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**RETAIL FINANCIAL MARKETS AS A
DRIVER FOR THE DEVELOPMENT OF
FINANCIAL SECTOR**

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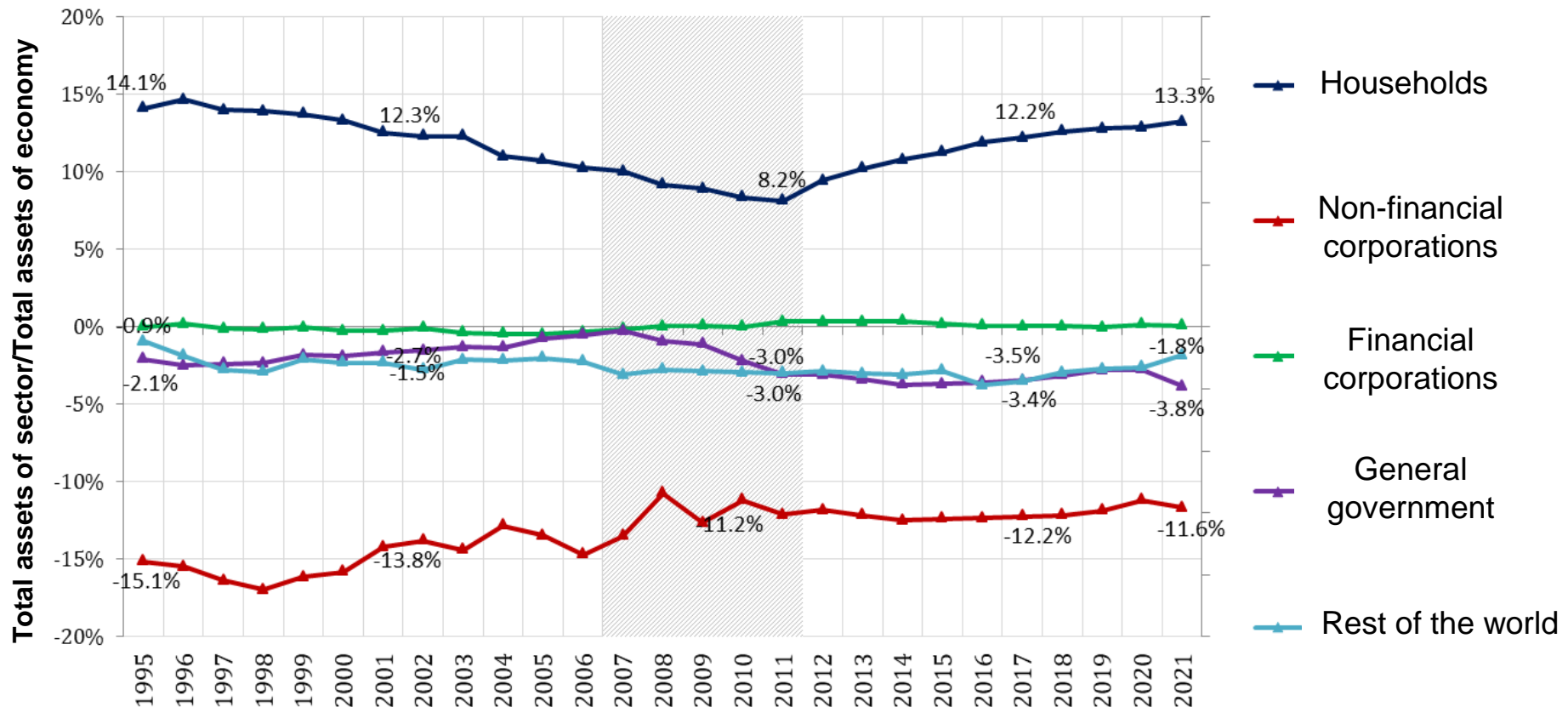
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Motivation

- Analysis of the factors determining the dynamics of the development of financial markets: macroeconomic, institutional, demographic, financial (*Demirgüç-Kunt, Maksimovic, 1996; La Porta et al., 1998; Djankov et al., 2007; Huang, 2011; Beck, Feyen, 2013; Sahay et al., 2015; Allen et al., 2017; Doucouliagos et al., 2020*).
- Analysis of the relationship between different financial markets (*Beck, Webb, 2003; Chan et al., 2005; Cottarelli et al., 2005; Davis, 2005; Rocholl, Niggemann, 2010; Beck et al., 2012; Alda, 2017*).
- Excessive development of the retail lending market as a cause of financial crises (*Cottarelli et al., 2005; Beck et al., 2012; Jappelli et al., 2013; Mian et al., 2017; Mian, Sufi, 2018*) and protracted economic recessions (*Cecchetti et al., 2011; Sassi, Gasmi, 2014; Garcia-Escribano, Han, 2015; Jorda et al., 2016*).
- This investigation examines how retail markets (household lending, life-insurance premiums, savings in non-governmental pension funds) affect the development of the financial sector by influencing the largest non-retail financial markets (corporate lending, stock market and insurance market).

The role of financial assets and liabilities of households in the development of the financial sector and the economy

- Data on the financial accounts of the SNA in the context of the main sectors of the economy in 31 countries*.
- Households in all considered countries play the role of a net creditor of the financial system and the economy.
- The change in the amount of net lending by households is a determining factor for the dynamics of net lending (borrowing) for other sectors of the economy.



*Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Russia, Slovakia, Slovenia, Spain, South Korea, Sweden, Turkey, UK, USA.

Classification of countries by types of the dynamics of financial liabilities and assets of households:1995-2020

Type of dynamics	Countries	Crisis 2007-2009 (Laeven, Valencia, 2020)
An increase in households' liabilities* and no or weak growth of their assets*	Austria, Belgium, Canada, Chile, Denmark, Estonia, Finland, France, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Netherlands, Norway, Portugal, Slovakia, Spain, UK, USA	Yes (the exceptions are Canada, Chile, Estonia, Finland, Lithuania, Norway, Slovakia; average losses = 41.7 p.p.)
An increase in households' liabilities and a respective increase in their assets	Czech Republic, Poland, Slovenia, South Korea, Sweden	No (the exception is Sweden – 25.5 p.p.)
A reduction of liabilities of households and an increase in their assets	Germany, Japan	No (the exception is Germany – 12.3 p.p.)

▶ *The volume of liabilities of households (relative to disposable income) and net assets of households (relative to the total volume of assets of the economy) **4**

Methodology

- Cross-country panel data
- The factor which reflects the level of development of retail financial markets (Principal component analysis)

Choosing an indicator reflecting the development of retail financial markets:

- take into account not only financial liabilities of households, but also assets;*
- high correlation between indicators reflecting the development of retail financial markets.*

- Non-linear influence of retail financial markets
- Controls: macroeconomic, demographic, financial, institutional factors
- 2-SLS GMM
- General type of the estimated model specification:

$$NRF_{it} = \alpha_i + \gamma_1 \cdot RF_{it-1} + \gamma_2 \cdot RF_{it-1}^2 + \sum_{n=1}^N \beta_n \cdot X_{n,it} + \varepsilon_{it}$$

Data

- **39** developed and developing **economies**
- significant variation in the levels of development of financial markets between the economies under consideration
- **1990-2018**
- Data sources:
 - **World Bank** (assets of non-governmental pension funds, stock market capitalization, life and non-life insurance premiums, GDP growth rate, CPI, natural resource rent, dependency ratio young, dependency ratio old, etc.);
 - **Bank for International Settlements** (loans to households and loans to non-financial companies);
 - **Fraiser Institute** и **Heritage Foundation** (index of economic globalization, index of judicial independence, index of property rights protection).

The composite indicator of the development of retail financial markets

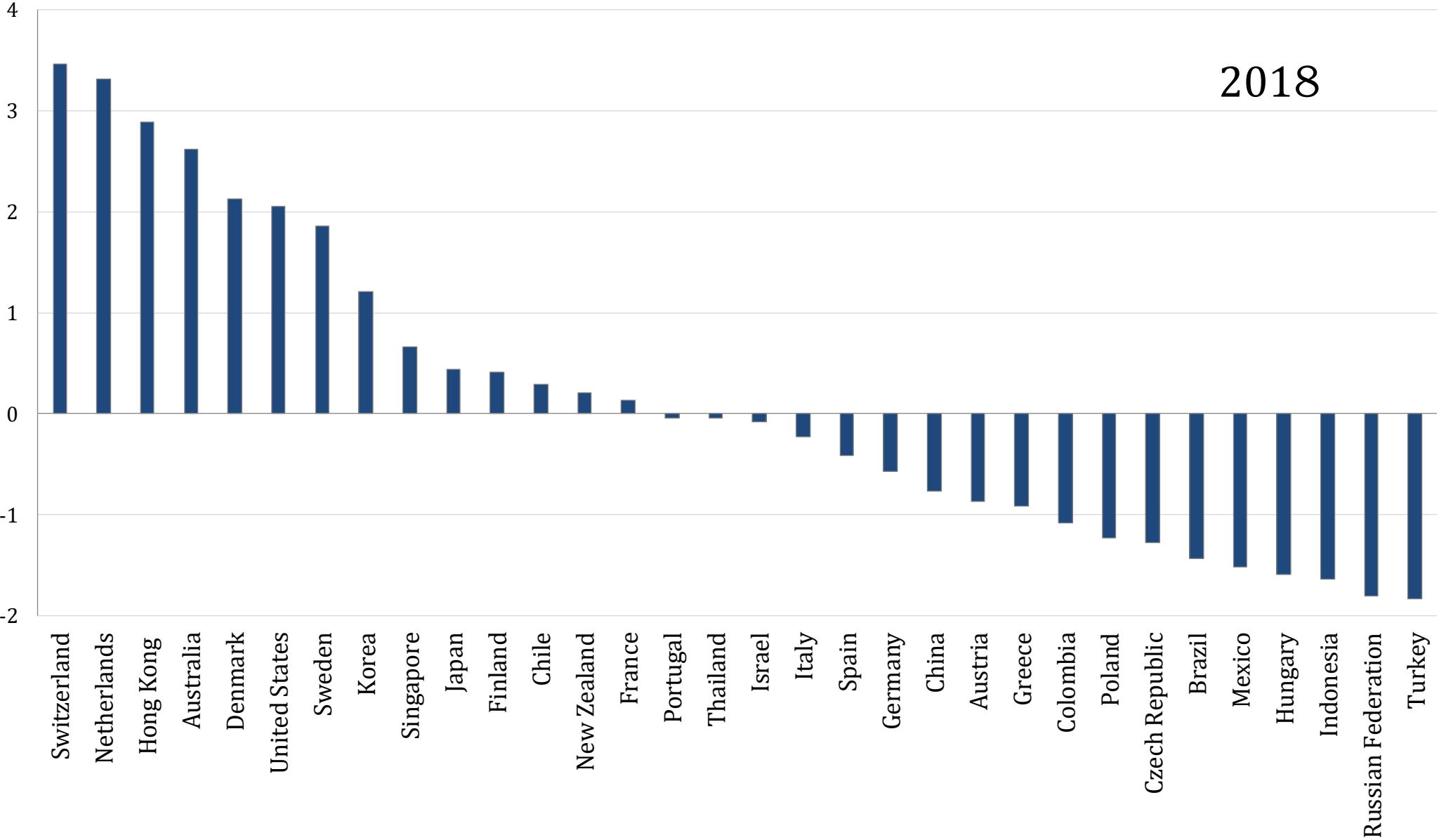
PCA (Sahay et al., 2015; Svirydzenka, 2016)

- *Basic version:*
 - Loans to households;
 - Assets of non-governmental pension funds;
 - Life-insurance premiums.
 - The first PC describes 65,2% of total variation.
- *Additional version:*
 - Assets of non-governmental pension funds;
 - Life-insurance premiums.
 - The first PC describes 65,3% of total variation.

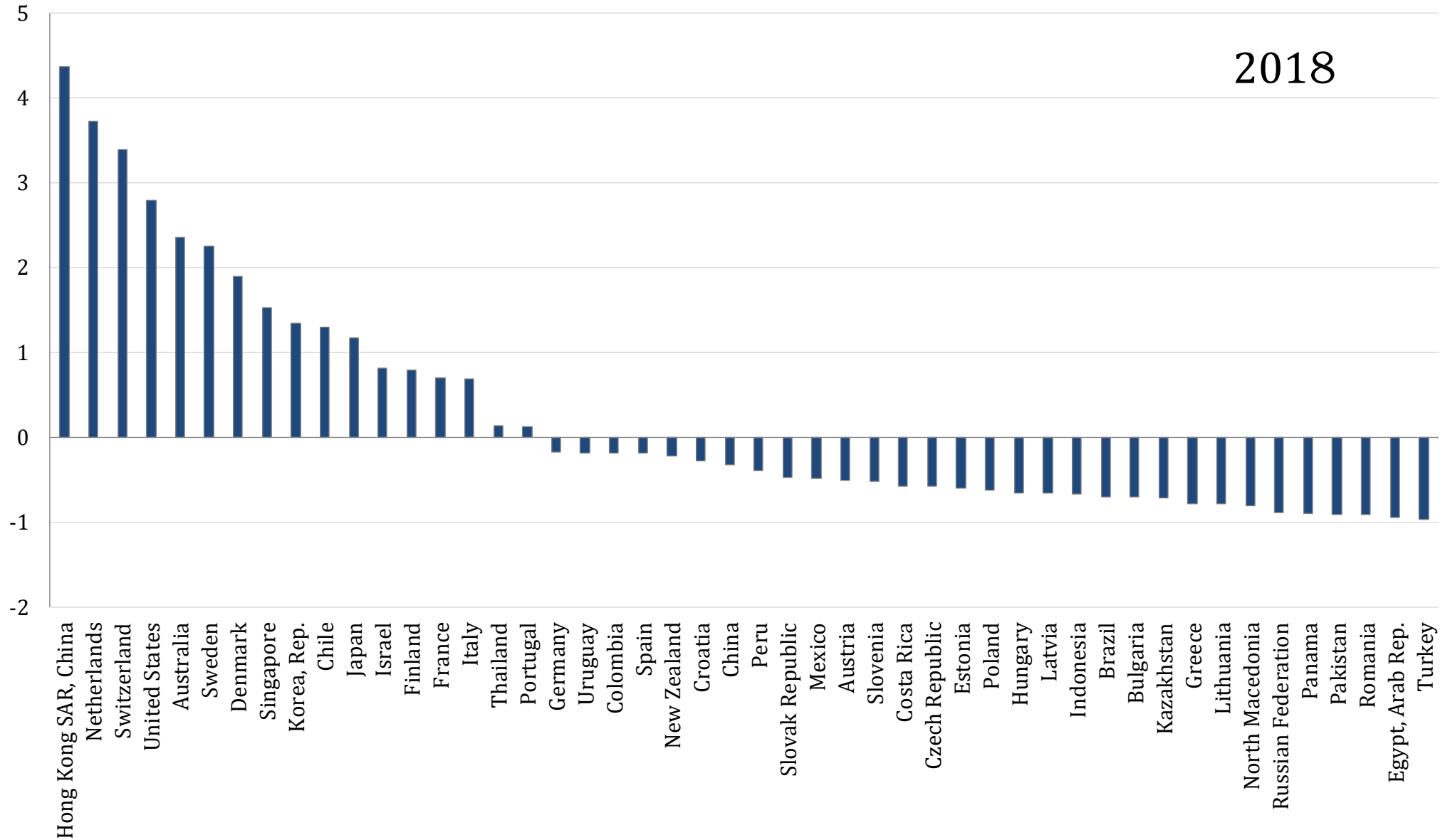
Factor loadings		
Factors	The 1 st PC	The 2 nd PC
Life-insurance premiums	0.507	0.817
Loans to households	0.637	-0.139
Assets of non-governmental pension funds	0.576	-0.560

Factor loadings		
Factors	The 1 st PC	The 2 nd PC
Life-insurance premiums	0.707	-0.707
Assets of non-governmental pension funds	0.707	0.707

Distribution of countries by composite indicator of the development of retail financial markets *(basic version of CIRFM with loans to households)*



Distribution of countries by composite indicator of the development of retail financial markets (additional version of CIRFM without loans to households)



The impact of retail financial markets development on lending to non-financial companies

	I	II	III
CIRFM with loans to HH (lag=1)	13.659*** (1.734)		
CIRFM with loans to HH, square (lag=1)	-1.454*** (0.373)		
CIRFM without loans to HH (lag=1)		7.758*** (2.120)	
CIRFM without loans to HH, square (lag=1)		-0.144 (0.468)	
Loans to HH/GDP (lag=1)			0.659*** (0.103)
Loans to HH/GDP, square (lag=1)			-0.001** (0.001)
Number of observations	525	525	525
Number of countries	39	39	39
Controls	+	+	+
Fixed effects	+	+	+
R²	45%	31%	49%
Correlation (Y, \hat{Y})	97%	96%	97%
p-value for Hansen's J Test	0.256	0.079	0.355
Cragg-Donald Wald F-statistic	85.6	128.4	49.2

The impact of retail financial markets:

- **Statistically significant**
- **Non-linear** (for loans to households)

The impact of retail financial markets development on stock market capitalization

	I	II	III	IV
CIRFM with loans to HH (lag=1)	8.803** (3.495)	7.456*** (2.516)		
CIRFM with loans to HH, square (lag=1)	-0.947 (0.957)			
CIRFM without loans to HH (lag=1)			6.394** (2.585)	
Loans to HH/GDP (lag=1)				0.126 (0.117)
Number of observations	605	605	605	605
Number of countries	37	37	37	37
Controls	+	+	+	+
Fixed effects	+	+	+	+
R²	10%	7%	18%	13%
Correlation (Y, \hat{Y})	91%	91%	92%	91%
p-value for Hansen's J Test	0.373	0.549	0.422	0.316
Cragg-Donald Wald F-statistic	13.33	12.25	16.48	6.05

The impact of retail financial markets:

- **Statistically significant**
- **Linear**

The impact of retail financial markets development on non-life insurance premiums

	I	II	III	IV
CIRFM with loans to HH (lag=1)	0.085*** (0.032)			
CIRFM with loans to HH, square (lag=1)	-0.019* (0.011)			
CIRFM without loans to HH (lag=1)		0.061* (0.035)		
CIRFM without loans to HH, square (lag=1)		-0.019* (0.011)		
Loans to HH/GDP (lag=1)			0.007*** (0.003)	
Loans to HH/GDP, square (lag=1)			-0.000 (0.000)	
Life insurance premiums/GDP (lag=1)				0.045** (0.020)
Life insurance premiums/GDP, square (lag=1)				-0.002* (0.001)
Number of observations	628	628	628	628
Number of countries	38	38	38	38
Controls	+	+	+	+
Fixed effects	+	+	+	+
R²	3%	4%	4%	6%
Correlation (Y, \hat{Y})	96%	96%	95%	96%
p-value for Hansen's J Test	0.379	0.296	0.170	0.172
Cragg-Donald Wald F-statistic	14.41	15.47	8.71	14.46

The impact of retail financial markets:

- **Statistically significant**
- **Non-linear (for life insurance premiums)**

Results

- The development of retail markets of the financial sector has a significant impact on the development of other financial markets, and, as a result, on the development of the financial sector as a whole.
- Balanced growth of household assets and liabilities is important for sustainable development of the financial sector.
- On the one hand, the expansion of retail financial markets stimulates the development of non-retail financial markets (corporate lending market, stock market and insurance market).
- On the other hand, overheating of the retail credit market has a negative impact on the stability of the banking sector and subsequently leads to a reduction in the size of the corporate lending market. In addition, excessively rapid development of the life insurance segment may hamper the development of other segments of the insurance market.

**Thank you for
your attention!**



The impact of retail financial markets development on lending to non-financial companies

	I	II	III
Macroeconomic			
GDP per cap	0,794*** (0,099)	1,064*** (0,093)	0,638*** (0,119)
Inflation	-0,541*** (0,086)	-0,615*** (0,119)	-0,468*** (0,084)
National resource rent (to GDP)	-2,026*** (0,265)	-2,031*** (0,287)	-1,861*** (0,265)
Financial			
CIRFM with loans to HH (lag=1)	13,659*** (1,734)		
CIRFM with loans to HH, square (lag=1)	-1,454*** (0,373)		
CIRFM without loans to HH (lag=1)		7,758*** (2,120)	
CIRFM without loans to HH, square (lag=1)		-0,144 (0,468)	
Loans to HH/GDP (lag=1)			0,659*** (0,103)
Loans to HH/GDP, square (lag=1)			-0,001** (0,001)
Lerner Index	-12,548** (5,376)	-11,322** (5,694)	-9,936* (5,474)
Cost to income (for banks)	-0,019 (0,038)	-0,085* (0,044)	-0,010 (0,039)
Capital to assets (for banks)	-1,640*** (0,341)	-1,956*** (0,384)	-0,982*** (0,349)
Institutional			
Index of Property Rights protection and contract enforcement	0,334*** (0,068)	0,270*** (0,070)	0,346*** (0,062)
Observations	525	525	525

The impact of retail financial markets development on stock market capitalization

	I	II	III	IV
Macroeconomic				
GDP per cap, growth	77,679*** (21,717)	84,134*** (23,325)	60,840*** (19,765)	70,536** (34,400)
Financial				
CIRFM with loans to HH (lag=I)	8,803** (3,495)	7,456*** (2,516)		
CIRFM with loans to HH, square (lag=I)	-0,947 (0,957)			
CIRFM without loans to HH (lag=I)			6,394** (2,585)	
Loans to HH/GDP (lag=I)				0,126 (0,117)
Dow-Jones Index	0,001*** (0,000)	0,001*** (0,000)	0,001*** (0,000)	0,001*** (0,000)
Institutional				
Economic globalization index (de-jure)	0,800*** (0,157)	0,816*** (0,153)	0,781*** (0,133)	0,841*** (0,143)
Index of the legal system and protection of property rights	5,491*** (1,890)	5,559*** (1,919)	5,675*** (1,779)	5,642*** (1,860)
Demographic				
Age-dependency ratio (young)	-0,749* (0,421)	-0,833** (0,393)	-1,053*** (0,336)	-0,975** (0,424)
Observations	605	605	605	605

The impact of retail financial markets development on non-life insurance premiums

	I	II	III	IV
Macroeconomic				
GDP per cap, growth	0,427* (0,231)	0,238 (0,228)	1,233*** (0,312)	0,097 (0,231)
Inflation	−0,003** (0,002)	−0,005*** (0,002)	−0,005** (0,003)	−0,005*** (0,002)
National resource rent (to GDP)	−0,027*** (0,008)	−0,023*** (0,007)	−0,047*** (0,010)	−0,019*** (0,007)
Financial				
CIRFM with loans to HH (lag=1)	0,085*** (0,032)			
CIRFM with loans to HH, square (lag=1)	−0,019* (0,011)			
CIRFM without loans to HH (lag=1)		0,061* (0,035)		
CIRFM without loans to HH, square (lag=1)		−0,019* (0,011)		
Loans to HH/GDP (lag=1)			0,007*** (0,003)	
Loans to HH/GDP, square (lag=1)			−0,000 (0,000)	
Life insurance premiums/GDP (lag=1)				0,045** (0,020)
Life insurance premiums/GDP, square (lag=1)				−0,002* (0,001)
Institutional				
Index of protection of property rights	0,003 (0,011)	0,013 (0,011)	−0,001 (0,014)	0,012 (0,011)
Demographic				
Age-dependency ratio (old)	−0,014*** (0,004)	−0,011*** (0,004)	−0,012*** (0,004)	−0,013*** (0,004)
Observations	628	628	628	628