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**DETAILED ANALYSIS OF THE  
PORTFOLIOS OF FRENCH MONEY  
MARKET FUNDS DURING THE  
COVID-19 CRISIS IN EARLY 2020**

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AUTORITÉ  
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The health crisis caused by the Covid-19 pandemic had (and is still having) serious consequences for citizens, governments, businesses and the financial sector. Very short-term cash requirements and numerous uncertainties led, in France and elsewhere, to a wave of very substantial redemptions in March 2020 affecting the money market funds (MMFs)<sup>1</sup> that were most heavily exposed to corporate debt (as opposed to sovereign debt). The mechanisms at work on the global level have been diagnosed under the supervision of the International Organization of Securities Commissions (IOSCO). In this study we contribute new and original information by analysing specifically the French market for money market funds, and in particular the distortion of their portfolios during the first four months of 2020 (January-April). To do so, we combine the daily supervision data received by the AMF with the detailed database of funds' portfolios, collected monthly by the Banque de France (fund by funds and security by security).

Following a rapid overview of the French MMF market (structure, orders of magnitude, specific features – we show in particular that, in normal times, and contrary to other European jurisdictions, French MMFs are characterised by a significant quarterly cyclicity of flows, with redemptions before the end of quarter) and a chronological recap of the crisis, we present the results from the portfolio analysis.

Our main findings concerning the aggregate portfolios are as follows:

- The greatest part of the portfolio of French MMFs consists of securities issued by the financial sector, and these securities were sold by priority to meet redemptions, leading to a distortion of the portfolio to the benefit of cash and sovereign bonds. Before the crisis (in January/February 2020), non-financial companies accounted for slightly more than 20% of MMF assets, while the financial sector represented close to two-thirds. The surges in redemptions in March 2020 distorted the portfolio of MMFs: the proportion of financial sector securities decreased to just over half of the MMFs' assets, being replaced by cash, which increased from 10% to 21% between January and April 2020. The proportion accounted for by non-financial companies, for its part, remained stable at slightly more than 20% throughout the period. The proportion of sovereign bonds, normally marginal (around 2% of assets), increased to 5% in April. French government bonds were one of the rare items that increased (in both absolute and relative terms) on the balance sheet in March.
- Within the financial sector, it was chiefly the proportion of bank securities that contracted: they represented 36% of MMF assets post-crisis, versus more than 48% before the crisis. This decline was concentrated on banks having a French parent company.
- The data collected between January and April 2020 do not show an investment bias of MMFs depending on the banking group to which their asset management company belongs (a theoretical bias mentioned by certain authors). The proportion of an MMF's investment in the bank of the group to which its fund manager belongs is no more significant than in other banks. The crisis did not change this.
- Overall, the proportion of assets of less than one-year maturity (cash included) remained stable over the period (about 90%). However, the proportion of cash and securities of less than one-month maturity increased at the expense of longer-dated securities, and especially securities of between 6 and 12 months maturity. There was clearly cash hoarding during the crisis: fund managers no doubt kept cash on hand in case of possible further redemptions. Moreover, the sector composition of longer-dated securities (more than 12 months maturity) was profoundly altered (there was a major reduction in financial-sector securities, to the benefit of French government bonds).
- We propose a method for breaking down portfolio fluctuations into divestments and securities reaching maturity. By our assumptions, the €53 billion decline in assets under management (securities portfolio + cash) in March 2020 comprised €42 billion in securities reaching maturity, €56 billion in active sales (as opposed to reaching maturity) and €27 billion in purchases of new securities. These combined flows yield a €72 billion total net reduction in securities in the portfolio (42+56-27, the residual being attributable to rounding), while MMFs' cash holdings increased by €19 billion (72-53), providing further evidence of cash hoarding.

A further analysis carried out on the sample of 15 French MMFs which each accounted for a total of more than €1 billion in redemptions in March highlights a more pronounced initial exposure to bank securities and a longer liquidity profile than for the population as a whole.

When the portfolio data are available, this work could be taken further, to examine the phase of continuous net inflows to money market funds since May 2020, so that by end-December 2020 French MMFs exceeded €410 billion.

<sup>1</sup> Between 9 and 12 March, the total net assets of French MMFs were around €369 billion, before a series of twelve consecutive days of net redemptions (until 30 March), for a cumulative total of €48.6 billion.

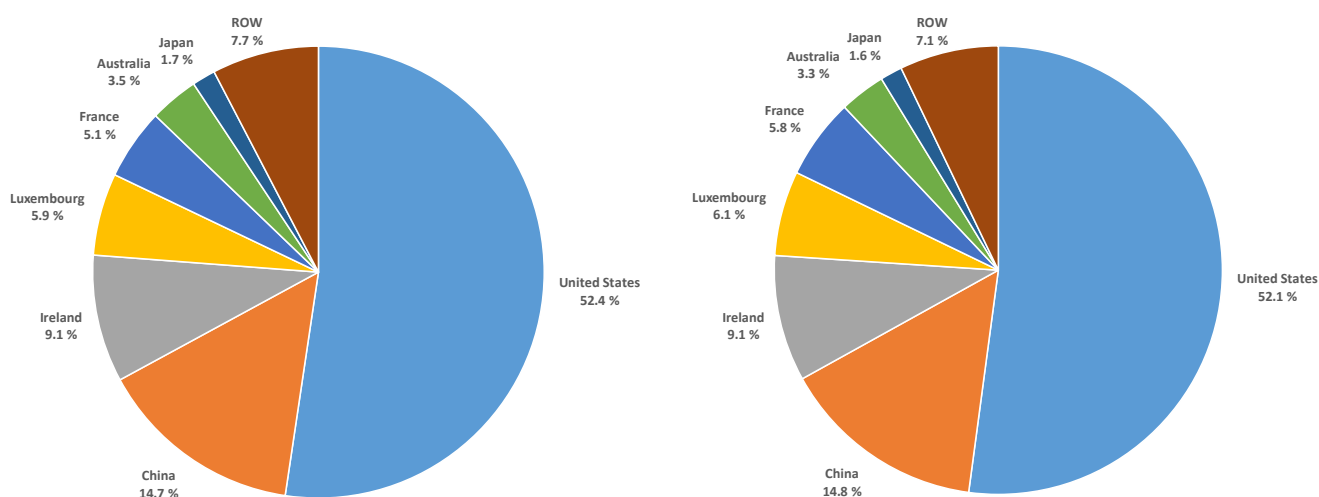
## INTRODUCTION

Money market funds (MMFs) are collective investment undertakings (CIUs) investing in portfolios of very short-term debt securities which may be issued by governments (e.g. US T-bills), public authorities, banks (certificates of deposit ("CDs")) and other types of non-financial companies (corporate paper ("CP")). They may also buy longer-maturity debt securities such as bonds (provided that the residual maturity is short) and enter into reverse repo agreements. Through their asset investments, MMFs therefore make a significant contribution to financing the short-term debt of economic agents.

The fund units that they issue (their liabilities) are generally considered as "cash equivalents": they are highly liquid and the underlying assets are diversified and of high quality. MMFs are generally used by their investors for placing short-term cash holdings, as a substitute for unremunerated bank deposits. In fact, money market funds offer a short-term investment instrument that is not very remunerative but is also relatively low-risk (the value of the units fluctuates very little, and the yield is in line with the overnight rate).

MMFs can thus allocate the excess cash holdings of some businesses to meet the short-term funding requirements of other entities.

**Figure 1 – Global MMF market  
at end-2019 (left-hand, €6,175 billion) and end-2020 (right-hand, €6,776 billion)**



Source: EFAMA

At the end of 2019 (just before the crisis), the global MMF market had total net assets of €6,200 billion, representing 13% of the global collective investment management industry. Figure 1 on the left shows that this is a relatively concentrated market in terms of fund domiciliation: only seven jurisdictions exceeded the threshold of €100 billion in MMFs (by decreasing order of size: the United States, China, Ireland, Luxembourg, France, Australia and Japan). These seven jurisdictions accounted for 92% of the global total (52% for the United States alone).<sup>2</sup> These findings were not altered by the crisis (cf. Figure 1 on the right).

In the decade following the 2008 crisis, MMFs underwent fundamental structural reforms: first in the United States, with the SEC reform of 2014 (Securities and Exchange Commission, [Money Market Fund Reform](#), coming into full force on 14 October 2016) and in Europe with the MMF Regulation of 2017 ([Regulation \(EU\) 2017/1131](#), which came into force on 21 July 2018).

<sup>2</sup> Source: [EFAMA, International Statistical Report, Q4 2019](#).

These two major reforms greatly strengthened the MMF market. And yet, in the context of the Covid-19 pandemic, money market funds were the focus of huge reallocation movements. Some investors needed to unlock their cash to cope with the crisis (urgent expenses, margin calls) and therefore redeemed MMF units. Others simply carried out huge arbitrage operations on their cash investments in a context of great uncertainty ("flight to safety", or "dash for cash"): they therefore pulled out of corporate bond MMFs and replaced them with sovereign bond MMFs (regarded as safer) or even bank deposits (more liquid). Although all the European money market funds were able to honour their redemptions, some recorded extremely spectacular record outflows. In March, for example, certain Irish and Luxembourg fund categories lost more than 25% of their assets under management (IOSCO, 2020). In France, the scale of money market fund redemptions was similar to what the sector had incurred during the 2008 crisis (15% of AUM between 12 March and 25 April).

Along with redemptions on the liability side, money market funds had to cope with the *de facto* illiquidity of money market instruments (very short-term debts, hence conventionally kept in the portfolio until maturity, and not having a very deep secondary market). However, some bank issuers intervened to buy back their certificates of deposit (thus acting as market-makers in the secondary market for their own securities), and the extension of the repurchase programmes of the US Federal Reserve and the European System of Central Banks to certain short-term corporate securities was finally able to stabilise the situation.

In November 2020 the IOSCO published a [thematic note](#) presenting the initial findings concerning the March/April episode for money market funds, on the global level. This very rich analysis benefited from exhaustive data provided by the market authorities of the main domiciliation locations of money market funds, and in particular the US regulator and the regulators of the three main European MMF domiciliation jurisdictions (Ireland, Luxembourg and France).

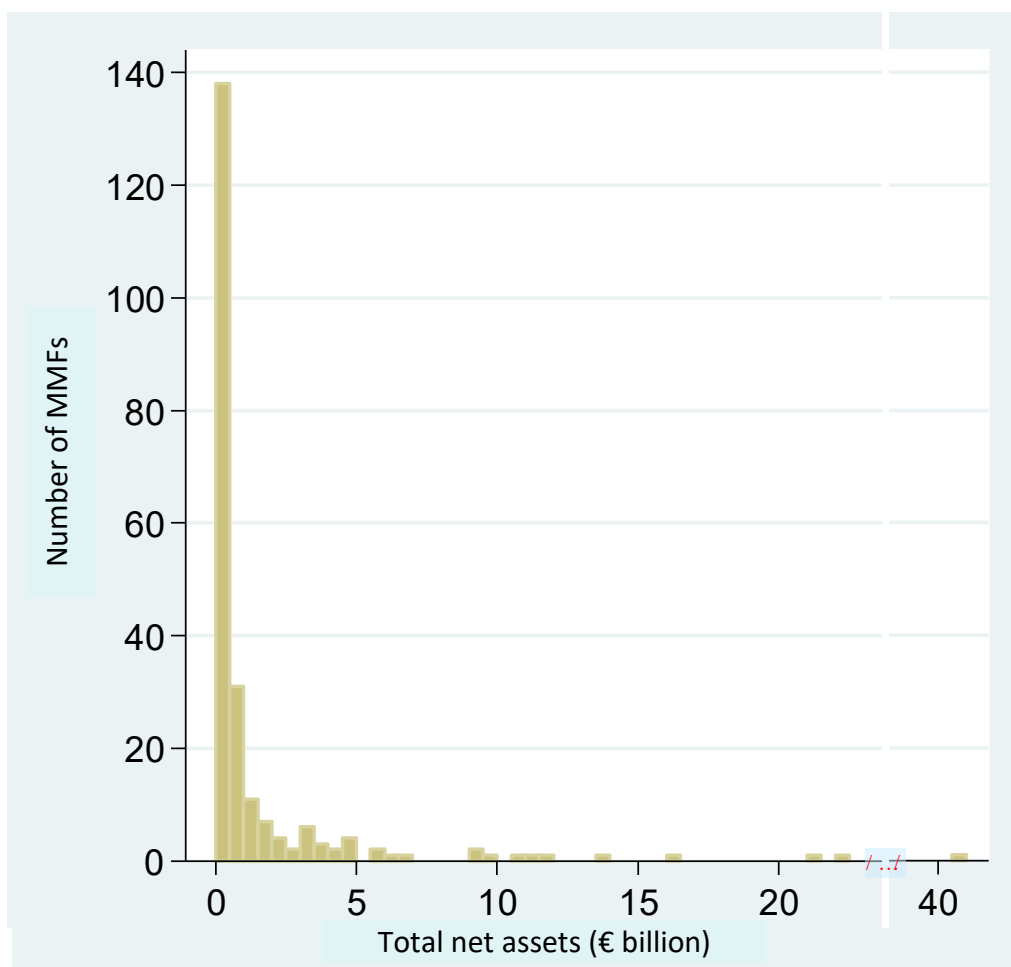
The present note focuses on the French MMF market, and more specifically on the first four months of 2020. Readers interested in the global aspect of the crisis may usefully refer to the IOSCO's note.

## 1. STRUCTURE AND SPECIFIC FEATURES OF THE FRENCH MMF MARKET BEFORE THE CRISIS

As at 31 December 2019, the AMF counted 221 French MMFs (466 separate fund share classes with non-null net assets), having cumulative net assets of €334.1 billion. The net assets of the biggest fund amounted to €40.7 billion, compared with €246,000 in net assets for the smallest one. The breakdown of market share among the various funds is very unequal ("Gini"<sup>3</sup> type index of 0.83).

Figure 2 below shows the distribution of French MMFs according to their amount of net assets.

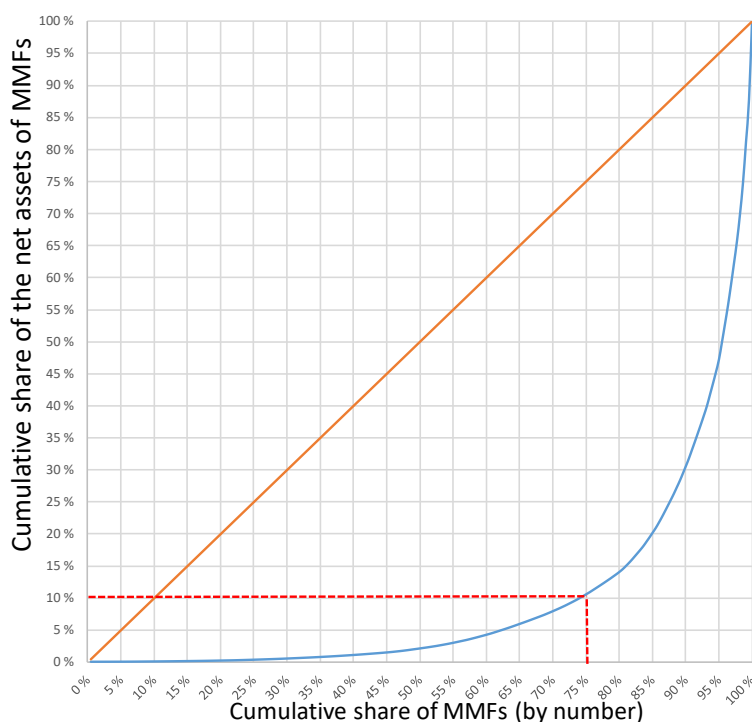
Figure 2 – Bar chart of French MMFs by size buckets (amount of net assets, as at 31/12/2019)



Source: AMF, BIO database

<sup>3</sup> The Gini Index was initially developed to quantify the income equality/inequality of a given population. An index of 1 corresponds to a society in which one person concentrates all the income while the rest of the population receives nothing. Conversely, an index of 0 indicates the same level of income for all individuals. The Gini coefficient can be calculated in other situations to measure concentrations of market share, for example.

Figure 3 – "Lorenz" type curve for French MMFs as at 31/12/2019



Source: AMF, BIO database

NB: The smallest 75% French MMFs account for only 10% of the sector's total net assets.

The 221 French MMFs are spread over 38 asset management companies (AMCs), here again of very diverse sizes: the leading AMC had 36 funds with cumulative net assets of €97.5 billion, while the smallest AMC managed only a single fund having €1.8 million in net assets. The 10 biggest AMCs together account for 87% of the market ("Gini" type index of 0.72).

As regards the legal framework, French money market funds are exclusively variable net asset value (VNAV) funds.<sup>4</sup> Among other regulatory obligations, VNAV funds must constantly maintain a ratio of daily maturing assets above 7.5% and a ratio of weekly maturing assets above 15%.<sup>5</sup>

VNAV funds can also be subdivided into two types: short-term and standard. Short-term VNAV funds must provide evidence of a weighted average maturity (WAM) of at most 60 days and a weighted average life (WAL) of at most 120 days.<sup>6</sup> For standard VNAV funds, the WAM and WAL may not exceed 6 and 12 months respectively.<sup>7</sup>

<sup>4</sup> The European MMF Regulation authorises other types of money market funds which exist in other jurisdictions: constant net asset value (CNAV) MMFs and low volatility net asset value (LVNAV) MMFs. These two types of funds, inevitably "short-termist", use the amortised cost method, which enables them to offer a constant net asset value. CNAV funds must invest more than 99.5% of their assets in securities of sovereign issuers, whereas LVNAV funds can invest in corporate securities. For more details concerning the European regulatory framework, see [AMF \(2018\). Questions and Answers on money market funds – Guide for asset management companies, November 2018.](#)

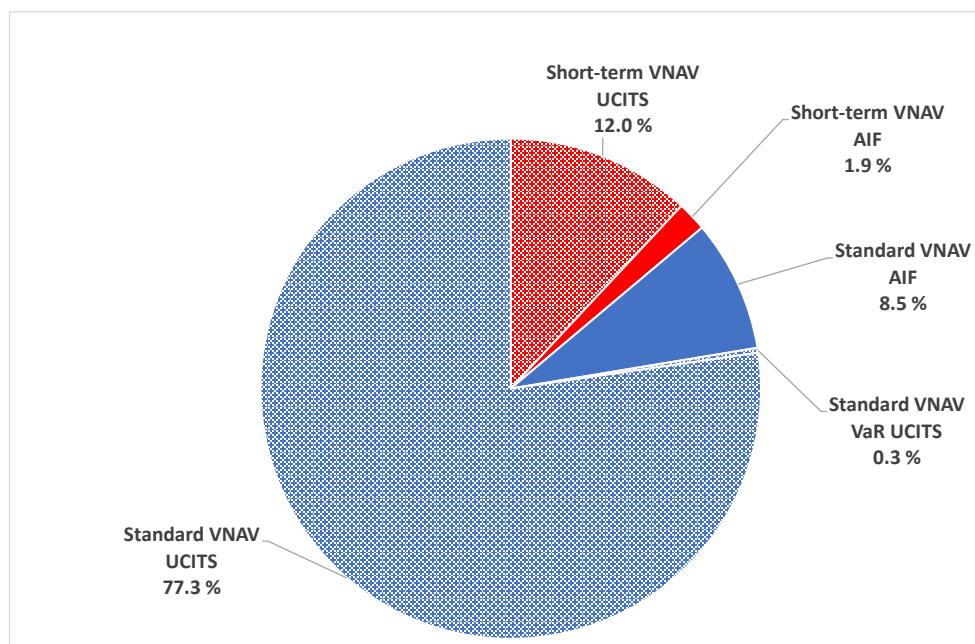
<sup>5</sup> These buffers consist of assets having a daily (weekly, respectively) maturity and reverse repo agreements which can be terminated with a prior notice of one trading day (five trading days, respectively) and liquid assets that can be withdrawn with a prior notice of one trading day (five trading days, respectively). On certain conditions relating to their residual maturity and the sale time, monetary government debt instruments, money market instruments and money market fund units may constitute part of the weekly buffer. See [AMF \(2018\). Questions and Answers on money market funds – Guide for asset management companies, November 2018.](#)

<sup>6</sup> WAM and WAL are defined in Article 2 (19° and 20°) of the [MMF Regulation](#): the WAL is "the average length of time to legal maturity of all of the underlying assets in the MMF reflecting the relative holdings in each asset"; the WAM is "the average length of time to legal maturity or, if shorter, to the next interest rate reset to a money market rate, of all of the underlying assets in the MMF reflecting the relative holdings in each asset." The difference between the two concepts, therefore, lies in the consideration of interest rate resets.

<sup>7</sup> For more details concerning the requirements applicable to the various types of MMF, refer to [AMF \(2018\). Questions and Answers on money market funds – Guide for asset management companies, November 2018.](#)

In terms of net assets, as at 31 December 2019, 86% of French MMFs were of the standard type (€288 billion), versus 14% of the short-term type (€46 billion). At the same date, 90% of the net assets of French MMFs were managed through UCITS (€299 billion), versus 10% for AIFs (€35 billion). The following chart shows the market structure of French MMFs according to a twofold breakdown (short-term funds in red vs standard funds in blue; funds subject to the UCITS Directive dotted vs funds subject to the Alternative Investment Fund Managers (AIFM) Directive solid).

Figure 4 – Legal structure of the French MMF market as at 31/12/2019



Source: AMF, BIO database

To summarise, French money market funds are all VNAV funds, with 90% UCITS and more than 85% standard funds. Moreover, of the €34.9 billion in money market AIFs counted at the end of 2019, the 107 money market funds in employee savings schemes (FCPEs) accounted for €20.0 billion (57%).<sup>8</sup> More than 93% of money market FCPEs were of the standard type.<sup>9</sup>

Lastly, the fund share classes of French MMFs are almost all denominated in EUR: as at 31 December 2019, there were only 9 fund share classes denominated in USD (distributed among 6 different funds).<sup>10</sup> These USD-denominated fund share classes represent cumulative net assets of €840 million, or 0.3% of the total net assets of French MMFs.<sup>11</sup>

<sup>8</sup> Reminder: In France, all employee savings scheme funds are AIFs and are subject to the AIFM Directive (there can therefore not be any employee savings scheme UCITS). [See AMF website](#). For information's sake, these 107 funds correspond to 131 separate fund classes reporting non-null net assets at 31 December 2019.

<sup>9</sup> NB: Money market FCPEs are one of the causes of the differences noted between the [statistics published by Banque de France](#) and the AMF statistics. In the AMF's view, money market funds are defined with reference to their authorisation in accordance with the European MMF Regulation. The money market funds of employee savings schemes have received this authorisation and are therefore fully included in the statistics on MMFs. However, Banque de France excludes money market FCPEs from its "money market fund" statistics, because it applies criteria of eligibility for money supply aggregates. For Banque de France, money market funds are "Monetary and Financial Institutions" and their assets form part of the composition of the national money supply. But due to the lock-up periods for employee savings scheme plans, money market FCPEs cannot be included in the money supply. Therefore, in accordance with the European statistical regulations, they are excluded from the statistical series of money market funds.

<sup>10</sup> For about fifty money market fund classes, the "benchmark currency" variable has been left blank in the BIO database. A manual search in the prospectuses confirmed that all these fund classes are indeed denominated in EUR (benchmark currency or currency for calculation of past performance).

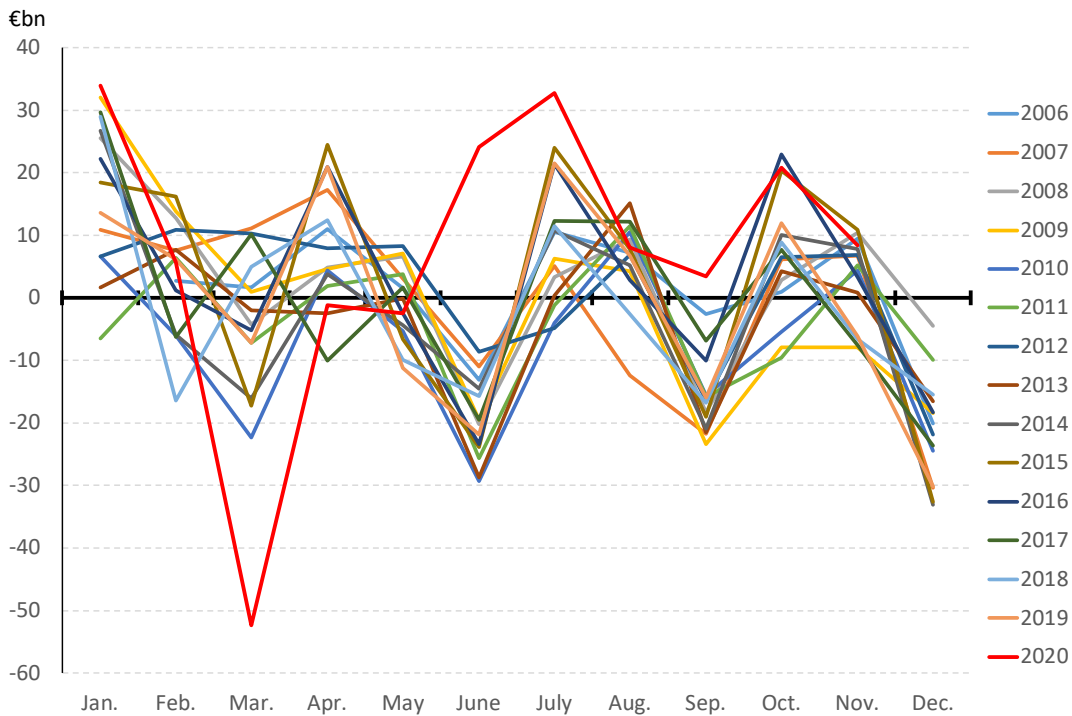
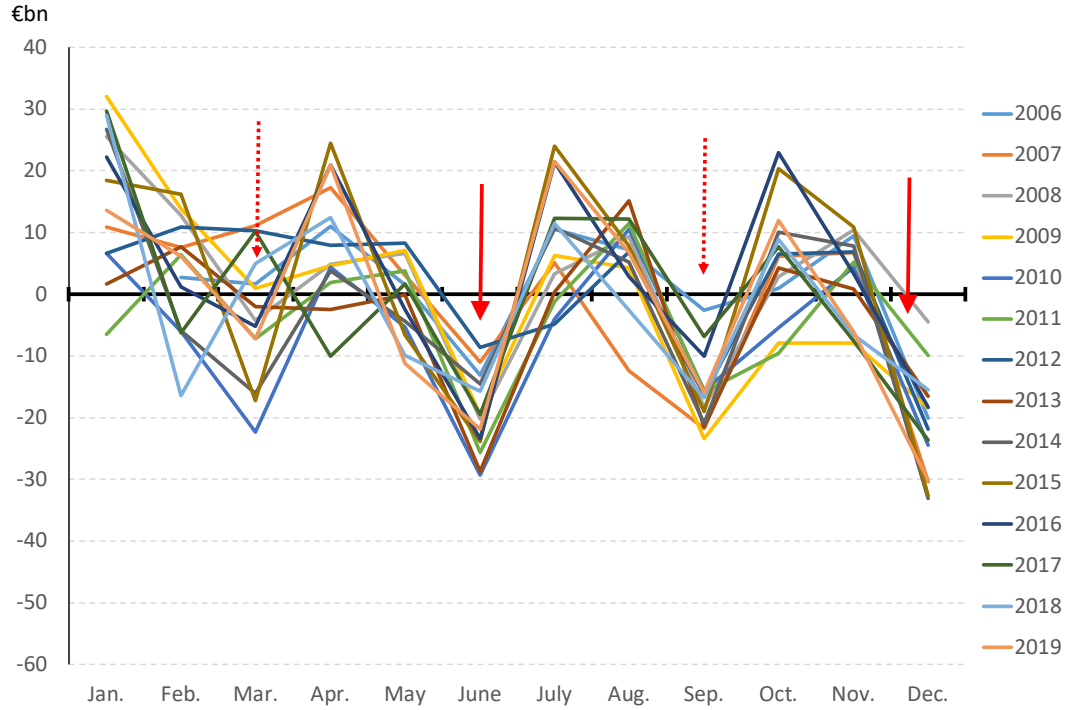
<sup>11</sup> NB: The currency is defined on the fund share class level and not necessarily on the fund level. Thus, a given fund may consist of a euro-denominated fund share class and a dollar-denominated fund share class.



As was mentioned in the introduction, money market funds are largely used by investors (non-financial companies, insurers, etc.) as an investment vehicle for their short-term cash holdings. This use for liquidity management results in a high quarterly cyclical nature of aggregate net subscription and redemption flows (cf. Figure 5, dotted red arrows and thick red arrows in the top chart): cash is sometimes invested throughout the quarter and withdrawn just before end-of-quarter accounting closing to be presented as such in the balance sheet. Withdrawals are traditionally slightly more pronounced at the June and December maturity dates (i.e. end of half-year and end of year, thick red arrows in the top chart). The high cyclical nature of French MMFs is apparently atypical in Europe: the figures published by the [Central Bank of Luxembourg](#) and the [Central Bank of Ireland](#) do not show a similar pattern in these two jurisdictions (see Annex 1). This difference specific to France raises questions, suggesting differences in the MMFs' investor base and/or differences in the way investors use MMFs from one jurisdiction to another. A better understanding of investor behaviour (i.e. of movements on the liability side for funds) is needed to gain a better idea of its consequences for the MMF market.

The bottom chart underscores the atypical nature of 2020 compared with the cyclical nature traditionally observed, with redemptions at the end of the first quarter corresponding to more than double the historical maximum for a month of March.

**Figure 5 – Net monthly subscriptions (+) and redemptions (-) in French money market funds (traditional cyclicity at the top, superposition of the 2020 case at the bottom)**



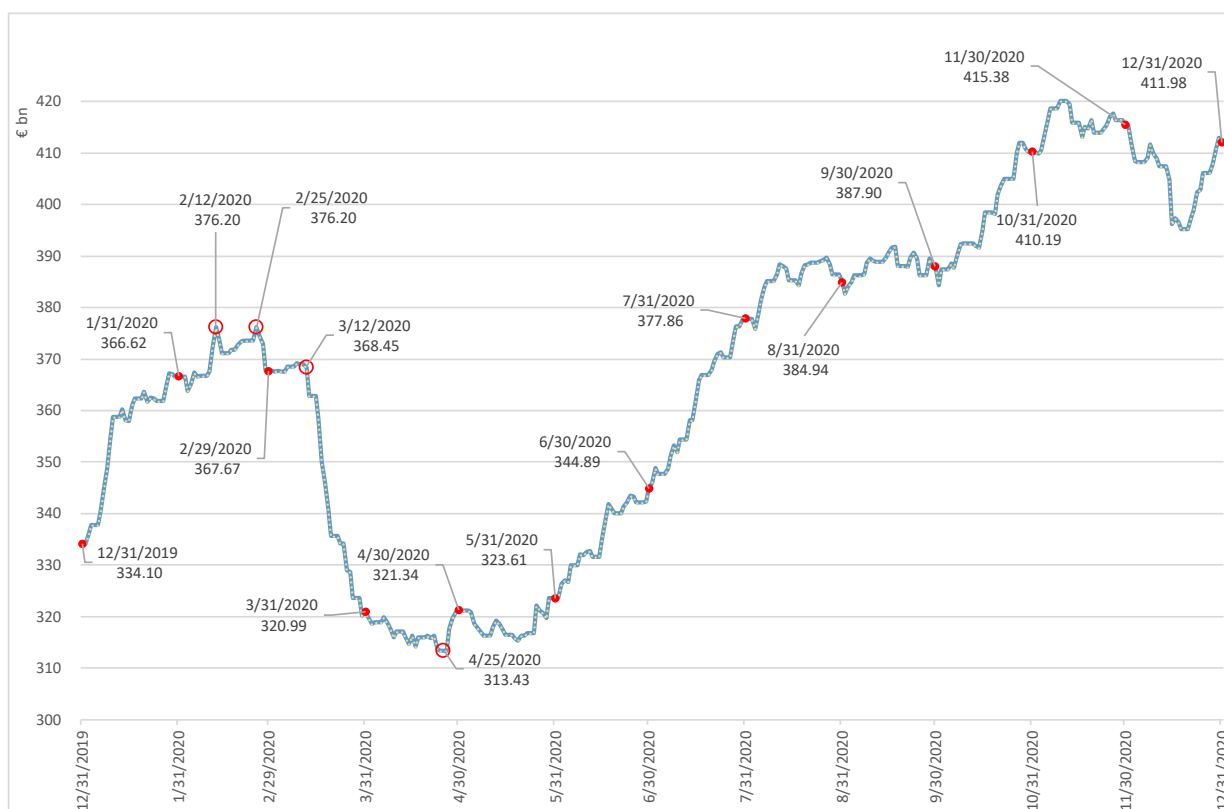
Source: Banque de France, Performance of CIUs

## 2. COVID-19 CRISIS AND AVAILABLE DATA

The AMF supervision data (BIO) make it possible to monitor changes in the net assets of French money market funds with a daily frequency and on an individual basis (on the fund share class level). This database is exhaustive over the AMF's scope of competence (unlike the information available from data vendors). The detailed data can of course be aggregated to analyse the total net assets of the French MMF sector practically in real time (at D+2). Figure 6 shows the scale of the surge in redemptions recorded in the second half of March. After exceeding €375 billion on 12 and 25 February 2020, French MMFs ended the month with €367.7 billion in net assets. Between 9 and 12 March, their total net assets were around €369 billion, before a series of twelve consecutive days of net redemptions (until 30 March), for a cumulative total of €48.6 billion. As a comparison, French MMFs experienced a surge in redemptions of a similar order of magnitude (in absolute terms) to that recorded during the 2008 crisis, except that it was concentrated over two weeks in 2020, as against two quarters in 2008.

Ultimately, between the plateau ending on 12 March and the trough of 25 April, French MMFs posted a total €55.3 billion in net redemptions (for a loss of value of "only" €276 million). Since May 2020, on the other hand, French MMFs have enjoyed positive net inflows which enabled them to regain their pre-crisis net asset levels at end-July and exceed €410 billion in net assets at the end of the year.

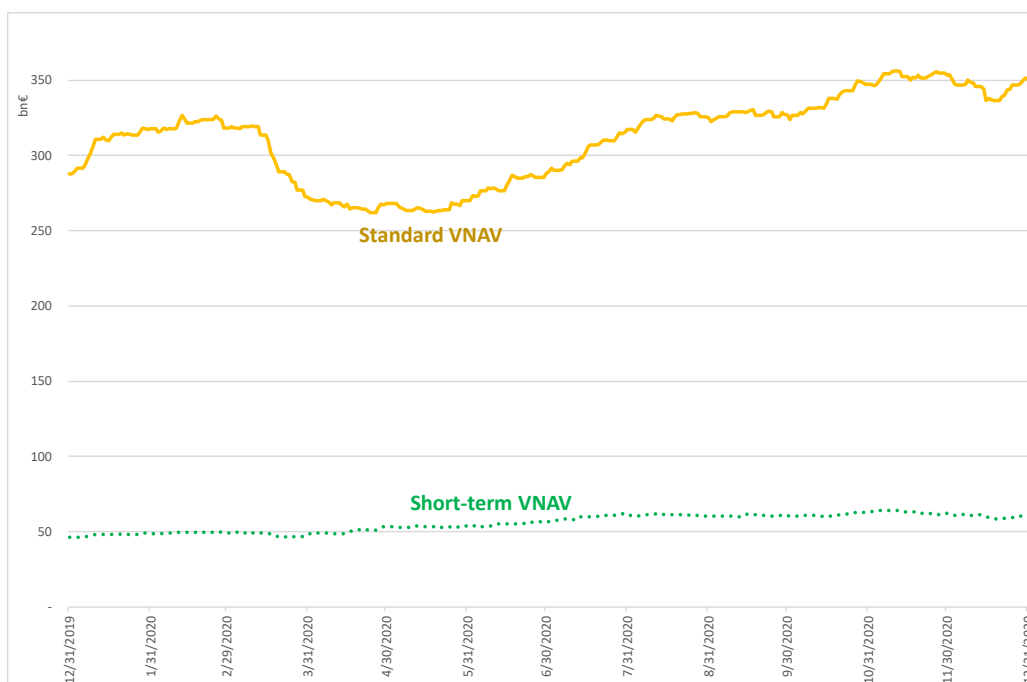
Figure 6 – Change in cumulative net assets of all French MMFs (in EUR billion)



Source: AMF, BIO database

The fund outflow (and post-crisis recovery) movements mostly concerned standard VNAV MMFs, as opposed to short-term VNAV funds. From 12 to 31 March, the net assets of short-term VNAV funds declined from €49.1 billion to €48.6 billion (-1%), with a low of €46.4 billion on 25 March. In the same period, standard VNAV funds lost 14.7% (€47.0 billion).

Figure 7 – Change in net assets of French MMFs: standard vs short-term VNAV funds (in EUR billion)



Source: AMF, BIO database

Moreover, the details of the portfolios of French funds are collected each month by Banque de France ("[Collecte OPC](#)" [only in French]). The "OPC-titre" database resulting from this collection lists all the ISIN-coded securities held by each fund (security by security, fund by fund). The database also contains some non-standardised information on derivatives and on securities lending and borrowing.

Unlike for the BIO database, this data is collected at the fund level and not the fund share class level: the first step towards reconciliation of the databases is therefore to aggregate the AMF data at the fund level.

Moreover, it turns out that the fund identifiers are not necessarily consistent from one source to another: all the funds do not have an ISIN code (this is the case, in particular, for FCPEs for which non-standardised codes are then used) and, in the case of funds containing several classes (which each have a separate ISIN code), the code assigned to the fund based on the ill-defined concept of the "main fund share class" may differ between Banque de France and the AMF. Substantial reconciliation work must therefore be performed.

Lastly, the universes associated with the concept of "money market funds" are not exactly identical: we have already seen that Banque de France excludes money market FCPEs, which we therefore had to search for in the "other funds" category to reinstate them. We also had to manually remove four Monegasque money market funds (included in the Banque de France universe for the national accounts, but which are not governed by French law). Finally, we corrected a few classification errors.

Ultimately, in the universe of 221 French MMFs authorised by the AMF, it was possible to find the portfolios of 209 funds in the "OPC-Titre" database of Banque de France (99.9% in terms of net assets).<sup>12</sup>

Finally, it was possible to retrieve, from Banque de France, data relating to the balance-sheet items of French investment funds. We were thus able to add to the ISIN-coded securities in the portfolio the data corresponding to cash holdings for 206 money market funds (out of the 209 of the previous sample).<sup>13</sup>

<sup>12</sup> The 12 missing funds are 11 standard money market FCPEs and one standard money market UCITS. These missing funds represented cumulative net assets of €286 million at 31/12/2019, or less than 0.1% of the total net assets of French MMFs at that time.

<sup>13</sup> The corresponding balance-sheet item is "A20" - *Deposit and loan claims* - on the "asset" side of the balance sheet.

### **3. ANALYSIS OF AGGREGATE MONEY MARKET FUND PORTFOLIOS**

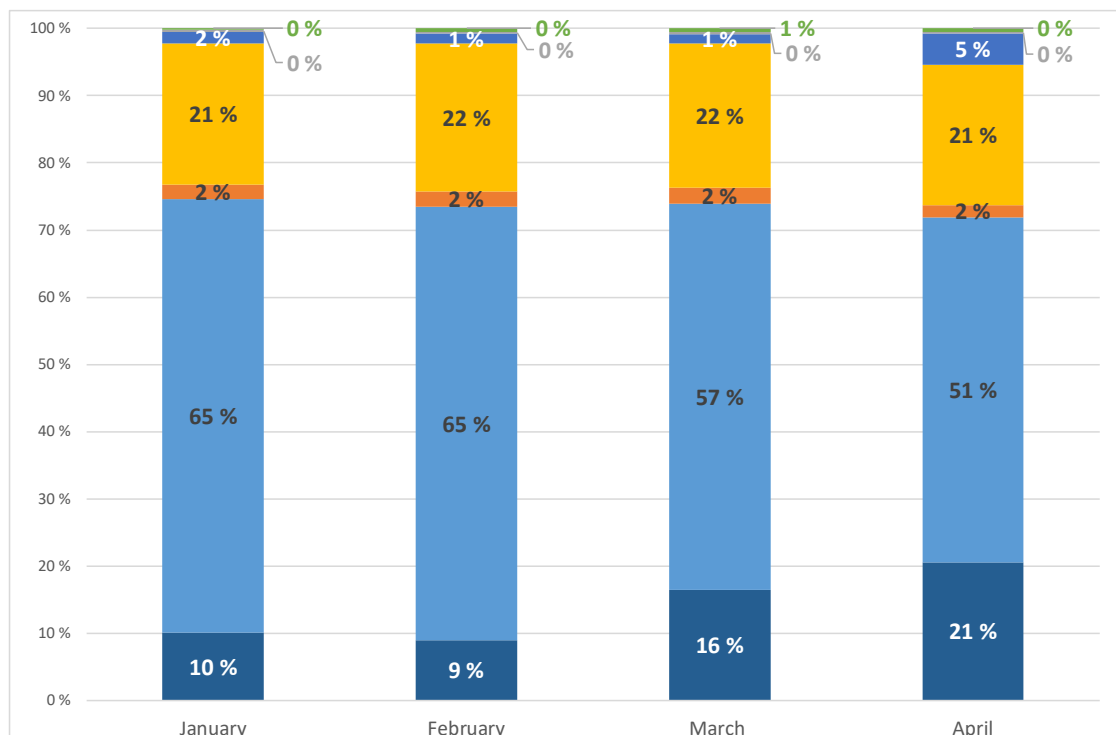
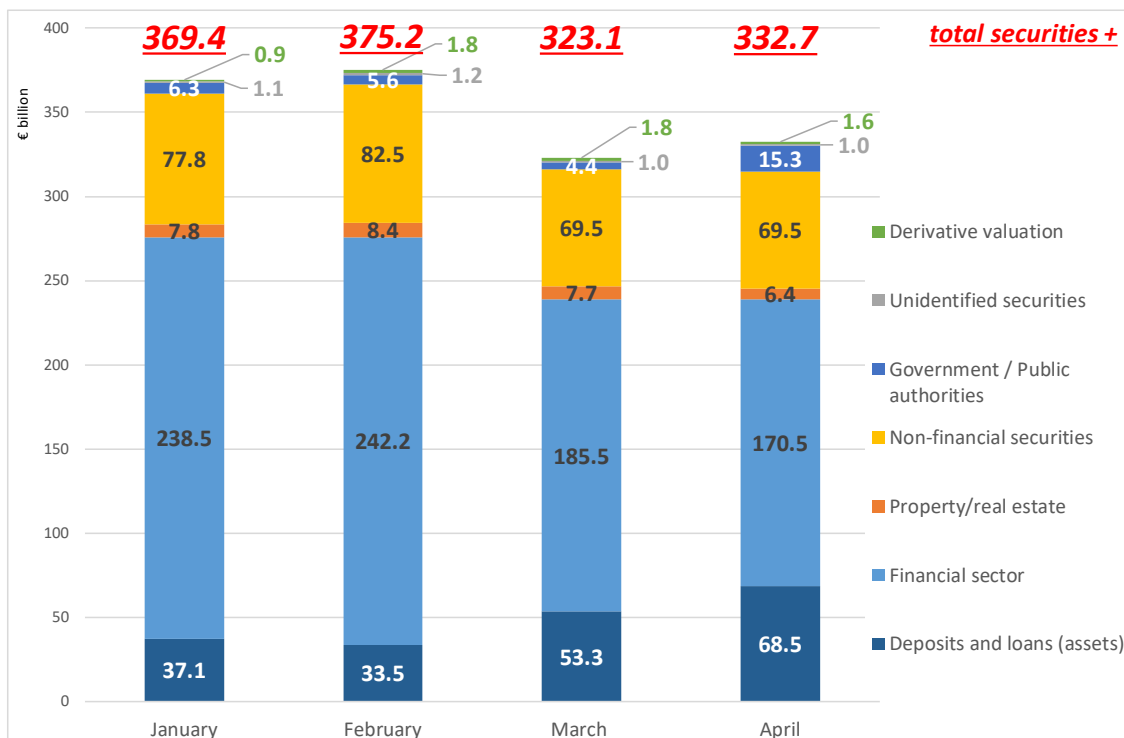
In this section, we propose describing the aggregate portfolio of all the 209 money market funds identified (206 for the "deposit and loan claims" item on the balance sheet) and its changes in the first four months of 2020, particularly between the end of February and the end of March, in which most of the observed redemptions from French MMF are concentrated. For each of the 7,548 unique ISIN codes in the portfolio of the 209 MMFs, we searched for the security's characteristics (issuer, sector, nationality, type of security, maturity).

#### **3.1. ANALYSIS BY ISSUER SECTOR**

With a few exceptions (17 ISIN codes that could not be found and 65 pseudo-ISIN codes associated with derivatives), we were able to identify precisely all the security issuers in the portfolio. We produced a reclassification of all the securities by sector of activity: the classifications provided by Banque de France and the various data vendors (Bloomberg, Eikon) did not always coincide, and we preferred to adopt a standardised classification. We paid special attention to the distinction between financial and non-financial entities. In particular, we considered that subsidiaries dedicated to the issuance of financial securities on behalf of an industrial parent company came under the industrial sector. Conversely, the securities issued by financial subsidiaries distributing credit to customers of the parent company (e.g. automotive leasing) were considered as belonging to the financial sector (lending). Other more detailed classifications were added to distinguish between various manufacturing sectors for example.

### 3.1.1. Overall change in the portfolios of French MMFs

Figure 8 – Change in the net asset mix of French MMFs by issuer sector in absolute amounts (top) and relative amounts (bottom)



Source: Banque de France ("OPC-Titres" database, "OPC-Bilan" database), AMF calculations

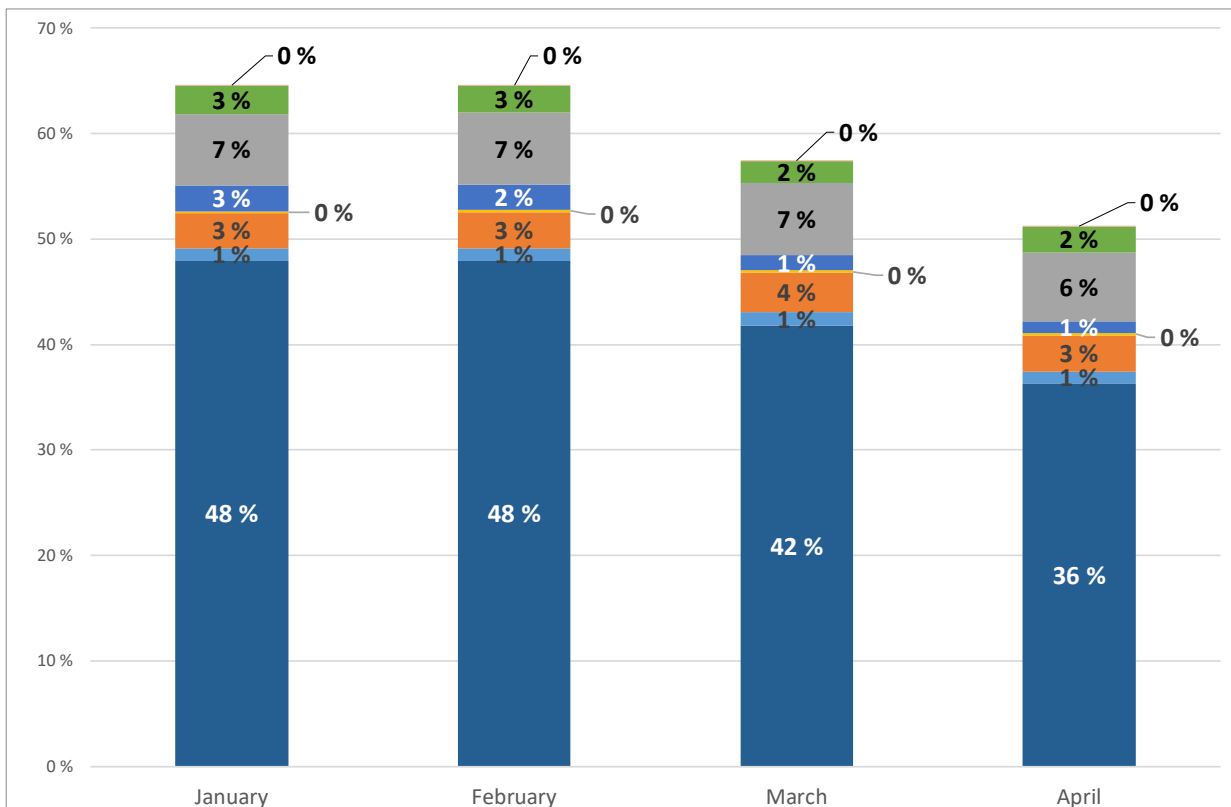
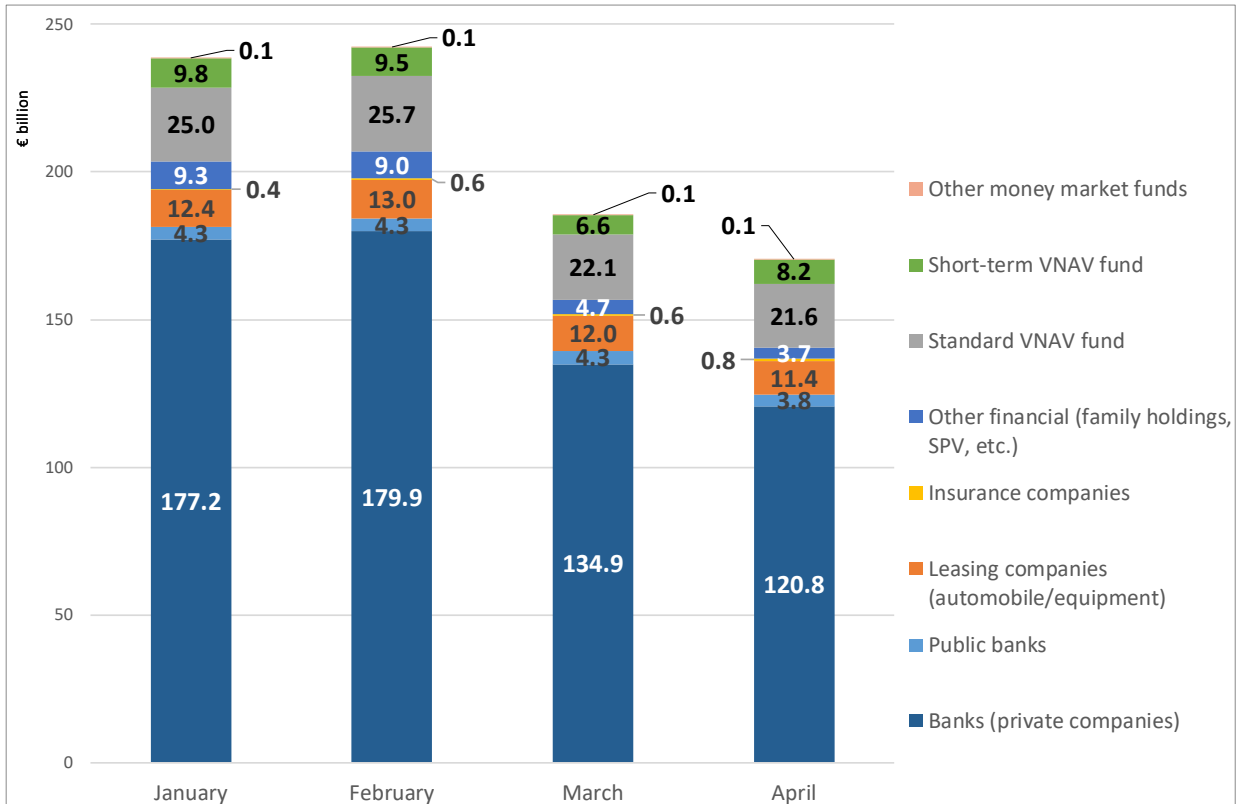
This initial analysis allows us to make a few preliminary remarks:

- First, we note that the totals for the securities portfolio and cash do not fully correspond to the amounts of net assets present in the AMF databases, even when we confine ourselves to the same universe. At the end of February, the AMF counted net assets of €367.7 billion (€367.5bn for the 209 MMFs found in both databases), whereas the OPC databases of Banque de France counted a total of €375.2 billion in securities/cash). Likewise, whereas the AMF counted €321.0 billion in net assets at end-March (€320.8 billion for the 209 MMFs in common), the Banque de France "securities + cash" total amounted to €323.1 billion. Apart from the fact that the "cash" item is missing from the balance sheet for three funds, bear in mind that the concept of total net assets (defined as the value of one fund unit, or net asset value, multiplied by the number of units issued) is not exactly equivalent to the sum of the portfolio securities (the assets under management, or AUM). Other accounting items not examined here can be taken into account: material differences could, for example, be due to provisions for management and performance fees in particular. Lastly, certain reporting time lags for transactions performed near the last trading day of the month could account for part of the differences detected.
- Between the end of February and end-March, Banque de France recorded a variation of -€52.1 billion in the total "portfolio + cash". The AMF databases point to a variation of -€46.7 billion (on the common universe of 209 funds), broken down into €46.4 billion in cumulative redemptions and a valuation effect of €0.3 billion. It can be seen very clearly that the portfolio adjustment resulting from the redemptions mainly concerned securities issued by the financial sector (variation of -€56.7 billion between February and March). The second item of adjustment concerned securities issued by non-financial companies (NFCs), which decreased by €13.0 billion in March. At the same time, the cash component increased significantly, by €19.8 billion (cf. Figure 8, top).
- In relative terms, this significant drop in March (-12.7% of net assets for the AMF, -13.9% of the total "securities+cash" for Banque de France) translated mainly into a reallocation from financial-sector securities to deposits. The financial sector represented 64.6% of the portfolio of French MMFs at end-February, compared with only 57.4% one month later (-7.2 percentage points). At the same time, the cash pocket increased from 8.9% to 16.5% of the total (+7.6 percentage points).

### 3.1.2. Financial-sector securities

We will now consider financial securities more specifically. We have broken this sector down into several sub-categories: commercial banks, public banks, financial companies specialised in leasing (motor vehicles and equipment), insurance companies, investment funds (exclusively MMFs, which we break down into short-term VNAV funds and standard VNAV funds) and a residual category containing, *inter alia*, special purpose vehicles (SPVs) and family-owned holding company stakes.

**Figure 9 – Change in the net asset mix of French MMFs – financial sector**  
in absolute amounts (top) and relative amounts (bottom) (% of total "securities + cash")



Source: Banque de France ("OPC-Titres" database, "OPC-Bilan" database), AMF calculations

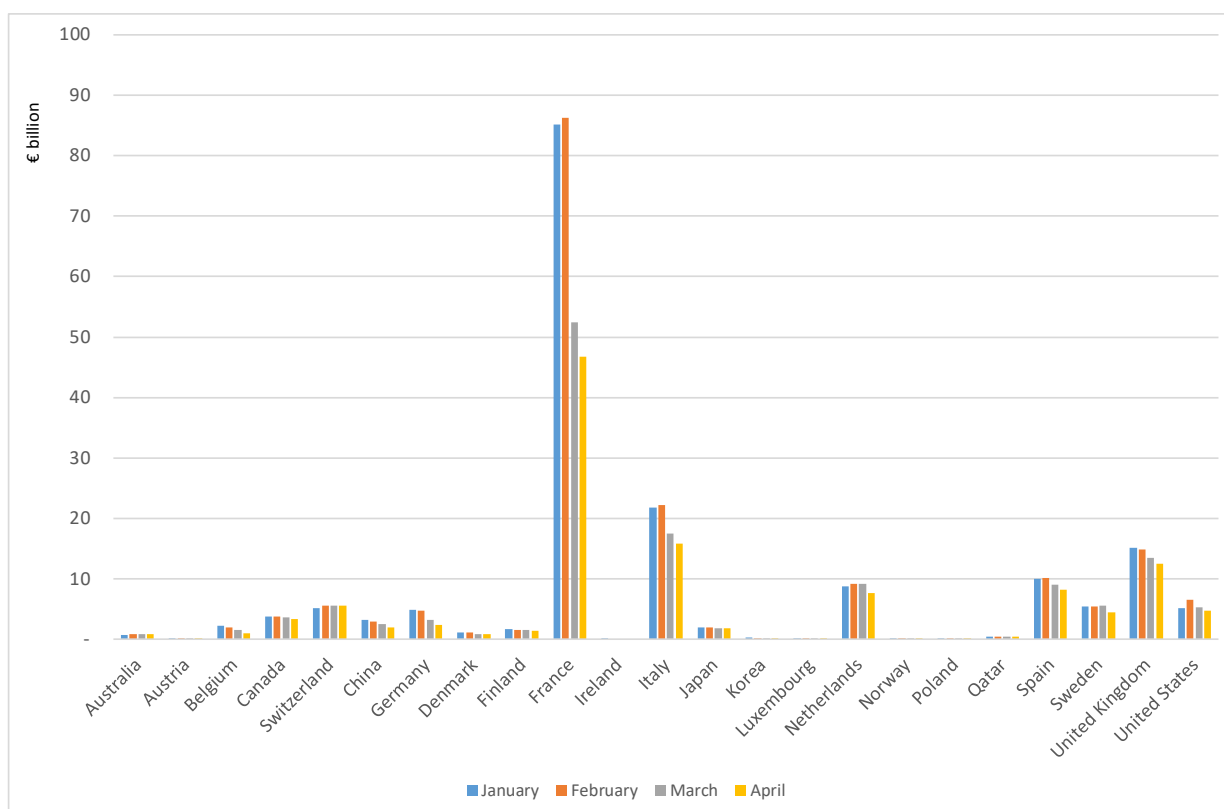


Figure 9 shows that before the crisis, securities issued by commercial banks accounted for around 50% of the total assets of French MMFs, with €179.9 billion at end-February 2020. One month later, French MMFs held only €134.9 billion in bank securities, i.e. €44.9 billion less. In relative terms, bank securities then accounted for only 41.8% of the total "securities + cash", i.e. 6.2 percentage points less.

At the same time, holdings of money market fund units by French MMFs also declined by €6.5 billion, from €35.3 billion at end-February to €28.8 billion one month later. Securities issued by leasing companies decreased proportionally less than total assets, and their share therefore slightly increased from 3.5% to 3.7%. The share of insurance companies in the portfolio of French MMFs is very limited (0.2% at end-February). This proportion was practically unchanged at end-March. The proportionally largest decline is in "other financials": the corresponding securities held by French MMFs fell from €9.0 billion to €4.7 billion. This decline is concentrated on SPVs and on one financial services company.

Examining more specifically commercial bank securities, we note that, at the end of February, €86.2 billion corresponded to banks whose parent company is French (out of a total of €179.9 billion in bank securities, i.e. 47.9%).

**Figure 10 – Change in the net asset mix of French MMFs – bank securities, by parent company nationality**



Source: Banque de France ("OPC-Titres" database, "OPC-Bilan" database), AMF calculations

Figure 10 shows that the reduction in the net assets of French MMFs had especially severe consequences for French banks. Table 1 below shows that for the leading French banks, the divestment by MMFs represented around 40% of the securities held at end-February (as much as 48% and 52% respectively for banking groups 5 and 2, and, on the other hand, only 28% for banking group 4).

**Table 1 – Total amount of securities of the leading French banking groups held by French MMFs (in EUR million)**

	January	February	March	April	% Feb/Mar
Banking group 1	16,802	17,479	10,647	8,933	-39%
Banking group 2	15,690	15,943	7,610	6,258	-52%
Banking group 3	14,599	13,855	8,654	8,337	-38%
Banking group 4	13,082	14,519	10,511	10,115	-28%
Banking group 5	10,344	10,313	5,361	4,968	-48%
Banking group 6	4,742	4,547	2,613	1,569	-43%
Banking group 7	3,334	3,136	2,075	1,994	-34%
Banking group 8	2,589	2,831	1,661	1,415	-41%

*Source: Banque de France ("OPC-Titres" database, "OPC-Bilan" database), AMF calculations*

It should be noted that a reduction in an MMF's holdings of securities does not necessarily reflect a specific fear concerning the issuer, but far more likely, in a stress scenario such as that at end-March, a capability for selling securities. Many banks accepted to act as market-makers in the secondary market for certificates of deposit by buying back their own issues from those who wanted to sell. Some may also have traded in the securities of other banks, with the intention of bringing them to the ECB's refinancing window. It is highly likely that the various percentages simply indicate the degree of market-making in the secondary market for the various French banks.

There remains the question of intra-group exposure. Do the MMFs managed by AMCs affiliated to a banking group hold a larger proportion of securities issued by the group's bank? Based on the data available to us, we conclude not. We grouped the various funds by asset management company, and we then linked the asset management companies to their financial group parent company. For each of these aggregates, we broke down the bank securities in the portfolio according to the issuer bank (here again, insofar as possible, grouping subsidiaries under their group parent company). By keeping only the banks which account for at least 5% of the bank security investments of each group of AMCs, we arrive at the following table for the month of January.

**Table 2: Share of each bank (columns) in the bank security portfolio of funds affiliated to a conglomerate (rows)**

**January maturity**

Share of bank securities in the portfolio of MMFs	Banks of group A	Banks of group B	Banks of group C	Banks of group D	Banks of group E	Banks of group F	Banks of group G	Banks of group K	Banks of group L	Banks of group M	Banks of group N	Banks of group O	Other banks	
	MMF of AMCs of group A	60.0 %	9.8 %	9.0 %	5.0 %	10.4 %	0.1 %	0.0 %	1.0 %	7.4 %	9.7 %	3.0 %	5.4 %	6.4 %
MMF of AMCs of group B	43.4 %	15.6 %	9.3 %	8.4 %	13.2 %	0.7 %	0.1 %	3.5 %	9.0 %	5.3 %	7.7 %	1.0 %	0.5 %	25.6 %
MMF of AMCs of group C	63.0 %	10.5 %	7.9 %	8.0 %	8.8 %	1.2 %	0.0 %	3.7 %	8.1 %	4.8 %	4.1 %	2.6 %	1.3 %	39.1 %
MMF of AMCs of group D	58.3 %	11.9 %	7.9 %	7.6 %	13.1 %	2.3 %	0.2 %	0.2 %	6.1 %	3.1 %	8.6 %	2.7 %	1.2 %	34.9 %
MMF of AMCs of group E	25.9 %	5.5 %	7.0 %	0.2 %	7.0 %	0.0 %	0.0 %	0.1 %	4.6 %	4.8 %	4.1 %	4.6 %	2.7 %	59.3 %
MMF of AMCs of group F	46.5 %	6.4 %	0.5 %	1.9 %	2.3 %	0.0 %	0.0 %	0.0 %	6.6 %	3.9 %	9.7 %	3.5 %	2.8 %	62.4 %
MMF of AMCs of group G	17.9 %	25.7 %	15.0 %	0.0 %	7.9 %	6.1 %	1.4 %	7.2 %	2.1 %	2.2 %	4.3 %	3.2 %	3.1 %	21.8 %
MMF of AMCs of group H	57.2 %	13.8 %	12.4 %	4.0 %	15.3 %	0.0 %	0.0 %	3.5 %	8.4 %	6.6 %	4.7 %	1.6 %	3.8 %	25.8 %
MMF of AMCs of group I	49.2 %	9.1 %	8.7 %	7.6 %	10.8 %	10.9 %	0.6 %	10.0 %	9.3 %	1.7 %	0.0 %	9.5 %	0.0 %	21.9 %
MMF of AMCs of group J	48.6 %	12.7 %	16.6 %	6.0 %	13.6 %	5.3 %	0.0 %	1.1 %	0.0 %	5.6 %	8.1 %	10.4 %	0.0 %	20.7 %

*Source: Banque de France ("OPC-Titres" database, "OPC-Bilan" database), AMF calculations*

At the end of January (i.e. outside the crisis period), the highest exposure to the securities of the banks of Group C was not found in the funds managed by the AMCs affiliated to Group C: the securities of the Group C banks represented 8.4% of the bank security exposure of the funds managed by the AMCs of Group B, versus 8.0% for

the AMCs of Group C. Note that four other groups of AMCs (not shown in the above table) had higher rates of exposure than Group B (between 8.8% and 15.0% of their bank securities were issued by Group C). Lastly, the exposure of the Group C funds to securities issued by banks of the same group is not very different from the exposure of the AMCs of Groups D and I (7.6%). Similarly, the highest exposure to the bank securities issued by Group B was not found in the funds of affiliated AMCs: the securities of the Group B banks represented 9.3% of the bank securities in the portfolio of the funds affiliated to B, versus 12.4% for the AMCs of Group H, and more than 15% for those of Groups G and J. In fact, the AMCs affiliated to B were only in tenth position, with 9.3% (six Groups of AMCs not shown in the table had even higher levels). The same holds for the other big financial conglomerates.

Table 3 shows that this observation was not altered by the crisis.

**Table 3: Share of each bank (columns) in the bank security portfolio of funds affiliated to a conglomerate (rows)**

**March maturity**

Share of bank securities in the portfolio of MMFs	Banks of group A	Banks of group B	Banks of group C	Banks of group D	Banks of group E	Banks of group F	Banks of group G	Banks of group K	Banks of group L	Banks of group M	Banks of group N	Banks of group O	Other banks	
	MMF of AMCs of group A	56.4 %	8.5 %	4.5 %	4.2 %	7.3 %	0.1 %	0.0 %	0.8 %	8.4 %	11.4 %	3.2 %	7.0 %	5.0 %
MMF of AMCs of group B	39.3 %	12.7 %	5.7 %	4.1 %	9.1 %	1.1 %	0.1 %	3.5 %	5.9 %	7.6 %	10.0 %	2.6 %	0.8 %	36.8 %
MMF of AMCs of group C	63.6 %	7.8 %	6.7 %	3.6 %	7.4 %	1.1 %	0.0 %	2.7 %	9.5 %	5.9 %	4.8 %	6.2 %	1.3 %	43.0 %
MMF of AMCs of group D	53.3 %	9.1 %	5.0 %	4.2 %	10.6 %	2.2 %	0.3 %	0.0 %	6.5 %	3.0 %	10.5 %	4.0 %	0.4 %	44.2 %
MMF of AMCs of group E	22.7 %	2.5 %	5.6 %	0.0 %	5.2 %	0.0 %	0.0 %	0.1 %	4.4 %	7.0 %	6.2 %	4.2 %	3.5 %	61.5 %
MMF of AMCs of group F	54.1 %	4.1 %	0.4 %	2.3 %	4.3 %	4.1 %	0.0 %	0.0 %	7.6 %	6.2 %	4.2 %	4.9 %	3.1 %	58.8 %
MMF of AMCs of group G	14.4 %	23.3 %	14.3 %	0.0 %	9.0 %	12.1 %	1.8 %	4.5 %	0.0 %	1.8 %	0.0 %	4.0 %	0.0 %	29.2 %
MMF of AMCs of group H	49.2 %	15.6 %	11.1 %	3.2 %	15.6 %	0.0 %	0.0 %	2.7 %	9.5 %	6.5 %	5.4 %	2.4 %	3.1 %	24.8 %
MMF of AMCs of group I	49.9 %	10.2 %	8.0 %	7.0 %	9.6 %	11.0 %	0.6 %	7.0 %	9.9 %	2.9 %	0.0 %	10.2 %	0.0 %	23.5 %
MMF of AMCs of group J	38.7 %	6.4 %	18.7 %	3.3 %	17.1 %	9.0 %	0.0 %	1.9 %	0.0 %	8.9 %	12.3 %	2.7 %	0.0 %	19.7 %

Source: Banque de France ("OPC-Titres" database, "OPC-Bilan" database), AMF calculations

Tables that are similar, but which show MMFs' exposure related to net assets rather than to the bank security pocket alone, are presented in **Annex 2**.

Another way of viewing the data is to examine which is the AMC that holds most of the securities of a given bank. And yet, it is mainly the size of AMCs that determines the level of their holdings of securities issued by the various banking groups: the largest AMC is also the biggest owner of the securities issued by the main banking groups. We find no intra-group effect, neither before nor after the crisis.

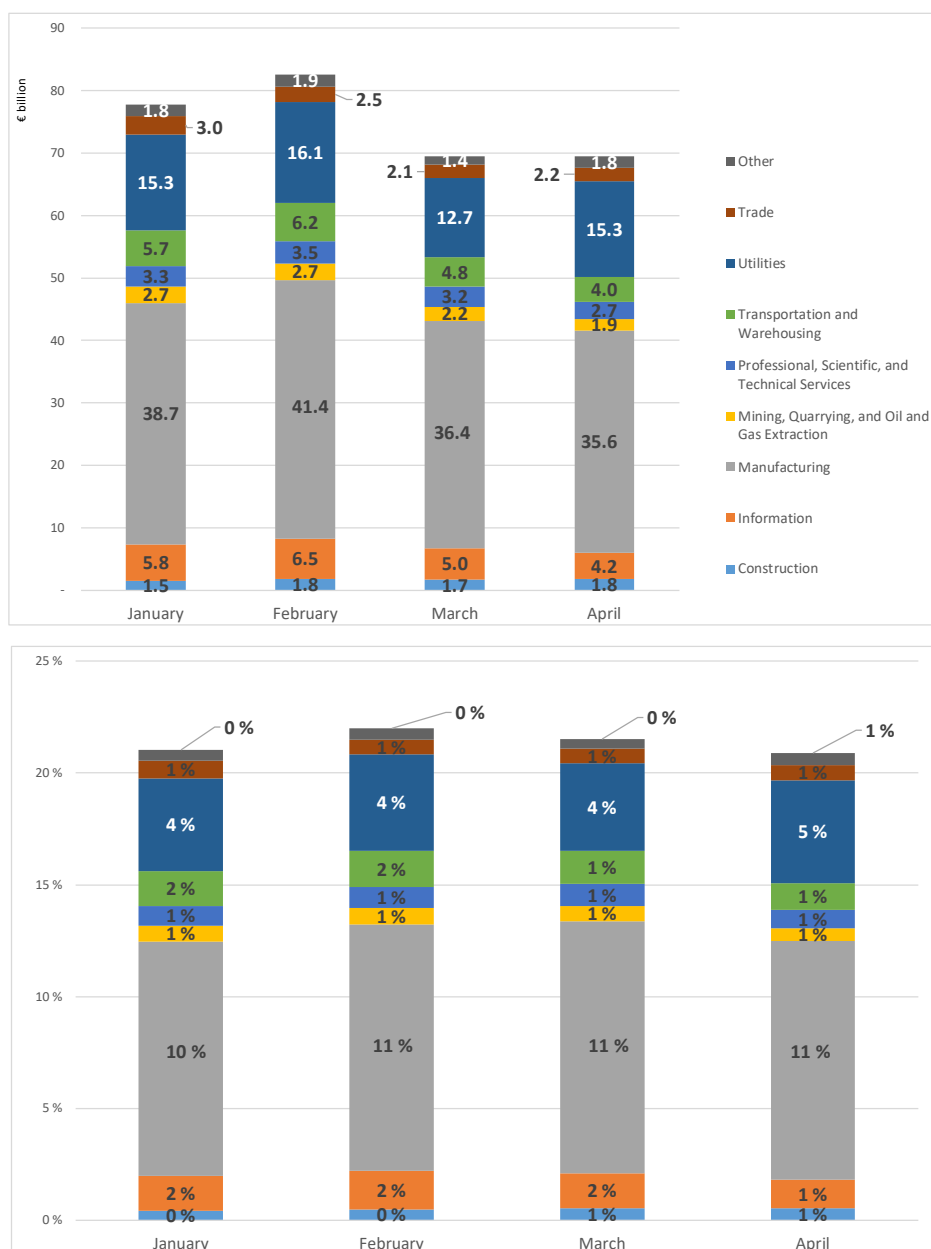
To conclude, it is incorrect to say that the funds managed by an AMC that is a subsidiary of a group are more exposed to the group's bank. The data do not show any bias in investment policy.

### 3.1.3. Other sectors

Similar analyses can be conducted on the other major asset categories in the portfolio of money market funds.

- We will first consider securities issued by companies in the non-financial sector. Again, we stress the fact that the classifications were fully adjusted for the sake of uniformity of treatment. Securities issued by NFCs held in the portfolio of French MMFs decreased by €13.0 billion between end-February and end-March 2020. However, this decline is roughly proportional to the total amounts of redemptions recorded over the period, and the share of NFCs in the portfolio of French MMFs therefore remained stable (going from 21.1% to 20.9% between January and April). No marked distortion is noted within this portfolio segment (cf. Figure 11, bottom).

**Figure 11 – Change in the net asset mix of French MMFs – non-financial sector**  
in absolute amounts (top) and relative amounts (bottom) (% of total "securities + cash")



Source: Banque de France ("OPC-Titres" database, "OPC-Bilan" database), AMF calculations

➤ Lastly, we examine the change for securities issued by public authorities (governments, local authorities, social security organisations and hospital management).

**Figure 12 – Change in the net asset mix of French MMFs – public authorities**  
in absolute amounts (top) and relative amounts (bottom) (% of total "securities + cash")



Source: Banque de France ("OPC-Titres" database, "OPC-Bilan" database), AMF calculations

It can be noted immediately from Figure 12 that the public sector is the only one to show a significant increase in April, both in absolute amounts and as a proportion of the total "securities + cash". Between the end of February and the end of March, we note a reduction of €1.2 billion, i.e. about 21%. We also note a reallocation within the

sovereign bond segment, with a significant increase in securities issued by the French government at the expense of foreign government bonds. In detail, it is above all the amount of Italian government bonds that was more than halved, from €3.0 billion at end-February to €1.2 billion at end-March.

### 3.2. ANALYSIS BY ISSUER DOMICILIATION

Banque de France indicates the domiciliation of each security identified in the funds' portfolio. This domiciliation variable corresponds to the country of issuance of the security and not necessarily the jurisdiction in which the issuer company or its parent company is based. In other words, a security issued by a French bank in the United Kingdom will be considered as British. Between February and March, one notes, in the MMFs' portfolio, a sharp decline in securities issued in France (-€43.4 billion) and to a lesser extent in the euro area (-€18.4 billion). Securities issued in France accounted for 39.2% of the portfolio ("securities + cash") of French MMFs at end-April 2020, compared with 46.1% two months earlier.

**Figure 13 – Change in the net asset mix of French MMFs – issuer domiciliation in absolute amounts (top) and relative amounts (bottom) (% of total "securities + cash")**



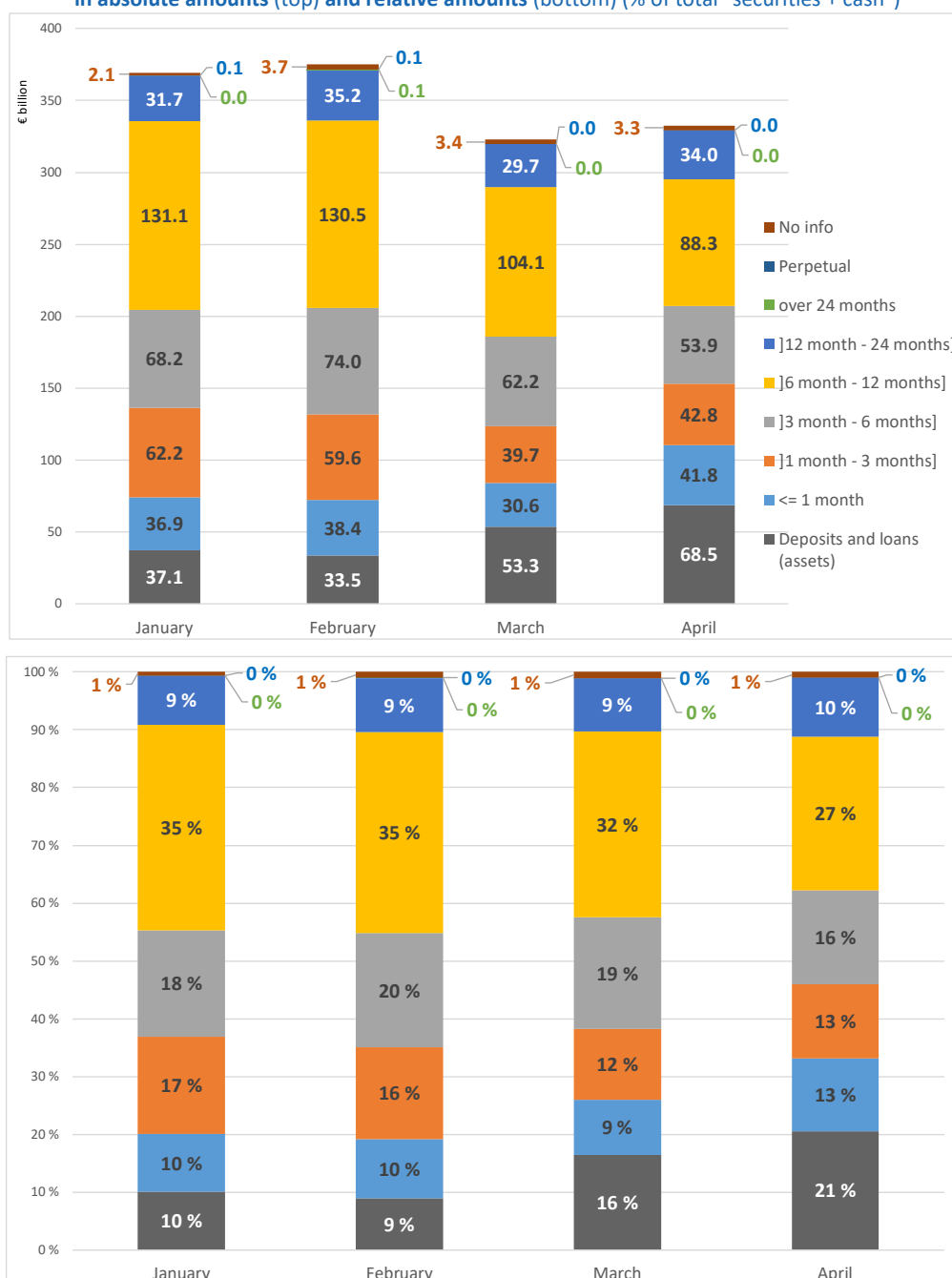
Source: Banque de France ("OPC-Titres" database, "OPC-Bilan" database), AMF calculations

### 3.3. ANALYSIS BY MATURITY

Our database contained 7,548 securities, and we were able to identify the maturity of 7,294 of these securities, or 96.6% of the sample.

To construct this maturity variable, we measured (in months) the time to maturity for the security (as entered in the commercial databases, or as deduced from the security's name). Equities and perpetual bonds were considered as perpetual securities, and the units of money market CIUs were attributed their maximum WAL (4 months for short-term MMFs, 12 months for standard MMFs).

**Figure 14 – Change in the net asset mix of French MMFs – maturity of securities in absolute amounts (top) and relative amounts (bottom) (% of total "securities + cash")**

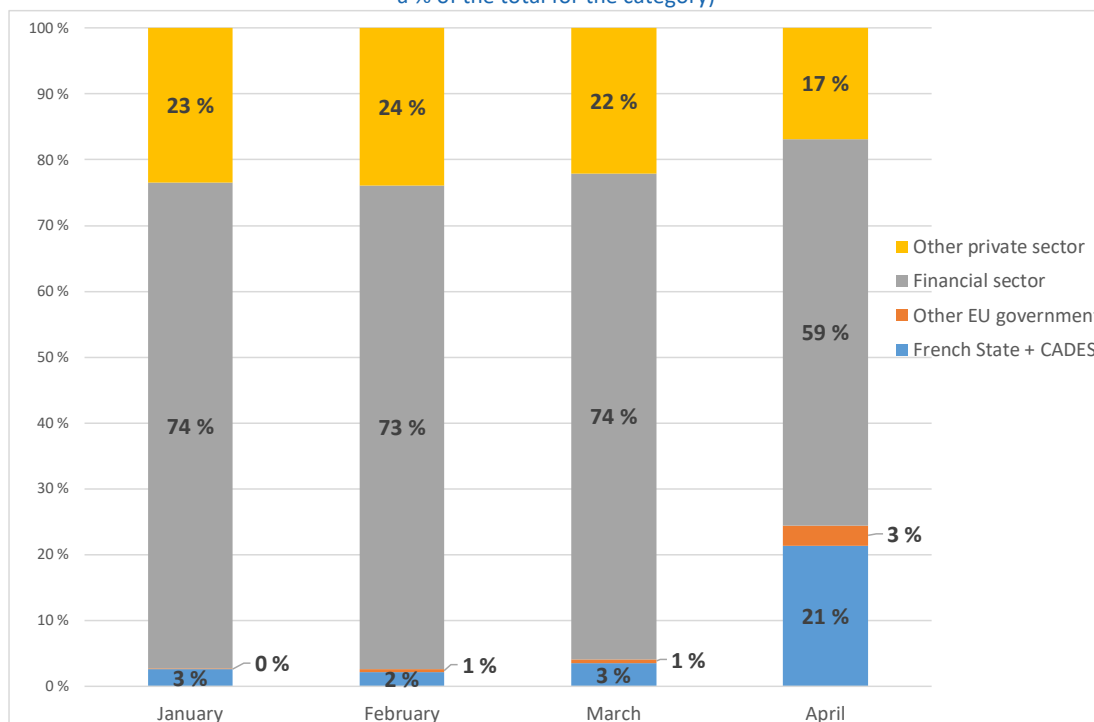


Source: Banque de France ("OPC-Titres" database, "OPC-Bilan" database), AMF calculations

Between February and March, holdings of securities having a "medium" residual maturity (between 1 and 12 months) declined by €58.2 billion. Their weight in the portfolio thus decreased from 70.4% to 63.8%. This decline continued between March and April, by which time securities of medium maturity accounted for only 55.6% of the value of the securities held. At the same time, the proportion of securities of short residual maturity (less than or equal to 1 month) increased (growing by €11.1 billion in April). The proportion of cash (zero maturity) increased significantly during the period.

The characteristics of securities of residual maturity exceeding 12 months changed between the months of January/February and March/April. During the first two months of 2020, around three-quarters of these securities were issued by the financial sector. Securities of public authorities represented less than 3%. During the following two months, and especially in April, the proportion of securities issued by the financial sector decreased considerably, being replaced by sovereign bonds. At the end of April 2020, for example, 24% of the outstanding amount of securities having a residual maturity of more than 12 months (including perpetuals) corresponded to public issuers, of which 21% for the French government alone (Figure 15). Financial issuers by then accounted for only 59% of the total.

**Figure 15 – Change in the net asset mix of French MMFs – securities of residual maturity exceeding 12 months, by issuer (as a % of the total for the category)**



Source: Banque de France ("OPC-Titres" database, "OPC-Bilan" database), AMF calculations

### 3.4. SECURITIES HAVING REACHED MATURITY OR SECURITIES SOLD?

To continue the analysis more precisely, it would be useful to know whether the changes in the structure of the funds' portfolio are due to active sales or simply to securities reaching maturity (hence their reimbursement). Unfortunately, this information cannot be deduced from the monthly portfolio inventories. However, making a few assumptions it is possible to obtain a rough idea of the amounts involved.

We will assume that:

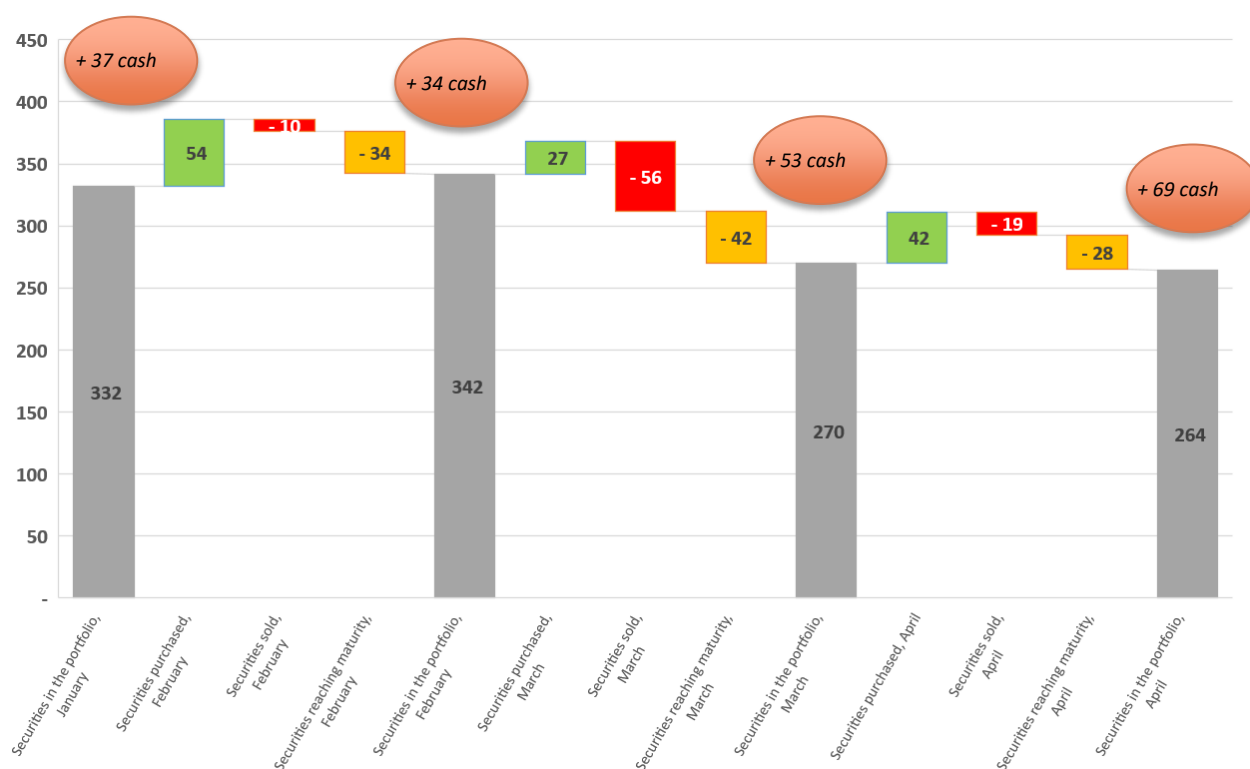
- A) the variation in value of the securities in the portfolio is insignificant (a realistic assumption given that these are mostly short-term debt securities and the analysis period is limited);



- B) the sales only concerned securities reaching maturity in more than one month (in other words, the fund managers did not actively endeavour to sell during the month securities that would naturally reach maturity in the same month).

Based on assumption A, we consider that, for each portfolio security, the variation in the MMFs' net holdings from one month to the next is attributable solely to either sales or maturity reaching. If the security in question does not reach maturity during the month, we deduce that the variation in net holdings is due exclusively to sales. Otherwise, based on assumption B, we attribute the variation in net holdings to reaching maturity. We stress the fact that these are simplifying assumptions given that it is quite possible that some portfolio securities may have incurred changes in value and that certain fund managers may have liquidated securities which were close to maturity in order to honour redemptions – indeed, some AMCs told the AMF that the banks acted as market-makers chiefly for securities maturing in less than one month, since those securities do not adversely affect their regulatory Liquidity Coverage Ratio (LCR).

**Figure 16 – Breakdown of variations in the net holdings of the securities portfolio between January and April 2020 (security purchases in green, security sales in red, maturing securities in yellow), in EUR bn**



*Source: Banque de France ("OPC-Titres" database, "OPC-Bilan" database), AMF calculations*

Based on the assumptions adopted, we can therefore see that the €72bn variation in the securities portfolio (i.e. excluding cash) of the MMFs in March can be broken down into €56 billion of active sales plus €42 billion of securities reaching maturity, this decline being slightly attenuated by €27 billion in purchases of new securities (the residual difference is attributable to rounding).

Under assumption B, we bear in mind the fact that the amount of maturing securities is a maximum (some of the short-dated securities may have been actively sold).

### 3.5. ANALYSIS BY CREDIT RATING

Our database contained 7,548 securities, and we were able to identify the credit rating of 4,753 of these securities,<sup>14</sup> or 63% of the sample. To do so, we interrogated the commercial databases available to us (Bloomberg, Refinitiv) concerning the long-term rating assigned to the security and the issuer in January and April 2020 by the three major rating agencies (S&P, Moody's and Fitch).<sup>15</sup> To obtain a standard measure of the rating, we applied the following rules:

- By default, we select the security's rating.
- When several agencies rate the security, we compare each rating with a common scale (see Annex 3) and calculate the average rating.
- If the security's rating is not available, we use the issuer's rating.
- In the event of a multiple rating for the issuer, we compare each rating with a common scale (see Annex 3) and calculate the average rating.

The same process was applied for January and April 2020.

The best ratings correspond to the smallest figures. The investment grade category ranges between ratings 1 and 4. Grades 5 to 7 correspond to speculative securities.

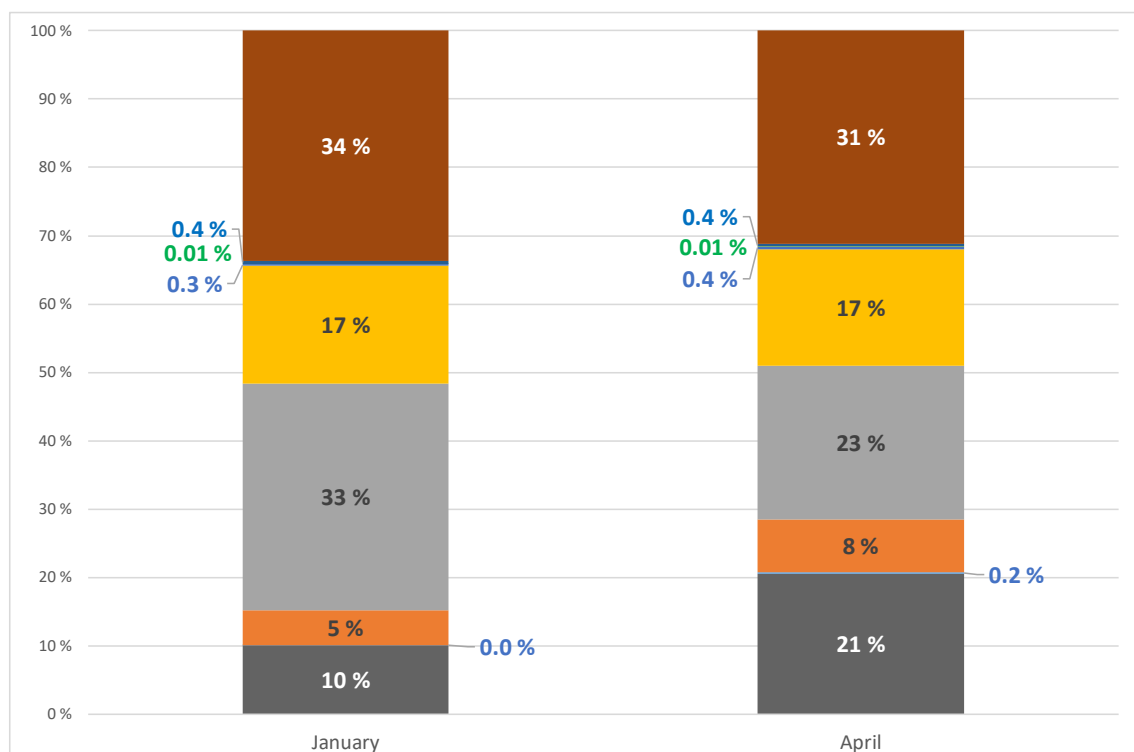
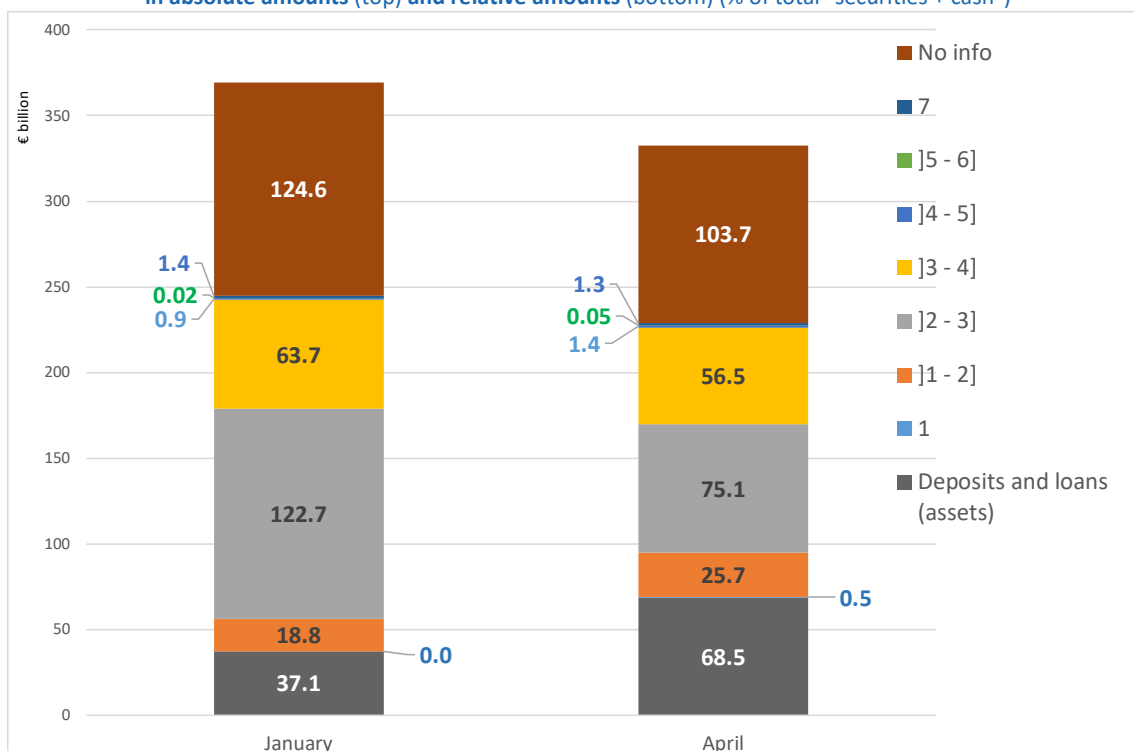
Between January and April, the proportion of securities having a "medium" rating (rating higher than 2 and less than or equal to 4) decreased from 50.5% to 39.5%, being replaced by the best-rated securities and cash.

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<sup>14</sup> In particular, CIUs are not rated.

<sup>15</sup> We selected the long-term rating, because the coverage was far better than for the short-term rating (the only short-term rating found on Eikon was the S&P Issuer Short Rating, which was missing for 3,380 securities, or 45% of the portfolio securities).

Figure 17 – Change in the net asset mix of French MMFs – rating of the security  
in absolute amounts (top) and relative amounts (bottom) (% of total "securities + cash")



Source: Banque de France ("OPC-Titres" database, "OPC-Bilan" database), AMF calculations

#### 4. ANALYSIS OF MONEY MARKET FUND PORTFOLIOS FACING THE LARGEST OUTFLOWS

In this section, we will focus on the funds that experienced the most significant redemptions (in terms of the absolute amount). We therefore select the 15 funds that had to cope with redemptions exceeding €1 billion in March 2020. Insofar as the impact of the Covid-19 crisis on the various MMFs was relatively heterogeneous (cf. [AMF market and risk mapping, 2020](#)), it is important to analyse more specifically the funds that faced the most severe redemption shock.

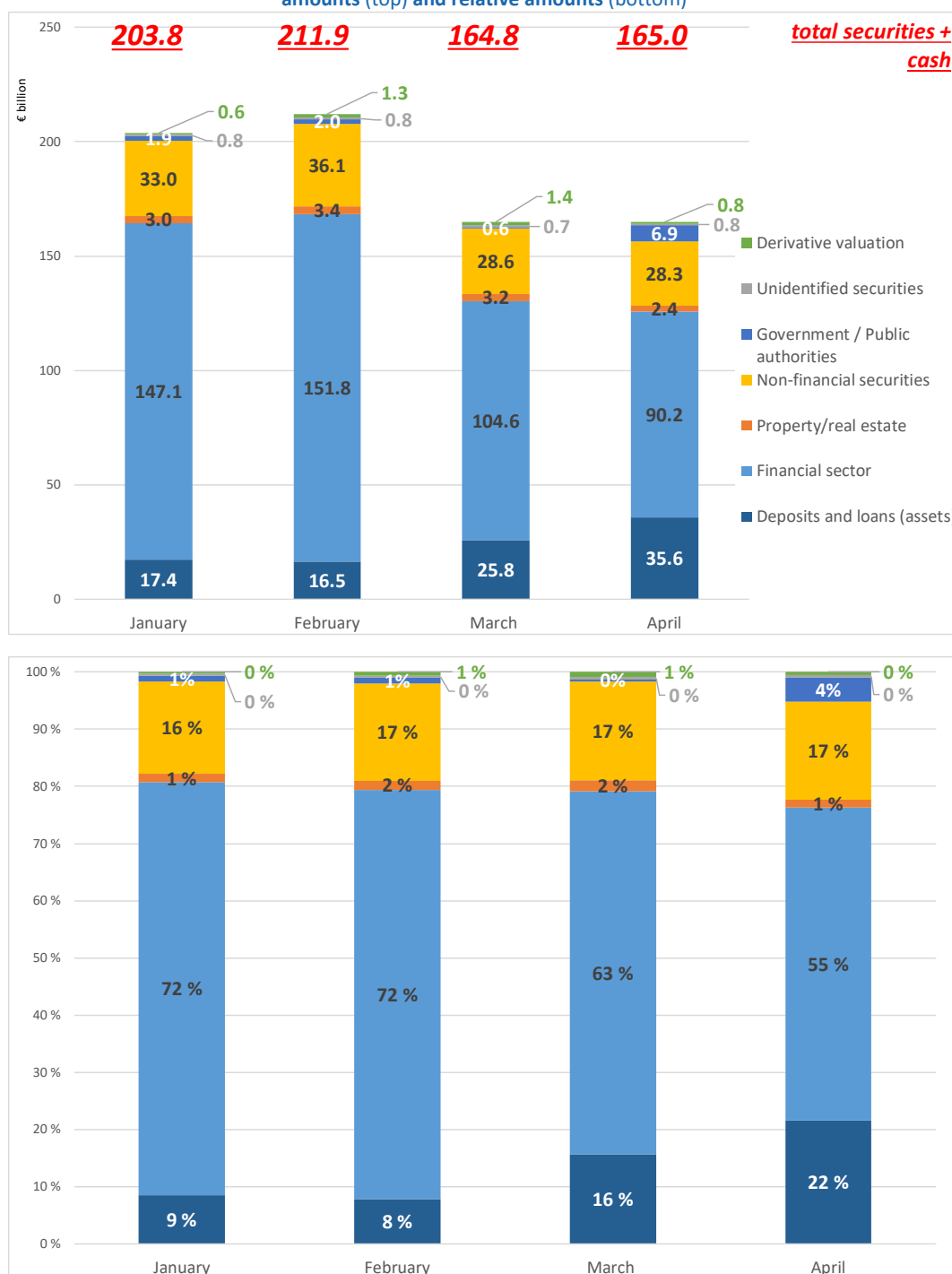
At 29 February 2020, the net assets of these funds represented 57% of the total net assets of French money market funds (i.e. €208.0 billion). Their share decreased in March, reaching 51% of the total by 31 March. As regards redemptions, investors' cumulative net outflows for these 15 funds amounted to €43.0 billion in March, versus €46.4 billion for French money market funds as a whole.<sup>16</sup> These 15 funds combined therefore accounted for 92.7% of redemption requests made to French money market funds in March 2020.

According to data from Banque de France, the cumulative total 'portfolio + cash' for these 15 funds amounted to €211.9 billion at end-February, and €164.8 billion one month later, representing a €47.1 billion decline in assets under management. Like for all the French MMFs, the portfolio adjustment resulting from the redemptions mainly concerned securities issued by the financial sector (variation of -€47.2 billion between February and March) and to a far lesser extent securities issued by NFCs, with a variation of -€7.5 billion in March. At the same time, the cash component increased by €9.3 billion (in similar proportions to the rest of the market). The composition (in sectoral terms) of the portfolio of the 15 MMFs facing the largest outflows is similar to that of French MMFs as a whole. Note, however, that for the 15 MMFs analysed, the share of the financial sector is larger and the share of NFCs is smaller, whatever the month in question.

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<sup>16</sup> During this period, outflows from French money market funds amounted to €52.1 billion, compared with €6.6 billion in inflows.

Figure 18 – Change in the net asset mix of the 15 French MMFs facing the largest outflows, by issuer sector in absolute amounts (top) and relative amounts (bottom)

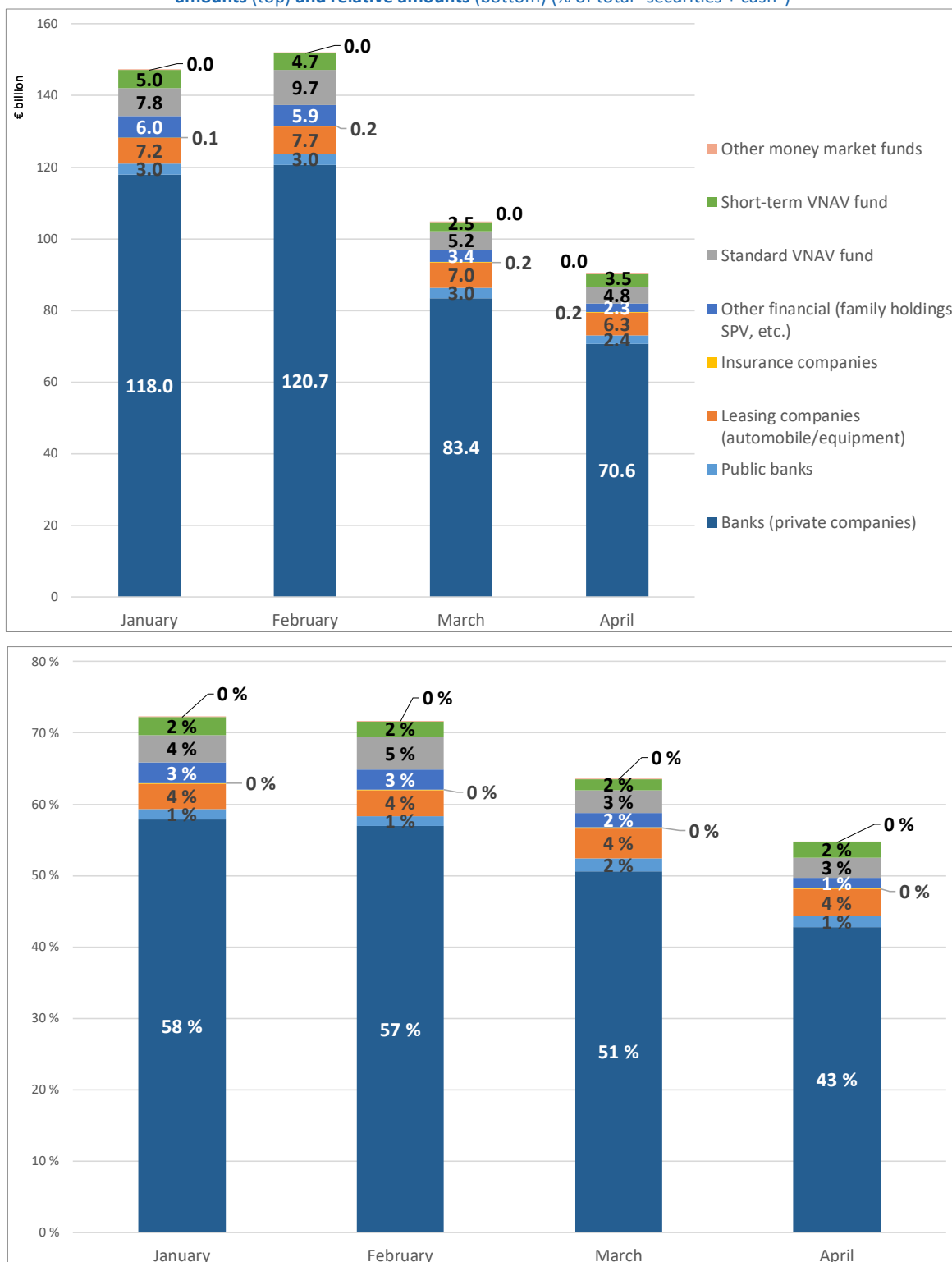


Source: Banque de France ("OPC-Titres" database, "OPC-Bilan" database), AMF calculations

Before the crisis, the 15 MMFs analysed held proportionally more securities issued by commercial banks (58% in January versus 48% for French MMFs as a whole). The share of these securities decreased massively for these 15 MMFs, with assets under management falling from €120.7 billion to €83.4 billion (a decline of €37.3 billion) between February and March. Despite this decline, after the crisis securities issued by commercial banks still represented the largest part of the portfolio of the MMFs facing the largest outflows. Moreover, the 15 MMFs

analysed reduced their holdings of standard VNAV funds between February and March (-€4.5 billion) by more than French MMFs as a whole (-€3.6 billion).

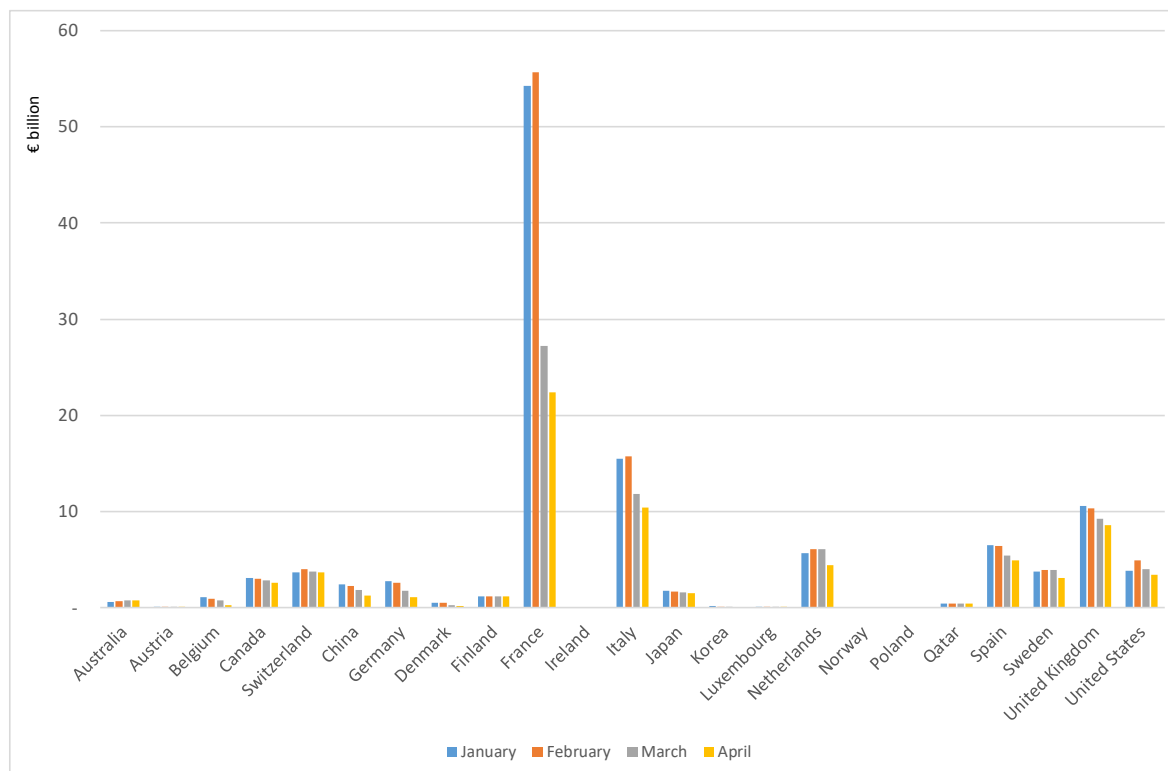
**Figure 19 – Change in the net asset mix of the 15 French MMFs facing the largest outflows – financial sector in absolute amounts (top) and relative amounts (bottom) (% of total "securities + cash")**



Source: Banque de France ("OPC-Titres" database, "OPC-Bilan" database), AMF calculations

As was the case generally, the share of securities issued by French banks decreased sharply to cope with redemption requests. Accordingly, the value of securities issued by French banks and held by the 15 MMFs facing the largest outflows decreased by 51% in March (versus 39% for MMFs as a whole).

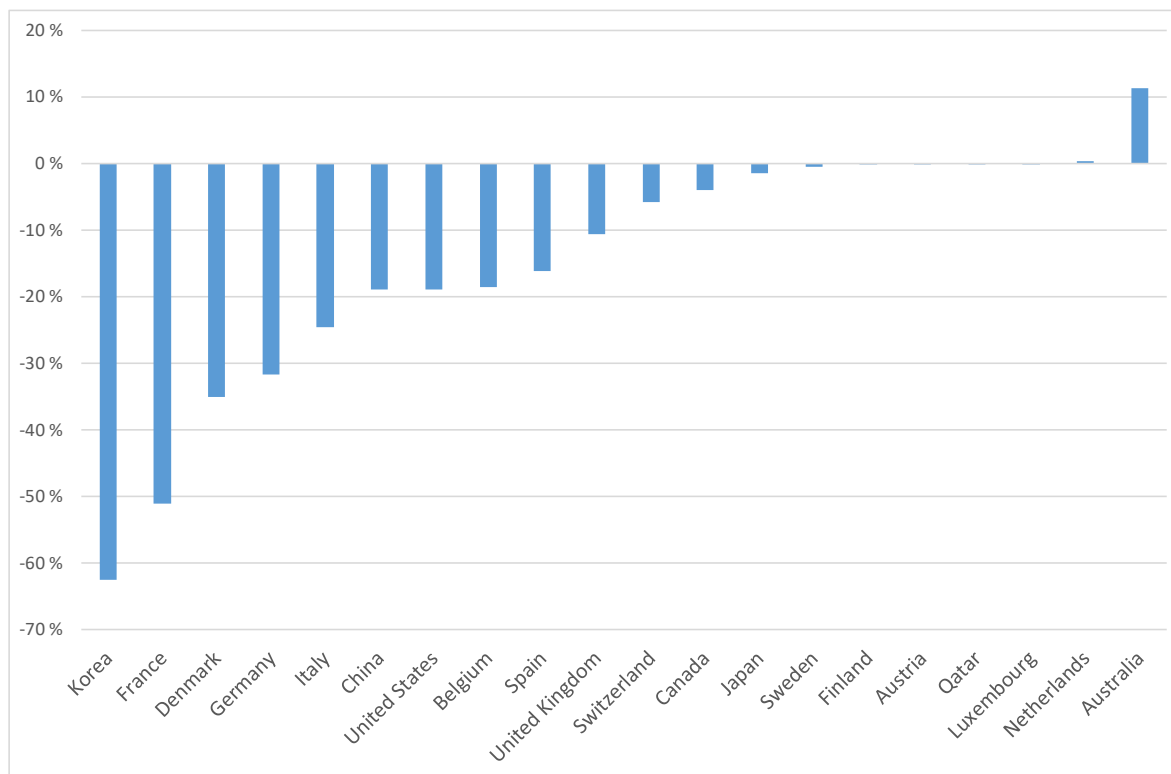
**Figure 20 – Change in the net asset mix of the 15 French MMFs facing the largest outflows – bank securities, by parent company nationality**



*Source: Banque de France ("OPC-Titres" database, "OPC-Bilan" database), AMF calculations*

Apart from the securities of South Korean banks, for which the outstanding amount was small (€160 million in January 2020), the securities issued by French banks were the bank securities whose volume declined most in the portfolio of the 15 MMFs analysed. The increase in holdings in Australian banks concerned a very limited amount.

**Figure 21 – Variation between end-February and end-March in the outstanding amount of bank securities held by the 15 French MMFs facing the largest outflows, by parent company nationality**

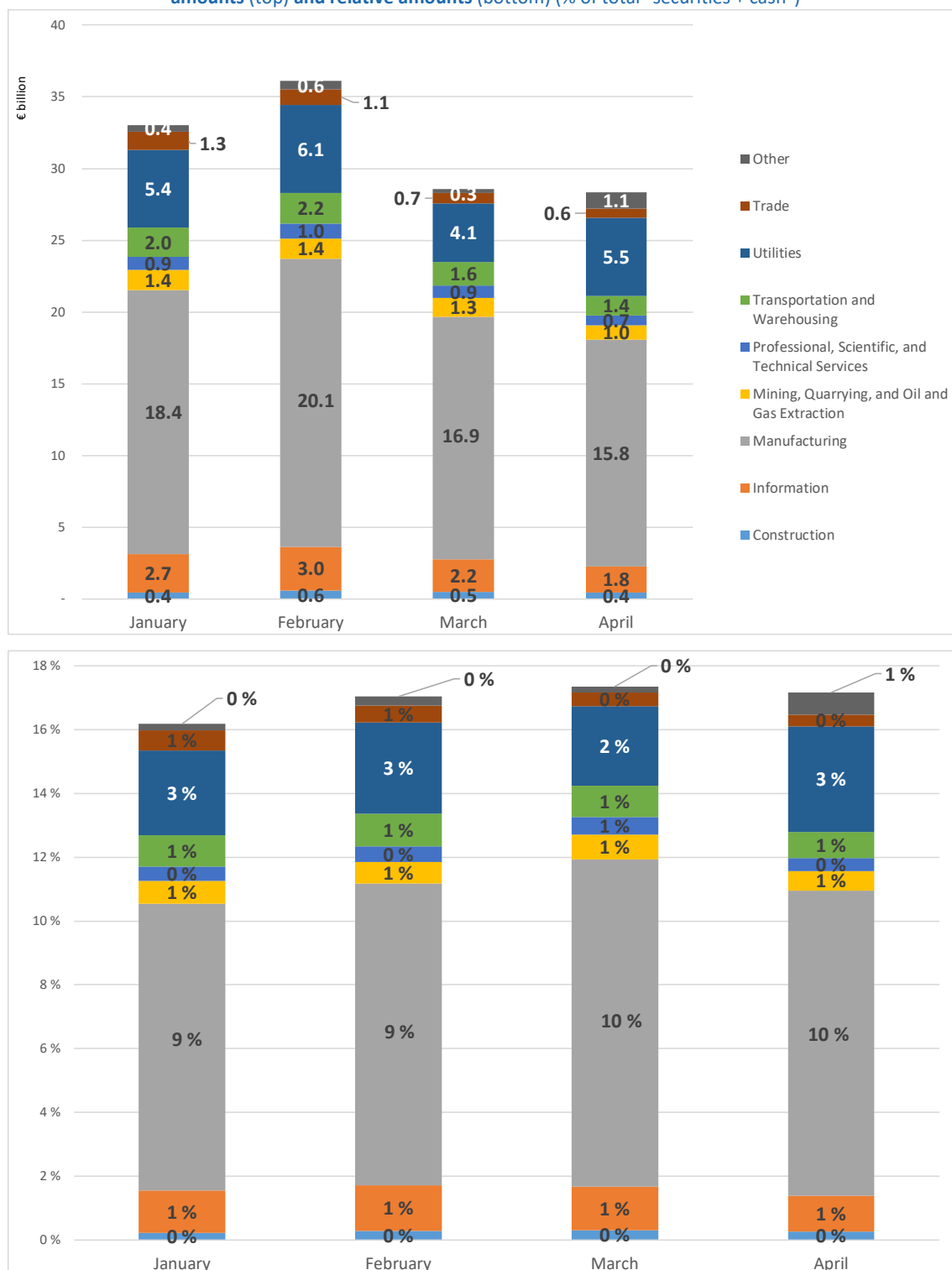


*Source: Banque de France ("OPC-Titres" database, "OPC-Bilan" database), AMF calculations*

Securities issued by NFCs held in the portfolio of the 15 French MMFs studied here decreased by €7.5 billion between end-February and end-March (but slightly increased their share in the portfolio). And yet, no significant distortion can be observed in this portfolio segment.



Figure 22 – Change in the net asset mix of the 15 French MMFs facing the largest outflows – non-financial sector in absolute amounts (top) and relative amounts (bottom) (% of total "securities + cash")

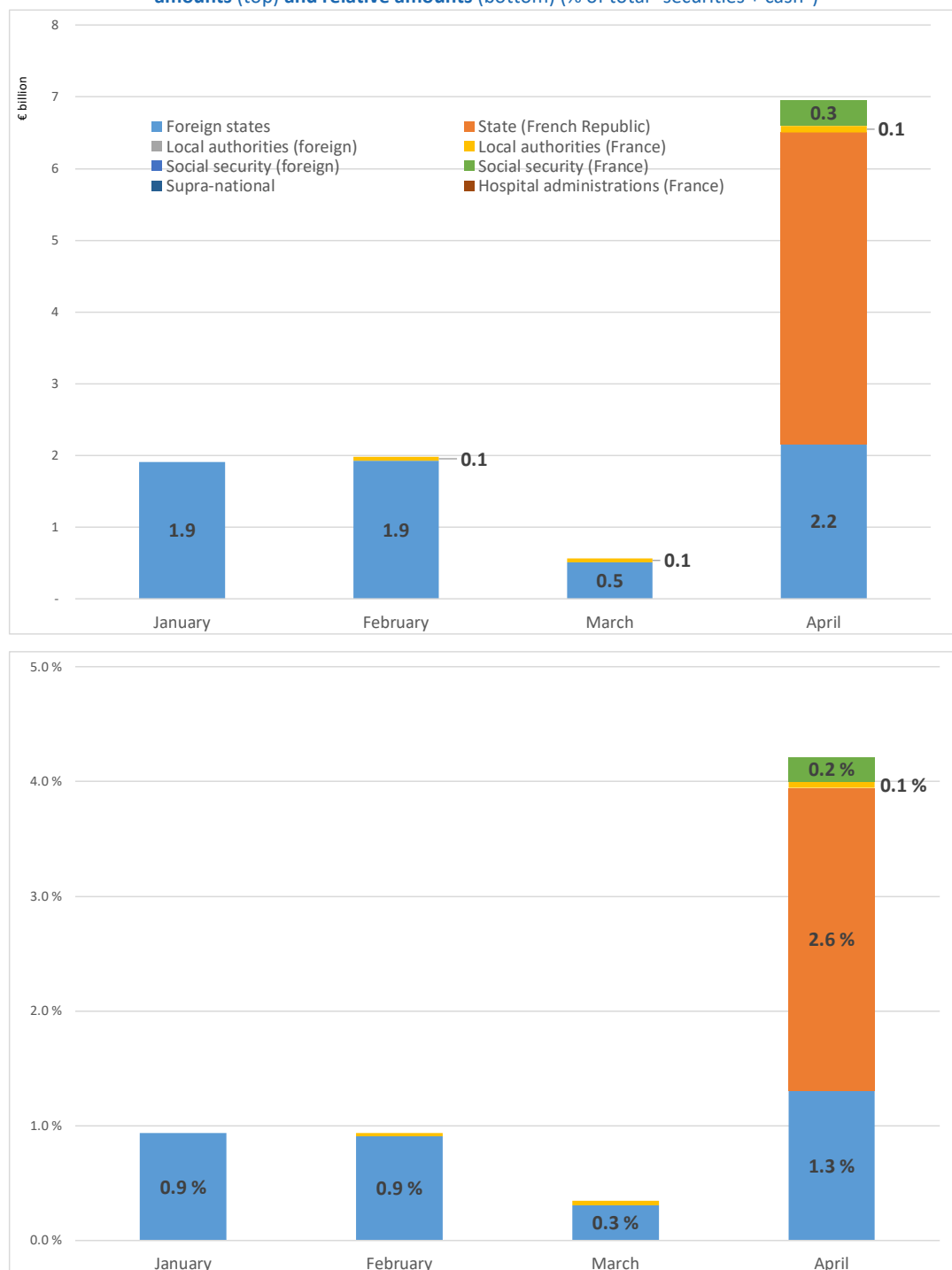


Source: Banque de France ("OPC-Titres" database, "OPC-Bilan" database), AMF calculations

Before the crisis, the sovereign bonds held by the 15 MMFs facing the most redemptions consisted almost exclusively of foreign government bonds, and particularly Italian government bonds. Redemption requests led fund

managers to reduce their holdings of sovereign bonds by €1.4 billion. Once the crisis was over, the 15 MMFs increased their sovereign bond holdings very significantly, particularly French government bonds.

**Figure 23 – Change in the net asset mix of the 15 French MMFs facing the largest outflows – public authorities in absolute amounts (top) and relative amounts (bottom) (% of total "securities + cash")**

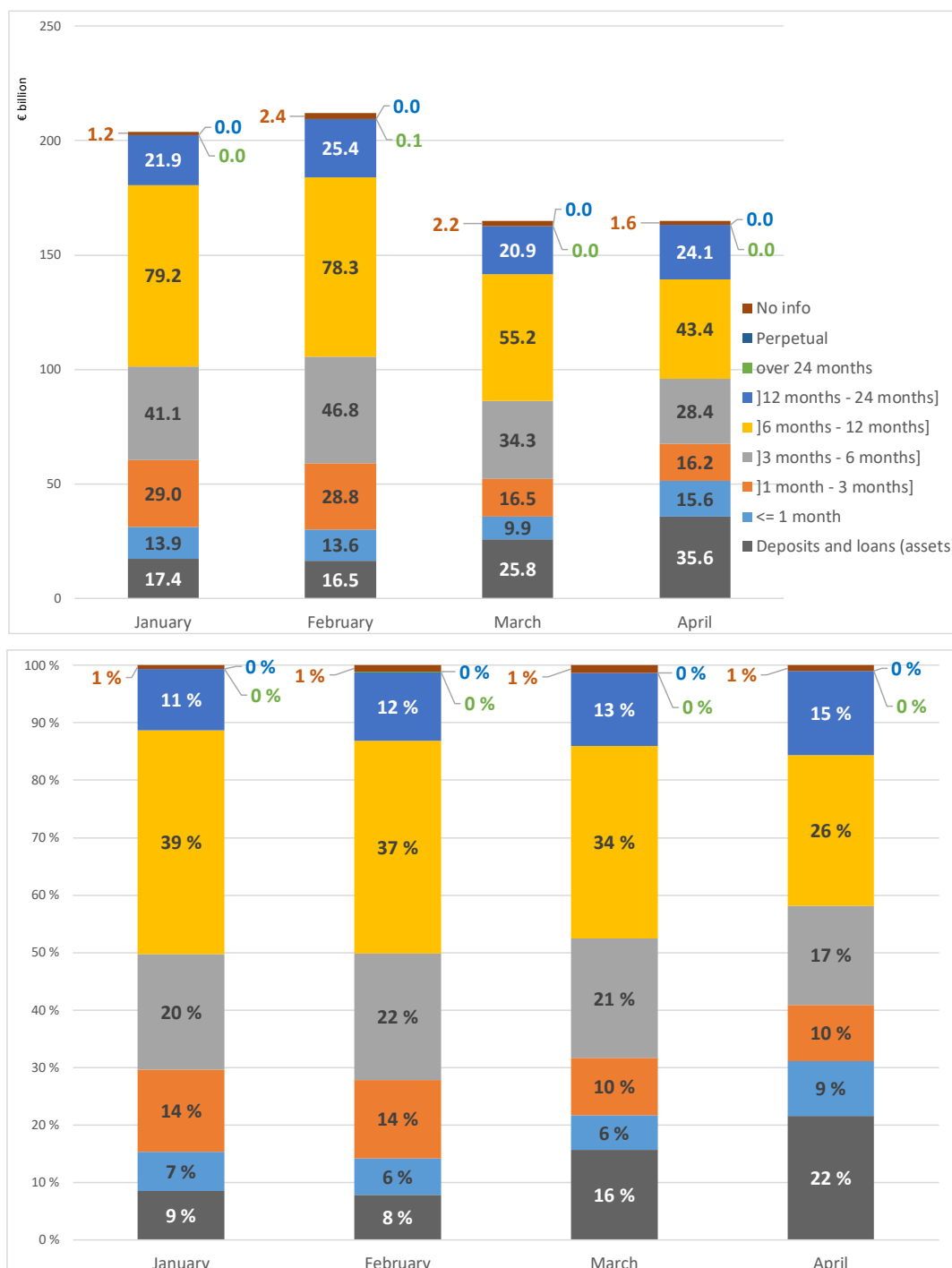


Source: Banque de France ("OPC-Titres" database, "OPC-Bilan" database), AMF calculations

The 15 MMFs incurring the largest redemptions had a slightly longer maturity profile than the whole population. At end-February, securities of less than 3 months maturity represented 20% of their assets, versus 26% for French MMFs as a whole. This difference persisted after the crisis: at end-April, the share of securities of less than 3 months

maturity was 19% for the 15 funds versus 25% in the whole population. Securities of between 3 months and 1 year maturity amounted to 59% of the assets of the 15 funds in February, versus 55% for the population of French MMFs as a whole, but this difference decreased after the crisis: at end-April the proportion was 43.5% for the 15 funds versus 42.7% in the whole population. Lastly, the share of securities of more than 1 year maturity in the portfolio of the 15 funds increased from 11% to 15% between January and April, while in the whole population it changed from 9% to 10%.

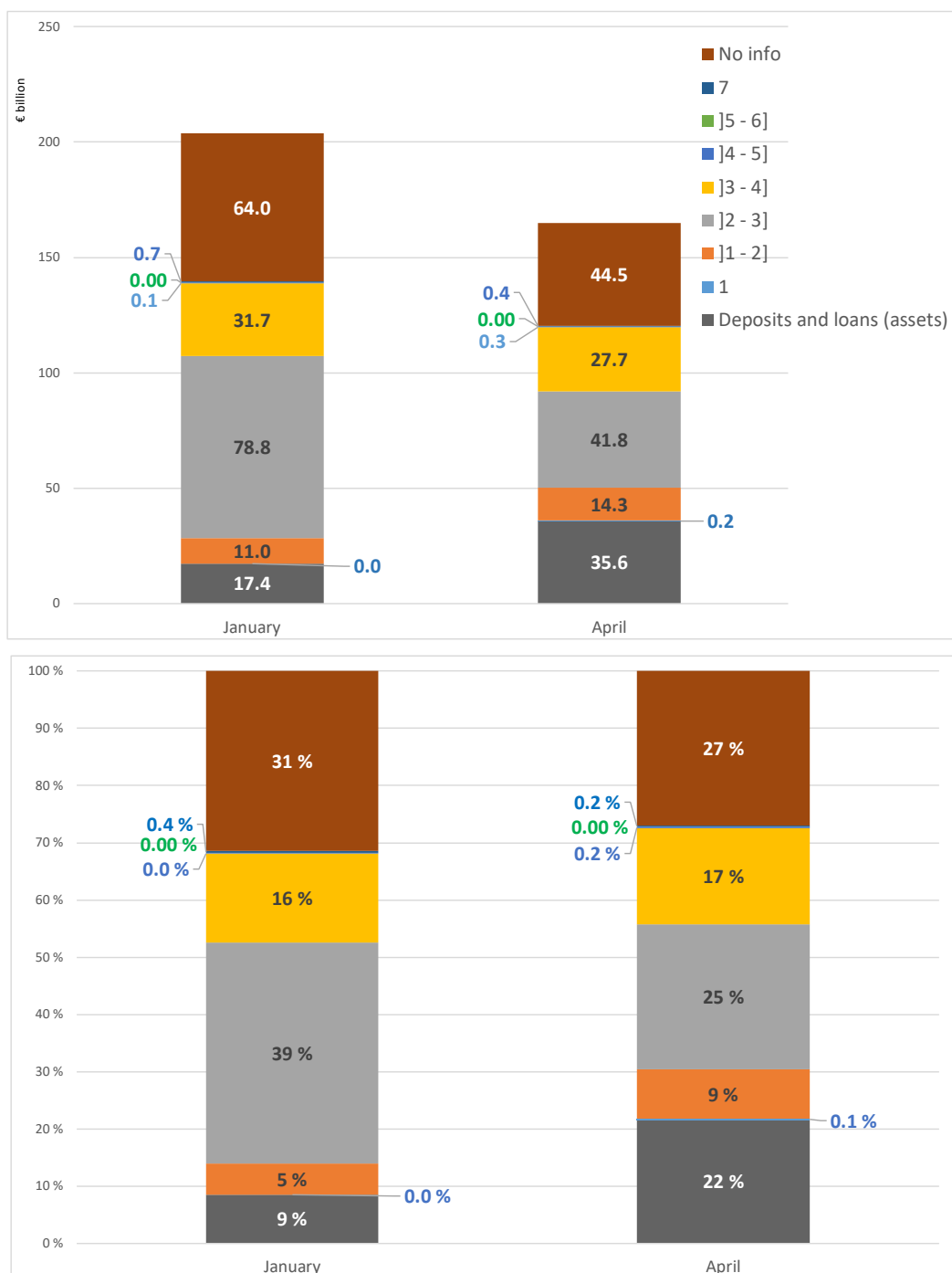
**Figure 24 – Change in the net asset mix of the 15 French MMFs facing the largest outflows – maturity of the security in absolute amounts (top) and relative amounts (bottom) (% of the total "securities + cash")**



Source: Banque de France ("OPC-Titres" database, "OPC-Bilan" database), AMF calculations

Finally, regarding the rating of the securities held, we find no marked difference between the 15 MMFs facing the largest outflows and French MMFs as a whole. Between January and April, the 15 MMFs analysed increased their holdings of the best-rated securities (rating less than 2) by 3.4 percentage points, but reduced their holdings of securities having a rating between 2 and 3.

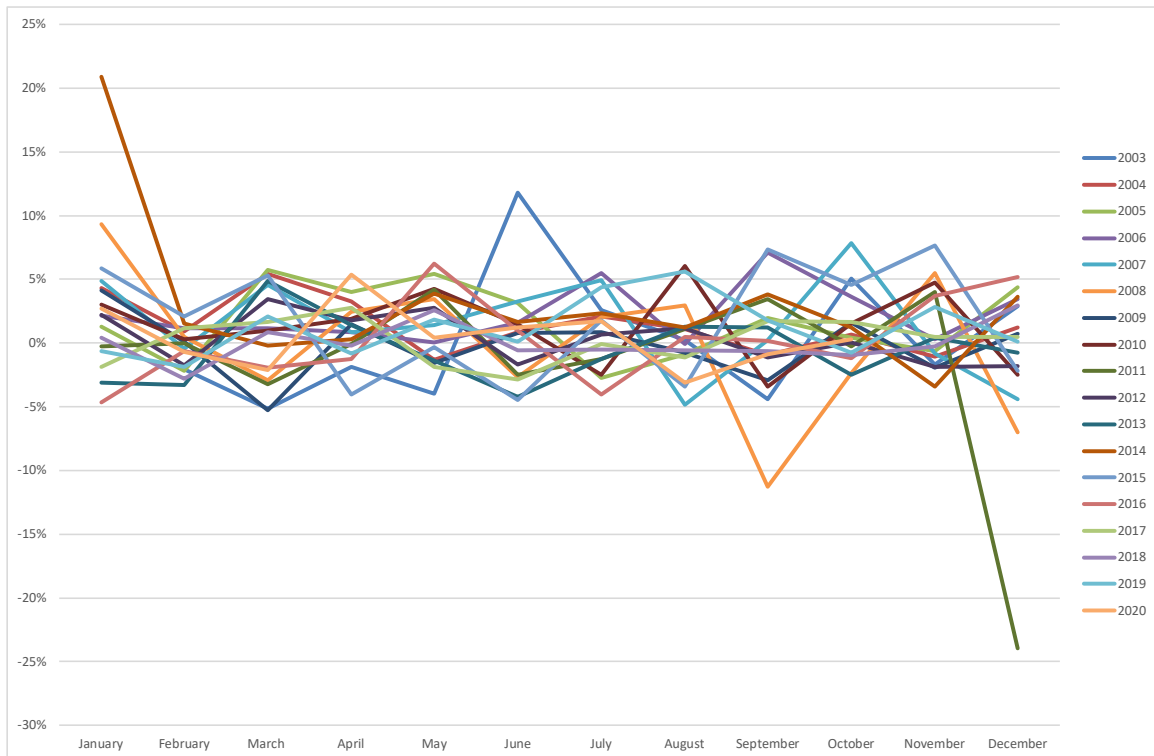
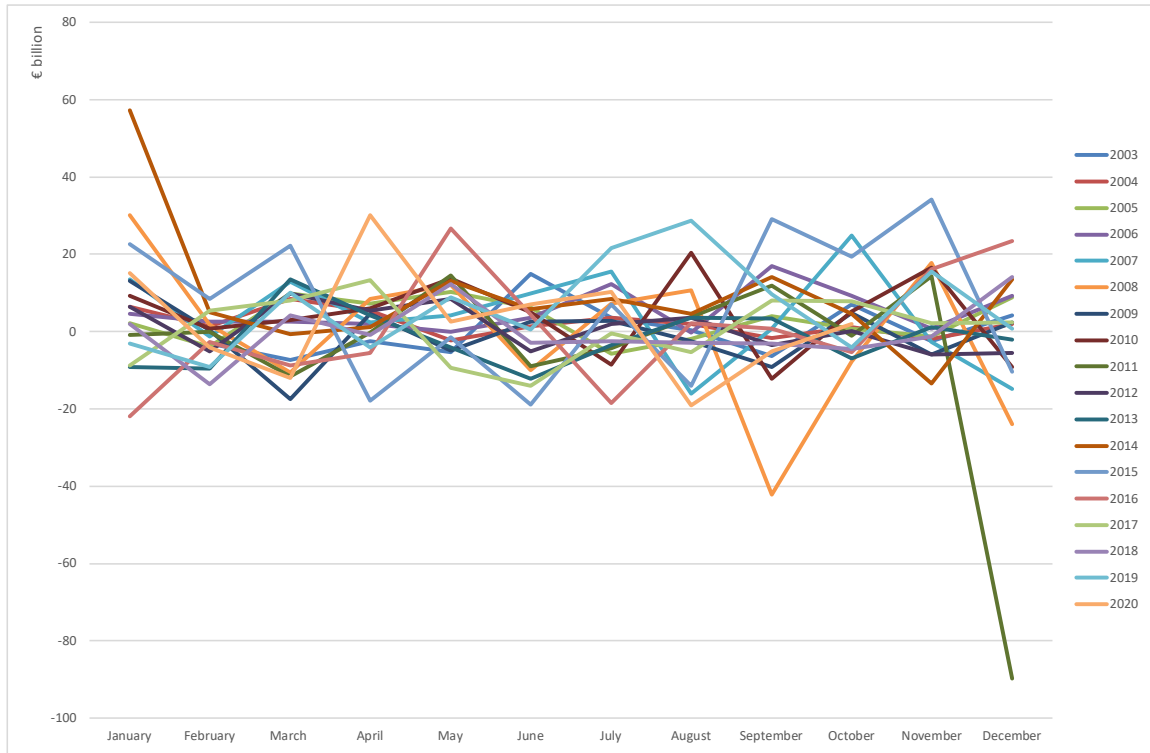
**Figure 25 – Change in the net asset mix of the 15 French MMFs facing the largest outflows – rating of the security in absolute amounts (top) and relative amounts (bottom) (% of the total "securities + cash")**



Source: Banque de France ("OPC-Titres" database, "OPC-Bilan" database), AMF calculations

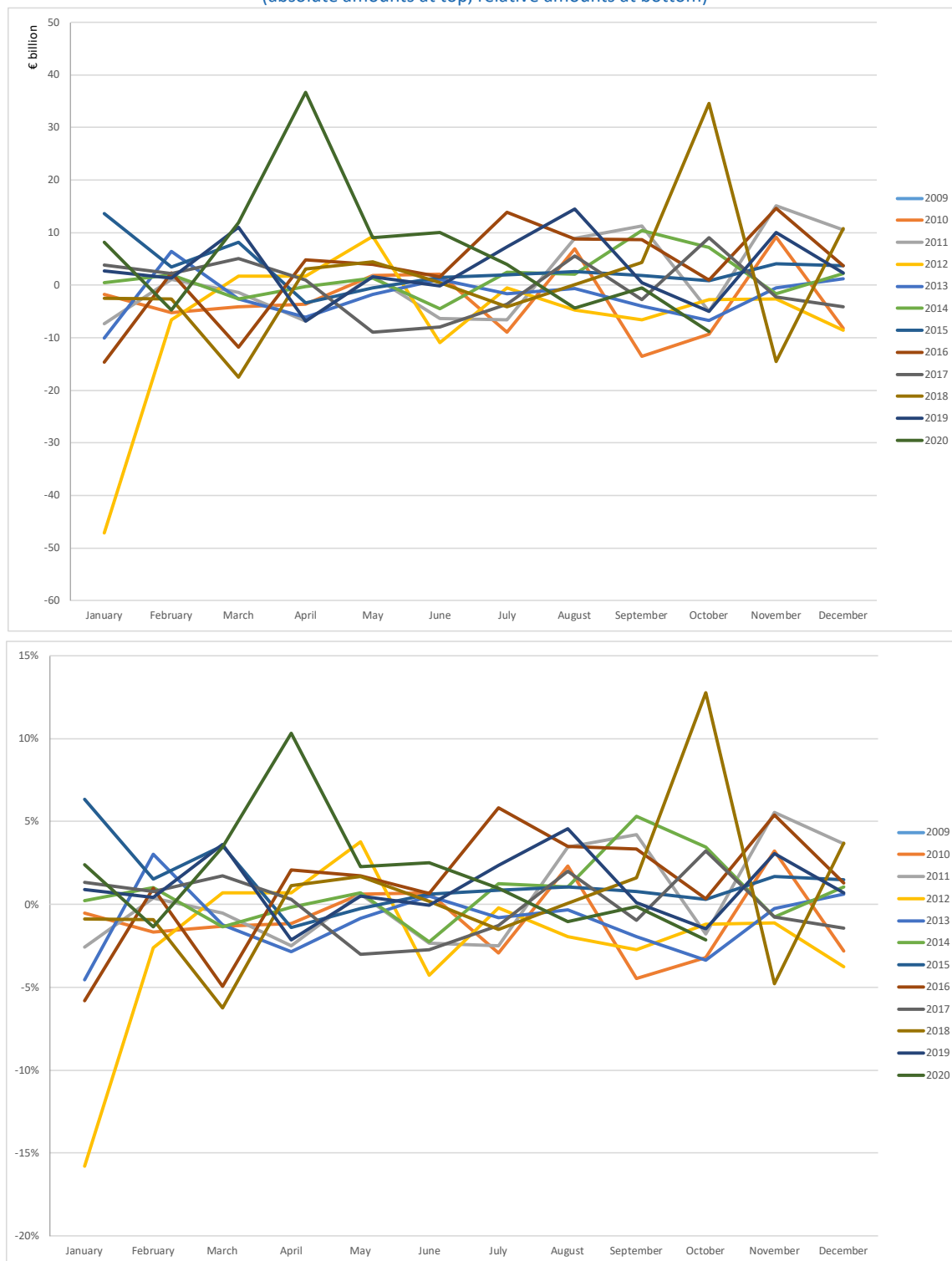
## Annex 1 - Absence of cyclicity of flows for Irish and Luxembourg MMFs

Figure 26 – Net monthly subscriptions (+) and redemptions (-) in Irish money market funds  
(absolute amounts at top, relative amounts at bottom)



Source: Central Bank of Ireland

**Figure 27 – Net monthly subscriptions (+) and redemptions (-) in Luxembourg money market funds**  
(absolute amounts at top, relative amounts at bottom)



*Source: Central Bank of Luxembourg*

*NB: the subscription and redemption flows were recalculated as the monthly variation in the net assets of MMFs reported by each of the two national central banks. We therefore make the assumption (acceptable for the MMFs, especially in the recent period) that the valuation effect is zero.*

**Annex 2 – Share of each bank (columns) relative to the total net assets of funds affiliated to a conglomerate (rows)**

**Table 4: Share of each bank (columns) relative to the total net assets of funds affiliated to a conglomerate (rows)**

**January maturity**

	Share of bank securities in the portfolio of MMFs	Banks of group A	Banks of group B	Banks of group C	Banks of group D	Banks of group E	Banks of group F	Banks of group G	Banks of group K	Banks of group L	Banks of group M	Banks of group N	Banks of group O	Other banks
MMF of AMCs of group A	<b>60.0 %</b>	5.9 %	5.4 %	3.0 %	6.2 %	0.1 %	0.0 %	0.6 %	4.4 %	5.8 %	1.8 %	3.2 %	3.8 %	<b>19.7 %</b>
MMF of AMCs of group B	<b>43.4 %</b>	6.8 %	4.0 %	3.6 %	5.7 %	0.3 %	0.1 %	1.5 %	3.9 %	2.3 %	3.4 %	0.4 %	0.2 %	<b>11.1 %</b>
MMF of AMCs of group C	<b>63.0 %</b>	6.6 %	4.9 %	5.1 %	5.5 %	0.7 %	0.0 %	2.3 %	5.1 %	3.0 %	2.6 %	1.7 %	0.8 %	<b>24.6 %</b>
MMF of AMCs of group D	<b>58.3 %</b>	7.0 %	4.6 %	4.5 %	7.6 %	1.4 %	0.1 %	0.1 %	3.6 %	1.8 %	5.0 %	1.6 %	0.7 %	<b>20.3 %</b>
MMF of AMCs of group E	<b>25.9 %</b>	1.4 %	1.8 %	0.1 %	1.8 %	0.0 %	0.0 %	0.0 %	1.2 %	1.3 %	1.1 %	1.2 %	0.7 %	<b>15.4 %</b>
MMF of AMCs of group F	<b>46.5 %</b>	3.0 %	0.2 %	0.9 %	1.1 %	0.0 %	0.0 %	0.0 %	3.1 %	1.8 %	4.5 %	1.6 %	1.3 %	<b>29.0 %</b>
MMF of AMCs of group G	<b>17.9 %</b>	4.6 %	2.7 %	0.0 %	1.4 %	1.1 %	0.3 %	1.3 %	0.4 %	0.4 %	0.8 %	0.6 %	0.6 %	<b>3.9 %</b>
MMF of AMCs of group H	<b>57.2 %</b>	7.9 %	7.1 %	2.3 %	8.8 %	0.0 %	0.0 %	2.0 %	4.8 %	3.8 %	2.7 %	0.9 %	2.2 %	<b>14.8 %</b>
MMF of AMCs of group I	<b>49.2 %</b>	4.5 %	4.3 %	3.8 %	5.3 %	5.4 %	0.3 %	4.9 %	4.6 %	0.8 %	0.0 %	4.7 %	0.0 %	<b>10.8 %</b>
MMF of AMCs of group J	<b>48.6 %</b>	6.1 %	8.1 %	2.9 %	6.6 %	2.6 %	0.0 %	0.5 %	0.0 %	2.7 %	3.9 %	5.0 %	0.0 %	<b>10.1 %</b>

Source: Banque de France ("OPC-Titres" database, "OPC-Bilan" database), AMF calculations

Table 5: Share of each bank (columns) relative to the total net assets of funds affiliated to a conglomerate (rows)

March maturity

	Share of bank securities in the portfolio of MMFs	Banks of group A	Banks of group B	Banks of group C	Banks of group D	Banks of group E	Banks of group F	Banks of group G	Banks of group K	Banks of group L	Banks of group M	Banks of group N	Banks of group O	Other banks
MMF of AMCs of group A	<b>56.4 %</b>	4.8 %	2.5 %	2.4 %	4.1 %	0.1 %	0.0 %	0.4 %	4.7 %	6.4 %	1.8 %	3.9 %	2.8 %	<b>22.4 %</b>
MMF of AMCs of group B	<b>39.3 %</b>	5.0 %	2.2 %	1.6 %	3.6 %	0.4 %	0.0 %	1.4 %	2.3 %	3.0 %	3.9 %	1.0 %	0.3 %	<b>14.5 %</b>
MMF of AMCs of group C	<b>63.6 %</b>	4.9 %	4.3 %	2.3 %	4.7 %	0.7 %	0.0 %	1.7 %	6.1 %	3.8 %	3.0 %	3.9 %	0.8 %	<b>27.4 %</b>
MMF of AMCs of group D	<b>53.3 %</b>	4.8 %	2.7 %	2.2 %	5.6 %	1.2 %	0.1 %	0.0 %	3.5 %	1.6 %	5.6 %	2.1 %	0.2 %	<b>23.6 %</b>
MMF of AMCs of group E	<b>22.7 %</b>	0.6 %	1.3 %	0.0 %	1.2 %	0.0 %	0.0 %	0.0 %	1.0 %	1.6 %	1.4 %	0.9 %	0.8 %	<b>14.0 %</b>
MMF of AMCs of group F	<b>54.1 %</b>	2.2 %	0.2 %	1.3 %	2.3 %	2.2 %	0.0 %	0.0 %	4.1 %	3.3 %	2.3 %	2.7 %	1.7 %	<b>31.8 %</b>
MMF of AMCs of group G	<b>14.4 %</b>	3.4 %	2.1 %	0.0 %	1.3 %	1.7 %	0.3 %	0.6 %	0.0 %	0.3 %	0.0 %	0.6 %	0.0 %	<b>4.2 %</b>
MMF of AMCs of group H	<b>49.2 %</b>	7.7 %	5.5 %	1.6 %	7.7 %	0.0 %	0.0 %	1.3 %	4.7 %	3.2 %	2.7 %	1.2 %	1.5 %	<b>12.2 %</b>
MMF of AMCs of group I	<b>49.9 %</b>	5.1 %	4.0 %	3.5 %	4.8 %	5.5 %	0.3 %	3.5 %	4.9 %	1.4 %	0.0 %	5.1 %	0.0 %	<b>11.7 %</b>
MMF of AMCs of group J	<b>38.7 %</b>	2.5 %	7.3 %	1.3 %	6.6 %	3.5 %	0.0 %	0.7 %	0.0 %	3.4 %	4.8 %	1.0 %	0.0 %	<b>7.6 %</b>

Source: Banque de France ("OPC-Titres" database, "OPC-Bilan" database), AMF calculations



### Annex 3: Calculation of a standard rating

Table 6: Correspondence of ratings with a standard scale

Moody's	S&P	Fitch	Standard scale
Aaa	AAA	AAA	1
Aa1	AA+	AA+	2
Aa2	AA	AA	
Aa3	AA-	AA-	
A1	A+	A+	3
A2	A	A	
A3	A-	A-	
Baa1	BBB+	BBB+	4
Baa2	BBB	BBB	
Baa3	BBB-	BBB-	
Ba1	BB+	BB+	5
Ba2	BB	BB	
Ba3	BB-	BB-	
B1	B+	B+	6
B2	B	B	
B3	B-	B-	
Caa	CCC+	CCC	7
Ca	CCC		
C	CCC-		
	D	DDD	

Note: To obtain a standard measure of the rating, we assigned to each rating a standard numerical equivalent according to the above scale. If a security is assigned a rating by several agencies, we then calculate a mean. For example, if a security is rated A3 by Moody's, BBB+ by S&P and is not rated by Fitch, then it is assigned the following numerical equivalents: 3 (Moody's), 4 (S&P) and NA (Fitch). Its final rating will therefore be  $(3+4)/2$ , i.e. 3.5.