础设施

建设投资的背景

OBOR Initiative & the Background of
Infrastructure Investment

• 第一部分 “一带一路”倡议及相关区域基础设施建设投资的背景

• PART ONE OBOR Initiative & the Background of Infrastructure Investment

Sub PART 1: Historical Background of the ancient Silk Road

“丝绸之路”的由来

Sub PART 2: Background of the Belt and Road Initiative

“一带一路”倡议的背景

Sub PART3: Different Responses to the Belt and Road Initiative

“一带一路”倡议提出后各国的反应

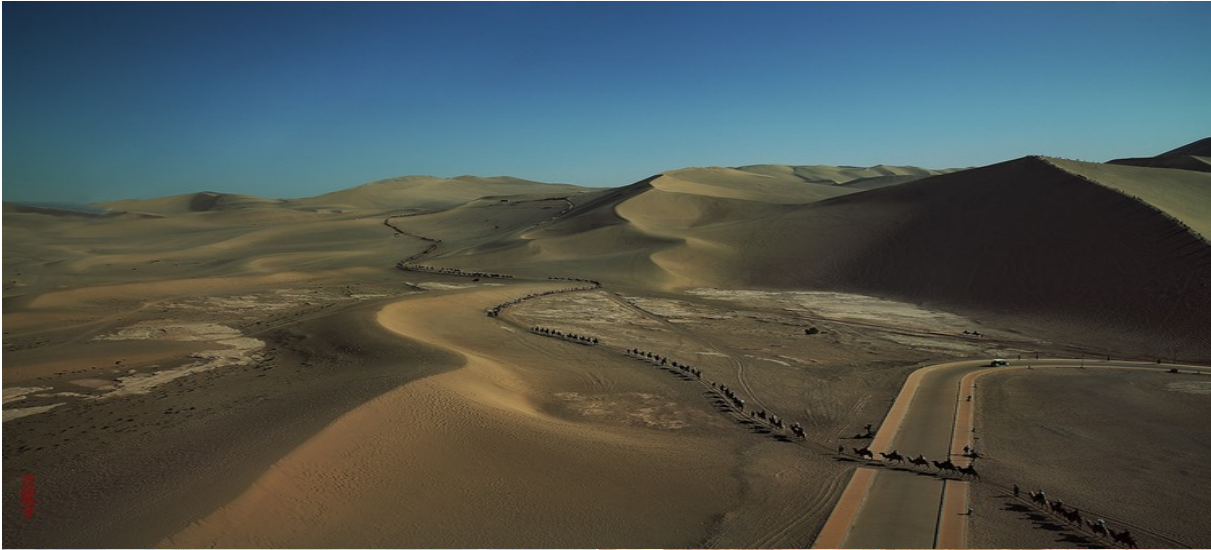
Sub PART4: Achieved Results of the Belt and Road Initiative

“一带一路”项目建设成果

Historical Background of the ancient Silk Road



At ancient times, China's external communication was mainly relied on the exploration and construction of Land Silk Road and Maritime Silk Road. Regardless of the bells on camel or sails on the ship, they all recorded the thousands of years of history of currency circulation and finance operation within the OBOR area. The traditional monetary finance system has played an important part in the history of the ancient Silk Road.

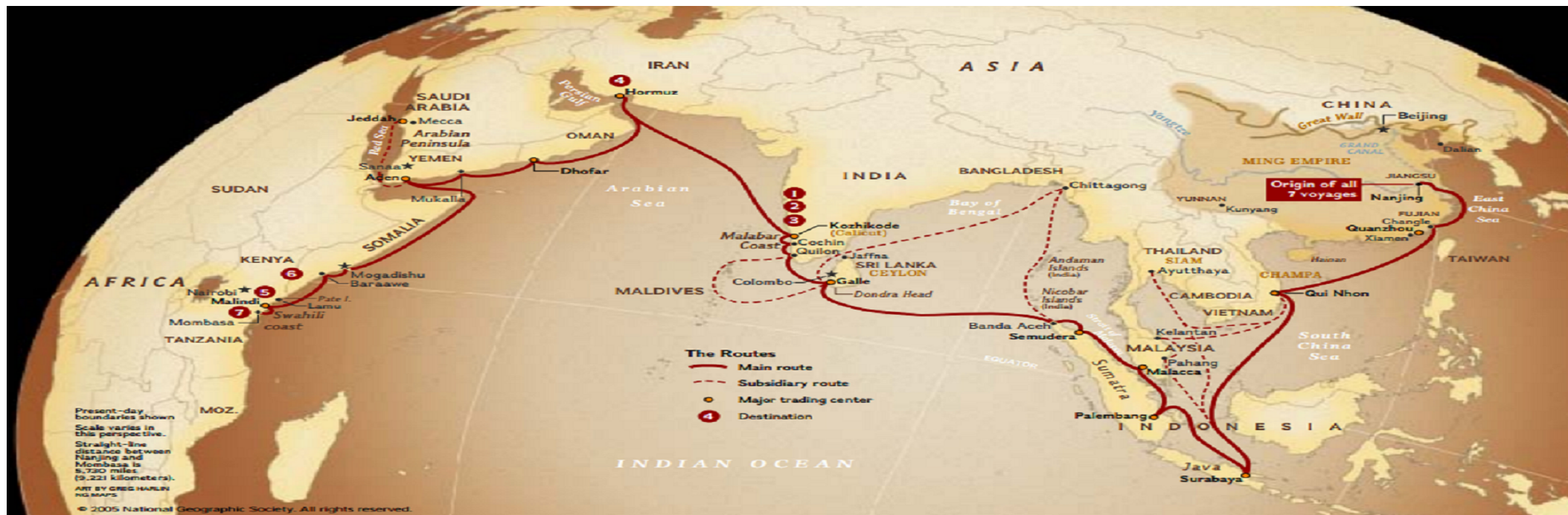


The Land Silk Road

The Land Silk Road was originally built in the Xi Han Dynasty, reached its peak in the Tang Dynasty and then lastly terminated in the Yuan Dynasty. Zhang Qian, the diplomat famed for exploits in Inner Asia and western regions, made a great contribution in building up the shuttle passage. Along the Land Silk Road, not only the oriental square hole money and the western silver coins are exchanged, it also promoted commodity trade, culture communication and dissemination of monetary system between Asia and Europe.

Maritime Silk Road

The formation of Maritime Silk Road firstly launched in the Qin and Han Dynasties, it developed in the Tang Dynasty, reached its peak in the Song Dynasty and continued to Ming and Qing Dynasties. Through years of oversea transaction and communication, the traditional Chinese currency were widely spread across the countries alongside.



Background of the Belt and Road Initiative

-Timeline

2013.9



The Chinese president Xi first proposed the initiative of building a Silk Road Economic belt and a 21st century Maritime Silk Road during his visit in West Asia countries

2014.8



The Chinese president Xi said that China welcome surrounding countries to jointly build the Belt and Road

2015.2



The promotion conference was held in Beijing. Chinese Vice Premier Zhang Gaoli presided the event and made a speech

2015.3



Chinese government published the Vision and Action on building the Silk Road Economics Belt and the Maritime Silk Road

2017.5



The first Belt and Road Forum for International Cooperation was held in Beijing

2019.4



The second Belt and Road Forum for International Cooperation was held in Beijing

01. Policy Coordination

First, we need to step up policy coordination. Countries should engage in full discussions on development strategies and policy responses, and they should work out plans and measures for advancing regional cooperation through consultation.

05. People-to-People Bond

Fifth, we need to increase understanding between our people. We should encourage more friendly exchanges between our people to enhance mutual understanding and traditional friendship.



02. Facility Connectivity

Second, we need to improve facility connectivity. We are working to open a major transportation route connecting the Pacific and the Baltic Sea, and we are also working towards a transportation network connecting East Asia, West Asia and South Asia.

03. Unimpeded Trade

Third, we need to promote unimpeded trade. We should discuss a proper arrangement for trade and investment facilitation.

04. Financial Integration

Fourth, we need to enhance financial integration. We should promote local currency convertibility and settlement, increase our ability to fend off financial risks and make our region more competitive economically in the world.



The 1st Belt and Road Forum for International Cooperation

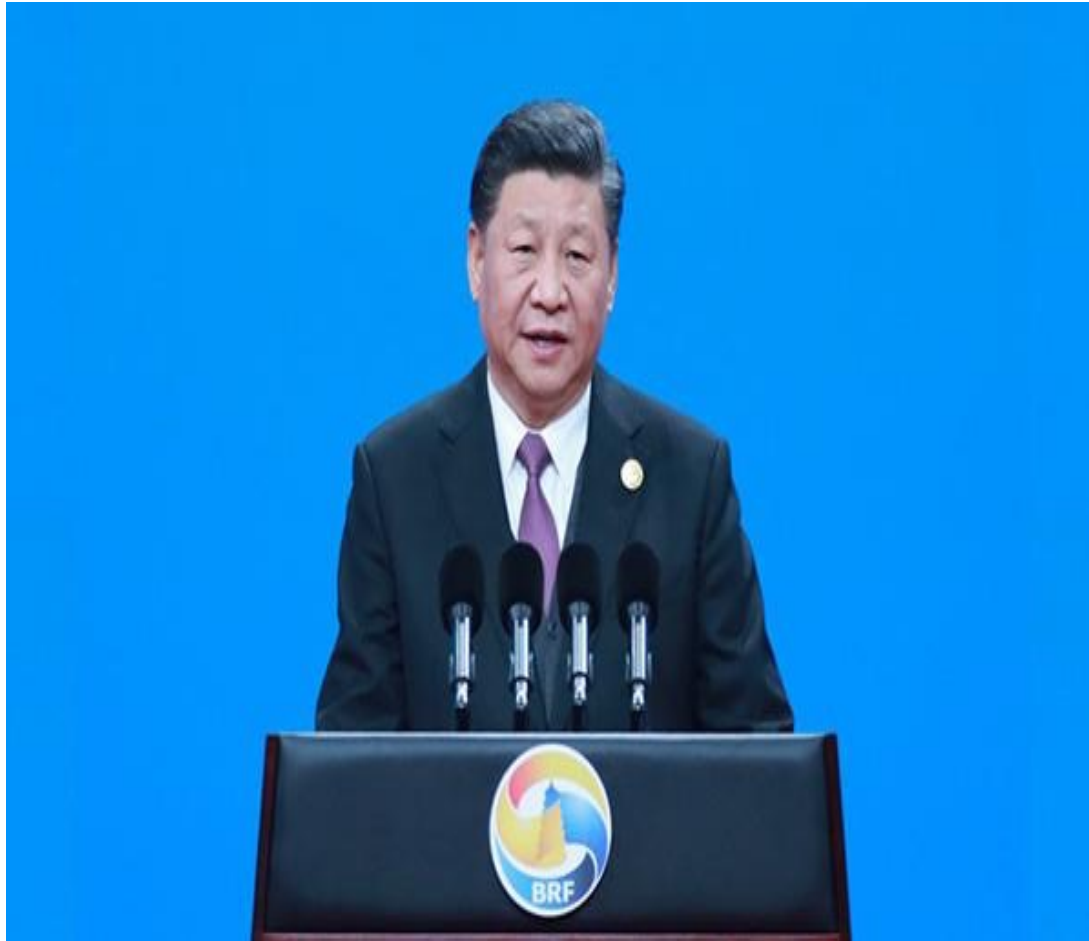
The First Belt and Road Forum for International Cooperation was held in Beijing from May 14th to 15th, 2017. It was another top level international summit hosted by China after the successful holding of the G20 Summit.

Twenty-nine heads of government and state, three leaders of important international organizations including the UN secretary general, and 130 national representatives attended the forum to discuss the major issues affecting the world economy.

Representatives from the US and the ROK both participated in the forum, yet India, a neighbor of China and a major South Asian country, did not send any official representative to the forum.

Different responses to the Belt and Road Initiative





2nd Belt and Road Forum for International Cooperation

The First Belt and Road Forum for International Cooperation was held in Beijing from April 25th to 27th, 2019

Comparing with two years ago, this time there are 39 heads of nations and states, more than 150 national representatives, and more than 6000 distinguished guests attended the forum

Both the Secretary-General of United Nation, IMF president, European Commission Vice-Chairman and German Minister of the Economy and Energy department attended the summit

Different responses to the Belt and Road Initiative

The Belt and Road initiative is the very first successful international regional economic cooperation platform proposed by China. It has received active support and responses from countries along its route, with its “circle of friends” expanding constantly. By October 24th, 2014, 57 countries officially became the prospective founding members of the Asian Infrastructure Investment Bank, and the UK became the first major Western country to apply to join the AIIB. As of today, 77 countries are now member countries of the Belt and Road initiative.

However, Western countries held various opinions towards the inception of the Belt and Road initiative, and most of them were negative.



不同声音
Different Responses

01

“The hopes for the impact of ‘one belt one road’ initiate are grandiose, and if it is realized in full, it will indeed fundamentally transform the geography of global affairs, though the time-scale over which this is envisaged as taking place is a lone one.”

02

“OBOR also rests upon a hope, indeed an assumption, that all of the many projected partners will respond with corresponding enthusiasm, because without their active cooperation the project will fail to live up to Chinese expectations and, worse many founder amid a welter of recriminations over responsibility for its failure.”

-----Peter Ferdinand

反面评价
Opponent

Peter Ferdinand is an Emeritus Reader in Politics and International Studies.

正面评价

Proponent

The initiative witnessed the transformation from the disfavor of the major Western countries at the very beginning to a time when the US, the UK, Germany, and Japan sent their senior officials to the forum. The Prime Minister of Italy Paolo Gentiloni participated in the Belt and Road Forum for International Cooperation in person. The focus of the forum was the discussion on strengthening policies and matching development strategies. Through the opportunity to implement the initiative, China hoped to accelerate domestic restructuring and upgrades on the one hand, and offered a new platform for global development and international capacity cooperation on the other hand.

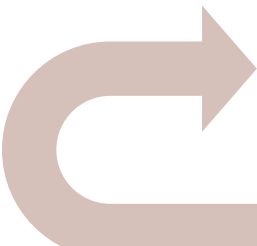


“China's ‘Belt and Road’ initiative is a great historical opportunity. Countries should embrace it with an open mind, and actively get involved in it.”

— — Professor of Economics, Oxford University David Vannes

正面评价

Proponent



“The Belt and Road initiative will reinvigorate the ancient Silk Road. By building two trade routes, both on land and sea, China will have closer cooperation with its neighbors in Central Asia as well as countries in the Middle East and Europe. The Belt and Road initiative also has positive bearing on countries in the Middle East, including Iraq. The initiative is built on respect and cooperation, and will facilitate regional development and improve people’s living standards.”

— — Iraqi political expert Najib Jumbri

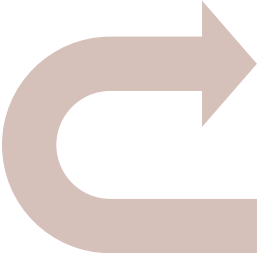


“Compared with other countries in Central Asia and Russia, Kazakhstan's new ‘Bright Road’ economic policy and China's ‘Silk Road Economic Belt’ can be matched much faster and more effectively, because the two countries share a common purpose and mission, and have developed specific matching plans. The ‘Belt and Road’ initiative plays an important role in promoting trade facilitation and the free flow of people. At present, all parties should develop a more specific matching program under the framework of the ‘Bright Road—Silk Road Economic Belt—Eurasian Economic Union’.”

— — Chief Expert at the Presidential Strategy Institute of Kazakhstan, Doctor of political science, Constantine Serojeshkin

正面评价

Proponent



“The new Silk Road project would allow China to lock in supply from its new Central Asian energy partners. It would also allow the country to secure and improve supply routes for its energy imports from these states and to mitigate the potential effects of supply cuts from the Middle East, Africa or Russia.”

— — Camille Brugier



“The building of Silk Road economic belt is an exciting prospect that may bring immense economic benefits to Eurasian countries.”

— — Peiyue Li, Hui Qian, Ken W.F Howard, Jianhua Wu

正面评价

Proponent

By jointly building the Belt and Road, China, Germany could cooperate with other countries, and collectively provide assistance in promoting economic growth in Africa and Latin America area.

Through accurate labour specialisation, and deeper financial cooperation, it is our shared responsibility to create greater economic aggregate globally, thus that every participating countries could benefit from the progress of global economic integration.

— — **Schmidt, Chairman of the German Economic Advisory Committee**

The launch of the Belt and Road Initiative would benefit Bavaria from easily accessing raw materials from the Eastern market. Germany and China should build a more extensive communication channel, increase investment in the infrastructure construction, and boost economic growth in Asia and Europe.

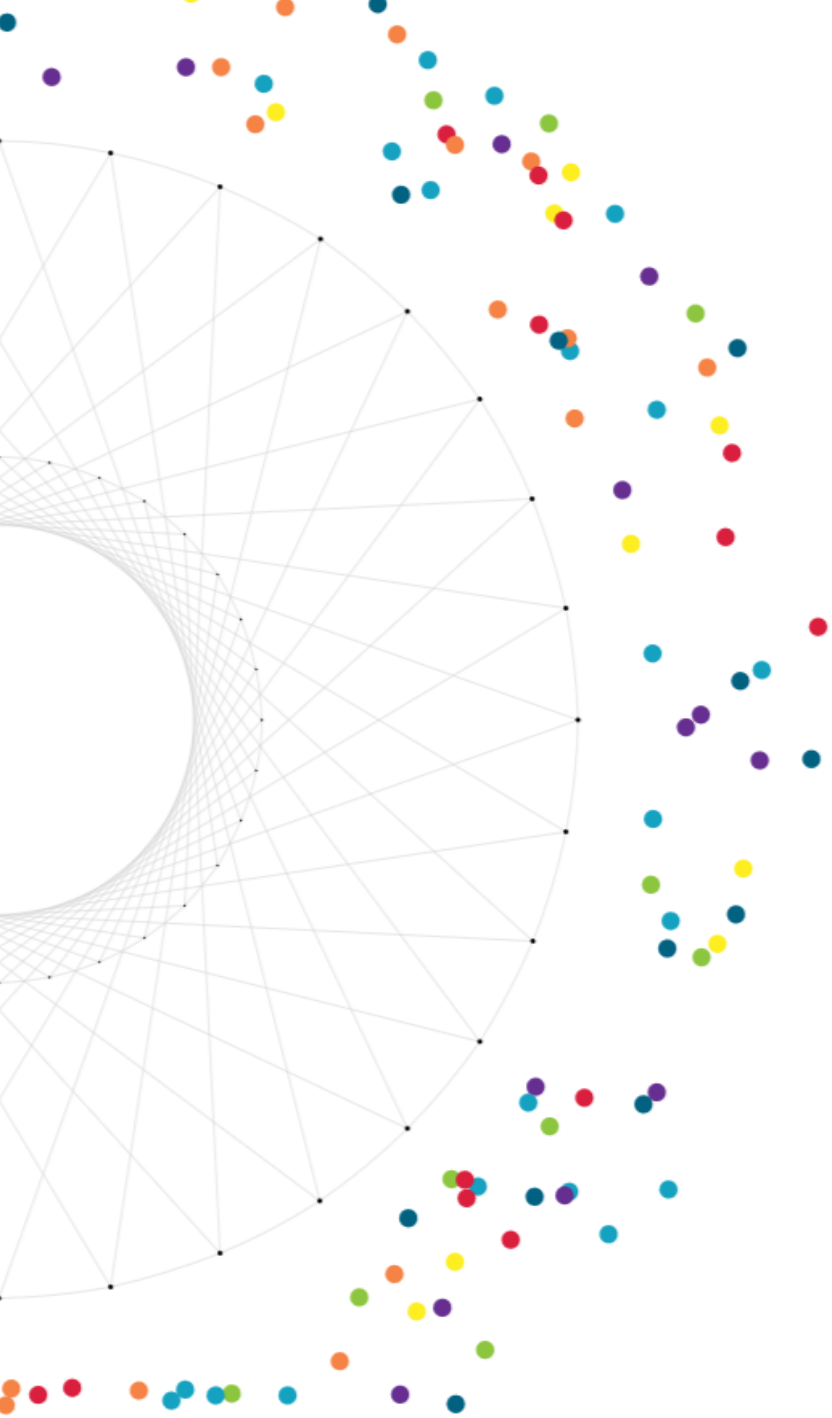
— — **Ifo Institute for Economic Research at the University of Munich**

The Belt and Road Initiative has brought substantial opportunities for development, through many projects, Germany and China has formed a broader cooperative relationship. German enterprises should develop further and stick to their relative advantages in advanced equipment and technology, play the informative role in constructing, operating and transferring services.

— — **Cortel, Rödl & Partner**

Achieved Results of the Belt and Road Initiative

Five aims of the Belt and Road Initiative	Achieved Results
Policy Coordination	China has signed more than 170 cooperation documents with more than 150 countries and international organizations, including bilateral cooperation plans of China, Mongolia, Russia, China, Kazakhstan, China and Cambodia, China, Laos, China, Czechoslovakia, Hungary and China-Lai.
Facility Connectivity	The "six economic corridors" plan has been steadily promoted. The China Express Railway has running in total of more than 14,000 services between Europe and China. Port Guadal, Port Hambantota, Port Piraeus and Port Khalifa are progressing smoothly. Significant progress has been made in energy cooperation projects in power, oil and gas, nuclear power, new energy, coal and other fields and in the construction of cross-border optical cable information channels.
Unimpeded Trade	83 countries and international organizations have actively taken part in promoting the Unimpeded Trade Cooperation Initiative. China has signed and upgraded free trade agreements with ASEAN, Singapore, Pakistan, Georgia and other countries and regions.
Financial Integration	China and the other 27 countries jointly approved the "Belt and Road Financing Guidelines". The joint financing between the People's Bank of China and multilateral development institutions has invested more than 100 projects, covering more than 70 countries and regions. The business scope of CNY cross-border payment system covers nearly 40 countries and regions along the Belt and Road.
People-to-people Bond	China has established the "Silk Road" Chinese Government Scholarship Program and signed agreements with 24 countries along the Silk Road for mutual recognition of academic qualifications and degrees in higher education. China has concluded visa-exemption agreements covering different passport categories with 57 countries along the route, and 19 agreements and arrangements to simplify visa procedures with 15 countries.



PART2: “一带一路”倡议区域金融风险问题
Resources of Financial Risks in the OBOR area

• 第二部分 “一带一路”倡议区域金融风险问题

• PART TWO Resources of Financial Risks in the OBOR area

Sub PART 1: Macro-perspective

“一带一路”区域下金融风险来源，宏观层面

Sub PART2: Micro-perspective

“一带一路”区域内金融风险来源，微观层面

Sub PART3: Case analysis

“一带一路”区域内金融风险实例分析

Political Factors

In the progress of the Belt and Road Initiative, regional political security shall serve as our prior concern. In general, during the practices of international financial activities, political risks are constituted by the factors such as, change of local government, discontinuity of policies, conflicts derived from geopolitics etc. The progress of the Belt and Road Initiative, makes no exception to these factors. They thus bring uncertainty to the Belt and Road Initiative. In addition, many countries that are covered by the Belt and Road Initiative are located in the less-developed regions. The regions are commonly filled with unstable political factors, such as unstable governments, religious conflicts, terrorists activities and regional armed conflicts. They not only affect local overall financial activities, but also threaten property and personal security.



A case study about the financial risks under the OBOR area



Figure 1 Location of the Colombo Port City

A known example is Sri Lanka. After the election, the new government came to power in 2015. The port construction project in Colombo, Sri Lanka was halted and subjected to re-evaluation following the order from the new government.



Natural Factors

Many of the countries along the routes are in the risk zone of natural disasters, prone to earthquakes, floods, landslides, tsunamis, typhoons and other disasters, which will have a direct impact on the construction of the Belt and Road Economic Belt. There have been 5354 natural disaster cases in 65 countries of Europe, Asia, and Africa since 1900 to 2015. The data show that the number of natural disasters has increased sharply despite the reduction in the number of deaths due to natural disasters in recent 30 years. The total population living in disaster-prone areas increased, still leading to a substantial increase in economic losses year by year.



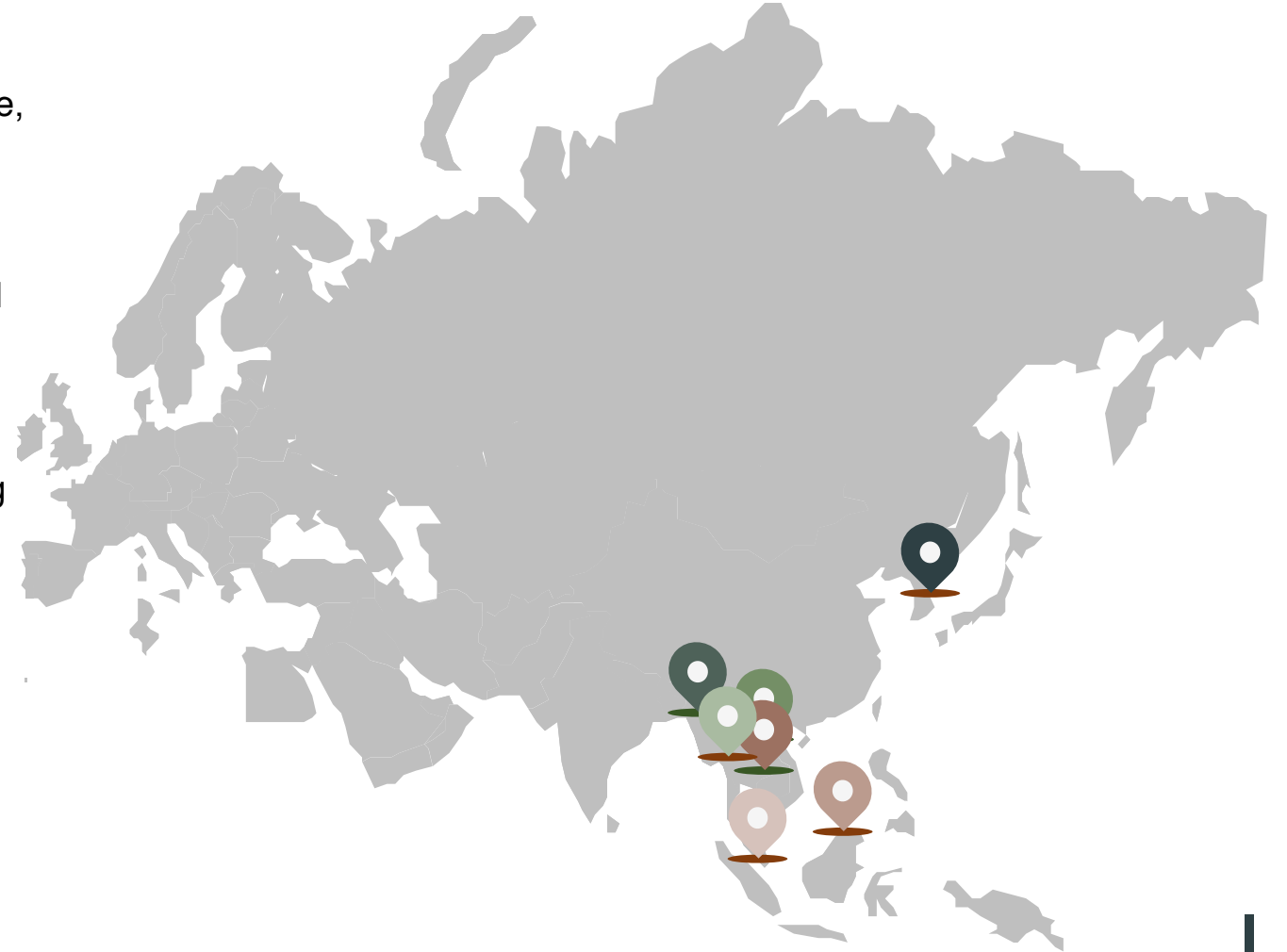
Humanity Factors

The problem of insufficient talent is key to the future development of enterprises' foreign investment. The construction of the Belt and Road is very rapid, yet the supply of talent cannot catch up with this pace, causing an obvious gap in talent in short term.

Although the "going out" enterprises are mainly labor-intensive, the long-term development and effective management of enterprises will become problems. Lack of talent will weaken the technological innovation capacity of the enterprise. Perhaps the enterprises can operate normally in a short time, but they will face the problem of decreased competitiveness in the long run. Most of Chinese talents do not want to go to Cambodia As living conditions and facilities are backward there.

Infrastructure Factors

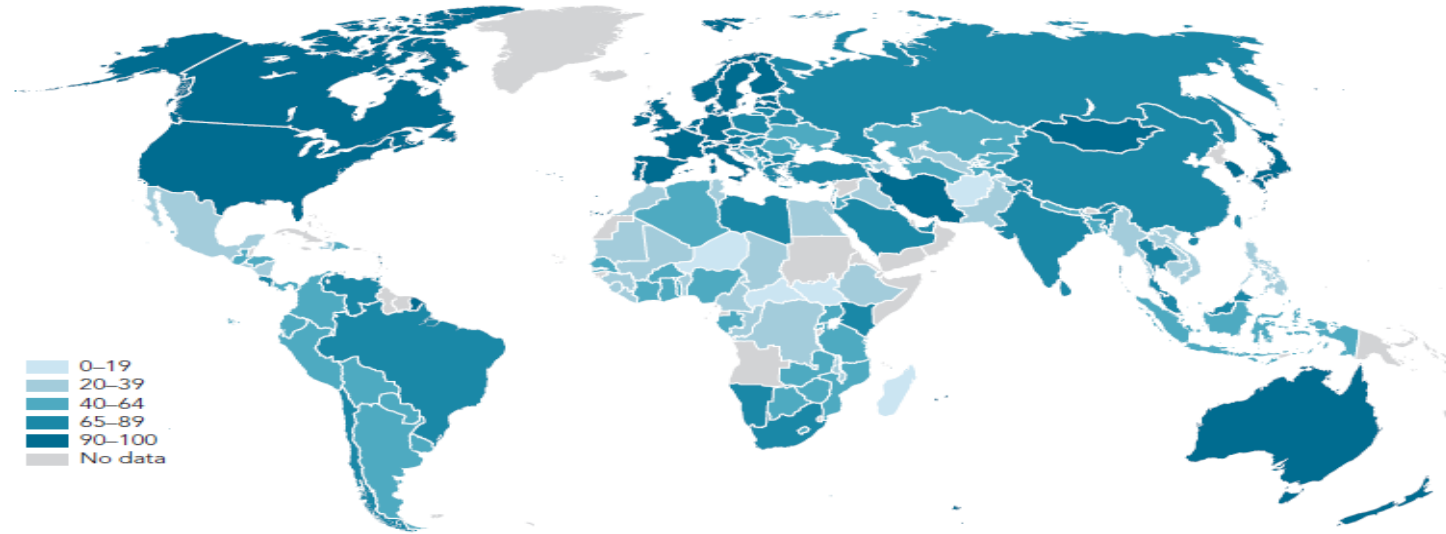
In terms of infrastructure development, South Korea, Singapore, Malaysia and Thailand own better infrastructures, while Laos, Cambodia, Myanmar lag behind in infrastructure development, resulting in their slow economic growth, leaving small room and less opportunity for foreign economic cooperation. In terms of investment in talent and technology Singapore and other countries invest a lot in talent and technology, largely promoting their national construction and regional economic development. Investment in talent and technology is also one of the main factors affecting the regional economic development, and it is also a big challenge that decides whether AIIB can function efficiently during the construction of the Belt and Road.



Lack of financial infrastructure

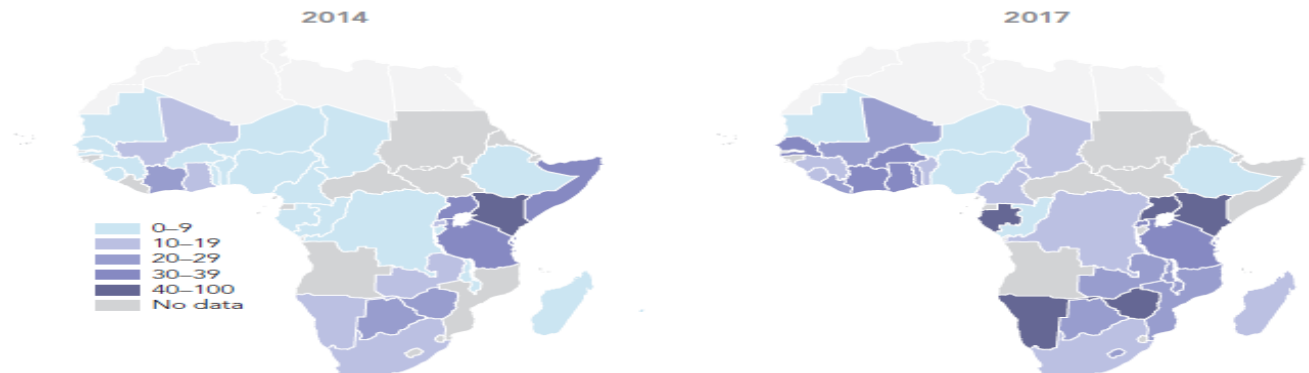
Many countries along the Belt and Road are lack of fundamental financial infrastructures. According to the World Bank, it is reported that only 33% of African adults have a financial account, while the global average figure is 67%. Besides, to achieve the unimpeded trade and financial integration targets, it requires high-diversified financial service abilities from countries alongside. For example, like the government bond issuance, large-scale projects financing, cross-broader trading and settlement, merger and acquisition. However, due to the inadequate financial service capacity, many countries cannot meet such requirements, and it will bring financial risks to cross-country cooperation.

MAP O.1
Today, 69 percent of adults around the world have an account
Adults with an account (%), 2017



Source: Global Findex database.

MAP O.2
Mobile money accounts have spread more widely in Sub-Saharan Africa since 2014
Adults with a mobile money account (%)



Source: Global Findex database.
Note: Data are displayed only for economies in Sub-Saharan Africa.

Resources of Financial Risks, Micro-perspective

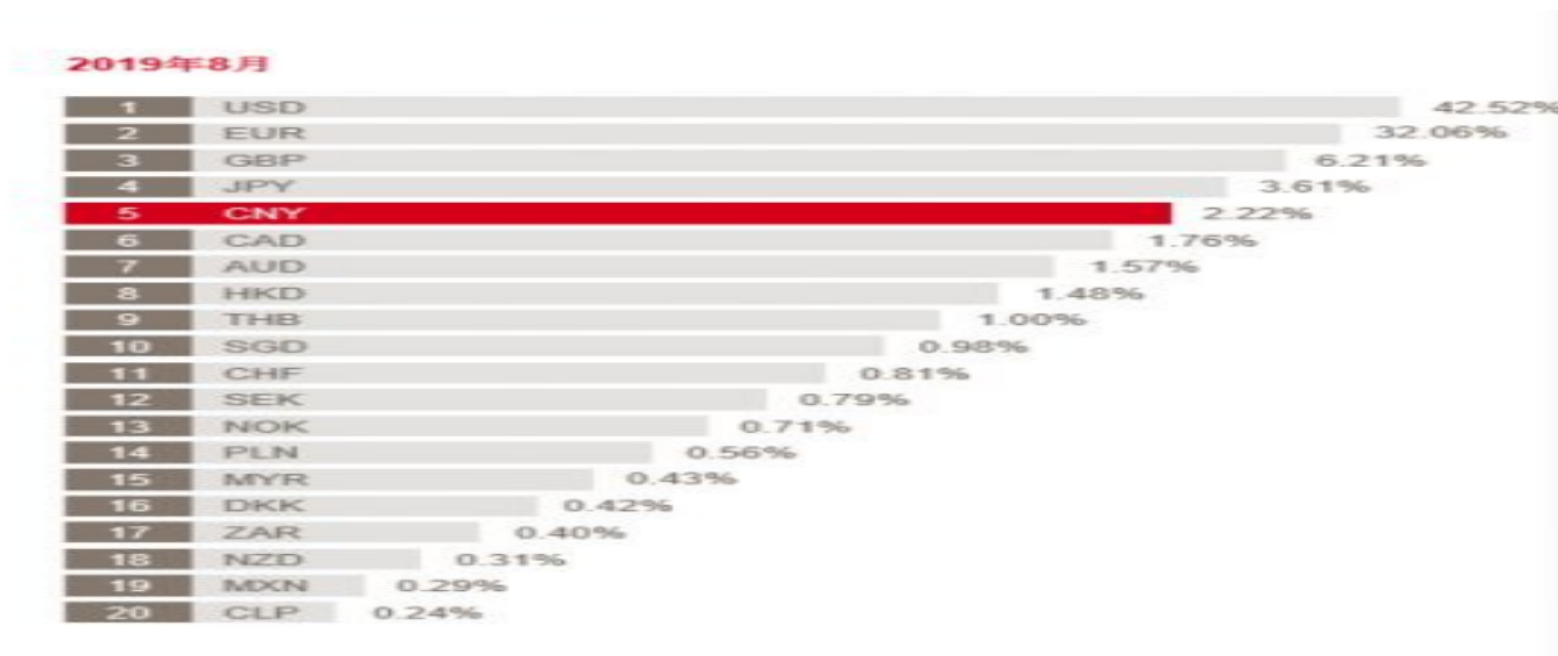
AREA	NATION	CREDIT RATING	RATING OUTLOOK					
Southeast Asia	Philippines	BBB ^{W+}	STABLE	the Commonwealth of the Independent States	Azerbaijan	BB ^W	STABLE	
	Cambodia	BB ^W	STABLE		The Republic of Belarus	B ^W	NEGATIVE	
	Laos	BB ^W	POSITIVE		Russia	BBB ^{W-}	STABLE	
	Malaysia	A ^{W+}	STABLE		Georgia	BBB ^{W-}	POSITIVE	
	Myanmar	B ^{W+}	STABLE		Moldova	B ^W	STABLE	
	Thailand	A ^{W-}	STABLE		Ukraine	B ^{W-}	STABLE	
	Singapore	AAA ^W	STABLE		Armenia	BB ^{W-}	STABLE	
	Indonesia	BBB ^W	STABLE					
	Vietnam	BB ^{W+}	POSITIVE					
Southern Asia	Afghanistan	CC ^W	NEGATIVE	Central and Eastern Europe	Albania	BB ^W	POSITIVE	
	Pakistan	B ^{W-}	STABLE		Bulgaria	BBB ^W	STABLE	
	Bangladesh	BB ^{W-}	STABLE		Poland	A ^{W+}	STABLE	
	Sri Lanka	BB ^{W-}	STABLE		Czech Republic	AA ^W	STABLE	
	India	BBB ^W	POSITIVE		Croatia	BBB ^{W-}	STABLE	
Middle East oil-producing nations	United Arab Emirates	AA ^W	STABLE		Romania	BBB ^{W-}	STABLE	
	Oman	A ^{W-}	STABLE		Syria	BB ^{W-}	STABLE	
	Bahrain	BB ^W	STABLE		Slovakia	A ^{W+}	STABLE	
	Qatar	AAA ^W	STABLE		Slovenia	A ^{W-}	STABLE	
	Kuwait	AA ^W	STABLE		Hungary	BBB ^W	STABLE	
	Saudi Arabia	AA ^{W-}	STABLE		Egypt	B ^{W-}	STABLE	
	Iraq	B ^{W-}	STABLE		Lebanon	B ^{W-}	STABLE	
Iran	BB ^{W+}	STABLE	Turkey		BBB ^W	NEGATIVE		
Middle Asia	Kazakhstan	BBB ^{W-}	STABLE		Five nation of Middle East & North Africa	Ireal	A ^W	STABLE
	Kyrgyzstan	B ^W	STABLE			Jordan	BB ^{W-}	STABLE
	Mongolia	B ^W	STABLE					
	Tajikistan	B ^W	NEGATIVE					
	Turkmenistan	BBB ^{W-}	STABLE					
	Uzbekistan	BBB ^{W-}	STABLE					

Differences in sovereign credit rating and great pressure on debt repaying

As the Belt and Road Initiative involves cooperation between many different countries, it is then important to fully consider distinct national conditions of each country. By looking at the 2016 sovereign credit rating, it is reported that the average liability rate of central government around the world was 70.8%. While in the area of OBOR, the average index was only 46.2%, which indicated a relative high investment risk for related countries. Alternatively, there are more than 10 developing countries along the Belt and Road like Lebanon and Mongolia, have a government debt ratio exceeds the global average level, which implied a relative low capacity of debt repayment for these countries.

Simplex currency settlement system

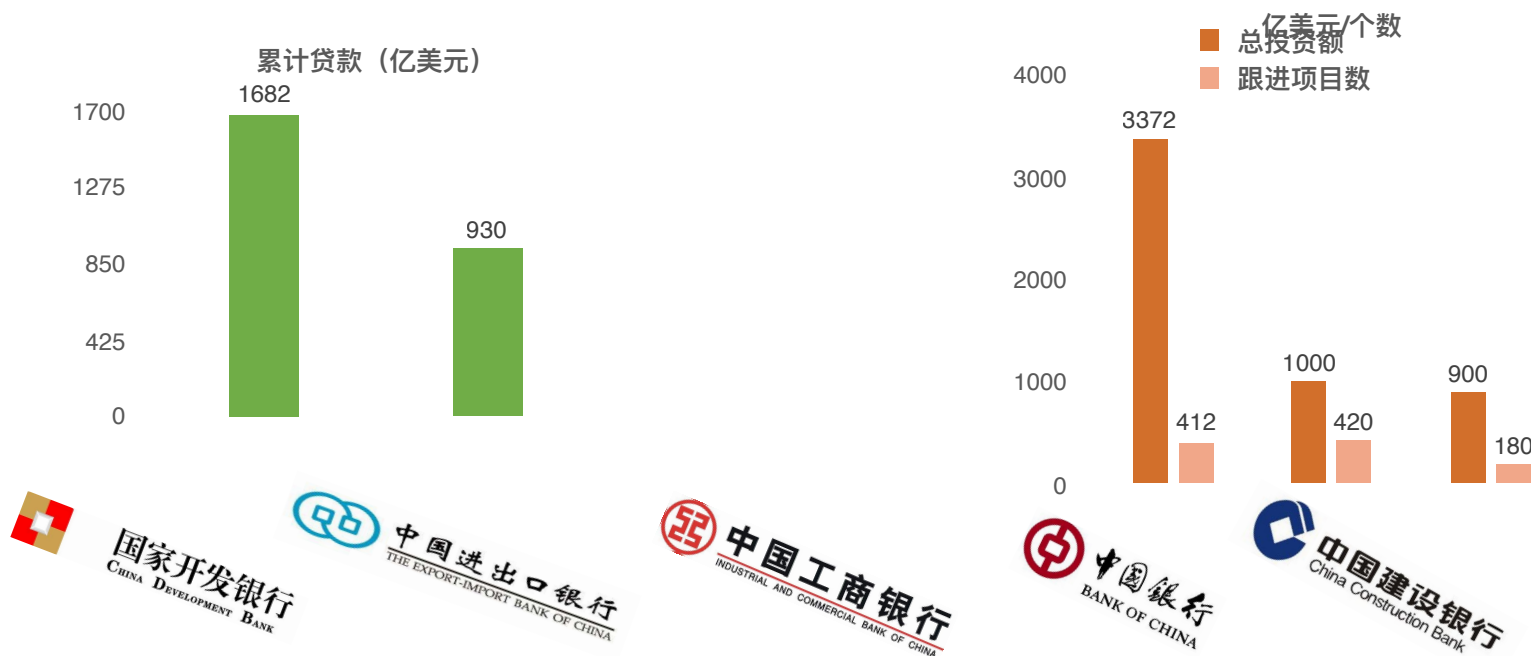
The scale of trade and investment between the countries along the routes is huge. However, due to the low status of local currencies in the international monetary system, US dollars, Euros are still the most commonly used pricing and settlement currencies. If there is a problem with the liquidity of the third party currency, it will seriously influence the normal trade in the area along the Belt and Road. According to the SWIFT Global Currency International Payment Share released in August 2019, RMB has become the fifth largest currency for valuation and settlement. But on the other side, if a new regional currency is formed and used, it is very likely that each trade entity will face higher exchange costs, higher exchange rate risks and other issues.



August 2019 SWIFT

Lack of long-term sustainable returns and low profitability for developmental finance projects

As most developmental finance projects are related to the long-term and basic constructions, therefore the profitability is heavily dependent on its systematic and network benefits. It is difficult for any single construction project to fully achieve the expected benefit and the contribution for economic growth. Moreover, there are also big uncertainties in capital investment, management, operation and repayment capabilities for different countries. Consequently, all these factors could potentially bring risks and harm the profitability of some long-term developmental projects.





PART3: “一带一路”倡议区域金融风险防控对策

与建议

Suggestions for Financial Risk Control in the
OBOR Area

Suggestions for Financial Risk Control in the OBOR Area



1



Reform Financial Philosophy via Conducting Macro-Prudential Assessment

2



Enhance financial technology innovation and financial infrastructure construction

3



Update currency settlement system via promoting digital currency in the region

4



Reform Financial Model via Introducing “Regulatory Sandbox Mechanism”

5



Strengthen Financial Cooperation via Establishing Mutual Judicial Assistance

6



Coordinate Financial Dispute via Building Up Risk Sharing System

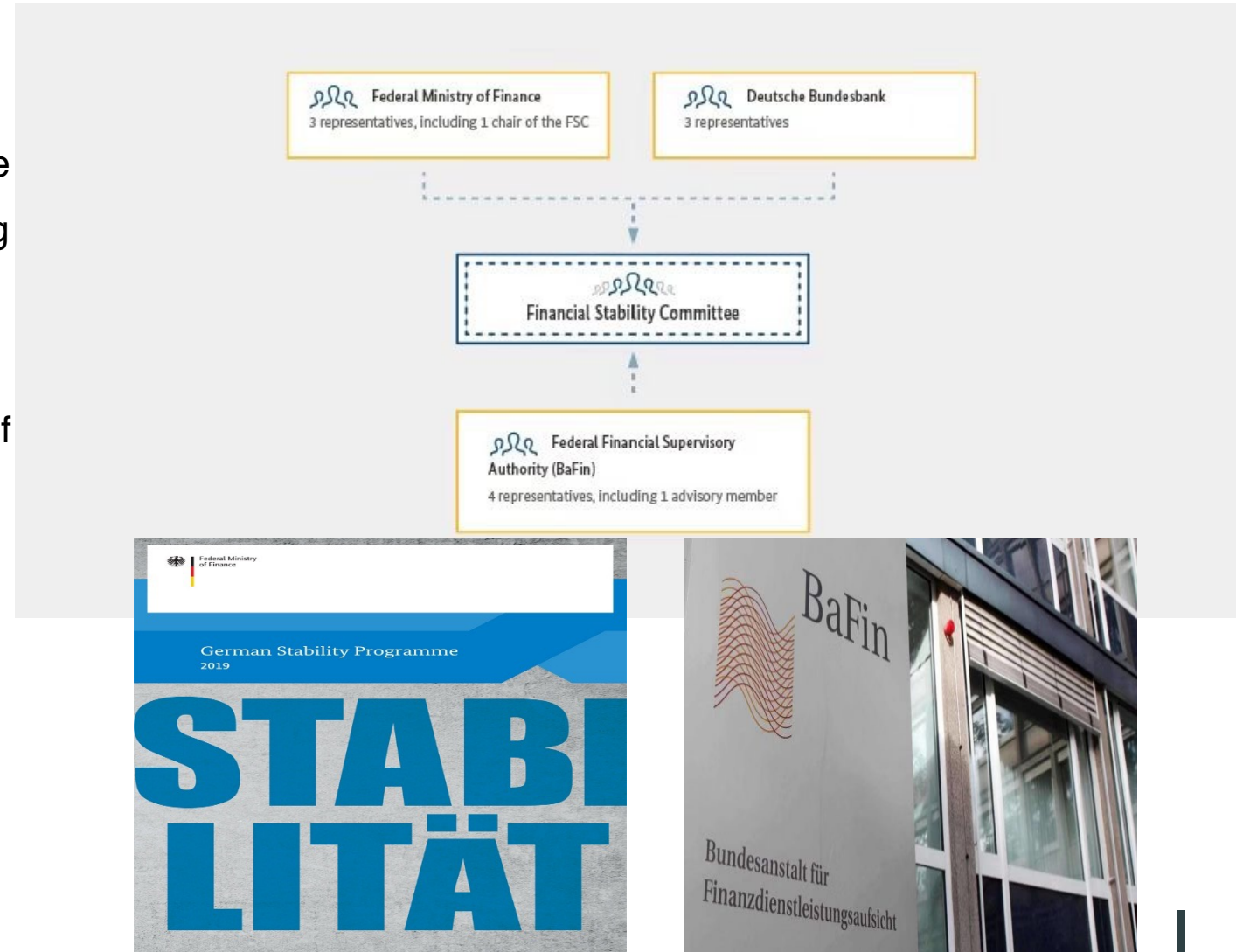
1

Reform Financial Philosophy via Conducting Macro-Prudential Assessment

With the rapid development of globalisation, the requirement for convertibility of capital account is constantly evolving. The traditional compliance supervision dominated management system no longer meets the needs of development in the new context. Consequently, countries along the Belt and Road area, should accelerate continuous improvement and advanced update on their current management system. Integrating and conducting Macro-Prudential Assessment on the cross border capital would be a great starting point. More specifically, macro-prudence should stick to the target of maintaining overall stability of financial exchange situation, and focus on adjusting accordingly to the cross border capital flow and foreign exchange market cyclical volatility, in order to prevent systematic financial risks. Together with the countries alongside, China should take the initiative in building up a new mechanism for anti money laundering, anti terrorist financing and anti tax evasion. It is also necessary to set regulatory inspections on those behaviours that tends to manipulate, mislead and cheat on the investment market.

Macro-Prudential Assessment in Germany

Germany has always been quite cautious about the over-development of financial industry. In designing the policy, Germany has set up the Financial Stability Committee in order to perform the duty of Macro-Prudential Assessment. The committee itself is constituted by three different departments: Federal Financial Supervisory Authority (BaFin), Federal Ministry of Finance and Deutsche Bundesbank. Since 2016, FSC has launched and implemented a set of Macro-Prudential instruments, like fund for Capital Buffer in conversion period.



2

Enhance financial technology innovation and financial infrastructure construction

In the field of electronic payment for mobile devices, China has already taken the lead in the world. For instance, with more advanced and convenient features, Chinese apps like AliPay and WeChat Pay start to be used by a broader range of customers and retailers globally. There is a trend that electronic payment could potentially replace the traditional credit card and become the new preferred way for international transaction settlement. Apart from this, China should put more efforts in developing and innovating financial technology applications, in order to help the people in less developing countries alongside to fully enjoy the benefits and the convenience brought by the technology advancement. Instead of promoting the traditional financial infrastructure, countries along the Belt and Road should pay more attention on the modern forms like Online Banking and Electronic Payment System, which would optimise the input invested and minimise the marginal cost of the financial facilities. As long as the construction of financial infrastructure got improved, then hopefully, the scale of financial risks within the Belt and Road area could be reduced.

3

Update currency settlement system via promoting digital currency in the region

With the continuous advancement of encryption methods and block-chain technology, different forms digital currency starts to become more and more popular around the world. In the future, it could possibly become an alternative option for cross-border currency settlement. As for now, there are already more than 17 countries and central banks have issued or are considering to issue their respective legal digital currency. Central banks and regulation authorities along the Belt and Road should also follow the latest development of digital currency, or even jointly study and explore the possible application model of digital currency. By utilising digital currency's advantages in payment settlement, it would lower the cost for overseas transactions and reduce the levels of financial risks.

Comparison among Mainstream Digital Currencies

Main Features

Types / Features	Bitcoins	Libra (Facebook)	DCEP
Pros	<ul style="list-style-type: none"> Decentralization Cryptonym Borderless Circulation 	<ul style="list-style-type: none"> High Level of Stability Low Inflation Rate High Financial Handling Capacity Considerable User Base: 2.4 billion 	<ul style="list-style-type: none"> Centralization High Level of Security High Level of Conveniences
Cons	<ul style="list-style-type: none"> Low Total Volume of Circulation Long Transaction Confirmation Time Vulnerability of Transaction Platform Price Fluctuation 	<ul style="list-style-type: none"> Lower Ability of Regulation for Monetary Policy Weaken Supervising Capability of Financial Institutions 	<ul style="list-style-type: none"> Limited Circulation

From the well-known Bitcoins to the release of white paper for Libra in June, 2019, digital currency has drawn growing attention from the central banks and financial institutions worldwide. During the China Finance 40 YiChun Forum on August, 2019, the People's Bank of China has also announced its own digital currency – DCEP. A new global financial infrastructure that is based on digital currency is being gradually formed.

4

Reform Financial Model via Introducing “Supervisory Sandbox Mechanism”

After the outbreak of international financial crisis, the new emerged Regulatory Sandbox Mechanism is a successful attempt by the western world, to explore and design a new supervisory model. As mentioned above, distinct rules and levels of development could be a threatening factor that brings financial risks and hinders the cooperation between countries. If we could imitate and build up a regional trial sandbox within the Belt and Road region, it would not only help those international company test their innovative financial products in a cross-border simulation environment, but also let local supervisory authorities had chance to observe the potential risks in advance. We should also form respective credit evaluation systems, considering the difference in credit rating, which would help those innovative enterprises to identify and select the most suitable nation they are interested in running projects.

A case of Global Supervisory Sandbox



About us

Firms

Home / Firms / [Global Financial Innovation Network \(GFIN\)](#)

Global Financial Innovation Network (GFIN)

The Global Financial Innovation Network (GFIN) was formally launched in January 2019 by an international group of financial regulators and related organisations, including the FCA. This built on the FCA's early 2018 proposal to create a global sandbox. The idea of global sandbox was aimed to provide a more efficient way for innovative firms to interact with regulators, helping them test their products, services or business models across more than one jurisdiction and gaining real-time insight into how a product or service might operate in the cross-border market.

5

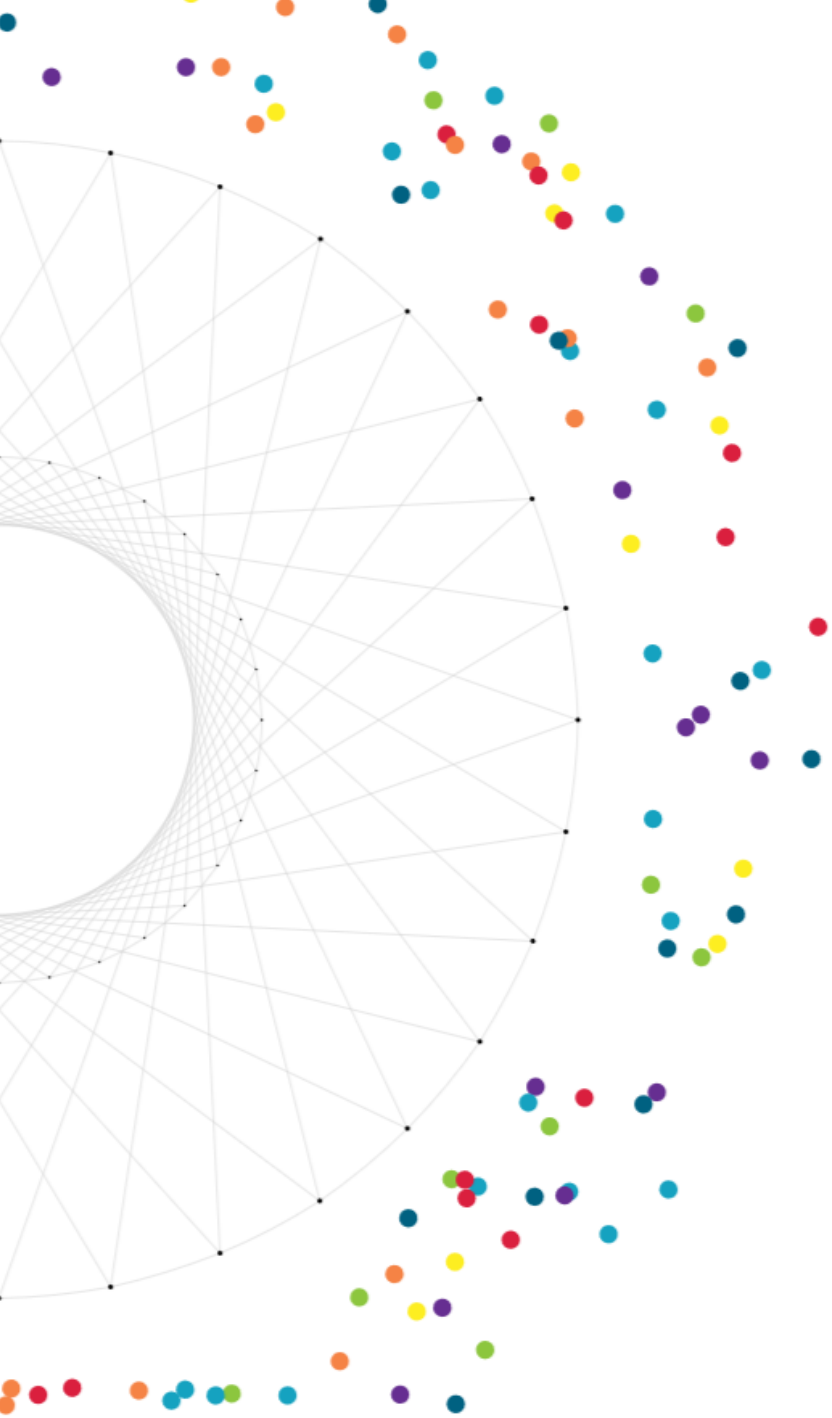
Strengthen Financial Cooperation via Establishing Mutual Judicial Assistance

The Alternative Remittance System (ARS) is one of the most significant and prominent types of financial law risks, that we could potentially encounter in the cooperation under the Belt and Road Initiative (the so-called alternative remittance system is a mechanism for cross-border transfer of various abnormal funds, including underground money houses, false trade and investment channels). Although the national legal systems are quite different, countries along the Belt and Road still share some social and economics issues in common, such as corruption and smuggling. In order to control and minimise the risks caused by policy differences, China and countries alongside should expand the scope of anti money laundering obligations, gradually promote policy coordination, provide mutual judicial cooperation under the necessary circumstance.

6

Coordinate Financial Dispute via Building Up Risk Sharing System


Although the Belt and Road Initiative has made a remarkable progress in promoting financial integration, at the same time, it has also exposed many prominent problems, such as imbalanced risk returns, imbalanced input-output relationship, misdistribution of capital resources, and unsustainable liabilities. In order to form up a well-functioning risk sharing system, China and cooperative countries alongside should start from clarifying each parties' respective responsibilities. By following the principles of integrality, foreseeability and diversity, it is also important to strengthen the connection and communication between the cooperative governments, local financial institutions and the investment enterprises. Alternatively, we could also consider implementing different market-oriented financing methods like international bank consortium, public-private partnership (the PPP model) and asset-backed securitization (ABS), in order to provide consistent support for coordinating financial disputes and controlling financial risks.



PART4: “一带一路”项目发展展望

Perspective

- "Five Connections" (**smooth connections in policy communication, road interlinking, trade activities implementation, currency circulation and popular feelings approaching**) proposed by Mr. Xi Jinping has opened the door and window of new political exchanges for countries along the Belt and Road routes.
- Asian Infrastructure Investment Bank, World Development Bank and numerous financial institutions have opened up the source of capital for countries along the Belt and Road routes.
- The financial technology has laid a solid foundation for the risk avoidance of investment and financing for countries along the Belt and Road routes.

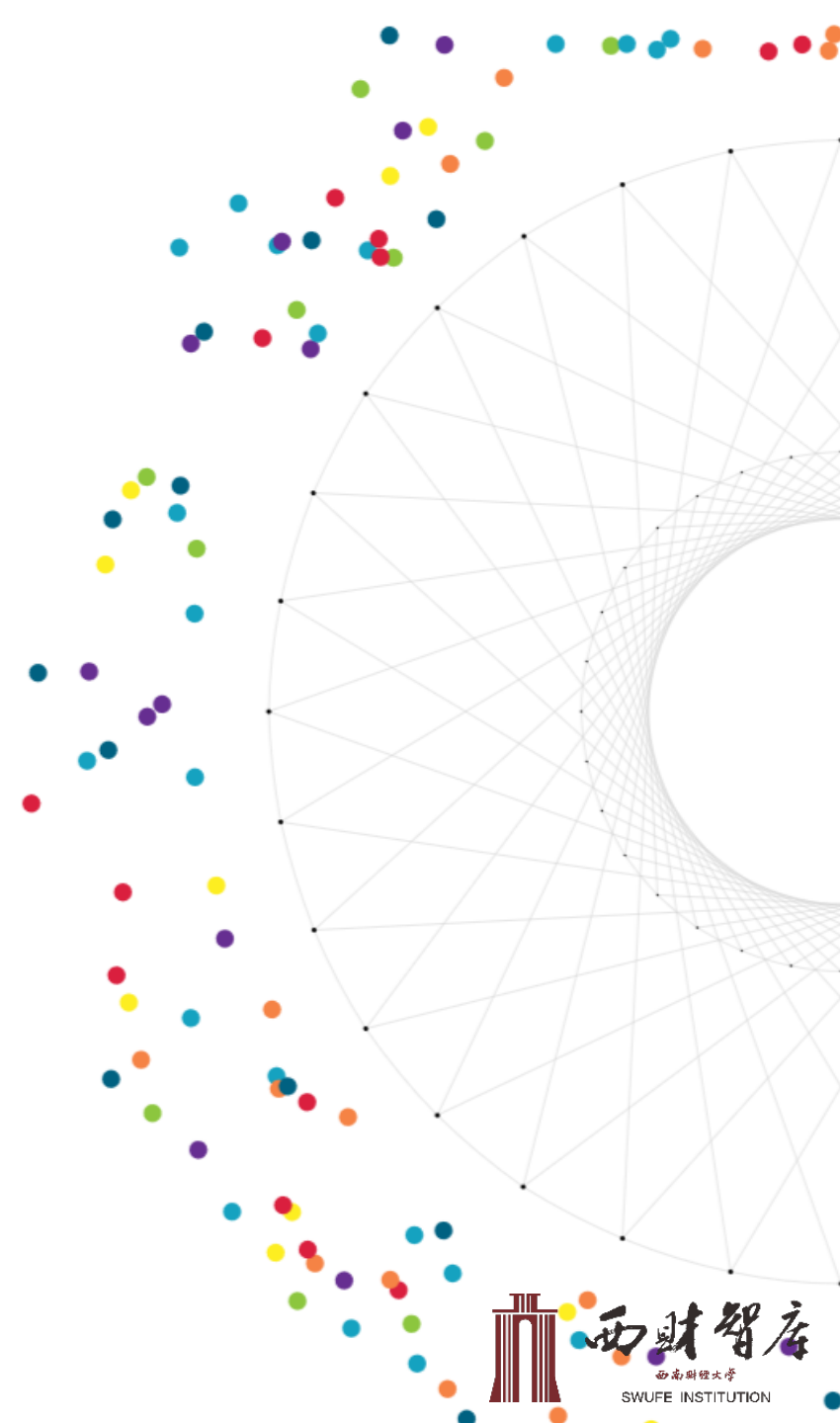


Since China proposed the Belt and Road initiative in 2013, in line with the concept of strengthening cooperation, overcoming difficulties together, seeking common development and achieving mutual benefit and win-win results, it has been accomplished, with the Asian Infrastructure Investment Bank as a financial hub, continuous output of capital and expansion of infrastructure development, which brought a series of development opportunities to the surrounding countries. However, the differences in levels of development between these countries, especially the differences in financial structure, monetary settlement system and infrastructures, have resulted in unequal financial services and unbalanced development opportunities in these countries and regions.



Build a community of shared future for all humankind, improve the welfare of human beings, and achieve common prosperity and progress.

Thanks for Listening!



Aggregate and Distributional Impacts of Housing Policy: China's Experiment

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^bSWUFE

^cSWUFE

^dFRB Atlanta, Emory University, and NBER

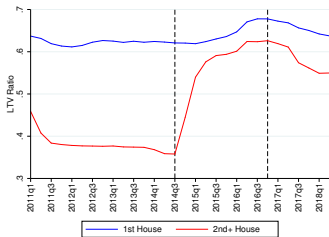
Motivation: general issues

- ▶ It has been widely acknowledged that booms and busts of a country's housing markets lie at the heart of its macroeconomy.
- ▶ Two important questions surrounding housing booms and busts remain unresolved.
 - ▶ What's the role of credit conditions in housing booms and busts?
 - ▶ What are the distributional consequences of housing booms and busts across households of different characteristics?
- ▶ In this paper, we take China's recent changes in housing policy as an experiment to address these two key issues.

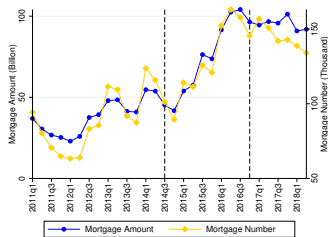
China experiment

- ▶ China relaxed its LTV policies between 2014Q4 and 2016Q3
 - ▶ 1st house: the minimum down payment ratio decreased from 30% to 25%.
 - ▶ 2nd+ house: the minimum down payment ratio decreased from 60-70% to 30%.
- ▶ Mortgage credit and housing market booms
 - ▶ The average annual newly issued mortgage amount is 30 percent higher than its counterpart during 2011Q1-2014Q3.
 - ▶ The average annualized growth rate of housing prices for the 35 major cities in China reached 7.30% (2.32% during 2011Q1-2014Q3).
- ▶ Consumption growth has been slowing down in the past two years.

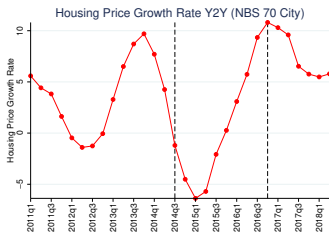
Average Loan-to-Value Ratio



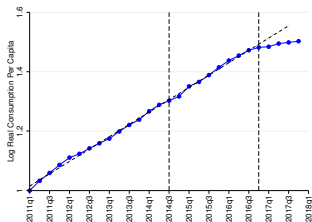
Total Mortgage Across Time



House Price



Real Consumption Per Capita (Log)



In this paper

We explore the aggregate and distributional impacts of this LTV policy relaxation on mortgage, housing demand, and household consumption.

Methodology

- ▶ Empirics: narrative approach with two micro-level data
 - ▶ Loan-level mortgage origination data: explore the reallocation of mortgage debt across households of different ages and education levels following the policy change.
 - ▶ Household finance survey data: (1) explore changes in consumption growth across age-education groups; (2) establish the empirical linkage between mortgage debt burden and consumption growth at household level.
- ▶ Theory: dynamic OLG economy with household heterogeneity
 - ▶ calibrate it to match various aggregate and cross-sectional moments before the policy relaxation.
 - ▶ quantify the effects of LTV policy changes on housing prices, mortgage and non-housing consumption at both aggregate and disaggregate levels.

Preview of the results

- ▶ Empirics: narrative approach with two micro-level data
 - ▶ The recent housing boom reallocated mortgage credits towards the middle-aged, high-educated households, while **squeezing out** those to young households.
 - ▶ The middle-aged, high-educated households are the main drivers of the slowdown in aggregate consumption growth.
- ▶ Theory: dynamic OLG economy with household heterogeneity
 - ▶ An increase in max LTV ratio for 2nd houses involves a **self-enforcing effect** on housing demand via equilibrium housing prices.
 - ▶ The relaxation of LTV policy accounts for about 47% (94%) of the observed increase in housing prices (mortgage credit), and 31% of the fall in consumption growth.

Literature

- ▶ Housing booms and busts
 - ▶ Empirics with micro data: Mian and Sufi (2009, 2011); Foote, Loewenstein and Willen (2016) and Adelino, Schoar and Severino (2017), Albanesi, De Giorgi and Nosal (2017)
 - ▶ quantitative housing theory: Landvoigt, Piazzesi and Schneider (2015), Favilukis, Ludvigson, and Van Nieuwerburgh (2017); Kiyotaki, Michaelides and Nikolov (2011), Kaplan, Mitman and Violante (2017)
- ▶ Effects of housing prices on consumption: focusing on housing wealth effects
 - ▶ Mian, Rao and Sufi (2013), Berger, Guerrieri, Lorenzoni and Vavra (2017), Beraja et. al (2018), Guren et. al (2018)
- ▶ China's housing market
 - ▶ Empirics: Fang, Gu, Xiong, and Zhou (2016), Wei, Zhang and Liu (2017), Chen, Liu, Xiong and Zhou (2017), Gu, He and Qian (2018)
 - ▶ Theory: Zhao (2015), Chen and Wen (2017), Han, Han and Zhu (2018), Zhang (2018)

Roadmap of the remaining presentation

1. Institutional Facts
2. Data
3. Micro-level Evidence
4. Theory

Housing as store of values

- ▶ High concentration of wealth in housing among Chinese households
 - ▶ In 2013, housing comprised of **75.5%** of households' wealth in urban China, as compared to about 40% for the U.S. households.
 - ▶ The share of financial assets in Chinese households' wealth is only **8.63%**, compared with a value of 37.9% in the U.S.
- ▶ Speculative investment demand for housing
 - ▶ Around one fifth of urban Chinese households owned a non-primary house (CHFS 2013).
 - ▶ The average housing vacancy rates have been stably around 20% during 2011-2017.
 - ▶ The housing vacancy rate for non-primary houses is even higher, reaching **42.06%** in 2017.

Rental market frictions

- ▶ The demand side
 - ▶ The children of a homeowner have priority access to the schooling where the purchased housing is located.
 - ▶ Tenants cannot safeguard their lawful rights and interests.
 - ▶ Housing becomes a prerequisite for male to marry a female.
- ▶ The supply side
 - ▶ China does not have credit score systems for individual households such as FICO, Equifax.
 - ▶ The average rent to price ratio for residential housing is too low: in first tier cities was around 2.4% in 2013, in contrast to a 3% benchmark deposit rate and a 6% benchmark lending rate during the same period.
- ▶ As a result, the home ownership rate in China was 86% (67% for young households) in 2013, compared with 65% in the U.S.

Mortgage loan

- ▶ Mortgage loans takes the largest share in consumer loans of Chinese households (69.4% in 2013), and medium and long-term (MLT) loans (87.4% in 2013).
- ▶ In China, all mortgage loan is for home purchase.
 - ▶ no home equity line of credit
 - ▶ no refinance
 - ▶ The reverse mortgage market did not exist until 2014.
- ▶ The age of mortgage borrowers should be between 18-65 years of age.
- ▶ All mortgage loans are adjustable rate mortgage (ARM).

Housing policy

- ▶ The minimum down payment ratio for primary houses and second houses are the main tools used by the government to affect housing demand.
 - ▶ In 2008, as part of the stimulus package, the minimum down payment ratio for the primary (second houses) dropped from 30% (40%) to 20%.
 - ▶ The minimum down payment ratio for the second houses increased to 50% in January 2010 and to 60% in January 2011,
 - ▶ During 2014Q4-2016Q3, a reduction in the minimum down payment ratio of second houses from 60-70% to 30%.
 - ▶ Between 2016Q4 and 2017Q2, 44 cities and counties across China tightened their LTV policy, by increasing the minimum down payment ratio for the second (first) houses to 40% – 70% (30%).

Roadmap

1. Institutional Facts
2. Data
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4. Theory

Proprietary Mortgage Origination Data

- ▶ All mortgage loans by one of the biggest commercial banks in China
- ▶ Outstanding mortgage loans held by this bank account for around 14% of total outstanding mortgage loans in China, roughly constant across time
- ▶ About 3.3 million mortgage loans for new, residential properties during 2011Q1 - 2018Q2, covering 70 major cities
- ▶ Detailed information
 - ▶ Loans' characteristics: down payment, mortgage loan, maturity, mortgage interest rate, **primary or non-primary house**
 - ▶ House price and size
 - ▶ Home buyers' characteristics: age, gender, occupation, education, (reported) income, number of houses, city, zip code

China Household Finance Survey

- ▶ The most comprehensive household survey in China (Chinese version of CEX + SCF)
- ▶ Survey every other year, from 2011 to 2017 (e.g. in 2013, 19,203 urban households).
- ▶ Overview of the questionnaire
 - ▶ Asset and liabilities (non-financial assets, such as real estates, and financial assets)
 - ▶ Expenditure (e.g. various categories of nondurables, travel expenses, health care and medical expenses, etc.)
 - ▶ Demographic characteristics and labor market
 - ▶ Others (Social and commercial insurance)

Table: Summary Statistics for Mortgage Origination Data

	2011Q1-2014Q3		2014Q4-2016Q3		2011Q1-2018Q2	
	Mean	SD	Mean	SD	Mean	SD
<i>Panel A: Summary Statistics for Borrowers Buying the 1st Houses</i>						
Age	34.50	9.02	34.68	8.81	34.50	8.98
Fraction of Borrowers with College and above Degree	0.47	0.50	0.59	0.49	0.56	0.50
House Size	102.68	31.12	104.79	30.13	104.91	30.72
House Value (Thousand RMB)	681.73	637.73	847.03	803.86	817.59	765.78
Mortgage Loan (Thousand RMB)	425.97	407.15	542.76	514.91	519.94	485.21
Monthly Mortgage Payment (RMB)	3302.99	2898.55	3738.55	3298.59	3656.74	3155.44
Loan-to-Value (LTV) Ratio	0.63	0.11	0.65	0.12	0.64	0.12
Mortgage Debt to (Annual) Income Ratio	4.00	1.44	4.20	1.69	4.20	1.63
Number of Borrowers	1,212,014		919,998		3,011,765	
<i>Panel B: Summary Statistics for Borrowers Buying the 2nd or above Houses</i>						
Age	38.60	7.69	39.37	7.73	38.81	7.80
Fraction of Borrowers with College and above Degree	0.62	0.49	0.72	0.45	0.71	0.45
House Size	115.09	42.46	117.02	42.62	115.18	41.56
House Value (Thousand RMB)	1100.55	1010.32	1313.86	1127.04	1288.71	1103.28
Mortgage Loan (Thousand RMB)	426.03	441.76	776.22	698.76	682.86	626.36
Monthly Mortgage Payment (RMB)	3938.15	3761.44	5491.67	4711.23	5017.41	4285.29
Loan-to-Value (LTV) Ratio	0.38	0.07	0.59	0.13	0.53	0.15
Mortgage Debt to (Annual) Income Ratio	2.54	1.28	3.42	1.80	3.14	1.71
Number of Borrowers	66,962		80,339		259,024	

Table: Summary Statistics for CHFS Data

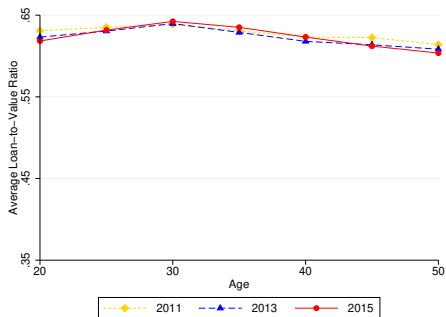
	2013		2015		2017	
	Mean	SD	Mean	SD	Mean	SD
Age	50.34	14.98	52.15	14.93	54.41	14.94
Consumption (Thousand RMB)	50.62	51.16	55.39	57.60	54.28	53.29
Income (Thousand RMB)	75.28	94.83	81.21	103.59	98.83	112.84
Outstanding House Mortgage (Thousand RMB)	24.58	211.99	30.83	197.85	41.05	221.52
Net Wealth (Thousand RMB)	797.43	1249.87	1010.68	1527.13	1255.06	1896.83
Share of Housing Asset in Wealth (Percent)	75.46	44.67	76.06	41.23	72.71	42.24
Homeownership (Percent)	86.02	34.68	89.25	30.98	88.08	32.40
Number of Obs	19,203		25,635		27,279	

Roadmap

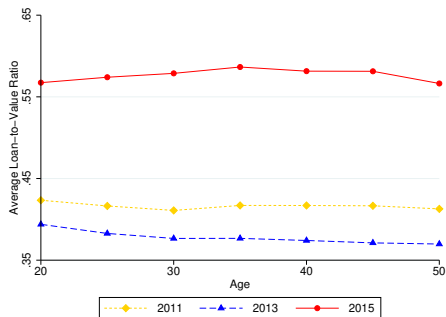
1. Institutional Facts
2. Data
3. Micro-level Evidence
4. Theory

Loan-to-Value Ratio for Primary and Secondary Houses

Loan-to-Value Ratio: 1st House

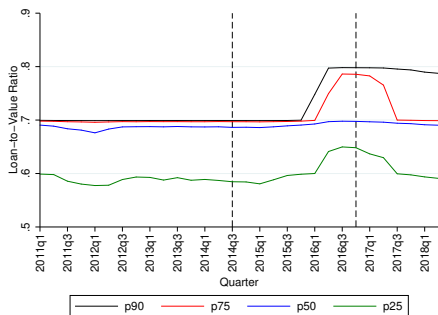


Loan-to-Value Ratio: 2nd+ House

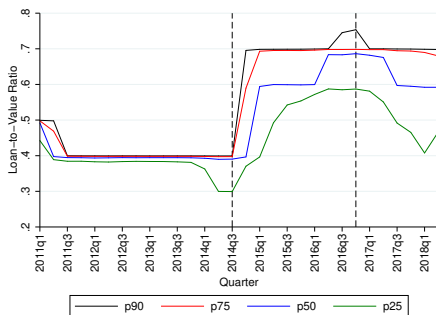


Loan-to-Value Ratio Distribution along Time

LTV Ratio Distribution: 1st House

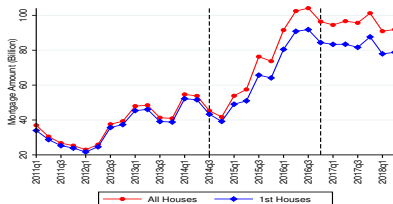


LTV Ratio Distribution: 2nd+ House

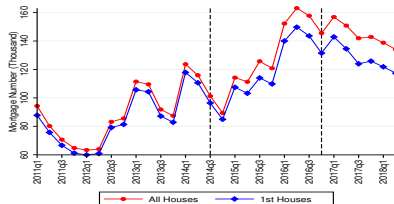


Dynamics of Mortgage Debt and Debt Burden

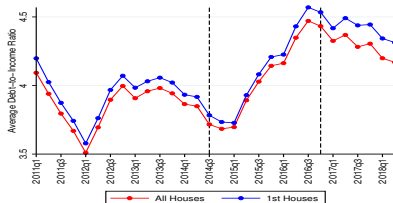
Mortgage Origination Amount



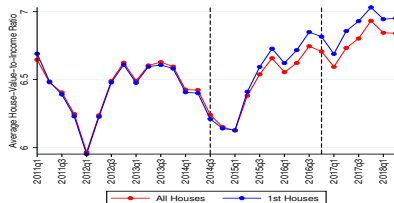
Mortgage Origination Number



Mortgage Debt to Income Ratio

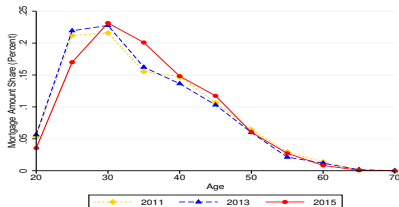


House Value to Income Ratio



Age Profile of Mortgage Debt

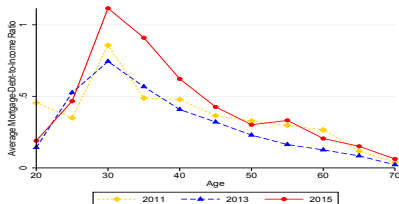
Mortgage Amount



Mortgage Origination Number



Average Outstanding DTI



Mortgage Debt Rate



Mortgage Share across Age-Education Groups

Mortgage Amount Share in 2013

	High School and Below	College and Above
Age < 30	11.77	25.60
$30 \leq \text{Age} < 50$	27.04	29.91
Age ≥ 50	3.63	2.05

Mortgage Number Share in 2013

	High School and Below	College and Above
Age < 30	13.41	22.73
$30 \leq \text{Age} < 50$	33.98	24.15
Age ≥ 50	4.09	1.64

Mortgage Share Change by Age and Education

Mortgage Amount Share Change between 2013 and 2015

	High School and Below	College and Above
Age < 30	-4.13	-2.58
30 ≤ Age < 50	-6.66	13.45
Age ≥ 50	-0.90	0.82

Mortgage Number Share Change between 2013 and 2015

	High School and Below	College and Above
Age < 30	-2.66	-0.09
30 ≤ Age < 50	-5.60	8.12
Age ≥ 50	-0.37	0.60

Mortgage Share Change by Age and Education: 1st House

Mortgage Amount Share Change between 2013 and 2015: 1st House

	High School and Below	College and Above
Age < 30	-3.79	-1.17
30 ≤ Age < 50	-6.47	11.86
Age ≥ 50	-0.98	0.56

Mortgage Number Share Change between 2013 and 2015: 1st House

	High School and Below	College and Above
Age < 30	-2.46	0.52
30 ≤ Age < 50	-5.36	7.30
Age ≥ 50	-0.42	0.42

Consumption Growth

Table: (per capita) Consumption and Income Growth Rate (Percent)

	2013-2015	2015-2017	Difference
Consumption	3.97	3.11	-0.86*
Income	6.51	10.31	3.80***

Significance: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Consumption Growth Rate by Age and Education

Table: Changes in Consumption Growth between 2015-2017 and 2013-2015 by Age and Education

	Consumption		Income	
	Low Edu	High Edu	Low Edu	High Edu
Age < 30	1.39	0.04	2.99	0.24
30 ≤ Age < 50	-1.40	-3.59***	1.19	5.15***
Age ≥ 50	-0.09	1.35	6.27***	7.76***

Significance: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Regression of Consumption Growth on Mortgage Debt

Table: The Effects of Mortgage Debt on Consumption Growth

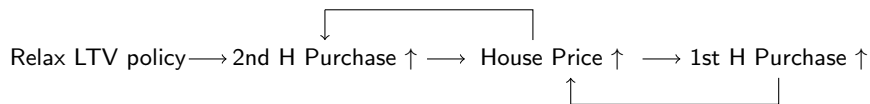
Consumption Growth Rate	(1)	(2)
Mortgage debt dummy	-5.31***	
Mortgage debt to income ratio		-0.55**
Income growth rate	0.13***	0.18***
Controls	Y	Y
City-Time Fixed Effects	Y	Y
N	28457	2739
R^2	0.07	0.17

Controls include age, age squared, education dummies, and family size growth rate. Significance: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Roadmap

1. Institutional Facts
2. Data
3. Micro-level Evidence
- 4. Theory**

Main Mechanism



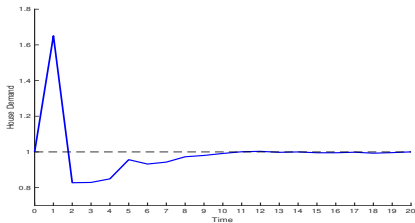
Aggregate Impacts of Relaxation of LTV Policy

Table: Aggregate Impacts on Housing Prices, Mortgage and Consumption

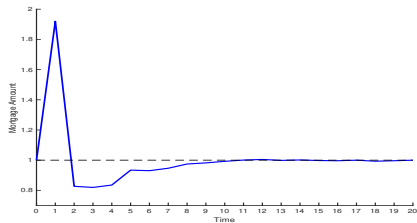
	Model	Data
House price	2.36%	4.98%
Mortgage amount	28.55%	30.38%
Mortgage number	16.82%	17.13%
Consumption	-0.28%	-0.89%

Transition Path: Aggregate

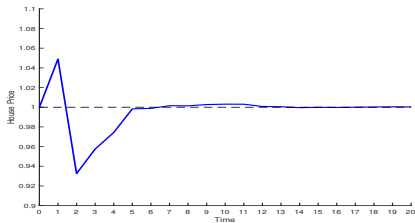
House Demand



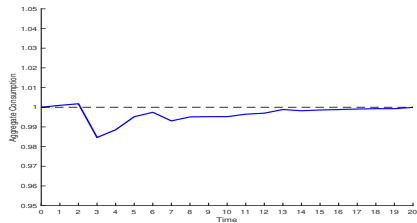
Mortgage Origination Amount



House Price

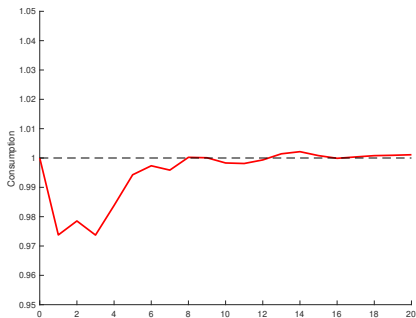


Aggregate Consumption

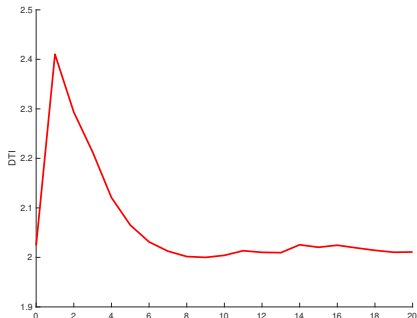


Transition Path: Middle-aged High-educated

Consumption: Middle-aged High-educated



Debt-to-income Ratio: Middle-aged High-educated



Concluding Remarks

- ▶ We find empirically that a relaxation of LTV policy has significant aggregate and distributional impacts:
 - ▶ stimulate the mortgage loan by middle-aged high-educated households at the sacrifice of young households.
 - ▶ slowdown consumption growth of middle-aged, high-educated household (wealthy hand to mouth).
- ▶ We build a dynamic OLG equilibrium model with household heterogeneity to account for the empirical findings.
 - ▶ Our theory highlights a novel channel for changes in credit conditions to affect housing demand via equilibrium housing prices.
 - ▶ The relaxation of LTV policy can explain about 47% (94%) of the increase in housing prices (mortgage credit) during the boom.

MACROPRUDENTIAL POLICY IN CHINA

Southwestern University of Finance and Economics

Bo Zhang

24/10/2019

- Since the 2008 global financial crisis, macroprudential policy has been one of the main approaches to addressing potential financial risks.
- After the GFC, the Chinese government deployed a 4-trillion yuan stimulus plan.
- After China's economy entered the “new normal” stage, domestic financial risks accumulated.
 - ▶ On June 20, 2013, China suffered a serious liquidity problem.
 - ▶ The stock crash took place in mid-2015.
 - ▶ On August 11, 2015, the “8/11” foreign exchange rate regime reform triggered another round of stock crunch.
- China introduced the Macro Prudential Assessment (MPA) framework in 2016.

THE EVALUATION METHODS

- Banks: 4 state-owned banks, 3 policy banks, 13 joint-stock banks, 1 postal saving bank and many urban banks, rural banks and foreign banks
- Evaluation outcomes: A (90 or more), B (60 or more but below 90); C (below 90)
- Reward-and-punishment mechanism

THE EVALUATION METHODS

Capital adequacy ratios and leverage ratios

- Capital adequacy ratios (80%), leverage ratios (20%) and total loss-absorbing capacity (0%)

Banks' assets and liabilities

- Broad loans (60%), entrusted loans (15%), interbank borrowing (15%)

Liquidity conditions

- Liquidity coverage ratio (40%), net stable funding ratio (40%), reserve requirements (20%)

Pricing behaviour for interest rates

- Competitiveness behaviours (50%), deviation of deposit interest rates (50%)

Quality of assets

- Non-performing loans (50%), provision coverage (50%)

Cross-border financing

- Position of foreign liabilities (60%), currency structure (20%) and maturity structure (20%)

Execution of credit policy

- Execution of monetary policy (70%), usage of central bank's financing (30%)

- The PBOC's policy system will eventually be a double-pillar policy framework combining the monetary policy and the macroprudential policy (Zhou Xiaochuan 2017).
- The first pillar is to keep both economic growth and inflation on a stable track.
- China's economy continues to face a downward pressure.
- Trade-off: economic growth and financial stability.

- The second pillar of the PBOC's policy framework is macroprudential policy.
- The goal of the macroprudential policy:
 - ▶ mitigate the pro-cyclical effect of the financial system
 - ▶ avoid systemic risks, such as those resulting from cross-market contagion

- Huan Ye (2018) find the reserve requirement ratio, LTV and DTI are the most effective tools in controlling credit growth.
- Lanbiao Liu and Jinfu Dai (2019) find macroprudential tools are helpful for increasing loans of commercial banks and restraining the down turn.
- Pei Wang, Lixia Yu and Xuan Cao (2017) find in the long run, capital adequacy ratios have the counter-cyclical effect; the counter-cyclical capital buffers can respond to systemic risk quickly and play a key role in reducing systemic risk.
- Lideng Zhang, Qiming Tang and Yuhang Zhang (2019) find that using dynamic capital adequacy ratio that targets in housing credit growth can effectively control the credit risk, especially in the short run.

RESEARCH ON MACROPRUDENTIAL POLICY EFFECTIVENESS

- Lubin Wang, Minmin Zheng and Shuai Huo (2019) find that the MPA during the contraction of financial cycle can release capital buffers, providing loose environment for financial institutions; the down turn of the economy, the overdrafts from last round economic boom, and the simultaneous contraction of business cycle and financial cycle might result in the failure of counter-cyclical regulation and affect the achievement of the MPA goals.
- Dawei Song (2018) find that macroprudential policy is helpful to decrease futural inflation risk, thus indirectly stable the interest rate and reduce welfare losses.
- Yong Ma and Chi Yao (2017) find regulatory pressure prompt banks to accelerate their adjustment of capital buffer, especially in urban commercial banks and rural commercial banks.

- Jiasheng Su and Xi Wang (2019) find the policy coordination between monetary and macroprudential departments can significantly decrease the welfare loss.
- Luo and Cheng (2017) find that macroprudential policy could make up for the deficiency of monetary policy in regulating the real estate market.
- Jiang, Li, Zhang, Zhou (2019) conclude the coordination effect and to provide some inspiration.

THE COORDINATION OF CHINA'S MONETARY POLICY AND MACROPRUDENTIAL POLICY

- Jiang, Li, Zhang, Zhou (2019)
- Micro level: use the System Generalized Method of Moments (System GMM) method
 - ▶ to analyze the monetary policy and macroprudential policy coordination effect on the risk-taking of 88 of China's commercial banks;
- Macro level: use the Structural Vector Autoregression (SVAR) method
 - ▶ to analyze the two policies coordination effect on China's housing prices and stock prices.

MICRO LEVEL: SYSTEM GENERALIZED METHOD OF MOMENTS PANEL DATA ANALYSIS

$$RAR_{i,t} = \beta_0 RAR_{i,t-1} + \beta_1 MPI_t + \beta_2 IIR_t + \gamma_1 X_{i,t} + \gamma_2 Z_t + \varepsilon_{i,t} \quad (1)$$

$$RAR_{i,t} = \beta_0 RAR_{i,t-1} + \beta_1 MPI_t + \beta_2 IIR_t + \beta_3 MPI_t \times IIR_t + \gamma_1 X_{i,t} + \gamma_2 Z_t + \varepsilon_{i,t} \quad (2)$$

CONTROL VARIABLES DESCRIPTION

Variable	Definition	Data Source
Bank level		
InTA	The logarithm of total asset, used to measure size of a bank	Bank Focus database
ROAA	Return on average asset, used to measure profitability of a bank	Bank Focus database
EQR	Equity ratio = equity/total asset, used to measure the stability of a bank	Bank Focus database
LIR	Liquidity ratio = liquid asset/liquid liability, used to measure the liquidity of a bank	Bank Focus database
Macro level		
GDP	GDP growth rate	CEInet Statistics database
CPI	CPI growth rate	CEInet Statistics database
FAI	Fixed asset investment growth rate	CEInet Statistics database

POLICIES IMPACTS ON BANKS RISK-TAKING

Variable	System GMM	OLS-Robust	System GMM	OLS-Robust
	RAR	RAR	RAR	RAR
L.RAR	0.660 *** (0.0243)	0.808 *** (0.0221)	0.659 *** (0.0254)	0.806 *** (0.0226)
IIR	-0.636 *** (0.0626)	-0.344 (0.242)		
MPI			-0.360 *** (0.0620)	-0.133 (0.194)
L.InTA	-0.162 *** (0.0409)	0.115 (0.0954)	-0.0658 ** (0.0301)	0.118 (0.0959)
L.ROAA	-2.905 *** (0.273)	-0.473 (0.421)	-3.008 *** (0.305)	-0.546 (0.422)
L.EQR	-0.382 *** (0.0326)	-0.123 ** (0.0526)	-0.312 *** (0.0307)	-0.115 ** (0.0528)
L.LIR	0.114 *** (0.00624)	-0.0228 (0.0178)	0.0917 *** (0.00750)	-0.0279 (0.0178)
GDP	0.281 *** (0.0564)	0.249 * (0.132)	0.0514 (0.0618)	0.188 (0.185)
CPI	-0.463 *** (0.0289)	-0.532 *** (0.118)	-0.513 *** (0.0335)	-0.569 *** (0.114)
FAI	0.0820 *** (0.0131)	0.0730 ** (0.0325)	0.0755 *** (0.0130)	0.0703 * (0.0373)
Constant	18.42 *** (0.771)	7.667 *** (2.231)	20.71 *** (1.707)	8.599 ** (3.637)
AR (1)	0.0000		0.0000	
AR (2)	0.8789		0.7246	
Wald Test	4776.97 ***		6866.90 ***	
Sargan Test	0.2300		0.1873	
Observations	842	842	842	842
R-squared		0.772		0.772
Number of bank	88		88	

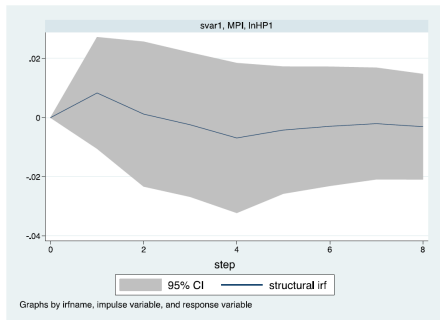
Notes: standard errors in parentheses, *** presents $p < 0.01$, ** presents $p < 0.05$, * presents $p < 0.1$. Source: author's calculation.

THE INTERACTION BETWEEN TWO POLICIES

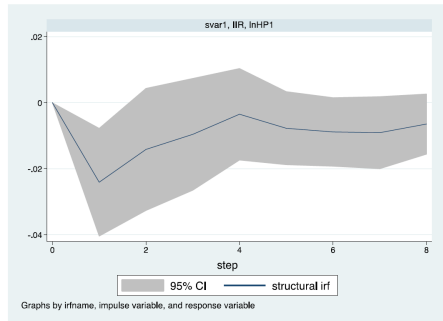
Variable	System GMM	OLS-Robust	System GMM	OLS-Robust
	RAR	RAR	RAR	RAR
L.RAR	0.649 *** (0.0258)	0.807 *** (0.0226)	0.663 *** (0.0280)	0.814 *** (0.0221)
IIR	-0.587 *** (0.0725)	-0.323 (0.249)	-8.400 *** (0.557)	-9.401 *** (1.498)
MPI	-0.210 *** (0.0741)	-0.0718 (0.200)	-3.286 *** (0.216)	-3.771 *** (0.633)
IIR*MPI			1.123 *** (0.0718)	1.323 *** (0.215)
L.lnTA	-0.0910 *** (0.0327)	0.118 (0.0959)	0.172 *** (0.0437)	0.174 * (0.0943)
L.ROAA	-2.832 *** (0.286)	-0.489 (0.424)	-2.154 *** (0.278)	-0.174 (0.418)
L.EQR	-0.333 *** (0.0338)	-0.121 ** (0.0530)	-0.322 *** (0.0407)	-0.121 ** (0.0518)
L.LIR	0.101 *** (0.00899)	-0.0239 (0.0181)	0.142 *** (0.00907)	-0.00839 (0.0179)
GDP	0.153 ** (0.0630)	0.202 (0.185)	0.225 *** (0.0654)	0.120 (0.182)
CPI	-0.438 *** (0.0310)	-0.527 *** (0.119)	-0.308 *** (0.0344)	-0.341 *** (0.120)
FAI	0.0670 *** (0.0134)	0.0664 * (0.0374)	-0.0765 *** (0.0199)	-0.116 ** (0.0471)
Constant	20.77 *** (1.750)	8.699 ** (3.636)	37.42 *** (2.248)	34.86 *** (5.550)
AR (1)	0.0000		0.0000	
AR (2)	0.9808		0.8207	
Wald Test	6379.19 ***		4916.48 ***	
Sargan Test	0.1992		0.3067	
Observations	842	842	842	842
R-squared		0.772		0.782
Number of bank	88		88	

Notes: standard errors in parentheses, *** presents $p < 0.01$, ** presents $p < 0.05$, * presents $p < 0.1$. Source: author's calculation.

HOUSE PRICE



(a)

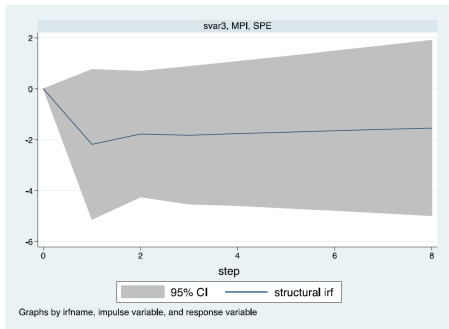


(b)

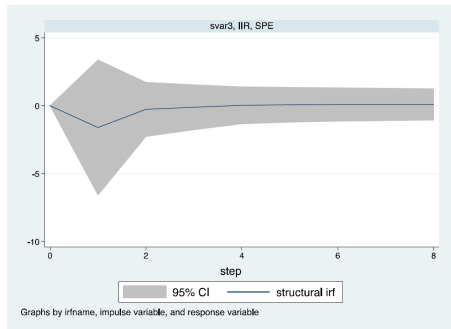
THE VARIANCE DECOMPOSITION OF HOUSING PRICES

Period	lnHP1	MPI	IIR
1	1	0	0
2	0.581332	0.044523	0.374145
3	0.568878	0.035673	0.395449
4	0.556743	0.035667	0.407589
5	0.588554	0.050631	0.360815
6	0.584151	0.054451	0.361398
7	0.58004	0.05404	0.365919
8	0.570029	0.052932	0.377039

STOCK PRICES



(a)



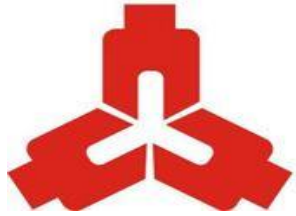
(b)

THE VARIANCE DECOMPOSITION OF STOCK PRICES

Period	SPE	MPI	IIR
1	1	0	0
2	0.94139	0.038106	0.020504
3	0.918468	0.061178	0.020354
4	0.895587	0.084509	0.019904
5	0.875424	0.105136	0.019441
6	0.85722	0.123719	0.019061
7	0.840871	0.140384	0.018745
8	0.826154	0.155374	0.018471

- For regulating bank risk-taking, monetary policy and macroprudential policy should conduct counter-cyclical regulation simultaneously.
- For regulating housing prices, tight monetary policy and tight macroprudential policy should be implemented alternately.
- For regulating stock price bubbles, macroprudential policy should be the first defense-line and monetary policy should be the second one.
- Apart from the coordination of the two policies' direction, the coordination of the two policies' intensity is also of great importance.

- China's MPA system launched by the PBOC is an important policy practice in the field of macroprudential management.
- The PBOC is establishing a double-pillar policy framework to coordinate monetary policy and financial stability.
- Research on macroprudential policy in China is still limited.



中國人民銀行
THE PEOPLE'S BANK OF CHINA

Development and Challenges of Inclusive Finance in China

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Outline

- Key Elements of Inclusive Finance
- Development of Inclusive Finance in China
- Monetary Policies to Support Inclusive Finance
- Experience from China's Practice
- Challenges Ahead

Key Elements of Inclusive Finance

□ Accessibility

- branches
- agents
- remote access

□ Diversified and suitable products

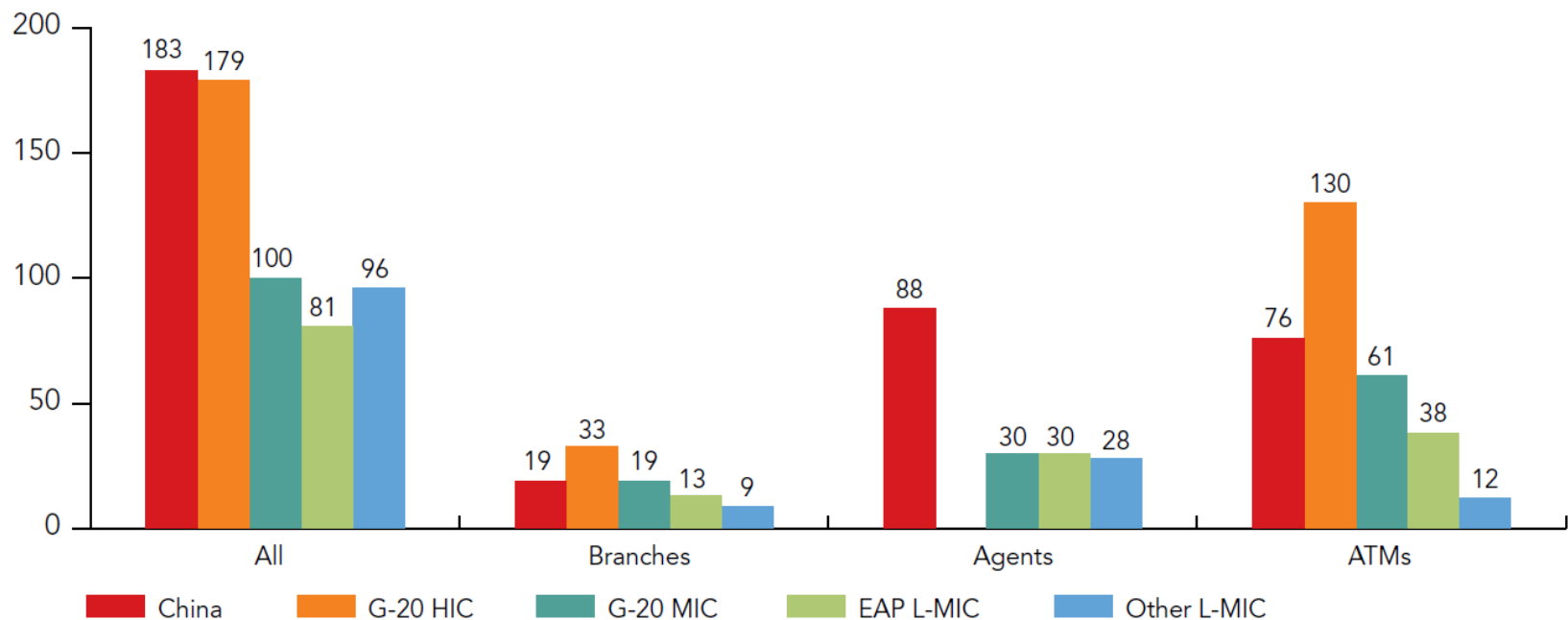
- diversity
- affordability
- convenience

Key Elements of Inclusive Finance

- Commercial viability and sustainability
 - fair competition
 - market niches
 - public infrastructure
- Safety and responsibility
 - consumer protection
 - financial capability
 - financial integrity

Development of Inclusive Finance in China

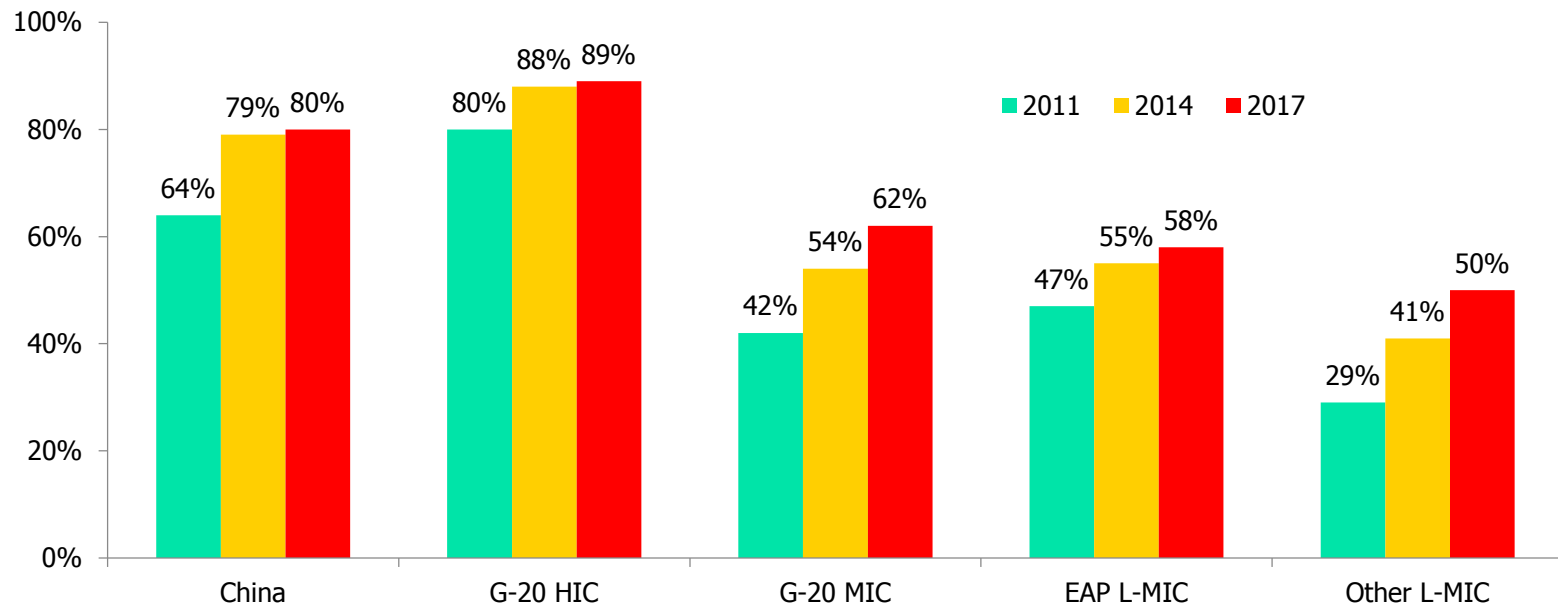
Median number of access points per 100,000 adults



Source: IMF FAS 2016; WBG GPSS 2016; national authorities.

Development of Inclusive Finance in China

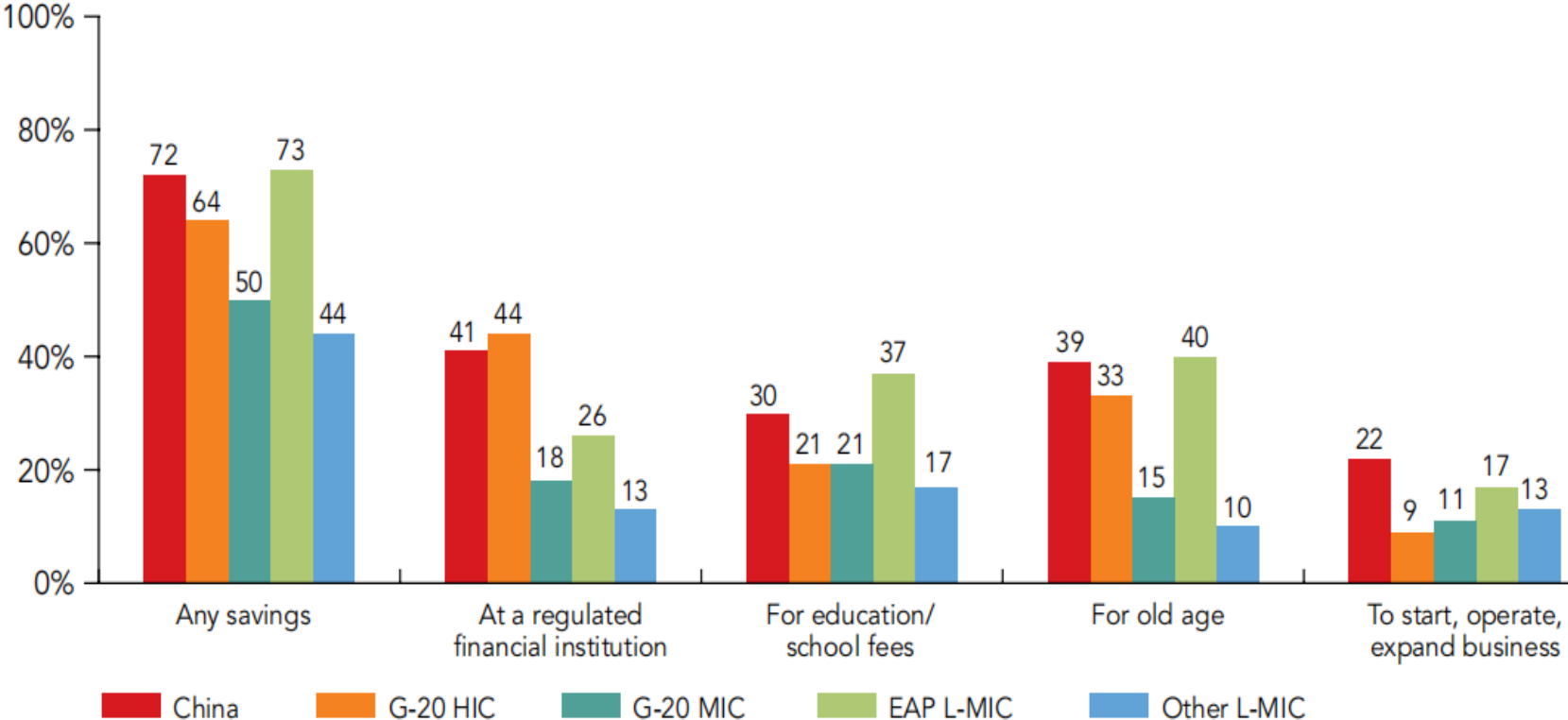
% adults (age 15+) reporting ownership of a store-of-value transaction account



Source: Global Findex 2017

Development of Inclusive Finance in China

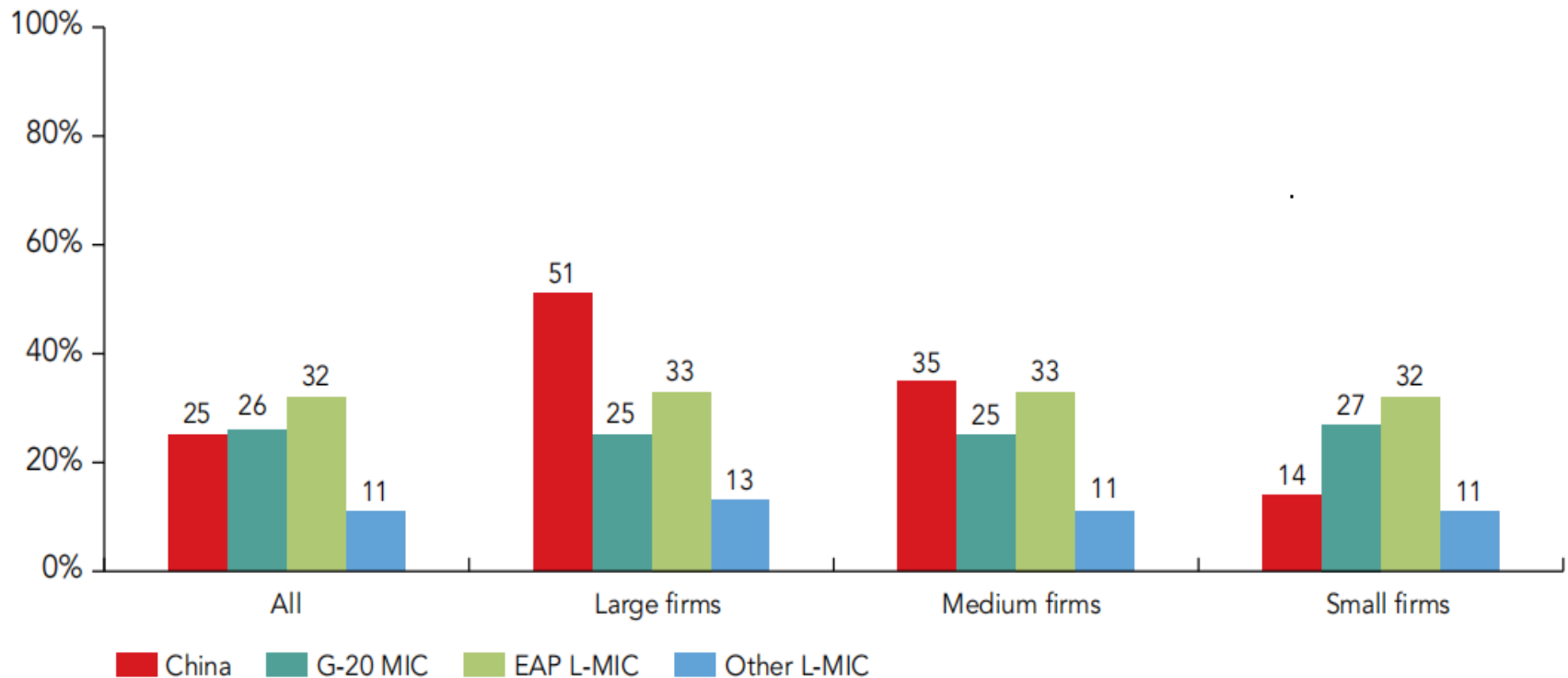
% adults (age 15+) saving in the past 12 months



Source: Global Findex 2014 (Demirguc-Kunt and others 2015).

Development of Inclusive Finance in China

% firms with loan or line of credit



Source: WBG Enterprise Surveys 2012–2016.

Monetary Policies to Support Inclusive Finance

Taking micro and small enterprises (MSEs) as an example----policies

- Targeted RRR cut

 - 4 times in 2018, injecting over 2 trillion yuan

- Intensifying central bank lending and discount for MSEs

 - increasing quota 3 times in 2018, with the increment reaching 400 billion yuan

Monetary Policies to Support Inclusive Finance

Taking micro and small enterprises (MSEs) as an example----policies

□ Innovating monetary policy tools

- Targeted Medium-term Lending Facility (TMLF)
- Central Bank Bills Swap (CBS)

□ Expanding the scope of eligible collaterals for monetary policy tools

- financial bonds for MSEs, green industry, and agriculture at or above AA
- corporate credit bonds at AA+ or AA
- MSE loans, private enterprise loans and green loans not rated by the PBC

Monetary Policies to Support Inclusive Finance

Taking micro and small enterprises (MSEs) as an example----achievements

At end 2018, the outstanding inclusive MSE loans registered 8 trillion yuan, up 18% year on year. The number of MSEs granted credit grew by 35.2% over the year before.

Experience from China's Practice

□ Developing financial infrastructure

- Each family has at least one account

8.5 billion personal accounts opened in the banking sector

- Improving service accessibility in rural areas

about 1 million agents, covering more than 90% villages in China

- Enhancing credit reporting system

information of 930 million individuals and 24 million organizations

- Integrated movable registration system

2.94 million registrations for finance lease, security deposit pledge, warehouse receipts, etc.

Experience from China's Practice

- Reforming financial institutions
 - encouraging big and medium-sized banks to establish inclusive finance department
 - reforming rural credit cooperatives
 - supporting micro finance, such as village and township banks and micro credit companies

Experience from China's Practice

□ Innovating digital finance

■ more diversified

nonbank digital payment, P2P, Internet banking, etc.

■ more technical-driven

big data, cloud computing, blockchain, AI, etc.

■ better collaborated

digital players and traditional service providers

■ better regulated

detailed regulations published, bad firms quit

Experience from China's Practice

- Extending monetary and regulatory policy support
 - differentiated reserve ratio, central bank lending and discount
 - proportionate regulatory polices for MSE loans, such as tolerance of NPR
 - supporting commercial banks to issue financial bonds for MSE loans

Experience from China's Practice

- Piloting regional polices
 - green finance targeting poverty alleviation in Qinghai Province
 - digital and mobile finance in Ningbo
 - rural finance and urbanization in Lankao County
 - financial literacy and infrastructure in Yijun County

Experience from China's Practice

□ Enhancing consumer protection and financial capability

■ dispute resolution

12363 hotline, alternative dispute resolution scheme

■ supervision

information disclosure system, “soft” supervision

■ financial capability

financial literacy month, national consumer protection day,
financial consumer capability survey

Challenges Ahead

- Understanding inclusive finance
- Recalibrating the role of government
- Achieving commercial sustainability
- Managing risks of digital finance
- Supporting rural financial service providers
- Improving financial capability

Thank you!