



100 YEARS
UNDERSTANDING
AND SHAPING
THE GLOBAL ECONOMY

Institut für Städtebau, Wohnungswirtschaft und Bausparwesen | Berlin, 6. März 2015

50. Königsteiner Gespräch:

„Auswirkungen der EZB-Niedrigzinspolitik auf Vermögensbildung und private Altersvorsorge“

Niedrigzinspolitik, Vermögensbildung und private Altersvorsorge – Globale Perspektive

Prof. Dr. Stefan Kooths

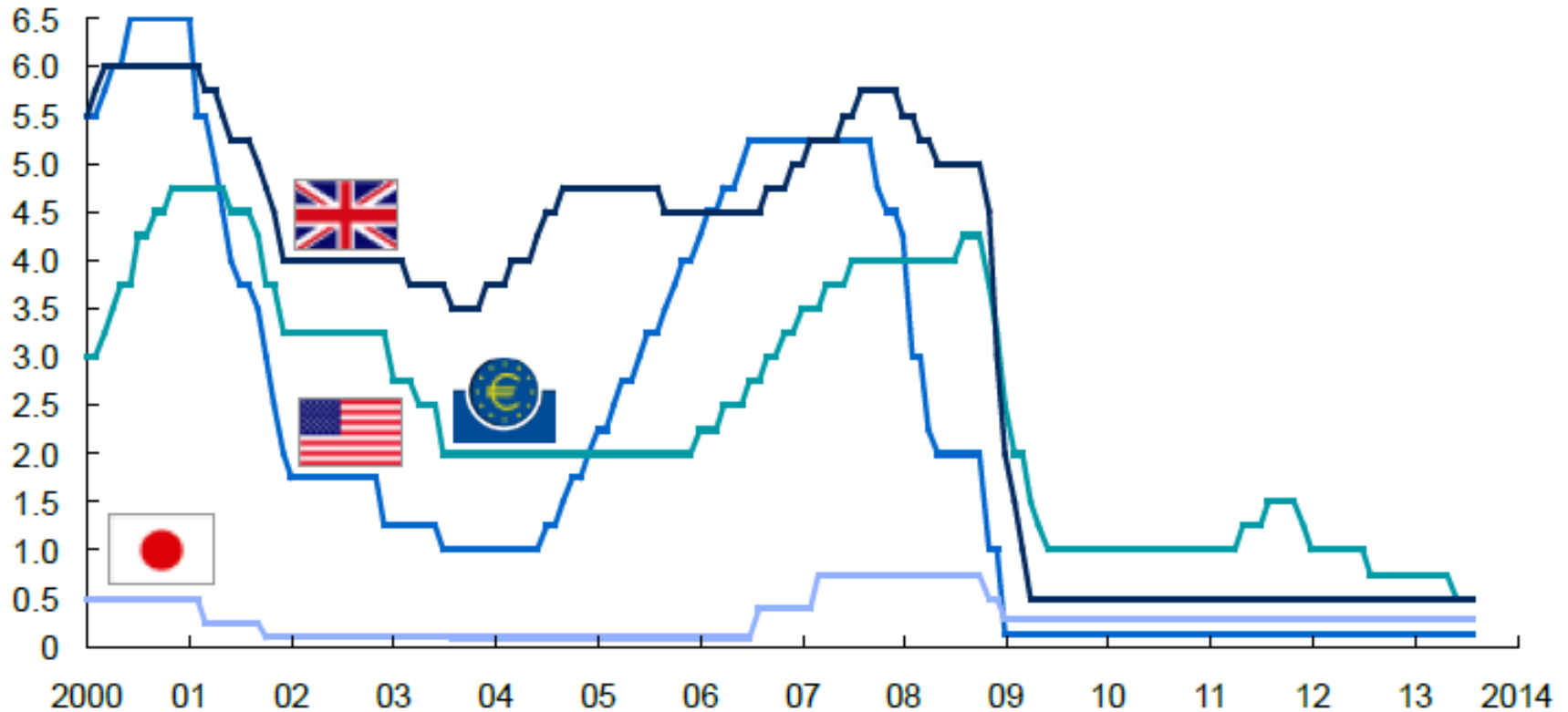
Institut für Weltwirtschaft an der Universität Kiel, Prognosezentrum

Business and Information Technology School (BiTS), Campus Berlin

General remarks from a global viewpoint

- Global landscape
 - » Mankind's largest monetary experiment of all peace times
 - » Potentially misleading signals from „Inflation targeting“
- Experience from „Quantitative Easing“
 - » Extremely heterogeneous (theoretically and empirically)
 - » Story not over yet: Exit experience is missing
- Financial crisis and capital stock distortions
 - » Macro-analysis prone to misleading results (structural problems)
 - » Underlying mismatches are non-monetary by their very nature
- Role of interest
 - » Aligning time preferences and production structures ...
 - » ... or just another macro policy instrument?

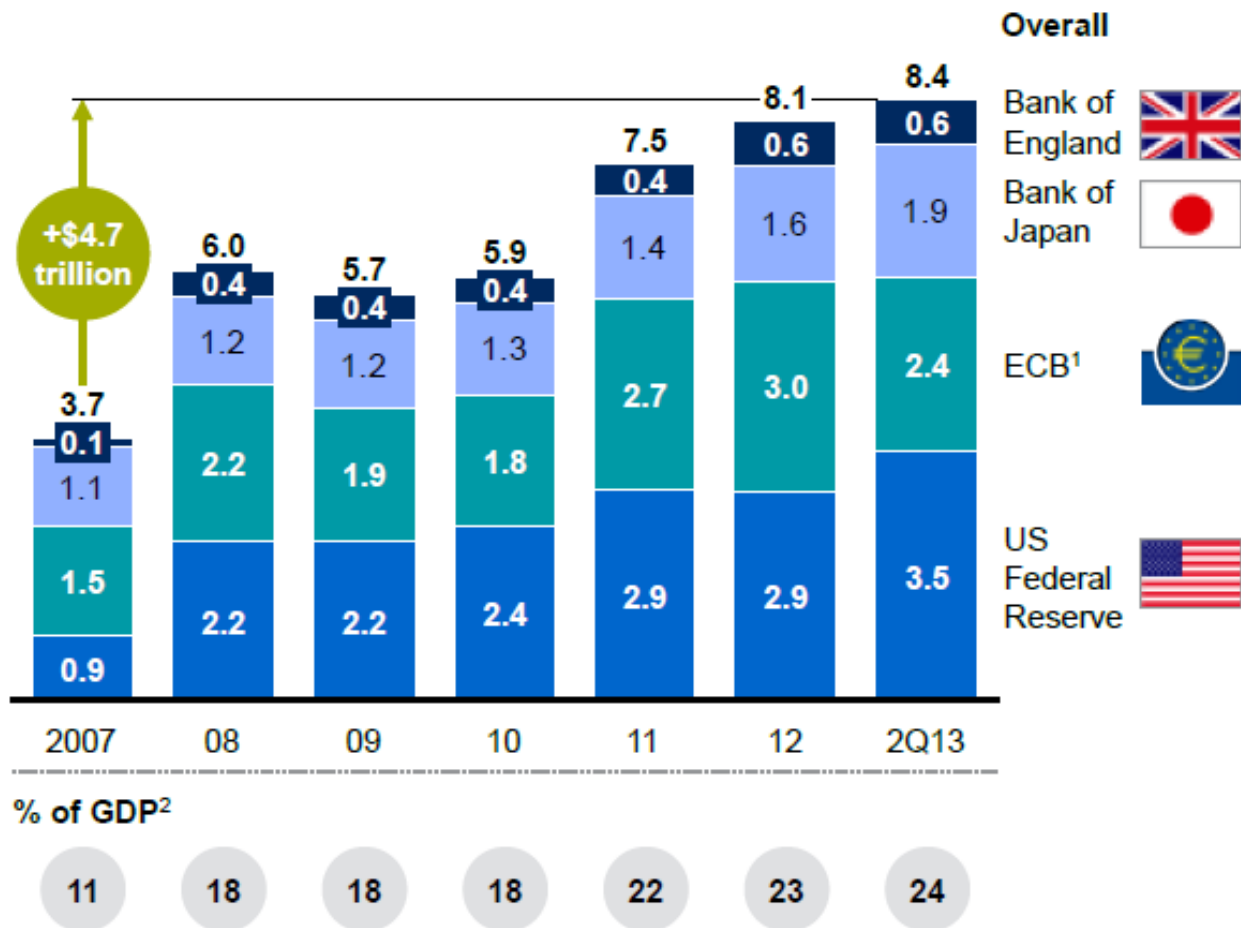
Policy rates of main central banks at ultra-low levels



SOURCE: US Federal Reserve; European Central Bank; Bank of England; Bank of Japan; McKinsey Global Institute

Central bank balance sheet expansion

Total assets on central bank balance sheets (end-of-period values), \$ trillion, converted at 2013-Q2 exchange rate

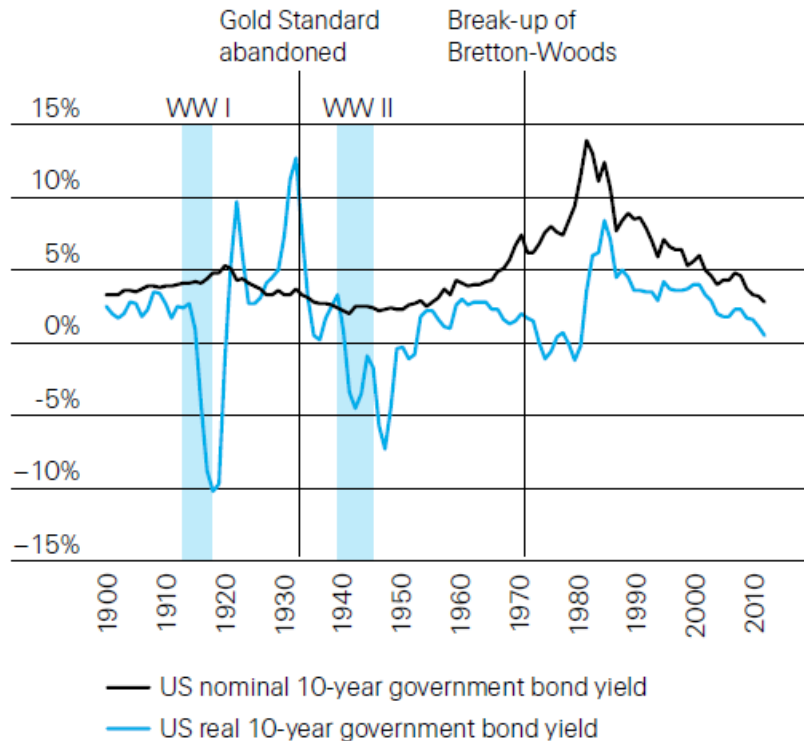


SOURCE: US Federal Reserve; European Central Bank; Bank of England; Bank of Japan; McKinsey Global Institute

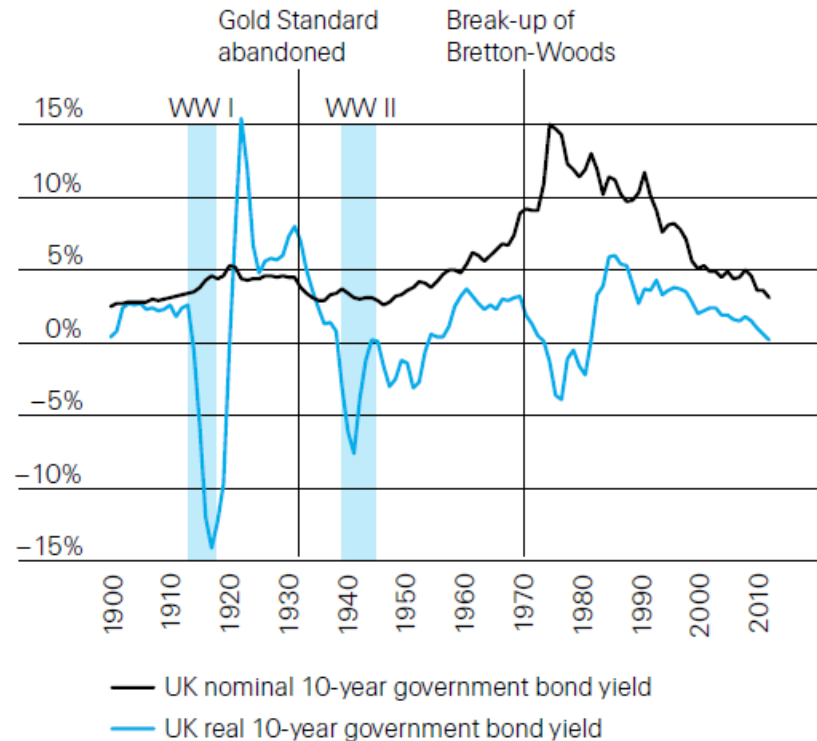
Interest rates: A centenary perspective

Nominal and real 10-year government bond yields 1900-2011

US



UK



Sources: Datastream; Homer Sidney and Richard Sylla, *A History of Interest Rates* (New Jersey: Wiley Finance, 2005); Swiss Re Economic Research & Consulting

- Interest regime transitions vs. ultra-low interest regimes
- Future is per se uncertain, but: artificial intervention risks

Savings/retirement products: Types of contracts

- Insurance industry
 - » Fixed return (guaranteed by insurance company)
 - » Unit-linked (variable return depending on portfolio performance)

- Pension funds
 - » Defined benefit (DB)
 - Some or all risks are borne by fund and its sponsor
 - Pension liabilities consist of technical provisions
 - » Defined contribution (DC)
 - All risks are borne by participants
 - Total entitlements are equal to the value of the scheme's assets

Life insurance companies and pension funds

- Large segment of the global financial system
 - » Channeling huge saving volumes into wide range of financial markets
 - » Providing long-term funds to various sectors in the economy
- Insurance investments concentrated in life insurance industry
 - » \$ 18.7 trillion (end-2009) out of \$ 22.6 trillion
 - » European entities account for nearly half of global insurance assets
- Key role in fixed income markets
 - » > 40 percent (Switzerland, Netherlands, Nordic countries)
 - » > 30 percent (Canada, United Kingdom)
 - » >10 percent (other major markets like France, Germany, United States)

Asset allocation of insurance companies and pension funds

Selected investment categories, at and-2009

Country	Pension funds					Life insurance companies				
	Total investment		Allocation ¹			Total investment ²		Allocation ³		
	USD billions	% of GDP	Bonds and bills	Cash and deposits	Equity	USD billions	% of GDP	Bonds	Loans	Equity
Australia	808.2	82.5	12.8	16.0	54.4	26	2.3	53.1	3.7	21.9
Austria	19.0	5.0	54.9	9.8	26.8	0	0.1	17.6	0.3	na
Belgium	19.2	4.1	40.8	6.2	34.5	20	4.0	81.4	6.9	7.2
Canada	806.3	60.3	35.2	3.9	33.9	330	22.7	38.4	2.6	22.4
France ⁴	21.9	0.77	na	na	na	461	16.8	76.3	0.6	20.0
Germany	173.8	5.2	40.8	3.3	6.1	1,019	29.5	35.0	33.3	3.5
Italy	86.8	4.1	49.0	6.4	11.1	132	6.0	91.8	na	3.3
Japan ⁵	1,055.7	20.6	47.7	6.4	13.7	3110	52.76	54.5	16.34	5.36
Korea	29.6	3.6	33.8	40.2	2.7	219	23.9	40.5	23.7	6.3
Mexico	107.1	12.2	80.6	1.0	14.9	9	1.0	84.9	1.5	0.4
Netherlands	997.9	129.4	46.5	3.6	32.2	286	34.8	57.9	11.5	16.8
Spain	118.2	8.1	59.2	18.5	12.1	25	1.62	na	na	na
Sweden	33.4	8.2	60.9	2.97	31.4	231	52.9	55.5	0.6	35.5
Switzerland	551.4	100.6	36.5	na	25.7	243	46.7	55.7	12.6	1.6
United Kingdom	1753.0	66.6	4.2	28.6	39.6	2136	94.7	33.3	1.79	43.8
United States ⁶	9,603.6	68.0	31.4	2.2	45.4	425	3.0	79.9	12.9	3.4

Notes: National definitions differ across countries (OECD (2010a)). na: not available. ¹ Asset allocation as a percentage of total investment. The asset allocation data include both direct and indirect investments through mutual funds. The three listed asset classes sum to less than 100%; other investments (not shown) include loans, land and buildings, unallocated insurance contracts, private investment funds and mutual funds not invested in cash, bills, bonds or equities. ² Total investment data exclude assets linked to unit-linked products sold to policyholders and do not include assets under management of foreign affiliates and branches. For some countries, total investments amount to a fraction of total assets. ³ Asset allocation as a percentage of total investment. ⁴ Data accounting for pension funds refer to the year 2008.

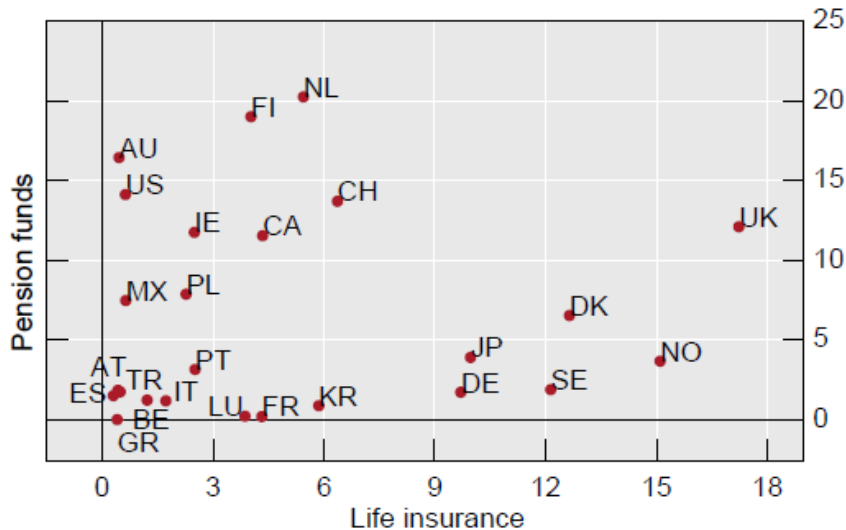
⁵ Japan's insurance data are as end-March 2010. ⁶ The assets of US life insurance companies and private pension funds combined amount to approximately \$10 trillion (flow of funds statistics, end-2009), with life insurance assets accounting for nearly half of this aggregate. The same aggregate is split differently in the OECD data used here, as the life insurance category only includes companies for which direct premiums accounted for 100% of gross premiums; the remaining assets are attributed to pension funds.

Source: OECD Global Pension Statistics, OECD Global Insurance Statistics and OECD staff estimates.

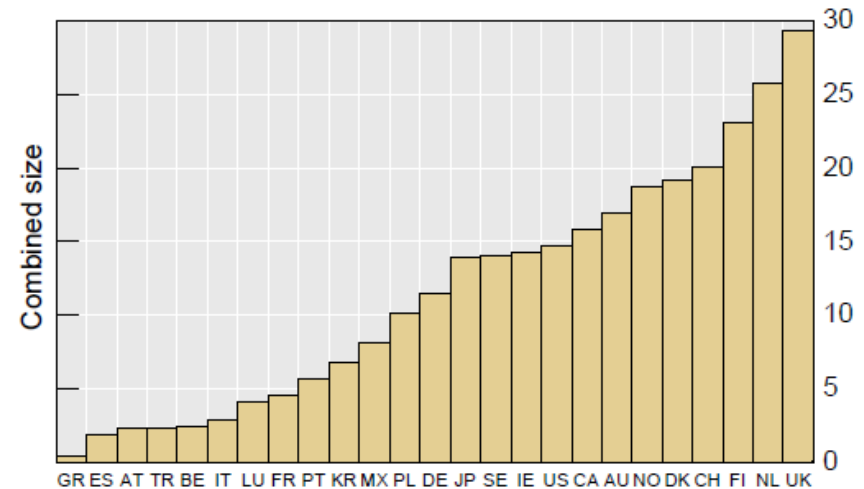
Footprint of life insurance and pensions funds industry

Total investment expressed as percentage of financial system assets

The scale of life insurance and pension funds



The scale of life insurers and pension funds combined



AT = Austria, AU = Australia, BE = Belgium, CA = Canada, CH = Switzerland, DE = Germany, DK = Denmark, ES = Spain, FI = Finland, FR = France, GR = Greece, IE = Ireland, IT = Italy, JP = Japan, KR = Korea, LU = Luxembourg, MX = Mexico, NL = Netherlands, NO = Norway, PL = Poland, PT = Portugal, SE = Sweden, TR = Turkey, UK = United Kingdom, US = United States.

¹ The size of the financial system is approximated as the sum of total assets of deposit money banks, plus stock and bond market capitalisation, as defined in the World Bank's *Financial Development and Structure Database* as of end-2009. The pension and insurance data are from the OECD's *Global Pension Statistics and Insurance Statistics*, end-2009. Investment data exclude assets linked to unit-linked products sold to policyholders and do not include assets under management of foreign affiliates and branches.

Sources: OECD and World Bank.

Product characteristics and insurers' interest rate exposure

	German "Kapitallebensversicherung"	US "Deferred Annuities"	US "Universal Life"	US "Whole Life"	Canadian "Universal Life"	Spanish "Capitales Diferidos"	Japanese "Single Premium Whole Life"	Italian "Polizze Rivalutabili"	French "Assurance Vie – Fonds Général en Euros"	UK "Endowment Assurance"
Market relevance										
High premium share in total life market	High	High	Medium	Medium	Medium	Medium	Medium	High	High	Low
Product features that increase interest rate sensitivity										
Inflexible interest rate guarantee	High	High	High	High	High	High	High	Medium	Low	Low
Option to increase sums insured/accounts with initial interest rate guarantee level**	Medium	Medium	High	Low	High	Low	Low	Medium	Low	Low
No market value adjustment to surrender values	High	High	High	High	Low	High	High	High	High	Low
Insignificant, limited, or no surrender charge	Low	Medium	Low	Low	Low	Low	High	Medium	High	High
No tax benefit	Low	Low	Low	Low	Low	High	Low	High	Low	Low
Risk Scenario										
Interest rates decline or stay low for long	High	High	High	High	High	High	Medium	Medium	Low	Low
Interest rates surge	Medium	High	Medium	Medium	Low	Medium	High	High	Low	Low

* Sums insured in the first five to ten years are limited to the single premium payment.

** These options are available depending on the contract terms or only on special occasions such as marriage or the birth of a child.

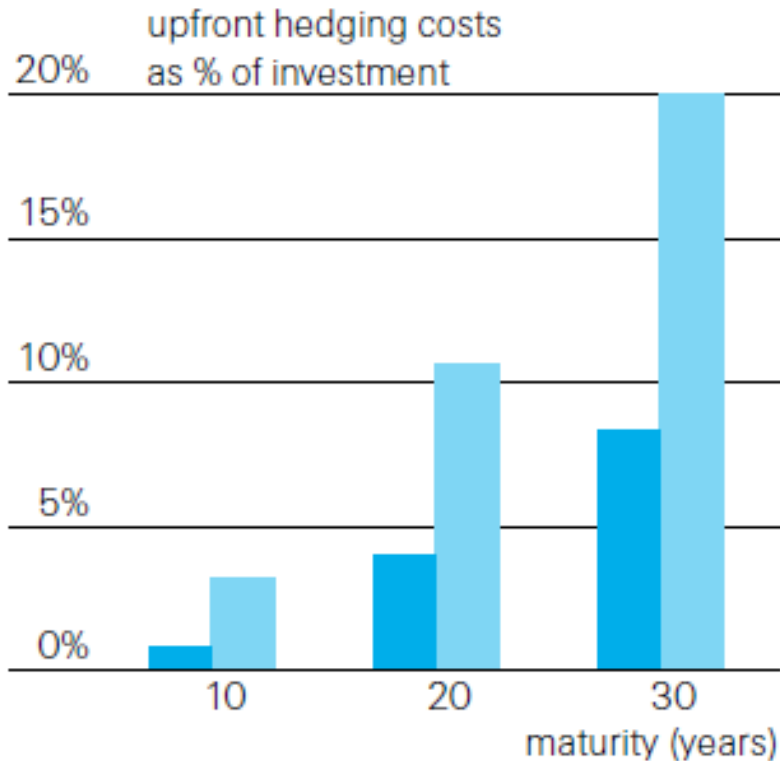
Colour key:

- Results in high interest rate exposure for insurers
- Results in medium interest rate exposure for insurers
- Results in low interest rate exposure for insurers

Source: Swiss Re Economic Research & Consulting

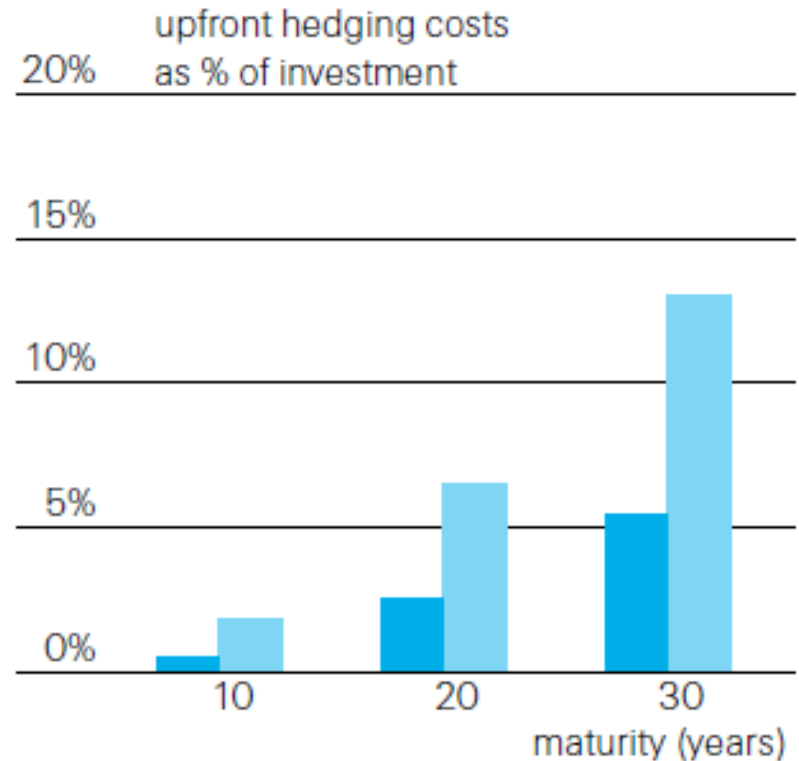
Low-interest-rate regimes increase cost guarantees

Present situation
(assuming an initial 3.3% portfolio yield)



■ 1% annual guarantee
■ 2% annual guarantee

Hypothetical situation
(assuming an initial 4.3% portfolio yield)

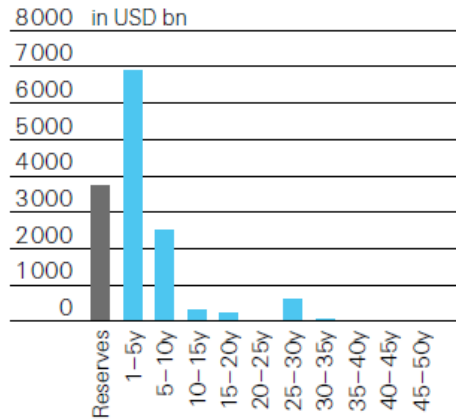


Source: Swiss Re

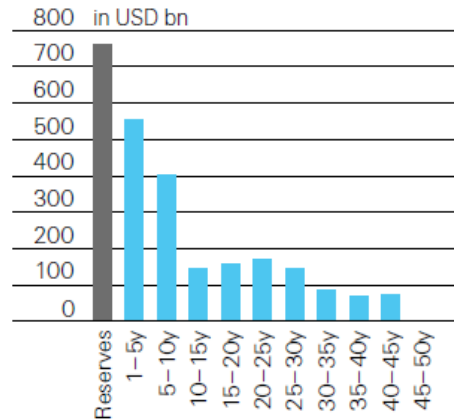
Lack of long-term assets complicates insurers' ALM

Technical provisions of non-life and life insurance companies vs. outstanding government bonds

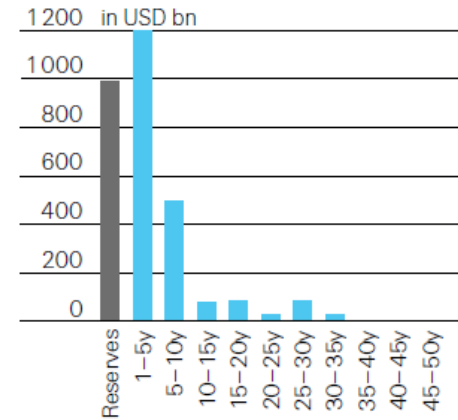
United States



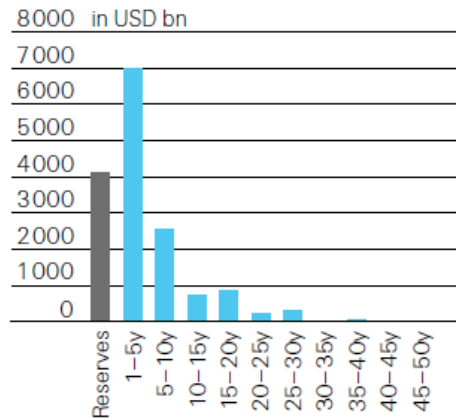
United Kingdom



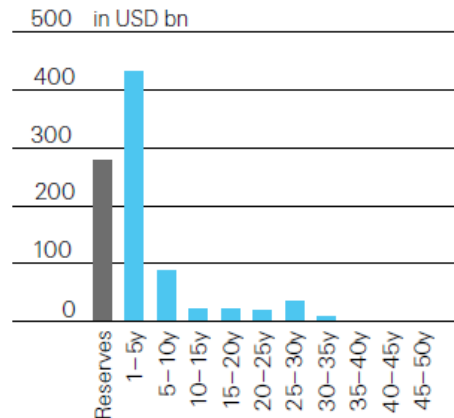
Germany



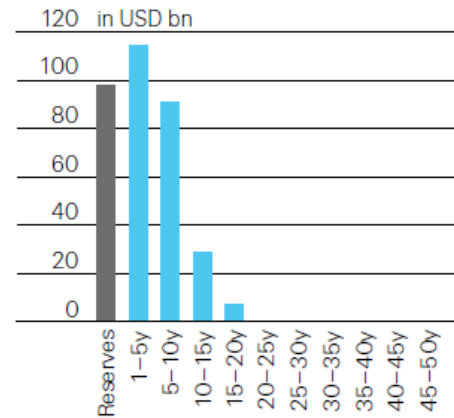
Japan



Canada



Australia



Notes: The scale of the Y-axis differs from market to market. The data shown excludes loans to governments that are not securitised.

Data for Germany includes debt securities of individual German states (Länder). Reserves backing unit-linked contracts are excluded.

Sources: Bloomberg, Supervisory Authorities, Insurance Associations, Swiss Re Economic Research & Consulting

Insurance vs. banking business models

Source: OECD, Standard and Poor's

Area	Insurance	Banking
Business scope	Risk pooling and risk transfer	Payment services, intermediation with maturity transformation
Funding	Liability-driven Up-front premiums Assets and liabilities are mostly matched Limited use of inter-company borrowing/lending	Liability and market funding-driven Mostly short-term funding Assets and liabilities are not strictly linked Interbank borrowing/lending is significant
Balance sheet	Business cycle influences balance sheet in a limited manner	Assets and liabilities exposed to business cycle
Risks	Substantial interest rate risk Low liquidity risk Low interconnectedness due to relatively higher substitutability High percentage of assumed risk is retained Leverage is limited	Substantial credit and liquidity risk Key risk due to maturity transformation and wholesale funding Substantial trading among institutions (interbank and repo) Low owner risk retained, especially with securitisation Significant use of leverage
ALM and investment	Relatively stable funding and liability-driven investment	Low liquidity and asset-driven investment

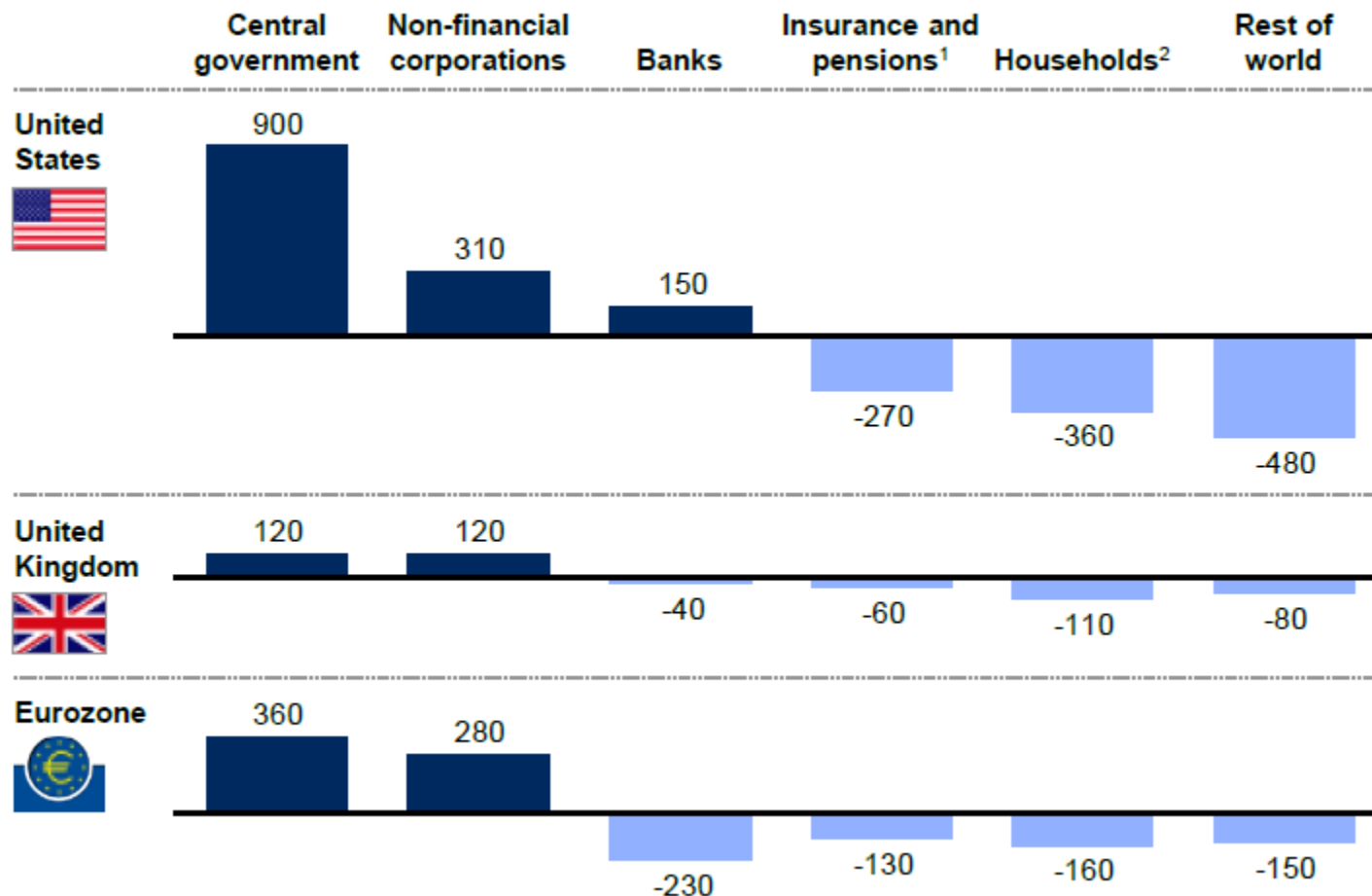
Failure-Rating (S&P)

„R“ (regulatory event)

„D“ (default)

Impact of lower interest rates on different sectors

Estimated cumulative change in net interest income 2007-12, 4 billion, converted at 2012 exchange rate



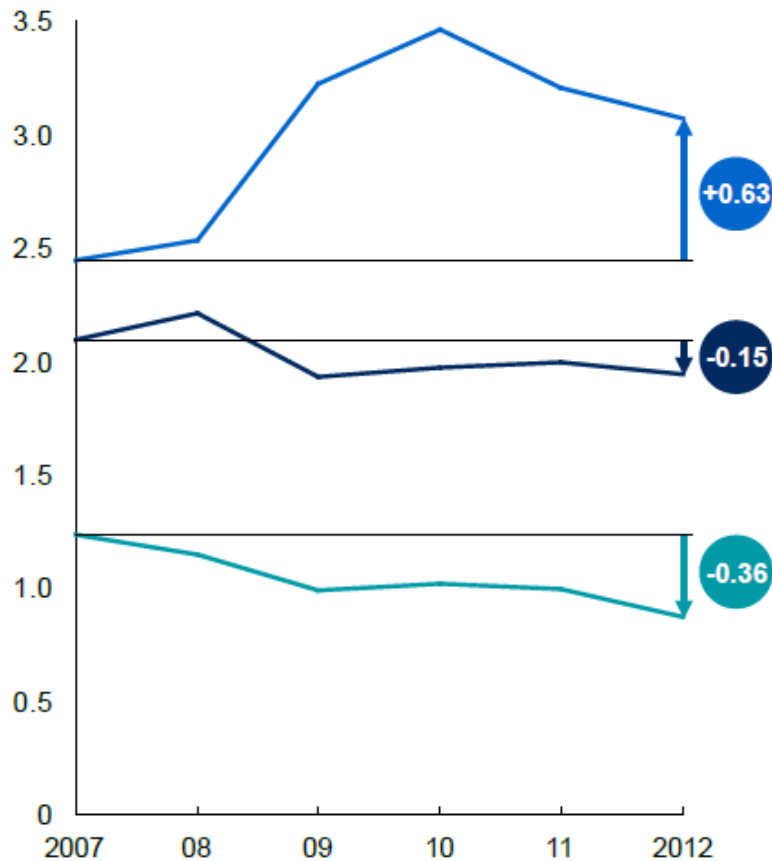
¹ Includes only defined-benefit pension plans and guaranteed-rate life insurance policies.

² Household numbers include non-profits, defined-contribution pension plans, and variable-rate life insurance policies.

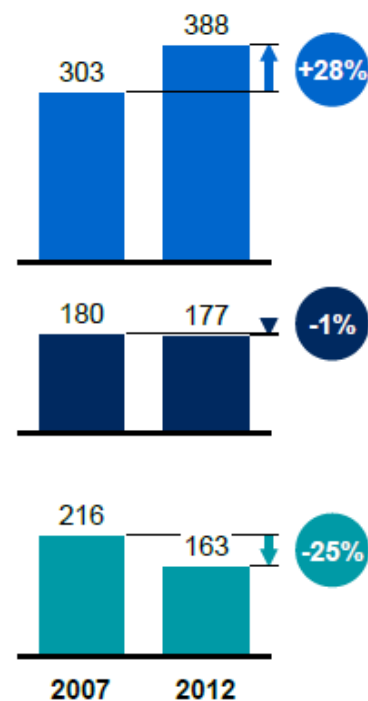
SOURCE: US Federal Reserve; McKinsey Corporate Performance Analysis Tool; Standard & Poor's; US Treasury Department; Bankrate; Eurostat; Bank of England; Bloomberg; European Fund and Asset Management Association; International Monetary Fund; UK Debt Management Office; European Central Bank; McKinsey Global Institute analysis

Banks' effective interest margins (I)

Banks' effective interest margins—spread between effective rate received on assets and paid on liabilities
%, annual values



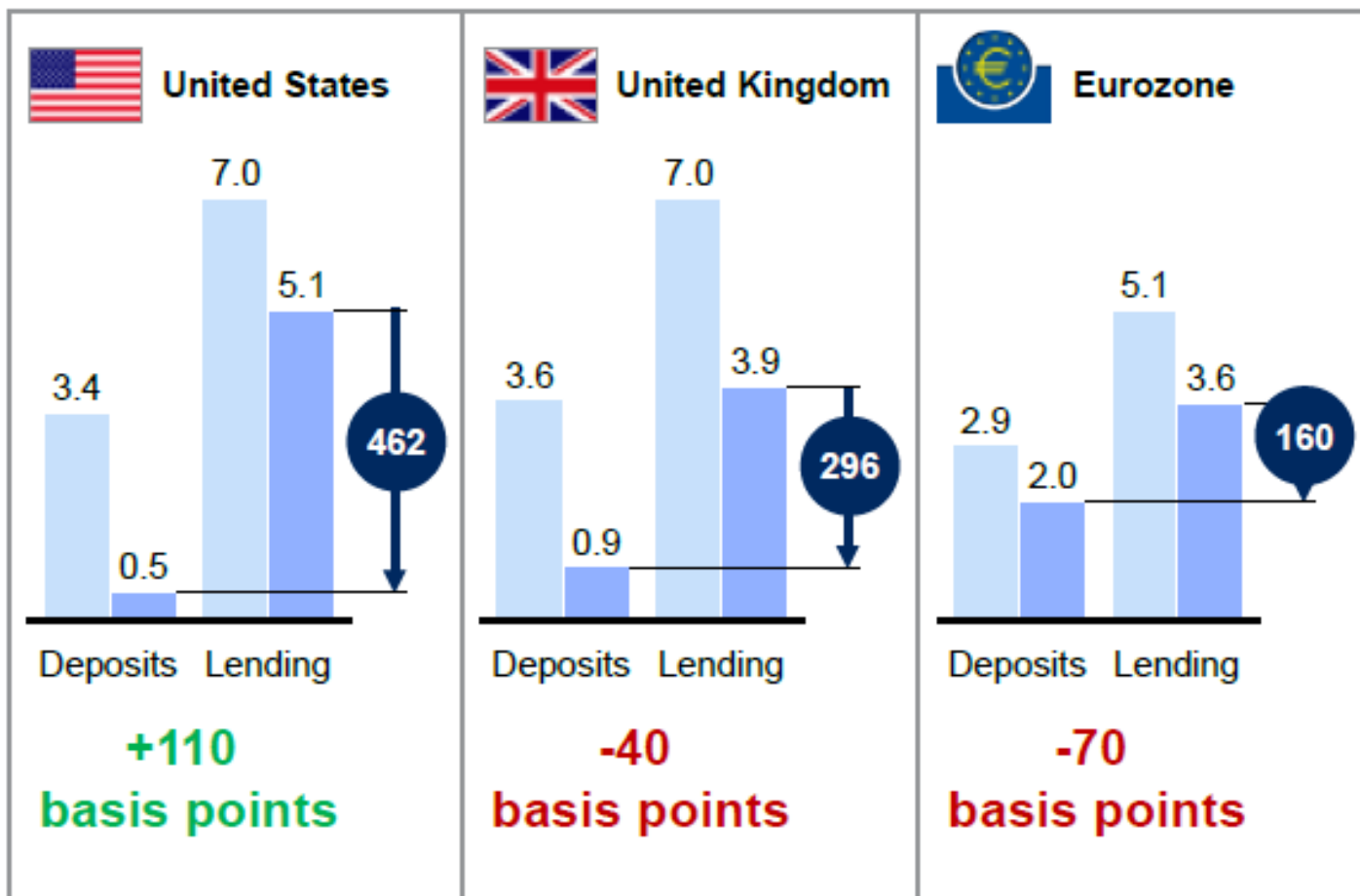
Banks' net interest income
\$ billion



SOURCE: Federal Deposit Insurance Corporation; Eurostat; Bloomberg; McKinsey Global Institute analysis

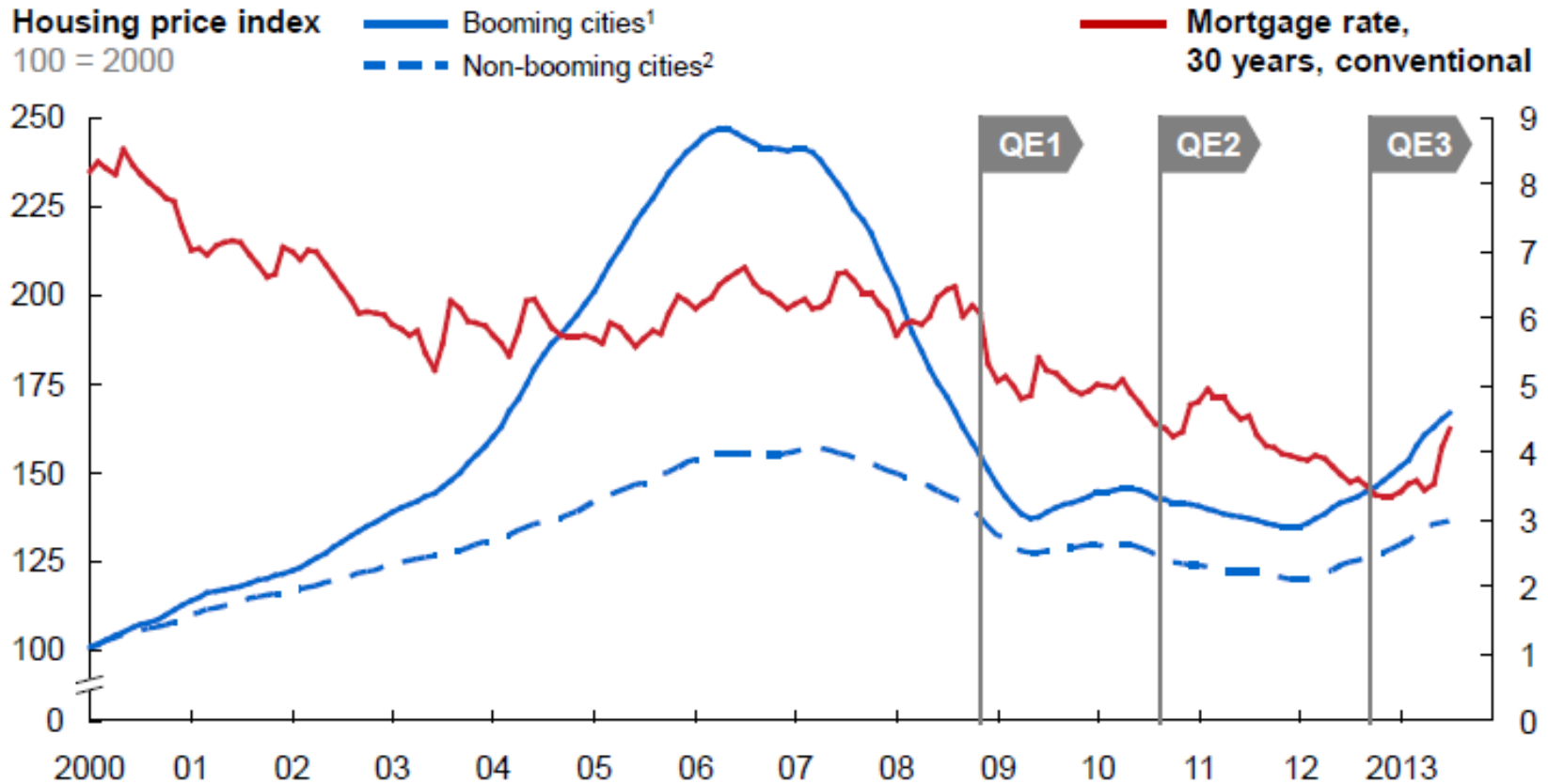
Banks' effective interest margins (II)

Effective rates paid/received on deposits and loans, percent



SOURCE: US Federal Reserve; Federal Deposit Insurance Corporation; Bankrate; McKinsey Corporate Performance Analysis Tool; Bank of England; Eurostat; European Central Bank; Bloomberg; McKinsey Global Institute

US: Mortgage rates and house prices

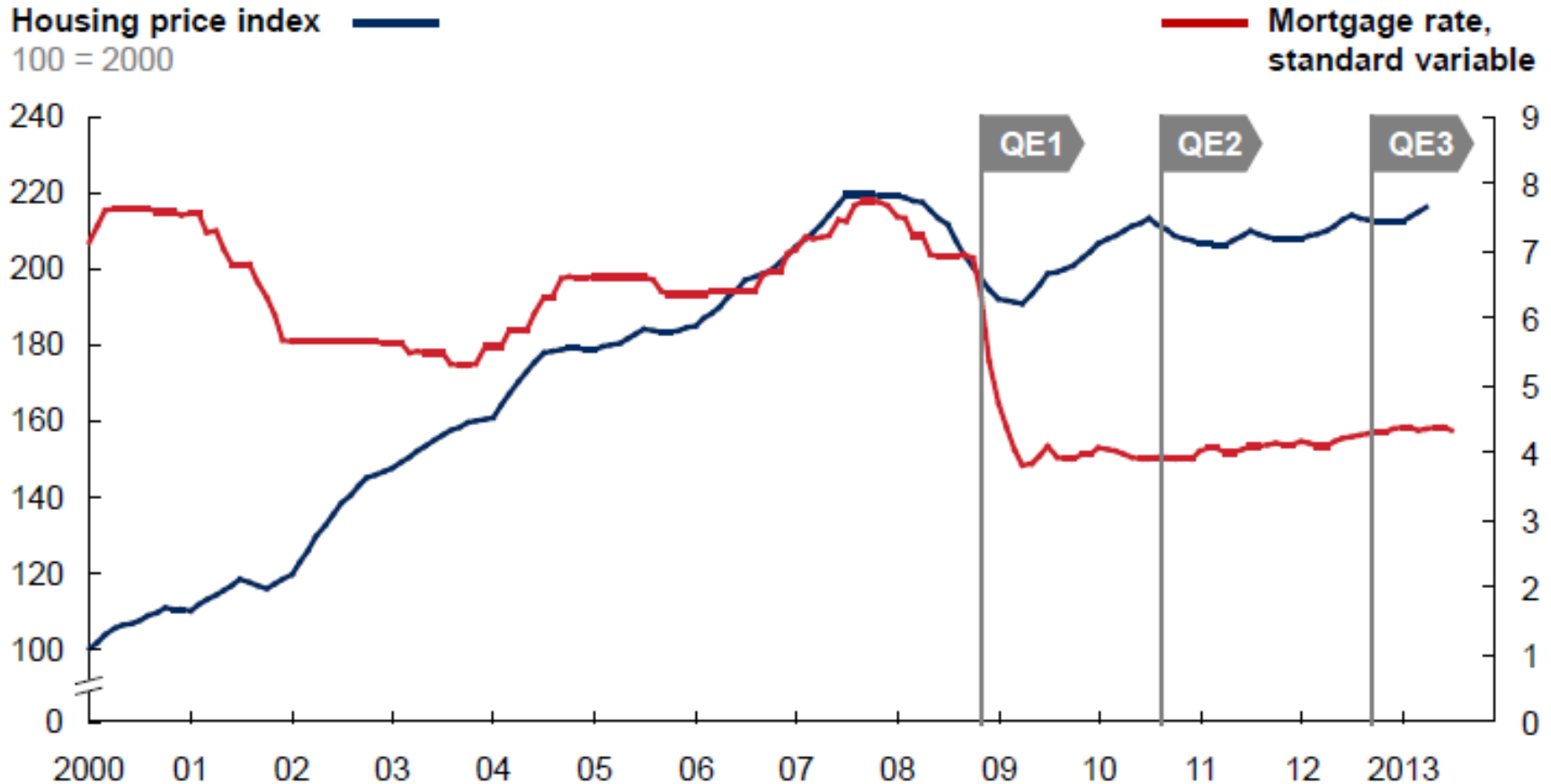


1 Las Vegas; Tampa; Miami; Washington DC; San Francisco; San Diego; Los Angeles; and Phoenix.

2 Seattle, Dallas, Portland (Oregon), Cleveland, New York, Charlotte, Minneapolis, Detroit, Boston, Chicago, Atlanta, and Denver.

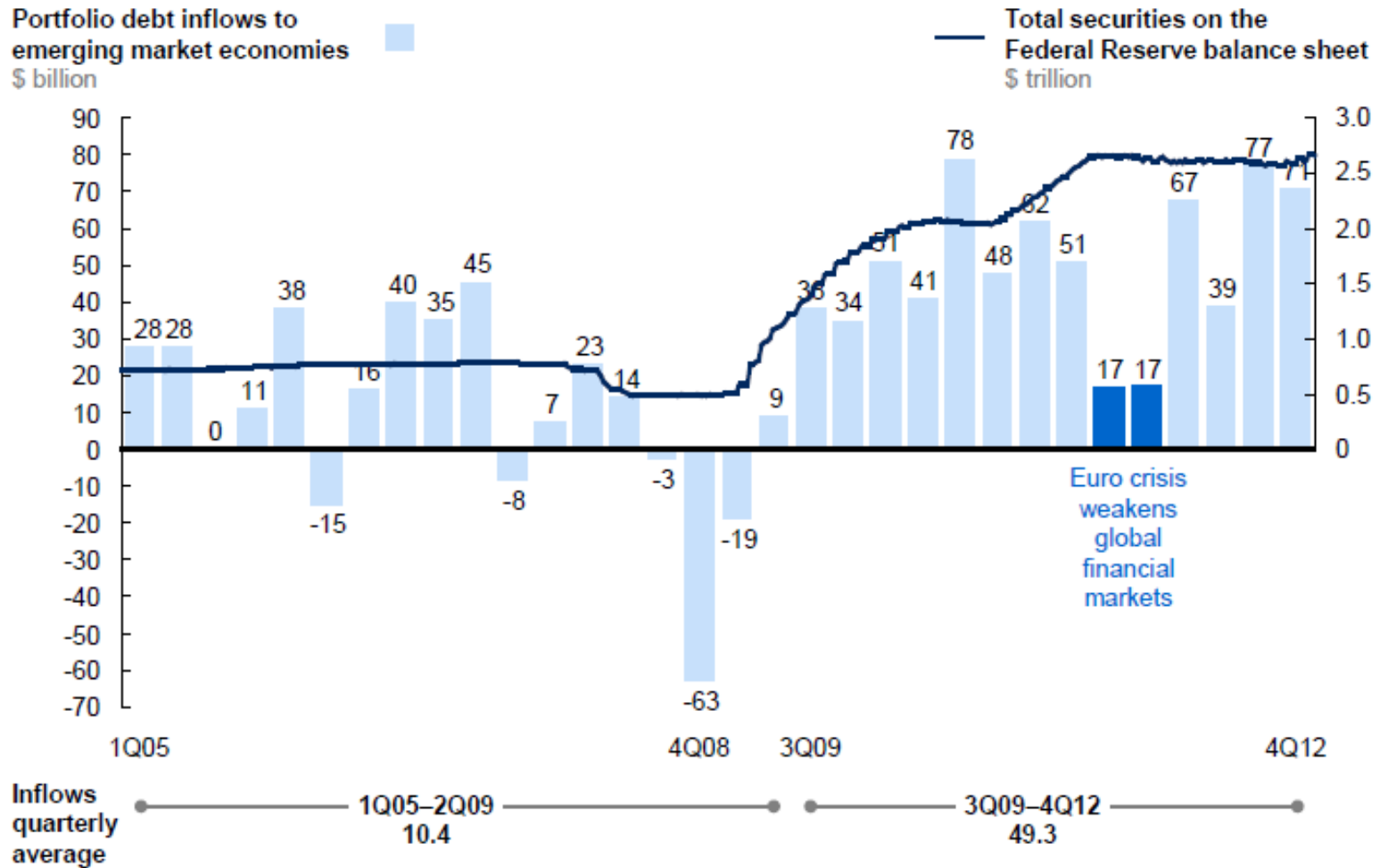
SOURCE: Standard & Poor's; US Federal Reserve; McKinsey Global Institute analysis

UK: Mortgage rates and house prices



SOURCE: Bank of England; UK Office for National Statistics; McKinsey Global Institute analysis

US: Spill-overs of „Quantitative Easing“ to emerging markets



SOURCE: International Monetary Fund Balance of Payments; US Federal Reserve; McKinsey Global Institute analysis

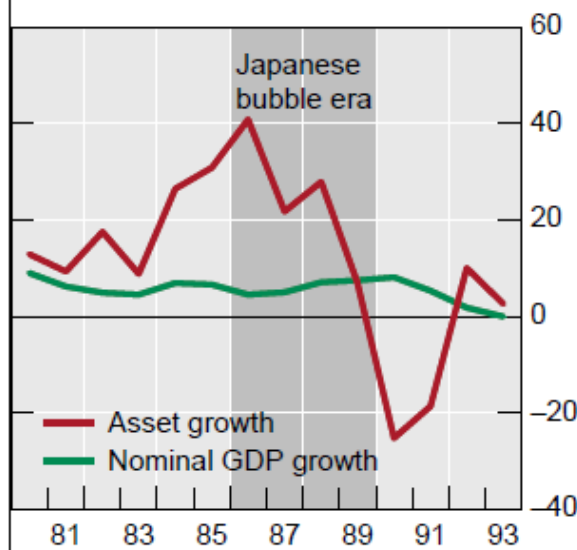
Life insurance industry failure: The Japanese case in a nutshell

Source: Swiss Re Economic Research & Consulting

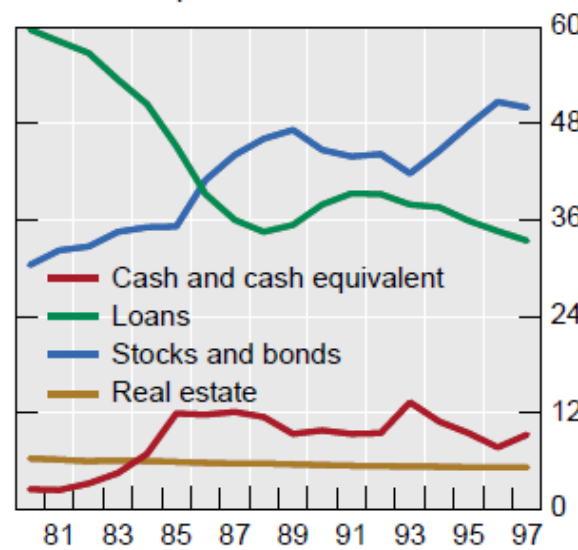
- 1985/1986
 - » Significant losses in foreign currency holdings after 50 % appreciation of the yen
 - » Increasing investments in booming Japanese stock market
 - » Aggressive marketing of new long-term policies (guaranteeing up to 6 % return)
 - 1990s
 - » 1990: Japanese stock market bubble burst (equity returns and bond yields drop significantly), deteriorating insurers' balance sheets further
 - » 1991: BoJ aggressively cuts discount rate diving into zero-interest-rate regime
 - » Pressure for positive cash flows met by keeping business sales high via overly generous guarantees until mid-1990s: LICs operating with negative spreads
 - Late 1990s/early 2000s
 - » Loss of credibility triggered a spike in surrenders
 - » 1997 bankruptcy of Nissan Mutual Life, followed by 7 other major life companies (liquidated or taken over by domestic or foreign companies by 2002)
- ⇒ **Low interest rates ending an already hopeless situation**

Japanese life insurers in the 1990s

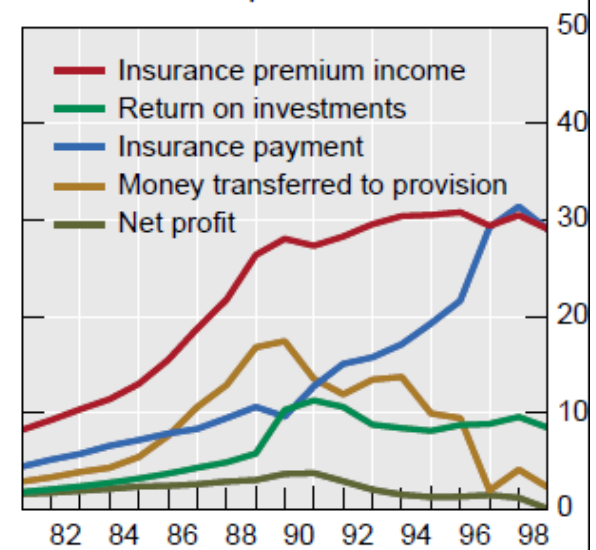
Overinvestment¹



Asset composition¹



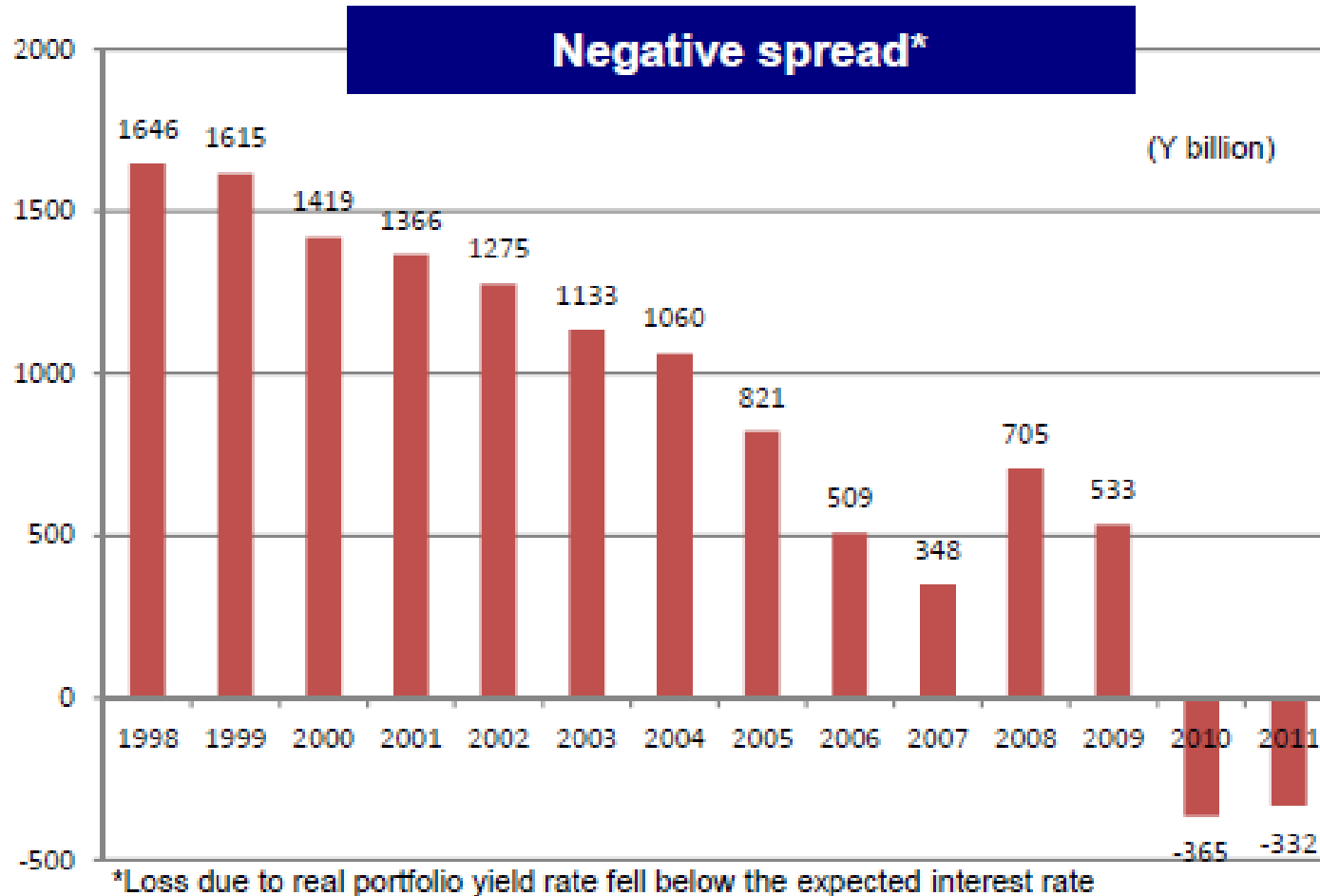
Income and expenses²



¹ In per cent. ² In trillions of yen.

Source: Japan Institute of Life Insurance., BIS

Japanese life insurers in the 2000s



Source: LIAJ – The Life Insurance Association of Japan (2014)

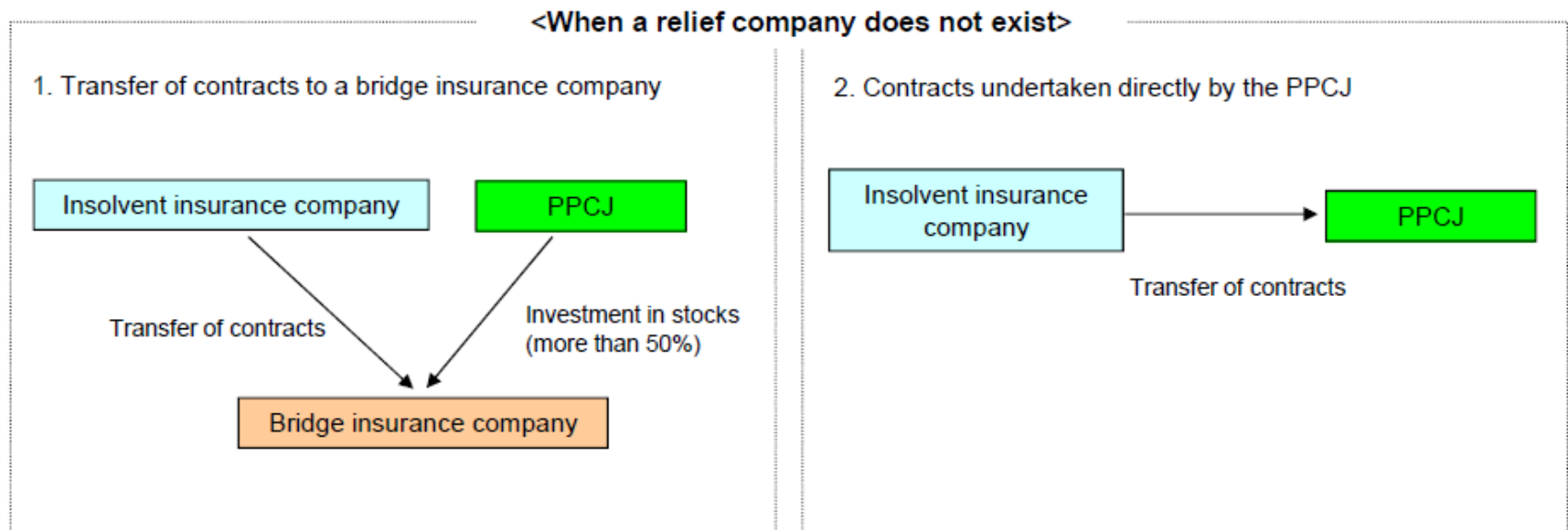
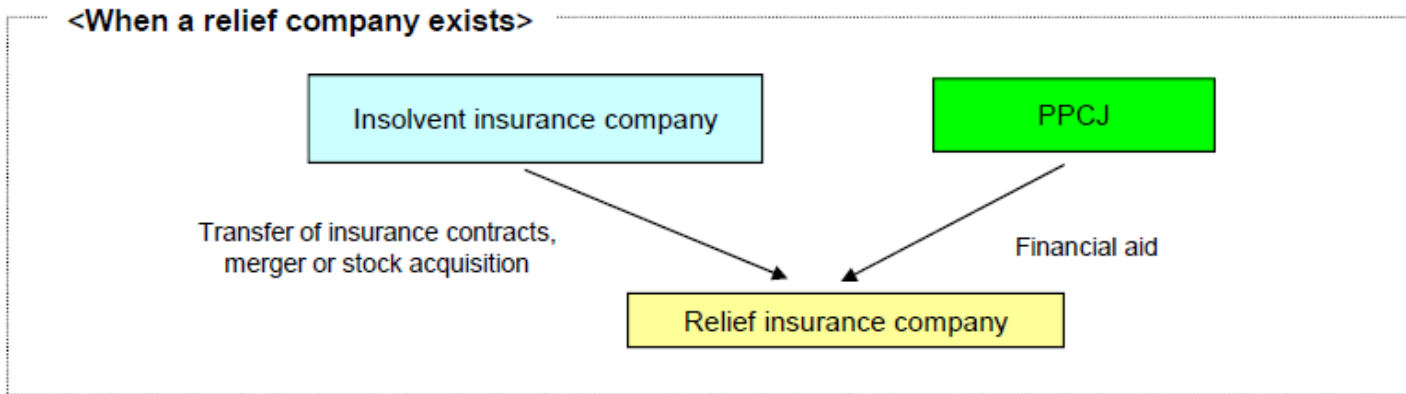
Bankruptcy cases of life insurers in Japan

	Nissan Life	Toho Life	Daihyaku Life	Taisho Life	Chiyoda Life	Kyoei Life	Tokyo Life	Yamato Life
Procedure	Administrative	Administrative	Administrative	Administrative	Judicial	Judicial	Judicial	Judicial
Excess liabilities (a)-(b)	Approx. 302.9 (April 1997)	Approx. 650 (June 1999)	Approx. 317.7 (May 2000)	Approx. 36.5 (August 2000)	Approx. 595 (October 13, 2000)	Approx. 689.5 (October 23, 2000)	Approx. 73.1 (March 31, 2001)	Approx. 64.3 (October 17, 2008)
Asset (a) (billion yen)	1,822.7	2,190	1,300	154.5	2,233	3,725	690	194.9
Liability(b) (billion yen)	2,125.6	2,840	1,617.6	191	2,828	4,414.5	763.2	259.2
Relief Insurance Company	Aoba Life (Prudential Life)	GE Edison Life (Gibraltar Life)	Manulife Life	Azami Life (PGF Life)	AIG Star Life (Gibraltar Life)	Gibraltar Life	T&D Financial Life	Prudential Financial Japan Life (PGF Life)
Aid amount by LIPPCJ (billion yen)	200	366.3	145	26.7	0	0	0	27.8
Changes in Policy								
Reduction of policy reserve	No reduction	10%	10%	10%	10%	8%	No reduction	10% (additional reduction for high-interest policy)
Post-reduction expected interest rate	2.75%	1.5%	1.0%	1.0%	1.5%	1.75%	2.6%	1.0%
Date of Resolution	October 1, 1997 Transfer of contract	March 1, 2000 Transfer of contract	April 2, 2001 Transfer of contract	March 31, 2001 Transfer of contract	April 20, 2001 Conversion to a stock company (Restart business)	April 3, 2001 Restart business	October 19, 2001 Conversion to a stock company (Restart business)	June 1, 2009 Restart business

Source: LIAJ – The Life Insurance Association of Japan (2014)

Resolution of insolvent Japanese life insurers

The Life Insurance Policyholders Protection Corporation of Japan (PPCJ)



Source: LIAJ – The Life Insurance Association of Japan (2014)

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