Fundación MAPFRE

GLOBAL SAVINGS AND INSURANCE INDUSTRY INVESTMENTS

MAPFRE Economics

Global savings and insurance industry investments

Cite as follows:
MAPFRE Economics (2023), *Global savings and insurance industry investments,* Madrid, Fundación MAPFRE.

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© For this edition:
2023, Fundación MAPFRE
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June 2023.

MAPFRE Economics

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Presentation

This report presents an assessment of global savings in which, three years after the COVID-19 pandemic, although global savings and the structural savings gap remain intact in the aggregate, there have been clear changes in different regions of the world. The insurance industry is known to be one of the main sources of institutional investment worldwide. Unlike other financial institutions, the insurance business model calls for the implementation of liability-driven investment strategies, with the objective of achieving an adequate match in terms of maturity, currency and interest rates between the liabilities assumed and the investment instruments behind them. Thus, insurance companies support the process of investment in the economy by means of a stable flow of resources providing long-term financing to projects that drive economic activity while contributing to the stability of the financial system, operating as a mechanism that reduces procyclicality in stress or crisis situations in the economy.

Based on this general framework, this report provides an overview of the distribution and risk profile according to the typology of investment portfolio assets for insurance companies in a selection of the main markets in the major regions of the world. This analysis expands and updates the information contained in prior reports and includes the markets of the Eurozone, United States, Japan, United Kingdom, Spain, Brazil and Mexico. Furthermore, as in past editions, this report includes an analysis of the investment portfolios of a selection of international insurance groups, including information on the credit rating of the portfolios in which they invest.

MAPFRE Economics

Executive summary

Global savings

Three years after the COVID-19 pandemic, it is evident that although global savings and the structural savings gap remain intact in the aggregate, there have been changes in different regions. On one hand, while middle- and high-income countries narrowed or maintained their savings gap, low-income countries expanded it. Those that maintained or reduced their structural savings gap initially did so thanks to growth in private and public savings (in 2020). However, in 2022, this increase was fundamentally due to transfers from the public sector to the private, while the latter (private savings) continues to decline incessantly. This offsetting effect appears to be wearing off, however, befitting the incipient shift in global fiscal policy, as public and private savings continue to correct downward in 2022, with the trend expected to consolidate and return, as we move into 2024, to the pre-pandemic global savings structure.

A 2023–2024 period with an overall savings structure as it existed in 2019, with no room for savings transfer from the public sector (due to tax rationalization) and in an environment of much higher interest rates than before, will have a significant impact on economic activity and financing costs, which should begin to suffer in 2023. Thus, it is foreseeable that the impact of monetary policy (already in restrictive territory on the global level), without fiscal space or a savings margin, will produce a greater adjustment than has been seen in the past.

Insurance industry investments

In 2022, there were large corrections in the valuation of the main asset categories in which insurance companies invested. Accelerated interest rate hikes by the main central banks and the start of quantitative easing programs in some of them (mainly the US Federal Reserve) to combat the sharp upturn in inflation, caused by the extensive monetary and fiscal aid packages implemented during the pandemic and subsequently fed by supply bottlenecks due to the economic reopening and the war in Ukraine, triggered an adjustment in the financial markets. This negatively affected both the valuation of sovereign and corporate bonds as well as equities and other alternative investments with unprecedented depth and synchrony in recent times. This effect was amplified by the spike in risk premiums resulting from geopolitical uncertainty due to the invasion.

For solvency purposes, it should be noted that the deterioration in the insurance companies' investment portfolios sustained in 2022 was partially offset by the positive impact of the change in orientation towards a tightening of monetary policy on the valuation of technical provisions, which declined substantially when discounting the projected liability flows with higher discount rates. Although the net effect of both factors on shareholders' equity at the industry level generally reduced solvency ratios versus the previous year, the insurance industry maintained a solid solvency position.

As in prior versions, this report provides a comparative view of the distribution and evolution of insurance company investments, by types of assets, in a selection of markets, including both developed markets (Japan, the Eurozone, the United States, the United Kingdom and Spain) and emerging markets (Brazil and Mexico). As shown in Table S-1, this is a set of markets that offer a different

level of relative development. It focuses on the cases of the United Kingdom and Japan, in which the weight of the investments managed by the insurance industry is higher in relation to their GDP, together with the Eurozone and United States markets, which have the highest volume of investments managed in absolute values. It is worth noting that, in the case of the Japanese market, only Life insurance company investments, which represent around 92% of the total industry investments, were considered.

Where possible, information on investments in these insurance markets is presented by distinguishing the *traditional* investment portfolio (in which the investment risk is retained in the balance sheet of insurance companies) from the portfolio that supports products in which the policyholder is responsible for the investment risk, which we have called the *unit-linked* business portfolio (which includes both strict unit-linked products and other variable annuity products, where there is also an assumption of investment risk by the insurance policyholder; they are managed in separate accounts and investments are realized in mutual fund units).

This distinction in the insurance markets is included in Table S-2. Except in the United Kingdom, investments that back Investment Life insurance in which the policyholders assume the financial risk of the portfolios assigned to their policies represent a substantially lower percentage than traditional business, but in 2022, they continued to gain weight both in the Eurozone as a whole and Spain in particular. In the United States, on the other hand, although their relative weight decreased in 2022, they remain significant (25.5% of the total portfolio), as the so-called variable annuity products in which, to a greater or lesser extent, the policyholder assumes financial risks in the accumulation phase, depending on the guarantees they incorporate, are common[1]. As for the United Kingdom, the percentage in 2022 was slightly lower than in the previous year, but it remains the market with the highest weight of unit-linked products, at over 56.1% in the last two years.

In investment Life insurance portfolios of the unit-linked or similar type (including variable annuity products in the United States, which are managed in separate accounts from the balance sheet investment portfolio and other assets), the risk and investment decisions do not fall on the insurance company but are influenced by the decisions made by insurance policyholders. Thus, once the traditional investment portfolio has been defined, the proportions corresponding to each category of assets are then calculated. This method of presenting the information is based on the idea that in traditional (i.e. not unit-linked or variable annuity) portfolios, it is appropriate to distinguish the investment typology, with a view to defining the nature of the risk taken on by the insurance companies. In this sense, the highest level of breakdown of the portfolios for comparative purposes (with a breakdown of corporate fixed-income investments) has been achieved for the insurance markets in Japan, the Eurozone, the United States, the United Kingdom and Spain (see Table S-3).

Table S-1
Selected markets: investments managed by the insurance industry, 2022
(millions of euros)

Market	Investments	GDP	% of GDP
United Kingdom	2,562,660	2,719,387	94.2%
Japan	2,639,335	3,749,309	70.4%
Eurozone	7,211,718	13,378,753	53.9%
United States	7,722,584	22,551,865	34.2%
Spain	263	1,328,922	19.8%
Brazil	242	1,704,053	14.2%
Mexico	73	1,252,357	5.8%

Source: MAPFRE Economics (with data from EIOPA, ICEA, BoE, NAIC, SUSEP, CNSF, LIAJ and IMF)

Table S-2
Selected markets: structure of investment portfolios broken down by type of insurance business, 2022
(%)

Type of business	Eurozone	United States	United Kingdom	Spain
Traditional business portfolio	79.9%	74.5%	43.9%	88.1%
Unit-linked business portfolio	20.1%	25.5%	56.1%	11.9%

Source: MAPFRE Economics (with data from EIOPA, BoE and NAIC)

Table S-3
Selected markets: a structural breakdown of traditional business investment portfolios, 2021–2022
(%)

Asset type	Eurozone		United States		Japan		United Kingdom		Spain	
	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022
Corporate fixed income	24.7%	23.5%	40.9%	47.5%	6.9%	6.5%	33.4%	32.9%	19.9%	21.2%
Sovereign fixed income	28.9%	25.6%	20.5%	14.8%	41.2%	43.7%	18.2%	16.6%	52.6%	51.2%
Equities	14.9%	18.6%	15.0%	13.6%	6.1%	5.9%	6.7%	5.9%	6.7%	7.4%
Loans	4.9%	5.1%	10.0%	10.5%	7.1%	7.4%	10.0%	10.0%	0.5%	0.7%
Cash and deposits	1.9%	1.9%	4.6%	4.6%	2.9%	3.0%	9.3%	10.2%	6.0%	5.1%
Properties	1.6%	1.7%	0.5%	0.5%	1.5%	1.6%	1.7%	2.0%	3.5%	4.0%
Mutual Funds	20.5%	20.5%			2.2%	2.4%	20.6%	22.3%	12.7%	12.6%
Other investments	2.6%	3.1%	8.4%	8.5%	32.1%	29.5%	0.1%	0.1%	-1.9%	-2.2%

Source: MAPFRE Economics (with data from EIOPA, ICEA, BoE, NAIC and LIAJ)

According to this information, the United States insurance market stands out again, due to the predominant weight of investments in corporate fixed income in this market, well above the other insurance markets of developed economies, as does the fact that in 2022, it increased significantly to 47.5% of its investments, versus 40.9% the year before. The depth and breadth of the capital market in this country offers more opportunities when accessing and facilitating liquidity from the issues of this type of financial asset, with a wide variety in terms of duration and credit quality level.

The Japanese insurance market, meanwhile, continues to have a high percentage of foreign currency investments, included in the *Other investments* category and that account for 29.5% of its total portfolio, having experienced a decrease of 2.6 percentage points versus the previous year. Insurance companies in Japan have traditionally been an important source of investment for Japanese sovereign bonds and, in particular, for "super-long-term government bonds" (JGBs). However, the current low interest rate environment has made it very difficult to maintain the return on investment while aligning the duration of assets and liabilities, keeping in mind that old portfolios with high guaranteed interest rates still remain. The reaction from insurance companies in this environment has been to increase their investments overseas, mainly in US bonds, in search of higher yields to meet their guaranteed interest obligations. This has caused insurers operating in Japan to be more exposed to international markets and to the risk of exchange rate fluctuations. However, in 2022, the maintenance of a lax monetary policy in that country, in a context of strong monetary tightening by the United States, produced sharp depreciations in the Japanese yen against the dollar. This played in favor of Japanese Life insurance companies that found an opportunity to rotate their portfolios towards Japanese bonds issued in yen, realizing the capital gains generated on bonds issued in dollars without exchange rate hedging. Finally, it should be noted that among the developed markets considered in the analysis, the Spanish insurance market still represents the highest proportion of fixed income in its investment portfolio, with the largest concentration of sovereign fixed income.

Meanwhile, Table S-4 presents the summary of the investment portfolio structure by asset type for all the markets analyzed in this report. As usual, this information highlights the high level of concentration of fixed-income investments (both corporate and sovereign) throughout the sample. As mentioned previously, this position predominantly in fixed income can be explained to a large extent by the fact that the insurance business model involves the need to implement liability-driven investment strategies aimed at achieving an appropriate match in terms of maturity

Table S-4
Selected markets: overview of the structure of investment portfolios broken down by asset type, 2021–2022
(%)

Asset type	Eurozone		United States		Japan		United Kingdom		Spain		Brazil		Mexico	
	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022
Fixed income	53.6%	49.1%	61.5%	62.3%	48.1%	50.3%	51.6%	49.5%	72.5%	72.5%	9.3%	9.3%	79.7%	79.4%
Equities	14.9%	18.6%	15.0%	13.6%	6.1%	5.9%	6.7%	5.9%	6.7%	7.4%	3.7%	3.6%	16.7%	16.5%
Loans	4.9%	5.1%	10.0%	10.5%	7.1%	7.4%	10.0%	10.0%	0.5%	0.7%	-	-	1.7%	1.8%
Cash and deposits	1.9%	1.9%	4.6%	4.6%	2.9%	3.0%	9.3%	10.2%	6.0%	5.1%	0.3%	0.3%	0.5%	0.9%
Properties	1.6%	1.7%	0.5%	0.5%	1.5%	1.6%	1.7%	2.0%	3.5%	4.0%	0.0%	0.0%	1.3%	1.3%
Mutual Funds	20.5%	20.5%	0.0%	0.0%	2.2%	2.4%	20.6%	22.3%	12.7%	12.6%	86.7%	86.7%	0.0%	0.0%
Other investments	2.6%	3.1%	8.4%	8.5%	32.1%	29.5%	0.1%	0.1%	-1.9%	-2.2%	0.1%	0.1%	0.0%	0.1%

Source: MAPFRE Economics (with data from EIOPA, ICEA, BoE, LIAJ, NAIC, SUSEP and CNSF)

and interest rates between recognized liabilities and the investment instruments that back them up. Against this backdrop, the new weighting of insurance companies' portfolios between different asset types tends to be marginal, given the need to match terms, rates and currencies with their liabilities and given the consumption of capital (mitigation of interest rate risk). Therefore, the changes between asset categories tend to be small scale. However, it is not uncommon, underneath this stability between asset classes, to see rotations, especially in duration, in the portfolios where this is feasible, in anticipation of market and central bank interest rate movements (for inflationary control reasons), and to a certain extent, reweighting due to ratings (mitigation of the issuer's credit risk).

In a medium-term analysis, over the 2018–2022 period (see Table S-5), it is evident that movements between asset classes are somewhat greater than in the 2021–2022 period, highlighting the increased weight of equities in the Eurozone (by 5.9 pp), coinciding with the prolonged low interest rate environment, which began to change in July 2022 and whose effects could be seen in coming years by the likely shift back towards sovereign and corporate bonds due to the increase in their yields. In any case, movements remain limited, having passed the

Table S-5
Selected markets: asset reassignment, 2018–2022
(percentage point change)

Asset type	United Kingdom	Japan	Eurozone	United States	Spain	Brazil	Mexico
Fixed income	-4.2	2.2	-9.5	-2.9	-3.2	1.5	-2.2
Equities	-3.2	0.3	5.9	0.5	2.1	0.8	2.8
Loans	1.1	-0.8	0.5	0.0	-0.3	-	-0.7
Cash and deposits	1.8	0.3	-0.1	0.7	-2.5	0.1	0.3
Properties	-0.1	0.0	0.0	-0.1	0.3	0.0	-0.2
Mutual Funds	4.5	0.8	2.4	-	4.8	-2.4	-
Other investments	0.1	-2.7	0.8	1.8	-1.3	0.0	-0.1

Source: MAPFRE Economics (with data from EIOPA, ICEA, BoE, LIAJ, NAIC, SUSEP and CNSF)

Table S-6
Selected markets: fixed-income reassignment, 2018–2022
(percentage point change)

Asset type	United Kingdom	Japan	Eurozone	United States	Spain
Corporate fixed income	-1.1	-0.4	-4.3	-4.0	0.7
Sovereign fixed income	-3.1	2.7	-5.3	1.1	-3.8

Source: MAPFRE Economics (with data from EIOPA, ICEA, BoE, LIAJ and NAIC)

point of enactment of Solvency II, when there were more significant changes in the Eurozone, as rating factors converged with a reallocation of assets to adapt to the new risk-based capital environment and market-consistent valuations.

This medium-term analysis also shows some significant movements in the weights of sovereign and corporate bonds in the Eurozone (see Table S-6), which have fallen, while the weight of equities and assets managed through mutual funds has increased.

Finally, to complement the foregoing and follow up on the analysis conducted in prior versions of this report[2], the third section of this report includes an analysis of investment portfolios from a selection of international insurance groups, with the information taken from their consolidated accounts referring to the close of 2022. This analysis also offers comparative information about the rating of fixed-income assets and the changes compared to the previous year, in order to provide a more in-depth view when comparing their risk profiles.

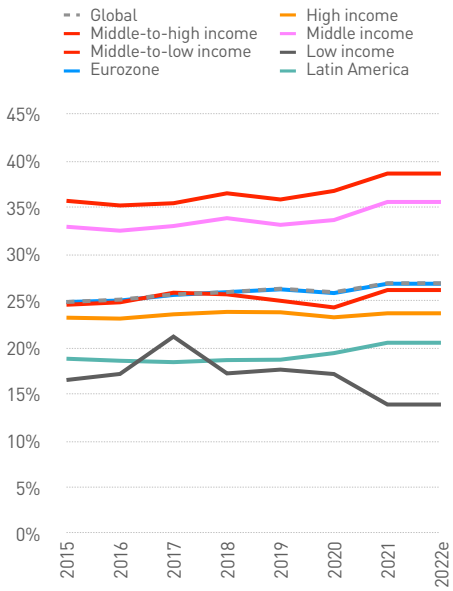
1. An assessment of global savings

1.1 Global savings

After overcoming the health emergency caused by the COVID-19 pandemic, the global savings situation is set in a context in which the global economy is entering a period of high inflation, which has led to monetary policy tightening at the global level in a context of vulnerability due largely to the absence of margins in savings levels. Thus, total gross savings remain, in global terms, practically unchanged at around 28% of GDP. However, this apparent stability hides differentiated dynamics when examining what has happened in each economic region of the world.

As shown in Chart 1.1, total gross savings have increased, in terms of GDP, between 200 and 300 basis points (bps) in (low and high) middle-income countries. These countries include mainly the Asian emerging markets (33%-35%), Eastern European emerging markets and Latin American emerging markets, which saw their savings grow by 200 bps to 21%, still a modest difference compared to countries with an equivalent per capita income. At the other end of the spectrum, low-income countries (generally those in Africa and some Central Asian countries) have seen their total savings fall by more than 300 bps of GDP. This puts them at a meager 15% of GDP, half of what is needed to catch up with the rest of the world in terms of investment and growth. Finally, in the middle of the spectrum are the high-income countries, which have generally maintained their total savings as a proportion of GDP constant over time.

Chart 1.1
Global: total gross savings by income level
(% GDP)

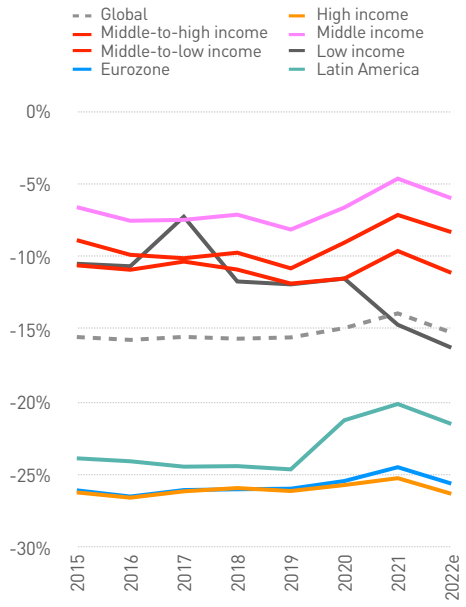


Source: MAPFRE Economics (with data from the World Bank and the UN)
(e) Estimated

1.2 The savings gap

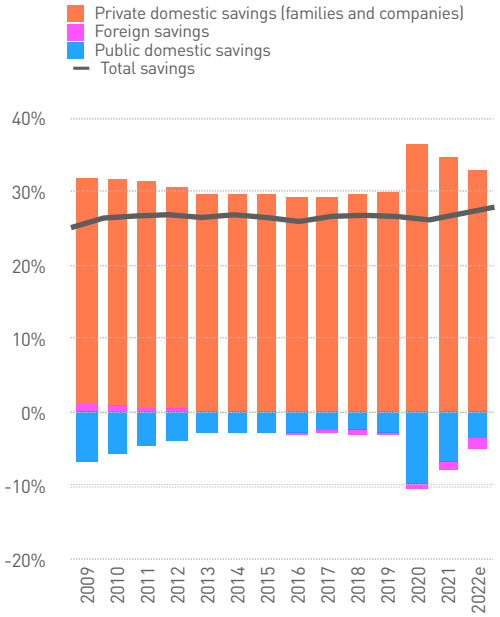
The development of savings acquires different nuances when compared to the savings needed to go through the life cycle, which we have called "Modigliani Savings"[3]. In this sense, as shown in Chart 1.2, the regions that increased their savings (middle-income countries) also reduced their structural savings gap, i.e., the difference between effective and necessary savings according to Modigliani's life-cycle theory. These countries narrowed their savings gap in a similar proportion to the increase in private savings (about 200 to 300 bps), except in countries where the COVID-19 effect on the population reduced vital savings needs, as in the case of Latin America. In this particular region, the combined effect of the slight increase in savings and the decrease in Modigliani Savings reduced the savings gap by 500 bps, to 20%. The wealthiest countries, including the Eurozone, saw their savings gap remain stable at around 25% throughout the period. For their part, the poorest countries saw the gap between required and actual savings widen from 11% to 16% of GDP.

Chart 1.2
Global: total savings gap by income level (% GDP)



Fuente: MAPFRE Economics (own estimates of "Modigliani Savings" and data from the World Bank)
(e) Estimated

Chart 1.3
Global: global savings breakdown (% GDP)



Source: MAPFRE Economics (based on data from the World Bank)
(e) Estimated

These adjustments were especially evident during 2020 and 2021, as a result of the effects of COVID-19, given the alteration in life expectancy[4], the massive transfer of savings from the public to the private sector, and the drop in consumption due to mobility restrictions imposed to control the health effects of the pandemic. Likewise, these adjustments do not fully take into account what happened in 2022, although we are starting to see a new change in trend that seems to anticipate a correction of the dynamics described above. In this sense, we will have to wait for the 2023 data to confirm the continuance of this trend.

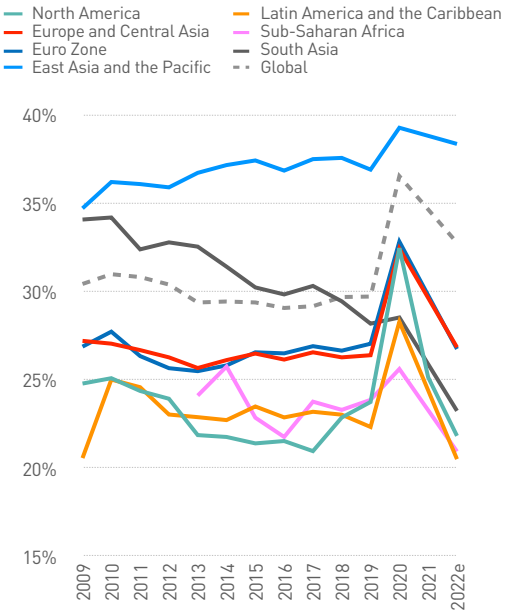
1.3 Global savings structure

Chart 1.3 illustrates the breakdown of overall savings between private savings and public (dis)saving. Based on this information, overall gross private savings have declined by about 400 bps from the peaks reached during the COVID-19 pandemic. However, in 2022, this was still 33%, i.e. 300 bps above the historical average. The public sector supplemented the shortfall in private savings by providing transfers and public infrastructure, thus saving 10% of overall GDP in 2020. At the moment, this dissaving stands at around 4% of global GDP, so although it contributes, it does so at 600 bps less than it did three years earlier. Although this is a significant fiscal adjustment, it still complements overall savings by 100 bps more than it has done historically.

1.4 Savings by economic region

However, examining the dynamics of private savings by major economic regions (see Chart 1.4), it is evident that, from 2020, when global peaks were reached due to reduced mobility and consumption resulting from the COVID-19 pandemic, and until 2022, there was an aggregate adjustment of nearly 400 bps overall, to 33% of GDP. North America, Europe in general and Latin America, in that order, were the main protagonists of this adjustment. The emerging Asian markets, in turn, maintained a differentially high ratio of private savings to GDP. Even so, it was not enough to avoid a contraction in overall aggregate savings, as noted above. Since

Chart 1.4
Global: private savings by economic region (% GDP)



Source: MAPFRE Economics (based on data from the World Bank)
(e) Estimated

wealthy countries and Latin America reduced their private savings but maintained or even reduced their structural savings gap, it is evident that the latter came at the cost of extensive fiscal stimuli that compensated for private savings (in decline, as public savings boomed), as revealed by the sharp increase in public deficits and debt in these regions.

1.5 A preliminary conclusion

In conclusion, three years after the COVID-19 pandemic, it is evident that despite the fact that global savings and the structural savings gap remain intact in the aggregate, there have been changes in different regions. On one hand, while middle- and high-income countries narrowed or maintained their savings gap, low-income countries expanded it. Those that maintained or reduced their structural savings gap initially did so thanks to growth in private and public savings (in 2020). However, in 2022, this decrease was fundamentally due to transfers from the public sector to the private, while the latter (private savings) continues to decline steadily. This offsetting effect appears to be wearing off, however, befitting the incipient shift in global fiscal policy, as public and private savings continue to correct downward in 2022, with the trend expected to consolidate and return, as we move into 2024, to the pre-pandemic global savings structure.

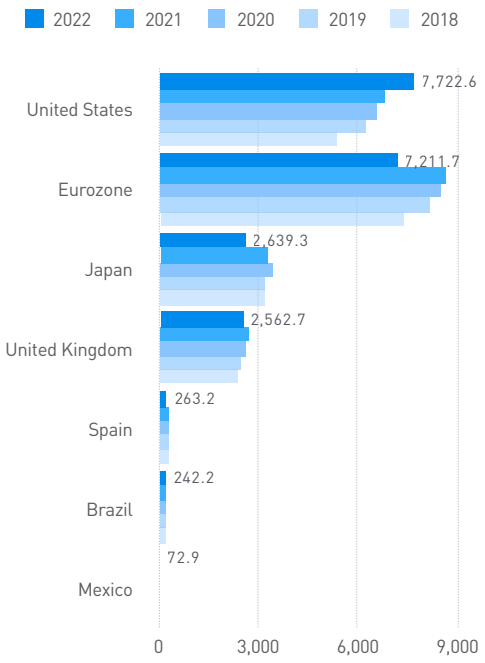
A 2023–2024 period with an overall savings structure as it existed in 2019, with no room for savings transfer from the public sector (due to tax rationalization) and in an environment of much higher interest rates than before, will have a significant impact on economic activity and financing costs, which should begin to suffer in 2023. Thus, it is foreseeable that the impact of monetary policy (already in restrictive territory on the global level), without fiscal space or a savings margin, will produce a greater adjustment than has been seen in the past.

2. Structure of insurance industry investment portfolios in selected markets

The insurance markets considered for the purposes of this analysis represented, on aggregate in 2022, investments in the amount of €20.715 trillion, compared to €21.965 trillion at the end of 2021, a drop of -5.7% (see Chart 2-a). This decline was influenced by the significant valuation corrections in the main asset classes that took place in 2022, a result of accelerated interest rate hikes by the main central banks and the start of quantitative easing programs on their balance sheets to combat the sharp upturn in inflation. This situation caused an adjustment in the financial markets, negatively affecting both the valuation of sovereign and corporate bonds as well as equities and other alternative investments with unprecedented depth and timing. It should be noted that this effect was amplified by the spike in risk premiums stemming from geopolitical uncertainty over Russia's invasion of Ukraine as well as the central banks' quantitative tightening programs.

This environment had a strong impact on the valuation of the main asset classes in which insurance companies invest, such as sovereign and corporate bonds with high credit quality, but also other financial assets such as listed equities. Such a sharp correction in these asset classes in the same year is unprecedented. However, the total volume of investments in some insurance markets, such as the United States, Brazil and Mexico, did not decline. The case of the United States stands out, where the dollar appreciated positively against the euro, increasing the value of investments by transforming the figures into euros. The Brazilian and Mexican insurance markets also benefited from the appreciation of their currencies against the euro, although to a lesser extent.

Chart 2-a
Selected markets: investments managed by the insurance industry, 2018–2022
(billions of euros)

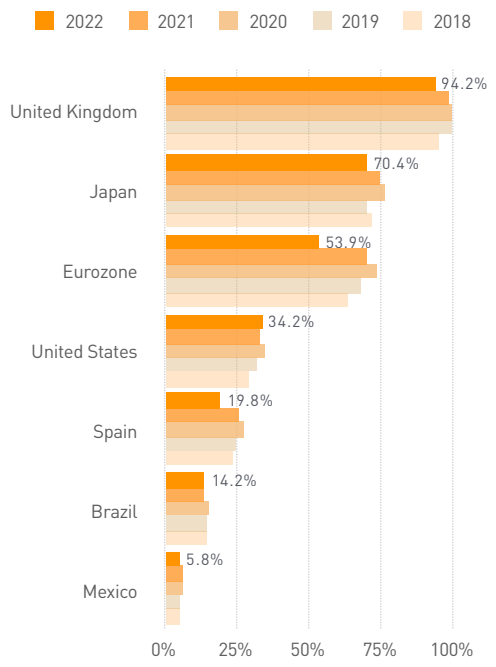


Source: MAPFRE Economics (with data from EIOPA, ICEA, BoE, NAIC, LIAJ, SUSEP and CNSF)

The same behavior can be observed when comparing the weight represented by the volume of investments managed by the insurance industry as a proportion of GDP, in which the United Kingdom market continues to stand out, despite the decline in the last two years (see Chart 2-b). It should be noted, however, that 2020 was a peculiar year due to the abrupt decline in GDP as a result of the pandemic lockdowns, which somewhat distorts the comparison in that year.

The information that was used as a basis for the analysis was provided directly by the relevant national or regional supervisory

Chart 2-b
Selected markets: investments managed by the insurance industry compared with GDP, 2018–2022
(% of GDP)



Source: MAPFRE Economics (with data from EIOPA, ICEA, BoE, NAIC, LIAJ, SUSEP, CNSF and IMF)

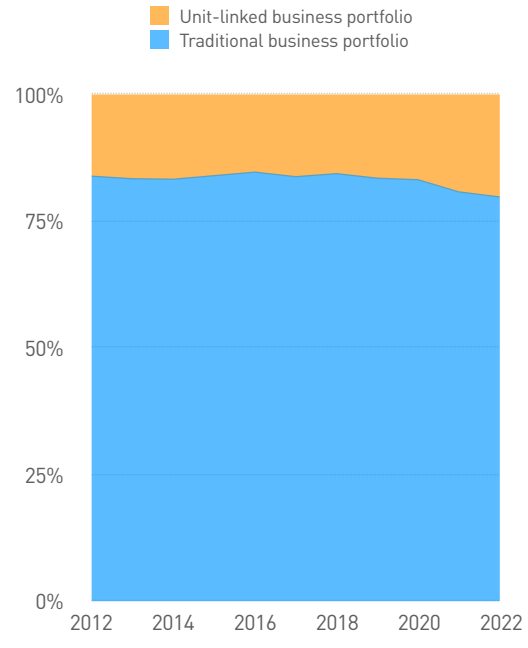
agencies. In case of the information for the Eurozone market, the source was the European Insurance and Occupational Pensions Authority (EIOPA), for the United Kingdom, the Bank of England (BoE) and, for Spain, information obtained from the ICEA has also been used to analyze the evolution of the aggregate portfolio structure between 2012 and 2022. In the case of the U.S. insurance market, the information was taken from that published by the National Association of Insurance Commissioners (NAIC); in the case of Brazil, the source of the data was the Superintendencia de Seguros Privados (SUSEP), and for the Mexican insurance market, the supervisory body was the Comisión Nacional de Seguros y Fianzas (CNSF).

Finally, in the case of Japan, unlike in previous reports, only information from the Life Insurance Association of Japan (LIAJ) has been used, so the information shown corresponds to the investment portfolio of the insurance companies in that market segment, which account for slightly more than 92% of the investments of the entire Japanese insurance industry between 2011 and 2021. The delay in the availability of information and the insignificant weight of the investment portfolios of Japanese Non-Life insurers explains why the decision was made to present information on the Life portfolios in this report, correcting the historical series for Japan presented in previous reports correlatively.

2.1 Eurozone

In the insurance markets that comprised the Eurozone at the end of 2022 (Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Slovakia, Slovenia, Spain, the Netherlands and Portugal), the evolution of the investment portfolio by type of insurance business

Chart 2.1-a
Eurozone: structure of investment portfolios broken down by type of insurance business, 2012–2022
(%)



Source: MAPFRE Economics (with data from EIOPA)

Table 2.1-a
Eurozone: structure of investment portfolios broken down by type of insurance business, 2012–2022
(%)

Type of business	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Traditional business portfolio	84.0%	83.5%	83.4%	84.1%	84.8%	83.9%	84.5%	83.6%	83.3%	80.9%	79.9%
Unit-linked business portfolio	16.0%	16.5%	16.6%	15.9%	15.2%	16.1%	15.5%	16.4%	16.7%	19.1%	20.1%

Source: MAPFRE Economics (with data from EIOPA)

(distinguishing between traditional and unit-linked business) over the 2012–2022 period is shown in Table 2.1-a and Chart 2.1-a. According to this information, over the 2012–2022 period, the weight of the unit-linked business portfolio, in which the policyholder assumes the investment risk, increased significantly in the total investment portfolio, which was influenced by the prolonged low interest rate environment experienced by the Eurozone over the last decade. It should be noted that this increase has been particularly significant in the last two years.

In terms of the development of the traditional investment portfolio structure by asset type over the 2016–2022 period, the 9.3 percentage point (pp) increase in investments managed through mutual funds, accompanied by a 6.3 pp decline in investments in corporate fixed income and a 5.5 pp decrease in sovereign fixed income, stands out. The percentage of equity investments in that period increased by 1.3 pp. It should be pointed out that in the Eurozone (and in general, in all insurance markets), fixed-income investments (either direct or through mutual funds) maintain a pre-eminent position within the investment structure of the insurance industry, insofar as the insurance business model entails the need to implement liability-driven investment strategies in order to achieve an adequate match in terms, currencies and interest rates between the liabilities assumed and the investment instruments backing them.

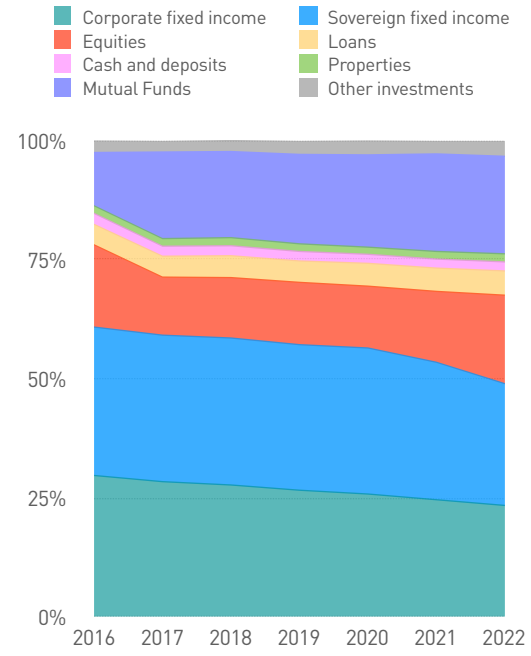
In this report, the analysis period has been shortened compared to the previous year. This was intended to coincide with the enactment of Solvency II in 2016, given the break in the series represented at that time, because of the way the information was presented and because of the new capital risk weights associated with the different asset types, which would have led to a certain reallocation of investments to adapt to the new regime (see Table 2.1-b and Chart 2.1-b).

Table 2.1-b
Eurozone: structure of traditional business investment portfolio broken down by asset type, 2012–2022
(%)

Asset type	2016	2017	2018	2019	2020	2021	2022
Fixed income	60.9%	59.2%	58.7%	57.4%	56.6%	53.6%	49.1%
Corporate fixed income	*29.8%*	*28.5%*	*27.8%*	*26.7%*	*25.9%*	*24.7%*	*23.5%*
Sovereign fixed income	*31.2%*	*30.8%*	*30.9%*	*30.6%*	*30.7%*	*28.9%*	*25.6%*
Equities	17.3%	12.2%	12.7%	13.1%	13.0%	14.9%	18.6%
Loans	4.3%	4.4%	4.6%	4.5%	4.8%	4.9%	5.1%
Cash and deposits	2.3%	2.1%	2.1%	2.0%	1.9%	1.9%	1.9%
Properties	1.6%	1.6%	1.7%	1.6%	1.5%	1.6%	1.7%
Mutual Funds	11.2%	18.2%	18.1%	18.8%	19.4%	20.5%	20.5%
Other investments	2.4%	2.2%	2.3%	2.7%	2.9%	2.6%	3.1%

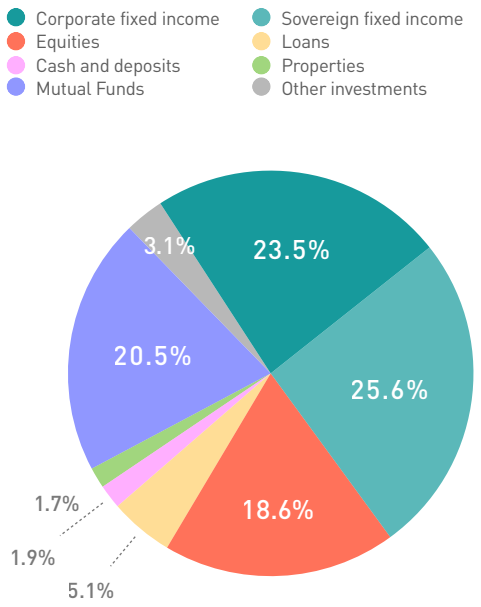
Source: MAPFRE Economics (with data from EIOPA)

Chart 2.1-b
Eurozone: structure of traditional business investment portfolio broken down by asset type, 2016–2022
(%)



Source: MAPFRE Economics (with data from EIOPA)

Chart 2.1-c
Eurozone: structural breakdown of traditional business investment portfolios by asset type, 2022
(%)



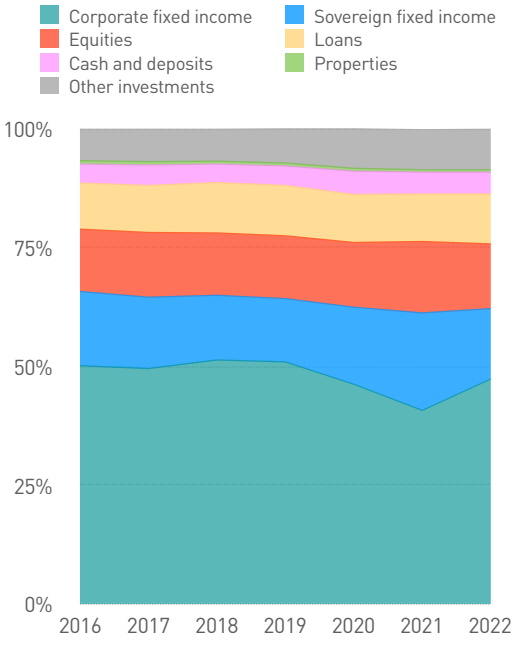
Source: MAPFRE Economics (with data from EIOPA)

Finally, Chart 2.1-c illustrates the structural breakdown of the traditional insurance business investment portfolio in the Eurozone by asset type. In contrast to previous versions of this report, the breakdown of the various asset categories includes the item for investments managed through *mutual funds*, as not enough information was available this year to allocate these investments among the other asset categories ("look through approach"). With this new breakdown, direct investments in sovereign bonds accounted for 25.6% of the portfolio, while 23.5% of the total was in corporate bonds, and the item corresponding to mutual fund shares accounted for 20.5% of the total portfolio (see Box 2.1, which analyzes the credit quality of the bond portfolio of European Union insurance companies).

2.2 United States

With respect to the US insurance market, the developments in the traditional business

Chart 2.2-a
United States: structure of traditional business investment portfolio broken down by asset type, 2016–2022
(%)



Source: MAPFRE Economics (with data from NAIC)

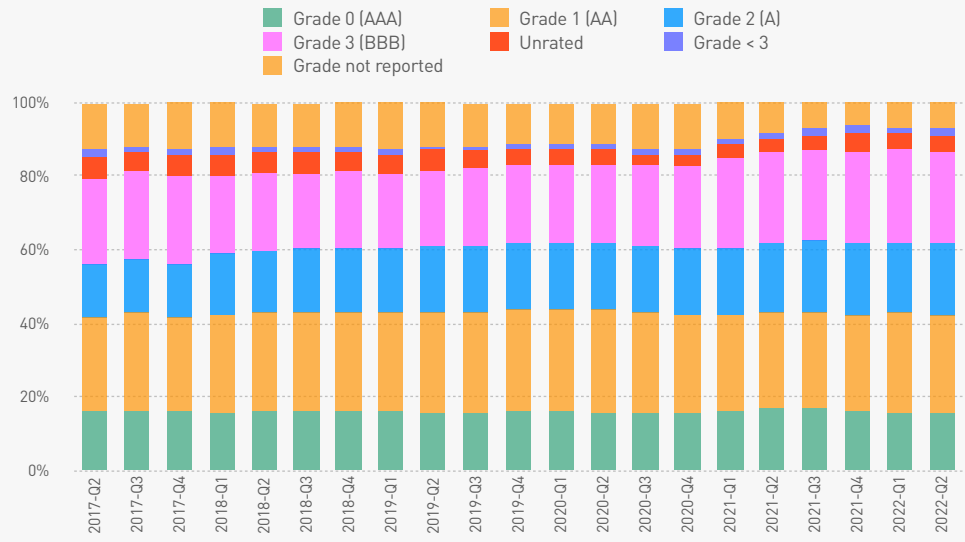
Box 2.1
The credit quality of European Union insurance companies' investment portfolios

The fixed-income bond portfolio held by European Economic Area insurance companies[1] at the end of the first half of 2022 accounted for around 60.0% of the total investment portfolio (up from 62.1% registered in the first half of 2021). This decrease is explained, on the one hand, by the drop in valuations (inversely related to the rise in rates), and on the other hand, by the increased interest of insurers in diversifying into alternative assets such as private equity (+1.8 percentage points) and real estate investments (+0.4 percentage points).

Of the fixed-income portfolio bonds, 86.7% had an investment grade equivalent to a rating of BBB or higher (86.5% at the end of the first quarter of 2021). Most of these have a credit rating of 1, equivalent to AA, on a scale of 0 to 6, where 0 is the maximum rating, equivalent to AAA (see Chart A). Bonds with a credit rating of 1 (equivalent to AA), meanwhile, accounted for approximately 26.7% of the total value of the bond market at the end of the first half of 2022 (26.4% at the end of the first half of 2021). Likewise, bonds with a credit rating of 3 (equivalent to BBB) accounted for approximately 24.7% of the total value of bond markets on the same date (24.6% at the end of the first half of 2021).

Meanwhile, an analysis of the trend in recent years confirms that bonds with grade 2 credit quality (equivalent to A) have increased their weight the most (+5.7 percentage points) since the end of the first half of 2017, followed by bonds with grade 3 credit quality (equivalent to BBB), which increased their weight by +1.4 percentage points[2] (See Table A).

Chart A
Credit quality of the bond portfolio
(%)



Source: MAPFRE Economics (with data from EIOPA)

1/ Made up of EU countries, plus Norway, Liechtenstein and Iceland.
2/ EIOPA, Financial Stability Report 2022 (including traditional portfolio and policyholder risk).

Box 2.1 (continued)
The credit quality of European Union insurance companies' investment portfolios

Table A
Heat map of the evolution of the credit quality of the bond portfolio
(%)

Period	Grade 0 (AAA)	Grade 1 (AA)	Grade 2 (A)	Grade 3 (BBB)	Unrated	Grade < 3	Grade not reported
2017-Q2	16.4%	25.4%	14.1%	23.3%	5.7%	2.0%	13.2%
2017-Q3	16.1%	26.9%	14.2%	23.9%	5.2%	1.9%	11.7%
2017-Q4	15.7%	25.9%	14.4%	24.0%	5.7%	1.7%	12.6%
2018-Q1	15.6%	26.7%	16.5%	21.5%	5.8%	1.6%	12.3%
2018-Q2	15.9%	26.8%	17.2%	20.7%	6.0%	1.6%	11.9%
2018-Q3	15.7%	27.1%	17.6%	20.5%	5.5%	1.6%	11.9%
2018-Q4	16.0%	27.2%	17.3%	20.9%	5.2%	1.4%	12.0%
2019-Q1	15.7%	27.3%	17.6%	19.9%	5.0%	1.4%	13.1%
2019-Q2	15.6%	27.3%	18.1%	20.7%	5.3%	1.2%	11.8%
2019-Q3	15.5%	27.4%	18.0%	20.9%	5.1%	1.2%	11.8%
2019-Q4	15.8%	27.5%	18.6%	20.8%	4.5%	1.4%	11.5%
2020-Q1	15.9%	28.1%	17.9%	21.0%	4.2%	1.2%	11.8%
2020-Q2	15.4%	28.2%	18.1%	21.2%	4.3%	1.3%	11.6%
2020-Q3	15.1%	27.8%	18.2%	21.4%	3.5%	1.4%	12.5%
2020-Q4	15.1%	27.3%	18.1%	22.3%	3.3%	1.4%	12.6%
2021-Q1	16.1%	26.1%	18.5%	24.0%	3.6%	1.6%	10.1%
2021-Q2	16.5%	26.4%	19.0%	24.6%	3.4%	1.6%	8.5%
2021-Q3	16.5%	26.6%	19.4%	24.6%	3.9%	1.7%	7.3%
2021-04	16.3%	26.2%	19.5%	24.4%	5.3%	1.7%	6.6%
2022-Q1	15.5%	27.1%	19.3%	25.0%	4.4%	1.6%	7.1%
2022-Q2	15.5%	26.7%	19.8%	24.7%	4.4%	1.8%	7.1%
Q2 2017- Q2 2022 (change in pp)	-0.9	1.3	5.7	1.4	-1.3	-0.2	-6.1

Source: MAPFRE Economics (with data from EIOPA)

investment portfolio structure by asset type over the 2016–2022 period are presented in Table 2.2 and Chart 2.2-a. In this case, fixed-income investments decreased by 3.6 pp over the period analyzed (2016–2022), essentially concentrating on corporate fixed-income securities which, despite reducing their weight by 2.7 pp, continue to be the majority investment.

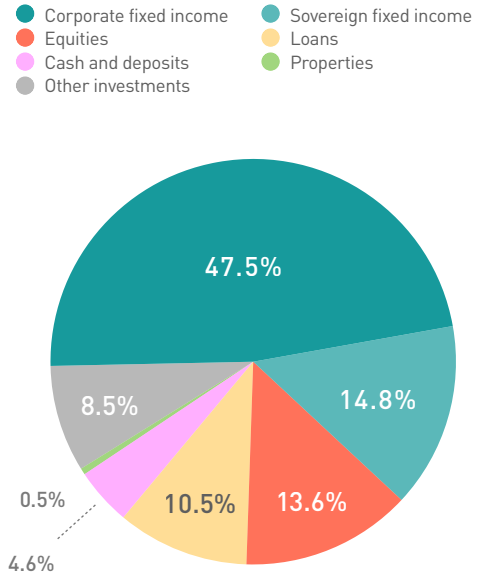
Meanwhile, as illustrated in Chart 2.2-b, using 2022 data, 47.5% of the total portfolio

Table 2.2
United States: structure of traditional business investment portfolio broken down by asset type, 2016–2022
(%)

Asset type	2016	2017	2018	2019	2020	2021	2022
Fixed income	65.9%	64.7%	65.1%	64.4%	62.6%	61.5%	62.3%
Corporate fixed income	*50.3%*	*49.7%*	*51.5%*	*51.1%*	*46.4%*	*40.9%*	*47.5%*
Sovereign fixed income	*15.6%*	*15.0%*	*13.6%*	*13.3%*	*16.2%*	*20.5%*	*14.8%*
Equities	13.1%	13.6%	13.1%	13.2%	13.6%	15.0%	13.6%
Loans	9.7%	9.9%	10.6%	10.6%	10.1%	10.0%	10.5%
Cash and deposits	4.0%	4.3%	3.9%	4.1%	4.9%	4.6%	4.6%
Properties	0.7%	0.7%	0.6%	0.6%	0.6%	0.5%	0.5%
Other investments	6.6%	6.8%	6.7%	7.2%	8.3%	8.4%	8.5%

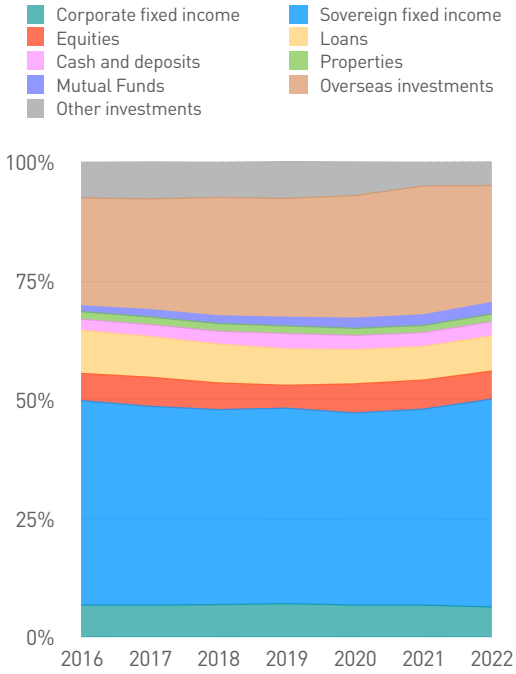
Source: MAPFRE Economics (with data from NAIC)

Chart 2.2-b
United States: structural breakdown of traditional business investment portfolios by asset type, 2022
(%)



Source: MAPFRE Economics (with data from NAIC

Chart 2.3-a
Japan: structure of traditional business investment portfolio broken down by asset type, 2016–2022
(%)



Source: MAPFRE Economics (with data from LIAJ)

of US insurance industry investments concentrated on corporate fixed-income investments, while sovereign fixed-income investments represented 14.8% of the total portfolio. In turn, equities accounted for 13.6% of the total portfolio that year, increasing their weight by 0.5 pp over the period.

2.3 Japan

Table 2.3 and Chart 2.3-a illustrate the development of the Life insurance industry's investment portfolio structure in Japan over the 2012–2022 period, a segment that comes to represent about 92% of the industry's total investment portfolio. An important feature of the investment structure in the Japanese market consists of the high percentage of foreign investments held by Japanese insurance companies in the aggregate portfolio (24.6% of the portfolio at the end of 2022). This proportion grew by 8.1 pp in the 2012–2022 period, an increase of 172% compared to the 2012 volume of foreign investments.

Meanwhile, Chart 2.3-b presents the structural breakdown of the traditional business investment portfolio by asset type at the end of 2022 for Japanese Life insurance companies, in which Japanese sovereign bonds have significant weight (particularly the so-called "super-long-term government bonds," JGBs)[5]. The protracted low interest rate environment in that country led Japanese Life insurance companies to increase their overseas investments, mainly in US bonds, but also in the UK and emerging Asia, in search of higher yields to meet their guaranteed interest obligations on older policies issued with guarantees in excess of current interest rates. This has caused insurers operating in this country to be more

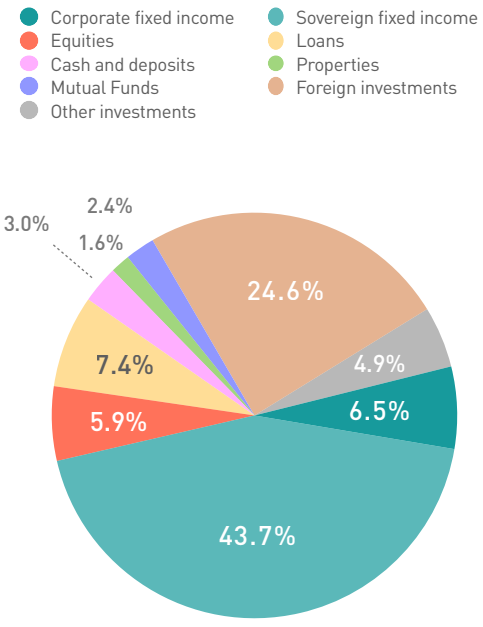
Table 2.3
Japan: structure of traditional business investment portfolio broken down by asset type, 2012–2022
(%)

Asset type	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Fixed income	55.4%	53.8%	51.1%	51.1%	49.9%	48.7%	48.0%	48.3%	47.3%	48.1%	50.3%
Corporate fixed income	7.4%	7.1%	6.8%	6.9%	6.9%	6.9%	7.0%	7.2%	6.9%	6.9%	6.5%
Sovereign fixed income	48.0%	46.7%	44.3%	44.1%	43.0%	41.8%	41.0%	41.1%	40.4%	41.2%	43.7%
Equities	4.9%	5.1%	6.2%	5.4%	5.7%	6.1%	5.6%	4.8%	6.1%	6.1%	5.9%
Loans	11.9%	10.9%	10.0%	9.5%	9.1%	8.6%	8.2%	7.7%	7.2%	7.1%	7.4%
Cash and deposits	1.9%	2.0%	2.5%	2.4%	2.3%	2.5%	2.7%	3.2%	3.0%	2.9%	3.0%
Properties	0.2%	1.8%	1.7%	1.7%	1.6%	1.6%	1.6%	1.6%	1.5%	1.5%	1.6%
Overseas investments	16.5%	17.5%	20.0%	21.4%	22.7%	23.3%	24.9%	25.0%	25.8%	27.1%	24.6%
Mutual Funds	0.6%	0.7%	0.9%	1.0%	1.2%	1.5%	1.6%	1.8%	2.1%	2.2%	2.4%
Other investments	8.6%	8.1%	7.6%	7.5%	7.4%	7.7%	7.3%	7.7%	7.0%	4.9%	4.9%

Source: MAPFRE Economics (with data from LIAJ)

exposed to international markets and to the risk of exchange rate fluctuations, depending on the level of hedging.

Chart 2.3-b
Japan: structural breakdown of traditional business investment portfolios by asset type, 2022
(%)



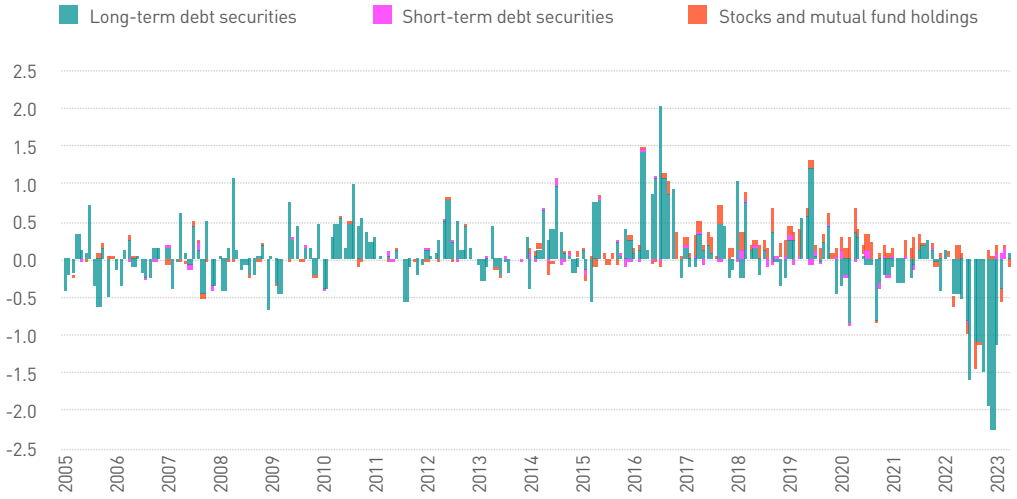
Source: MAPFRE Economics (with data from LIAJ)

However, since mid-2022, there has been a change in the trend of net purchases of foreign bonds by Japanese Life insurance companies, particularly US sovereign bonds. This comes at a time when there has been a significant divergence between the lax monetary policy maintained by the Bank of Japan (despite the upturn in inflation) and the central banks of the world's major economies, which changed their monetary policy stance with a rapid tightening of financial conditions, successively raising interest rates and entering a process of reversing quantitative easing programs by progressively reducing the size of their balance sheets. This situation led to a sharp depreciation of the Japanese yen against the dollar, with the resulting positive effect on the portfolios of dollar-denominated sovereign and corporate bonds held by Japanese Life insurance companies6, thus generating an incentive to rotate portfolios towards Japanese sovereign bonds issued in yen with significant capital gains due to exchange rate movements (see Chart 2.3-c).

2.4 United Kingdom

The evolution of the investment portfolio by type of insurance business (distinguishing

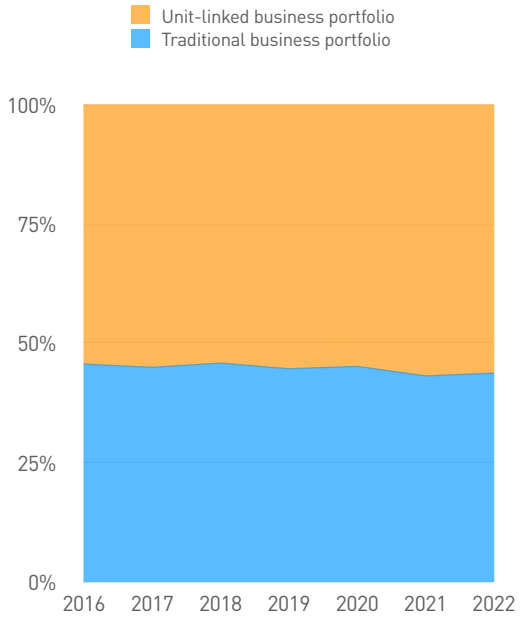
Chart 2.3-c
Japan: foreign securities transactions by Life Insurance companies resident in Japan, 2005–2023
(trillions of yen)



Source: MAPFRE Economics (with information from the Japanese Ministry of Finance)

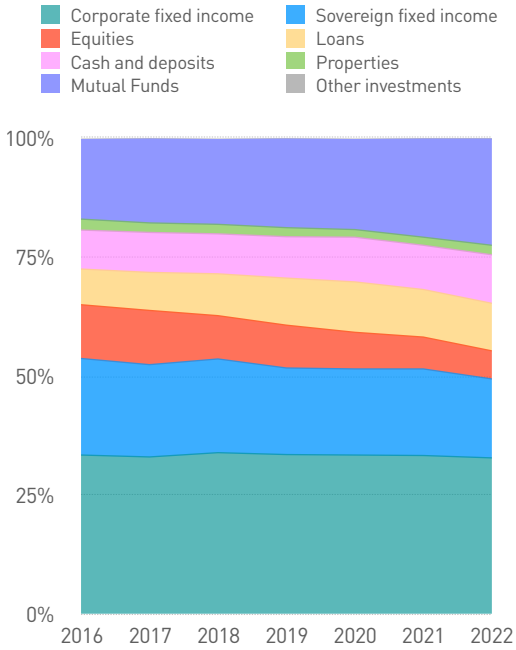
between traditional and unit-linked business) over the 2016–2022 period, in the case of the UK insurance market, is presented in Table 2.4-a and Chart 2.4-a. It is evident from this information that in the United Kingdom, the unit-linked investment portfolio stands out

Chart 2.4-a
United Kingdom: structure of investment portfolios broken down by type of insurance business, 2016–2022
(%)



Source: MAPFRE Economics (with data from EIOPA)

Chart 2.4-b
United Kingdom: structure of traditional business investment portfolio broken down by asset type, 2016–2022
(%)



Source: MAPFRE Economics (with data from BoE)

Table 2.4-a
United Kingdom: structure of investment portfolios broken down by type of insurance business, 2016–2022
(%)

Type of business	2016	2017	2018	2019	2020	2021	2022
Traditional business portfolio	45.8%	45.1%	46.0%	44.8%	45.3%	43.3%	43.9%
Unit-linked business portfolio	54.2%	54.9%	54.0%	55.2%	54.7%	56.7%	56.1%

Source: MAPFRE Economics (with data from EIOPA)

with respect to the traditional business portfolio, with the highest relative share among the markets analyzed in this report, representing 56.1% of the total investment portfolio at the end of 2022.

In terms of the evolution of the structure of the traditional investment portfolio in the UK over the 2016–2022 period (presented in Table 2.4-b and Chart 2.4-b), it appears that the weight of direct investments in corporate fixed-income bonds (which constitutes the majority investment) remained relatively stable, with a slight drop of 0.6 pp over the period, standing at 32.9% at the close of 2022, while the weight of direct investments in sovereign fixed income declined 3.8 pp over that period, standing at 16.6%. It should also be noted that the percentage of direct investments in equities decreased over the period by 5.4 pp. Meanwhile, the weight of investments managed through mutual funds increased by 5.6 pp, representing 22.3% of total investments, although the breakdown of the composition within mutual funds ("look-through") was not available. At the same time, the weight of loans increased by 2.5 percentage points during this period, representing 10% of the traditional investment portfolio.

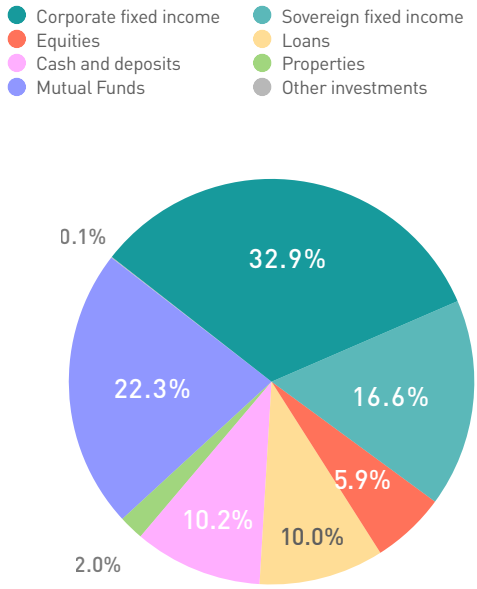
Finally, Chart 2.4-c illustrates the structural breakdown of the traditional business investment portfolio by asset type in the United Kingdom insurance market in 2022. This information allows for the identification of the relative breakdown of the fixed-income investments, specifying that 32.9% of the total investment portfolio represented corporate fixed-income investments, while 16.6% of the total portfolio took the form of sovereign fixed-income investments. This

Table 2.4-b
United Kingdom: structure of traditional business investment portfolio broken down by asset type, 2016–2022
(%)

Asset type	2016	2017	2018	2019	2020	2021	2022
Fixed income	53.9%	52.5%	53.7%	51.8%	51.6%	51.6%	49.5%
Corporate fixed income	*33.5%*	*33.1%*	*34.0%*	*33.6%*	*33.5%*	*33.4%*	*32.9%*
Sovereign fixed income	*20.3%*	*19.4%*	*19.7%*	*18.2%*	*18.1%*	*18.2%*	*16.6%*
Equities	11.3%	11.4%	9.1%	9.0%	7.7%	6.7%	5.9%
Loans	7.5%	8.0%	8.8%	9.9%	10.6%	10.0%	10.0%
Cash and deposits	8.2%	8.4%	8.4%	8.7%	9.4%	9.3%	10.2%
Properties	2.3%	2.0%	2.0%	1.9%	1.6%	1.7%	2.0%
Mutual Funds	16.7%	17.6%	17.8%	18.6%	18.9%	20.6%	22.3%
Other investments	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%

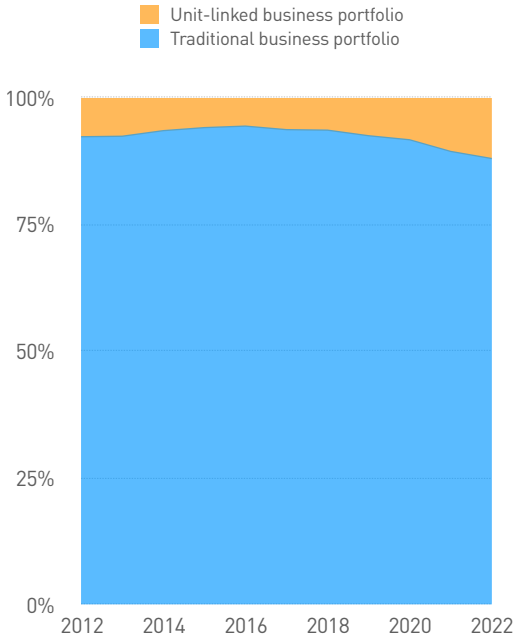
Source: MAPFRE Economics (with data from BoE)

Chart 2.4-c
United Kingdom: structural breakdown of traditional business investment portfolios by asset type, 2022
(%)



Source: MAPFRE Economics (with data from BoE)

Chart 2.5-a
Spain: structure of investment portfolios broken down by type of insurance business, 2012–2022
(%)



Source: MAPFRE Economics (with data from EIOPA)

structure contrasted with the predominant trend in the Eurozone and was closer to the behavior of the United States insurance market.

2.5 Spain

Along the lines of previous versions of this report, the Spanish insurance market continues to stand out for the low share of the unit-linked portfolio, despite the fact that it increased by 4.2 pp in the 2012–2022 period (especially since 2019). Their importance remains minor compared to the weight they represent in other developed markets, accounting for 11.9% of the insurance industry's total investment portfolio in Spain, below the average in the Eurozone, where they represented 20.1% of total investments in 2022 (see Table 2.5-a and Chart 2.5-a).

As for the evolution of the structure of the traditional business investment portfolio by asset type in Spain over 2016–2022 (presented in Table 2.5-b and Chart 2.5-b), direct investments in sovereign fixed-income securities prevail, although they experienced a 2.4 pp drop over the period, standing at

Table 2.5-a
Spain: structure of investment portfolios broken down by type of insurance business, 2012–2022
(%)

Type of business	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Traditional business portfolio	92.4%	92.5%	93.6%	94.2%	94.5%	93.8%	93.7%	92.6%	91.8%	89.5%	88.1%
Unit-linked business portfolio	7.6%	7.5%	6.4%	5.8%	5.5%	6.2%	6.3%	7.4%	8.2%	10.5%	11.9%

Source: MAPFRE Economics (with data from EIOPA)

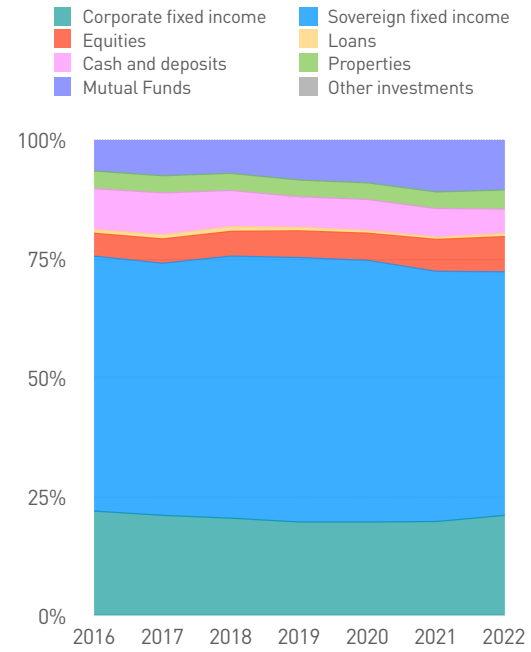
Table 2.5-b
Spain: structure of traditional business investment portfolio broken down by asset type, 2016–2022
(%)

Asset type	2016	2017	2018	2019	2020	2021	2022
Fixed income	75.7%	74.1%	75.7%	75.5%	74.9%	72.5%	72.5%
Corporate fixed income	*22.1%*	*21.2%*	*20.6%*	*19.8%*	*19.8%*	*19.9%*	*21.2%*
Sovereign fixed income	*53.6%*	*53.0%*	*55.1%*	*55.6%*	*55.0%*	*52.6%*	*51.2%*
Equities	4.8%	5.1%	5.2%	5.6%	5.7%	6.7%	7.4%
Loans	0.8%	0.9%	1.0%	0.8%	0.6%	0.5%	0.7%
Cash and deposits	8.6%	8.8%	7.6%	6.4%	6.5%	6.0%	5.1%
Properties	3.7%	3.6%	3.6%	3.5%	3.5%	3.5%	4.0%
Mutual Funds	6.5%	7.8%	7.8%	9.1%	10.0%	12.7%	12.6%
Other investments	-0.1%	-0.3%	-0.9%	-0.9%	-1.1%	-1.9%	-2.2%

Source: MAPFRE Economics (with data from ICEA)

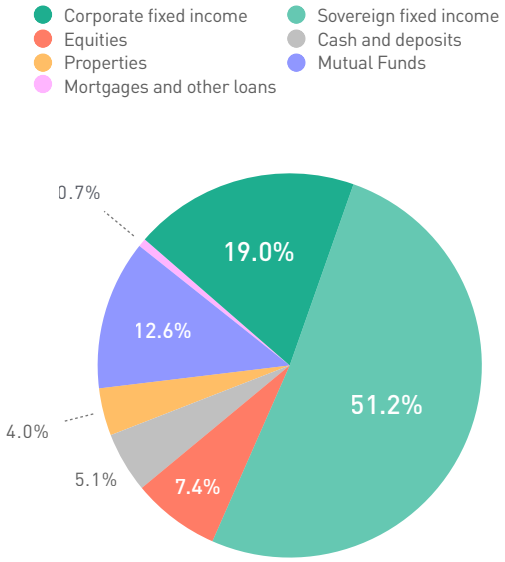
51.2% at the close of 2022. Meanwhile, the weight of direct investments in corporate bonds dropped slightly by 0.9 pp over the same period, to 21.2%. It should also be noted that the percentage of direct investments in equities increased over the period by 2.5 pp, and that of deposits and cash decreased by 3.5 pp. In turn, the weight of investments managed through mutual funds increased substantially, by 6.1 pp, although less than in the Eurozone as a whole, representing 12.6% of the investment portfolio, compared to 20.5% in the Eurozone (see Chart 2.5-c).

Chart 2.5-b
Spain: structure of traditional business investment portfolio broken down by asset type, 2016–2022
(%)



Source: MAPFRE Economics (with data from ICEA)

Chart 2.5-c
Spain: structural breakdown of traditional business investment portfolios by asset type, 2022
(%)



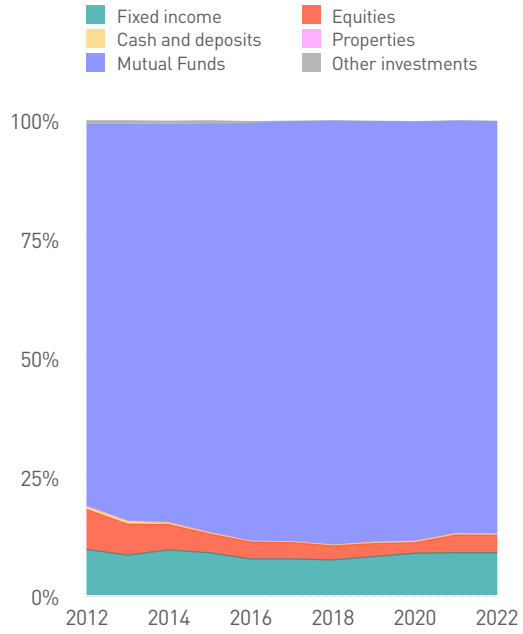
Source: MAPFRE Economics (based on ICEA)

2.6 Brazil

As illustrated in Table 2.6 and Chart 2.6-a, the Brazilian insurance market is characterized by a high percentage of investments managed through mutual funds, which accounted for 86.7% of the portfolio in 2022, with an increase of 6.5 pp over the 2012–2022 period.

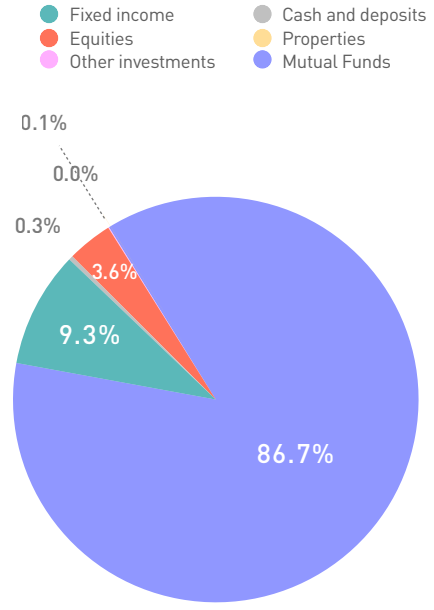
Traditionally, most of the investments managed by the Brazilian insurance industry through mutual funds have been in fixed-income securities[7], although since 2020

Chart 2.6-a
Brazil: structure of traditional business investment portfolio broken down by asset type, 2012–2022
(%)



Source: MAPFRE Economics (with data from SUSEP)

Chart 2.6-b
Brazil: structural breakdown of traditional business investment portfolio by asset type, 2022
(%)



Source: MAPFRE Economics (with data from SUSEP)

Table 2.6
Brazil: structure of traditional business investment portfolio broken down by asset type, 2012–2022
(%)

Asset type	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Fixed income	10.0%	8.8%	9.9%	9.3%	8.0%	8.0%	7.8%	8.5%	9.2%	9.3%	9.3%
Equities	8.4%	6.5%	5.3%	3.9%	3.5%	3.4%	2.9%	2.7%	2.2%	3.7%	3.6%
Cash and deposits	0.6%	0.6%	0.4%	0.3%	0.2%	0.2%	0.2%	0.3%	0.3%	0.3%	0.3%
Properties	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Mutual Funds	80.2%	83.3%	83.7%	85.9%	87.8%	88.3%	89.1%	88.4%	88.1%	86.7%	86.7%
Other investments	0.8%	0.8%	0.7%	0.7%	0.4%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%

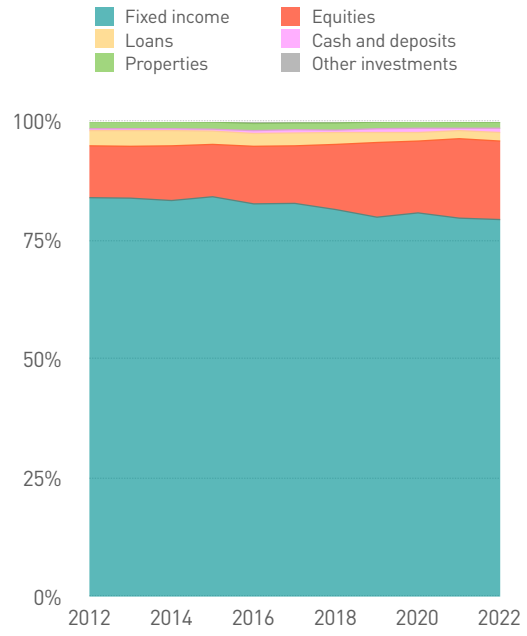
Source: MAPFRE Economics (with data from SUSEP)

there has been no information available on the profile of investments included in these funds. A large part of the remaining investments, as shown in Chart 2.6-b, are fixed-income securities. Direct investments in equities (outside of those that may have been made through mutual funds) accounted for 3.6% of the total portfolio, down 4.8 pp over the 2012–2022 period.

2.7 Mexico

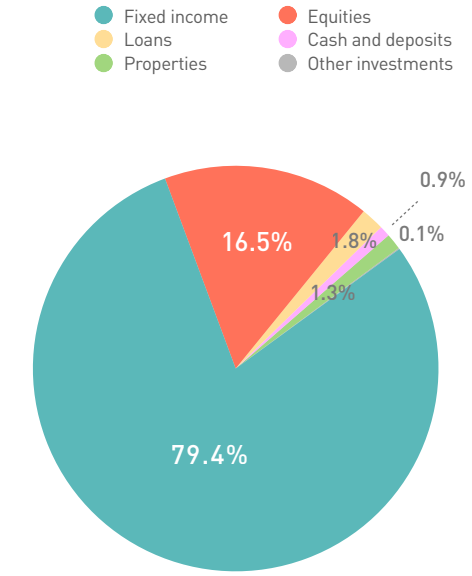
Finally, in the case of the Mexican insurance market, a strong predominance of fixed-

Chart 2.7-a
Mexico: structure of traditional business investment portfolio broken down by asset type, 2012–2022
(%)



Source: MAPFRE Economics (with data from CNSF)

Chart 2.7-b
Mexico: structural breakdown of traditional business investment portfolio by asset type, 2022
(%)



Source: MAPFRE Economics (with data from CNSF)

Table 2.7
Mexico: structure of traditional business investment portfolio broken down by asset type, 2012–2022
(%)

Asset type	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Fixed income	84.0%	83.9%	83.4%	84.2%	82.7%	82.8%	81.5%	79.9%	80.8%	79.7%	79.4%
Equities	10.9%	10.9%	11.5%	11.0%	12.1%	12.1%	13.7%	15.7%	15.1%	16.7%	16.5%
Loans	3.2%	3.3%	3.2%	2.8%	2.7%	2.7%	2.5%	2.1%	1.8%	1.7%	1.8%
Cash and deposits	0.4%	0.4%	0.4%	0.4%	0.6%	0.7%	0.5%	0.8%	0.9%	0.5%	0.9%
Properties	1.5%	1.5%	1.5%	1.5%	1.5%	1.4%	1.5%	1.4%	1.4%	1.3%	1.3%
Other investments	0.0%	0.0%	0.0%	0.0%	0.4%	0.3%	0.2%	0.1%	0.1%	0.0%	0.1%

Source: MAPFRE Economics (with data from CNSF)

income investment is also observed within investment portfolios throughout the 2012–2022 period (see Table 2.7 and Chart 2.7-a). During the same period, however, the proportion of fixed income presents a slightly downward trend, having dropped from 84% in 2012 to 79.4% in 2022 (-4.7 pp), while the proportion of investments in equities grew 5.7 pp, rising from 10.9% in 2012 to 16.5% in 2022 (see Chart 2.7-b).

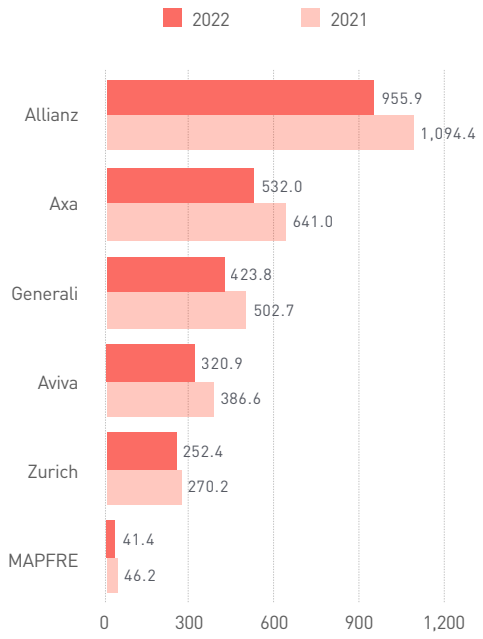
3. Investment portfolio structure of insurance groups

To provide a complementary view of insurance companies' investment distribution, this section presents an analysis of the investment portfolios at the level of large European insurance groups (based on the criterion of their parent company being located in this territory). However, these groups may be considered as global insurance groups, as they are internationally active groups with a high cross-border business volume.

It is important to mention that, in this year's report, the list of insurance groups considered for the purposes of the analysis has been modified. In this respect, we do not present information for the Aegon Group, as a significant portion of its investment portfolio from the previous year was classified as available-for-sale assets, which does not include the breakdown by asset category required for our analysis. Instead, the Aviva Group, which was not included in the previous year, has been included.

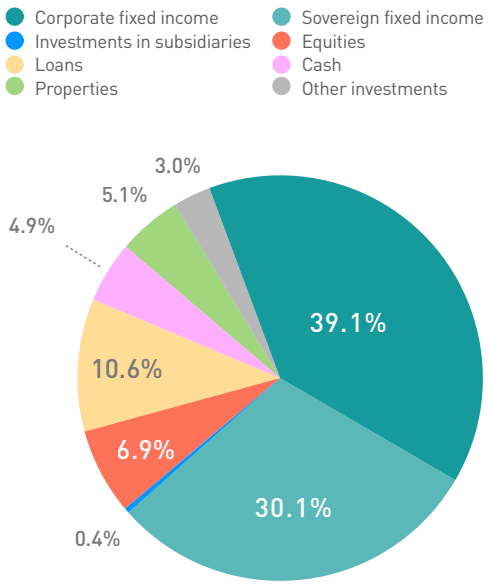
Thus, to meet the selection criteria, insurance groups needed to have sufficiently homogeneous information available to compare their investment, including the ordinary portfolio, loans granted, cash and the investments allocated to unit-linked products. To begin, the information analyzed in Chart 3-a shows that the three largest European

Chart 3-a
Selected insurance groups: aggregate investment portfolio, 2021–2022
(billions of euros)



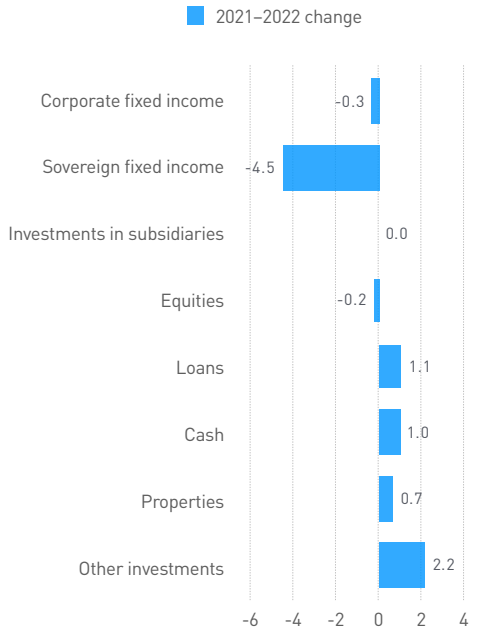
Source: MAPFRE Economics (with data from the consolidated financial statements of the aforementioned insurance groups)

Chart 3-b
Selected insurance groups: distribution by aggregate investment portfolio asset type, 2022
(%)



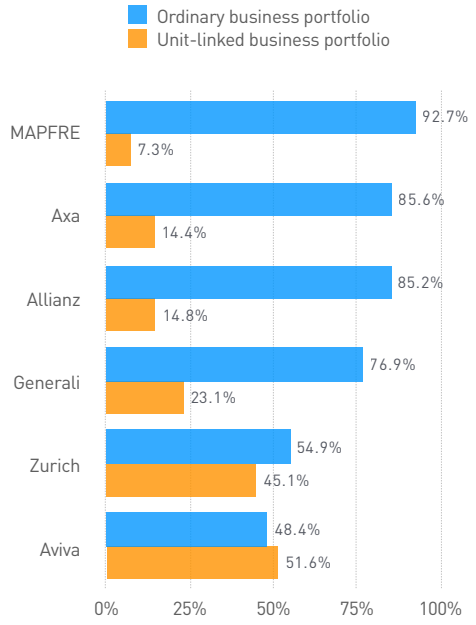
Source: MAPFRE Economics (with data from the consolidated financial statements of the aforementioned insurance groups)

Chart 3-c
Selected insurance groups: variation by aggregate investment portfolio asset type, 2021–2022
(percentage points)



Source: MAPFRE Economics (with data from the consolidated financial statements of the aforementioned insurance groups)

Chart 3-d
Selected insurance groups: distribution by investment portfolio asset type, 2022
(%)



Source: MAPFRE Economics (with data from the consolidated financial statements of the aforementioned insurance groups)

groups in terms of these criteria are Allianz, Axa and Generali.

The aggregate analysis of the traditional business investment portfolios of these groups (excluding unit-linked business) highlights the predominance of corporate fixed income, which represents 39.1% of investments, although in 2022 it experienced a slight reduction of 0.3 percentage points (pp) compared to the previous year. Sovereign fixed income, in turn, is the next-largest asset category in the aggregate portfolio of the groups analyzed, representing 30.1% of investments and suffering a significant decline of 4.5 pp with respect to its weight in the previous year (see Charts 3-b and 3-c).

In addition, Table 3-a and Chart 3-d show the distribution of the investment portfolios between traditional business and business in which the policyholder assumes the invest-

Table 3-a
Selected insurance groups: weight of investments by type of business, 2021–2022
(%)

Type of business	Allianz		Axa		Generali		Aviva		Zurich		MAPFRE	
	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021
Traditional business portfolio	85.2%	85.5%	85.6%	86.5%	76.9%	78.7%	48.6%	51.3%	54.9%	59.5%	92.7%	93.6%
Unit-linked business portfolio	14.8%	14.5%	14.4%	13.5%	23.1%	21.3%	51.4%	48.7%	45.1%	40.5%	7.3%	6.4%

Source: MAPFRE Economics (with data from the consolidated financial statements of the aforementioned insurance groups)

Table 3-b
Selected insurance groups: distribution by investment portfolio asset type, 2021–2022
(%)

Asset type	Allianz		Axa		Generali		Aviva		Zurich		MAPFRE	
	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021
Corporate fixed income	46.8%	46.1%	30.3%	31.4%	40.0%	37.3%	28.5%	30.0%	37.2%	40.9%	19.3%	17.6%
Sovereign fixed income	22.5%	25.7%	34.8%	39.8%	43.9%	49.1%	19.8%	24.5%	32.8%	33.1%	51.6%	53.0%
Equities	9.9%	10.2%	6.7%	6.7%	0.7%	0.6%	7.4%	7.2%	8.9%	8.9%	6.5%	7.1%
Loans	15.5%	13.3%	4.8%	3.9%	4.8%	3.7%	21.0%	22.1%	6.0%	6.3%	0.0%	0.0%
Cash	2.8%	2.6%	5.7%	4.5%	3.4%	3.5%	16.3%	7.5%	5.1%	4.1%	6.7%	6.7%
Properties	2.2%	1.8%	8.9%	7.1%	6.4%	5.0%	1.5%	3.9%	10.0%	6.7%	5.4%	5.4%
Other investments	0.4%	0.4%	8.8%	6.6%	0.7%	0.7%	5.5%	4.8%	0.1%	0.0%	10.5%	10.3%

Source: MAPFRE Economics (with data from the consolidated financial statements of the aforementioned insurance groups)

ment risk (i.e. unit-linked and similar) for all the insurance groups included in the sample analyzed. In this respect, Aviva and Zurich stand out, where the unit-linked and similar business portfolio has a higher percentage than in the rest of the insurance groups considered. In the case of the other insurance groups, as shown, portfolios linked to traditional business prevail.

Meanwhile, Table 3-b shows the relative weight at the close of 2022 of the different asset categories for each of the insurance groups analyzed, and their comparison with the previous year. Likewise, Table 3-c summarizes the credit profiles of the investment portfolios broken down into the highest level of detail shown in the consolidated financial statements of the insurance groups analyzed, while Table 3-d presents the changes in the credit profile of the portfolios' investments. This information shows that, in general terms, more than 50% of the investments are within the first three credit rating levels (in the range between 0 and 2, i.e. between AAA and A or equivalent).

Table 3-c
Selected insurance groups: investment portfolio credit profile, 2022
(%)

Credit rating	Allianz		Axa	Generali		Aviva		Zurich	MAPFRE
	Sovereign	Corporate	Total	Sovereign	Corporate	Sovereign	Corporate	Total	Total
Grade 0 (AAA or equivalent)	21.2%	16.0%	19.0%	5.9%	6.5%	26.2%	12.0%	22.0%	16.3%
Grade 1 (AA or equivalent)	38.0%	12.2%	33.0%	29.2%	8.9%	56.2%	24.1%	28.1%	13.1%
Grade 2 (A or equivalent)	15.5%	26.4%	25.0%	20.9%	27.1%	7.9%	32.1%	18.4%	41.2%
Grade 3 (BBB or equivalent)	19.5%	33.4%	20.0%	40.9%	48.8%	4.0%	19.6%	26.2%	21.7%
Grade < 3	5.2%	6.1%	2.0%	1.0%	7.2%	2.5%	4.8%	5.3%	4.4%
No credit rating (non-rated)	0.6%	5.9%	1.0%	2.1%	1.6%	3.2%	7.4%	0.0%	3.3%

Source: MAPFRE Economics (with data from the consolidated financial statements of the aforementioned insurance groups)

Table 3-d
Selected insurance groups: changes in investment portfolio credit profile, 2021–2022
(percentage points)

Credit rating	Allianz		Axa	Generali		Aviva		Zurich	MAPFRE
	Sovereign	Corporate	Total	Sovereign	Corporate	Sovereign	Corporate	Total	Total
Grade 0 (AAA or equivalent)	2.3	-0.8	-2.0	0.8	-0.1	8.0	2.2	1.6	1.8
Grade 1 (AA or equivalent)	-3.5	-0.7	0.0	0.5	1.0	-8.2	-2.8	0.2	2.7
Grade 2 (A or equivalent)	-1.2	1.8	5.0	-1.7	2.2	-2.0	0.5	1.5	-6.6
Grade 3 (BBB or equivalent)	2.2	-2.0	-1.0	-0.8	-2.8	1.2	0.3	-4.1	-1.8
Grade < 3	0.1	0.9	0.0	0.2	-0.3	0.5	0.0	0.9	3.1
No credit rating (non-rated)	0.1	0.8	-2.0	1.0	0.1	0.5	-0.2	0.0	0.7

Source: MAPFRE Economics (with data from the consolidated financial statements of the aforementioned insurance groups)

4. Capital risk weights for investments applicable in the European Union

As a general reference for analysis of this report, this section shows a comparison of the different gross regulatory capital risk weights. These are applicable to the most representative categories within the insurance companies' investment portfolios for insurers that apply the Solvency II *standard formula*, which have some influence on the composition of insurance group investment portfolios in this region of the world. Such capital risk weights are based on the regulations in force, and some may be subject to review in the upcoming reform of the Solvency II directive, the draft version of which is currently being negotiated by the European Commission, the Council and the European Parliament[8].

4.1 Investment in fixed-income bonds

Investments in fixed-income bonds have specific capital risk weights arising from differential risk "(spread") and concentration risk. Weights for spread and concentration risks in turn depend on the following factors: (i) type of asset; (ii) their credit risk rating; (iii) the residual maturity of the bond weighted by the amount of future flows (modified duration); and (iv) concentration with the same counterpart. Furthermore, additional capital risk weights may be decided in the event of defective management of the risk of unbundling of cash flows and/or currency provisions between assets and liabilities.

Table 4.1
Gross capital risk weights applicable to bonds per year of duration
(%)

Credit rating**	EEA sovereign bond*	Non-EEA sovereign bond	Corporate bond	Admissible infrastructures	Mortgage bonds	Preferred STS securitizations	Non-STS securitizations
Grade 0 (AAA or equivalent)	0.00%	0.00%	0.90%	0.64%	0.70%	1.00%	12.50%
Grade 1 (AA or equivalent)	0.00%	0.00%	1.10%	0.78%	0.90%	1.20%	13.40%
Grade 2 (A or equivalent)	0.00%	1.10%	1.40%	1.00%	1.40%	1.60%	16.60%
Grade 3 (BBB or equivalent)	0.00%	1.40%	2.50%	1.67%	2.50%	2.80%	19.70%
Grade 4 (BB or equivalent)	0.00%	2.50%	4.50%	4.50%	4.50%	5.60%	82.00%
Grade 5 (B or equivalent)	0.00%	4.50%	7.50%	7.50%	7.50%	9.40%	100.00%
Grade 6 (less than B or equivalent)	0.00%	4.50%	7.50%	7.50%	7.50%	9.40%	100.00%

Source: MAPFRE Economic Research (based on Delegated Regulation (EU) 2015/35)
* European Economic Area (EEA)
** See link to EIOPA's table of credit rating equivalences (see reference 4 of this report)

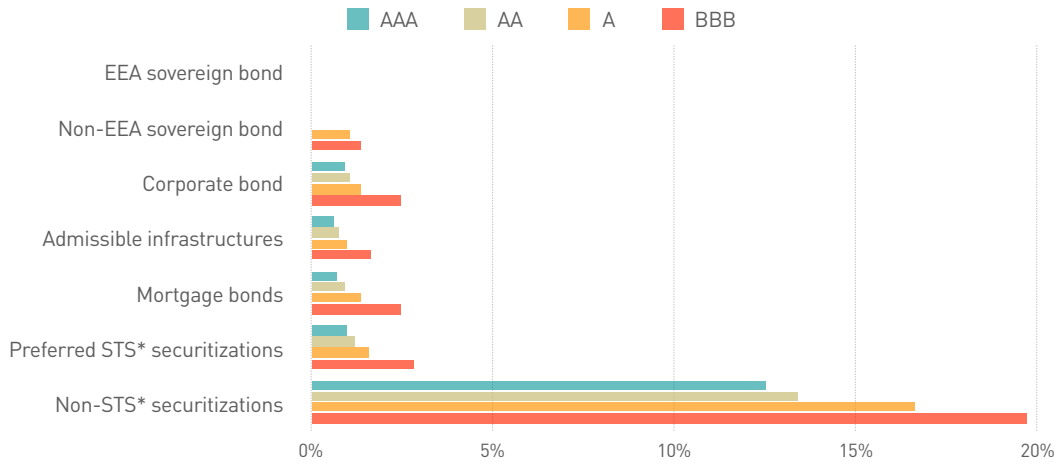
Capital risk weights by spread risk

A comparative study of the gross capital risk weights applicable to different bond types per year of duration is presented in Table 4.1. To calculate the total gross risk weight for a specific bond, its modified duration (weighted by the amount of flows) must be multiplied by the percentages appearing in Table 4.1. For durations higher than five years, the percentages applicable to the excess duration are somewhat lower, with the objective of not penalizing long-term investment excessively.[9] In turn, Chart 4.1 illustrates the behavior of capital risk weights, comparing the gross risk weights per year of duration for bonds situated in the investment grade range.

It is evident that investments in sovereign bonds from countries in the European Economic Area (EEA) do not have capital risk weights for spread risk, provided that they are denominated and financed in their own currency. Nevertheless, if currencies and durations are not correctly managed, this could give rise to a capital risk weight as a result of fluctuations in risk-free interest rates and/or exchange rates, in the event of the unbundling of cash flows and/or currency provisions between assets and liabilities. In addition, an increase in market spreads would affect eligible own funds to cover capital requirements, in the event of a fall in the market value of the sovereign bonds concerned. If sovereign debt investments from countries other than Member States with a credit rating of AAA or AA (or equivalent[10]) are involved, they do not have capital risk weights for spread risk either. For lower credit ratings, the capital risk weight will depend on the rating and the modified duration of the bond concerned.

For example, a sovereign debt bond from countries other than EU Member States with a credit rating of A and a duration of five years would have a gross capital risk weight of 5.5%. If its duration is ten years, the risk weight would be 8.4%. If the bond had a rating of BBB, the risk weights would be 7% and 10.5%, respectively. Bonds with no rating have specific capital risk weights that fluctuate in a range somewhere between the risk weights applicable to BBB and BB ordinary corporate bonds. It should be noted that these percentages are applied both to direct investments and to investments implemented through mutual funds, to which the so-called "look-through" approach is applied.

Chart 4.1
Capital risk weights per year of duration: investment-grade bonds
(%)



Source: MAPFRE Economics (with data from EIOPA)

* Simple, transparent and standardized (STS) securitizations

Capital risk weights by concentration risk

If there is concentrated risk with a specific counterpart over and above a specific threshold, the Solvency II regulation provided that an additional capital risk weight is applied. In general, insurance companies do not usually exceed such thresholds, which are normally above those specified in their risk management policies and within limit control parameters. Nevertheless, the capital risk weights arising from non-compliance strongly penalize concentration risk. For example, an investment in an AA bond belonging to a counterpart whose exposure exceeds 3% of the company's total assets would have an additional risk weight of 12% above the excess exposure. If a BBB bond is involved, the capital surcharge would be 27% above excess exposure greater than 1.5% above the company's total assets. However, investments in sovereign bonds from countries in the EEA do not have capital risk weights for concentration risk, provided that they are denominated and financed in their own currency.

4.2 Investment in shares

The gross capital risk weight applicable to investments in shares listed on regulated markets within Organization for Economic Cooperation and Development (OECD) countries is 39% of the value of the shares concerned. This risk weight must in turn be adjusted by the "symmetrical adjustment," which has countercyclical effects within limits of between -10% and +10%. At the time, a transitory system was applied that allowed lower capital risk weights to be applied until 2022, inclusive, increasing progressively from that point forward by 2.5% until reaching 39% by 2023 (plus/minus the countercyclical adjustment).

For variable income instruments for investment in infrastructures which comply with the admissibility requirements for receiving preferential treatment, the gross capital risk weight is 30%, plus 77% of the symmetrical adjustment established for investment in shares. For non-listed shares, the capital risk weight is 49% plus the symmetrical adjustment. There are also special cases in which capital risk weights can end up being lower, as in the case of strategic holdings.

4.3 Capital risk weights for real estate investments

In the case of real estate investments, the capital risk weight for market risk is 25% of the property's value. As in the case of other assets, this percentage is applied both to direct investments and to investments made through mutual funds, to which the so-called "look-through" approach is applied. It should be noted that there is an additional capital risk weight in the event of excess exposure in a single property. The excess threshold is 10% of the value of all the assets of the insurance company, excluding from this calculation certain assets such as those corresponding to Life insurance contracts in which the policyholder fully assumes the investment risk (unit-linked). In this case, the additional capital risk weight would be 12% on the excess. Properties located in the same building are considered to be a single property.

4.4 Benefits of diversification and loss-absorbing capacity

Finally, it is important to point out that exposed capital risk weights are gross risk weights. The benefits of diversification, the loss-absorbing capacity of deferred taxes and the fact that investments may be assigned to portfolios of products with participation in discretionary profits mean that capital risk weight in terms of shareholders' equity requirements may be lower, depending on the risk profile of the insurance company concerned. The loss-absorbing capacity of deferred taxes may reduce the capital risk weight to a percentage equivalent to the corporate tax rate. Likewise, the loss-absorbing capacity of technical provisions will depend on the products that the company has in its portfolio with participation in discretionary profits.

References

1/ See: MAPFRE Economics (2020), *Elements for the Development of Life Insurance*, Madrid, Fundación MAPFRE.

2/ See: MAPFRE Economics (2022), *Global Savings After the Pandemic and Insurance Industry Investments*, Madrid, Fundación MAPFRE.

3/ See: MAPFRE Economics (2020), *Elements for the Development of Life Insurance*, Madrid, Fundación MAPFRE, and MAPFRE Economics (2022), *Global Savings After the Pandemic and Insurance Industry Investments*, Madrid, Fundación MAPFRE.

4/ See: MAPFRE Economics (2022), *COVID-19: A Preliminary Analysis of Demographic and Insurance Industry Impacts*, Madrid, Fundación MAPFRE.

5/ See: https://www.mof.go.jp/english/policy/jgbs/publication/debt_management_report/2021/index.html, y https://www.moodys.com/research/Moodys-Japanese-life-insurers-post-profits-for-more-than-20--PR_385153

6/ See: https://www.mof.go.jp/english/policy/jgbs/publication/newsletter/jgb2023_03e.pdf

7/ See: MAPFRE Economics (2021), *The Latin American Insurance Market in 2020*, Madrid, Fundación MAPFRE. Table 3.2.3-c.

8/ For now, the European Parliament remains in the textual review phase in its Committee on Economic and Monetary Affairs (ECON).

9/ These reduced percentages can be found in Article 176 of Delegated Regulation (EU) 2015/35 (Solvency II).

10/ See EIOPA's table of credit rating equivalences at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02016R1800-20180515

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