Risks to the insurance sector arising from the macroeconomic environment

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- 2016 was a year marked by **moderate, divergent and fragile** global economic growth.
- 2016 was also the year in which governments, business community and academia became aware of the structural effects that **low growth, low inflation and low interest rates (secular stagnation)** can produce in terms of economic performance and financial stability.
- 2017 was intended be a year to generate a space of public policies in which **fiscal policy might have a central (but not exclusive) role.**
- The **fiscal impulse** in 2017 can be relevant not so much by its intensity but by its effect in a coordinated and complementary environment with other economic policies.

- It is foreseeable that 2017-2018 will offer a better perspective of economic growth, but still **with a trend of moderation, divergence and global fragility** (on average it will approach 3,1%, and inflation will also accelerate to similar rates).

- However, there will be **significant differences in the momentum of global activity and inflation**, not only between emerging and developed markets, but also amongst developed economies (especially with respect to the performance of the US economy).

- **Global monetary policy will remain heterogeneous**, although a temporary rebound of long-term yields is expected.

- In general, expectations are biased downward (accentuate the negative factors), as **there are latent risks and vulnerabilities that could develop** over the next months.

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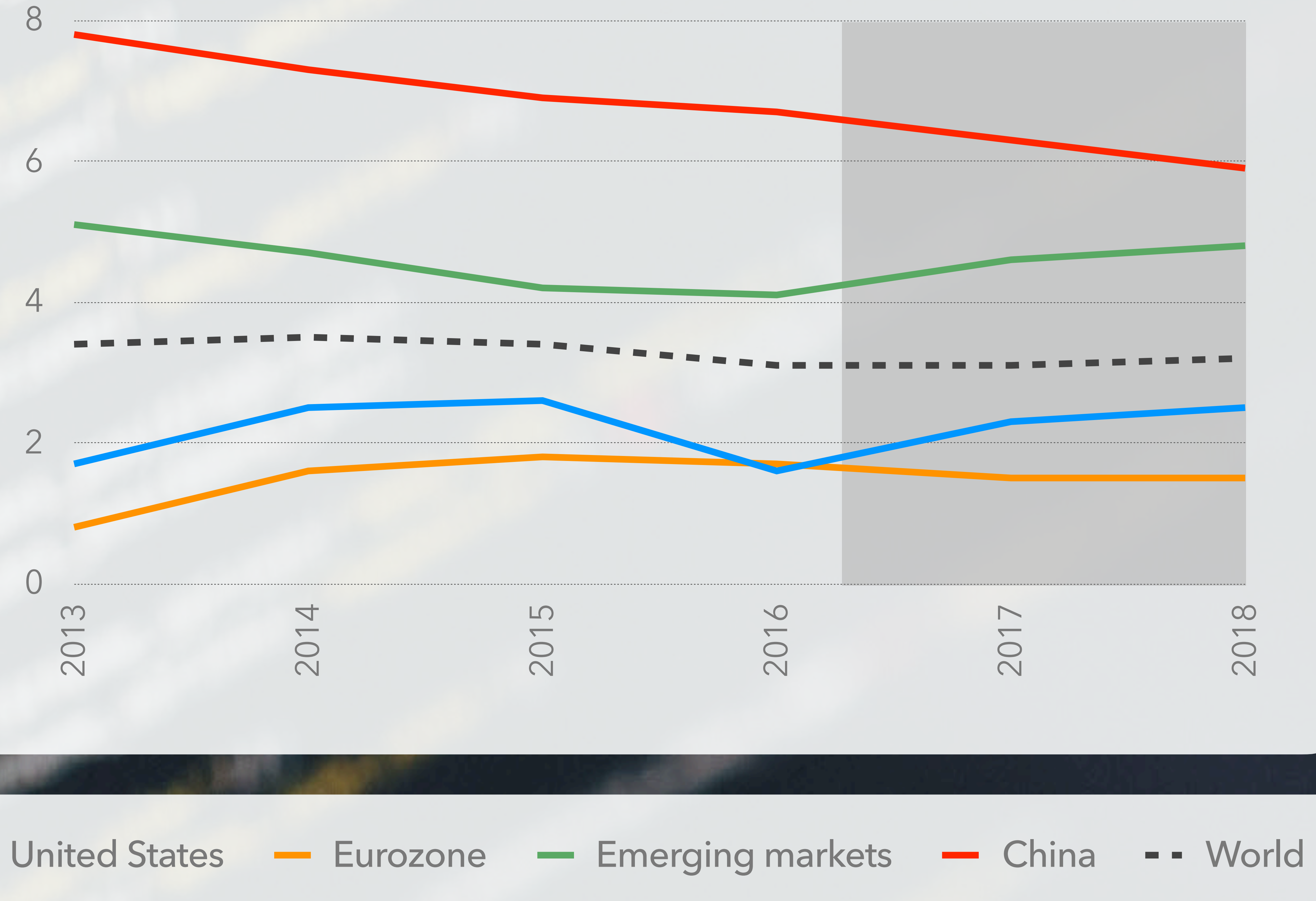
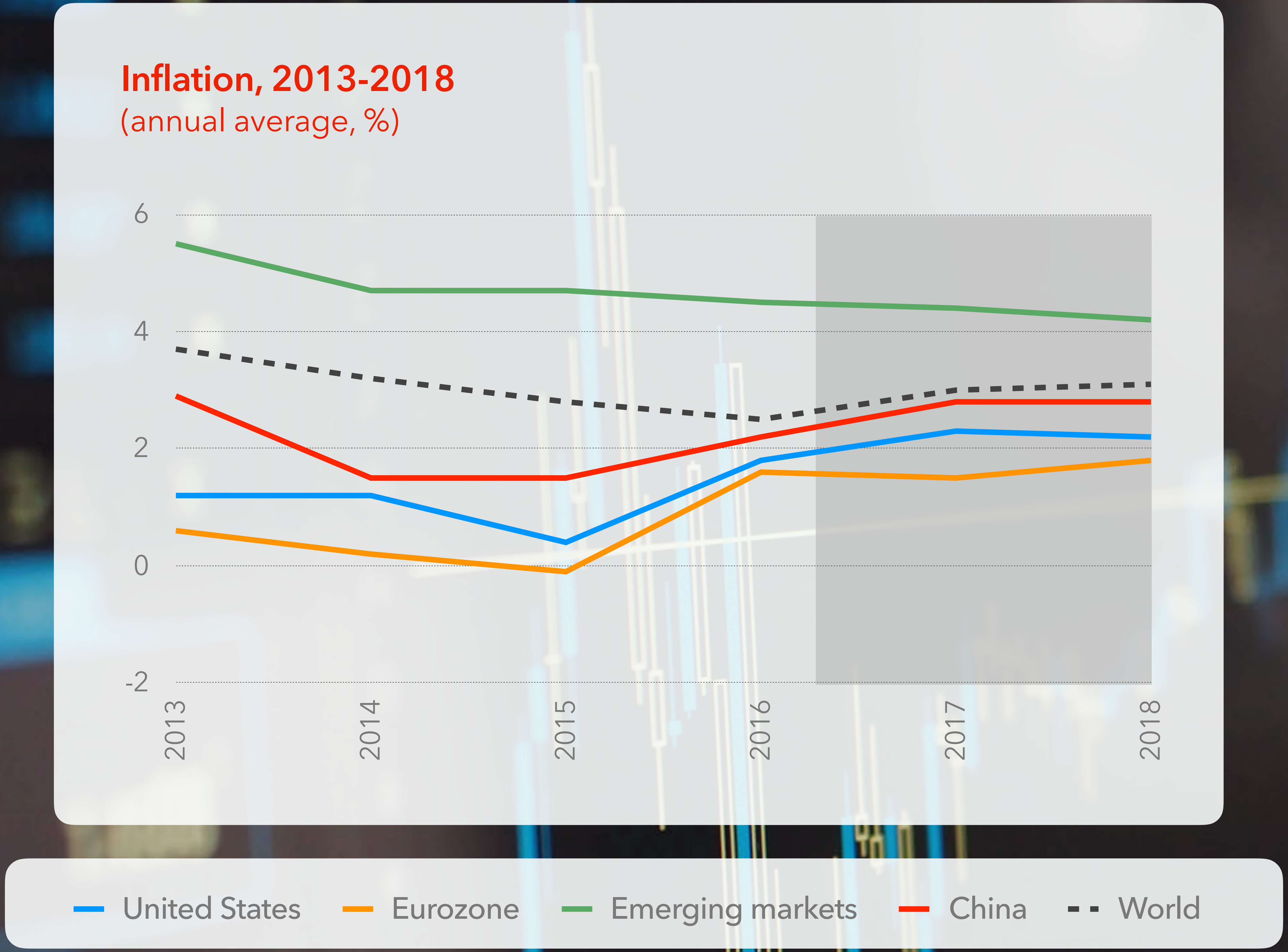
Economic activity

- During the Q4 of 2016, **global activity continued to accelerate** with quarterly growth rates close to 1%.
- In annual terms, **global growth is expected close to 3.1% for 2017**, with developed markets growing 1,9% while emerging markets would be growing 4,6%.

GDP growth, 2013-2018
(annual growth rates, real, %)



Source: MAPFRE Economic Research



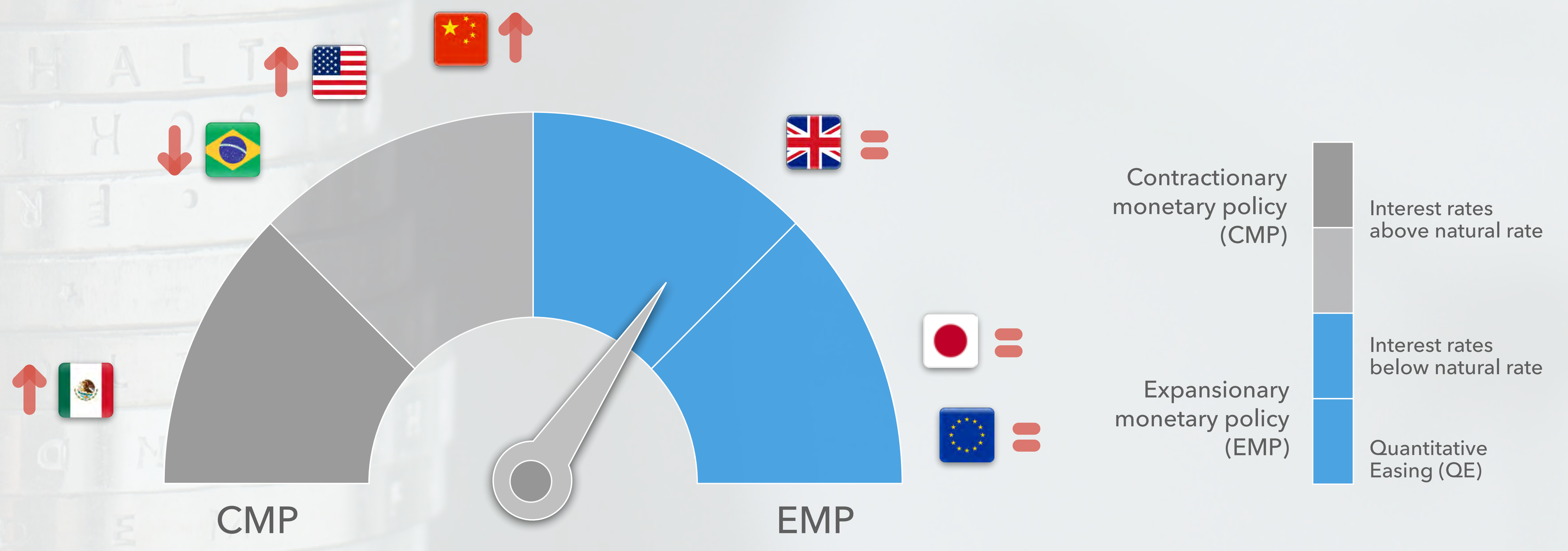
Inflation

- Global **inflation dynamics have hardly changed** compared to what was anticipated at the beginning of this year.
- Expectations of **global reflation** have moderated.
- A **global inflation close to 2%** is expected throughout 2017, and close to 3% in average in 2017-2018.

Source: MAPFRE Economic Research

Monetary policy

- **Global monetary policy will remain quite heterogeneous**, although in global terms a rebound in long-term returns is expected, which together with the more dynamic economic activity might stimulate the insurance sector.



*Arrows show short-term interest rates trend.

Monetary policy

- **Global monetary policy will remain quite heterogeneous**, although in global terms a temporary rebound in long-term returns is expected, which together with the more dynamic economic activity might stimulate the insurance sector.

United States

- The Federal Reserve is expected to maintain the adjustment of its monetary policy in an orderly manner with **gradual interest rate hikes until 2019**, alternating with the normalisation of its balance sheet only from the end of 2018.
- Two additional increases might place, with **interest rates between 1.5% and 1.75%** at the end of the year.

Monetary policy

- **Global monetary policy will remain quite heterogeneous**, although in global terms a temporary rebound in long-term returns is expected, which together with the more dynamic economic activity might stimulate the insurance sector.

Eurozone

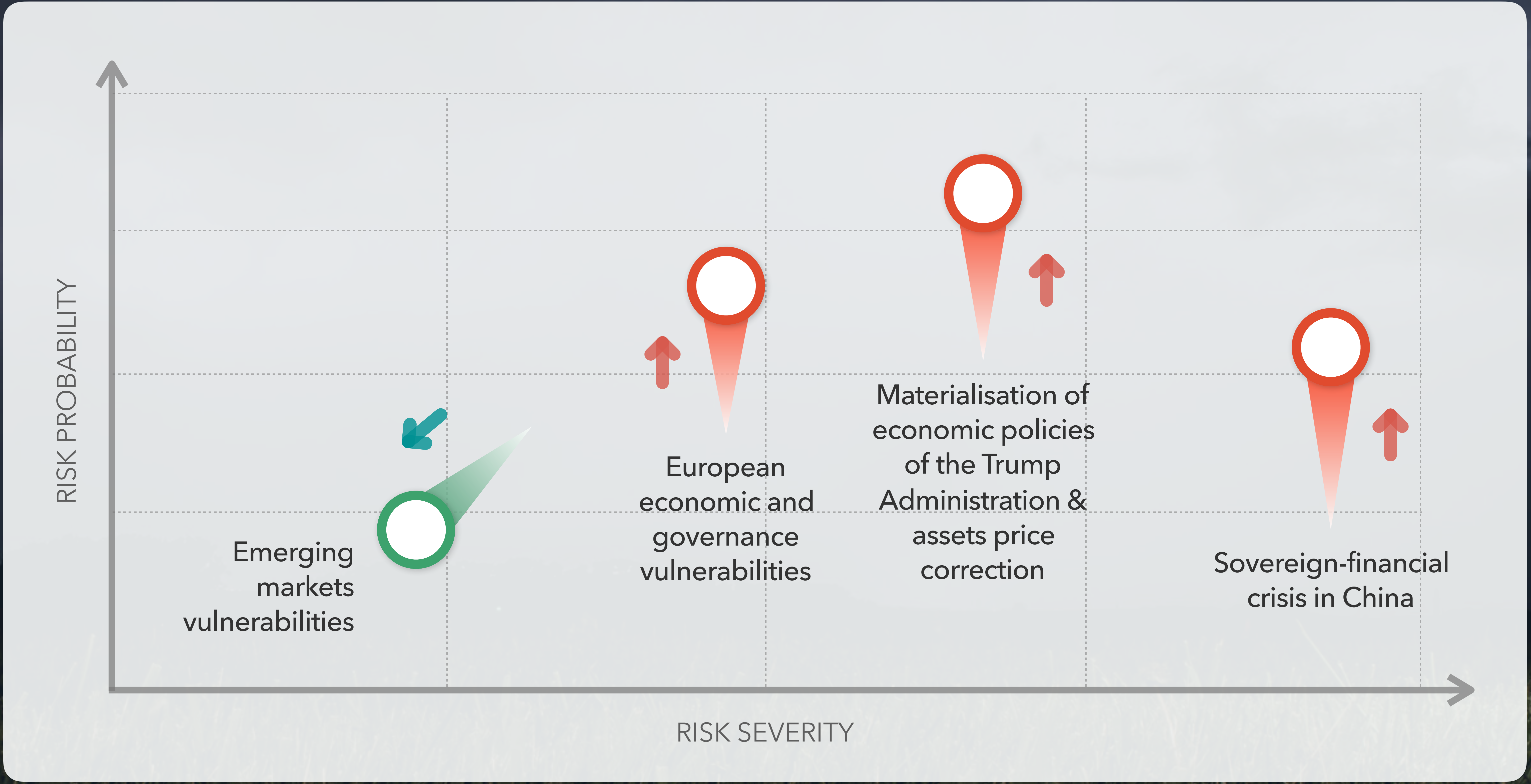
- In the Eurozone **monetary policy will remain unchanged** in line with a more benign economic activity and inflation outlook.
- The **debate on the monetary policy normalisation has already emerged** with its possible sequencing: elimination of negative rates, gradual increase in interest rates and, finally, normalisation of the ECB's balance sheet starting at the end of 2019.

Monetary policy

- **Global monetary policy will remain quite heterogeneous**, although in global terms a temporary rebound in long-term returns is expected, which together with the more dynamic economic activity might stimulate the insurance sector.

Emerging markets

- In the main emerging markets monetary policy **will remain selective and diverse**.
- **Turkey and Mexico** maintain a contractionary monetary policy bias (in order to control exchange rates), while **Brazil** is showing an expansionary trend (in order to stimulate economic activity).
- In **China**, interest rates have been increased since November, preventing monetary conditions from being too lax.



*Arrows show the expected risk bias.

- The **central scenario is strongly biased downward** (affected by the negative factors), as there are still risks and vulnerabilities that could develop (with different levels of probability and severity) over the next months.

Source: MAPFRE Economic Research

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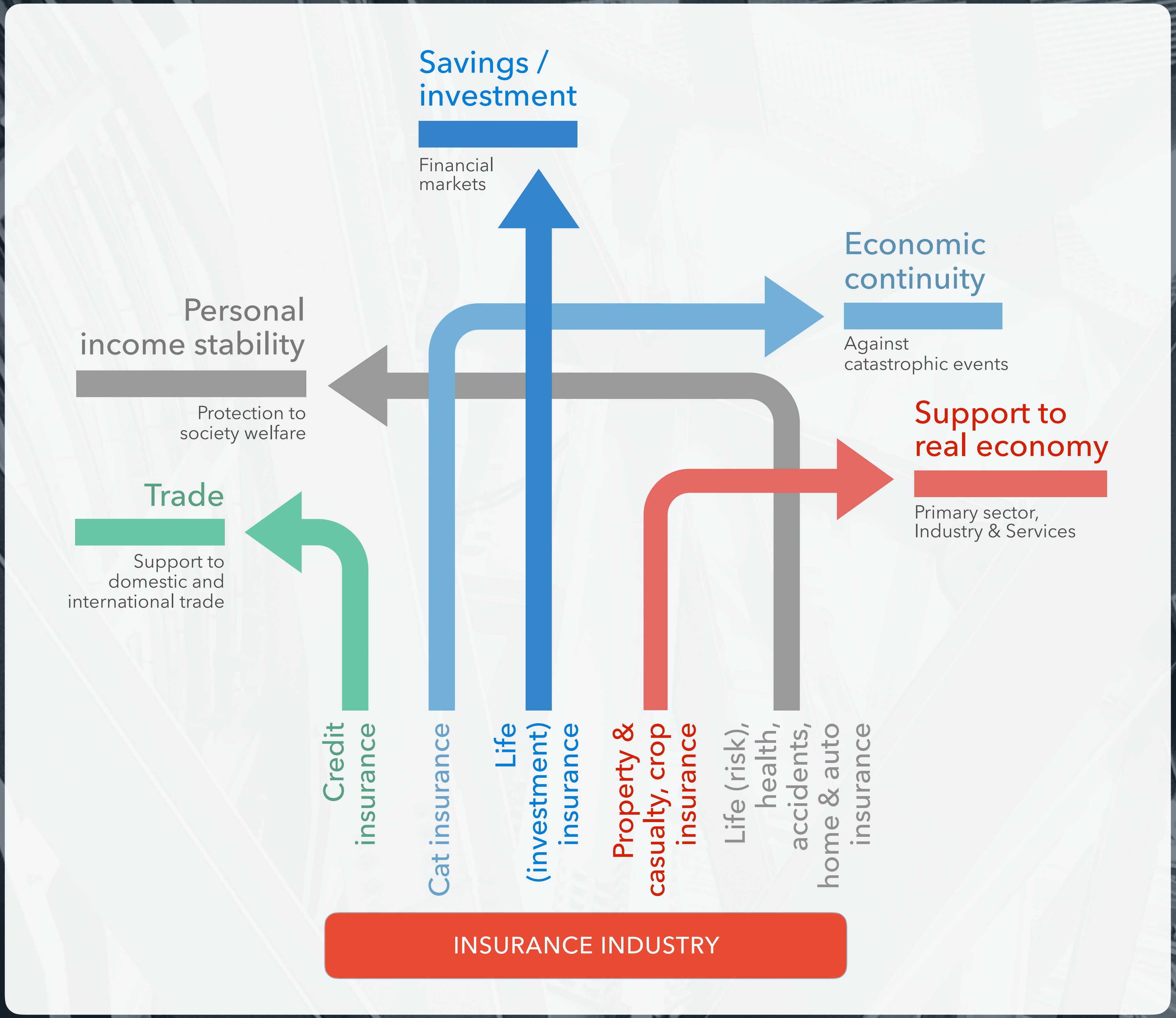
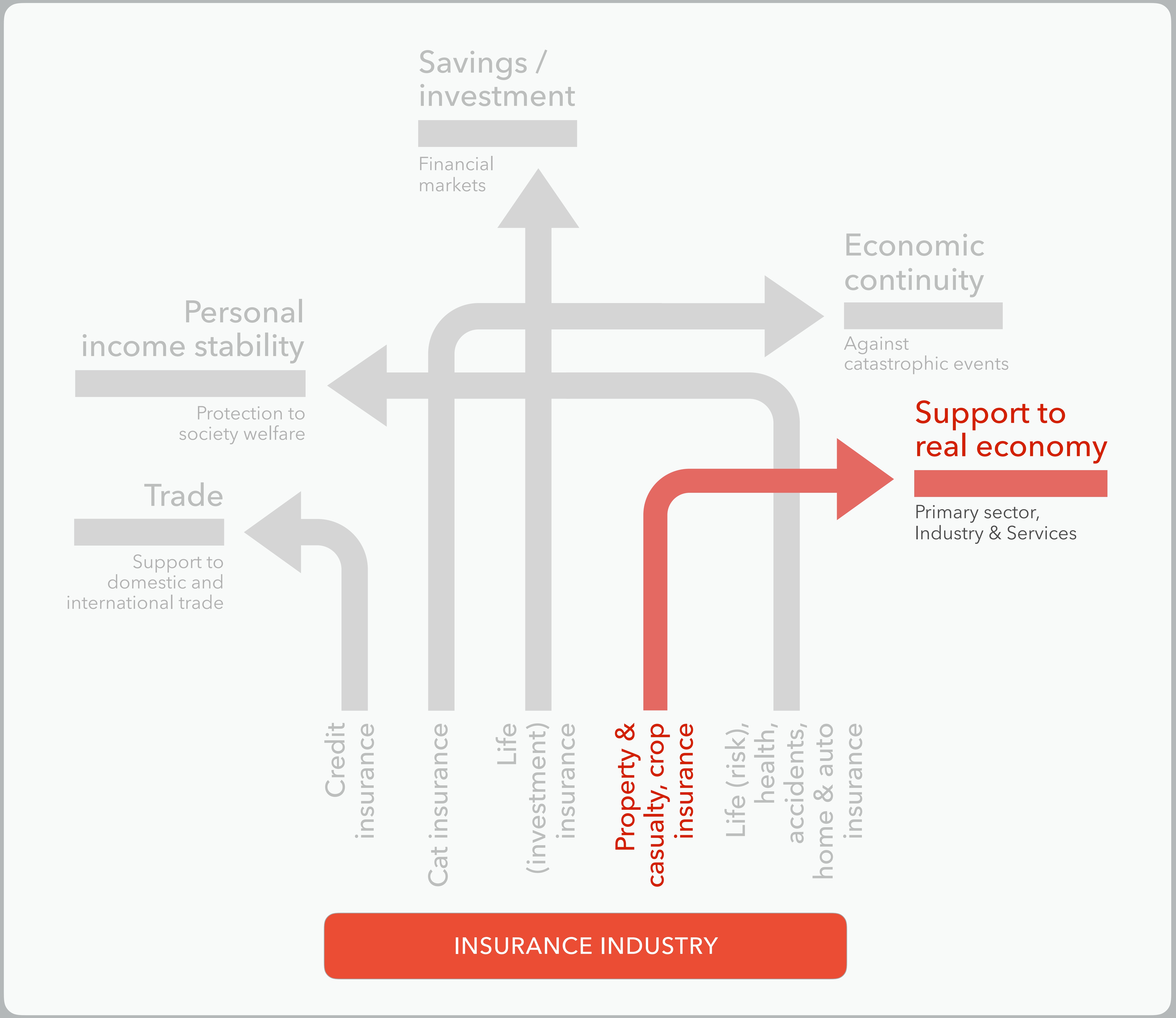


- The insurance industry has **close linkages with all areas of economic activity.**

Source: MAPFRE Economic Research



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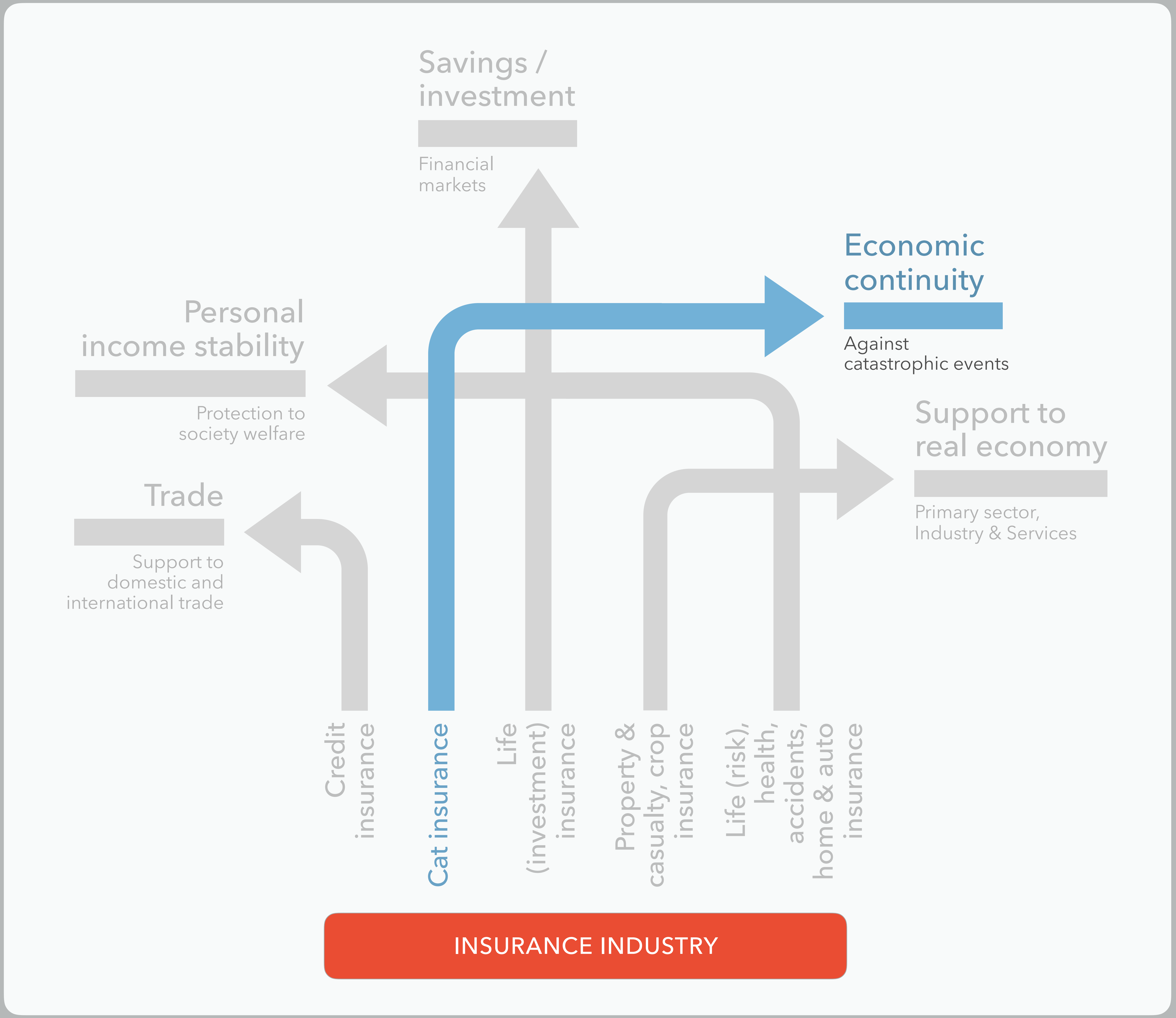
Economic continuity
Against catastrophic events
Personal income stability
Protection to society welfare
Support to real economy
Primary sector, Industry & Services
Trade
Support to domestic and international trade
Credit insurance
Cat insurance
Life (investment) insurance
Property & casualty, crop insurance
Life (risk), health, accidents, home & auto insurance
INSURANCE INDUSTRY



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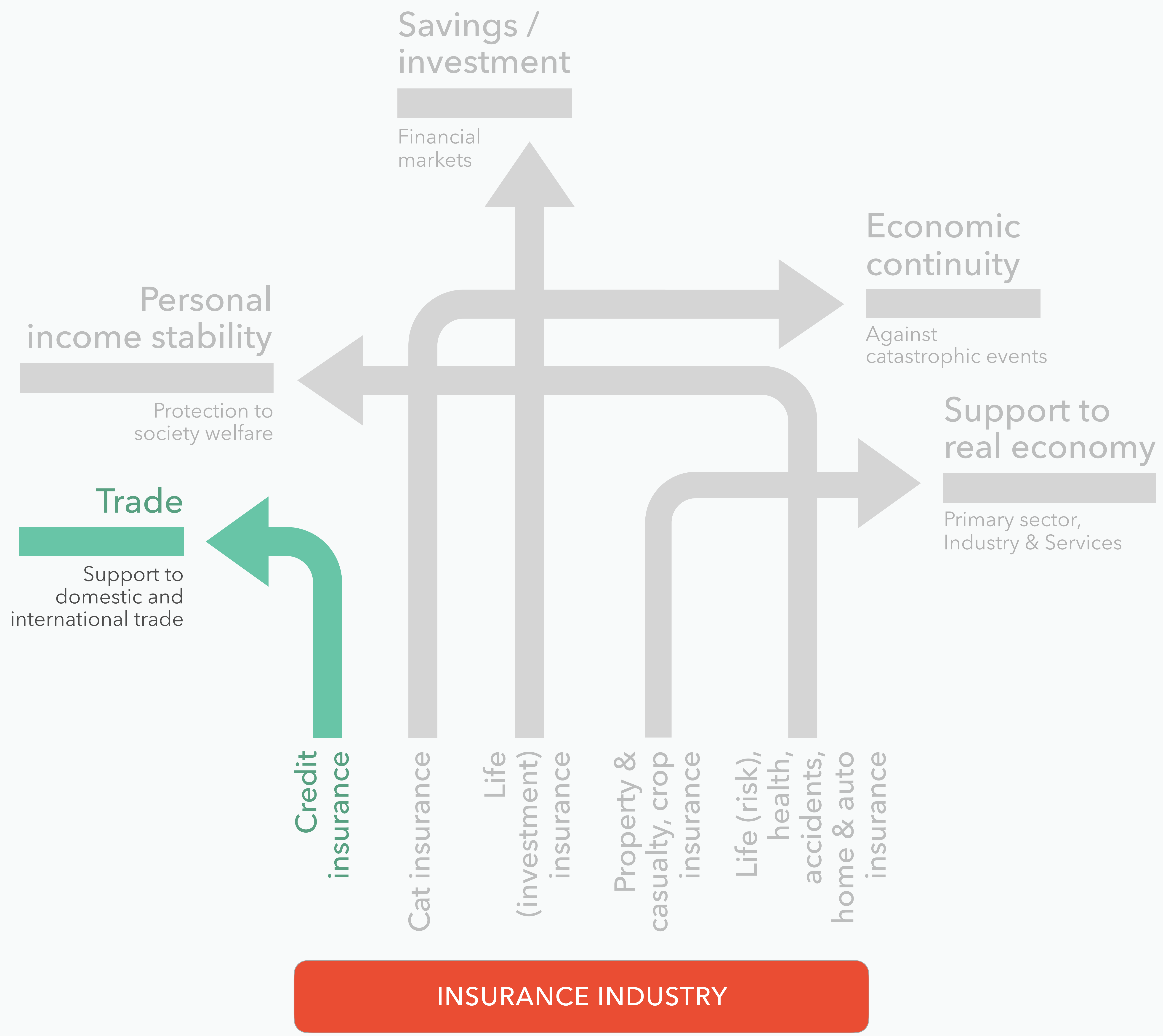
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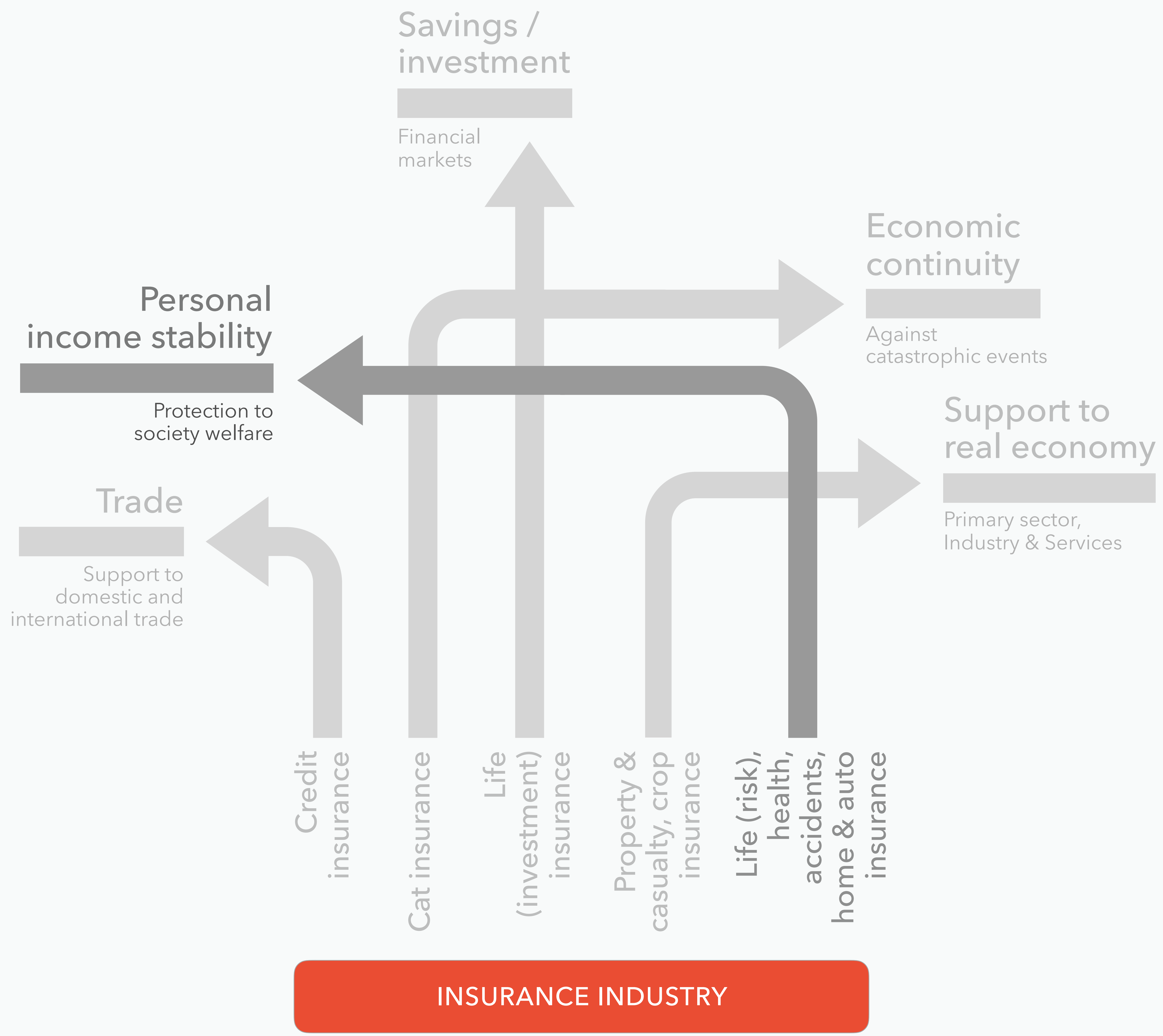
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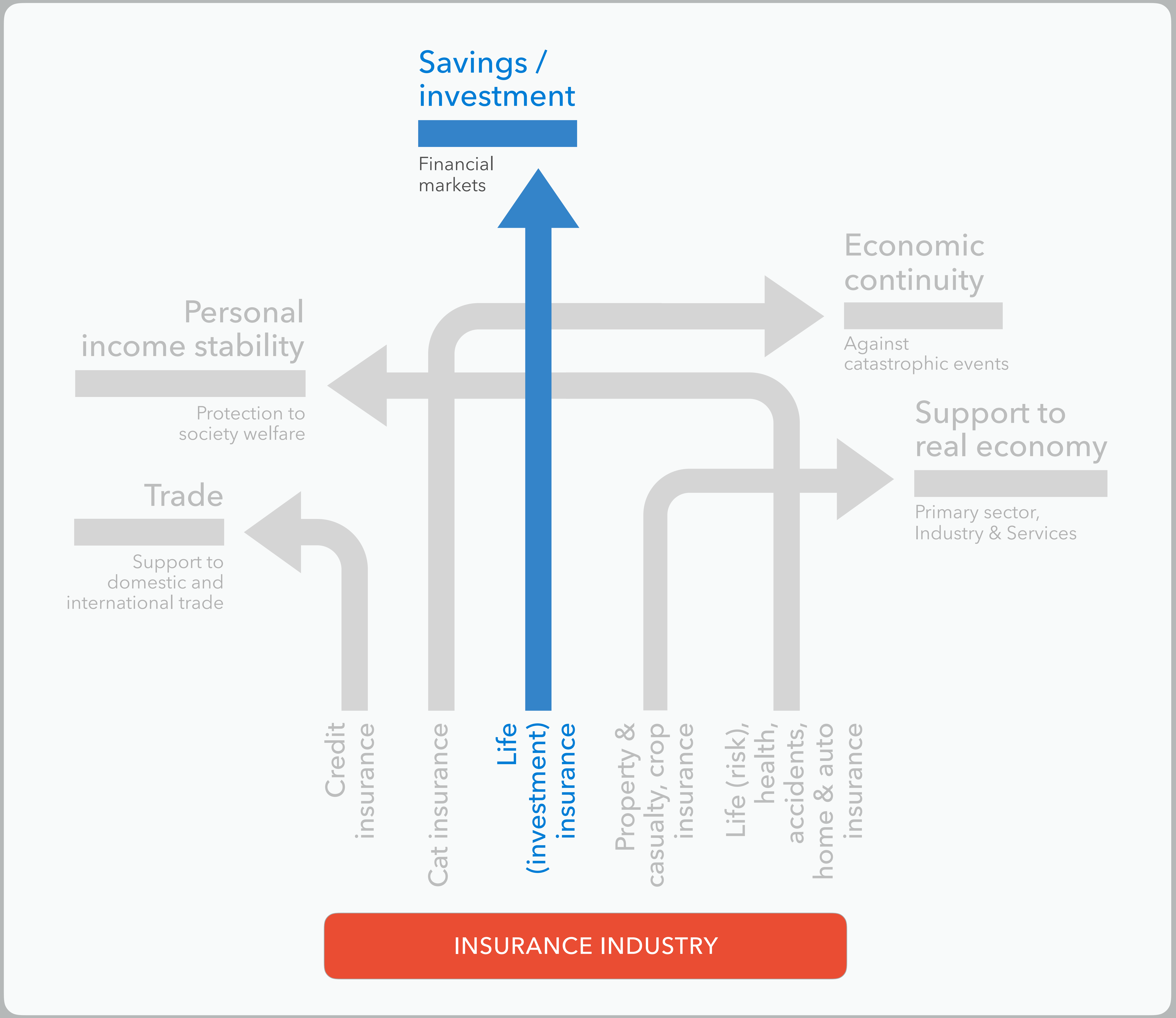
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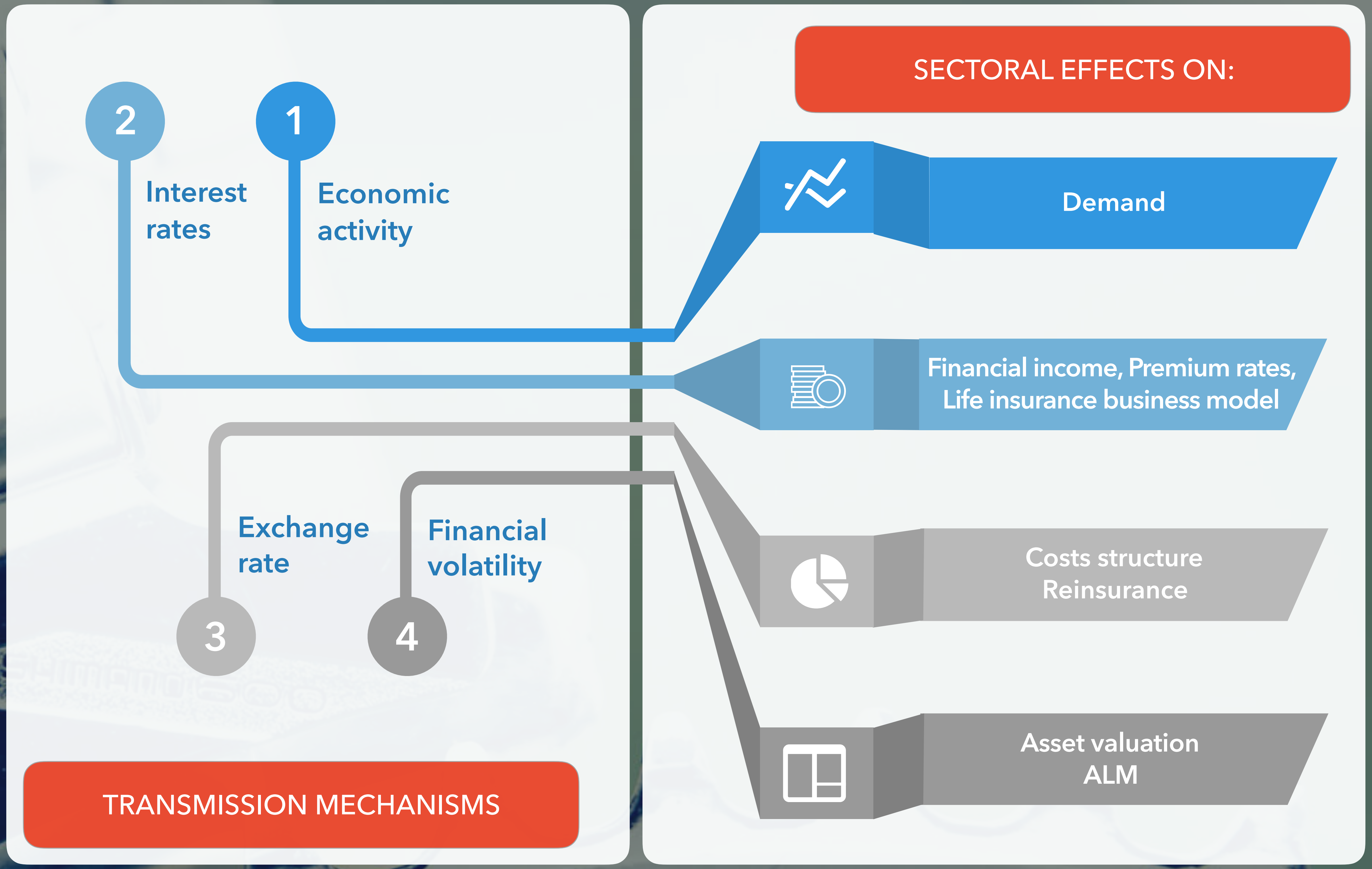
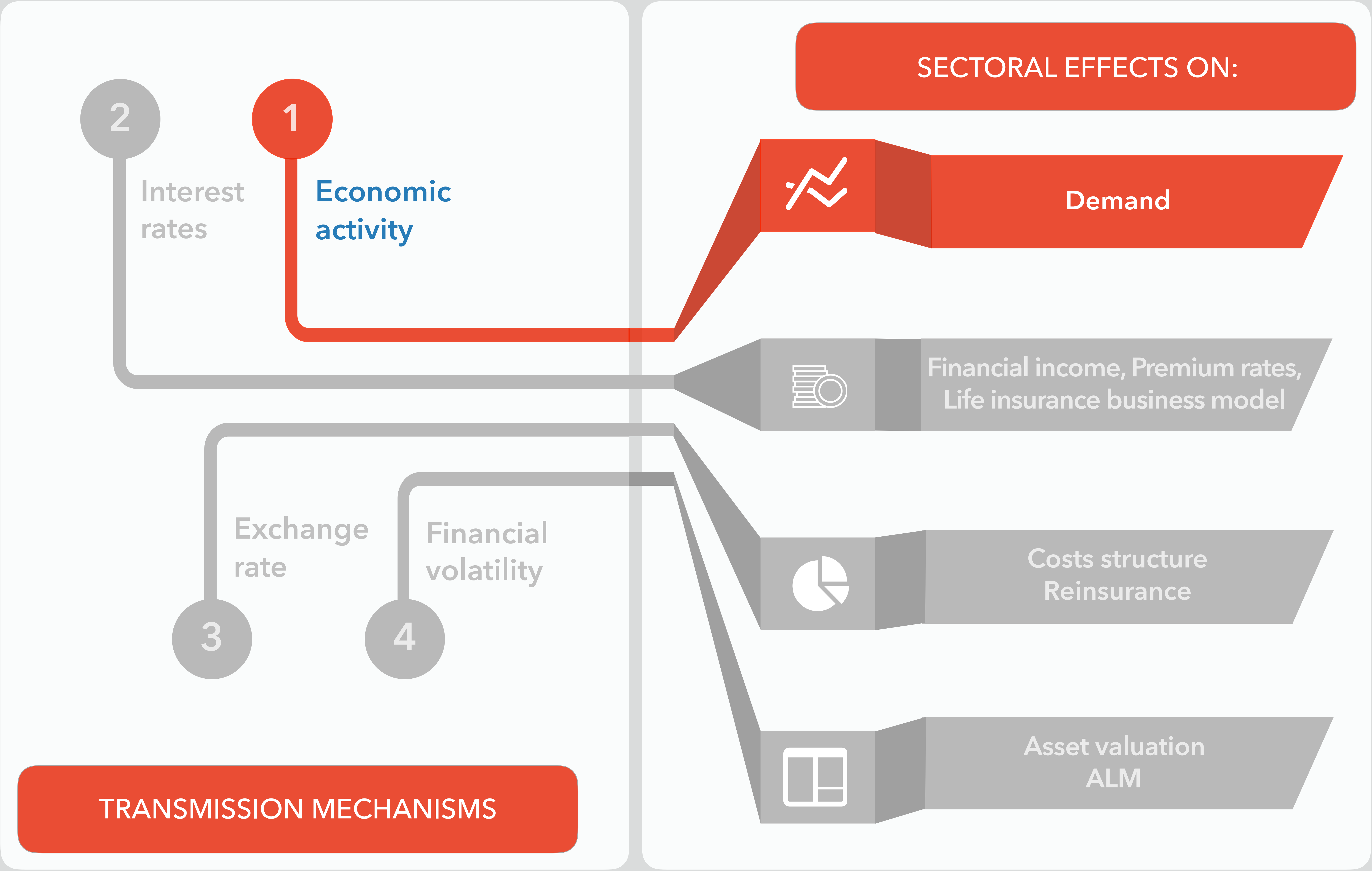
- Likewise, the insurance industry general performance depends on several **macroeconomic factors.**





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Financial income, Premium rates, Life insurance business model
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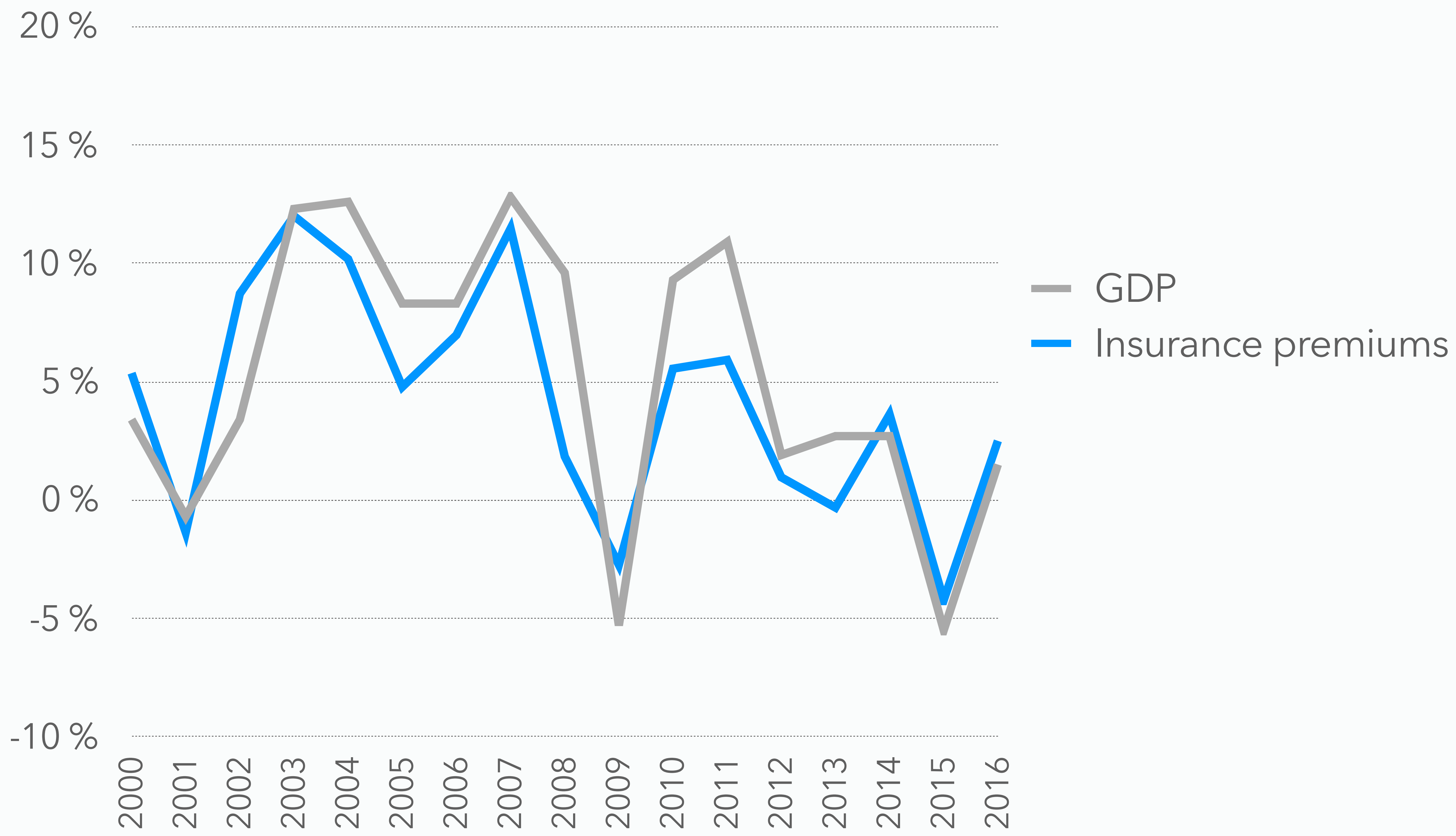
Costs structure Reinsurance
Asset valuation ALM
TRANSMISSION MECHANISMS

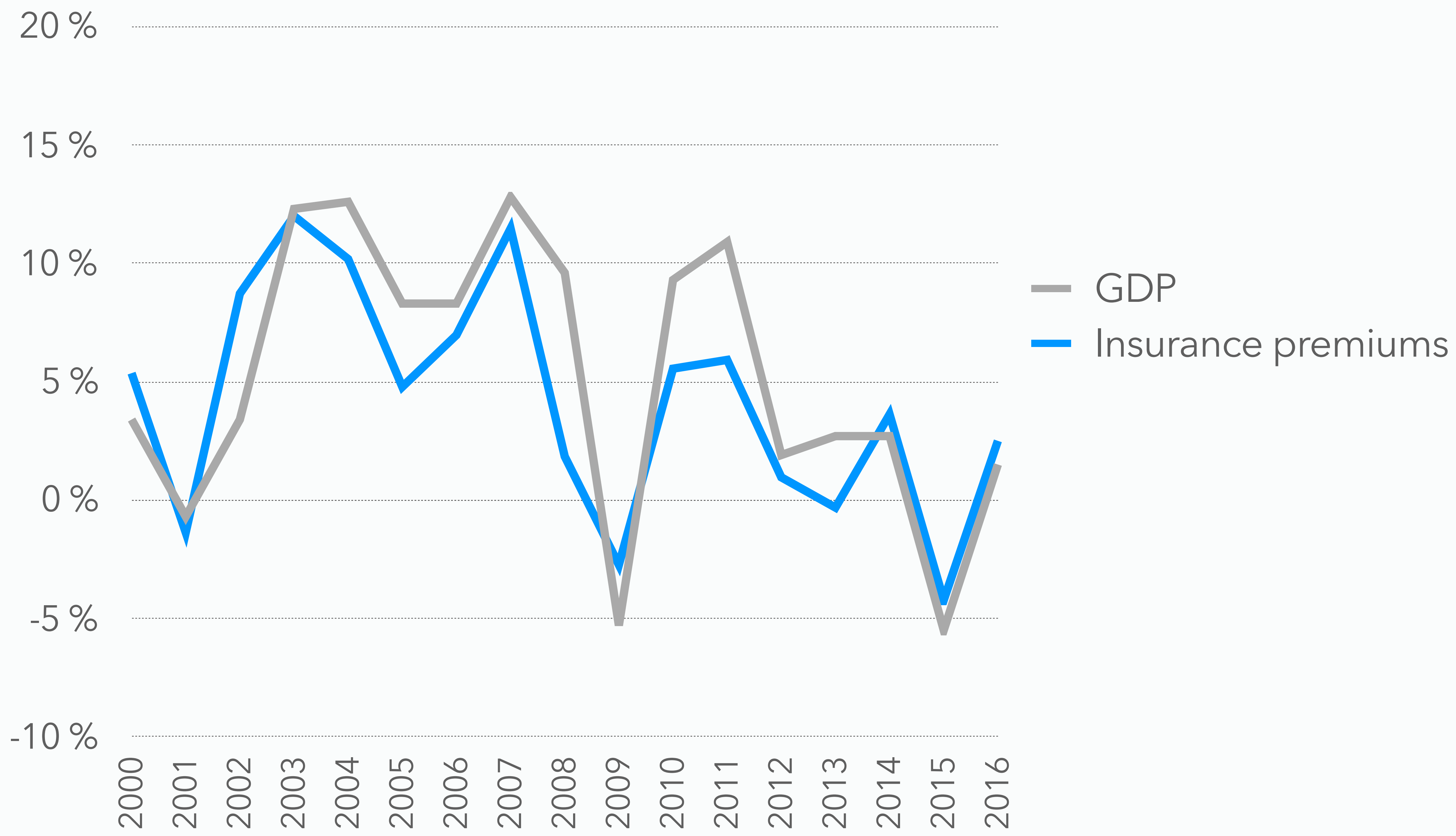
Global GDP vs global insurance premiums growth, 2000-2016
(annual growth rates, nominal USD)



- One of the main features of the insurance sector is its **pro-cyclical behaviour.**
- Its growth rate is highly **sensitive and synchronic** to changes in the overall economic activity.

Source: MAPFRE Economic Research (IMF and Swiss Re data)

Global GDP vs global insurance premiums growth, 2000-2016
(annual growth rates, nominal USD)



- **Role of insurance in the economy.** Insurance products compensate for and disperse risks arising from economic activity. As it expands, so does insurance demand.

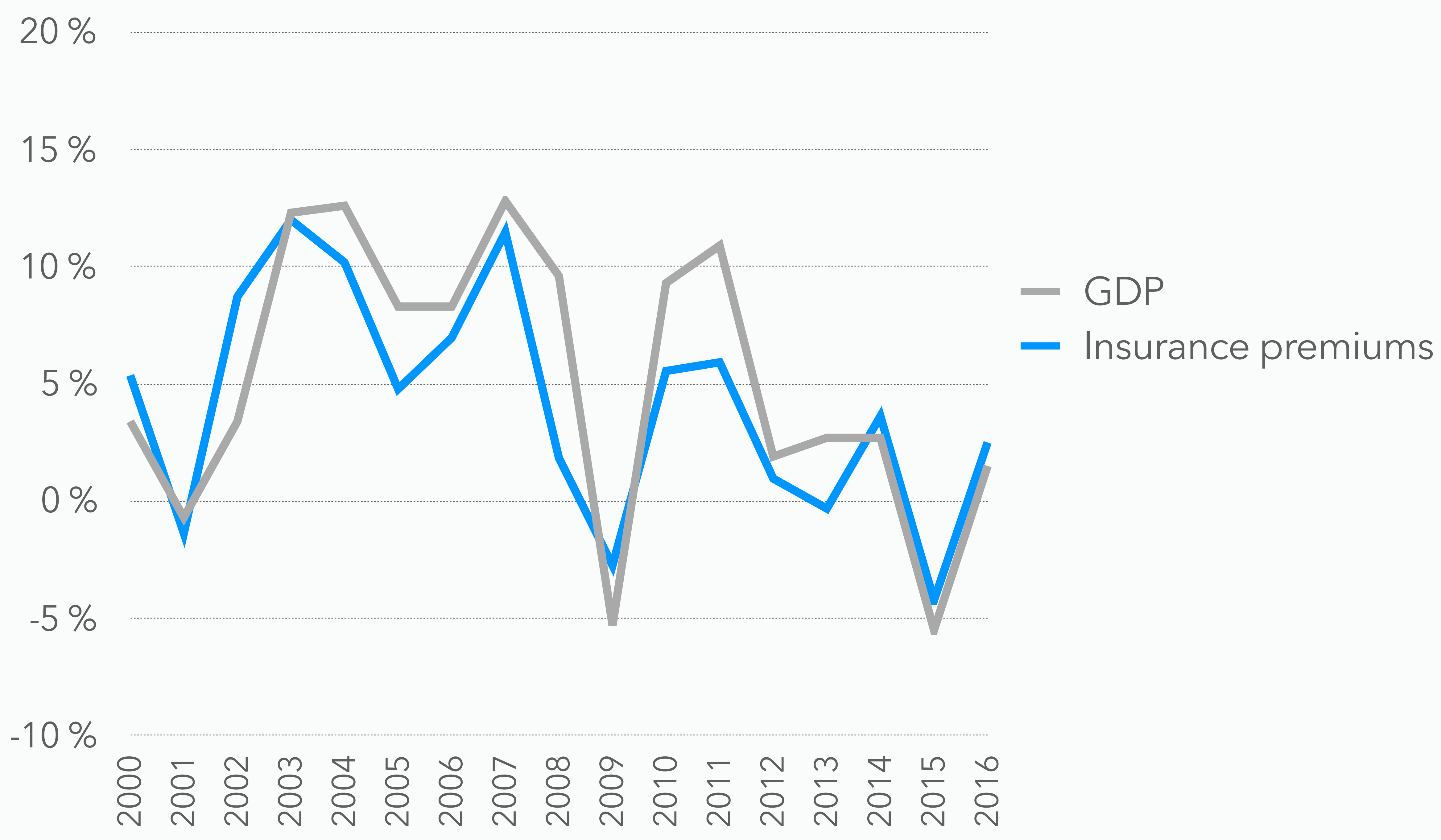
- **Main features of insurance business model.** In order to avoid an adverse selection process, the technical rigor of the underwriting process increases during periods of crisis, and tends to relax during periods of economic expansion.

- **Effect of risk-sensitive regulations.** Capital charges based on risk level tends to increase in the lower part of the economic cycle, contracting the growth capacity of insurance undertakings.

Source: MAPFRE Economic Research (IMF and Swiss Re data)

Global GDP vs global insurance premiums growth, 2000-2016

(annual growth rates, nominal USD)



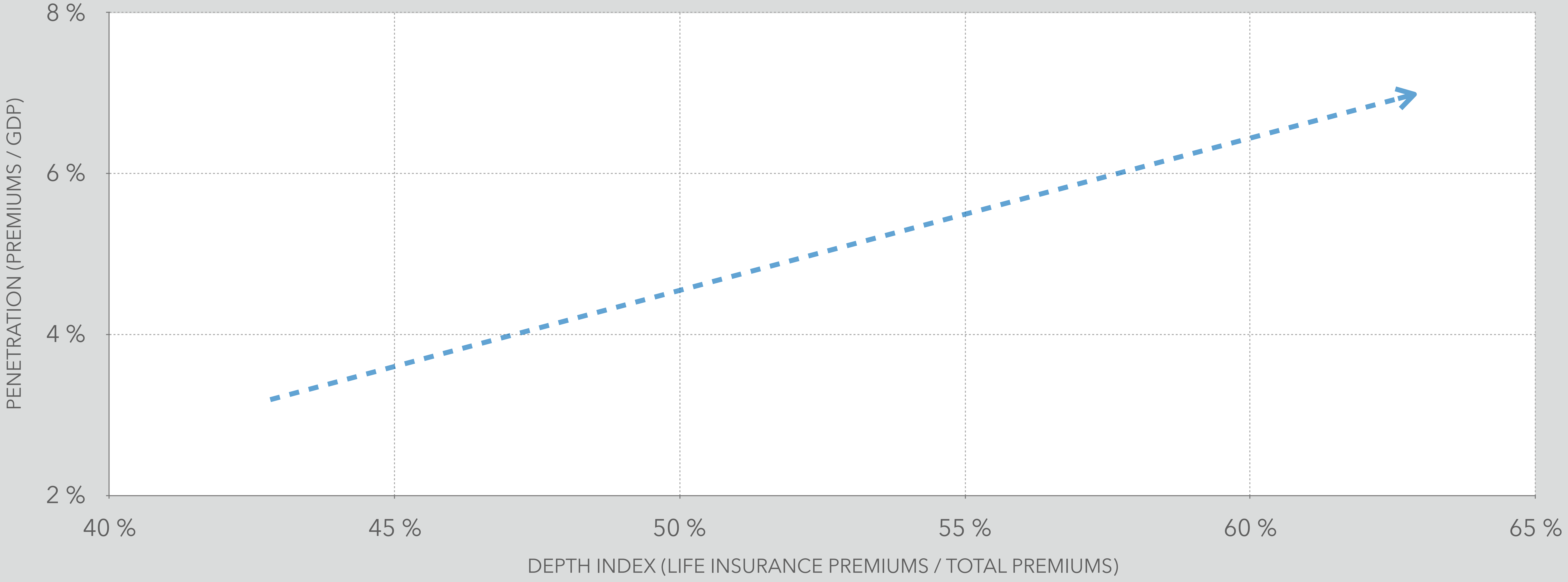
Developed markets:

- High synchronisation of Non-Life insurance.
- High level of Life insurance penetration.

Emerging markets:

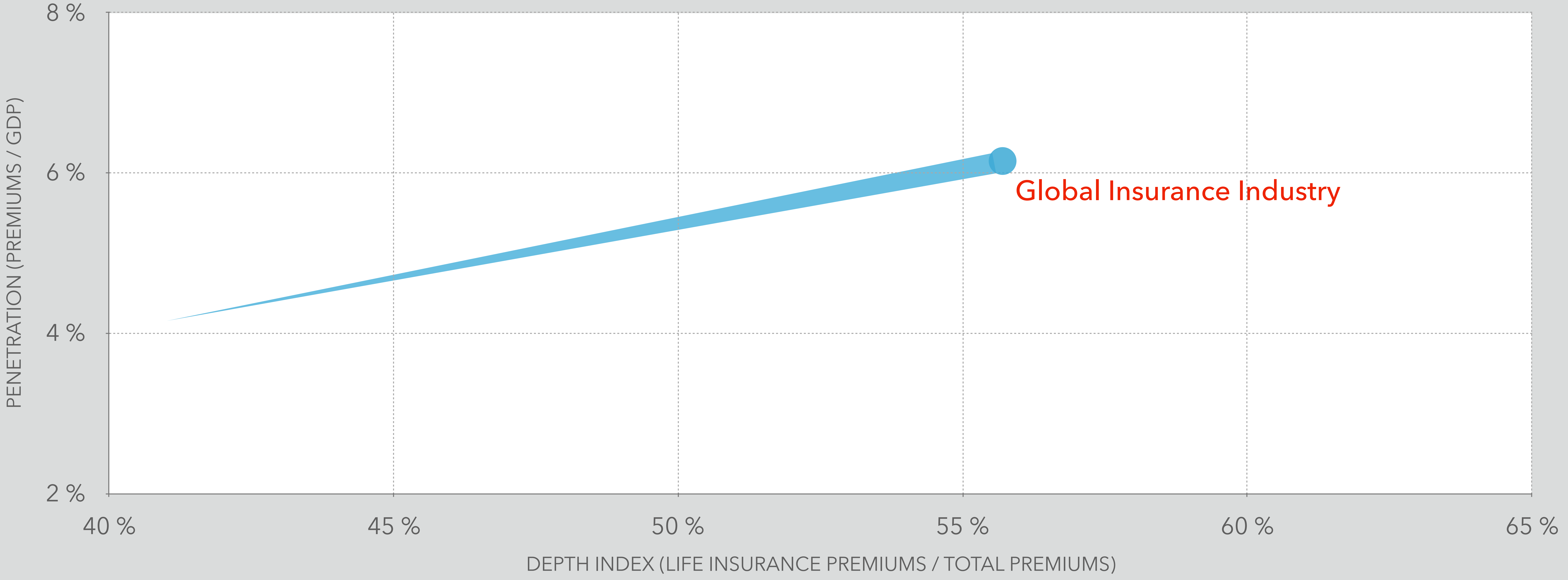
- Amplification of the pro-cyclical effect due to the size of the Insurance Protection Gap (insufficient insurance coverage).
- Low level of Life insurance penetration.

Source: MAPFRE Economic Research (IMF and Swiss Re data)



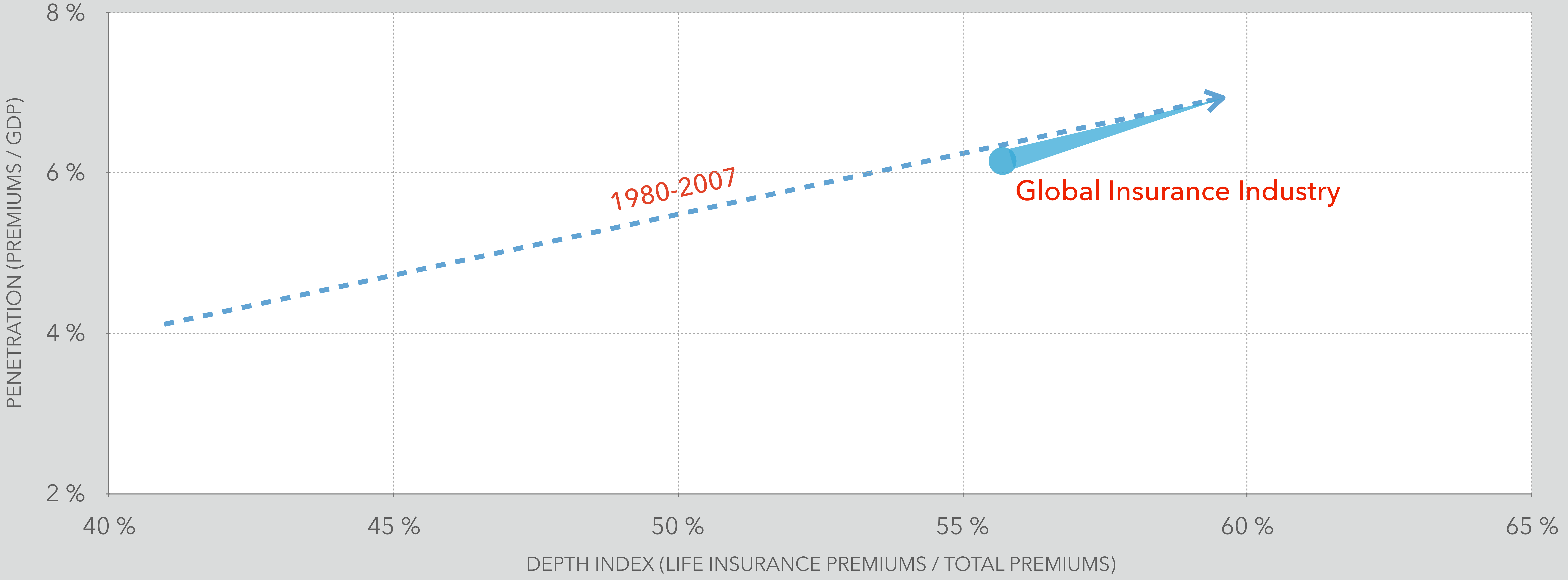
Source: MAPFRE Economic Research

2016

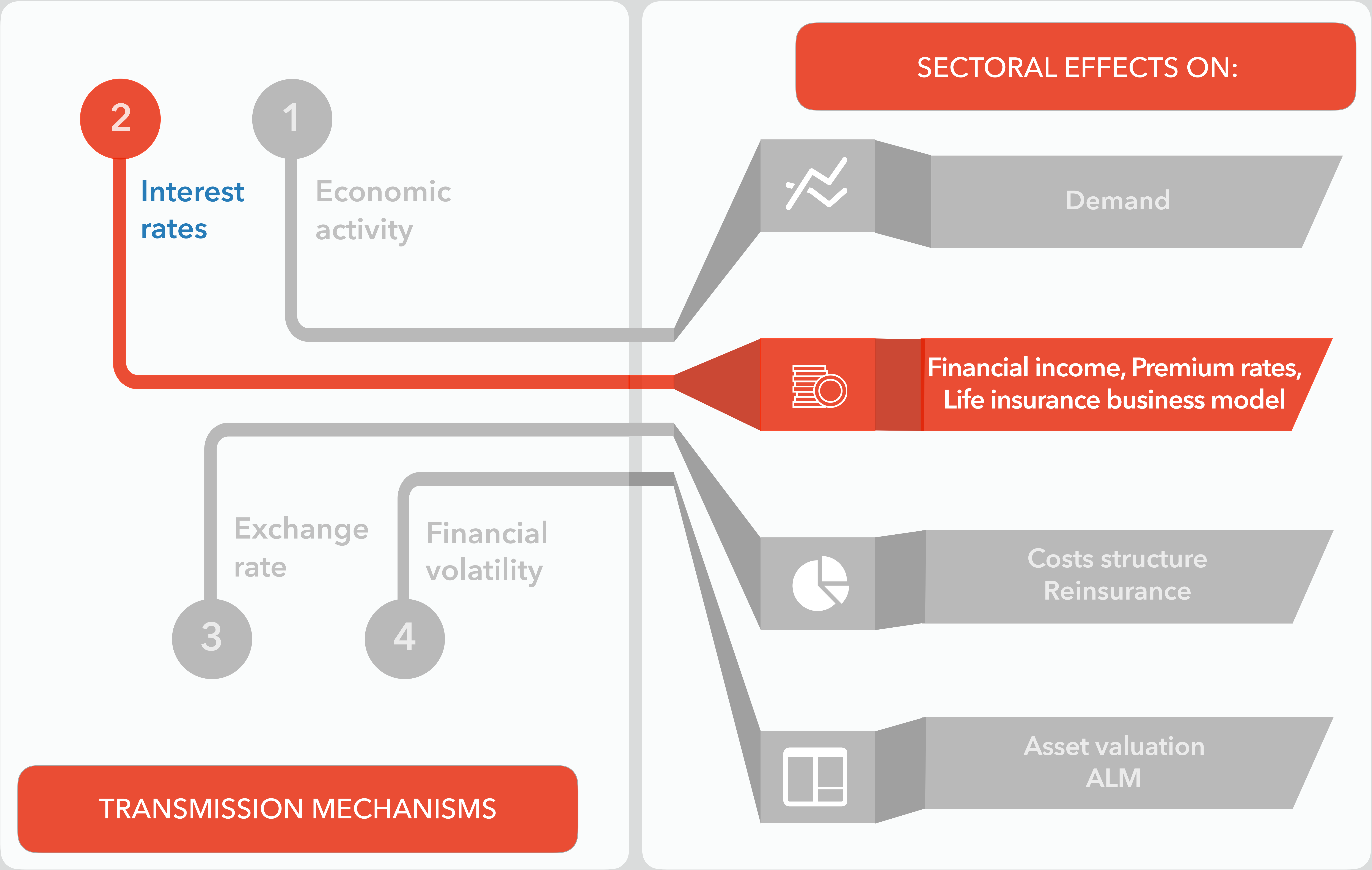


Source: MAPFRE Economic Research

2007-2016



Source: MAPFRE Economic Research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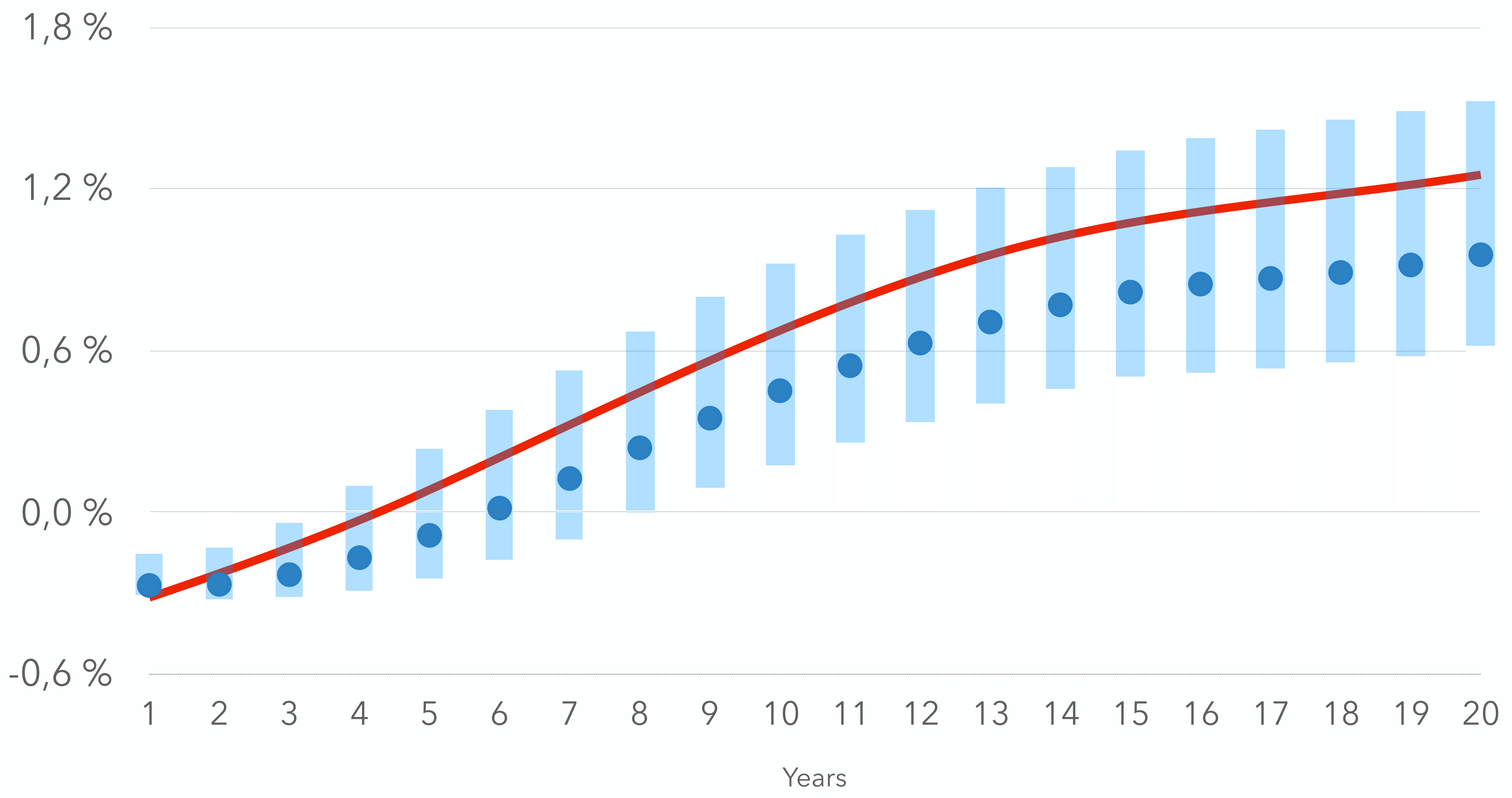
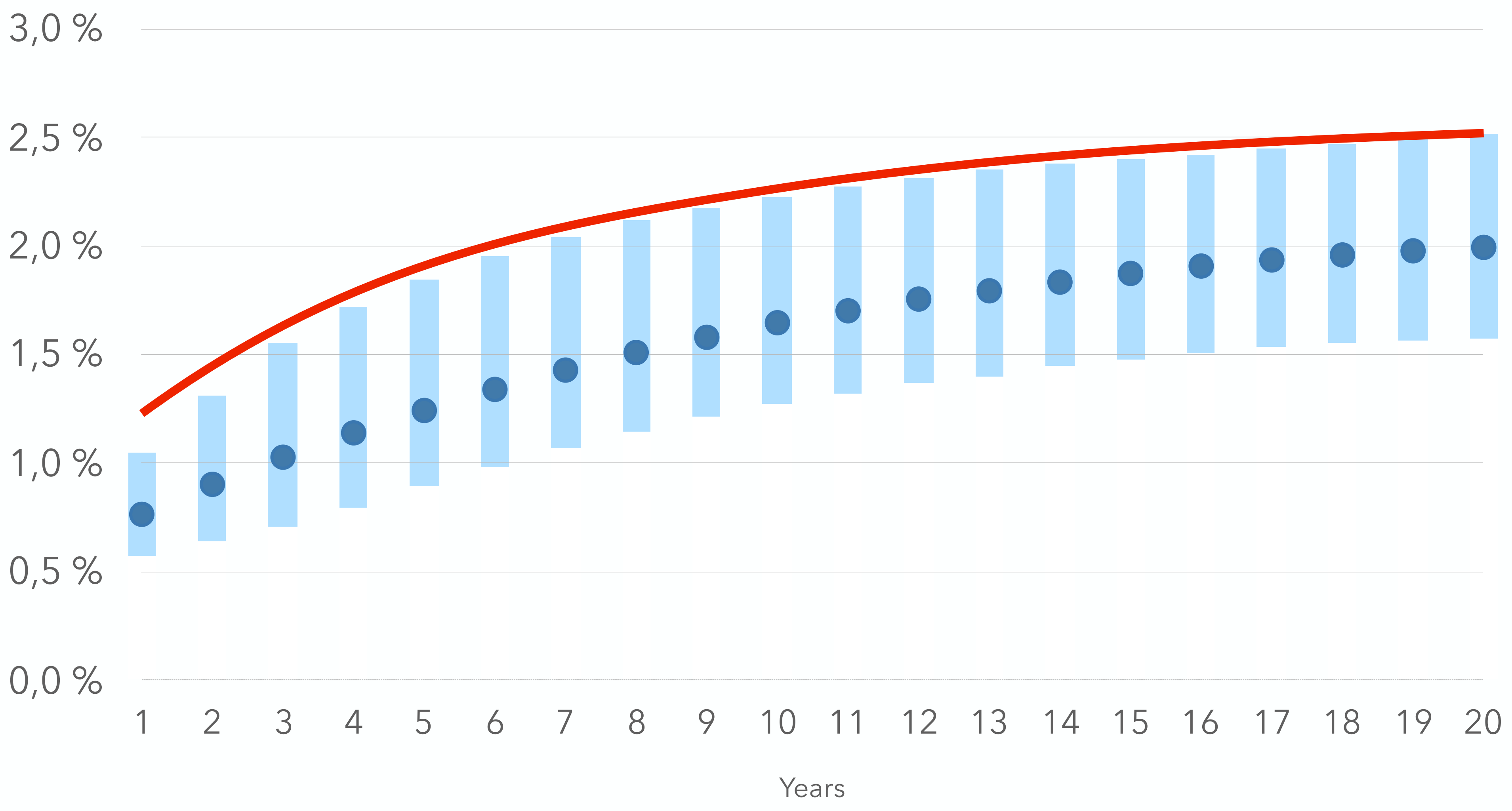
Eurozone: risk-free yield curve
(%)



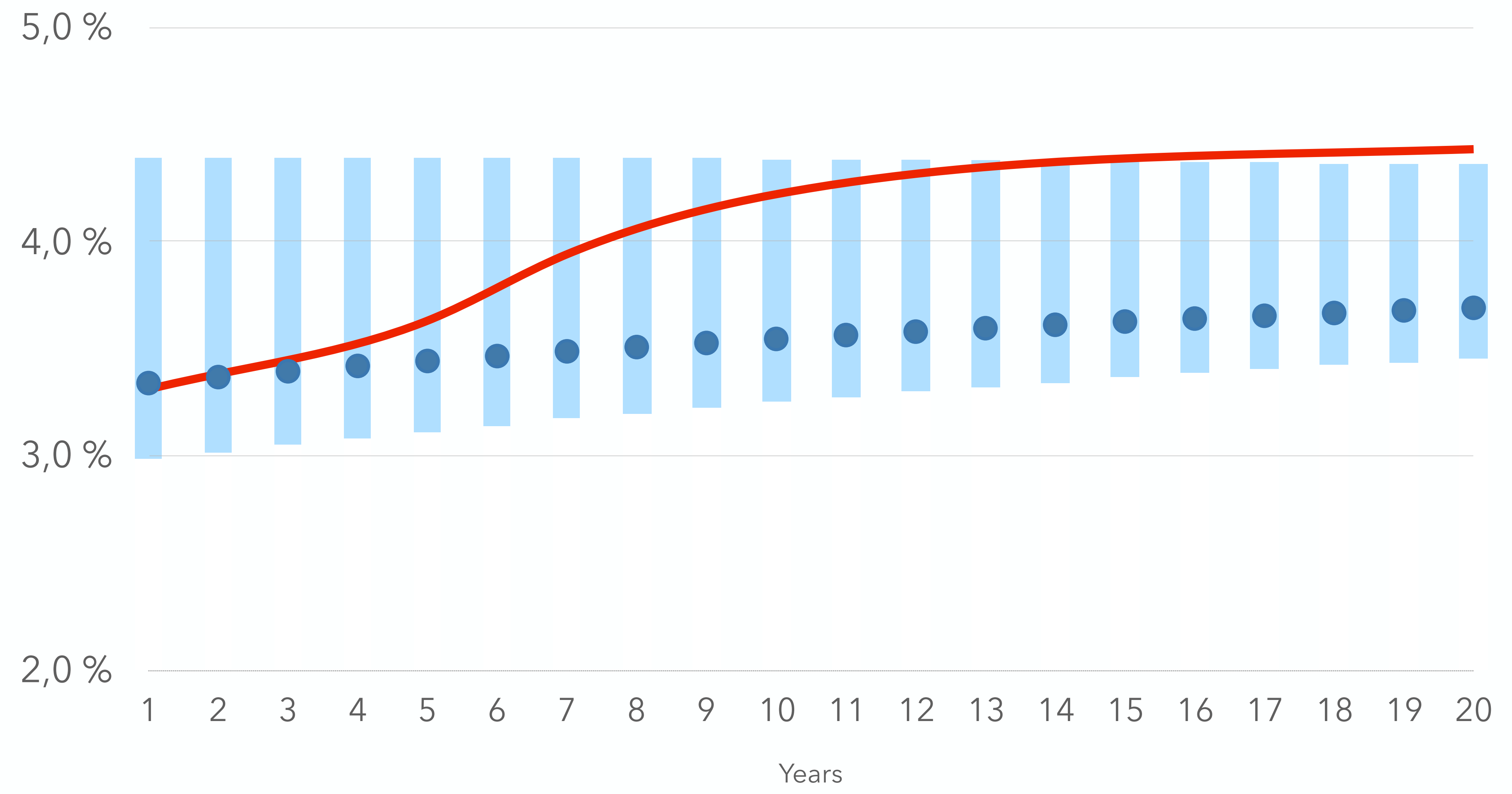
United States: risk-free yield curve
(%)



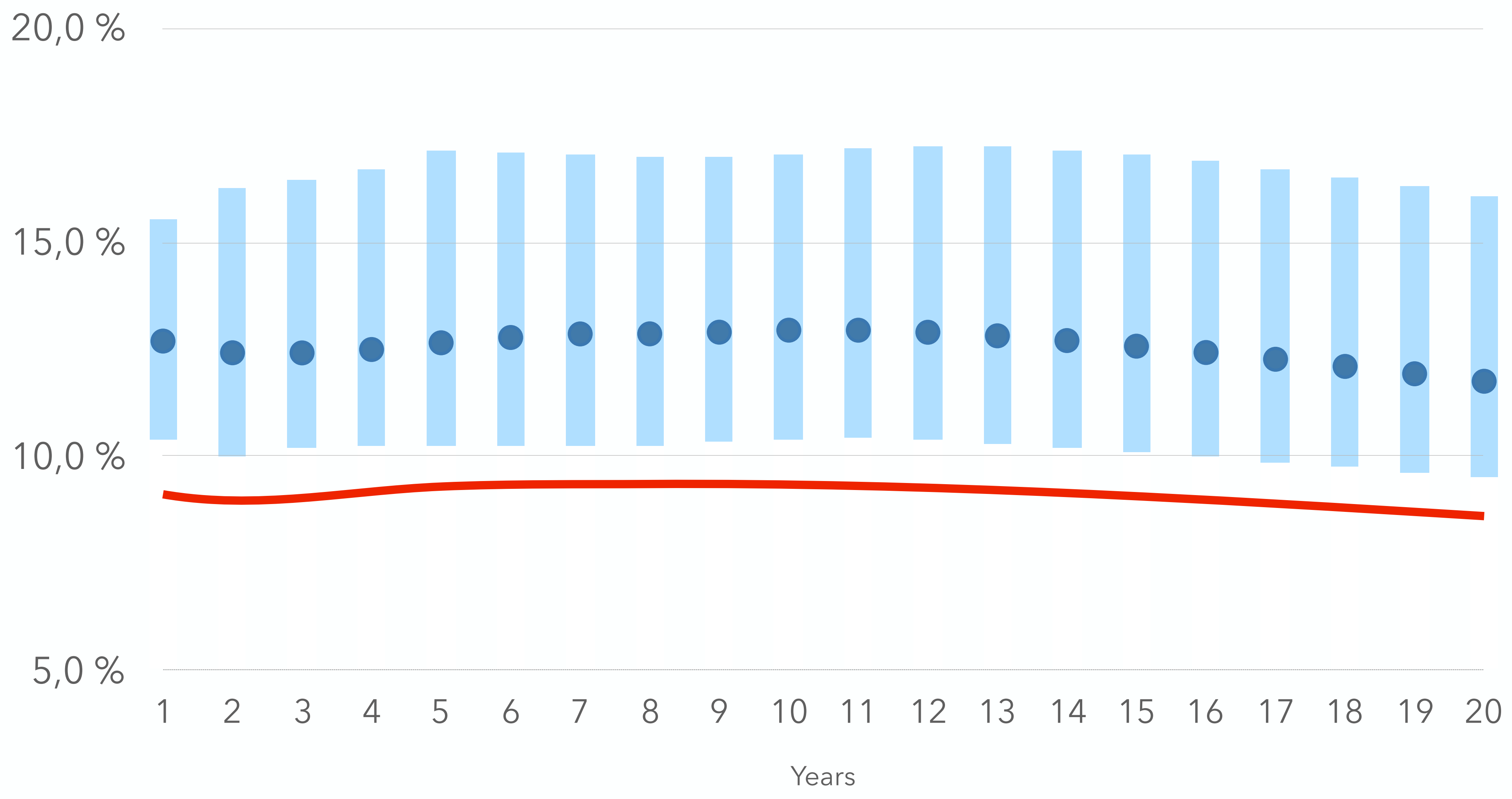
2016 Average — March 2017 — Range of rates throughout 2016

Source: MAPFRE Economic Research (with data from EIOPA)

China: risk-free yield curve
(%)



Brazil: risk-free yield curve
(%)



2016 Average — March 2017 — Range of rates throughout 2016

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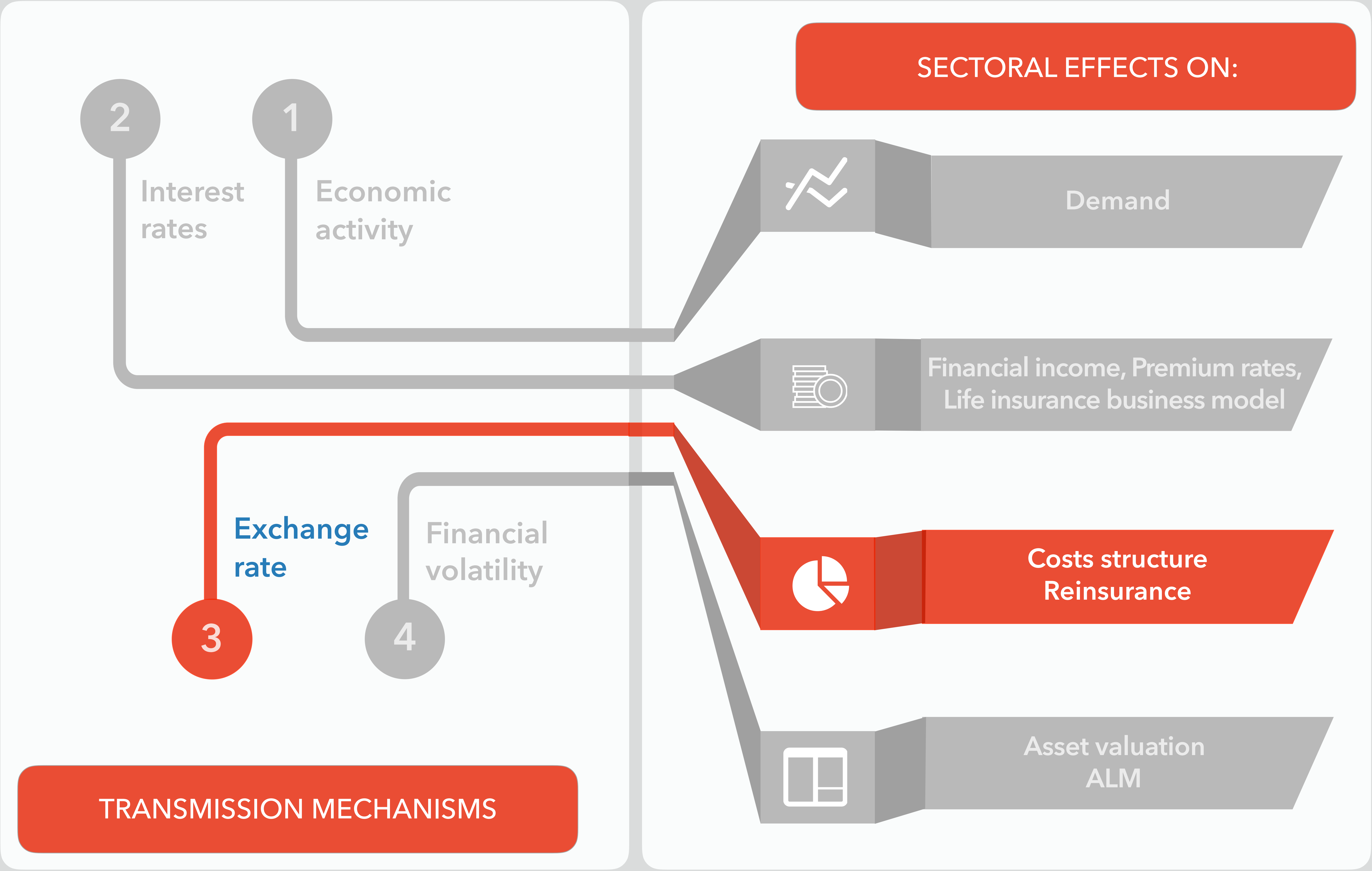
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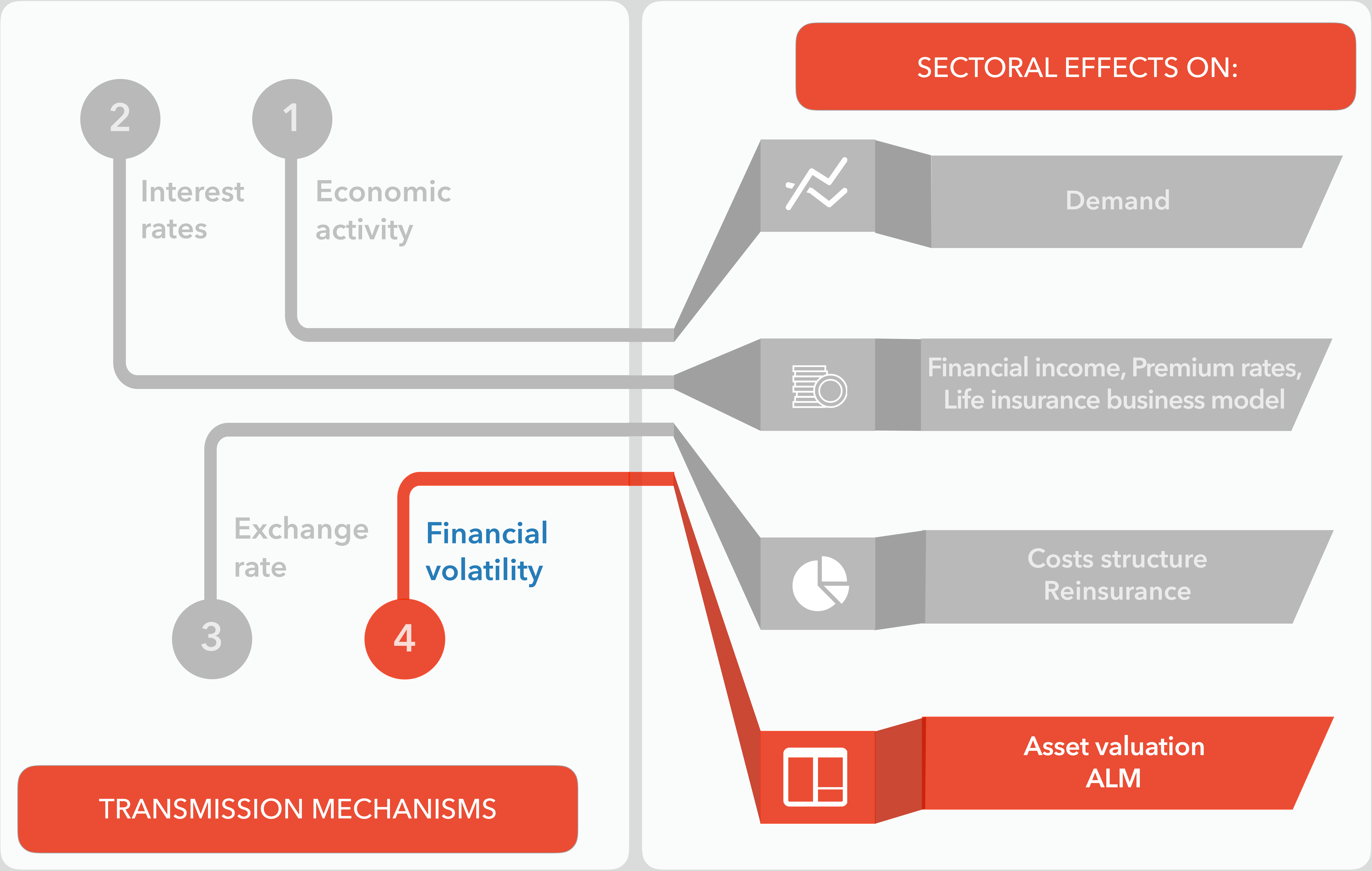
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1. **GDP growth expectations for 2017 are a key element in the outlook for the life and non-life insurance markets,** strongly linked to the economic performance.

2. **Overall growth outlook is favorable for the insurance industry,** although the low level of growth forecasted for some developed economies would provide an equally weak scenario for the insurance sector in those markets.

3. The higher elasticity of **demand for insurance in emerging economies**, together with a relevant GDP growth, will imply a better performance compared to that of the developed economies.

4. In 2017, the **insurance sector is expected to maintain its dynamics in developed and emerging markets,** with the latter leading the growth of the global industry.

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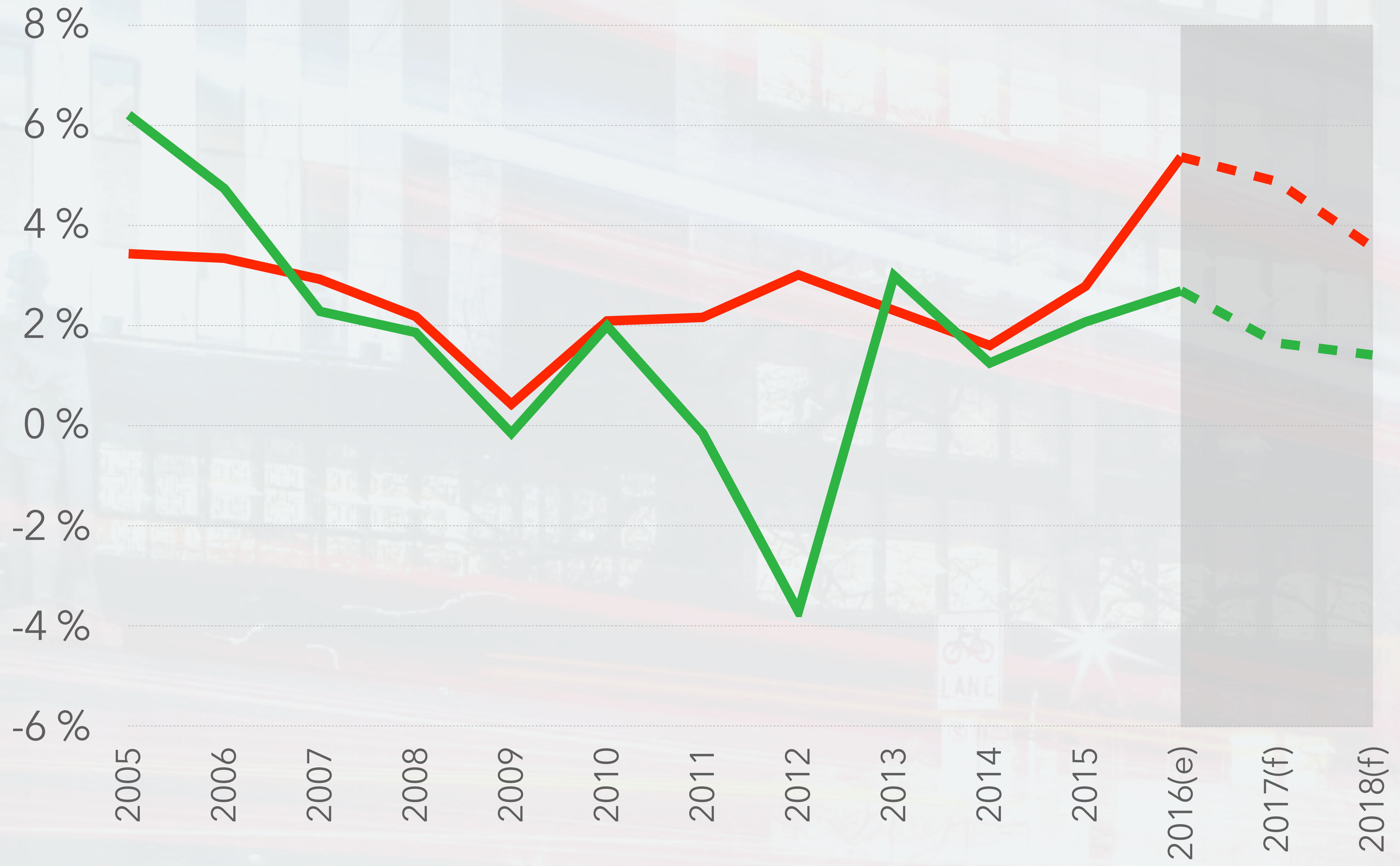
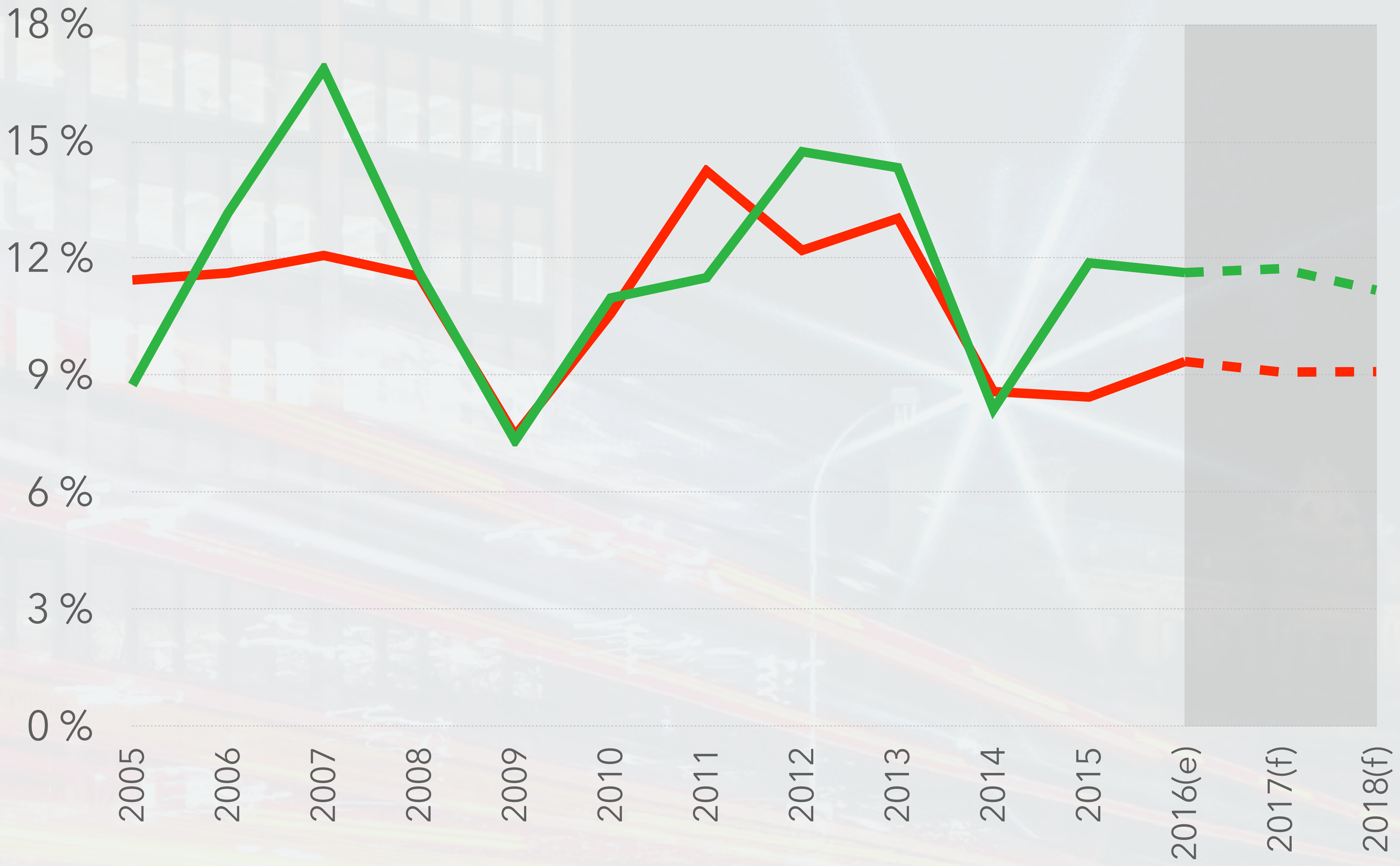
Developed markets: Life and Non Life insurance growth forecast
(median growth of insurance premiums, %)



Emerging markets: Life and Non Life insurance growth forecast
(median growth of insurance premiums, %)



Life | Life (f) | Non Life | Non Life (f)

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2 New non-traditional participants

3 Expanding distribution channels

4 Use of technology in the automobile business and the internet of things

5 Usage-Based Insurance

6 App-Based Management

7 Adapting to change in demographic patterns

8 Effects of climate change

9 Cyber risks

10 Regulatory convergence

- Most of **the main macro-business trends observed in the insurance industry** in 2016 will continue to deepen throughout 2017.

Source: MAPFRE Economic Research

1 Big Data

- Big Data for **customer analysis and segmentation** (creating individualised client profiles), as well as for **service management.**

- Technology risk
- Legal risk
- Reputational risk

Source: MAPFRE Economic Research

2 New non-traditional participants

- New financial firms that offer insurance services at lower costs based on the **intensive use of information technologies and collaborative economy schemes**, reformulating the principle of mutualisation of risks (*InsurTech*).

- Strategic risk

Source: MAPFRE Economic Research

3 Expanding distribution channels

- Insurance undertakings will continue **to emphasise the expansion of their distribution channels** as a way to be successful in a more competitive market, particularly the development of **digital channels** in which the process of customer segmentation will prevail.

- Commercial risk
- Technology risk

Source: MAPFRE Economic Research

4 Use of technology in the automobile business and the internet of things

- Insurers will continue to adapt their operation and business models to the new reality of the automobile business (automated drivers aids, semi-autonomous driving) by **identifying the reduction of certain risks and the emergence of others that will need adequate coverage.**

- Likewise, insurance companies will continue to **incorporate the so-called internet of things** as part of their business model.

- Technology risk
- Underwriting risk

5 Usage-Based Insurance

- The trend towards the Usage-Based Insurance will continue by designing and offering more competitive products in which the **insurance premium will be linked to the use** (PAYD, Pay-As-You-Drive) **or driver behaviour** (PHYD, Pay-How-You-Drive).

- Technology risk
- Underwriting risk

Source: MAPFRE Economic Research

6 App-Based Management

- The use of technological applications (apps) to carry out the management of different **business processes and the monitoring of the risk conditions of clients.**

- Technology risk
- Underwriting risk
- Legal risk
- Reputational risk

7 Adapting to change in demographic patterns

- Primarily determined not only by the **population ageing** (that will affect the design of pension and life products), but also by variations in **migration patterns** that will affect customer segmentation and product design.

- Longevity risk
- Underwriting risk

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8 Effects of climate change

- A trend that has dominated the concerns in the field of non-life insurance with regard to the **protection against risks of nature.**
- Especially in the face of the **effects of climate change** associated with modifications in **urbanisation patterns.**

- Underwriting risk

9 Cyber risks

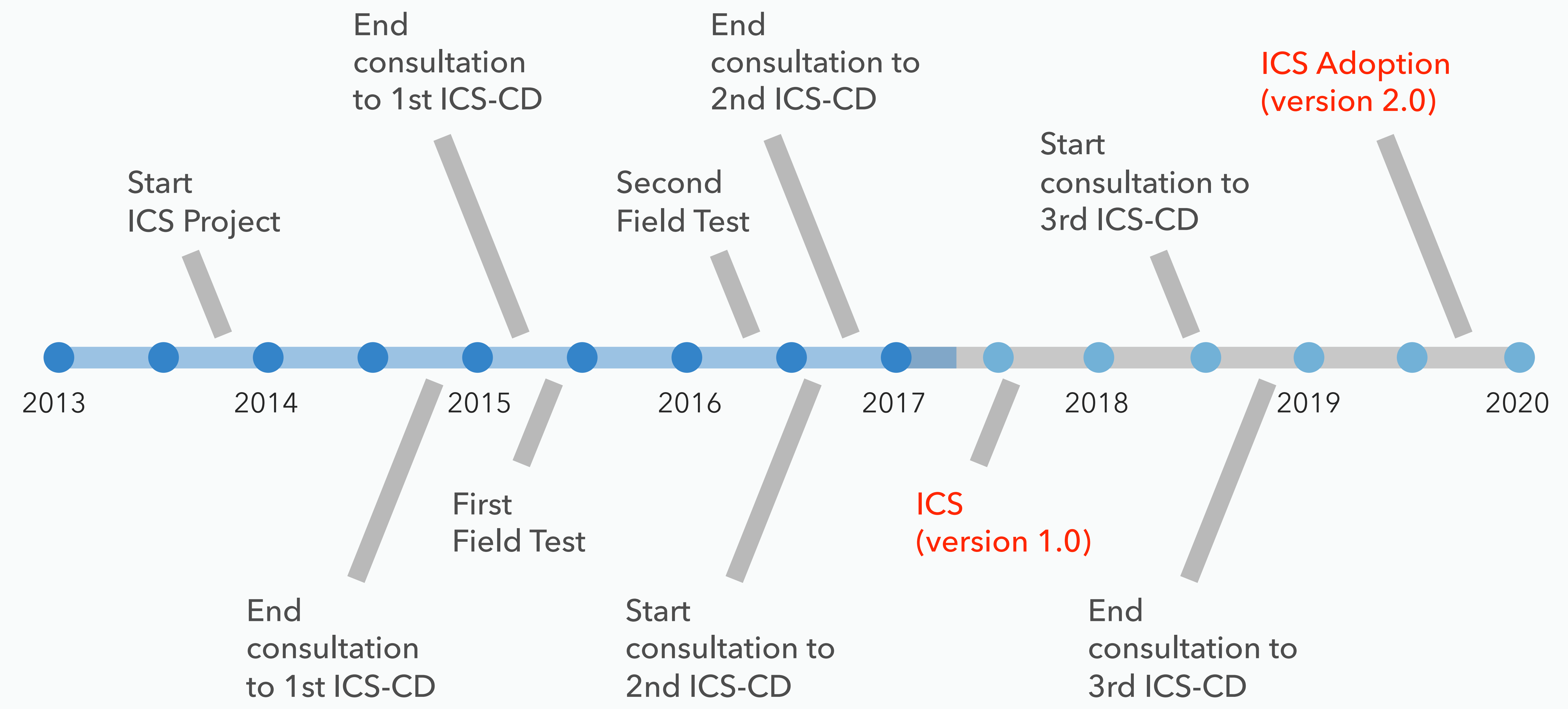
- On one hand, there is a growing need for **protection against cyber attacks**.
- And, on the other, the uncertainty remains in terms of the **degree of insurability** of cyber risks.
- Are the **traditional idiosyncratic compensation mechanisms** suitable for this kind of risks?

- Underwriting risk

10 Regulatory convergence

- Process of regulatory convergence towards **prudential models based on risk** (Solvency II-type).
- Implementation of regulatory measures linked to **systemic risk and financial stability** (at both global and domestic levels).

- Operational risk
- Compliance risk
- Legal risk



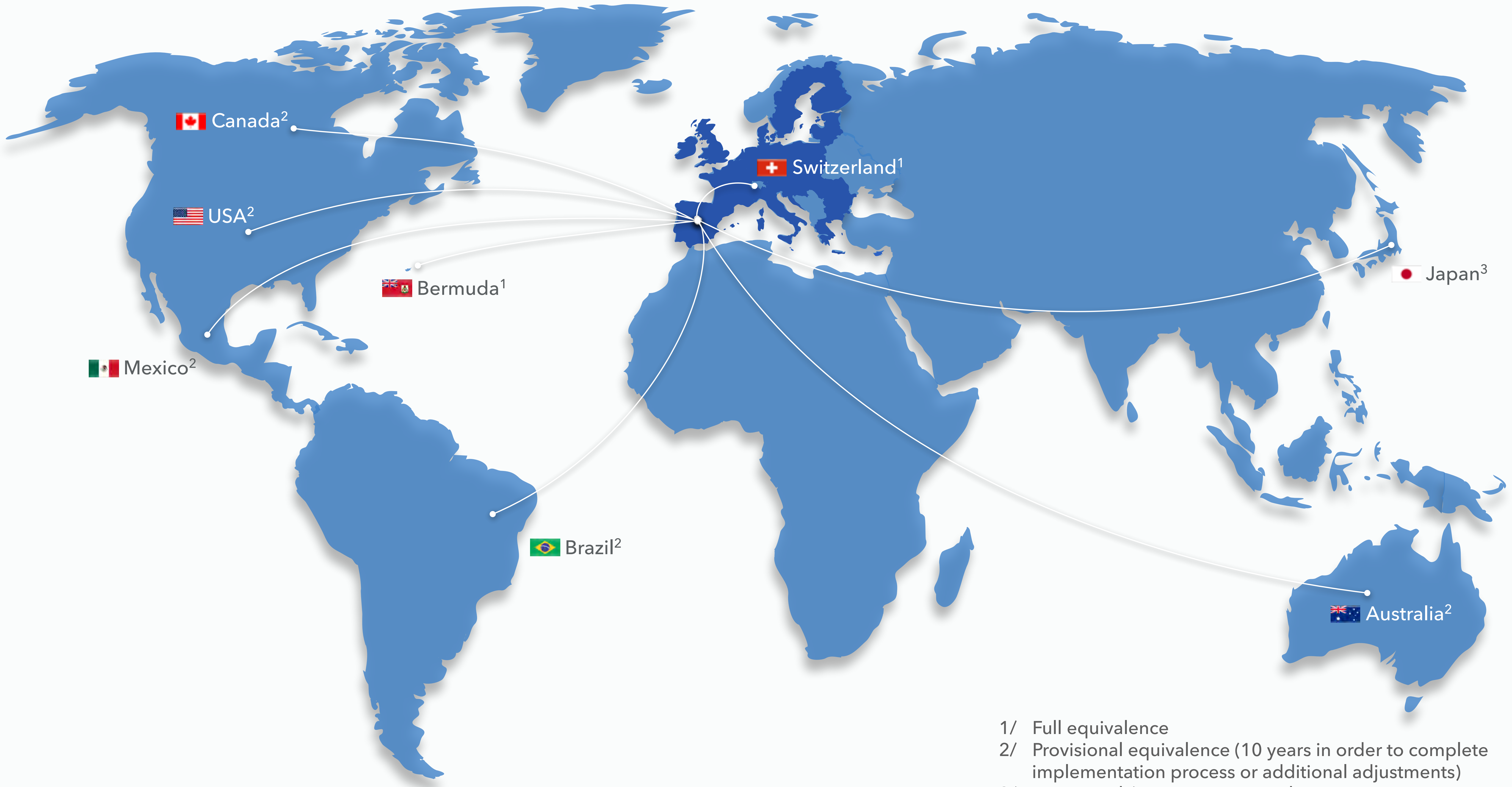
- IAIS project for an **international capital standard (ICS).**

Source: MAPFRE Economic Research (with information from the IAIS)

- In 2017 **regulatory convergence will continue** (beyond the ICS) towards risk-based prudential models (Solvency II-type) seeking:

(i) To adopt solvency systems based on risk measurement and risk management schemes, and

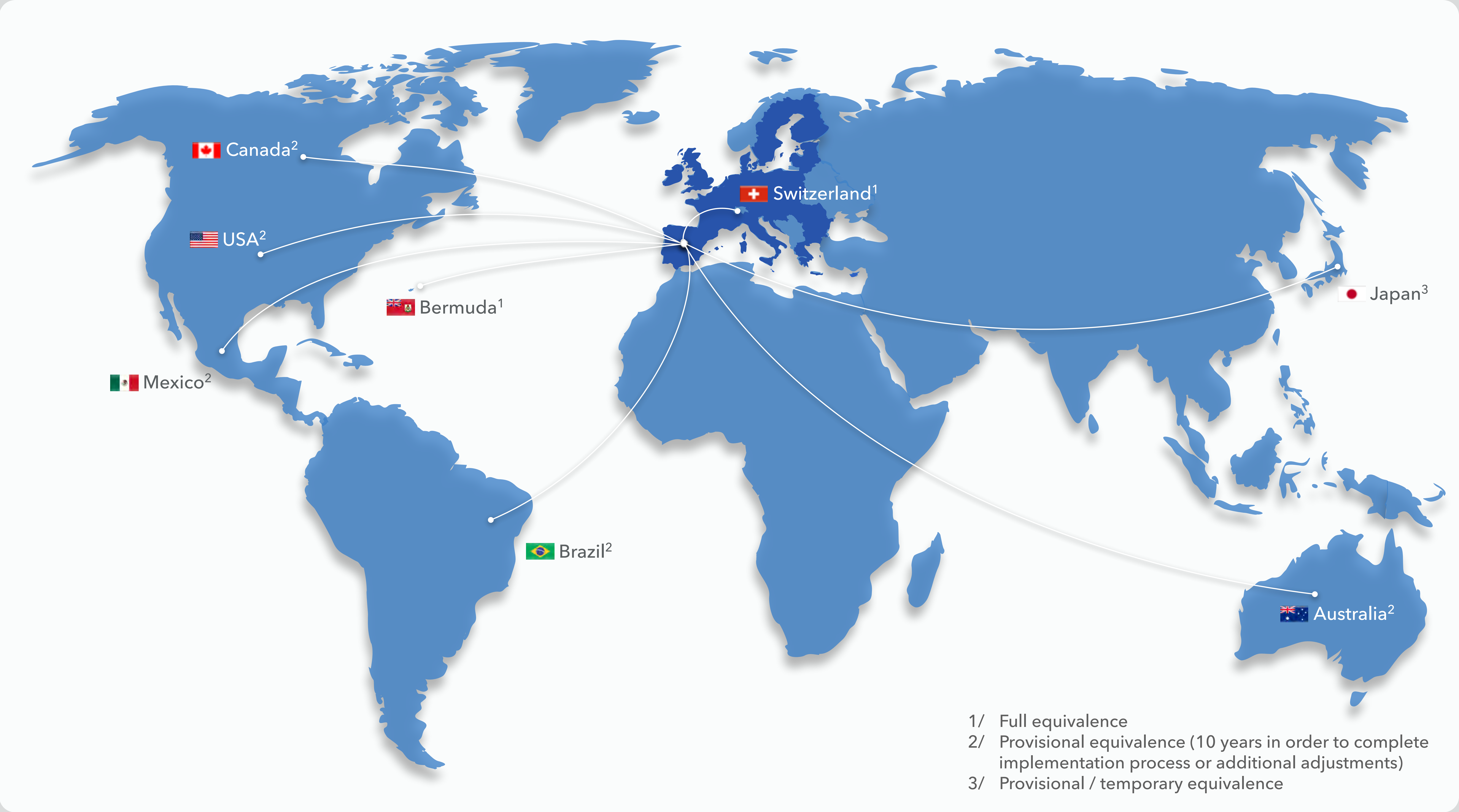
(ii) To create a local regulatory environment that harmonises with the operation of the main global insurance groups.



1/ Full equivalence
2/ Provisional equivalence (10 years in order to complete implementation process or additional adjustments)
3/ Provisional / temporary equivalence

Source: MAPFRE Economic Research (with information from EIOPA)

- Markets subject to Solvency II-type regulatory standards would account in 2017 for almost **76% of worldwide insurance premiums.**



Source: MAPFRE Economic Research (with information from EIOPA)

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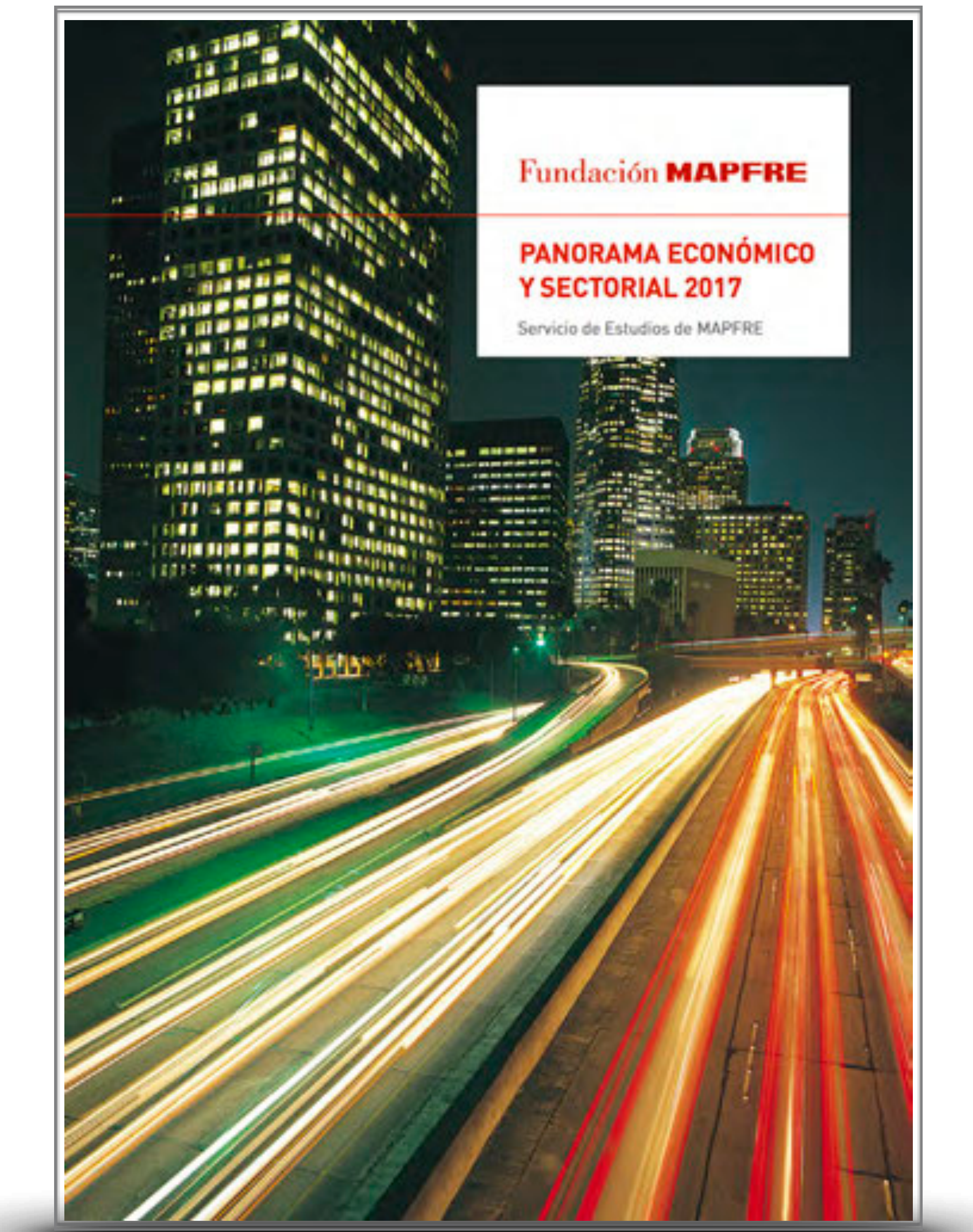

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