



Non-bank financial intermediation in Spain

Financial year 2020

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The report on non-bank financial intermediation (NBFI) in Spain describes the most recent trends of the entities and activities that form part of the process and assesses their most important risks. It forms part of the six-monthly publication CNMV Non-Bank Financial Intermediation Monitor (<http://cnmv.es/portal/Publicaciones/PublicacionesGN.aspx?id=56&lang=en>).

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1 Executive summary

This publication monitors the entities that form part of non-bank financial intermediation (NBFI) in Spain. A numerical overview and its degree of involvement in certain risks in 2020 are outlined. With this issue, the report also includes a final section describing the use of macroprudential tools and the results of the stress tests that are periodically carried out on the investment fund sector, the most important NBFI entities in quantitative terms.

- Figures for 2020 reveal significant growth in the financial sector as a whole – up 10.7% to €5.19 trillion (4.6 times the size of GDP). This increase was the result of a strong increase in central bank assets as a consequence of monetary policy operations and of the banks, which showed a significant growth in credit in the context of the crisis, driven by the support measures established by the Government.
- The assets of other financial intermediaries (OFIs), which make up the base from which the NBFI sector is defined, fell 1.4% to €869 billion, meaning that their relative weight in the financial system decreased to 16.7%. Great heterogeneity was observed according to the type of entity, with increases in securitisation assets, decreases in financial credit institutions and practical stability in investment funds.
- The degree of credit intermediation of the financial system as a whole increased by 7.6%, to €3.1 trillion in 2020, due to the increase in bank credit. However, unlike the level observed in the banking sector, OFI credit intermediation decreased, prolonging a trend that has remained almost unchanged since 2010. In addition to this decrease in OFI intermediation, there is a realignment of their financial assets in favour of fixed income assets and to the detriment of loans and deposits.
- The degree of direct interconnection between banks and OFIs decreased again in 2020. Bank rights to OFIs stood at around 6% of total bank assets, with banks' obligations to OFIs at 10%. This degree of interconnection has been decreasing for several years (having reached a maximum of 15% in the case of bank rights and 20% in the case of obligations), meaning that this channel of risk contagion, especially important in moments of market instability, has a more limited potential.
- The volume of NBFI assets in Spain, according to the narrow measure established by the Financial Stability Board, stood at €303.6 billion in 2020, 2.3% less than in 2019 and 5.8% of the total financial system. The most important NBFI institutions here continue to be investment funds (87.4%) and, some way back, securitisations (7.6%). The other NBFI institutions, which are mainly finance companies, broker-dealers and mutual guarantee companies, barely

account for 5% of total assets. The predominance of investment funds in the narrow measure of NBFIs is in part related to the fact that their assets are not consolidated in bank balance sheets and are therefore not excluded from the total calculation (as is the case for a large part of the assets of finance companies and securitisations).

- The analysis of the risks associated with NBFIs does not currently point to the existence of significant vulnerabilities from the standpoint of financial stability. The most significant risks for NBFIs entities are credit and liquidity which largely respond to the very nature of these institutions. The colour map depicting the perceived intensity of these risks shows little change from the previous year. In the particular case of investment funds, there is a slight increase: i) in the maturity transformation indicator – i.e., the lengthening of the maturities of portfolio assets – and ii) in the proportion of asset classes that, *a priori*, have less promising liquidity conditions. The different metrics that assess the degree of liquidity of the fund's portfolio make it possible to rule out vulnerabilities in this regard, as was confirmed in March 2020, when the significant increase in redemptions within the context of the pandemic was addressed without any significant incident. In addition, leverage indicators (direct or indirect, depending on their position in derivatives) of these institutions do not indicate intensive use thereof either.
- In 2020, the use of fund liquidity management tools in Spain was higher than usual as a result of COVID-19, which led to a significant increase in redemptions in March, as indicated above. In fact, no Spanish fund had to activate any extraordinary liquidity measures, such as the suspension of redemptions or side pockets. Only five funds had to implement partial redemptions. However, the CNMV reinforced its coordination mechanisms with management companies during the pandemic, encouraging such institutions to use the available liquidity management tools, if appropriate. In particular, the CNMV recommended the valuation of assets based on bid prices and swing pricing schemes.
- The results of the stress exercises that the CNMV performs every six months on Spanish investment funds continue to reveal that this market is resistant to the different redemption shocks simulated for the different categories of funds. In the most extreme scenario, the number of funds that could experience liquidity problems is ten in total, representing 1.3% of the assets of the sample of funds for the year. Of these, six belong to the category of high-yield fixed income funds, with the rest distributed among other categories.
- This publication includes two exhibits that address topics of special interest:
 - The first one sets forth the proposals to reform money market funds made internationally as a result of the vulnerabilities identified in these types of funds during the COVID-19 pandemic.
 - The second one describes the public consultation of the draft technical guide on the management and control of the liquidity of collective investment schemes (CIS) undertaken by the CNMV and published in September of this year.

2 Evolution in main indicators

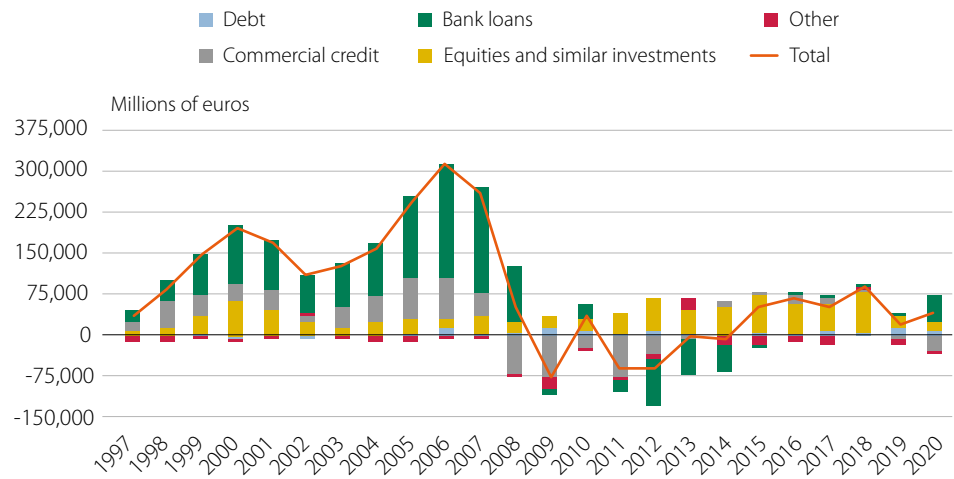
This section presents the most recent evolution of the sub-sectors that are part of the Spanish financial sector, distinguishing those that typically provide bank financing from other entities that provide financing outside of this traditional channel. The aim is to evaluate the evolution over time of both types of financing with the underlying idea, transmitted in previous editions of this report, that an economy that presents a more balanced financing structure between the banking and non-banking sectors (included as financing via markets) can achieve higher long-term growth rates. This balance in the sources of financing also makes it possible to reduce fluctuations in financial cycles, as the alternatives available in capital markets can be a valuable alternative source of financing during credit crunches, which are usually common in times of economic recession.

As can be seen in Figure 1, which represents the evolution of the sources of financing of non-financial corporations from 1997, until relatively recently (2008), the most significant source of financing for companies came from bank loans, the more traditional route and surely one which is more suitable for smaller companies. Since 2009, once the first stages of the global financial crisis had passed, a credit crunch began in which other alternative sources of financing became much more important. In particular, financing via shares and equity stakes (which also includes the profits retained by the companies) was key until 2019. In 2020, with the onset of the COVID-19 crisis – the origin of which was totally exogenous to the financial system – meant a change of course in this trend, with a significant new growth in bank loans. This increase in bank loans to companies is partially explained by the different support measures established by the Government in the context of the crisis¹ and also by those that the monetary authority adopted in order to facilitate the flow of credit to the economy.

1 Public guarantees are worth special mention here, although other measures were also adopted such as moratoria, credits granted by the public administration, direct aid and tax deferrals.

Financing of non-financial companies

FIGURE 1

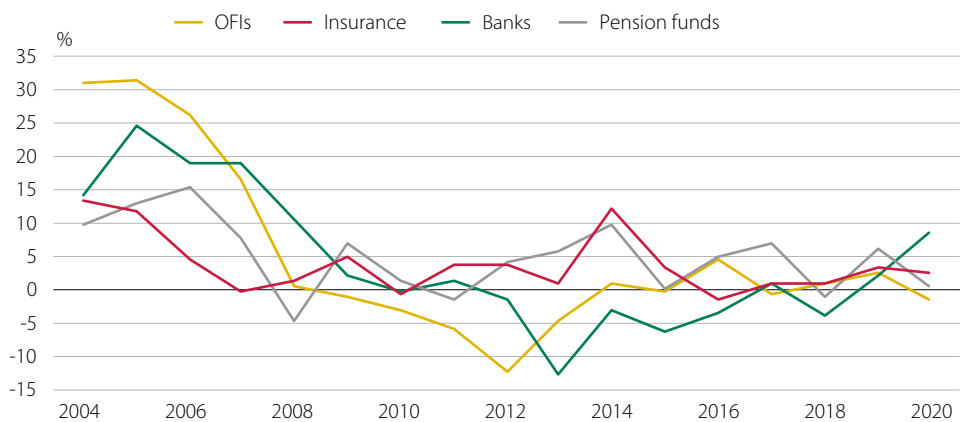


Source: Bank of Spain.

Spain's financial system size was €5.19 trillion at the end of 2020, 4.6 times the country's GDP. This figure is a 10.7% higher than in 2019 and represents a historical maximum, which reaffirms an upward trend that, with certain fluctuations, began in 2015. As can be seen in Table 1 and Figure 2, this performance is explained by the strong increase in central bank and bank assets. Central bank assets representing 20% of the total financial system increased by almost 40% as a result of monetary policy operations.² The banking sector continued to be the most important, accounting for 53% of total assets. It grew 8.4%, in line with the credit expansion mentioned above. Other segments of the financial system also showed certain growth, such as financial auxiliaries (3.4%), insurance (2.4%) and pension funds (0.8%). These three types of entities account for around 10% of the system's assets. Finally, OFI assets fell back 1.4%, with their relative weight dropping to 16.7%. As explained later, a significant heterogeneity was observed within this group of institutions, which are the basis by which the NBF1 sector is defined.

Annual growth of financial system assets

FIGURE 2



Source: Bank of Spain.

2 This basically corresponds to long-term financing operations and asset purchase programmes.

Millions of euros

	Central bank	Banks	Insurance	Pension funds	Financial auxiliaries	OFIs	Total
Size in 2020 (millions)	1,032,405	2,752,951	329,093	149,271	59,223	869,266	5,192,210
Size in 2019 (millions)	745,607	2,538,814	321,272	148,118	57,272	881,193	4,692,277
% of total (2020)	19.9	53	6.3	2.9	1.1	16.7	100
Growth 2020 (%)	38.5	8.4	2.4	0.8	3.4	-1.4	10.7
Cumulative growth 2002-2009	125.8	158.4	54.6	73.2	345.4	231.9	159
Cumulative growth 2009-2020	370.4	-17.2	34.1	44.5	2.7	-17.9	3.6

Source: CNMV and Bank of Spain.

The delimitation of the entities that make up NBFi is a complex task, which has evolved over time due to the heterogeneity of the entities and activities that may be part of this sector. In fact, a number of institutions at a European and international level carry out analysis employing different approaches, albeit with certain points in common. Put simply, there are two broad approaches to NBFi: i) one that considers OFIs as a whole as a measure of NBFi and ii) one that starts from a broad aggregate that excludes banks and identifies institutions based on the performance of some previously defined economic function. The first approach is followed by institutions such as the European Systemic Risk Board³ (ESRB) while the second is the option preferred by the FSB.⁴ This section of our publication, which broadly follows the guidelines defined by the FSB, describes the trends in this wider aggregate, excluding banks and focusing on OFIs, while the following section defines the narrow measure of NBFi in terms of its size and most significant risks. The narrow measure of NBFi identifies those entities that perform any of the five pre-established economic functions⁵ and discounts the amount of assets that are consolidated in banking groups.

As regards NBFi in this broad sense and based on all non-banking financial entities, it should be noted that the weight of this sector in the Spanish financial system as a whole was close to 30% during the years of the global financial crisis, falling to 25% in 2012 and subsequently returning to rates of close to 30%. In 2020, the assets of these entities stood at €1.36 trillion, 2.7% up on 2019. The relative size of the non-bank financial sector in other jurisdictions is greater. According to FSB data, this proportion is close to 50% of the total financial system, on average.

OFIs stand out among non-banking entities, not only because they form the biggest group, but also because this group forms the basis from which the narrow measure of NBFi is obtained, as has been outlined previously. As can be seen in Table 2, OFI assets stood at €825 billion in 2020, 1.4% less than in 2019. This amount accounts for more than 60% of the non-bank financial sector. Leading the OFI segment in terms of volumes of assets were investment funds (with over €322 billion), captive financial institutions (€244 billion) and securitisation vehicles (€185 billion). In relative terms they represent 37%, 28% and 21% of total OFI assets respectively (see left-hand panel of Figure 3). The evolution of asset volume between 2019 and 2020 was

³ See the latest report in EU Non-bank Financial Intermediation Risk Monitor 2021 (europa.eu).

⁴ See the latest report in Global Monitoring Report on Non-Bank Financial Intermediation 2020 (fsb.org).

⁵ These roles are described and quantified for a Spanish context in Table 5 of this report.

not uniform depending on the type of institution. Investment funds were up 0.6%, despite the effects of the crisis on redemptions and on the valuation of its portfolio in the worst moments, securitisations rose 5.4%, broker-dealers were up 1.8% while real estate investment trusts grew by 2.8%. However, the notable decrease in the assets of finance companies (-18.9%) and other OFIs (-33%) offset the advances of other institutions and explains the aforementioned total decrease (-1.4%).

The composition of OFIs in the international sphere shows some similarities with respect to Spain, but there are also differences. Among the similarities, the preponderance of investment funds and captive financial institutions stands out, with amounts representing close to 50% and 20% respectively of aggregate OFI assets.⁶ On the contrary, other entities such as broker-dealers have a greater weight than in Spain (in relation to their size, with around 10% of the total), in contrast to securitisations, which barely account for 4% of this sector on average in the countries analysed by the FSB.

Structure of other financial institutions

TABLE 2

Millions of euros

	Non-money market funds	Money market funds	Captive financial institutions	SPVs: securitisation	Broker- dealers	Finance companies	REITs	Other	Total
Size in 2020 (millions)	318,145	4,572	244,736	185,091	9,562	48,577	33,638	24,945	869,266
Size in 2019 (millions)	317,082	3,788	245,681	175,620	9,392	59,893	32,714	37,023	881,193
% of total (2020)	36.6	0.5	28.2	21.3	1.1	5.6	3.9	2.9	100.0
Growth 2020 (%)	0.3	20.7	-0.4	5.4	1.8	-18.9	2.8	-32.6	-1.4
Cumulative growth 2002-2009	33.3	-74.7	845.3	917.4	14.3	49.0	-	-	231.9
Cumulative growth 2009-2020	70.1	-66.1	-13.8	-61.7	-27.4	-10.6	397.5	42.6	-17.9

Source: CNMV and Bank of Spain

As seen on the right of Figure 3, OFI assets peaked between 2007 and 2010, a period in which they exceeded €1 trillion. Between 2010 and 2013, the OFIs suffered a gradual contraction due to the decline in the assets of their most significant components, reaching a minimum level of €810 billion. Since then, there has been a slight, somewhat irregular, increase in OFI, which exceeded €881 billion in 2019, to end up falling off again in 2020 to €869 billion. In this period of time, there has been a very important restructuring of the various types of institutions – investment funds have gone from accounting for 17% of OFI in 2010 to 37% in 2020, while securitisations have decreased from 47% to 21% (in 2019 they recorded an all-time low of 20%). The relevance of financial institutions with limited activity has undergone less marked changes, remaining between 23% and 28% of the total assets of the OFI sector.

In the OFI segment, there are different types of entities that carry out very different financial activities. Some fulfil certain economic functions defined by the FSB (and which are described in the next section) and, consequently, are considered to be part of NBFi in the strict sense of the term. This group includes some, although not all, investment funds,⁷ special purpose vehicles (SPVs) for securitisation, broker-dealers,

6 In the case of investment funds, it should be noted that in Spain the weight of monetary and hedge funds is much lower than in other jurisdictions (in average terms), as they represent only 0.5% and 0.4% of OFIs respectively, while in the international sphere these percentages stand at 6.6% and 4.5%.

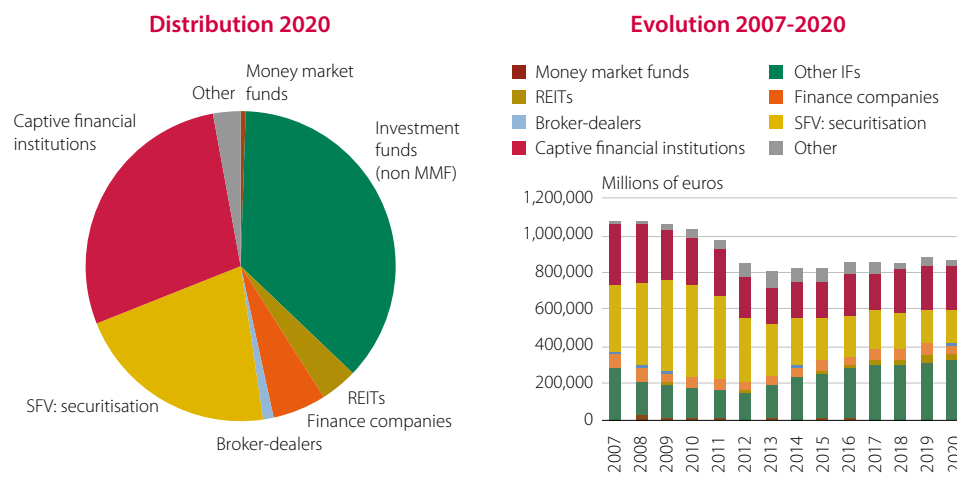
7 Equity funds are not part of the narrow measure of NBFi.

and finance companies. In contrast, the OFI sub-sectors that do not belong to the narrow measure of NBFi are captive financial institutions and money lenders,⁸ REITs,⁹ central counterparties (CCP), venture capital firms and SAREB (Asset Management Company for Assets Arising from Bank Restructuring). Of the total volume of OFI assets (€869 billion), €360 billion correspond to entities that are not part of NBFi. Of the remaining amount (slightly less than €510 billion), it is necessary to deduct more than €200 billion for consolidation in the bank balance sheets to reach the narrow measure of NBFi (which in 2020 stood at €303 billion, see Figure 9).

Evolution in
main indicators

Distribution and trends of the OFI sector in Spain

FIGURE 3



Source: CNMV and Bank of Spain.

2.1 Credit intermediation and financing of entities included in NBFi

The main aim of this section is to offer an overview of the extent of involvement of non-bank financial intermediaries in credit intermediation and in granting loans within the financial system. At the same time, the use that these entities make of wholesale financing and, especially, of the temporary acquisition of assets, better known as repos, is analysed.

In 2020, credit intermediation of the financial system as a whole increased by 7.6% (having grown 1% in 2019), reaching €3.1 trillion. This growth had its origin in the banking sector, which has a far greater volume of credit assets, as well as recording an increase of 11.3% over the past year, exceeding €2.3 trillion. This figure represents 86.4% of the total value of the banks' financial assets. In terms of asset type, loans stand out, representing more than half total credit assets and 49% of financial assets (see Table 3). On the contrary, in the case of OFIs, credit assets fell 3.5% throughout 2020, reaching almost €460 billion at the end of the year, 52.9% of total financial assets (54.1% in 2019).

8 Of the set of OFO entities that do not belong to the narrow measure of NBFi, financial institutions with limited activity are the most significant due to the volume of their assets (€244 billion at the close of 2020). This sub-sector essentially comprises subsidiaries of groups of companies or entities that provide loans from their own funds through a single source. In Spain, a great many of these institutions are companies specially set up for the issuance of preferred stock and other negotiable securities.

9 Real Estate Investment Trusts.

Within OFIs, the most important entities in terms of credit intermediation are securitisation vehicles, with 40% of the total at the end of 2020 (36.7% in 2019), in which all credit assets were loans or deposits. Investment funds meanwhile accounted for 36% of the total, with fixed income assets in this case accounting for the highest percentage of all credit assets (83.4%).

Credit intermediation in the Spanish financial system. 2020

TABLE 3

Millions of euros

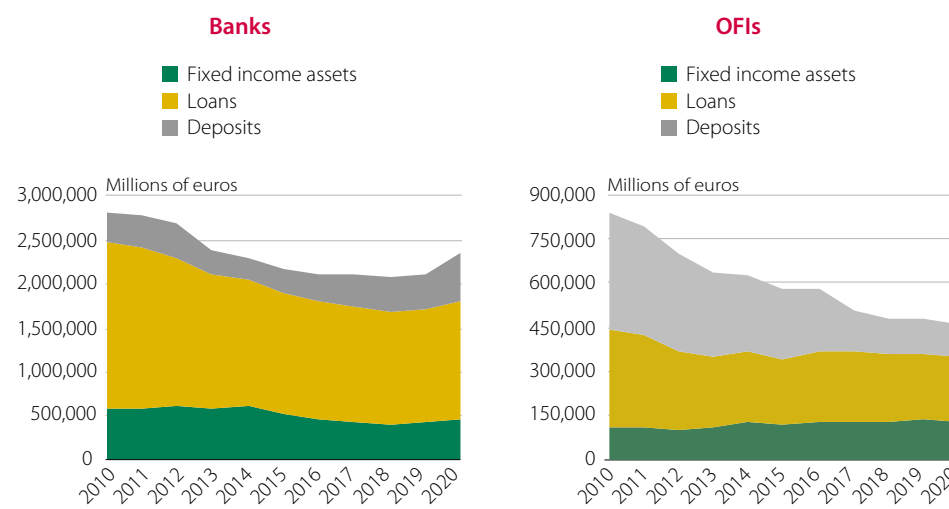
	Banks	Insurance	Pension funds	OFIs	Total
Credit assets (millions of euros)	2,343,831	261,372	74,694	459,994	3,139,891
Deposits	539,343	17,908	11,140	112,832	681,223
Loans	1,330,688	1,785	75	214,121	1,546,669
Fixed income assets	473,801	241,678	63,479	133,041	911,999
Credit assets (% of assets)	86.4	79.4	50.0	52.9	77.3
Deposits	19.9	5.4	7.5	13.0	16.8
Loans	49.0	0.5	0.1	24.6	38.1
Fixed income assets	17.5	73.4	42.5	15.3	22.5

Source: CNMV and Bank of Spain.

As can be seen in Figure 4, in the last 10 years credit assets of both OFIs and banks have followed a downward trend, which in the case of banks was interrupted in 2020. Since 2010, OFI credit assets have fallen 45.2% in accumulated terms, while those of banking entities have decreased less sharply (17%). In the case of OFIs, this decline has its origin in the sharp contraction of securitisation vehicles since the financial crisis. It should be remembered that, given their nature, practically all the financial assets of these vehicles are made up of credit assets, especially loans and, to a lesser extent, deposits. Meanwhile, OFI fixed income assets have grown 18.3% over the past 10 years, due to the greater importance of investment funds.

Evolution in credit intermediation

FIGURE 4



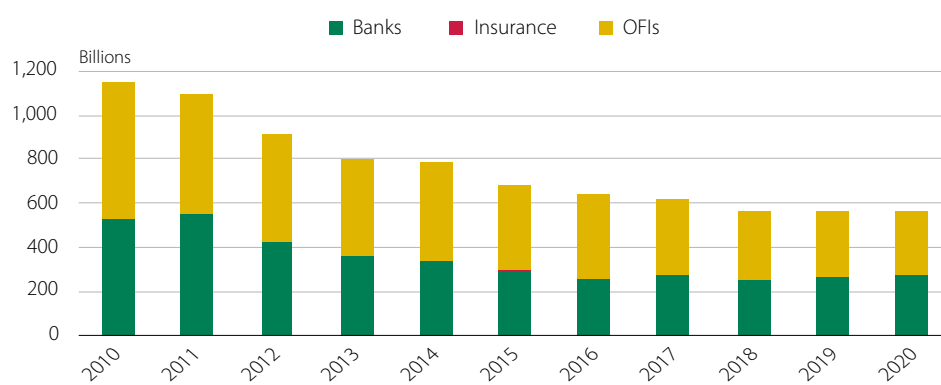
Source: CNMV and Bank of Spain.

In relation to the financing received by entities in the financial system, wholesale financing is one of the main sources of funds. These instruments, which are positive in terms of price formation and liquidity in secondary markets, may also generate short-term obligations and consequently create risks associated with maturity transformation and liquidity outside the banking system. Likewise, wholesale financing could increase the interconnectedness between different financial institutions and contribute to increasing the procyclicality of the system.

Spanish OFIs reached their greatest degree of dependence on wholesale financing in 2009, standing at €647 billion, from which point on this figure began to decrease sharply year after year to €297 billion at the close of 2020, having fallen by 5.2% compared with the previous year. In relative terms, this represents 32.5% of the total financial assets of these entities, a percentage that has been progressively decreasing since 2009, when it was above 60%. If these figures are compared with the figures for banks, as might be expected, banks' wholesale financing is well below that of OFIs, accounting for just over 10% of financial assets.

Wholesale financing of financial system entities

FIGURE 5

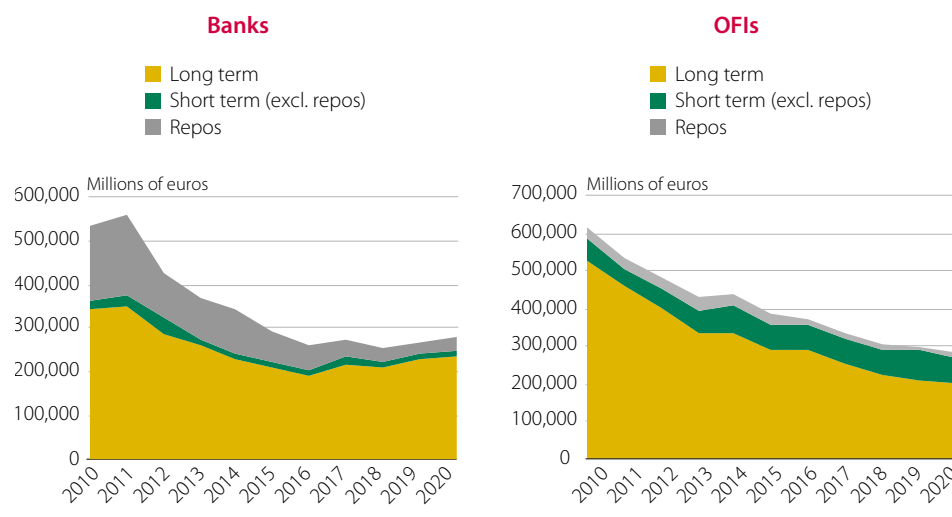


Source: Bank of Spain.

Within this type of obligation, long-term financing is the predominant source for OFIs, accounting for 72.5% of total wholesale financing in 2020, while for banks this figure stands at 85.1% (see Figure 6). The evolution over the last few years has been different between both types of entities: while among OFIs dependence on short-term financing increased in importance in the worst moments of the financial crisis, a trend that continued in subsequent years, albeit at a slower pace, the weight of long-term financing increased in the meantime among banks, stabilising at around 85%. However, it should be mentioned that in 2020, for the first time in 12 years, the relative importance of short-term financing in OFIs has decreased by 1.3%.

Evolution of wholesale financing

FIGURE 6



Source: CNMV and Bank of Spain.

Repos deserve a separate analysis in the area of wholesale financing, as they have shorter repayment terms. The associated risks may therefore be higher in terms of financial stability. In the case of insurance undertakings, wholesale financing through repos accounts for the largest share of funding, almost 95% of the total. However, as we have already seen, wholesale financing is residual for these entities, so the absolute figures are not high (just over €4 billion in repos).

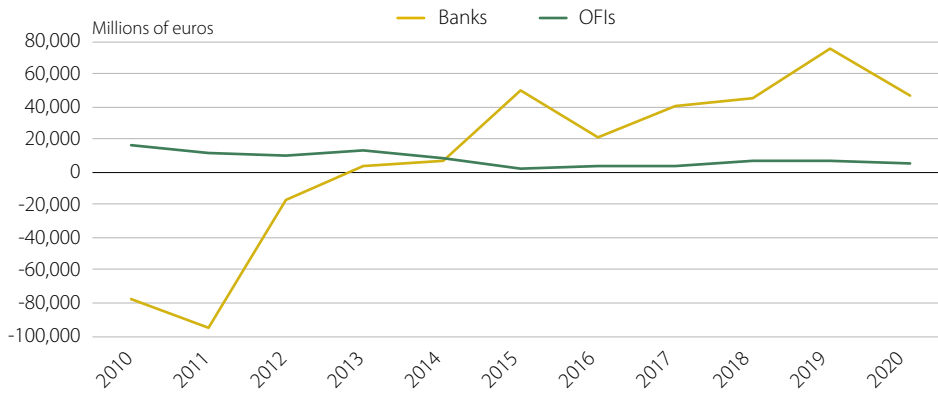
In the case of OFIs, financing through repo has been reduced, without ever exceeding 9% of total wholesale financing. It reached a maximum in 2013 with €36.5 billion, which represented 8.4% of the wholesale financing of these entities (see right-hand panel of Figure 6). In 2020, after falling year after year, repo financing was just over €9.5 billion, just 5.3% of wholesale financing. In the case of banks, this type of financing through repos, which stood at over 30% in 2010 and 2011, with obligations reaching €180 billion, has been declining with certain fluctuations to stand at 10.3% last year at just over €28 billion.

In net terms, in other words, the difference between transactions made through repos in which the entity is a provider of liquidity and those in which the entity receives financing, banks can be seen to have been recipients of liquidity until 2013, after which they increasingly became net providers of liquidity for the economy (see Figure 7) to an increasingly greater extent until 2019, when the total reached €76 billion. In 2020, as a result of both a decrease in repos in bank assets and an increase in financing through this instrument, this figure fell to €46 billion. Meanwhile, OFIs have consistently been net providers of liquidity in recent years, although the amount provided fell substantially until 2015 and has remained well below €10 billion ever since. Specifically, in 2020, they were below €5 billion (€7 billion in 2019).

Net repo position

FIGURE 7

Evolution in
main indicators



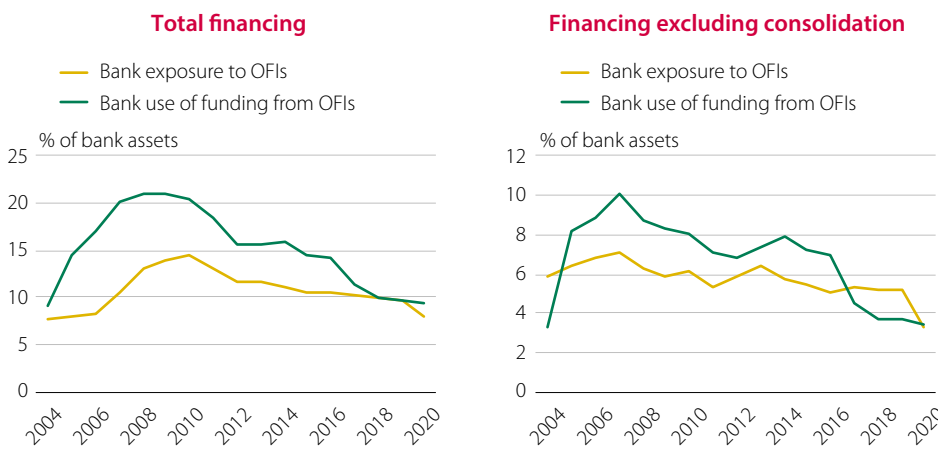
Source: Bank of Spain.

2.2 Interconnectedness between banking institutions and OFIs

During periods of stress or financial difficulties, not only is the size of the different financial sub-sectors significant, but also the interrelations between them, as these are channels that lend themselves to risk contagion. These connections can occur both directly (for example, through credit financing) and indirectly, as when two entities have assets in the same entity or share prices or debt securities that perform in a similar manner, for different reasons. In order to determine the direct interrelationship, data has been obtained on bilateral exposures among the financial sectors. For example, bank exposure to OFIs is calculated as the assets they hold in OFIs as a portion of their total assets (see Figure 8).

Interconnectedness between banks and OFIs

FIGURE 8



Source: CNMV and Bank of Spain.

As can be seen in the left-hand panel of Figure 8, at year end 2020 the rights of banks with regard to OFI (“Bank Exposure to OFIs”) accounted for 7.9% of bank assets¹⁰ (€214 billion), a figure that has fallen steadily since 2010, when it stood at over €467 billion, representing 14% of total assets. In 2020, bank OFI liabilities (“Bank use of funding from OFIs”) accounted for the same percentage, namely 9.4% of banks’ assets, after having dropped 20 basis points in one year and more than 10 percentage points since 2008. However, in absolute terms, the figure increased by just under €15 billion, to exceed €255 billion (see Table 4).

If the claims or liabilities of OFIs that are consolidated in the banking groups themselves are excluded,¹¹ the aforementioned percentages fall to 3.2% of banks’ assets in the case of claims (5.1% in 2019), while banks’ liabilities to OFIs are very similar, at 3.4%. Based on the trend of this exposure over recent years, the greatest interrelation (in net terms) between the two sub-sectors mentioned occurred in 2007, when banks’ claims on OFIs accounted for around 6% of total bank assets and their liabilities to OFIs for 10%. 2013 was the only year in which there was an increase in these two ratios, but in no case were the values observed in 2007 repeated.

Interconnectedness between banks and OFIs

TABLE 4

Millions of euros

	Banks’ exposure to OFIs		Banks’ liabilities to OFIs	
	Total	Consolidated in banking groups	Total	Consolidated in banking groups
2012	374,996	187,775	499,679	283,068
2013	327,653	149,577	438,661	234,354
2014	303,960	149,456	429,976	215,894
2015	272,698	132,153	376,069	189,633
2016	263,805	138,837	358,520	185,805
2017	262,924	128,099	291,811	176,149
2018	243,269	117,349	246,231	156,837
2019	241,407	112,889	240,617	148,119
2020	214,014	126,262	255,315	161,969

Source: CNMV and Bank of Spain.

The interconnectedness of OFIs with the other sectors in the financial system is much lower than with banks, while the relationship with other entities belonging to the same group is the strongest, followed by the relationship with the insurance undertakings. The rights of entities belonging to the OFI sub-sector with respect to others in the same sub-sector amounted to slightly less than €26 billion at the end of 2020 (€28 billion in 2019), while the rights with insurance companies stood at just over €13 billion and the obligations with these at €18 billion, both figures very similar to those of the previous year. From the banking point of view, the greatest inter-

10 This same figure accounted for 24.6% of OFI assets.

11 In Spain, interconnectedness data for banks and OFIs that are consolidated in banking groups are only available for the SPV sub-sector.

connection is also produced with OFI,¹² followed by the relationship with other banking entities, which amounted to €98.5 billion at the end of 2020, after falling more than €13 billion in relation to 2019.

From a financial stability point of view, it is also important to analyse the interconnection between the different financial sub-sectors and the non-financial sectors in order to know to what extent a period of financial difficulties could affect the real economy. In this case, banks are, as might be expected, those that show the greatest interconnection with non-financial agents in the Spanish economy,¹³ the relationship with households being particularly high in both directions: bank obligations with this sector amounted to €973 billion in 2020, while banking rights amounted to €664 billion.¹⁴

12 It does not take into account the relationship with the central bank, whose interconnection with commercial banks amounts – in both directions – to about €300 billion.

13 Non-financial agents are made up of households, the public administration and non-financial companies.

14 The banking obligations with the public administration and financial companies amounted to €99 billion and €324 billion respectively; and the rights of the banks with these same sectors were €315 billion and €526 billion.

3 Non-bank financial intermediation

To identify and evaluate the risks associated with NBFIs, criteria developed by the FSB in 2013 based on five economic functions were used.¹⁵ This approach ensures that the different jurisdictions can define their NBFIs sector based on the activity of the institutions and not on their legal form. A certain consistency in the analysis performed between the different countries is also achieved, as aggregations and comparisons of similar indicators are made possible.

Table 5 offers a summary of the five economic functions described by the FSB, the Spanish financial system institutions that belong to each¹⁶ and their size in 2020. It can be seen that the most significant institutions in terms of the size of their assets belong to Economic Function 1 (management of collective investment vehicles whose characteristics make them susceptible to runs), accounting for 52.1% of the assets, while Economic Function 5 (securitisation-based credit intermediation and funding of financial institutions) represents 36.5% of the total. Next are the institutions covered by Economic Function 2 (loan provision dependent on short-term financing), accounting for 9.5%, while the other two functions barely represent 2% of assets.

Obtaining the figure for the volume of assets included in NBFIs begins with the non-banking financial sector,¹⁷ excluding those entities whose activity cannot be framed in any of the five economic functions described in Table 5. Pension funds, insurance entities and financial auxiliaries are firstly factored out, followed by OFI institutions that do not perform any economic functions.¹⁸ It is also necessary to include certain entities that are not OFIs but are within the scope of NBFIs. These institutions, which in our case would correspond to mutual guarantee companies (Economic Function 4), have very little importance in Spain, as their assets barely reached €1.2 billion in 2020. Finally, entities are excluded that, despite belonging to one of the economic functions described, are nevertheless consolidated into banking groups.¹⁹

15 *Policy Framework for Strengthening Oversight and Regulation of Shadow Banking Entities.*

16 For further details, see the first article in this series: Isperto, A. (2019). "Non-bank financial intermediation in Spain". *CNMV Bulletin*, Quarter I, pp. 79-122. Available at: https://cnmv.es/DocPortal/Publicaciones/Boletin/Boletin_I_2019_WEBen.PDF

17 In previous editions, referred to as MUNFI (Monitoring Universe of Non-bank Financial Intermediation). The line set by the latest FSB report has been followed, which no longer refers to this group of entities in this way.

18 As explained in the previous section, OFIs that are not part of NBFIs are as follows (in order of importance according to asset size): captive financial institutions and money lenders, equity investment funds, REITs, the SAREB, CCPs and venture capital firms.

19 As described in each section of this chapter, bank consolidation occurs for two main reasons: either the entity in question is controlled by a bank or the assets belonging to the entity are also on the bank's balance sheet (and therefore subject to banking regulations). The latter case covers securitisation vehicles, whose assets have to remain on the bank's balance sheet if the associated risks and returns have not been substantially transferred to third parties.

Economic functions	Definition	Member entities	Size in millions of euros, (% of total NBFİ), % change 2020
EF1	Management of collective investment schemes with features that make them susceptible to runs	Money market funds, fixed income funds, mixed funds, ¹ hedge funds and open-ended collective investment schemes (SICAVs)	265,405 (52.1%) -0.7%
EF2	Loan provision that is dependent on short-term funding	Finance companies	48,577 (9.5%) -18.9%
EF3	Intermediation of market activities that is dependent on short-term funding or on secured funding	Broker-dealers	9,562 (1.9%) 1.8%
EF4	Entities that perform the "facilitation" of credit creation	Mutual guarantee companies	1,177 (0.2%) 10.2%
EF5	Securitisation-based credit intermediation and funding of financial institutions	Special Purpose Vehicles (SPVs) whose object is the securitisation of assets	185,091 (36.3%) 5.4%

Source: CNMV and Bank of Spain.

¹ Pursuant to the criteria established by the FSB, only mixed funds with an equity percentage of less than 80% of the total portfolio are included in the EF1 category. In Spain, pursuant to current legislation, the exposure of mixed funds to equity cannot exceed 75% of the portfolio, meaning that all are considered as NBFİ.

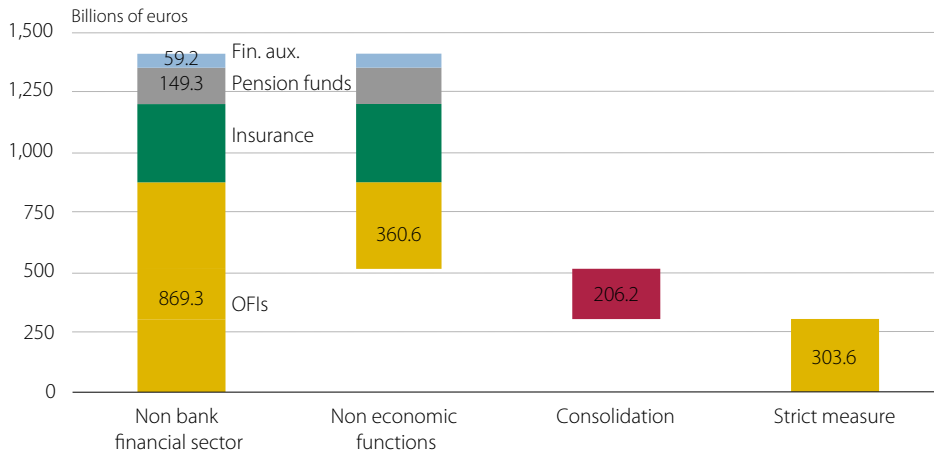
This process, as shown in Figure 9, enables the scale of the narrow measure of NBFİ definition to be determined. As can be seen in Figure 9, from the amount of assets in the non-banking financial sector (€1.4 billion) almost 890 billion have been deducted for not belonging to any of the functions contemplated, with another €206.2 billion which are consolidated in banking groups. The size of the narrow measure of NBFİ in Spain therefore stood at €303.6 billion in 2020, 2.3% below the 2019 figure.

NBFİ assets, whether measured as the sum of the assets of the five economic functions or discounting the consolidated amount in banks (the narrow measure), have maintained their relative weight within the Spanish financial system at low and relatively low values, which have been stable since 2012. The crisis had a significant impact on these entities, reducing the assets of investment funds and the outstanding balance of securitisations above all. As can be seen in Figure 10, the assets of the aggregate of the five economic functions represent between 10% and 12% of the financial system since that year (9.8% in 2020) and those of the narrow measure of NBFİ concentrate between 4% and 7% (5.8% in 2020). The slight decrease in the relative importance of NBFİ in Spain in 2020 is explained both by the significant increase in the size of the Spanish financial system last year (see previous section) and by the decrease in the volume of the assets of these entities, which, as explained later, has its origin in the decrease in the financial credit institutions segment (Economic Function 2). In general, the size of NBFİ in Spain continues to be small in relation to the values observed in other neighbouring countries. The narrow measure in the countries analysed by the FSB is, in aggregate terms, around 12% of the financial system total and for advanced economies around 15% (see upper panel in Figure 10).

From the non-bank financial sector to the narrow measure of NBFi. 2020

FIGURE 9

Non-bank financial
intermediation

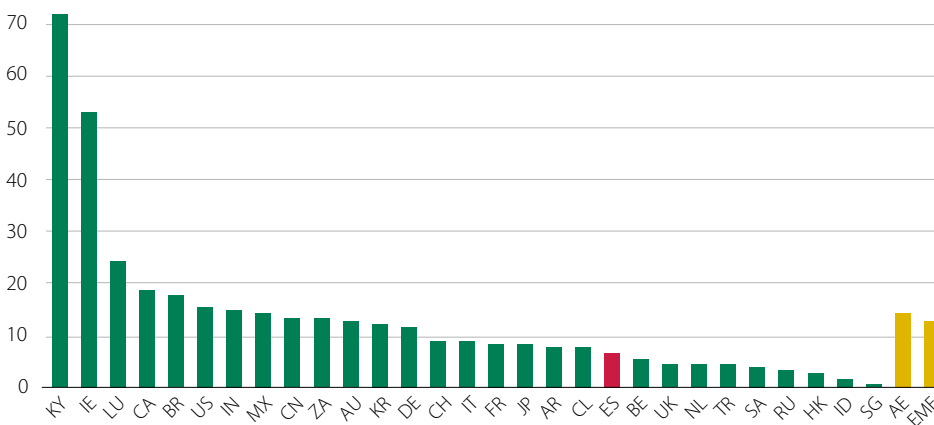


Source: CNMV and Bank of Spain.

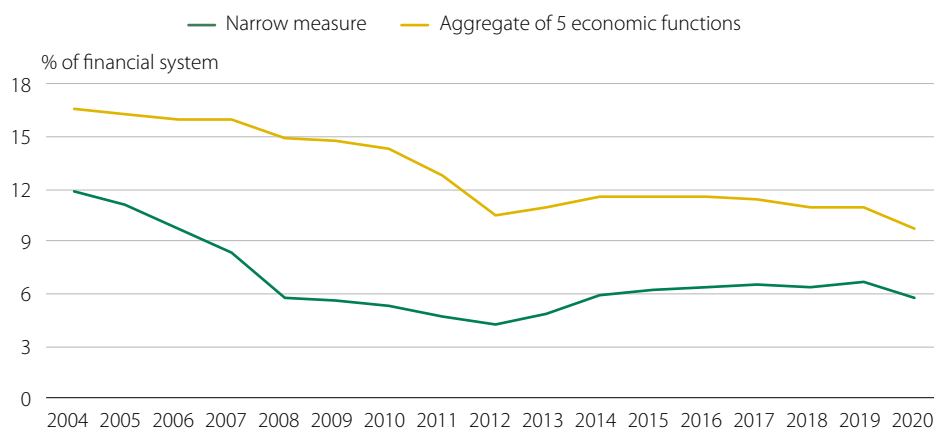
Relative weight of NBFi

FIGURE 10

International scope (FSB, 2019)¹



Evolution in Spain



Source: CNMV and Bank of Spain.

¹ KY: Cayman Islands, IE: Ireland, LU: Luxembourg, CA: Canada, BR: Brazil, US: United States, IN: India, MX: Mexico, CN: China, ZA: South Africa, AU: Australia, KR: Korea, DE: Germany, CH: Switzerland, IT: Italy, FR: France, JP: Japan, AR: Argentina, CL: Chile, ES: Spain, BE: Belgium, UK: United Kingdom, NL: Netherlands, TR: Turkey, SA: Saudi Arabia, RU: Russia, HK: Hong Kong, ID: Indonesia, SG: Singapore, AE: advanced economies, EME: emerging economies.

Table 6 shows the assets of the entities making up NBFI for each of the economic functions in 2020. As has been said in previous editions of this report, the most important functions in terms of size are Economic Function 1 (EF1), which contains certain classes of investment funds, and Economic Function 5 (EF5), which contains securitisation vehicles. At year-end 2020, assets of these two groups of entities stood at €265.4 billion and €185 billion respectively, representing 52.1% and 36.3% of NBFI (prior to stripping out the assets consolidated in banking groups). The evolution of both was uneven in 2020, with the assets of mutual funds falling by 0.7%, while the outstanding balance of securitisations increased by 5.4%. Investment funds were significantly affected by the COVID-19 crisis in March 2020, which caused both a decline in the value of these institutions' assets and an increase in net redemptions. In the following months, a new expansive stage was recorded that left the annual balance practically unchanged. The increase in the balance of securitisation vehicles is explained by the sharp increase in the issuance of these assets in 2020, within a context in which financial institutions increased their debt issues in general and securitisations in particular in order to obtain financing from the Eurosystem. Economic Function 2, which groups together financial credit institutions, is the third most significant function (9.5%), although its assets experienced a significant decrease in 2020 (down 19%) which almost entirely explains the decline of NBFI assets in Spain last year. This evolution is justified by the deregistration of several entities, one of them large.²⁰ Finally, Economic Functions 3 (broker-dealers) and 4 (mutual guarantee entities) are very small, with assets accounting for just 1.9% and 0.2% of total NBFI respectively.

Structure of non-bank financial intermediation

TABLE 6

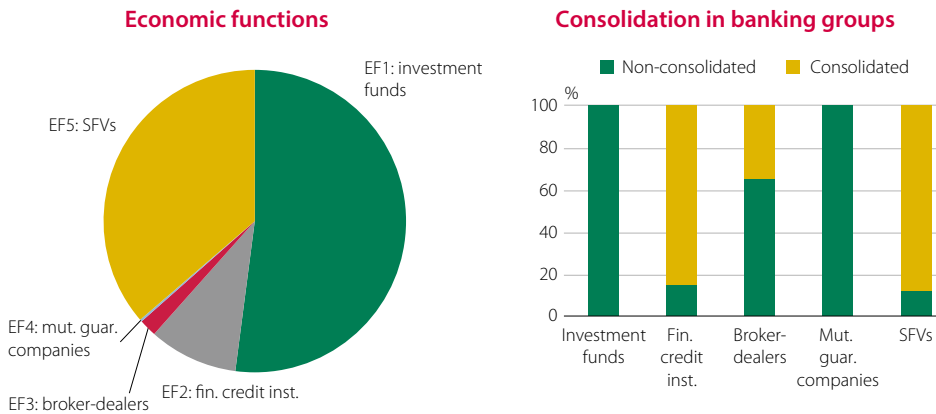
Millions of euros

	EF1	EF2	EF3	EF4	EF5	Aggregate of the five functions	NBFI (narrow)
Size in 2020 (millions)	265,405	48,577	9,562	1,177	185,091	509,812	303,620
Size in 2019 (millions)	267,342	59,893	9,392	1,068	175,620	513,315	310,662
% of total (2020)	52.1	9.5	1.9	0.2	36.3	100.0	-
Growth 2020 (%)	-0.7	-18.9	1.8	10.2	5.4	-0.7	-2.3
Cumulative growth 2002-2007	48.7	79.1	78.4	115.6	647.0	151.9	66.3
Cumulative growth 2008-2019	-7.2	-8.3	-54.3	49.3	-50.5	-29.6	-21.6

Source: CNMV and Bank of Spain.

The last step in order to determine the narrow measure of NBFI consists of discounting the assets of the entities that are part of any of the five economic functions that are consolidated into banks. As can be seen in the right-hand panel of Figure 11, this consolidation mainly affects securitisations and finance companies, with consolidation percentages slightly below 90%. It also applies to broker-dealers, which consolidate over 30% of their assets. However, it does not affect assets of the investment funds or the mutual guarantee companies. As a consequence of these differences, the relative importance undergoes a significant modification in favour of investment funds, which now account for 87.4% of the narrow measure of NBFI, to the detriment of securitisations, which fall to 7.6%. The remaining three functions account for only 5% of the narrow measure of NBFI.

²⁰ This entity was Santander Consumer EFC, S.A., which was absorbed by Santander Consumer Finance, S.A., a bank belonging to the same group.



Source: CNMV and Bank of Spain.

3.1 Risk assessment of non-bank financial intermediation

The ultimate objective of the definition and delimitation of entities that make up the narrow measure of NBFIs is the identification and monitoring of the potential risks that these may pose to financial stability. In this section, a forecast is proposed of the value of credit risk, maturity transformation, liquidity risk and leverage in the area of investment funds,²¹ finance companies, broker-dealers and SPVs.²²

Table 7 shows the intensity of the risks analysed according to established thresholds that have taken into account the analysis set forth in various international studies and forums, adapting to the characteristics of each type of entity.²³ The absence of colour indicates low risk, while purple indicates a moderate, medium or high risk depending on the intensity of the colour (light, medium or dark). As can be seen in the aforesaid table, the greatest degree of involvement of NBFIs entities in the different financial risks occurs in credit and liquidity risk. To a large extent, the intensity of these risks is related to the very nature of the entities, meaning that there are few changes over time. In the case of credit risk,²⁴ it is natural that the figure is so high, since many NBFIs entities invest the majority of their portfolio in debt assets (for example, numerous investment funds) or in credits (finance companies and SFV). However, it is interesting to observe the time pattern of the indicators, which is always informative.

In 2020 a slight variation was observed in some indicators of investment funds and broker-dealers. In the latter, after the decline in 2019 the credit risk indicator increased to values similar to those observed in previous years. In the case of fixed income investment funds, there was an increase in the maturity transformation

21 The risks associated with money market funds, fixed income funds and mixed funds are analysed separately.

22 Mutual guarantee entities are not included in the analysis, as they account for less than 0.5% of the sector.

23 See the article by Isperto (2019), *op. cit.*, for further details on the thresholds defined for each risk and type of institution.

24 This risk has been calculated as the ratio of credit assets to total financial assets. Credit assets are made up of cash, deposits, loans granted and fixed income securities, both domestic and foreign.

indicator, the result of the lengthening of the average maturity of portfolio assets. In mixed funds, there was a slight increase in the indicator that quantifies a lower level of liquid assets, due to the decrease in investments in public debt assets and the increase in investments in corporate debt assets and other CIS. In general, the different metrics that assess the degree of liquidity of the fund portfolio do not point to the existence of a significant vulnerability.

Degree of NBFi involvement in financial risks. 2020

TABLE 7

	Investment funds					
	Money market funds	Fixed income funds	Mixed funds	Finance companies	Broker-dealers	SPVs: securitisation
Credit risk	●	●	●	●	●	●
Maturity transformation	○	●	○	○	○	●
Asset liquidity ¹	●	●	●	●	○	●
Leverage ²	○	○	○	●	●	●
Interconnectedness with the banking system	○	○	○	○	○	●
Relative importance ^{3, 4} (%)	0.9	15.8	29.4	9.5	1.9	36.3

Source: CNMV. For a greater detail of the thresholds for each risk and type of entity, see the article by Isperto, A. (2019). "Non-bank financial intermediation in Spain". CNMV Bulletin Quarter I, pp. 79-122.

¹ In the case of investment funds, the colours assigned to this risk are defined on the liquidity measure that is based exclusively on the type of asset in the portfolio.

² In the case of investment funds, the assessment of the leverage risk from this number is made on the indirect leverage measure, based on the derivative position.

³ The weight of each of the institutions presented in this table do not add up to 100%, as mutual guarantee entities and some types of funds that also belong to NBFi are not represented.

⁴ These percentages are calculated according to the total size of the sector, without discounting the entities that are consolidated in banking groups.

3.1.1 Economic function 1

As seen in Table 5, Economic Function 1 (EF1) is defined as the management of collective investment schemes with features that make them susceptible to runs. Taking these considerations into account, due to the differing criteria of the existing investment vehicles in Spain, it is considered that the following belong to this economic function: money market funds, fixed income funds, mixed funds,²⁵ hedge funds²⁶ and open-ended collective investment companies (SICAVs).

As described at the beginning of this section, in Spain, investment funds belonging to EF1 accounted for 87.4% of the total narrow measure of NBFi at the end of 2020, continuing the growth trend that began in 2010, when the proportion was much lower (60%). However, as can be seen in the right-hand panel of Figure 12, the assets of these funds experienced a slight drop in 2020 (-0.7%), meaning that the increase in their relative importance was actually produced by the notable decline in

25 See Footnote 1 to Table 5.

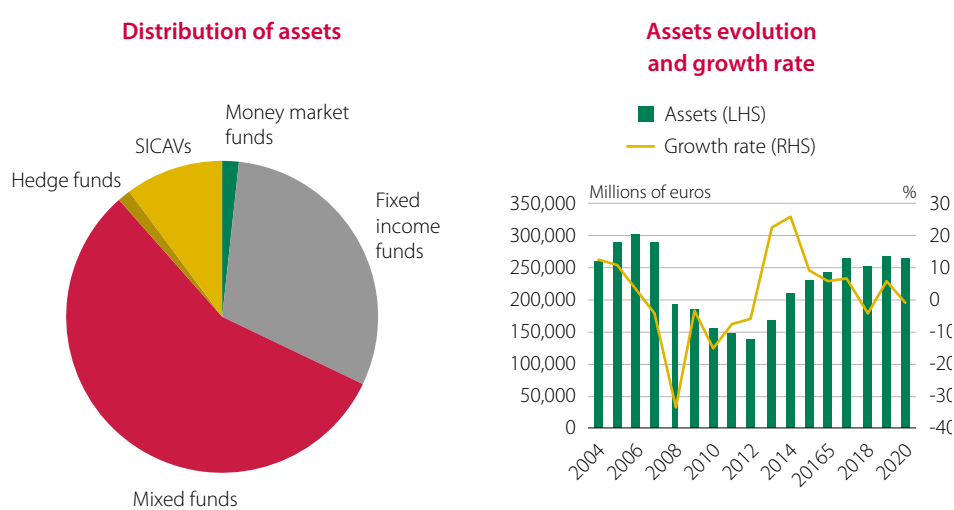
26 These institutions may be subject to runs in their liquidity windows, if they have any. The four types of hedge funds that exist in Spain are included under this name: Hedge funds (funds and companies) and funds of hedge funds (funds and companies).

financial credit establishment assets. The evolution of mutual fund assets in 2020 was affected by the COVID-19 crisis, which led to decreases in the value of the fund portfolio, as well as increases in net redemptions, especially in the second quarter. Subsequently, an expansionary trend began that practically offset the losses of the first months which has continued into 2021.

The relative importance of the different vehicles considered in EF1 shows little change with respect to 2019 figures. As can be seen in the left-hand panel of Figure 12, Spanish mixed funds represented more than half of the assets of this function (56,4%),²⁷ followed by fixed income funds (30,4%) and SICAVs (10,2%). The relative importance of money market funds (1,7%) and hedge funds (1,3%) continued to be very low.

Distribution of investment funds belonging to NBF1

FIGURE 12



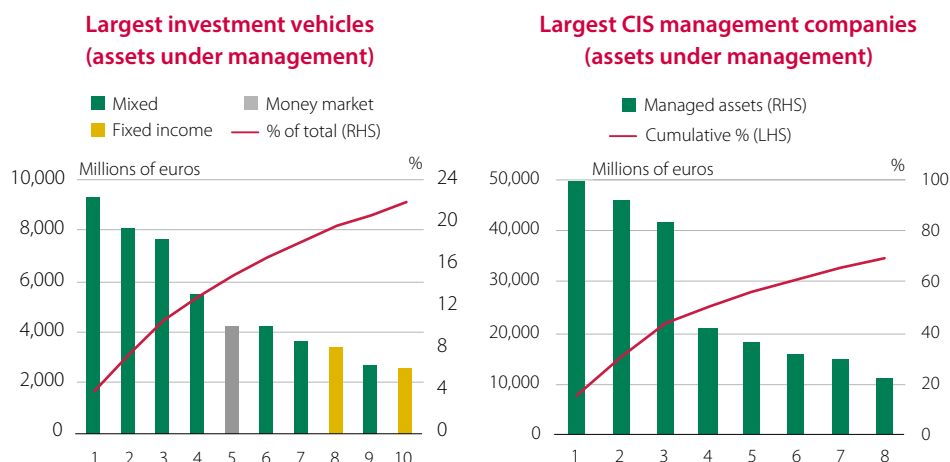
Source: CNMV.

In Spain, at year-end 2020, there were a total of 3,773 active investment vehicles belonging to EF1 (204 fewer than in 2019). Of these, 1,262 corresponded to investment funds, 2,428 to SICAVs and 83 to hedge funds. The characteristics of the institutions of this economic function continue to be similar to those outlined in reports from previous years. The larger investment vehicles are investment funds: 47 funds managed assets of more than €1 billion, a figure that was not exceeded by any SICAV or hedge fund. Meanwhile, the degree of concentration of these institutions is very high, up on the previous year. As can be seen in the left-hand panel of Figure 13, the four largest vehicles accounted for 13% of total assets (11.5% in 2019), while the 10 largest funds accounted for 21.9% of assets (slightly less than 20% in 2019). The degree of concentration in the field of CIS managers also continued to be very high, with the three largest entities managing 43.5% of total assets and the seven largest exceeding 65%, all of which belong to banking groups (see right-hand panel of Figure 13).

27 Mixed funds include different categories of funds, with mixed fixed income funds worthy of special mention. These accounted for 28.9% of the total, with global funds representing 27.4% and mixed variable income funds 20.3%.

Concentration in the collective investment sector

FIGURE 13



Source: CNMV.

Proposals to reform money market funds in the wake of the COVID-19 crisis

EXHIBIT 1

Monetary investment funds are a type of open-ended investment fund that presents daily liquidity, risk diversification and returns consistent with those observed in the money markets. In many cases they seek to provide stability in the amount of the investment. These funds are an important source of financing for financial institutions, non-financial corporations and governments. They are also sometimes used by investors to invest excess liquidity or to manage their short-term financing needs. These funds invest both in assets issued by public administrations and by the non-financial sector, especially in commercial paper and deposit certificates.

There are two types of money market funds based on the valuation of their assets – constant value funds, which value their assets at amortized cost, and variable value funds, which incorporate the market price of the assets. In the European Union there is a sub-group of funds within constant value fund segment known as Low-Volatility NAV (LVNAV), which can value their assets at amortised cost and offer a constant value provided that certain conditions are met. These characteristics are directly related to the perception of a part of investors about the quasi-money nature of money market funds.

The characteristics of these funds make them susceptible to showing certain vulnerabilities that become more evident in periods of stress, such as those experienced in March of last year. These vulnerabilities are related to several facts:

- In general, they offer the possibility of daily redemptions, meaning that that in times of uncertainty there can be rapid and substantial increases in the amount that investors wish to redeem.
- The liquidity conditions of the portfolio (especially in relation to private fixed income assets) may not be ideal to meet a significant increase in redemptions.
- The existence of some regulatory thresholds that determine, for example, the establishment of redemption commissions or the change of system from a constant value fund to a variable value fund encourages participant

behaviour that is not very beneficial for the fund, such as those included under first mover advantage. Such behaviour is the result of investors having incentives to exit the fund first, which leaves the remaining participants in a relatively worse situation.

- Monetary funds of constant value, as the global recession and COVID-19 pandemic have already shown, are especially vulnerable, because in times of crisis, investors who anticipate a notable difference between the market value of the fund and their constant value have incentives to redeem before others.
- Finally, in addition to being able to become illiquid, the underlying asset markets of these funds (monetary) may experience asset valuation problems.

Within this context, in June of this year the Financial Stability Board (FSB) presented a document for consultation with a set of regulatory proposals to increase the resilience of these institutions. These proposals focus on the following areas:

- Transfer to investors who redeem the cost of their redemption. For this, tools such as swing pricing have been suggested, which allows the investor requesting redemption to be transferred part of the cost of the operation.
- Loss absorption mechanisms. Capital buffers and options are proposed as the “minimum position at risk”. Under the latter, a proportion of the fund’s portfolio would not be repaid within a specified period of time.
- Mechanisms to reduce the effects of regulatory thresholds. Among these would be the elimination of the link between thresholds and the imposition of commissions or restrictions on redemptions, as well as the elimination of funds at constant value.
- Reduction of liquidity transformation. To this end, measures are proposed in order to reinforce the liquidity requirements of the assets in the portfolio and to establish limits in relation to the eligibility of the assets.

Other supranational institutions such as the European Systemic Risk Board (ESRB) are also working on reform proposals for money market funds which have points in common with those made by the FSB.

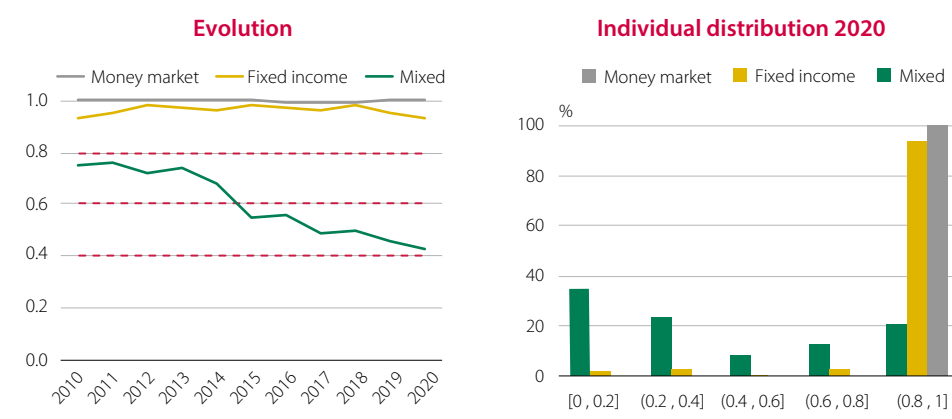
In Spain, there are only two money market funds, both of variable value. These funds did not experience any difficulties during the pandemic, which mainly affected funds from other jurisdictions (USA, Luxembourg, Ireland and France), mostly of constant value (some of which were LVNAV). Despite the lesser importance of this sector in Spain, due to its supervisory work of these institutions, the CNMV is actively participating in the debates of the different international working groups. From a CNMV perspective, the most significant measure that could tackle the vulnerabilities of these funds at the root is the elimination of funds at constant value, since this characteristic encourages the unwanted first mover advantage on the part of investors. This measure would eliminate current regulatory thresholds and allow the use of liquidity management tools such as swing pricing that only make sense in the case of variable value funds. Finally, loss absorption mechanisms would be ineffective and undesirable considering the nature of these institutions (investment asset in which a risk is assumed in exchange for an expectation of profitability).

The intensity of the risks associated with investment funds is, in general terms, low, although some important particularities for these institutions should be noted, as well as the evolution of certain indicators over time. As can be seen in Table 7, the highest valuation continues to be produced in credit risk indicators, as the very nature of NBFIs funds means that they have a very high proportion of credit assets in their portfolios. This proportion is higher in money market funds, where, with few fluctuations, it is very close to 100% and in fixed-income funds, where it stood at 93% in 2020. In mixed funds, on the other hand, the proportion is much lower at 43% in 2020, with a downward trend observed for several years (in 2011 this percentage was 76%). This trend is explained by the growing importance of equity assets in the portfolios of these funds, with a higher expected return that is favoured by the context of very low interest rates.

Looking at individual data, the right-hand panel of Figure 14 shows that the two Spanish money market funds that existed at the end of 2020 had a percentage of credit assets greater than 80%, whereas in fixed income funds this threshold was exceeded in more than 90% of cases, in terms of assets.²⁸ In mixed funds, however, this threshold was only exceeded by funds accounting for 21% of total assets, while almost 60% were at a low risk level (less than 40%).

Credit risk in the different types of investment funds

FIGURE 14



Source: CNMV.

In relation to the maturity transformation risk, i.e. the entity's ability to meet its short-term obligations, in the case of investment funds the ratio of long-term assets to assets managed by the fund has been used, rather than the ratio of short-term liabilities to short-term assets, as in other entities. The reason for this difference is that in investment funds unitholders can redeem their equity stakes with a high frequency – in most cases, on a daily basis – and therefore short-term liabilities do not represent all the possible “obligations” of the fund.

As can be seen in the left-hand panel of Figure 15, this indicator only shows a higher value in fixed income funds, in which the proportion of long-term assets over the total was slightly higher than 50% in 2020, continuing an upward trend that began in 2016 when this percentage stood at 40%. The lengthening of the maturity term

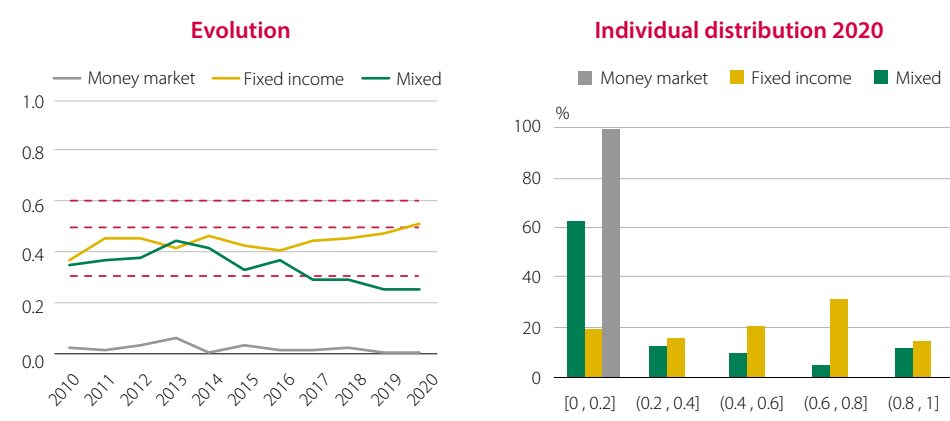
28 It should be noted that 4% of the assets of fixed income funds has a proportion of credit assets of less than 40% due to their investing practically all their assets in other CIS, which despite being mostly other fixed income funds, are considered for the purpose of analysis as investment in equities.

of the assets in the fund portfolio, probably undertaken in order to obtain a higher yield, would explain this behaviour, which also implies an increase in the sensitivity of these funds to changes in interest rates. In other cases, the value of the indicator related to the maturity transformation is low. In money market funds it is in fact practically non-existent due to the severe restrictions on investing in long-term assets.²⁹ In mixed funds, the share of long-term assets was above 30% until 2016, but since then it has shown a downward trend, standing at 25.2% in 2020.

As regards the individual distribution of the ratio among funds, the right-hand panel of Figure 15 shows that in the two money market funds registered at the end of 2019, the percentage of long-term assets was below 20%. Although in global terms there does not seem to be a high level of maturity transformation risk in fixed income and mixed funds, the individual analysis indicates that a significant number of funds have a high proportion of long-term assets in their portfolios. In particular, 46% and 16% of the assets of these two types of funds respectively had a percentage of long-term assets higher than 60% of total assets in 2020.

Maturity transformation in the different types of investment funds

FIGURE 15



Source: CNMV.

The analysis of liquidity risk is complex, as there is no single and unequivocal definition of “liquid assets”. In general, the liquidity of an asset is related to the possibility of its being bought or sold in a short time without incurring significant losses. Therefore, this concept is related to the nature of the asset and to the situation in the financial markets, given that in periods of turbulence asset liquidity tends to decrease rapidly. As indicated in previous issues of this report, the CNMV computes various liquidity metrics in the field of investment funds, all of them complementary, which take into account the type of financial asset, the issuer’s credit rating and market conditions.

The evaluation of the liquidity conditions of the fund’s portfolio is especially important as most of these institutions allow redemptions on a daily basis, something that may be a source of vulnerability for them in the face of a significant and unexpected increase in the volume of refund requests such as that experienced in March 2020 (a phenomenon known as liquidity mismatch). An important part of the CNMV supervisory task consists of ensuring that these institutions manage this risk

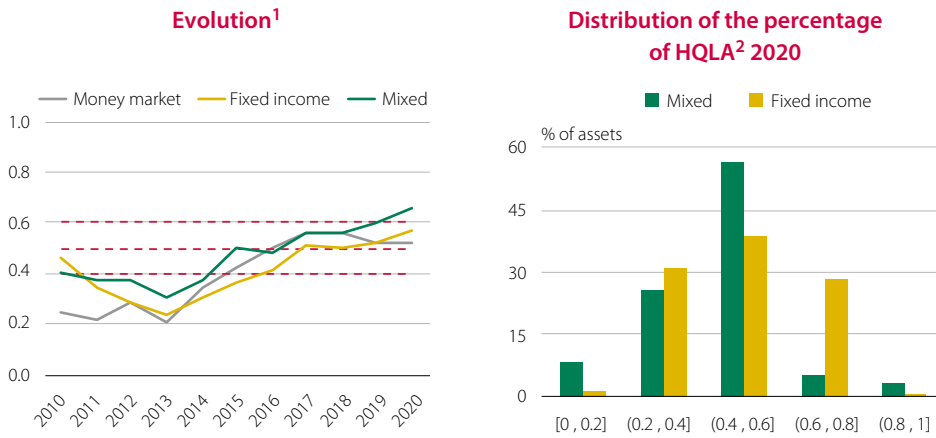
29 In money market funds, the average duration of the portfolio must be less than or equal to 60 days and the average maturity cannot exceed 120 days.

appropriately and, in particular, that they have sufficient liquid assets to deal with a such a situation. Liquidity risk management not only includes an assessment of the liquidity of the fund portfolio, as detailed below, but also the appropriacy of the liquidity management tools available in the legislation and that are outlined in Section 3.2. This section also includes the results of the latest stress test carried out by the CNMV in order to contrast the degree of resistance of the industry to a simulated extreme increase in the volume of requests for redemptions.

The three metrics to evaluate the liquidity conditions of the fund portfolio set out below indicate that these conditions are favourable, although a slight deterioration is detected in some of them. The first metric assesses the proportion of “less liquid” assets, defining deposits, public debt, secured issues, repos and 50% of the value of the equity portfolio as liquid assets. According to this metric, the proportion of less liquid assets has marked an upward trend since 2013 for all categories assessed, although greater monetary fund stability has been observed for some years now. Nevertheless, in 2020 it continued to increase in the case of mixed and fixed income funds. The increase in the proportion of less liquid assets during the previous years has its origin in both the drop in investment in more liquid assets, such as public debt and deposits, and in the increase in investment in corporate debt assets and other CIS. Since the latter can invest in liquid assets, the proportions presented in the figure should be interpreted as a maximum reference for less liquid assets.

The second metric incorporates the credit ratings of the different types of assets, so that based on this rating and the type of asset, an assumption is made about the proportion of the portfolio that can be considered to be made up of high quality liquid assets (HQLA). This metric is widely used in numerous reference studies and, in our case, it is also used in the aforementioned stress tests. The distribution of these assets in 2020 is shown in the right-hand panel of Figure 16.³⁰ We can see that the proportion of liquid assets is high – 68% of the equity of fixed income funds and 66% of the equity of mixed funds have a proportion of liquid assets greater than 40% of the total portfolio. These percentages are higher than those estimated in 2019 (64% and 50% respectively). The apparent contradiction between the increase in HQLA and the deterioration of liquid assets in the first metric is explained by the increase in investments in other CIS, which are discarded in the HQLA analysis, while they are considered illiquid in the first metric.

30 The number of funds included in this analysis is less than the total number of funds belonging to EF1, since funds whose investment in other CIS was over 60% have been excluded. For these funds, it is considered that an appropriate assessment of the liquidity conditions of a sufficiently significant part of its assets cannot be made.



Source: CNMV.

¹ Less liquid assets as a percentage of total assets, defining deposits, public debt, guaranteed issues, repos and 50% of the value of the equity portfolio as liquid assets.

² High quality liquid assets (HQLAs) are considered to be all cash and deposits, 50% of the value of the equity portfolio and variable percentages of public debt, private fixed income and securitisations depending on their credit rating. The percentage of public debt that would be considered liquid ranges between 0% and 100%, while that of private fixed income is between 0% and 85% and that of securitisations is between 0 and 65%.

The last of the metrics assessed is calculated solely on the assets of the private fixed income portfolio, since it is considered that these may experience a greater deterioration in liquidity in periods of market uncertainty. In the analysis, maturity is taken into account (the assets are considered liquid if they have a duration of less than one year) in addition to the availability of a representative number of intermediaries willing to buy and sell them at a normal market spread. The proportion of less liquid assets assessed in this way, which came to represent 30% of the funds' private fixed income portfolio in 2009, has progressively decreased in subsequent years to reach lows of close to 4% of this portfolio in the first half of 2019 (0.8% of investment fund equity). This metric also does not point to any vulnerability in relation to the liquidity conditions of the funds' portfolios.

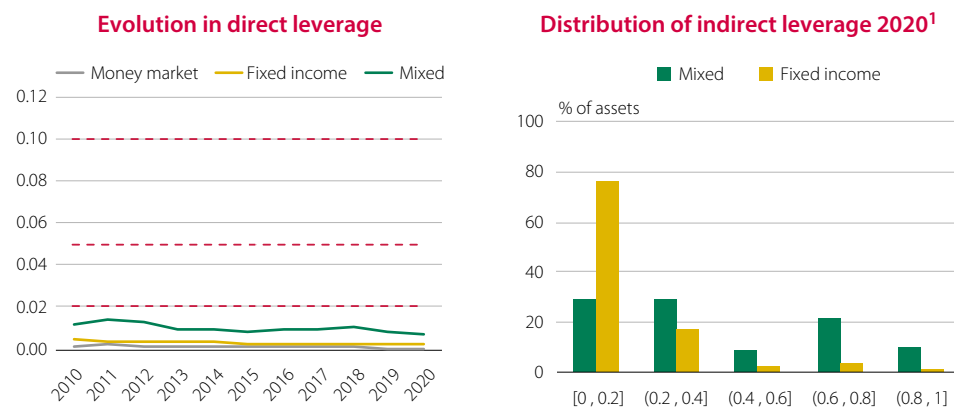
Lastly, in relation to the leverage of CIS, Spanish legislation establishes that financial CIS (with the exception of hedge funds) can only be temporarily indebted and for a specific reason³¹ and that debt can never exceed 10% of their assets. In Spain, no category exceeded 1% in 2020 and, at least since 2009, it has never exceeded 2%³² (see left-hand panel of Figure 17). At an individual level, no bond fund exceeded 2% of the leverage level. In relation to mixed funds, 0.6%, in terms of assets, exceeded this threshold, while for 0.1% the level of direct leverage was above 5%. In all cases they were short-term debts.

31 Royal Decree 1082/2012 of 13 July approving the implementing regulations of Law 35/2003, of 4 November, on Collective Investment Schemes.

32 To assess the level of leverage of investment funds we calculated the ratio of their liabilities to their assets.

Leverage in the different types of investment funds

FIGURE 17



Source: CNMVCNMV.

¹ Investment funds, both UCITS and quasi-UCITS, that use the commitment method and belong to NBFI (except for money market funds).

However, these institutions can also be leveraged through the use of derivatives. The tools required to analyse this are under development and will make use of the indicators recently proposed by the International Organisation of Securities Commissions (IOSCO) to monitor the leverage of these institutions on an international scale.³³ The information available to the CNMV on the use of derivatives by Spanish CIS still does not indicate the existence of significant vulnerabilities to any of the possible risks that the use of derivatives may generate (counterparty, market and contagion). It is calculated that at the end of 2020, the exposure to market risk of CIS belonging to NBFI subject to UCITS regulations in regard to leverage limits³⁴ and carrying out their calculations using the commitment method³⁵ (96% of the total in terms of assets)³⁶ accounted for 29.8% of assets,³⁷ a percentage that is well below the maximum permitted under current legislation (100% of assets). If mixed investment funds and fixed income funds are analysed individually,³⁸ it can be seen that the exposure to market risk was less than 40% in more than 93% of fixed income funds and 59% of mixed funds (in asset terms). These percentages are higher than

33 IOSCO (2019). *Final Report on Recommendations for a Framework Assessing Leverage in Investment Funds*. December.

34 Includes both CIS that comply with UCITS regulations in their entirety and those that do not fully comply (CIS availing themselves of one of the exceptions provided for in Article 72 of Royal Decree 1082/2012) although they do comply in relation to derivative transactions.

35 The European commitment method, the technical specificities of which are set out in the ESMA *Guidelines on Risk measurement and the calculation of global exposure and counterparty risk for UCITS* (CESR/10-788) directives, allows exposure to be calculated based on the conversion of all derivatives contracts to the equivalent investment in their underlying assets. The method is based on considering the market value of the underlying asset (or its notional value if this is more conservative) adjusting it for the delta in the case of options and incorporating rules to offset long positions with short positions of the same underlying asset (netting) as well as between different underlying assets (hedging).

36 Hedge funds, which are analysed later, are not included here.

37 It should be noted that the level of leverage is overestimated in some CIS that invest part of their assets in other CIS. This is because the calculation of the market risk generated by the derivatives transactions that arises as a result of this investment is set, in order to simplify the calculation, at 100% of the investment in other CIS.

38 In aggregate terms, in fixed income funds that use the commitment methodology, the level of leverage was 12%, while in mixed funds this figure was 39.3%.

in 2019, so an increase in fund assets with reduced market risk can be calculated, although an increase in assets of mixed funds with the highest risk can also be seen (between 80% and 100%).

For the remaining CIS included in NBFI (4.1% of total assets), about 1.1% of the assets correspond to CIS that declare that they do not carry out any type of derivative transactions, 1.4% to CIS that are also subject to UCITS regulations on the leverage limits, where exposure to market risk is calculated in accordance with *VaR* methodology, and lastly, 1.6% correspond to CIS subjects in general terms to UCITS regulations but able to be more flexible in certain aspects of their operations through derivative instruments and able to exceed the 100% limit of exposure to market risk. In the case of the latter, known as quasi-UCITS, the level of exposure was around 90%.

Lastly, for hedge funds (included in the category of AIFs and as such having more flexible regulations), empirical evidence also shows a generally moderate level of leverage (34.9% at a gross,³⁹ aggregate level), as only a few isolated funds make more intensive use of it. In the pure hedge funds category, six institutions exceeded 100% of gross leverage in December 2020, with a maximum figure of 145%. For funds of hedge funds, i.e., funds and companies that invest in other hedge funds, it should be borne in mind that leverage is largely taken on indirectly through investment in hedge funds, gross direct leverage being very low – only two institutions (from a total of seven) reported direct leveraging, one of those at 32% and the second at 65%.

Counterparty risk, referring to the financial difficulties experienced by an entity may be transmitted to its counterparties or lenders and which is amplified with a high use of leverage, has not materialised in Spanish investment funds. Exposure to this risk, which in the case of these vehicles originates from derivatives transactions in OTC markets through transactions pending settlement, is at very low levels and a long way from the levels that could be considered potentially systemic. At the end of 2020, the aggregate liabilities of UCITS and quasi-UCITS in respect of OTC derivatives transactions represented 0.33% of their total assets. From this figure, the value of the assets that the investment funds and SICAVs receive as collateral should be deducted to cover possible counterparty non-payment, which represented 0.11% of their assets, meaning that the counterparty risk borne by UCITS (net of collateral and at the aggregate level) at the end of 2020 stood at 0.22%. In the case of free investment CISs (including the CISs that invest in CISIL), the debit balance for OTC derivative operations stood at 0.56% at the end of 2020.

3.1.2 Economic function 2

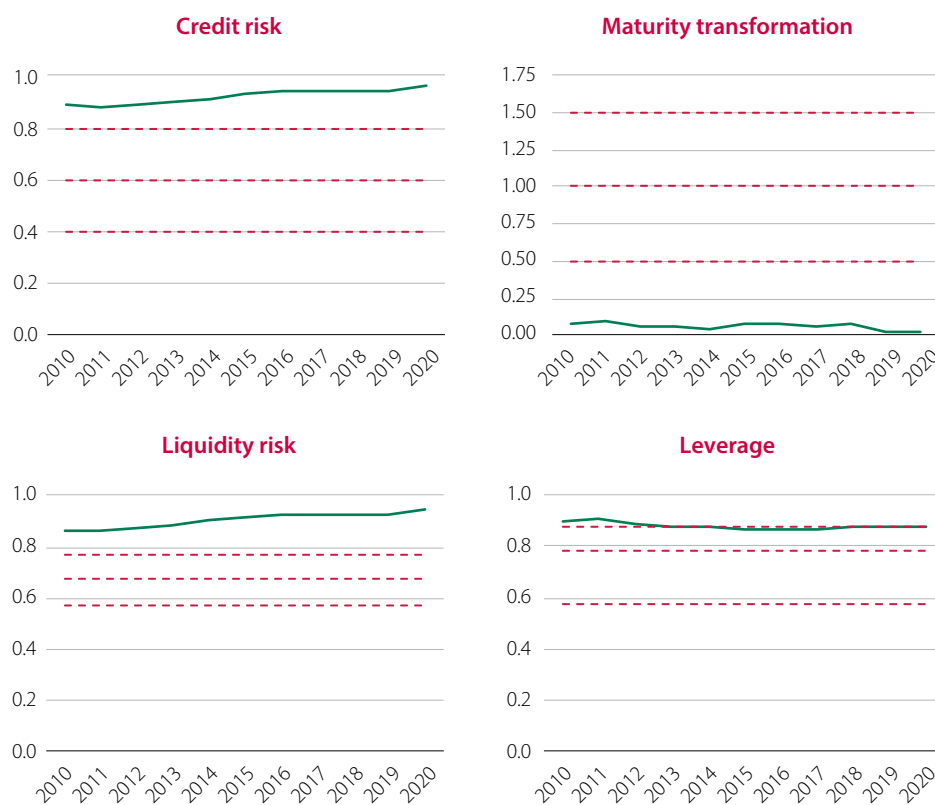
Economic Function 2, defined as a loan provision that is dependent on short-term funding, can comprise a wide variety of entities which, depending on the jurisdiction, may have very different legal frameworks. In the case of Spain, this includes finance companies. In Spain, as we have seen, the financial assets of these institutions represent 9.5% of total economic functions, with close to €49 billion at year-

39 The level of gross leverage is calculated from the sum, in absolute value, of the nominal amounts of the derivative contracts, in other words, the amounts of long and short positions are added, both with a positive sign.

end 2020,⁴⁰ after an 18.9% fall with regard to the previous financial year. If the amount consolidated in the banking groups is subtracted, the financial assets of these entities fall to €7.6 billion – 2.5% of the narrow measure of NBF1 – a percentage very similar to that of 2019. The panels in Figure 18 show various risk indicators calculated for these entities. Although some of them are high, they would not be important in terms of financial stability due to the reduced weight of these entities within the NBF1 mentioned above.

Risk trends for finance companies

FIGURE 18



Source: CNMV.

As shown in the upper left-hand panel, the credit risk assessment is high for these entities due to the nature of their activity, as more than 90% of the financial assets correspond to loans granted. On the other hand, the level of leverage and liquidity risk are also high, standing at 90% and 97% respectively due to the low level of equity and liquid assets held by these entities. The indicator for maturity transformation risk had been at very low values, well below 25%, having fallen significantly over the past two years to 2.5% in 2020 (see upper right-hand panel of Figure 18). This decline was due to the low volume of current liabilities held by finance companies, which amounted to just €500 million in total.

40 Since 2008, the cumulative decline is slightly over 30%.

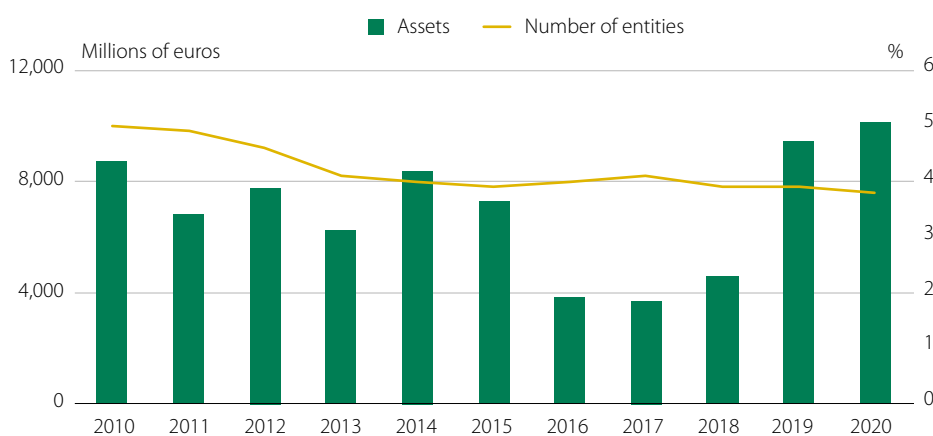
3.1.3 Economic function 3

EF3 is defined as intermediation of market activities that is dependent on short-term funding or on secured financing of client assets. In Spain, broker-dealers belong to this category.

At the end of 2020, there were 38 broker-dealers registered with the CNMV, with total assets of €10.1 billion, representing an increase of more than 7.3% compared with 2019 (see Figure 19). Nonetheless, the size of this sector remains relatively small compared with that of other jurisdictions, as investment services in Spain are mostly provided by credit institutions. Consequently, nearly 90% of the fees received for these services in 2020 corresponded to credit institutions, whereas broker-dealers received around 8%⁴¹ (the remaining 3% corresponded to brokers).

Assets of broker-dealers and number of entities

FIGURE 19



Source: CNMV.

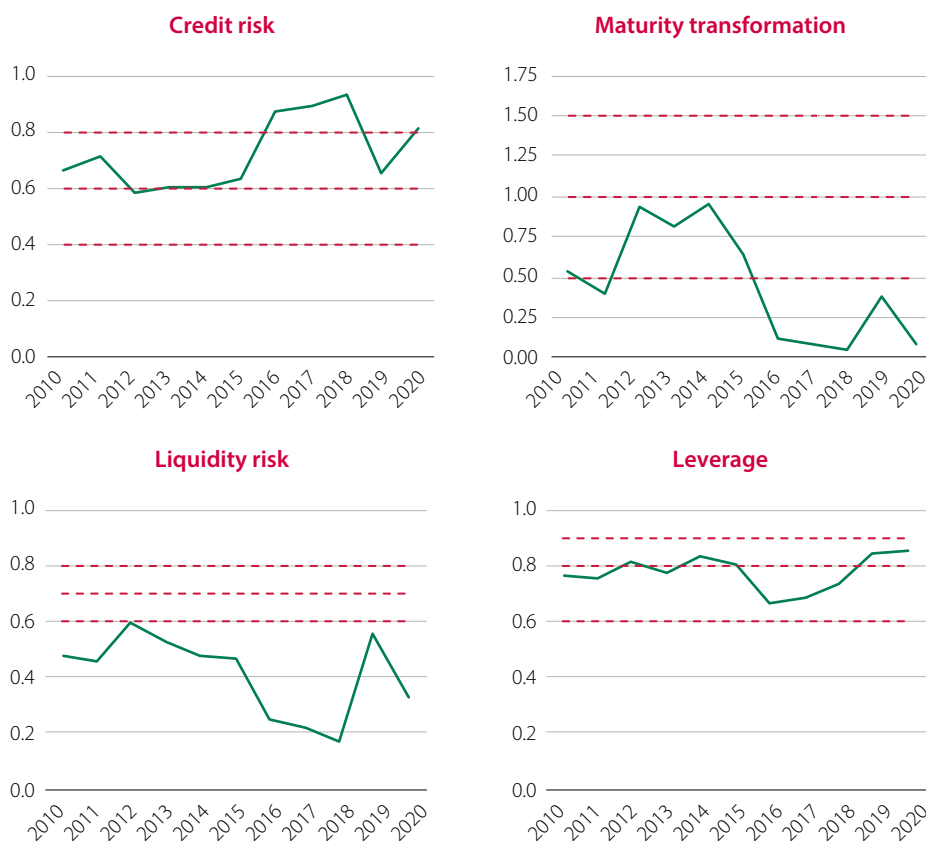
Broker-dealers have a very low relative weight in all five economic functions – 1.9% in 2020 – meaning that the risk of contagion to the rest of the financial system is very limited. Even so, analysing the risks associated with these companies, regardless of their size, we can see that the risk indicators calculated for the sector throughout 2020 experienced some variations, although in most cases (except for the level of leverage), these would return to values similar to those in 2018.⁴² As can be seen in the different panels in Figure 20, the credit risk indicator increased significantly to return to the high risk area, as it had been since 2016, with a value of 81.3%. In the case of liquidity and maturity transformation risk, there is a notable decrease in relation to the 2019 levels, although the indicators have always been in the low risk region. However, the leverage indicator, which went from the moderate to medium risk in 2019, experienced a slight increase in 2020, remaining at medium risk.

41 It is worth mentioning that these figures correspond to a classification of entities carried out from a legal point of view, taking into account the legal form of each of them. However, there are some entities that have the legal form of a bank, but whose business model is based on the provision of investment services. From a broader perspective, it is estimated that 67% of the business relating to the provision of investment services in Spain (including CIS management), assessed through fee and commission income, corresponds to commercial banks and entities belonging to their groups, while the rest corresponds to financial entities specialising in the provision of investment services and without corporate ties to commercial banks.

42 It is worth mentioning that the transfer in 2019 of part of the operations of a securities company belonging to a foreign credit institution led to significant changes in risk indicators as a result of Brexit.

Risk trends for broker-dealers

FIGURE 20



Source: CNMV.

3.1.4 Economic function 4

This category comprises the entities that carry out a “facilitation” activity for credit creation. In Spain, this group consists only of mutual guarantee companies. These companies are defined as financial entities whose main purpose is to facilitate access to credit for SMEs and to generally improve their financing conditions through the provision of guarantees to banks, public administrations, customers and suppliers. Although crowdfunding platforms are being monitored internationally at the moment they are not included as NBFIs, since they could potentially be classified as such and included in EF4, as they are vehicles that facilitate contact between the investor and the entity that needs financing. In Spain, the CNMV is the institution in charge of collecting data on them, with an increasing level of detail.⁴³

In Spain, mutual guarantee companies account for a very small fraction of the narrow measure of NBFIs, since their financial assets represent only 0.2% of the total. Given that the size of this sector is below the 0.5% threshold, it is deemed to not present any risks to financial stability and therefore no measurement analysis of potential risks has been carried out, although it has for all other entities included in NBFIs.

43 The most recent estimated information for these platforms represents an insignificant amount (in 2020 they raised financing of less than €100 million).

EF5 is defined as securitisation-based credit intermediation and the funding of financial entities. This category comprises special purpose vehicles (SPVs) whose purpose is the securitisation of assets. These entities provide resources to banks and other financial entities, whether or not there is a real transfer of assets or risks, meaning that they may be an integral part of credit intermediation chains. For this reason, the risks associated with NBFi need to be borne in mind, especially with regard to maturity transformation. However, as mentioned in previous reports, securitisation issuances in Spain are generally structured, meaning that payments are made with the asset pools that are being redeemed, so this problem is not as significant as in other jurisdictions. In addition, securitisation can be seen as more a financing tool than a risk transfer tool in Spain, unlike in other jurisdictions, where it emerged as one of the most significant problems of the last financial crisis.⁴⁴

As mentioned at the beginning of this section, securitisation in Spain represents a relatively large proportion of NBFi as the second most important sector. SPV financial assets amounted to just over €185 billion at the close of 2020, representing 36.3% of the aggregate assets of the five economic functions, although in 2010 this figure was as high as €489 billion (see the right-hand panel of Figure 21). Subsequently, the financial crisis had a significant negative impact on these vehicles, whose assets declined rapidly, slowing in recent years. 2020 was actually the first year in which there was an increase in the size of SFVs after nine consecutive years of decline, with an increase of 5.4%. As with finance companies, a very high percentage of securitisation vehicles are consolidated in banking groups.⁴⁵ As a result, although they have a large size compared with the entities belonging to the other economic functions, once the assets included in bank balance sheets are deducted, the relative weight falls to 7.6%.

As shown in the left-hand panel of Figure 21, the issuance of securitisation bonds has fallen since 2012 compared to previous years, as the crisis had a severe impact on these institutions. Since then, the issues made by financial institutions have, for the most part, been underwritten by these same institutions in order to use these assets as collateral in financing operations with the Eurosystem. The percentage of the issues underwritten by the same issuer has been higher than 80% in most years of late. In 2020 there was a significant increase in these issues, 88.1% of them were underwritten by the issuers, partly as a consequence of the Coronavirus crisis, within a context in which the ECB increased the provision of its asset purchase programmes (APP).⁴⁶

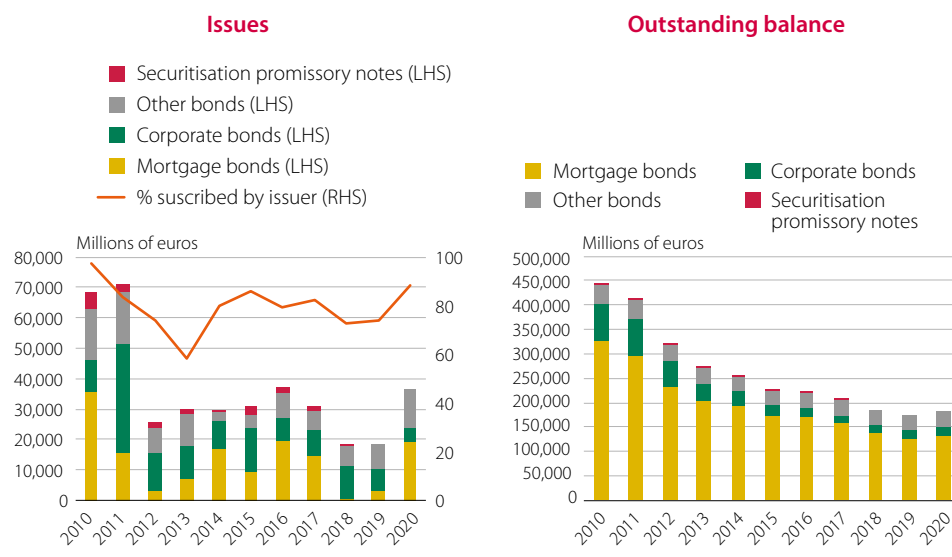
44 For further information see Martín, M.R. (2014). *Analysis of Spanish securitisation funds: characteristics at the time of their creation and performance during the recession*. CNMV, Working Document, No. 57. Available at: https://www.cnmv.es/DocPortal/Publicaciones/MONOGRAFIAS/DT_57.pdf

45 The reason why this happens in Spain is that in most situations the transferor retains control, pursuant to Bank of Spain Circular 4/2017 and IFRS10: Financial statements, consolidated for these and other reasons, continue to be exposed to the variable returns of the funds and the securitised assets, either through credit enhancements, or through swaps in which they collect the returns of the securitised portfolio and pay the bond coupons. In these cases, according to the existing accounting standards, the vehicle must remain on the balance sheet of the issuing banks and therefore falls within the scope of traditional banking regulations.

46 For further details, see Jesús Redondo's article "The evolution of the securitisation activity since the recession" in the forthcoming *CNMV Bulletin*.

Evolution of securitisation bonds and promissory notes by asset type

FIGURE 21



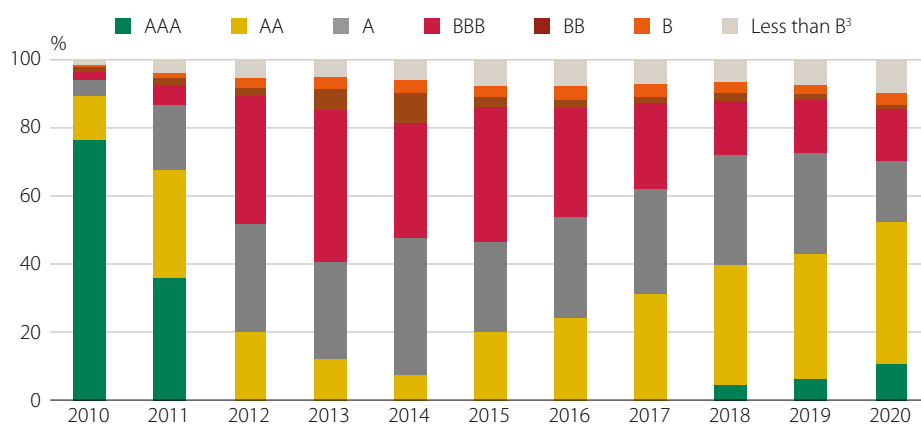
Source: CNMV.

By asset type, it can be seen that most securitisation assets in Spain corresponded to mortgage-backed bonds, with an outstanding balance that has been around three quarters of the total since the first issuances. Since 2009, although they remain predominant, mortgage bond issues have been approaching those of other types of underlying assets, especially those of business loans. In 2020, the issuance of mortgage bonds accounted for 54.3% of the total issued, while bonds backed by consumer loans (included under the heading “Other bonds”) were second in importance, with 17.7% of the total.

The credit rating of securitisation vehicles, which had deteriorated from the recession until 2015-2016, as a consequence of both the increased risk associated with our country and for reasons intrinsic to these instruments, has shown a clear improvement in recent years (see Figure 22). At the end of 2020, 11.1% of the total outstanding balance of bonds and securitisation notes corresponded to assets with a AAA rating (until 2017 this percentage was practically zero), while 29.8% were BBB assets or lower (in 2013 it reached almost 60% of the total).

Outstanding balance of bonds and securitisation notes by credit rating^{1,2}

FIGURE 22



Source: CNMV.

¹ Does not include the Alternative Fixed Income Market.

² Ratings grouped according to their Standard & Poor's equivalent.

³ Includes issuances without a rating.

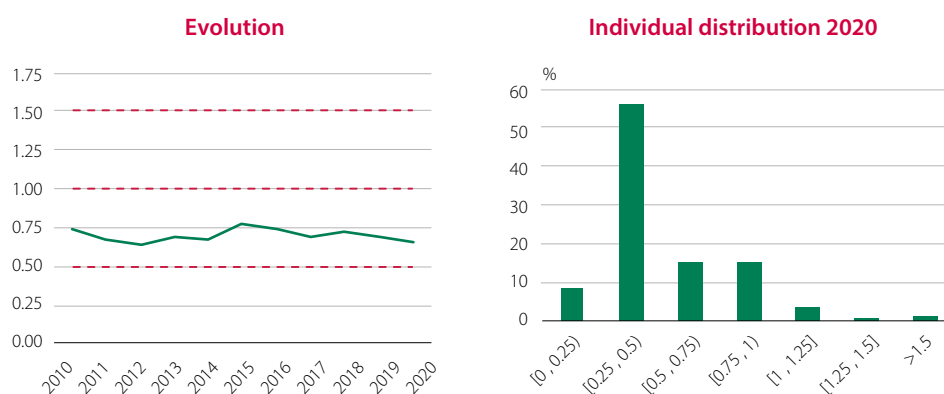
In relation to the risk assessment of these entities, the risk of maturity transformation is clearly the most significant, while the liquidity risk is also appreciable. The measurement of credit and leverage risks is, by definition, of little relevance for SFVs – while credit risk is practically 100% by definition, all SFV assets are made up of credits transferred by the originator or transferor entity, something similar happens with leverage, as securitisation funds do not have their own funds and therefore the ratio, as constructed, is always equal to one. Liquidity risk stood at 92.6% at the end of 2020, a figure that has not changed substantially in recent years: almost all the assets are made up of the loans granted and, therefore, there are very few liquid assets. Individual analysis of the funds shows that, in terms of assets, around 90% of them had liquid assets below 10%, while less than 4% had liquid assets above 40%.

The level of the risk indicator associated with maturity transformation reached 66% in 2020, slightly below the figure for 2019 (see left-hand panel of Figure 23). This figure has ranged between 63% and 74% over the past ten years, meaning that it is relatively stable. There are substantial differences between the different vehicles, with a dispersion in the values of this indicator slightly higher than in 2019. As shown in the right-hand panel of Figure 23, 65% of funds in terms of assets had a ratio of current liabilities to current assets of under 50% (low risk), compared to 69% of funds in 2019. In contrast, only 4.8% of total assets were held by vehicles that experienced a level of risk of over 100% (medium or high risk), compared with 2.6% the previous year.

It should also be borne in mind that most securitised assets in Spain come from long-term loans or credits – mostly mortgages, with the same applying to the securities issued (liabilities). At the end of 2020, the current assets and liabilities of Spanish securitisation funds accounted for only 22% and 14% of their balance sheet respectively.

Maturity transformation risk in securitisation funds

FIGURE 23



Source: CNMV.

3.2 Use of macroprudential tools

Although there is a wide range of tools that may be considered as macroprudential in the NBFi field and that derive, in general, from regulatory requirements,⁴⁷ this section is dedicated exclusively to the tools available and used in the field of collective investment and, in particular, to liquidity management tools. Also included in this section is

47 See the *The participation of the CNMV in macro-prudential policy* report. Available at: https://www.cnmv.es/DocPortal/Publicaciones/OTROS/CNMV_politica_macroprudencial_en.PDF

a sub-section with the results of the stress tests that are carried out periodically on investment funds, as they are understood as a preventive tool that helps to identify *ex ante* those funds that could show a certain vulnerability in the future.

Liquidity management tools (LMTs) seek to mitigate the mismatch between the redemption profile that a fund may be faced with and the proportion of liquid assets available to service these redemptions. The nature of these tools is diverse, as is their level of efficiency and effectiveness. Most can be activated by the CIS manager and some by the securities regulators. However, there is no standardised set of tools available in the different European jurisdictions. The analysis of the availability of tools and their standardisation between countries has become one of the priorities for the coming years, both in the European and international sphere, as a result of the experience of some CISs during the worst moments of the COVID-19 pandemic (for a better understanding of the tools available for UCITS and for alternative investment funds in different European jurisdictions – see Exhibit 2 of this same monitor corresponding to the year 2019).⁴⁸

In Spain, the availability of liquidity management tools is high compared to other European jurisdictions. The most important tools available to UCITS are the suspension of redemptions, side pockets, redemption fees, redemptions in kind, swing pricing and mandatory liquidity buffers. In the field of AIFs, the tools known as gates and side letters can be added to the above. In general terms, they are activated by management companies, although the CNMV may activate some in certain circumstances (for example, the suspension of redemptions or the reinforcement of liquid assets). It is finally worth noting the inclusion, by virtue of Royal Decree-Law 11/2020 of 31 March, adopting urgent complementary measures in the social and economic area to deal with COVID-19, of a new macroprudential tool consisting of the possibility of establishing prior notice periods for redemptions without these being subject to the requirements that are normally applicable regarding term, minimum amount and documentation in the management regulations. These deadlines may be established by the manager or by the CNMV itself for a CIS or for a plurality thereof.

In 2020, the use of fund liquidity management tools in Spain was higher than usual as a result of the COVID-19 crisis, which led to a notable increase in requests for redemptions in March. The supervision tasks carried out by the CNMV did not identify any difficulties on the part of the managers to attend to these redemptions. In fact, no Spanish fund had to activate any extraordinary liquidity measures, such as the suspension of redemptions or side pockets. Only five funds had to implement partial redemptions (only part of the fund is affected by the suspension). According to Spanish legislation, management companies must activate this measure when the proportion of assets on which trading has been suspended represents more than 5% of the institution's portfolio. This measure affected one fund of notable size (€420 million in assets) that had invested 7% of its assets in a Luxembourg investment fund that suspended redemptions and stopped calculating the value of its shares. Of the other four lesser funds (€19 million), one of these was also a fund of funds affected by the suspension of redemptions of one of its underlying funds, while the others had investments in high yield debt assets. Two of them were significantly affected by the high levels of uncertainty in asset valuations, as well as decreases in liquidity in some investments.

During the crisis, the CNMV reinforced its coordination mechanisms with management companies, encouraging these institutions to use the available liquidity management tools where appropriate. In this context, the CNMV especially recommended the use of mechanisms that avoid (or reduce) the possibility that the increase in redemptions is detrimental to the participants who remain in the institution. Among these mechanisms, the valuation of assets based on bid prices stands out, which makes it possible for the price reimbursed to investors to be aligned with the price that the fund obtains from the sale of the assets, and swing pricing schemes, that allow part of the transaction costs to be passed on to redeeming investors. These actions resulted in the publication of a Technical Guide on the Management and Control of CIS Liquidity that was submitted to public consultation at the beginning of September 2021 (see Exhibit 2).

Most management companies consider the possibility of valuing assets at bid prices when redemptions exceed a certain threshold in their internal procedures. In relation to the application of swing pricing, a significant number of funds have notified the CNMV that they would use this mechanism when net redemptions exceed a certain threshold. The internal procedures of the management companies should establish the threshold of redemptions required, as well as the swing pricing factor to be used. The first-time application of this mechanism requires a public notification be submitted to the CNMV.

Public consultation on the draft technical guide on the management and control of CIS liquidity

EXHIBIT 2

The CNMV submitted a proposal for a technical guide on the management and control of the liquidity of collective investment schemes (CIS) to public consultation at the beginning of September. This is an initiative included in its 2021 Activity Plan that seeks to unify all the significant supervisory criteria applicable in this area that the CNMV has been transmitting to entities in recent years. The guide also takes into account the results of recent actions carried out at a national and European level. Special mention should be made here of the common supervisory action undertaken by the European Securities and Markets Authority (ESMA) in 2020.

The CNMV thus provides transparency to the criteria, methodologies and practices that it considers most appropriate for compliance with the regulations in the field of control and management of the liquidity of the CIS and that continues in the exercise of its function supervisor. Entities that deviate from these criteria need to justify their actions and be able to prove that they adequately comply with legal obligations.

In particular, the proposed technical guide¹ considers what contents the procedures of the CIS managers should include to guarantee adequate management and control of the liquidity risk of their CISs, with the aim of avoiding the generation of damages and conflicts of interest between investors. Specifically, the guide details:

- The analysis and limits to be implemented in the design phase of each CIS and the checks that also have to be carried out prior to any investment.

- The analysis and recurring controls necessary to guarantee an adequate alignment between the liquidity profile of the assets and the liabilities of each CIS. To do so, the principle of proportional sale of liquid and less liquid assets (the slicing approach) has to be complied with, employing a reasonable margin. Detailed guidelines are included on approaches for determining liquidity ratios or levels of financial instruments, as well as estimating sale time horizons and scenarios for redemptions and other payment obligations and stress and strength tests.
- The different tools that may be used for appropriate management of CIS liquidity. On the one hand, CIS managers have to consider the circumstances in their procedures in which the different tools established by the regulations would be applicable (notice periods, temporary indebtedness, partial subscriptions/redemptions, side pockets etc.) and their adequate implementation and, on the other, the use of anti-dilutive mechanisms (including the valuation of the portfolio at bid or ask prices and swing pricing) to avoid conflicts of interest between the participants who underwrite or redeem and those who remain.
- The functions assumed by the different areas of the manager, the involvement of the board of directors and the additional analysis related to the delegation of functions.

The public consultation on this Technical Guide ended on 15 October 2021, meaning its approval and final publication is expected before the end of the year.

¹ http://cnmv.es/DocPortal/DocFaseConsulta/CNMV/Guiatecnica_2021_2.pdf

3.2.1 Stress test

Stress tests are part of the supervisors' tools to contrast the degree of resistance of their supervised entities to a very adverse theoretical scenario. In the case of investment funds, stress tests are carried out in order to assess the capacity of these institutions to meet an extraordinary increase in redemptions. This capacity depends on the magnitude of the estimated redemption shock and the liquidity conditions of the assets in the fund portfolio. It therefore involves an assessment of the risk known as liquidity mismatch of investment funds, the most important from the point of view of financial stability for these institutions, where there is a possibility that the redemption profile is not sufficiently adjusted to the liquidity of the portfolio of these funds. This section summarises the most significant results of an exercise of this type on Spanish real estate funds carried out every six months by applying an approach that was initiated by ESMA (STRESI framework [ESMA, 2019])⁴⁹ and later expanded by the CNMV (see the work of Ojea, 2020).⁵⁰

Specifically, the CNMV designed a stress test for the sector comprising money market investment funds, undertakings for collective investment in transferable securities

49 ESMA (2019). *Stress Simulation for Investment funds*. ESMA Economic Report.

50 Ojea, J. (2020). "Quantifying uncertainty in adverse liquidity scenarios for investment funds". *CNMV Bulletin*, Quarter II, pp. 25-47.

(UCITS) and quasi-UCITS.⁵¹ The database used for the test was extracted from the confidential statements submitted by Spanish investment fund managers to the CNMV in its supervisory role. The granularity of the information contained in this database with respect to the type of unitholder, the composition of the fund portfolio, its category and volume of assets allows the funds to be classified into detailed and representative categories. In this case, the categories of investment funds are: i) wholesale public debt funds, ii) retail public debt funds, iii) investment grade corporate fixed income funds, iv) high yield corporate fixed income funds, v) mixed fixed income funds, vi) wholesale equity funds, vii) retail equity funds and viii) other investment funds (global and absolute return). The funds are then filtered, as detailed in Ojea (2020), so that those which could distort the simulation of the scenarios are eliminated from the sample. For instance, funds with portfolios containing unidentifiable assets that represent more than 40% of their total assets are eliminated (such as funds that mostly invest in other funds). Guaranteed funds are also eliminated from the sample because they penalise redemptions outside the pre-established liquidity windows.

Using the approach developed by the CNMV, the stress test was carried out on mutual funds with data from December 2008 to June 2021. This exercise provides three types of results: first, the proportion of liquid assets in the mutual fund portfolio is quantified, secondly, the funds that could experience difficulties in meeting redemptions in different adverse scenarios are identified and, finally, an estimate is made of the impact on financial markets derived from the sale of fund assets.

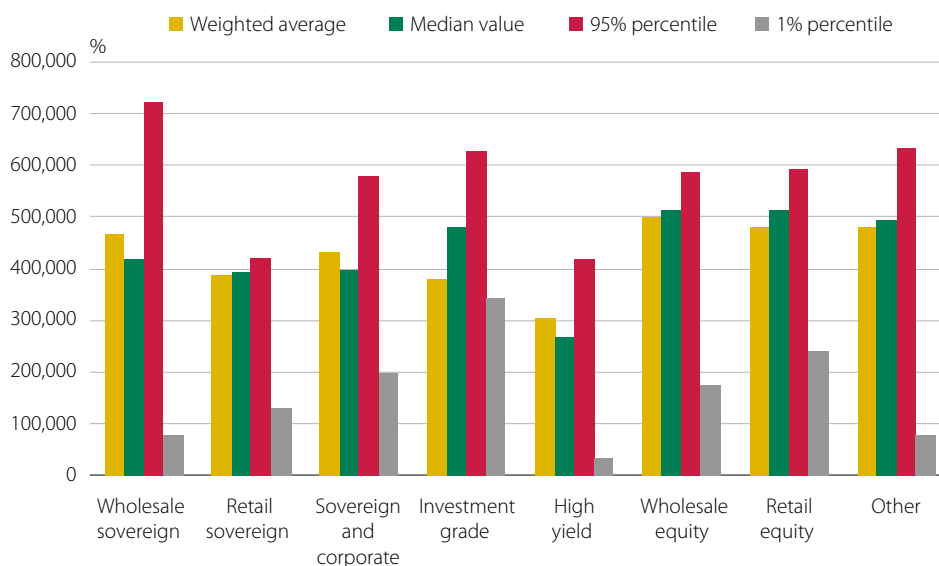
Figure 24 shows the proportion of liquid assets of the funds measured using the High Quality Liquid Assets (HQLA)⁵² approach by category, which defines the assets available to the funds in the event of a negative shock occurring in the next six months. The weighted average of liquid assets is between 30% and 50% of the funds' assets. Fixed income categories have the lowest liquidity ratios, especially high-yield corporate bonds, while equity and other categories have higher liquid asset ratios. It is also important to note that in all categories there is a certain percentage of funds that is well below the average. This is especially significant in the wholesale sovereign, other, and high-yield corporate bond categories.

51 Money market funds are those regulated by Regulation (EU) 2017/1131 of the European Parliament and of the Council, of 14 June 2017, on money market funds. UCITS are funds regulated by Directive 2009/65/EC of the European Parliament and of the Council, of 13 July 2009, on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities. In Spain, UCITS and quasi-UCITS are regulated by the Collective Investment Schemes Act 35/2003, of 4 November, and its implementing regulations, which transposes Directive 2009/65/EC into Spanish law. It is important to note that according to European regulations, most of the quasi-UCITS funds are considered as alternative investment funds (AIFs), which ESMA includes in the "Other" category. These alternative funds are regulated at a European level by Directive 2011/61/EU of the European Parliament and of the Council, of 8 June 2011, on alternative investment fund managers, amending Directives 2003/41/EC and 2009/65/EC and Regulations (EC) No. 1060/2009 and (EU) No. 1095/2010.

52 The HQLA approach measures the liquidity of the fund portfolio using an index that attributes to each asset class a degree of liquidity (a weight that can take values from 0 to 100) depending on its characteristics: $HQLA_i = \sum_{k=1}^n (w_{i,k} * s_{i,k}) * 100$. Where $w_{i,k}$ is the weight (degree of liquidity) of asset k of fund i and $s_{i,k}$ represents the proportion of that asset in the fund's portfolio. In other words, the HQLA index is a weighted average of the liquidity of the assets making up the fund portfolio. The attributed weights, $w_{i,k}$, correspond to those applied under Basel III.

Proportion of HQLA of investment funds by category

FIGURE 24



Source: CNMV.

The analysis, which considers different redemption shock scenarios for the various fund categories, reveals that the mutual fund market is largely resilient in the scenarios posited. As can be seen in Table 8, which represents the percentage of funds (and assets) within each category that could experience difficulties in meeting redemptions in different scenarios, there are only two categories in which some funds could experience problems of liquidity in all the scenarios contemplated: the category of high-yield corporate fixed income funds and that of wholesale sovereign fixed income.

In the most extreme refund scenario, referred to as Conditional Expected Shortfall or *CoES*⁵³ ($\alpha = \beta = \sqrt{0.4\%}$), in which, depending on the type of fund, the estimated redemption shock is between three and nine times higher than that registered in the worst week of the COVID-19 crisis in March 2020, ten funds out of a total of 408 could experience liquidity problems, representing 1.3% of the assets of the fund sample for the year. Of these, six belong to the category of high-yield fixed income funds (13% of funds and 6% of assets in this category), two funds are included in the “Other funds” category (2.2% of the funds and 12.3% of the assets of the category), one fund is retail sovereign fixed income (25% of the funds and 0.9% of the category’s assets) and a final fund is wholesale sovereign fixed income, which only represents 0.1% of this asset category.

53 *CoES* is defined as $CoES_{i|j}(\alpha, \beta) = \int_0^u F_i^{-1}(v) dv$, where $u = F_i^{-1}(CoVaR_{i|j}(\alpha, \beta))$ and F_i^{-1} is the inverse distribution function of variable i . In this context, *CoVaR* takes a value that fulfils the expression: $Pr(Net\ flow\ %_i < CoVaR_{i|j}(\alpha, \beta) | Net\ flow\ \%_i < VaR_j(\alpha)) = \beta$, where $VaR_j(\alpha)$ is the percentile α of net flows j that determines the severity of the conditional redemptions, while β is the percentile that determines the severity of redemptions conditional on the previous scenario. For example, for *CoES* ($\alpha = \beta = \sqrt{5\%}$), to calculate the redemption shock applied to the funds in each of the categories, the largest 22.36% ($\sqrt{5\%}$) of redemptions in each category have been taken into account selected at times when the largest 22.36% of redemptions occurred in the whole fund sector.

%

Number of funds with RCR¹ < 1 in each style/Total of funds in each style

Scenarios	Wholesale sovereign	Retail sovereign	Sovereign and corporate	Investment grade corporate	High yield corporate	Wholesale equity	Retail equity	Other
<i>ES</i> ($\alpha = 3\%$) ²	2	0	0	0	4.4	0	0	0
<i>CoES</i> ($\alpha = \beta = \sqrt{5\%}$)	2	0	0	0	2.2	0	0	0
<i>CoES</i> ($\alpha = \beta = \sqrt{3\%}$)	2	0	0	0	4.4	0	0	0
<i>CoES</i> ($\alpha = \beta = \sqrt{2\%}$)	2	0	0	0	4.4	0	0	0
<i>CoES</i> ($\alpha = \beta = \sqrt{0.4\%}$) ³	2	25	0	0	13	0	0	2.2

Assets of funds with RCR¹ < 1 in each style/Total funds in each style

Scenarios	Wholesale sovereign	Retail sovereign	Sovereign and corporate	Investment grade corporate	High yield corporate	Wholesale equity	Retail equity	Other
<i>ES</i> ($\alpha = 3\%$) ²	0.1	0	0	0	3.5	0	0	0
<i>CoES</i> ($\alpha = \beta = \sqrt{5\%}$)	0.1	0	0	0	2.2	0	0	0
<i>CoES</i> ($\alpha = \beta = \sqrt{3\%}$)	0.1	0	0	0	3.5	0	0	0
<i>CoES</i> ($\alpha = \beta = \sqrt{2\%}$)	0.1	0	0	0	3.5	0	0	0
<i>CoES</i> ($\alpha = \beta = \sqrt{0.4\%}$) ³	0.1	0.9	0	0	6	0	0	12.3

Source: CNMV.

- ¹ Defined as the ratio of liquid assets of each fund to the size of the redemption. Therefore, funds with an RCR < 1 are identified as those that could directly experience liquidity problems.
- ² This is the baseline scenario used in the stress test carried out by ESMA (2019). *ES* is the acronym of Expected Shortfall, a risk measure for expected redemptions considering only the largest redemptions that may arise. In this case, the largest 3% of redemptions is considered.
- ³ This is the most extreme scenario of the exercise: ten funds could present liquidity problems in this regard: One corresponds to the wholesale sovereign category, one to the retail sovereign category, six to the high-yield corporate category and two to the "Other" category.

The final result of this test is to estimate the impact on debt and equity market prices when funds are subject to adverse redemption scenarios. The results shown in Table 9 suggest that the impact is limited. Unsurprisingly, even in the most adverse scenario, *CoES* ($\alpha = \beta = \sqrt{0.4\%}$) and applying a pro rata settlement method,⁵⁴ it is estimated that equity asset prices would fall on average by 7.25 basis points (bp), investment grade private debt asset prices would fall by 8.14 bp, high yield private debt prices by 3.55 bp and public debt prices by 3.33 bp.

54 The pro rata or slicing settlement method consists of liquidating the assets of a fund in such a way that the proportion of each asset class in the portfolio is always maintained regardless of its total. This would be the most appropriate method to protect investors, unlike the cascade settlement method, whereby the most liquid assets are sold first.

Impact on asset prices in the securities markets

TABLE 9

Slicing approach (bp)

Scenarios	Public sector debt	IG corporate debt	HY corporate debt	Equity
<i>ES</i> ($\alpha = 3\%$) ¹	1.54	3.08	1.23	3.6
<i>CoES</i> ($\alpha = \beta = \sqrt{5\%}$)	1.22	2.36	0.92	2.84
<i>CoES</i> ($\alpha = \beta = \sqrt{3\%}$)	1.5	3	1.2	3.49
<i>CoES</i> ($\alpha = \beta = \sqrt{2\%}$)	1.76	3.66	1.51	4.09
<i>CoES</i> ($\alpha = \beta = \sqrt{0.4\%}$)	3.33	8.14	3.55	7.25

Source: CNMV.

¹ This is the baseline scenario used in the stress test carried out by ESMA (2019). *ES* is the acronym of Expected Shortfall, a risk measure for expected redemptions considering only the largest redemptions that may arise. In this case, the largest 3% of redemptions is considered.

