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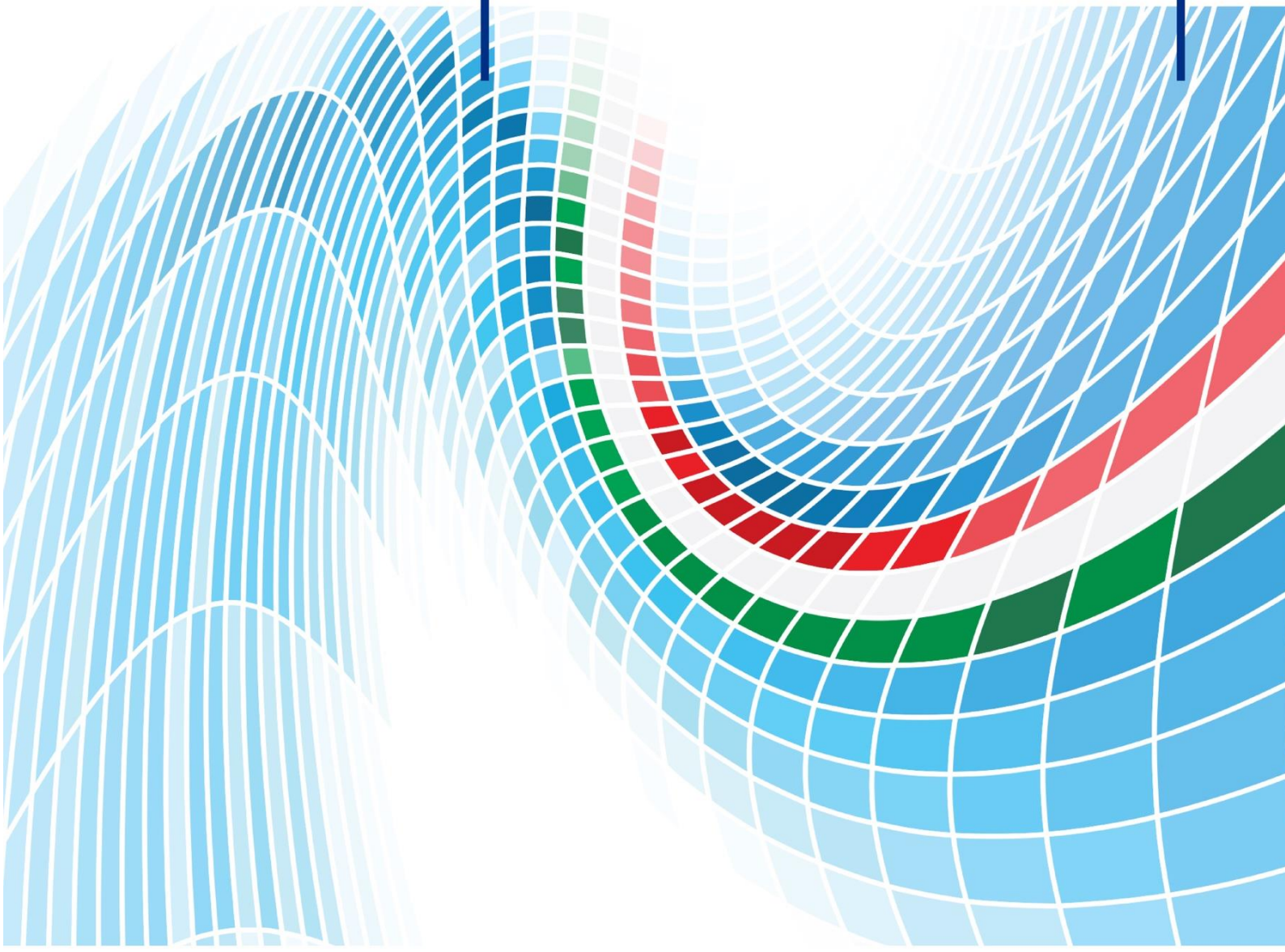
Treasury Department
Directorate II - Public Debt

Public Debt Report 2020



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MINISTERO DELL'ECONOMIA E DELLE FINANZE

PUBLIC DEBT REPORT 2020

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I. DEBT MANAGEMENT OBJECTIVES FOR 2020

I.1 THE TREASURY'S OBJECTIVES AND INTERNATIONAL DEBT MANAGEMENT PRACTICES

Debt management objectives and risks: international practices

As already mentioned in previous editions of this report, the Italian Treasury's public debt management is in line with international best practices and fully complies with the recommendations of the main multilateral financial institutions as well as with the approaches adopted by other Debt Management Offices (DMOs) in advanced countries.

International best practices have developed over time[1], thanks to a continuous sharing and analysis of the practical experiences gathered by the various DMOs in their respective economic and legal contexts. Firstly, these experiences highlight an inverse relationship between costs and risks (refinancing risk and interest rate risk) in the structure of a debt portfolio. They also define the following main objectives for public debt management:

- covering the Central Government's funding needs;
- minimising funding costs, subject to maintaining acceptable levels of risk over a medium- to long-term horizon[2];
- maintaining access to domestic and international markets in the long term.

The main types of risk faced by DMOs refer to market risk, which includes interest rate risk and exchange rate risk, refinancing risk, liquidity risk and credit risk, in addition to the operational risk. Many of these risks involve, albeit in different ways, an unexpected increase in the cost of debt that could jeopardise debt sustainability.

A public debt portfolio may be more or less exposed to each of these risks, depending on its actual composition. In other words, we must consider the ratio between short-term and medium/long-term debt and between fixed-rate and

[1] By way of example, the first 2-volume edition of the OECD's Green Book on Government Debt Management was published in 1983. Other updates followed in 1993, 2002 and 2005. The various editions of the 'Guidelines for Public Debt Management', jointly drawn up by the World Bank and the International Monetary Fund, also continue to be a main reference, the last of which was prepared in 2014 and published in 2015 (please see the text available from:
http://www.worldbank.org/content/dam/Worldbank/document/Debt/Revised%20Guidelines%20for%20Public%20Debt%20Management%202014_v2.pdf.)

[2] The most recent edition of the International Monetary Fund and World Bank guidelines on the management of the public debt states (p. 17 of the text referred to by the link above): *"The main objective of public debt management is to ensure that the government's financing needs and its payment obligations are met at the lowest possible cost over the medium to long run, consistent with a prudent degree of risk" [...] "Governments should try to minimize expected debt servicing costs […], subject to an acceptable level of risk, over a medium- to long-term horizon."*

floating-rate debt, as well as between the amount of domestic debt and foreign currency debt. Another important element that an issuing country must take into consideration when assessing the aforementioned risks is its ability to maintain, at the higher possible extent, a broad, liquid and deep market for the placement and trade of government securities.

International best practices recommend avoiding public debt portfolio structures that are too heavily weighted towards short-term and floating-rate instruments. Such structures may increase a country's economic and financial vulnerability[3].

In fact, despite reducing interest expenditure in the short term, these structures make it more volatile, while also increase the market refinancing risk and interest rate risk inherent in the debt portfolio and, consequently, in the government budget[4]. On the other hand, under normal financial market conditions and regardless of the issuer's creditworthiness, interest expenditure is higher for longer-term maturities, although longer maturities offer the benefit of effectively reducing the refinancing risk and interest rate risk.

Therefore, with regard to the rate type and debt maturity, the most prudent choice is generally more costly, while the less expensive option involves greater risks.

However, DMOs are required to pursue both objectives: reducing the cost of debt *at the same time as* curbing market risks. Therefore, in practice, public debt managers must forego maximising both of these objectives and must instead focus on managing their relative trade-off.

In other words, out of all the feasible options, they must select the cost-risk combination deemed satisfactory[5] in relation to both portfolio characteristics and overall strategies. This trade-off is therefore not the same for all DMOs, but rather is handled differently by public debt managers in each country, based on the characteristics of their respective portfolios, reference market and fiscal policies. Italy has taken a particularly prudent approach to this trade-off due to the size of its debt (among the highest in the world in absolute terms); this approach does not allow for opportunistic tactics, but instead imposes a need to prioritise continuity, predictability and long-term strategies.

It goes without saying that the DMO's task of minimising the cost of debt while maintaining an acceptable level of risk cannot be deemed to have been completed

[3] Considerations in this regard can be found in the *Guide to the Debt Management Performance Assessment* (DeMPA) Tool, World Bank 2009.

[4] However, it should be noted that this risk assessment approach may only be considered optimal if focusing exclusively on government liabilities (and therefore on debt). Indeed, a different and broader point of view could also include government assets. Under this approach, debt management could thus aim to achieve a liability structure consistent with the risks inherent to assets (following a so-called 'ALM' - 'Asset Liability Management' approach). This may lead to choices that - in principle - could differ even quite significantly from those made by taking into account the debt composition alone. However, many countries, including Italy, have come across significant hurdles in implementing such an approach, due to both the practical difficulty of calculating the financial risk exposure of the government's substantial assets - especially non-financial assets - and, in many cases, the fact that there is incomplete knowledge of the size and characteristics of said assets. Further information can be found in the World Bank *Policy Research Working Paper* *How Do Countries Use an Asset and Liability Management Approach? A Survey on Sovereign Balance Sheet Management.*

[5] In this regard, the International Monetary Fund and World Bank guidelines note that *"Minimizing cost, while ignoring risk, should not be an objective. Transactions that appear to lower debt servicing costs often embody significant risks for the government and can limit its capacity to repay lenders. Managing cost and risk therefore involves a trade-off"*.

upon each issuance and in relation to the market conditions at the time of placement. Indeed, the structure of public debt, consisting of a wide and diversified portfolio of financial instruments with different characteristics and maturities, requires continuous, dynamic management even after issuance, in line with market developments.

Public debt management objectives and results must therefore be pursued and assessed over a sufficiently long period and must take into consideration the entire portfolio.

The Treasury's involvement in international discussions on debt management

When identifying and setting its objectives, the Treasury benefits from ongoing international cooperation with the relevant foreign and supranational institutions, as well as from close contact with institutional investors, both in Italy and abroad, and with rating agencies.

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The Treasury's contribution to international dialogue on debt management

As in the previous edition, this Report includes a number of annexes that illustrate general issues concerning debt management (not specifically relating to the year of reference for the Report).
The first of these annexes provides details of international discussions on debt management in which the Treasury regularly participates. These include the ESDM (European Sovereign Debt Markets) Subcommittee of the EU Economic and Financial Committee, several working groups organised by supranational institutions such as the OECD, the IMF and the World Bank, and the International Retail Debt Management Conference. This annex also illustrates the role of the Treasury in setting up and managing the *Public Debt Management Network* (as the only government institution alongside the OECD and the World Bank).
(Annex 1 on page 101)

The process of defining debt management objectives within the Treasury's organisational model

The Second Directorate at the Department of the Treasury at the Italian Ministry of the Economy and Finances (MEF)[6], is in charge of public debt management.

The Directorate has front, middle and back office functions, as is typically the case for other DMOs in advanced countries and financial intermediaries. It also has other offices in charge of legal documentation, communication and statistics as well as relations with external institutions, in addition to IT activities and all the other legal-administrative and accounting roles common to ministerial organisations.

[6] The section of the Department of the Treasury's website dedicated to public debt (http://www.dt.tesoro.it/it/debito_pubblico/index.html) provides continuously updated information and documents on all activities relating to public debt management.

The middle office deals with identifying and monitoring annual debt management objectives, which includes the following activities: a) analysis to identify the most appropriate issuance and hedging strategies and to define the cost/risk profile for operations; b) multi-annual forecasts on interest expenditure and the general government debt level for policy documents and institutional reporting purposes[7]; c) monitoring of counterparty risk, which determines certain constraints that must be met when managing the derivatives portfolio and transactions invest liquidity.

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Department of the Treasury's 'Second Directorate' organisational structure – Public Debt

The Department of the Treasury's 'Second Directorate' is made up of eleven offices. Annex 2 provides a summary of the Directorate's responsibilities, grouped by role. This annex also includes a detailed explanation of the various activities and how they are shared out among the different offices. Finally, there is a brief description of how these offices interact with the work carried out by other Directorates and other entities (Annex 2 on page 103).

I.2 2020 OBJECTIVES: THE INSTITUTIONAL FRAMEWORK OF REFERENCE

General government's total debt is made up of the consolidated gross liabilities of Central Government, local authorities and public social security institutions. It includes outstanding government securities, i.e. the securities issued by the government on both the domestic and foreign market.

As was also the case in previous years[8], this Report refers to outstanding government securities, which are subject to the special legislation represented by Italy's 'Consolidated Law on Public Debt' (TUDP)[9]. As of 31 December 2020, government securities represented approximately 84% of total public debt.

The main characteristics of outstanding government securities - maturity, type of remuneration and issuance procedure and frequency - are summarised in Table I.1.

[7] In particular, the Economic and Financial Document ('DEF') pursuant to Italian Law no. 39 of 7 April 2011 (specifically, the Public Debt Directorate contributes to both Section I, "Italy's Stability Programme", and Section II, "Analyses and Trends in Public Finances"), the DEF Update, the Draft Budgetary Plan ('DBP') as required by EU Regulation no 473/2013, the Annex to the so-called 'Quarterly Cash Report' (referred to by Art. 14 of Italian Law no. 196/2009 as the 'Report on the General Government's Consolidated Cash Account'), the Report to Parliament on the sinking fund for government securities (an annex to the General Financial Statement of the Italian State) as referred to by Art. 44, paragraph 3, of Italian Presidential Decree no. 398/2003, and the half-yearly Report to the Court of Auditors on public debt management pursuant to the Italian Ministerial Decree dated 10/11/1995.

[8] All editions of the Public Debt Report are available at http://www.dt.tesoro.it/it/debito_pubblico/presentazioni_studi_relazioni/

[9] 'Testo Unico del Debito Pubblico' – 'TUDP', Italian Presidential Decree no. 398 of 30 December 2003).

TABLE I.1: DOMESTIC GOVERNMENT SECURITIES

	BOT	CTZ	CCT/CCTeu	BTP	BTP€i	BTP Italia	BTP Futura
	Treasury Bills	Zero-Coupon Treasury Bonds	Treasury Credit Certificates	Long-term Treasury Bonds	Long-term Treasury Bonds indexed to European inflation	Long-term Treasury Bonds indexed to Italian inflation	Long-term Treasury Bonds step-up
Maturity	3, 6, 12 months and less than 12 months (flexible BOTs)	24 months	5, 7 years	3, 5, 7, 10, 15, 20, 30 and 50 years	5, 10, 15 e 30 years	4, 6, 8 years	8, 10 years [a)]
Remuneration	Issue discount	Issue discount	Half-yearly variable coupons indexed to the 6-month Euribor, possible issue discount	Half-yearly fixed coupons, possible issue discount	Half-yearly coupons indexed to European inflation (HICP index net of tobacco), possible issue discount and revaluation of principal at maturity	Half-yearly coupons indexed to Italian inflation ('FOI' index net of tobacco), half-yearly revaluation of principal and loyalty premium [b)] at maturity	Half-yearly coupons with step-up mechanism with increasing yields and loyalty premium [c)] indexed to the average growth of Italian GDP during the life of the bond
Issuance procedure [d)]	Competitive, yield-based auction	Marginal auction with discretionary determination of the price and quantity issued	Marginal auction with discretionary determination of the price and quantity issued	Marginal auction [e)] with discretionary determination of the price and quantity issued	Marginal auction [e)] with discretionary determination of the price and quantity issued	Through the MOT (Borsa Italiana), the electronic market dedicated to retail trading	Through the MOT (Borsa Italiana), the electronic market dedicated to retail trading
Issuance frequency	Monthly	Monthly	Monthly	Monthly and based on market conditions for 15- and 30-year BTPs	Monthly	Once/twice ayear, based on market conditions	Once/twice ayear, based on market conditions

[a)] At the date of publication of this document, a BTP Futura bond with a maturity at issuance of 16 years is also in circulation.
[b)] For individual savers and similar investors who purchase the security at issuance during the first phase of the placement period.
[c)] For individual savers and similar investors, to whom the BTP Futura bond is reserved, who purchased the bond during the placement period and held it until maturity.
[d)] As of 2020, reopenings of securities destined only to Primary dealers have also been introduced.
[e)] The first tranches of new long-term BTPs (over 10 years) or BTP€is may be offered on the market through placement syndicate.

The part of public debt represented by government securities was managed in accordance with: (i) the Italian Ministry of Economy and Finance's general Directive for administrative procedures and management for 2020[10]; and (ii) the "Framework

[10] The Italian Ministry of Economy and Finance's general Directive for administrative procedures and management - 2020: http://www.mef.gov.it/ministero/oiv/direttiva_generale.html
Italian Decree of 3 January 2020, published in the 'Gazzetta Ufficiale' *(Official Journal of the Italian Republic)* no. 10 on 14 January 2020:
http://www.dt.mef.gov.it/export/sites/sitodt/modules/documenti_it/debito_pubblico/normativa_spalla_destra/Decreto_cornice_2020_-_Direttive_per_lxattuazione_delle_operazioni_finanziarie_xD.M._03.01.2020x.pdf

Decree" for 2020[11], which defined the reference objectives for administrative action regarding financial transactions for the management of public debt. The provisions contained in these decrees were then converted into the operational "Public debt management guidelines" for 2020[12] (hereinafter, 'Guidelines').

The general Directive identified as a strategic objective the effective and efficient management of public debt, focusing on containing its cost and extending or stabilising its average life.

As was the case in previous years, the Framework Decree for 2020, provided guidance for the work of the Public Debt Directorate as well as a number of specific objectives. In particular, Art. 2 states that debt should be *"in accordance with the limit established annually by the law approving the State budget"*, equal to the amount to cover the securities maturing during the year and the Central Government's borrowing requirements, being sure to "... *reconcile the need to meet market demand with that of containing the overall borrowing cost in a medium-long term horizon, having considered the need to protect against the refinancing risk and exposure to interest rate fluctuation*s".

The same article also identifies limits and objectives in terms of the percentage composition of debt at the end of 2020, broken down as follows:

TABLE I.2: OBJECTIVES FOR THE END OF 2020: PERCENTAGE COMPOSITION OF THE DEBT PORTFOLIO

Type of security	Min.	Max.	Differences compared to 2019
BOT (short-term)	3%	8%	--
BTP (fixed-rate, nominal)	65%	78%	--
CCTeu	4%	10%	up from the previous 5% - 10% range
CTZ	--	4%	--
BTP€i and BTP Italia ("real" securities)	--	15%	--
Securities issued on foreign markets	--	5%	--

Source: Framework Decree for 2020

In order to pursue the objectives of "*curbing the overall debt cost, protecting against market risks and refinancing risks and ensuring the proper functioning of the secondary market for government securities*", Art. 3 authorises the use of public debt management transactions[13] also through derivative financial instruments, exchanges or buy-back of government securities.

In order to mitigate the credit risk stemming from derivatives, Art. 4 requires counterparties to have a high level of creditworthiness, according to the rating given by the main rating agencies, also providing for possible agreements with the counterparties for mutual guarantees (collateralisation)[14].

Lastly, Art. 6 states that the aim of cash account management[15] must be "*the efficient movement of cash balances, in relation to the government securities*

[11] Framework Decree - Guidelines for the implementation of financial operations for 2020 http://www.dt.mef.gov.it/modules/documenti_it/debito_pubblico/normativa_spalla_destra/Decreto_cornice_2021_-_Direttive_per_lxattuazione_delle_operazioni_finanziarie_xD.M._30.12.2020x.pdf

[12] Guidelines for Public Debt Management 2020

[13] Art. 3 of the 'TUDP' (Italian Consolidated Law on Public Debt) authorises the use of transactions on a consensual basis that restructure certain features of the existing debt portfolio.

[14] For more information about these mutual guarantee agreements, please see Chap. III.3 'Derivatives portfolio management').

[15] Regulations regarding the Treasury's cash movements and the selection of the counterparties participating in the relative transactions are based on the Italian Ministerial Decree dated 25 October 2011.

issuance, prevailing market conditions and the constraints imposed by monetary policy provisions".

In terms of debt composition to be achieved by the end of 2020, the assigned debt management objectives were to maintain a substantially stable portfolio compared to 2019, both in terms of short-term and medium/long-term maturities. The aim of this was to consolidate the results already achieved in terms of exposure to interest rate risk and refinancing risk, while preventing the particularly less favourable market environment from jeopardising the results achieved in recent years[16].

Based on the outstanding securities portfolio at the end of 2019, € 202 billion worth of securities were scheduled to mature in 2020 (excluding BOTs), of which € 3.1 billion referring to the foreign programme, an amount broadly in line with the 2019 maturity volume of medium/long-term securities outstanding at end-2018.

Considering that in the 2020 Guidelines, the Central Government cash needs were expected to be slightly higher than in 2019, the volumes of securities offered to the market in 2020 could not be expected to differ significantly from those of the previous year.

In particular, in the abovementioned document the Treasury set the following objectives:

1) to ensure that borrowing requirements are met at costs as aligned as possible with market trends;
2) to consolidate the results already achieved in terms of exposure to the main risks, in particular the interest rate risk and refinancing risk;
3) to contribute to a gradual improvement in liquidity conditions on the secondary market, especially for those segments and sectors that had shown the most difficulties in this regard during the second half of 2018;
4) to make the Treasury's cash management even more efficient, also through more diversified instruments.

The Treasury's strategy was therefore set to develop along the following lines:

1) ensure predictable and regular issues for all the main segments of domestic securities;
2) adjust the volumes offered to the market in order to give greater weighting to sectors with better liquidity on the secondary market and greater depth of demand;
3) use liability management tools (such as exchanges and buybacks), in line with the approach followed in the previous two years, with a frequency and intensity in line with market trends, with the aim of reducing dislocations on specific securities, improving liquidity on the secondary market and managing the redemption profile for future years;
4) diversify the investor base also through foreign currency issues in Global format as well as EMTNs, in particular in USD;
5) possibly use innovative tools, also specifically dedicated to retail investors, after in-depth assessments, feasibility analyses and market surveys;

[16] The evolution of the average life of the stock of government securities is detailed in the following paragraphs.

6) put in place all organisational and market interventions necessary to start the issuance of "green" government securities, introduced into domestic law by the Budget Law for 2020 (Law No. 160 of 27 December 2019).

In April 2020, quite unprecedentedly, the Guidelines were updated in order to provide the market with qualitative indications on how the Treasury intended to manage the additional financing needs arising from the Government's implementation of extraordinary measures to strengthen the national health service and support the economic system following the COVID-19 epidemiological emergency. The major increase in the volume of issues had to be balanced as efficiently as possible in order not to compromise the results achieved in terms of debt structure and composition, and to limit the exposure of debt to risks, in particular the interest rate and refinancing risks.

To this end, the Treasury relied on the following instruments:

1) an increase of the volumes issued in auctions, spreading them over various instruments and maturities over time, taking into account the evolution of market conditions and calibrating the volumes to favour sectors with greater liquidity on the secondary market;
2) an increase in the ratio of supplementary placements reserved for Specialists (Primary dealers) in government securities, with the option to bypass the previous limits[17] by discretionally increasing the number of reopenings regardless of the residual life of the security;
3) a greater use of placement syndicates to launch new benchmarks, including on maturities other than those (equal to or greater than 10 years) traditionally reserved for this type of issuance, to ensure that the amount of the first tranches is well distributed among final investors and is of a size that guarantees adequate performance on the secondary market;
4) the introduction of a facility for Primary dealers in the so-called “tap” issuances through which the Treasury could propose one or more off-the-run securities in the weeks without auctions or in addition to the auctions;
5) a greater involvement of retail investors and, consequently, a greater offer in the retail sector, using a new nominal rate instrument alongside the BTP Italia.

I.3 CURBING THE COST OF DEBT WHILE PAYING ATTENTION TO THE COST/RISK PROFILE

The cost-risk trade-off: Italy's specific features

As in previous years, public debt management in Italy focuses on two main risks: the interest rate risk and the refinancing risk.

[17] These limits amounted to 30% in the case of the first tranche and 15% for subsequent tranches. The latter could be increased by a further 5% for securities with a residual maturity of more than 10 years.

With regard to the first of these risks, the management objective is to minimise the impacts on interest expenditure[18] caused by fluctuations of the interest rates at which the debt is placed.

With regard to the refinancing risk, the management objective is to distribute the maturities of securities more evenly over time in order to facilitate the placement of new issues. In fact, by offering volumes that are in line with the market's ability to absorb debt, undesired rises in financing costs can be avoided.

When it comes to these risks, the Treasury's objectives are in line with the practices followed by other DMOs. However, in Italy's case, it is necessary to take an even more prudent approach in order to consider two specific aspects, both of which are linked to the country's particularly high level of debt.

The first aspect is the fact that a significant component of the interest rate level at issuance for Italian government securities is the credit risk premium requested by investors[19]. This premium is not very closely linked to the economic cycle and affects Italy in a more significant way than in countries with lower levels of debt or whose creditworthiness is perceived as being higher. In fact, for these countries, changes to debt interest rates are more in line with the economic cycle, making it easier to manage the interest rate risk based on the debt-to-GDP ratio. For Italy, on the other hand, the medium-term risk premium tends to be correlated with the perception of debt sustainability rather than with economic performance. To support debt sustainability, debt composition must therefore be as resilient as possible to deal with any future unfavourable developments regarding refinancing conditions (yields, demand structure, etc.).

The second aspect relates to the greater importance of having interest expenditure that is as stable and predictable as possible for the management of the Italian state budget. This helps to avoid the need to increase taxation should government-security yields be affected by possible shocks and makes it easier to manage public finance commitments stemming from European requirements, mainly based on deficit control and debt dynamics.

The two aforementioned aspects therefore significantly contribute to guiding Italy's debt management strategy with regard to keeping refinancing and interest rate risks under control.

Refinancing risk metrics and management tools

The average life of the stock of government securities is the best-known benchmark metric used to measure refinancing risk: this is calculated as the average of the maturities of all outstanding securities, weighted according to the nominal

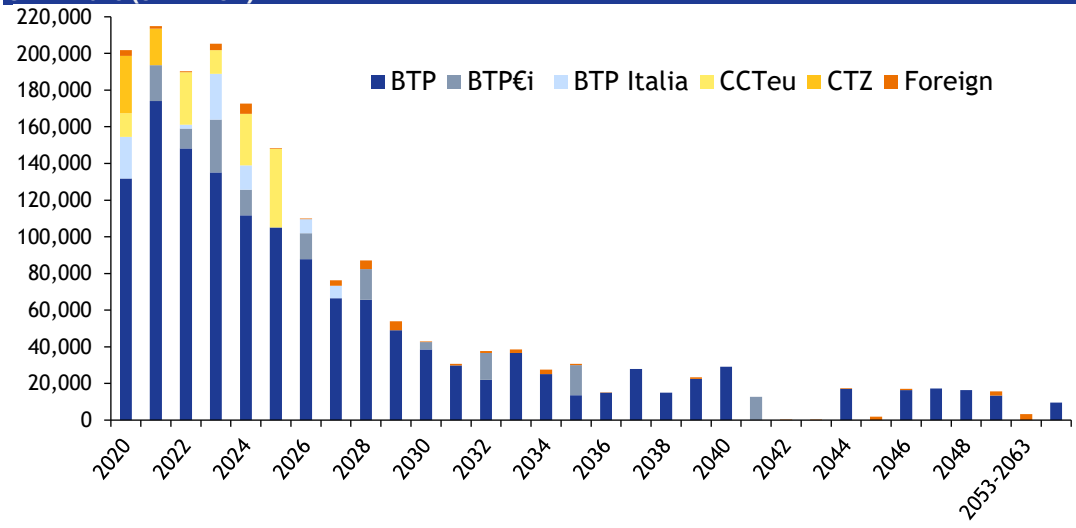
[18] In order to manage public finances correctly, it is necessary, where possible, to reduce costs and to plan outgoings with as much certainty as possible. This avoids unwanted and unexpected increases in the deficit and/or fiscal pressure, perhaps also significantly and in a short amount of time, as a result of costs or expenses not being duly planned for. Correct management of public finances therefore guarantees a framework of financial stability, which in turn allows for effective debt management.

[19] Following the introduction of the single currency, there was a significant reduction in the perception and valorisation of the credit risk for highly indebted euro area countries; however, these re-emerged with the global financial crisis of 2007-2008, and, above all, with the subsequent sovereign debt crisis, after which the credit spreads between highly indebted countries and other countries failed to return to pre-crisis levels.

value[20] of each security. At the end of 2019, the average life of government securities stood at 6.87 years, up from the 2018 level.

Given the annual profile of maturities at the end of 2019 (Chart I.1), as well as the monthly profile up to 2022 (Chart I.2), it was decided to maintain the approach aimed at both reducing peaks in redemptions, by relieving the outstanding amount of several securities maturing, in particular, between 2021 and 2023, and counteracting the reduction in the average life of the debt.

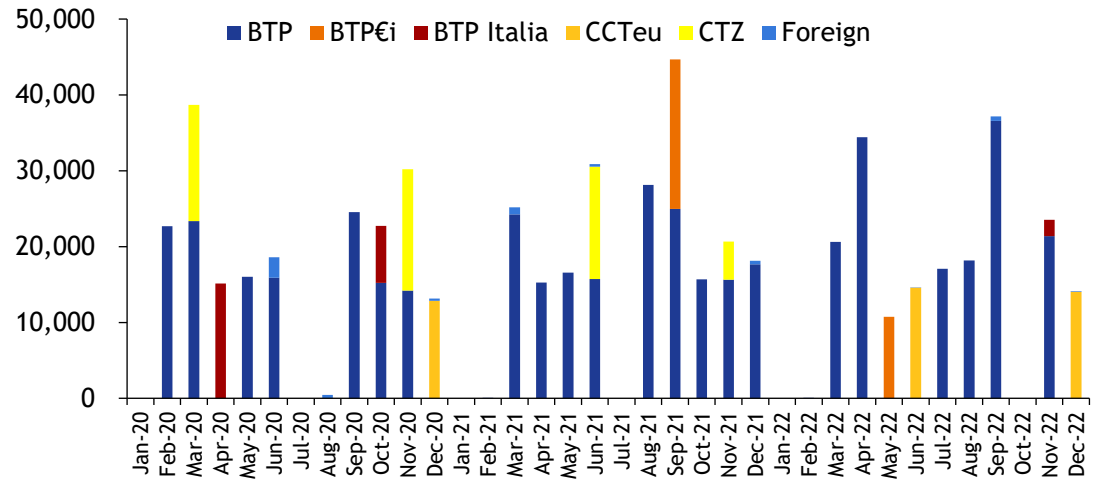
CHART I.1: ANNUAL MATURITY PROFILE OF MEDIUM/LONG-TERM SECURITIES OUTSTANDING AS AT 31.12.2019 (€ MILLION)



Source: MEF

[20] For "nominal value", the definition adopted in EC Regulation no. 479/2009 of 25 May 2009 is used: "*…. The nominal value of a liability outstanding at the end of the year is the face value. The nominal value of an index- linked liability corresponds to its face value adjusted by the index-related change in the value of the principal accrued to the end of the year. Liabilities denominated in a foreign currency […] shall be converted into the national currency on the basis of the representative market exchange rate prevailing on the last working day of each year. Liabilities denominated in a foreign currency and exchanged through contractual agreements to the national currency shall be converted into the national currency at the rate agreed on in those contracts*".

CHART I.2: MONTHLY MATURITY PROFILE OF MEDIUM/LONG-TERM SECURITIES OUTSTANDING AS AT 31.12.2019 (€ MILLION)



Source: MEF

Interest rate risk metrics and the SAPE model and software used by the Italian Treasury

The three main indicators used to quantify the interest rate risk are (i) financial duration, equal to the weighted average payment time for both principal and interest; (ii) the average refixing period, i.e. the average time taken by the debt portfolio to "integrate" interest rate changes, and, lastly, (iii) Cost-at-Risk, which quantifies the maximum additional cost in terms of interest expenditure in the event of adverse interest rate scenarios, along with the probability of actually having to bear this additional cost, deriving in turn from the probability that these adverse scenarios shall occur[21]. Cost-at-Risk (CaR) analysis is therefore used to identify, with a given probability, an expected cost level that may not be exceeded, as well as all the compositions of the securities issuances whose cost-risk combinations are classed as being efficient, i.e. are such as to become dominant - for a given level of cost or risk - over any other hypothetical composition of the issuance portfolio.

In this way, it is possible to test the characteristics of a series of hypothetical issuance portfolios, estimating both the cost in terms of interest expenditure and the interest rate risk (Cost-at-Risk) for each over a given amount of time in the future, calculated with different possible scenarios as to how the interest and inflation rates will evolve.

From a technical point of view, the tool used for this analysis is an in-house developed model which the Public Debt Directorate has been using for a number of years, called 'SAPE' ('Software di Analisi dei Portafogli di Emissione' - *Issuance Portfolio Analysis Software*).

[21] Please see the focus point on "The main quantitative indicators of interest rate risk" on page 22 of the 2014 Annual Public Debt Report, available at the address already provided in note 8 of this Chapter.

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The SAPE model and software used by the Italian Treasury

The acronym 'SAPE' refers to a set of specially designed models and software that the Italian Treasury has been using for many years to select issuance portfolios which not only meet funding needs and comply with applicable regulatory constraints, but are also able to provide a satisfactory cost-risk trade- off with efficient results.
These models and software were created, in collaboration with the Treasury, by experts from prestigious research institutions such as the "M.Picone" Institute for Calculation Applications ('IAC') - the Italian National Research Council ('CNR') and the Cambridge Judge Business School at the University of Cambridge, as well as by SOGEI, the Italian Treasury's IT solutions provider for the public administration.
The models and software are updated continuously.
A detailed description of the implications of the model and how it works can be found in the recently published paper, available at the following link: http://www.dt.mef.gov.it/it/debito_pubblico/Public_Debt_Management_Network/ebook/
A summary of how the model was developed is provided in the following annex
(Annex 3 on page 106)

The outstanding debt database used by SAPE at the end of 2019 was made up of domestic securities, derivatives and securities in USD. With regard to the latter, the Treasury's policy is to issue any securities in a foreign currency at generally better (or at least equal) cost conditions[22] than those available for equivalent domestic instruments. Therefore, when estimating the refinancing costs of future redemptions for securities in USD, data on domestic securities were used, with no new derivative transactions expected to manage the rate risk.

The role of the issuance strategy in managing the interest rate risk-cost trade-off in 2020

For debt management, especially of a large amount, it is essential to identify a cost-risk combination that minimises costs without increasing risk. This may also be interpreted as promoting a medium- and long-term perspective, which not only aims at reducing costs as much as possible in the present, but also creates the conditions for a lasting and gradual reduction in borrowing costs (which also depend on investors' perception of credit risk).

For this reason, improvements in refinancing and interest rate risk metrics should always be evaluated by also taking into account the higher costs involved with this strategy. In fact, as already mentioned, the market demands higher remuneration for securities with longer maturities. This trade-off must therefore be taken into consideration when planning the issuance portfolio, i.e. estimating the marginal cost required by the market to improve the aforementioned risk metrics.

To do this, the Public Debt Directorate conducted an analysis of the set of hypothetical issuance portfolios for domestic securities already identified when defining the Guidelines in previous years, assessing their actual feasibility and sensitivity to certain market elements.

[22] Including costs to hedge against exchange rate risks.

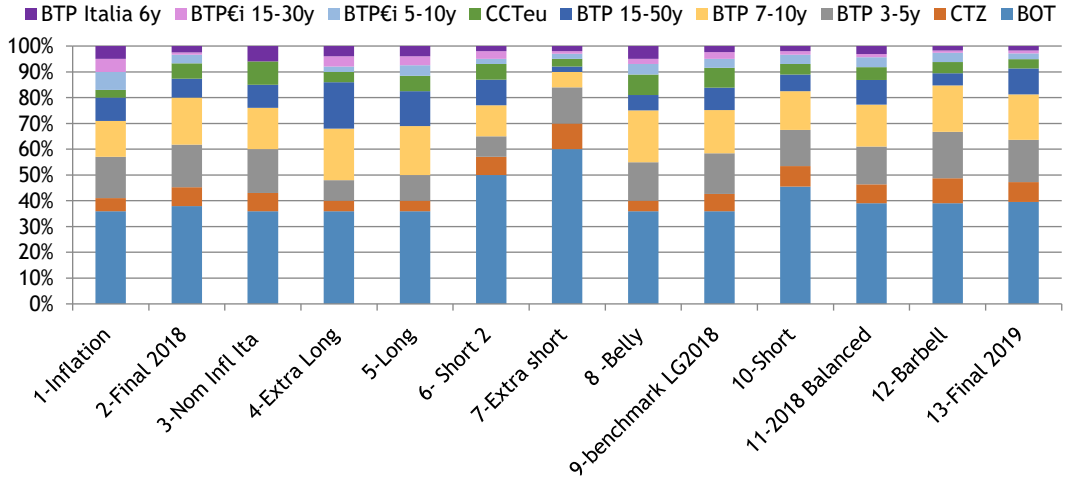
As a precondition, said portfolios must make it possible to fund:

1) the redemptions of medium- and long-term securities scheduled for 2020 (amounting to approximately € 232 billion),
2) outstanding BOTs (amounting to approximately € 114 billion), together with the so-called 'BOT rollover' during the year, i.e. the BOT issues necessary to cover the redemptions of the BOTs issued in the same year,
3) Central Government cash requirements, which, at the time, were estimated to be around € 47 billion[23],
4) as well as ensuring that the Treasury has sufficient liquidity available to cater for all cash needs.

The portfolio initially used for the analysis reflected the composition of domestic issues in 2019, characterised in gross terms by more than 39% of BOT issuances (almost equally divided between annual and 6-months maturities), almost 8% of CTZs, around 4% of CCTeus and just over 5% of inflation-indexed securities (including BTP€i and BTP Italia). Nominal BTPs therefore represented a considerable 44% of the total, of which approximately 16% were represented by securities with the shortest durations (3 and 5 years), almost 18% by 7- and 10-year maturities and, lastly, 10% relating to the segment with the longest duration.

The following chart shows the other 12 portfolios analysed:

CHART I.3: COMPOSITION OF THE ALTERNATIVE ISSUANCE PORTFOLIOS ANALYSED FOR 2020 (€ MILLION)



Source: MEF

The results showed that, as in the previous year, the focus should have been on so-called 'barbell' strategies, balancing short- and long-term components and reducing the presence along the middle sector of the curve.

[23] This figure formed the basis for public finance forecasts for 2020, included in the 2019 'DEF Update' and remaining unchanged in the subsequent DBP (Draft Budgetary Plan).

The role of derivative transactions in managing the interest rate risk-cost trade-off for 2020

Sovereign issuers generally use financial derivatives as part of an effective debt management strategy. The placement activity on the primary market and the natural maturity of the securities issued in past periods result, in fact, in changes in the risk composition of the debt portfolio. Therefore, the Treasury uses derivatives, as well as exchange and buyback transactions, to manage the portfolio's cost and interest rate risks on an ongoing basis, even after issuance of the securities held therein.

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The role and type of derivative transactions used by the Treasury

In principle, the derivatives sector is considerably vast, encompassing transactions that have very different structures and purposes and refer to almost all areas of finance and the economy. Sovereign issuers such as the Italian Treasury only use a few types of derivative transactions for specific risk management objectives underlying its debt portfolio, with particular regard to interest rate and exchange rate risks. The annex cited below describes the role played by derivatives in managing Italy's public debt and the types of transactions that are used (Annex 4 on page 108).

In authorising the use of derivatives, the Framework Decree stated that they should contribute to achieving the general management objectives of curbing overall borrowing costs, protecting against market risks and refinancing risks and ensuring the proper functioning of the secondary market for government securities.

Management of the derivatives portfolio must also take into account two main aspects: (i) the availability of collateralisation agreements for any new derivative positions, which can also be used to reduce the cost of cross-currency swaps to act as a hedge for any new foreign currency issuances, and (ii) existing constraints in defining the structure of management operations.

With regard to the first aspect, the system of mutual guarantee agreements regarding derivative transactions (the so-called 'Credit Support Annex' or 'CSA') provided for by the secondary legislation[24] introduced in December 2017 was implemented[25] in 2018. This system may be applied to both selected existing contracts (therefore supporting the management of existing positions) and, above all, cross-currency swaps to hedge against the exchange rate risk stemming from any new foreign currency issuances. Therefore, in 2020, all the technical requirements were met for the Treasury to consolidate its presence in markets other than the euro and to expand its investor base.

With regard to the second aspect, the impact that derivative transactions can have on the level of the debt stock is taken into account, due to the application of the statistical and accounting recording criteria provided for by the European system (ESA 2010). The criteria aim to anticipate, on settlement of the transactions, the inclusion of the market value of derivatives in the public debt. Any latent

[24] Italian Ministerial Decree of 20 December 2017, as already referred to above.
[25] In this regard, please see pages 77-80 of the 2018 Public Debt Report.

liability affects debt stock on an accounting basis and does not entail actual recourse to the capital market. In 2020, derivative transactions were therefore meant to complement issuances, also taking into account more general public finance objectives, in light of the accounting impacts of European legislation, while continuing to contribute to increasing the average refixing period and debt duration[26].

In particular, management of the derivatives portfolio in 2020 was set to focus on (i) hedging the exchange rate risk for issuances in a foreign currency and implementing the related collateral guarantees, (ii) concluding new transactions to extend the duration of the debt portfolio (iii) managing the collateral already in place.

Measures to achieve debt issuance and management objectives for 2020

In relation to the set objectives, the Italian Treasury's strategy for 2020 was structured as follows, covering the two phases of debt management:

Policies at issuance of domestic and foreign securities

The Guidelines defined the issuance policy for 2020 taking into consideration the above-mentioned objectives in terms of average life, duration and the average refixing period, as well as the results of the cost-risk trade-off analysis.

Given the higher volumes to be offered to the market compared with the previous year, and in line with market conditions, the guidelines stated that issuance choices in 2020 should therefore aim:

1) to adjust BOT issuances in order to ensure an end-of-period stock which would include the renewal of maturing securities;
2) to keep CTZ issued amounts in line with or marginally below redemptions. Given the amount of redemptions of around € 32 billion more than in 2019, this implied a slight reduction in the weight of the 24-month segment;
3) for 3- and 5-year BTPs, to adjust the offer on the two segments, keeping a similar overall amount in line with the previous year, but with a tendency to overweight the three-year segment compared with the five-year one. Slightly positive net issues were expected on both segments;
4) to keep largely positive net issuances of 7-year BTPs, with gross issuances in line with those of 2019, so as to consolidate the share of seven-year BTPs within the stock of government securities at the end of the year, thereby contributing to extending the average life of the debt; given the benchmark role of the 10-yearBTP, to continue to offer this maturity through regular monthly auctions. In 2020, the Treasury therefore planned to consolidate its

[26] Pursuant to Italy's 2005 Finance Law (Italian Law no. 311 of 30 December 2004), certain derivative contracts were concluded relating to public entities' loan receivables, transferred to the Treasury from the books of the 'Cassa Depositi e Prestiti' after the latter became a limited liability company (Article 5 of Italian Legislative Decree no. 269 of 2003 – "attached" to the 2004 Finance Law - as converted, with amendments, by Italian Law no. 326 of 2003). The notional amount of these contracts is less than 1% of the Treasury's entire derivatives portfolio, as shown in detail in Table III.14 (Chapter III). These contracts do not form part of debt management and are therefore not addressed in this Report.

presence in the 10-year segment, although with potentially negative net issuances, given the amount expiring (over € 48 billion);

5) for longer-term nominal maturities, to provide liquidity on all available instruments (15, 20, 30 and 50 years) by resorting to both the reopening of outstanding securities and the issuance of new ones, deciding on a case-by-case basis which of the available maturities to offer. With regard to long-term securities, the plan was to keep overall issuance levels similar to those of the previous year, thereby achieving positive net issuances (given scheduled redemption of over € 23 billion on the 15-year security). In the presence of favourable market conditions, it was also planned to use a placement syndicate for a new security with a 15-year and/or 30-year maturity;
6) to limit the offer of CCTeus, in line with the strategy followed in recent years due to the contraction of both market demand and redemptions which, although slightly larger than in 2019, would be flanked by securities withdrawn through exchange and buyback operations necessary to face tensions in the sector. Net issuances were nonetheless expected to be positive, thus keeping the ratio stable with respect to the overall stock of outstanding securities and distributing the placement of the new benchmarks over maturities between 3 and 7 years;
7) to continue to ensure a constant presence for the various maturities of BTP€is, with the monthly volumes on offer remaining practically in line with redemptions. The conditions for launching a new security on the 5-year and longer-term segments were also to be examined;
8) to ensure at least one issuance of the BTP Italia, keeping maximum flexibility regarding the most appropriate maturity, in any case between 4 and 8 years. As was the case in the last two years, the Treasury would have considered the possibility of carrying out exchange or buyback transactions on securities with a particularly high outstanding amount, in order to contribute to the management of the redemption profile for the coming years. Given the large amount of maturing volumes (around € 23 billion), net issuances were expected to be positive in order to keep the weight of this type of security and the inflation-indexed segment as a whole stable within the overall stock;
9) to continue issuing in USD on a regular basis, confirming the Treasury's continuous presence in this sector, as announced following the 2019 multi-tranche global bond issue. The aim is to continue to build a USD yield curve that is ever more complete and liquid, significantly increasing the number of investors managing Italy's Public Debt, with particular regard to investors not very present on domestic securities, while ensuring issuance costs in line with those of outstanding securities. In line with 2019, the guidelines provided for the possibility to recourse to the MTN program, in euro/foreign currency, to meet the demand for public or private placements among primary institutional investors, subject to minimum requirements being met[27] regarding the issue format;

[27] Maturity of at least three years, minimum amount of €200 million and a minimum negotiable amount of €500,000.

10) to evaluate the possibility of stepping in the sustainable finance market by issuing the first "green" government bond for financing projects with a positive environmental impact.

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Italy and the role of sovereign Green Bonds

In 2016, Poland was the first in Europe to enter the sovereign Green Bond market, but the first benchmark for the market was France's issuance of a Green Bond in 2017, which paved the way for other major sovereign issuers such as Belgium, Ireland, the Netherlands, Hungary, Sweden and, most recently, Germany. The sovereign issuers' market will continue to be developed, with several countries planning to issue Green Bonds from 2021 onwards, including Italy, Spain, the United Kingdom, Denmark, Ukraine and Slovenia, also in response to the European Union's recent commitment to reduce carbon emissions to zero by 2050.
2021 will also see major changes, especially regulatory ones, to further support the European Green Bond market. Two main events will attract the attention of sustainable finance investors: the first is the publication of the draft Green Bond Standards (GBS)[28] Regulation by the European Commission to implement Action 2 of the Action Plan on Sustainable Finance Development.
Drafted by the International Capital Market Association (ICMA), the proposal will be based on four principles:

1) the alignment with the EU Taxonomy on eco-friendly activities to identify eligible projects and activities;
2) the publication of a document (Green Bond Framework - GBF) in which the issuer explicitly declares how the issue aligns with EU environmental objectives, how the proceeds raised will be used and how the green bond will align with the same GBS;
3) the reporting on the use of proceeds and their environmental impact;
4) verification by an external auditor (accredited as per ESMA procedures) that the GBF is complied with and that proceeds are being allocated towards the declared objectives.

Green bond issuances also benefit public debt management in that they help diversify the government securities portfolio, both in terms of portfolio composition and in terms of broadening and diversifying the investor base holding these securities. From this second point of view, Green Bond issues by sovereign issuers already present on the market have proved to be able to attract the segment of investors with a long-term time horizon and, therefore, able to guarantee lower volatility of bonds on the secondary market. Specifically, empirical evidence suggests that Green Bonds, although yielding returns in line with the corresponding ordinary government securities, are more stable during phases of uncertainty: those who buy Green Bonds tend, in fact, to maintain the investment also when the market is more turbulent. Therefore, from a public debt manager's point of view, this type of instrument allows a sovereign issuer to contain the impact of instability, under the point of view of overall costs.

[28] The draft GBS regulation was adopted on 6 July 2020. For details on the content of the proposal see: https://ec.europa.eu/info/publications/210706-sustainable-finance-strategy_en

Green Bonds also offer a higher level of transparency than other government bonds, allowing investors to be more directly involved with the projects that the country intends to finance through the issuance of green bonds. Investors are therefore able to play a more active role in selecting solutions to the various debt sustainability challenges.

Italy has always been committed to protecting the environment and combating climate change - both on its own territory and in international fora where international treaties for environmental protection are discussed and signed - stressing how important it is, for the international community, to be involved as much as possible and, for states, to make broad, serious and effective environmental commitments. To this end, in 2019 the Italian Minister of Economy and Finance, as a result of the assessments carried out by the Public Debt Directorate of the Department of the Treasury regarding the favourable market outlook and in line with the best practices already adopted by other sovereign issuers, announced that the Italian Republic intended to issue sovereign Green Bonds.

Italy's issuance of the first sovereign green bond is aimed at benefiting the country's reputation by conveying to the investor market the country's commitment to a policy of sustainability, in line with its main European partners. The issue is also aimed at diversifying the portfolio of sovereign bonds and the investor base, which are extremely important in the management policy of a state with high levels of debt, thus reconfirming itself as a strategy for diversifying the product to be offered to investors, as was recently done with the introduction of the first sovereign bond reserved exclusively for individual investors, the BTP Futura (see page 70).

At national level, Article 1, paragraphs 92 and 93 of the Italian Budget Law for 2020 (Law No. 160 of 27 December 2019) provides for an issuance proportionate to "interventions with a positive environmental impact financed by the State Budget" and the start of the organisational process necessary for organising the operation, starting with the establishment of an Interministerial Committee responsible for coordinating the PAs involved in the process of reporting on the information relevant to the use of the resources collected through the Green Bond.

The Committee was appointed under Prime Ministerial Decree of 9 October 2020, coordinated by the Ministry of Economy and Finance and tasked with identifying and receiving from the competent Public Administrations information on the expenses incurred to be submitted to the investors of the securities, as well as the methods and time frames for transmitting such information. The Interministerial Committee took office and began its work at the end of November 2020. Its members include representatives from the Ministry for Environment, Land and Sea Protection (now renamed the Ministry for Ecological Transition), the Ministry for Economic Development, the Ministry for Economy and Finance, the Ministry of Infrastructures and Transport (now renamed Ministry of Sustainable Infrastructures and Mobility), the Ministry for Universities and Research, the Ministry of Agriculture, Food and Forestry Policies and the Ministry of Cultural Heritage and Activities and Tourism (now renamed Ministry of Culture). In line with the market best practices already adopted by other sovereign issuers, at the end of 2020 the Green Bond Framework, which is the regulatory and organisational framework for issuing green bonds, was essentially finalised. In this framework, the issuing government summarises for the benefit of the various stakeholders its environmental strategy and the essential mechanisms behind the issuance: the criteria for selecting green expenditures in the State budget, the specific use of the proceeds of the various issues, the monitoring of the expenditures and their environmental impact. A group of external consultants identified by the European Commission's DG REFORM within the project "Sustainable finance and

investments for the transition to a green economy" supported the Department of the Treasury's Directorate II in preparing the document.
In line with the provisions of the Budget Law, Italy's Green Bond Framework also received a Second Party Opinion from a specialised independent evaluation body selected by the Treasury after consulting the market. This opinion constitutes an ex-ante certification that the approach used in the Green Bond Framework is consistent with the environmental objectives and with the sustainability strategy of the Republic of Italy, both in terms of resource allocation and in the number of positive effects on climate and the environment, as well as with regard to the compliance of eligible expenses with the GBP (2018 edition) and the GBS being discussed within the European Union.
The structuring of the Green Bond issue is primarily guided by the international standards drawn up by the International Capital Market Association (ICMA) which are applied on a voluntary basis and provide four core principles:

1) proceeds must be used to finance specific projects that have been specifically designated prior to issuance,
2) eligible projects must be assessed and selected using a process based on sound and shared methodological criteria,
3) proceeds management must ensure the traceability of resources in order to demonstrate that the resources are used to effectively finance the selected projects,
4) the entire life of the security must come with reporting on the use of the resources and the impact assessment of the projects financed.

Furthermore, the recommendations for the implementation of standards in the European Union issued by the TEG within the framework of the Platform on Sustainable Finance are also taken into account as much as possible.
As for how to select eligible expenditure to be financed through the issuance of green government bonds, Italy undertakes to finance state expenditure with a positive environmental impact, selected by the Interministerial Committee and included in the expenditure forecast of the Italian state budget. The expenditure amount is to be higher than the value of the securities to be issued in order to ensure that the resources are used for sustainable projects; those projects showing implementation problems may be replaced by other eligible expenditure. At the same time, the amount of the issues, and therefore the pool of eligible expenses, shall be such as to ensure adequate liquidity and, therefore, an efficient functioning for the secondary market of the securities.
Once the eligible expenditures have been identified, the Interministerial Committee will identify the ways in which the State Administrations responsible for managing these expenditures shall make available the information on the actual allocation of resources for projects with a positive environmental impact, which shall be equal to the volumes of green debt issues. The statement on the allocation and impact of resources, which will be published annually in line with European best practices, will provide a reporting of the disbursement progress for the proceeds by each outstanding green bond issue and a summary of the implementation progress of the financed interventions. Once the funds have been fully allocated, for each issue the same report will provide information on the environmental impact of the expenditure carried out. The environmental impact will be assessed taking into account, among other things, the reduction of carbon dioxide emissions, atmospheric particulate matter, air and water quality, and may be updated as knowledge in this field increases.

Post-issuance debt management operations

As already mentioned, the Italian Treasury may also use extraordinary exchange and buyback transactions regarding government securities and derivative transactions in order to achieve the aforementioned objectives for the existing debt portfolio.

Exchanges and buybacks are public debt management tools used to curb the refinancing risk, modify the redemption profile and support the liquidity and efficiency of the government securities market.

Unlike ordinary issuance activity, these transactions do not follow a predefined timetable, but rather depend on both the Treasury's specific requirements and market conditions. Only Primary dealers are allowed to participate in these extraordinary transactions.

Exchange transactions generally consist of one or more securities being issued against the simultaneous buyback of one or more outstanding securities. They therefore exchange government securities with a different maturity, which may help to mitigate the refinancing risk. For these transactions, the Treasury may make use of the Bank of Italy's auction system or electronic trading system.

Buybacks, on the other hand, are transactions which the Treasury can use to reimburse outstanding government securities, both partially and in advance. The financial resources used for this purpose may be drawn from deposits in the cash account or taken from the sinking fund for government securities. Buybacks can be performed through Bank of Italy auctions or through bilateral transactions.

In line with the evolution of the activities carried out in recent years, the 2020 Guidelines highlighted the even more important and crucial role assigned to extraordinary transactions. Such transactions are highly flexible in terms of methods and timing of execution, and can serve a variety of purposes, such as managing refinancing risk, reshaping the maturity profile, supporting liquidity and ensuring the efficiency of the sovereign bond market. As was the case in 2019, exchange and buyback transactions were also allowed to be carried out through syndication and would have been aimed at facilitating the process of reducing the stock of outstanding nominal debt.

Finally, as was also the case in previous years, new derivative transactions would consist of possible restructuring of the existing portfolio, as part of active management aimed at transforming its financial profile and/or impacts in terms of debt. Furthermore, new swaps, backed by collateralisation agreements, would have to be completed for the purpose of hedging against the interest rate and/or exchange rate risk involved with new issuances in a foreign currency.

I.4 MONITORING AND MANAGING THE CASH ACCOUNT TO STABILISE THE BALANCE

The cash account for Treasury services

The Cash Account is the account held by the Treasury with the Bank of Italy, where its incoming cash flows and payments are recorded. The balance of this account is essentially the sum of all the accounts held by the Treasury[29] and is characterised by strong volatility, due to both the large number of entities that move funds with the Treasury and a number of significant cyclical cash flows (normally monthly). In particular, with regard to incoming cash flows, tax revenues have a strong impact and are concentrated over a few days in the second half of the month, while payments include pensions which mainly go out on the first working day of the month[30]. Issuances and, to an even greater extent, redemptions of government securities at maturity can also cause significant fluctuations in the Cash Account.

The Treasury, together with the Bank of Italy, manages its liquidity according to forecasts of treasury flows and related stocks. This approach also meets ECB needs, which call for monetary policy to be facilitated through an efficient forecast of the liquidity held by public institutions at national central banks in the euro area.

Therefore, 2020 once again saw the Treasury adopt measures aimed at managing the liquidity of the cash account in such a way as to achieve, pursuant to the aforementioned Framework Decree, "*efficient movement of the cash balances, in relation to the issuance strategy for government securities, at the prevailing market conditions and within the limits imposed by monetary policy provisions*".

The regulatory context for cash management in 2020

Cash management principles were established in the MEF's general Directive for administrative procedures and management and in the Framework Decree, as well as in the 2020 Public Debt Management Guidelines. In particular, the general guidelines stated that the focus should be on improving the model to process daily cash forecasts for the Cash Account and that the monitoring and management of that Account must be geared towards stabilising the balance. The Framework Decree stated that management of the cash account must aim at efficient cash movements, in line with the government security issuance strategy and the prevailing market conditions, at the same time as complying with the constraints imposed by monetary policy provisions. Lastly, the Public Debt Management Guidelines set the objectiveof maintaining a constant presence in the money market through bilateral transactions with a maturity of more than one day, for the purpose of improving the diversification and profitability of cash management, with a view to reducing counterparty risks.

[29] For further details, please refer to Italian Ministerial Decree no. 51961 of 26 June 2015 concerning the identification of government deposits held with the Bank of Italy, implementing Article 5, paragraph 5, of Italian Presidential Decree no. 398/2003.

[30] Since April 2020, however, pension payments have been brought forward and staggered over several days at the end of the previous month, to reduce the number of people crowding into banks and post offices.

With regard to legislation governing the movement and management of the cash deposited in the Cash Account, reference continues to be made to the Framework Decree, which substantially refers to the Italian Ministerial Decree dated 25 October 2011[31]. It should also be noted that, on 1 October 2019, the procedure to pay interest on government deposits held with national central banks was reformed as a result of new provisions issued by the ECB in April 2019[32].

More precisely, for 2020, liquidity not exceeding the threshold of 0.04% of GDP (equal to € 710 million), would be subject to the EONIA rate, while liquidity in excess of this threshold would be subject to the ECB deposit rate (Deposit Facility).

Cash management

The cash management service was set up in 2007 and consists of monitoring treasury balances and flows, in order to carry out daily transactions on the money market to ensure an adequate level of liquidity and their efficient management in light of the multiple movements of the Treasury. This activity is closely linked to public debt management and constitutes the link between securities issues and the daily fluctuations of the Cash Account.

The monitoring consists of a continuous exchange of information between the Bank of Italy and the MEF (State General Accounting Department and Department of the Treasury - Public Debt Directorate), with forecast and actual data on all collections and payments involving accounts held with the Treasury and the resulting estimate of the Cash Account balance. The information exchanges are updated repeatedly during each working day, with the aim of estimating the end-of-day balance of the Account. The liquidity forecasts of the MEF and the Bank of Italy also include longer-term scenarios, shared on a weekly basis, with a time horizon consistent with monetary policy requirements.

Money market transactions, on the other hand, consist of lending or borrowing liquidity in order to manage possible, temporary cash shortages. Since the end of 2011, the Treasury has been lending its liquidity using daily overnight auctions, usually conducted by the Bank of Italy, and longer-term bilateral transactions, arranged directly by the Treasury.

In recent years, cash management has not only had to adapt to changes in European legislation, but has also had to deal with a money market characterised by an oversupply of liquidity and interest rates that have been negative for several years now. Therefore, the overnight lending auctions, suspended in August 2019,

[31] For further details on that Italian Ministerial Decree, please refer to the following link: http://www.dt.mef.gov.it/it/debito_pubblico/gestione_liquidita/normativa_comunicati/.

[32] Remuneration changes include:

I. for government deposits up to a maximum balance equal to either € 200 million or 0.04% of GDP, whichever is higher, the EONIA (Euro overnight index average) rate shall continue to be applied until 3 January 2022, which is when the new €STR (€uro short-term rate) shall come into force;

II. the previous ECB guidelines, which came into force in 2014, stated that zero interest was to be paid on any liquidity in excess of the threshold, in the case of a positive or zero deposit facility rate applied by the ECB, or at negative rates in the event of a negative DF rate. The new ECB guidelines state that, should the DF rate be higher than the rate applied to the sums within the threshold, then interest shall be paid on all government deposits at the same rate applied to said sums (i.e. EONIA or €STR

For more information, please refer to ECB Guideline ECB/2019/7: (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019O0007) and ECB Decision ECB/2019/8 (https://eur-lex.europa.eu/legal-content/IT/TXT/?uri=CELEX:32019D0008).

were no longer implemented due to the continued lack of interest from banking counterparties and, consequently, the Treasury's only means of investing surplus cash was to resort to bilateral transactions with longer maturities.

Taking into account the typical problems of the uncollateralised money market described, the Treasury started to plan an ambitious project, whose objective is to enable the Treasury to operate also in the repo market[33]. By doing so, the Treasury would expand the instruments at its disposal for more efficient cash management, while obtaining several benefits, including:

1) a wider selection of counterparties operating in the Repo market with whom to conclude a Repo contract (funding operation) or a Reverse Repo contract (lending operation);
2) possibility to easily conclude Repo and Reverse Repo contracts according to the Treasury's needs;
3) contracts available with a maturity range of one day to several months. This would allow the Treasury ample flexibility in managing its liquidity;
4) support to the activity of market makers in the supply of liquidity for the secondary market, thus contrasting liquidity shortages.

[33] In the repo market, two parties agree to enter into a contract in which one party sells spot securities (specific in the case of "Special Repo" or generic in the case of "General Collateral"), for a given period of time (which defines the duration of the contract) in exchange for liquidity and commits to repurchase them (liquidity against securities) at a future date from the same buyer at a predetermined price. The difference between the spot and forward prices (relative to the spot price) represents the rate of the repo contract.

II. THE ITALIAN GOVERNMENT SECURITIES MARKET: PERFORMANCE IN THE INTERNATIONAL CONTEXT

II.1 MONETARY POLICIES AND EFFECTS ON THE EURO AREA MONEY MARKET

Monetary policies in the euro area

2020 saw the spread of COVID-19 and the effects of the pandemic on the world economy.

The epidemic originated in China at the beginning of 2020, then swiftly and intensely affected first Europe, then the United States, and later spread globally.

The response of the most advanced countries in terms of fiscal and monetary policy has been unprecedented, although not all of them implemented new measures as quickly as the context would have required.

Italy was the first country in Europe to be hit by COVID-19 and to adopt strict policies to contain the spread of the virus, such as restricting people's mobility, closing all sites where large numbers of people gathered (for example, schools) and suspending non-essential economic activities. To mitigate the negative economic effects of the pandemic and of the "lockdown", from March 2020 the Italian Government issued numerous important regulations[34] aimed at supporting the country's economy which had a large impact on the government budget.

As for the money market, the FED intervened with decisions taken outside the meeting calendar, either with unconventional policies (purchase of government securities and mutual funds), or with conventional policies that resulted in a full percentage point drop in reference rates.

In Europe, first in March and then in June 2020, the ECB intervened with measures aimed at mitigating the pandemic's impact on the economy and the turmoil in the financial markets, resulting in an even more accommodative monetary policy stance.

At its meeting of 12 March, the ECB's Governing Council provided for a complex set of measures to support liquidity conditions and financing for households and businesses most affected by the crisis, thereby reducing the uncertainty caused by it. In particular, in order to provide immediate liquidity to the financial system, the Council decided to temporarily conduct new Longer-Term Refinancing Operations (LTROs with a maturity of 3 months) at a fixed rate and with full allotment of the amounts requested. It also introduced more favourable conditions for the third series of Targeted Longer Term Refinancing Operations (TLTRO3 with a maturity of

[34] With Italian Decree-Law No. 18 of 17 March 2020, the Government identified the areas of intervention to be addressed with extraordinary need and urgency: the strengthening of the health system, the protection of work and income, the liquidity of businesses and households, and the adjournment of tax payment deadlines.

up to 4 years) from June 2020 to June 2021 in order to support bank lending especially to small and medium-sized enterprises. On this occasion, the borrowing allowance for these operations was also raised. Finally, for 2020 the ECB provided an additional € 120 billion for the programme of buying back financial assets (Expanded Asset Purchase Programme, APP).

Following the spread of the pandemic and the onset of market turmoil, the Governing Council held an extraordinary meeting on 18 March to introduce a new Pandemic Emergency Purchase Programme (PEPP) of public and private sector securities, a plan with initial plafond of € 750 billion aimed at supporting households, companies, banks and governments.

The Council also affirmed to be ready to adjust its instruments, including by increasing their amounts where appropriate, to ensure that inflation continued to move firmly towards the 2% target level.

In April, the measures taken by the ECB were complemented by revolutionary measures taken by the EU institutions, which intervened strongly and jointly with three safety nets to help workers, companies and sovereigns in an unprecedented crisis. In particular, the European Council, which had already suspended the Stability and Growth Pact, approved the introduction of an instrument for temporary Support to Mitigate Unemployment Risks in an Emergency (SURE) and the European Commission approved a guarantee fund for the European Investment Fund (EIF), part of the European Investment Bank (EIB) Group, to encourage banks and other lenders to provide liquidity to small and medium-sized European enterprises affected by the economic consequences of the pandemic. Furthermore, the European Council introduced the European Stability Mechanism (ESM) “Pandemic Crisis Support”, a specific credit line to provide precautionary financial assistance to Member States, to be used for covering costs related to direct and indirect healthcare, treatment and prevention due to the COVID-19 crisis.

In light of the sharp contraction in the euro area economy, on 30 April the ECB upgraded the terms of its TLTRO operations and announced a new series of Pandemic Emergency Longer-Term Refinancing Operations (PELTROs). These are fixed-rate transactions with maturities of up to 18 months, with full allotment of the amounts requested and which aim is to provide effective liquidity support, following the expiry of the additional LTROs conducted from March 2020 onwards.

Given the unprecedented economic crisis, at its meeting in June 2020 the ECB decided to increase the PEPP programme by € 600 billion and to extend its horizon to June 2021.

In July, while the economy was showing partial signs of recovery, the European Council introduced the Next Generation EU, a programme of historic importance, through which the European Union will be able to issue debt in order to grant transfers and loans to the countries that have suffered the worst consequences of the pandemic. Next Generation EU is a temporary € 750 billion instrument that, within the EU's long-term budget, is designed to recovery the economic and social damage caused by the pandemic with investments aimed at improving Europe's ecological, digital and economic resilience.

Such measures contributed strongly to stabilising the economic situation, reducing the turmoil that had been created in financial markets, and led to a decisive alignment of the credit risks of the most exposed countries in the euro area.

After a better-than-expected recovery in the summer months, the new autumn wave of the pandemic again slowed down global economic activity. Although some countries began vaccination campaigns, which improved the prospects for growth and inflation, uncertainty about the timing of the recovery, due in particular to the new surge in infections and the restrictions on social interaction and mobility, kept demand weak.

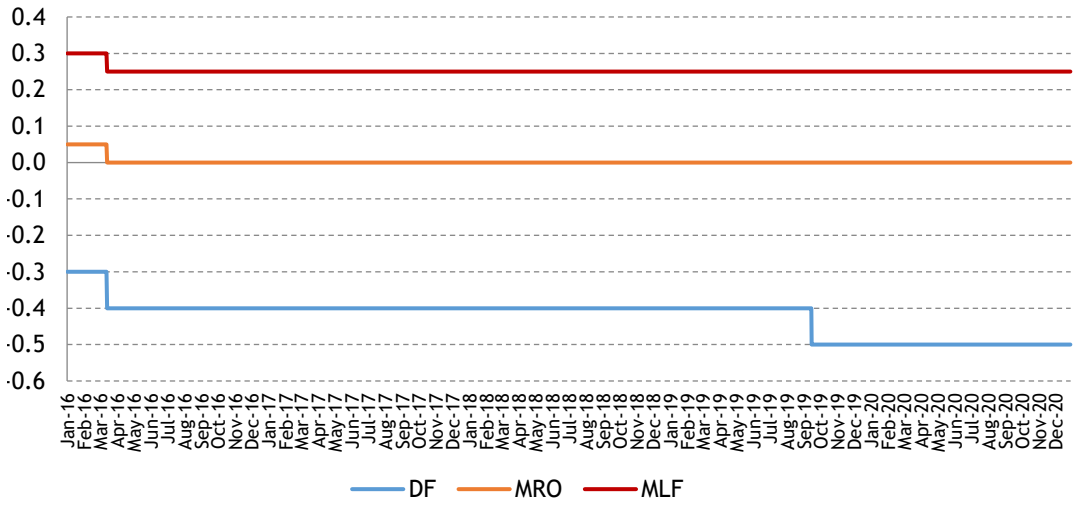
As the effects of the pandemic escalated beyond initial expectations, on 10 December the Governing Council decided to increase the PEPP programme's envelope by € 500 billion - thus reaching a total budget of € 1,850 billion - and to extend its time horizon to March 2022. At the same meeting, the ECB decided to readjust and extend the conditions applied to the LTRO3 and conduct four additional PELTROs in 2021. The aim of these decisions is to preserve favourable financing conditions and to encourage consumer spending and business investment, thereby offsetting the downward effect on inflation caused by the pandemic.

However, during the year the ECB did not intervene in the main monetary policy rates, keeping the ECB's Deposit Facility (DF) rate unchanged at -0.50%, the Main Refinancing Operation (MRO) rate at 0% and the Marginal Lending Facility (MLF) rate at 0.25%.

The euro area money market

In 2020, the ECB's key interest rates were aligned with the level of the previous year and, as mentioned, the Governing Council did not make any changes to the DF, MRO and MLF rates.

CHART II.1: MONETARY POLICY INTEREST RATE CORRIDOR, 2016-2020 (PERCENTAGE VALUES)



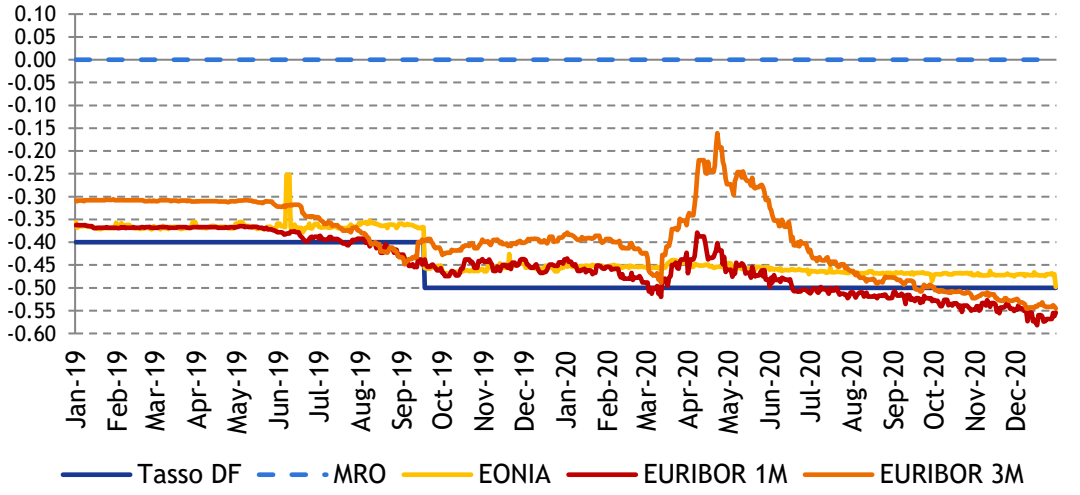
Source: Based on ECB data

As explained above, from March 2020 the Governing Council, in response to the pandemic crisis, expanded its programmes and started to inject an increasing amount of cash into the market. This decision immediately affected EURIBOR (EURo Inter Bank Offered Rate) rates, which, as Chart II.2 shows, fell sharply and reached

historic lows[35]. However, several weeks later there was a sharp and unexpected reversal of this trend, caused by the widespread fear in the banking system of a possible and imminent liquidity crisis. In April, EURIBOR rates thus reached pre-crisis levels and the 3-month rate reached its highest value since 2016 (-0.161%).

The trend changed again in response to monetary policy decisions and decisions by European institutions, which boosted public confidence in the economy and resulted in rates gradually and steadily falling even below the Deposit Facility until the end of the year.

CHART II.2: PERFORMANCE OF THE MAIN MONEY MARKET RATES, 2019-2020 (PERCENTAGE VALUES)



Source: Based on Reuters data

II.2 EURO AREA BOND MARKETS

During 2020, euro area financial markets were strongly affected by the propagation of COVID-19. The coronavirus pandemic triggered a sudden deterioration in the macroeconomic context and high volatility in global financial markets. The restrictive measures adopted by governments around the world to contain the infection inevitably resulted in a sharp slowdown in activity for most economic sectors, prompting several countries to repeatedly cut their growth estimates for the year.

As the health emergency worsened and almost all European countries adopted the first lockdown measures in March and April, the government bond market in the euro area became highly volatile and yields rose sharply, with "peripheral" countries being the most affected. In this context, Italy's ten-year yield came under strong pressure, rising by more than 100 basis points, reaching a peak of 2.428 percentage points in mid-March (Chart II.3), also following announcements of different content by monetary policy authorities.

In this general climate of risk aversion, however, the ECB's accommodative monetary policies made a decisive contribution to reducing volatility in financial

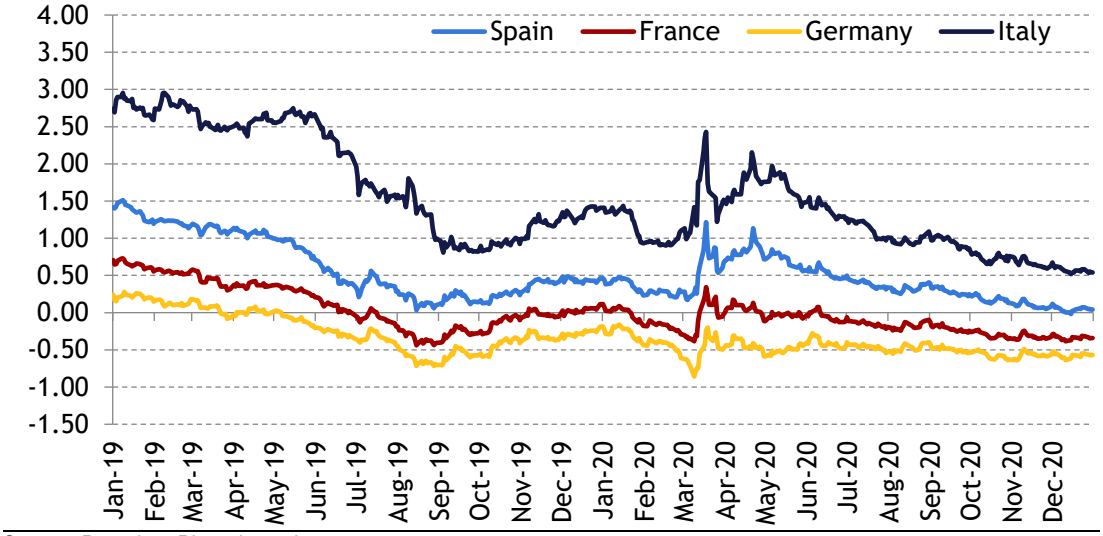
[35] Specifically, the 1-month EURIBOR rate reached -0.52% and the 3-month rate reached -0.489%.

markets and lowering yields on government bonds. Particularly helpful was the launch of an extraordinary measure, the Pandemic Emergency Purchase Programme (PEPP), together with the renewed Asset Purchase Programme. This was accompanied by additional measures at European level, both in the field of fiscal regulation and in terms of programmes to support and relaunch the economy (SURE, Next Generation EU), which helped to restore confidence in financial markets, producing a further downward push, especially on the medium-long section of the yield curve.

The moratorium on mortgages and the public guarantees introduced in favour of the banking system for the disbursement of loans to companies in difficulty due to the general deterioration of the economy have also helped.

Thus, in the second half of 2020, as economic activities partially reopened and measures were taken to offset the economic and health crisis, the yield curve of Italian government bonds also became less steep, accompanied by a contraction of spreads against other issuers. The ten-year Italian bond yield, in line with the performance of the corresponding bonds of the main euro area countries, thus recorded a constant and gradual decline, settling at the end of 2020 at levels lower than those at the beginning of the year (Chart II.3).

CHART II.3: TREND OF EUROPEAN GOVERNMENT BOND YIELDS - 10-YEAR MATURITY (PERCENTAGE VALUES)



Source: Based on Bloomberg data

In this framework, despite a significant increase in issuances, debt management allowed the average cost at issuance to be reduced, which was equal to 0.59% in 2020, as was also the case for the average cost of debt - calculated as the ratio between the interest and the general government debt stock - which continued to decline to a level of about 2.4%. If loans under the SURE programme are also taken into account, the average cost at issuance fell to 0.57%. Market conditions and management decisions have also allowed to maintain the increase in the average life of the debt, which at the end of 2020, in relation to the stock of government securities, was equal to 6.95 years (7.02 years, loans under the SURE Programme included), which is higher than the figure at the end of 2019, equal to 6.87 years. This was thanks to the various issuances on the longer end of the yield

curve, completed both through auctions and through the syndicated placements of several new nominal benchmark securities (10, 15, 20 and two new 30-year BTPs). Indeed, a long average life not only has a tendency to mitigate the risk of refinancing, by diluting over time the volumes to place on the market to cover maturing debt, but also shows the issuer's lower exposure to sudden increases in interest rates.

FOCUS

Details on how the Public Sector Purchase Programme (PSPP) evolved and how the Pandemic Emergency Purchase Programme (PEPP) was implemented during 2020

As part of the Asset Purchase Programme (APP), the Public Sector Purchase Programme (PSPP), which began on 9 March 2015, involves net acquisitions of securities issued by central governments and public agencies of euro area countries, as well as those issued by supranational institutions[36]. The monetary policy decisions taken by the Governing Council on 14 June 2018 stated that, starting from January 2019, the Eurosystem would no longer make net purchases under the Public Sector Purchase Programme, but would continue to reinvest the principal payments from the maturing securities held in its portfolio. However, given the deteriorating macroeconomic environment and the growing distance from the inflation target, following the meeting of 12 September 2019[37], the ECB decided to reactivate the APP with a net monthly purchase of € 20 billion as of 1 November 2019, with a duration not tied to any time limit but to the ECB achieving its monetary policy objectives.

On 12 March 2020[38], given the increased uncertainty arising from the propagation of the COVID-19 pandemic, the Governing Council decided to further strengthen the existing Asset Purchase Programme with an additional temporary endowment of € 120 billion to increase net purchases until the end of 2020.
Following the rapid spread of the virus and the increasing tensions in the financial markets, on 18 March[39] the ECB launched a € 750 billion Pandemic Emergency Purchase Programme (PEPP). These purchases concern all public and private financial assets covered by the APP, including government bonds issued by Greece, which were hitherto not eligible. Commercial paper issued by non-financial corporations, which is already covered by the Corporate Sector Purchase Programme (CSPP), is also included among the eligible assets, including all securities with a residual maturity of at least 28 days. With regard to purchases of public sector securities, all securities with a minimum residual maturity of 70 days are also eligible under the PEPP, while the maximum maturity remains 30 years and 364 days, in line with the PSPP. No restrictions are envisaged on the maturities of private securities eligible for the Asset-Backed Securities Purchase Programme (ABSPP) and the third Covered Bond Purchase Programme (CBPP3). Furthermore, as for the distribution of purchases among the various Countries, the criterion of proportionality to the participation of the national central banks in the capital of the ECB (capital key principle) remains valid, albeit with a greater degree of flexibility. Based on market conditions, fluctuations in the distribution of purchase flows over time are allowed both across asset classes and across jurisdictions, with the intention of supporting the smooth transmission of monetary policy.

[36] For further details on the changes made to the PSPP each year, please refer to the relative focus section in previous years' Public Debt Reports.
[37] https://www.ecb.europa.eu/press/pr/date/2019/html/ecb.mp190912~08de50b4d2.en.html
[38] https://www.ecb.europa.eu/press/pr/date/2020/html/ecb.mp200312~8d3aec3ff2.en.html
[39] https://www.ecb.europa.eu/press/pr/date/2020/html/ecb.pr200318_1~3949d6f266.en.html

During 2020, the PEPP was further expanded both in terms of its overall envelope and the time horizon of purchases, with the aim of providing a more durable monetary stimulus and counteracting the prolonged impact of the pandemic on the outlook for growth and inflation in the euro area. In June[40], in response to the downward revision of the inflation outlook, the Governing Council increased the overall budget of the programme by a further € 600 billion (for a total of € 1,350 billion) and extended the horizon for net purchases, initially scheduled to last until at least the end of 2020, to at least the end of June 2021, with reinvestment of capital repayments until at least the end of 2022.
Then, with the monetary policy decision of 10 December[41], the PEPP envelope was increased by a further € 500 billion to a total of € 1,850 billion, while the horizon for net purchases was extended until at least the end of March 2022 and the reinvestment of capital was extended until at least the end of 2023.
Figure 1 below shows the net monthly purchase trend under the PSPP from the beginning of the programme (March 2015) until December 2020, and under the PEPP from the beginning of the programme (March 2020) until the end of the year.

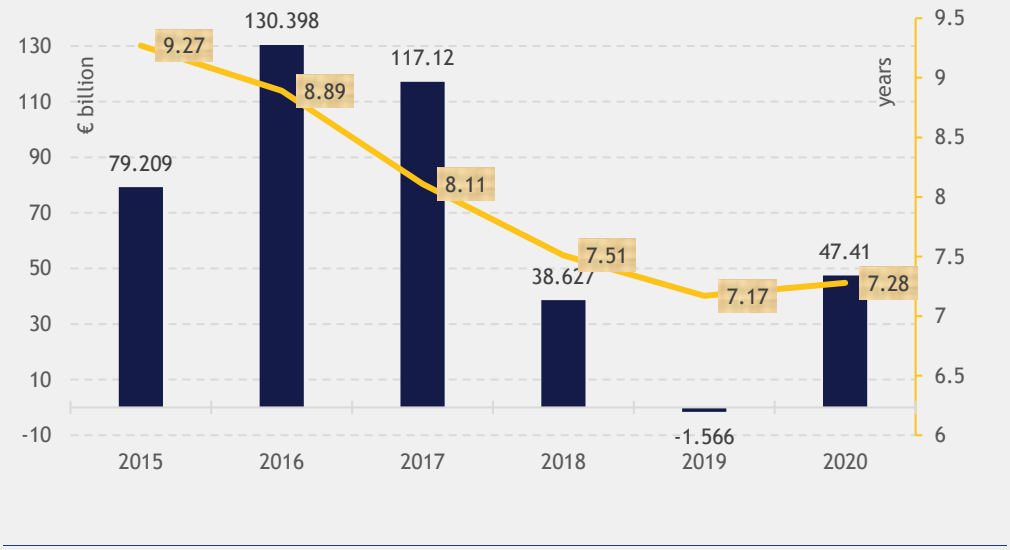
FIGURE 1: MONTHLY NET PURCHASES UNDER THE PSPP AND PEPP PROGRAMMES (€ BILLION)

Source: based on ECB data

As regards the ECB's activity under the Pandemic Emergency Purchase Programme, net purchases in 2020 reached a total of € 757.166 billion, in line with the programme's initial envelope. Moreover, from April to June the purchase volumes were substantial, with a monthly pace of more than € 100 billion, before contracting in the second half of the year.
In addition, under the PEPP, the total volume of Italian Government securities purchased during 2020 was approximately € 126 billion, of which well over half during the first months of the programme, from March to July (approximately € 73 billion), while under the PSPP, a total of approximately € 47.50 billion, of which just under half of the purchases (around € 23 billion) took place in March and April, months characterised by high market volatility.
Also, as shown in Figure 2 below, from the beginning of the programme to the end of 2020, the total volume of Italian securities purchased by the ECB is equal to € 411.198 billion[42]. The average life of the stock of Italian securities held by the ECB as at 31 December 2020 increased to 7.28 years compared to 7.17 years in the previous year.

[40] https://www.ecb.europa.eu/press/pr/date/2020/html/ecb.mp200604~a307d3429c.en.html
[41] https://www.ecb.europa.eu/press/pr/date/2020/html/ecb.mp201210~8c2778b843.en.html
[42] These amounts are expressed in terms of their net equivalent value.

FIGURE 2: VOLUME (€ BILLION) AND AVERAGE LIFE (YEARS) OF THE STOCK OF ITALIAN GOVERNMENT SECURITIES PURCHASED BY THE ECB



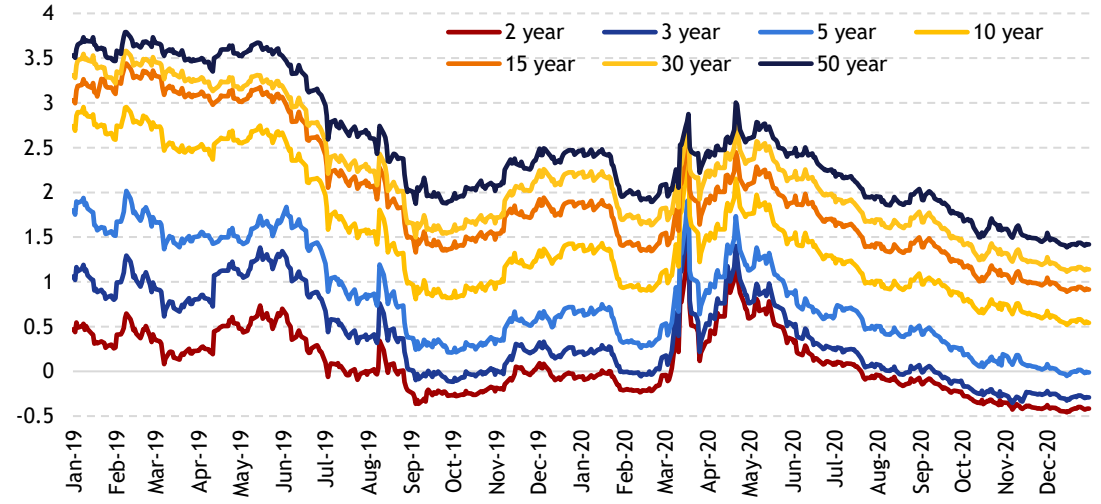
II.3 TRENDS IN THE ITALIAN GOVERNMENT SECURITIES MARKET

Evolution of the yield curve

As already mentioned, during 2020, yield dynamics for Italian government securities (Chart II.4) were largely influenced by external factors, in particular the exogenous shock caused by the propagation of the coronavirus pandemic (COVID-19).

In March and April, market tensions triggered by the outbreak of the pandemic and the deterioration of the national and international economic outlook led to a sharp rise in Italian government securities yields. However, the rapid response of the authorities responsible for fiscal and monetary policies allowed a gradual stabilisation of the markets, helping to reverse the upward trend of Italian rates. In the second half of 2020, in fact, market rates on government bonds recorded a steady decline, settling at levels below those of the beginning of the year, with the yield on the ten-year BTP falling to an all-time low of 0.518% in December.

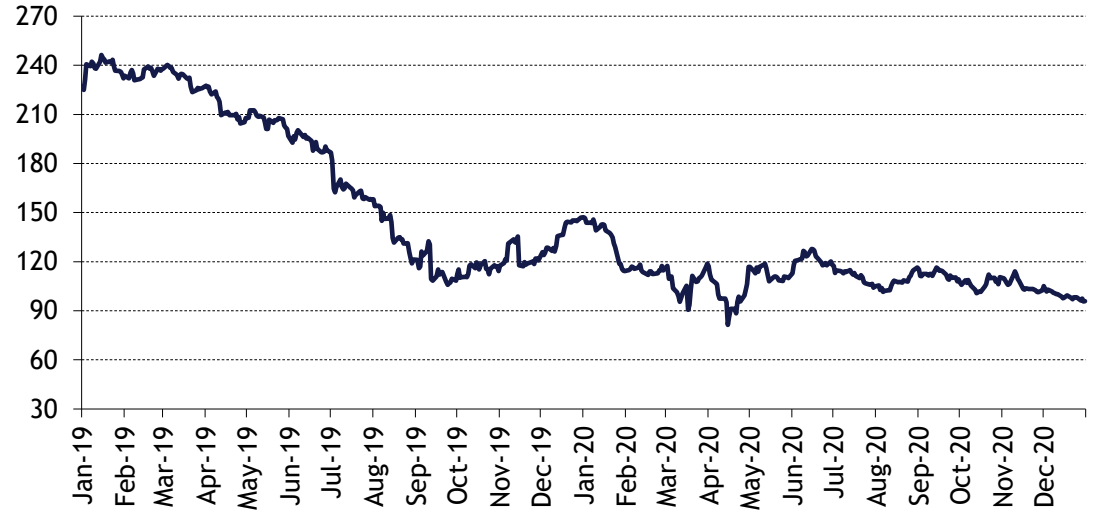
CHART II.4: MARKET YIELDS ON 2-, 3-, 5-, 10-, 15-, 30- AND 50-YEAR GOVERNMENT SECURITIES (PERCENTAGE VALUES)



Source: Based on Bloomberg data

The slope of Italy's forward yield structure recorded an overall significant decline along the 2-10 year section (Chart II.5), passing from approximately 150 basis points at the start of 2020 to reach a low of just over 80 basis points in mid-April, before then closing the year at around 95 basis points. It should be noted that this decline in the slope was favourable, considering the even more substantial contraction in the 10-year maturity yield.

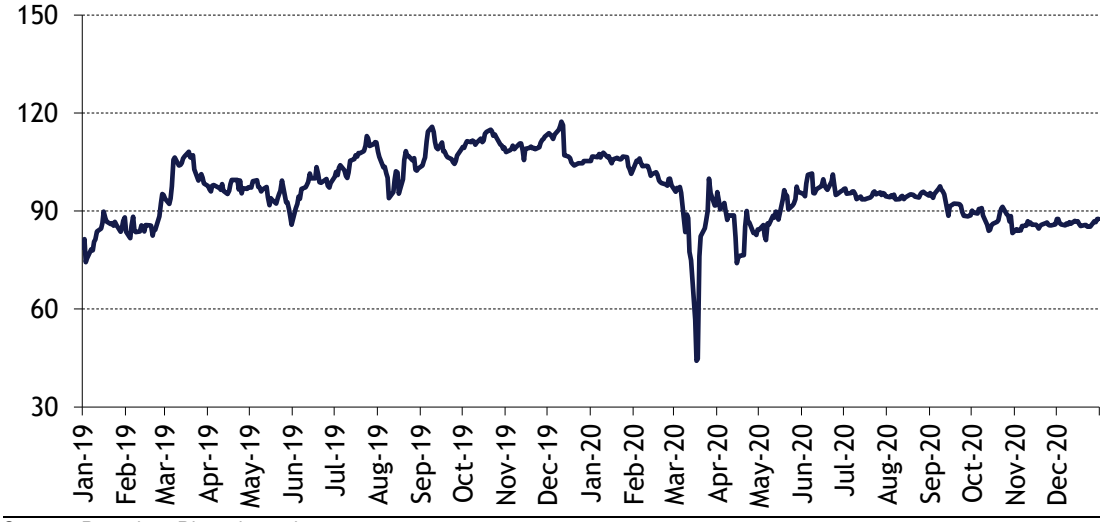
CHART II.5: GOVERNMENT SECURITIES YIELD SPREAD, 10-YEAR VS. 2-YEAR (BASIS POINTS)



Source: Based on Bloomberg data

The particularly positive performance of the long-term section of the yield curve also caused the slope in the 10 to 30-year section to decline accordingly, in a context that saw very long-term yields fall by over 100 basis points in absolute terms.

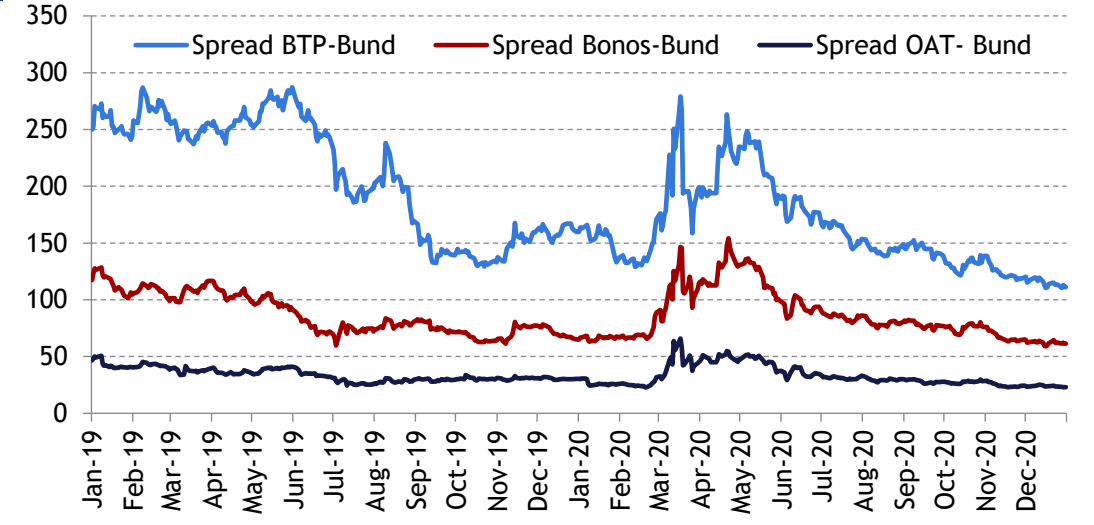
CHART II.6: GOVERNMENT SECURITIES YIELD SPREAD, 30-YEAR VS. 10-YEAR (BASIS POINTS)



Source: Based on Bloomberg data

The spread between Italian and German government securities (Chart II.7) followed the trend of the absolute return rates for Italian securities. During the first months of the year, in fact, the yield rates for Italian securities recorded a slight contraction, as did the spread, while the latter then began to widen by about 130 basis points from March onwards, before closing 2020 well below the initial levels, at around 110 basis points.

CHART II.7: YIELD SPREAD: BTP-BUND, OAT-BUND AND BONOS-BUND, 10-YEAR BENCHMARK (BASIS POINTS)



Source: Based on Bloomberg data

Secondary market performance

General introduction

The secondary market for Italian government securities was affected by national and international events of a political, economic and financial nature, as reported above. Also, the evolution of the market during 2020 was of course influenced by the features of the Italian market. The latter include (i) the role of market making; (ii) the primary dealership system[43] which, in 2020, maintained the number of operators on the Italian market at 16; (iii) the functioning of the futures market which, over time, has taken on a leading role for effective market making among primary dealers; (iv) the contribution of the repo and strips markets; and (v) the interrelationships with the primary market (regularity and continuity of issues compared with benchmark securities along several points of the curve).

As regards trading on the MTS platform - the reference market for Italian government bonds - from May onwards there was a significant increase in volumes traded, which reached levels well above those recorded both in the first months of 2020 and in the same months of the previous year. On the contrary, there was a decrease in the volumes traded on other electronic platforms, especially business-to-customer platforms, which interrupted the growth trend that had characterised recent years. However, the growing use of transactions involving alternative instruments such as futures, which are mainly used by primary dealers to "neutralise" the risks associated with long government bond positions, continued in 2020.

The interdealer wholesale market and the contribution of government bond Specialists

Only dealers and market makers operate on the 'MTS Italia' regulated platform (the so-called 'interdealer market'), and this is where the Treasury currently monitors and evaluates the activities of government bond Specialists on the wholesale secondary market. This platform therefore represents a point of reference to analyse how this market segment is developing.

The cash market

The volumes traded on the MTS platform recorded a trend that was clearly affected by general market conditions and the perceived credit risk for Italy. In particular, in the first few months of 2020 there were no significant changes compared to the volumes in the same months of 2019, while from the second quarter onwards, as the market was most affected by the pandemic crisis, there was a substantial increase in the volumes traded, also due to the strong increase in the supply of securities on the primary market.

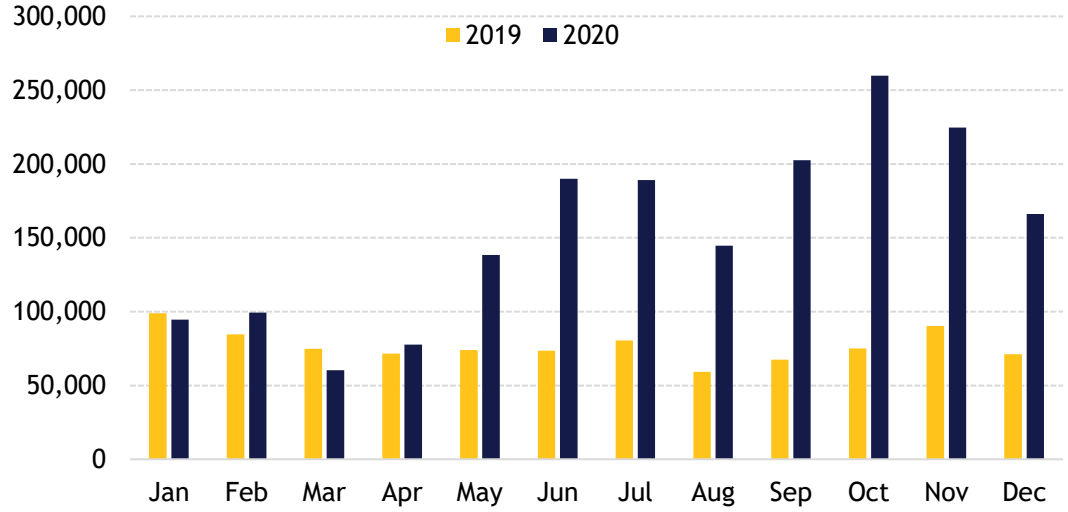
Unlike in previous years, from May onwards, volumes traded increased by an average of 150% compared to the respective months of the previous year, with peaks

[43] Based on dealers specialized in Italian government securities (so called 'Specialists').

of up to 200% in September and October. The amount of monthly volumes recorded during 2020 thus reversed the general downward trend recorded since 2016.

On a quarterly basis, the greater increase compared with 2019 was recorded in the last two quarters of the year, while it was more contained in the first half of the year, with a slight decrease in the first quarter.

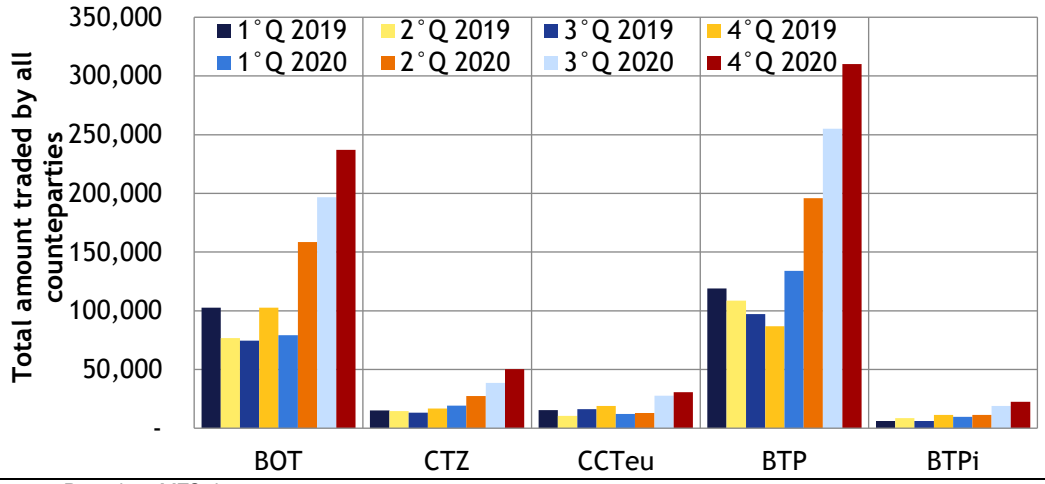
CHART II.8: MONTHLY VOLUMES TRADED ON THE MTS PLATFORM (€ MILLION; SINGLE-COUNTED)



Source: Based on MTS data

With regard to the breakdown of volumes traded by segment, the most pronounced changes between 2019 and 2020 concerned nominal BTPs, which recorded an increase in trades as a percentage of the total, equal to 48% of total volumes traded compared with 45% in the previous year. The BTP€i segment undoubtedly remains a niche market, representing just 3.4% of total volumes, a figure in line with that of 2019 and followed by the CCTeu segment with 4.5%. The CTZ segment has a market share of around 7%, slightly higher than in 2019. On the other hand, the share of the BOT segment decreased slightly to 36% of total volumes, compared to 39% in 2019. In absolute terms, the trend is of course very similar to that of total volumes. In fact, there was an increase in transactions for all segments, which was particularly marked in the nominal BTPs and CTZs segments (over 50%), but also involved BTP€i and BOTs (around 47% for both). Moreover, on all segments, volumes traded increased during the year, with the most significant increases in the third and fourth quarters. In the BTPs segment in particular, the last year saw a reversal of the downward trend recorded in previous years.

CHART II.9: QUARTERLY VOLUMES TRADED ON THE MTS PLATFORM, BY SEGMENT (€ MILLION; SINGLE-COUNTED)



Source: Based on MTS data

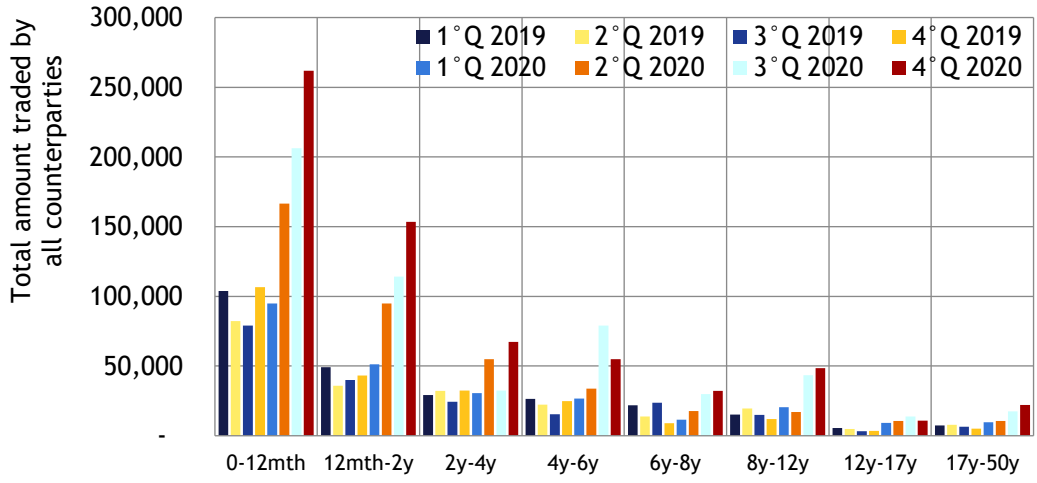
The various segments of the yield curve performed differently in terms of volumes traded. In general, there was an increase in volumes across all segments of the curve, with larger increases in the third and fourth quarters of the year and in the long part of the curve.

As for the short-term part of the curve, the 1-2-year segment (which also includes CTZs in addition to short-term BTPs and CCTeus) saw an increase in volumes of 146% compared to 2019, most notably in the final months of the year.

The 6-8-year segment saw the smallest increase compared to 2019, followed by the 2-4-year segment.

The most substantial increases were in the long part of the curve, especially those with maturities of over 8 years where volumes more than doubled compared to 2019, with the largest increase occurring in the third and fourth quarters of 2020. Instead, volumes on the 12-17-year segment increased by around 160% followed by the very-long part of the curve.

CHART II.10: QUARTERLY VOLUMES TRADED ON THE MTS PLATFORM, BY MATURITY (€ MILLION; SINGLE-COUNTED)



Source: Based on MTS data

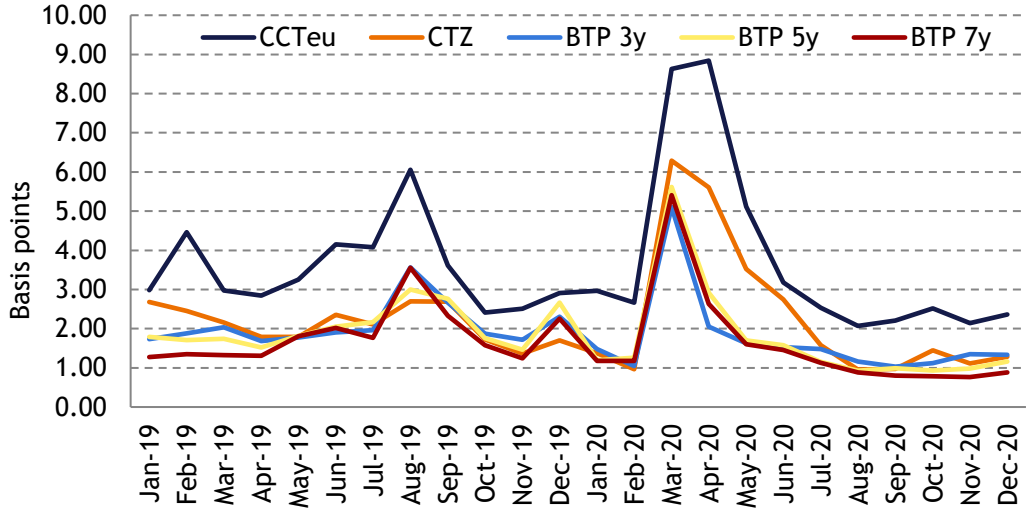
Secondary market liquidity is not only monitored by analysing the volumes traded, but is above all assessed using a simple indicator known as the bid-ask spread, i.e. the difference between the purchase price (bid) and sale price (ask) for each security on the market. The lower the bid-ask spread of a given security, the greater the liquidity of said security.

The charts below show the trends recorded by this indicator for all segments and for all the benchmark points along the yield curve: already in the early months of 2020, the outbreak of the crisis - which was initially a health crisis due to the propagation of the COVID-19 pandemic and then turned into an economic and financial crisis - led to a climate of general risk aversion in all countries, followed by a drop in liquidity, especially in March, April and May, which was clearly visible through a significant widening of the bid-ask spread on all points of the curve.

The intervention of the European institutions, both in terms of economic support programmes for member countries and of the ECB's accommodating monetary policy measures, helped to reduce spreads and lower interest rates from April onwards.

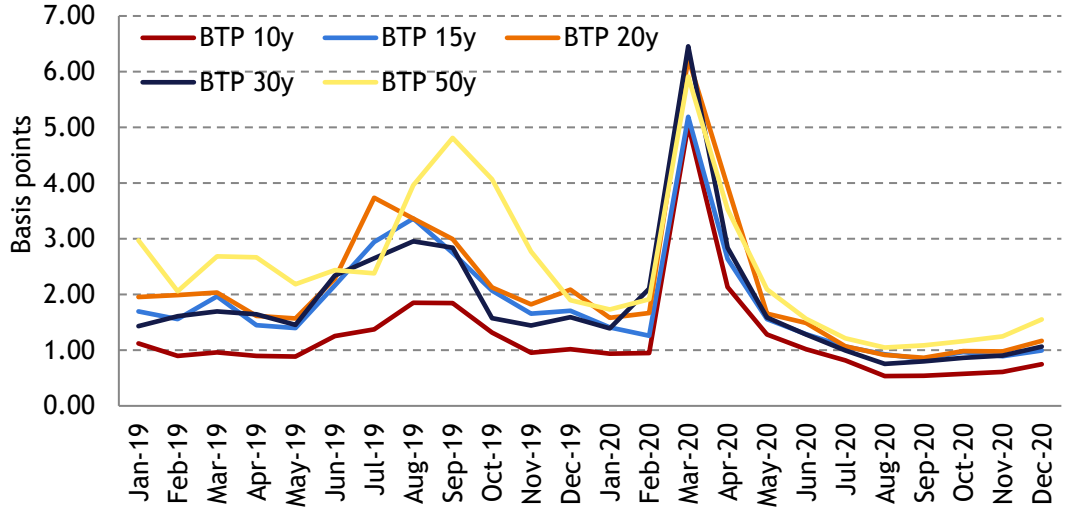
As shown by Charts II.11A, 11B and 11C, since April almost all segments returned to the same liquidity levels as before the first quarter of 2020, which was characterised by high volatility and uncertainty in financial markets resulting from the outbreak of the COVID-19 crisis. For all segments, the bid-ask spread continued to decrease in the following months and then increased slightly in the last two months of the year.

CHART II.11A: BID-ASK SPREAD (IN BASIS POINTS) FOR CTZS, CCTEUS, 3-, 5- AND 7-YEAR BENCHMARK BTPS, AS RECORDED ON THE MTS PLATFORM - MONTHLY AVERAGES



Source: Based on MTS data

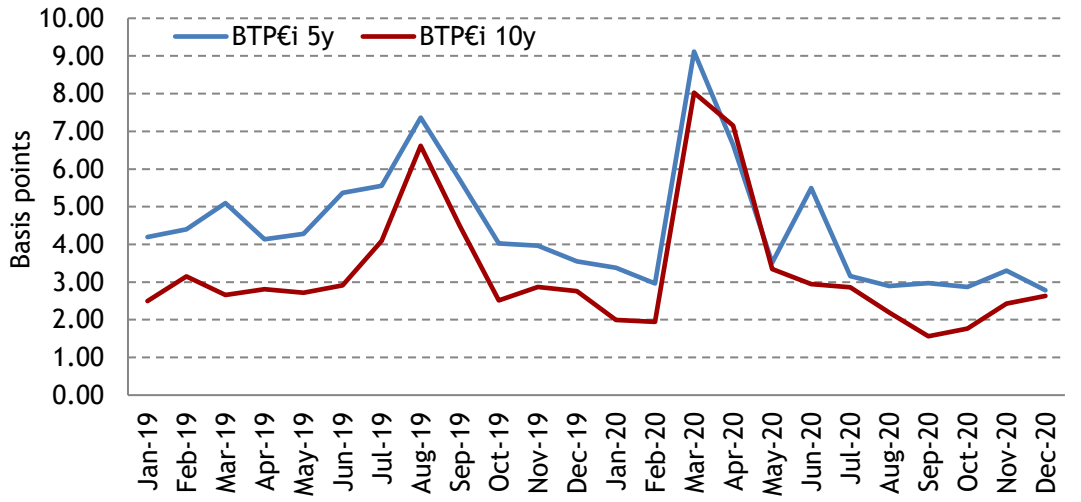
CHART II.11B: BID-ASK SPREAD (IN BASIS POINTS) FOR 10-, 15-, 20-, 30- AND 50-YEAR BENCHMARK BTPS, AS RECORDED ON THE MTS PLATFORM - MONTHLY AVERAGES



Source: Based on MTS data

It should be noted that the inflation segment recorded particularly weak performance. In fact, in March (when market uncertainty was at its worst and the credit risk premium being demanded by investors was at its highest), this segment had even higher bid-ask spread levels than those recorded in August 2019 and compared to nominal bonds with the same maturity. The lower level of liquidity in the European inflation-linked BTP segment compared with Italy's other government securities is explained by the fact that these securities not only involve an intrinsically higher credit risk than nominal securities, but they were also affected by the lack of demand for this type of asset, due to low inflation expectations resulting from the changed global economic and financial context.

CHART II.11C: BID-ASK SPREAD (IN BASIS POINTS) FOR 5- AND 10-YEAR BENCHMARK BTP€IS, AS RECORDED ON THE MTS PLATFORM - MONTHLY AVERAGES



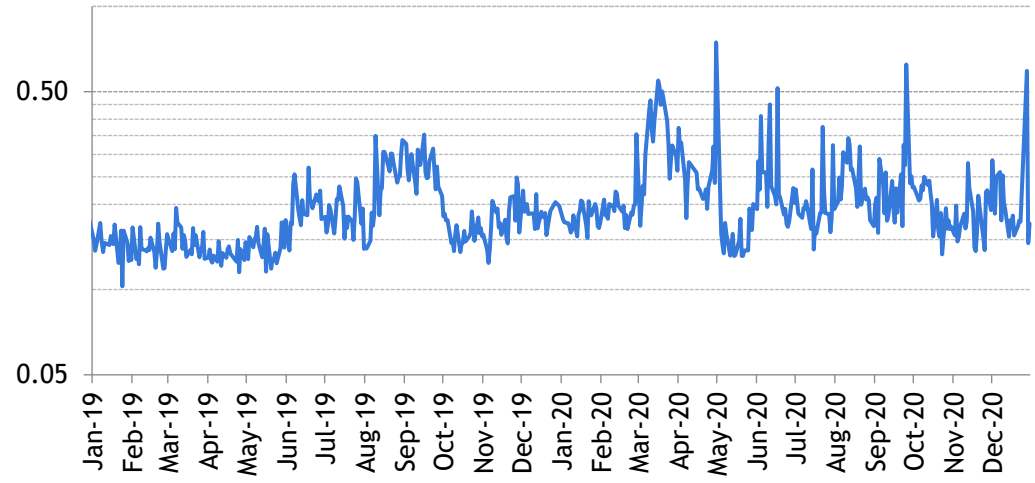
Source: Based on MTS data

To measure secondary market liquidity, it is also possible to use less common but more sophisticated indicators, which take into account the size of the bid-ask spread, and also other aspects, such as price changes stemming from major transactions or analysis of the depth of pricing on both sides of the 'order book', foreach security[44].

One such indicator is the 'slope', which measures the ratio between the absolute difference between the best and the worst price of a given security at a given moment and the difference between the total volume of all prices in the order book for the security in question and the volume of the best price[45].

When shown in a chart, this ratio generates a straight line for each side of the order book (bid and ask), highlighting buy and sell price trends depending on the quantity demanded or supplied by market makers. Therefore, this indicator measures the marginal price increase/decrease that the dealer will demand in order to trade an additional unit compared with the quantity quoted at the best price. This means that, the higher the indicator (the steeper the slope of the line), the lower the level of liquidity for the security in question. In order to get the most comprehensive picture possible and to calculate the slope for a given security on a given day of trading, the slope is calculated across many moments on the same day, and these figures are then used as a basis to calculate the average and create the daily slope figure.

CHART II.11D: DAILY SLOPE ON 10-YEAR BENCHMARK BTP (LOGARITHMIC SCALE), AS RECORDED ON THE MTS PLATFORM



Source: Based on MTS data

[44] The order book collects all trading orders for a given security that are present on the market at a certain moment in time, and divides them into buy and sell orders, arranged in descending and ascending order, respectively.

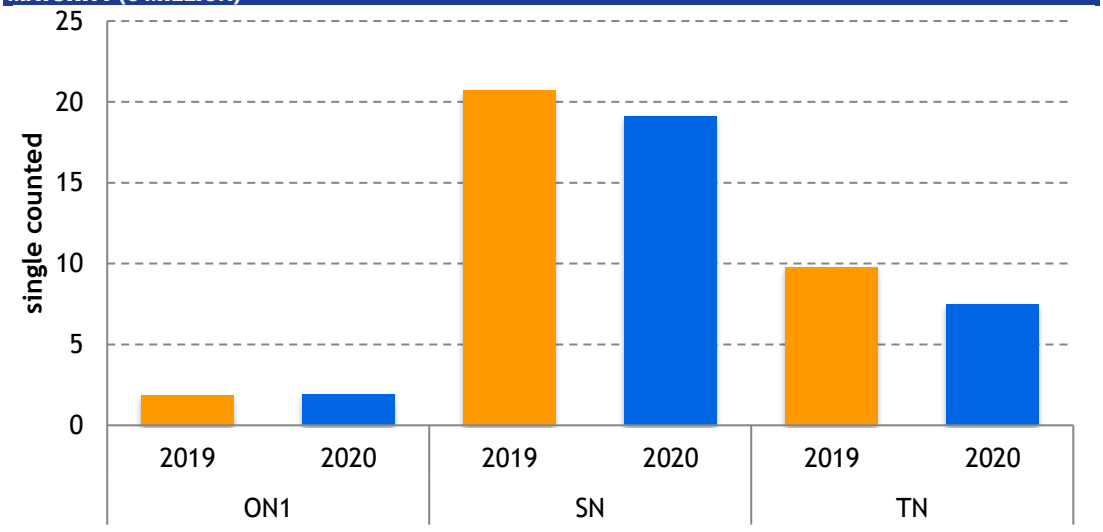
[45] This measure is conceptually very similar to the "price impact", although the slope is calculated based on buy or sell orders, while the price impact is based on both proposed prices and trading activities. In fact, the price impact measures the relationship that exists between a buy or sell order and the corresponding change in listing price. However, literature on this subject confirms that calculating this metric is rather complex, as it not only requires an extremely large amount of intraday data, but also includes subjective assessments, including: the threshold beyond which the impact of trading on pricing is to be assessed; defining the time lag during which the price change due to trading must occur; etc.

This indicator reveals that liquidity deteriorated more extensively than in 2019, and that this phenomenon was more persistent in the months of greatest market volatility and uncertainty, namely between March and May 2020; it also highlights how, even in the months that followed, liquidity reached more favourable levels but did not return to 2019 levels.

The repo market

The government securities repo market plays a major role in supporting orderly trading on the cash market. In fact, an efficient repo market allows operators (especially market makers) to ensure a continuous market presence in terms of bid and ask for all securities, even if they do not hold certain securities in their own portfolios. Over the past few years, the EU legislator has repeatedly reassessed how intermediaries and financial markets are regulated and supervised, introducing a number of legislative changes that affected the repo market[46] making it more costly to use: this aspect could explain why in 2020, despite the sharp increase in spot volumes, repo market volumes fell, being around 12% lower than those traded in 2019. However, this trend may also have been due to the complementarity between the spot and repo markets, as well as to the strong growth in the stock of securities held by the Eurosystem. It is useful to remember that, in the repo market, market makers only play a marginal, albeit important, role, as liquidity in the sector is facilitated by the fact that there is a much wider range of operators compared with the dealers operating in the cash market.

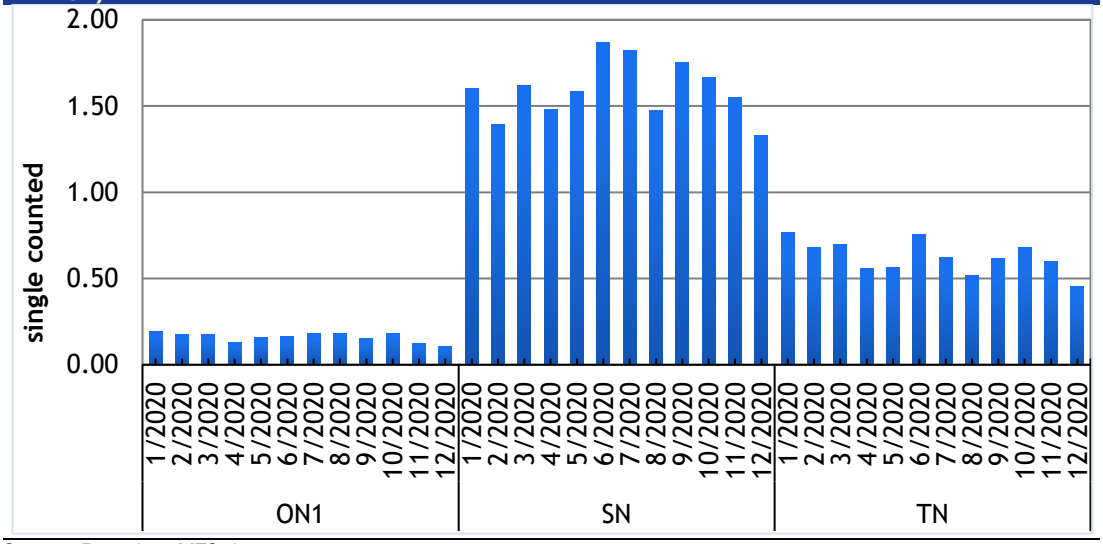
CHART II.12: ANNUAL VOLUMES TRADED ON THE MTS PLATFORM IN 2019 AND 2020, BY CONTRACT MATURITY (€ MILLION)



Source: Based on MTS data

[46] For more details, see footnote 12 of Chapter II of the 2019 Public Debt Report.

CHART II.13: MONTHLY VOLUMES TRADED ON THE MTS PLATFORM IN 2020, BY CONTRACT MATURITY (€ MILLION)



Source: Based on MTS data

There were no particularly significant cases of 'specialness'[47], except during the quarterly technical maturities and when the financial markets were under greater stress due to the propagation of the pandemic,thanks also to the securities lending mechanism[48] introduced as part of the Public Sector Purchase Programme, through which the Central Bank temporarily provides securities for which dealers hold temporary short positions. Overall, repo market trading was therefore substantially carried out in an orderly manner, despite some moments of particularly acute stress.

As also stressed in previous years' Public Debt Reports, there is a number of fast-money investors playing an increasingly significant role in the repo market, who are simultaneously particularly active on the futures market[49]. In fact, as the comparison of Graphs II.14 and II.20 clearly shows, in March and June, not only did the future contract 'open interest' rise, but 'special repo' volumes also increased, especially with regard to foreign investors[50].

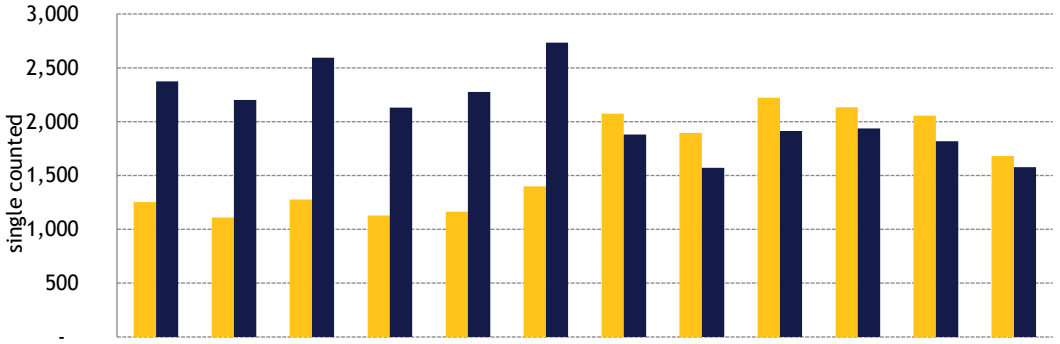
[47] Specialness is when the repo yield for a given security falls below the 'general collateral' rate.

[48] For further information on securities lending, please refer to the following link on the ECB website https://www.ecb.europa.eu/mopo/implement/omt/lending/html/index.en.html.

[49] In fact, above all around the time when futures contracts expire (in March, June, September and December of each year), it is not uncommon to note critical issues with the 'cheapest-to-deliver' (CtD) security, tending to become increasingly 'special', i.e. with particularly misaligned rates compared with those of general collateral. This phenomenon tends to become especially exacerbated during times of stress, when fast-money investors tend to prefer strategies characterised by short futures positions and long positions for the CtD security in the repo market; the CtD security therefore tends to be more in-demand, thus recording increasingly lower repo rates that are further and further away from general collateral rates.

[50] This combined effect is also linked to futures operations connected with the rolling of contracts with a quarterly expiry.

CHART II.14: MONTHLY SPECIAL REPO VOLUMES TRADED ON THE MTS PLATFORM (€ MILLION)



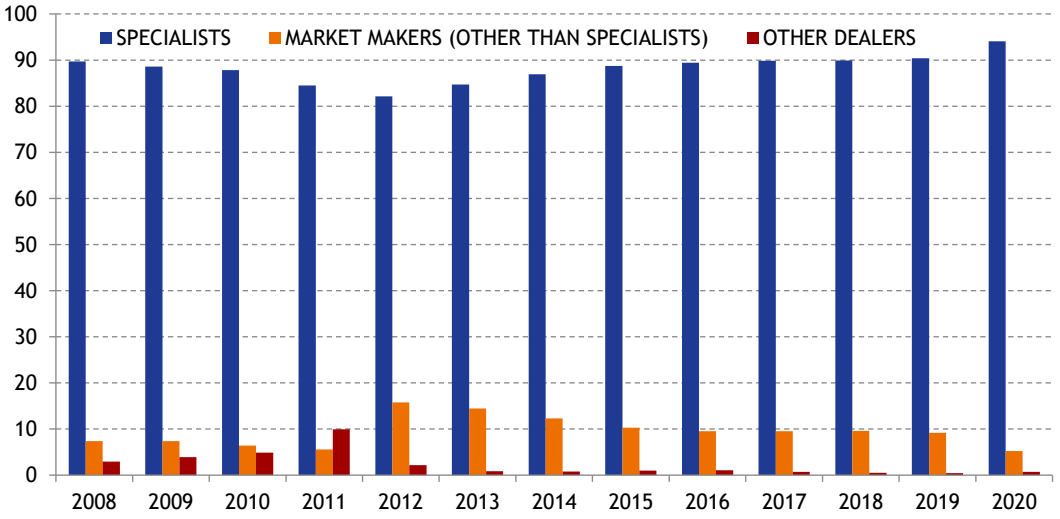
	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
S.R. - Italy	1,253	1,110	1,276	1,129	1,163	1,399	2,075	1,897	2,224	2,134	2,057	1,681
S.R. - Foreign	2,373	2,201	2,594	2,131	2,275	2,733	1,879	1,572	1,912	1,936	1,817	1,578

Source: Based on MTS data

Activities of government bond Specialists on the platform used to appraise them

The MTS trading platform has been selected to evaluate specialist dealers[51], with the latter playing a dominant role in terms of traded volumes; in fact, in 2020, they represented more than 94% of total trades. Just over 5%, on the other hand, was traded mainly by the other market makers ('non-Specialists')[52], while a residual amount of less than 1% was traded by non-market maker dealers ('price takers').

CHART II.15: ANNUAL VOLUMES TRADED BY SPECIALISTS ON THE MTS PLATFORM (%)



Source: Based on MTS data

[51] It should be remembered that this is an interdealer platform, meaning trades are made between intermediaries and not with end investors.

[52] Pursuant to Art. 1, paragraph 5-quater, of the TUF (Italian Consolidated Law on Financial Intermediation), "Market Makers" are defined as entities that are willing to trade on their own behalf, in and/or outside of trading venues, on an ongoing basis, by buying and selling financial instruments as a direct counterparty, at the prices that they set themselves. In order to apply to be included in the "List of Specialist Operators" pursuant to Art. 23, paragraph 1, of Italian Ministerial Decree No. 216 of 2009, an entity must be classed as a Market Maker.

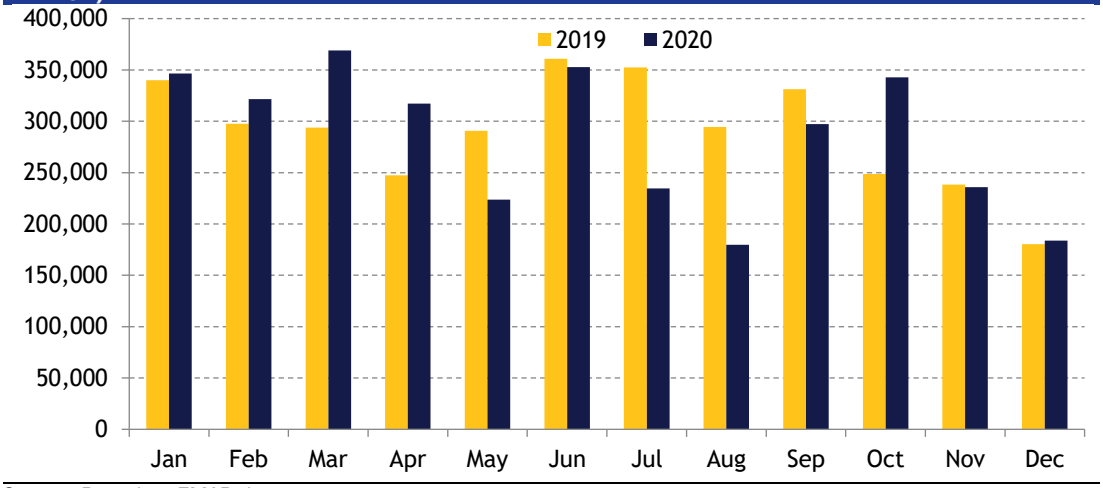
Government bond Specialists' trading with end investors

Traded volumes

Specialists (Primary Dealers) play an extremely important role, not only by ensuring liquidity on the 'interdealer market', but also by distributing the securities purchased on the primary market to end investors. This is why it becomes of crucial importance for the DMO to analyse traded volumes and purchases/sales broken down by investor type and geographic area, in order to better understand who end investors are and what they are looking for in a given market context. This fundamental monitoring and analysis activity is carried out using the information collected via the EMAR[53]. The EMAR is a highly standardised reporting model shared at EU level, which is filled in by the Specialists themselves; the latter use this report to systematically record all the activities they perform[54] with any counterparty, including their end customers.

2020 saw a break in the upward trend of trading volumes outside the MTS (both on other electronic platforms and elsewhere) with trading activity decreasing marginally by 2%. Despite an increase of around 16% in the first four months of the year, trading volumes slowed sharply in the third quarter, falling by around 30 percentage points (Chart II.16). This reduction came at a time when, as explained above, activity on the MTS increased significantly, with a marked increase in trading volumes.

CHART II.16: MONTHLY VOLUMES TRADED BY SPECIALISTS ON PLATFORMS OTHER THAN THE MTS (€ MILLION)



Source: Based on EMAR data

[53] *European Market Activity Report*. This report replaced the previous "HRF" - *"Harmonized Reporting Format"*, but only in terms of its name as its content remained substantially the same.

[54] This report also includes transactions completed both on trading platforms and on a bilateral basis, both electronically and vocally. Since 2014, this report has included all the information on individual trades completed by Specialists (trade-by-trade report), providing indication, for each trade, of the security, the quantity, the country in which the counterparty is based, the type of counterparty and the platform or trading method used. From 1 January 2020, this report also began to include trades on Italian government securities issued under foreign legislation (MTN). Also starting from 1 January 2020, the report's format was enhanced with information on the settlement date, allowing for analysis on certain types of operations carried out by Specialists (for example, trades with the non-standard settlement of two working days, such as simultaneous trades or trades with a settlement of over seven days, also known as forward transactions).

Therefore, dynamics in 2020 cannot be compared with those of 2019, especially due to the fact that the moments of greatest risk aversion happened at different times in the two years under review.

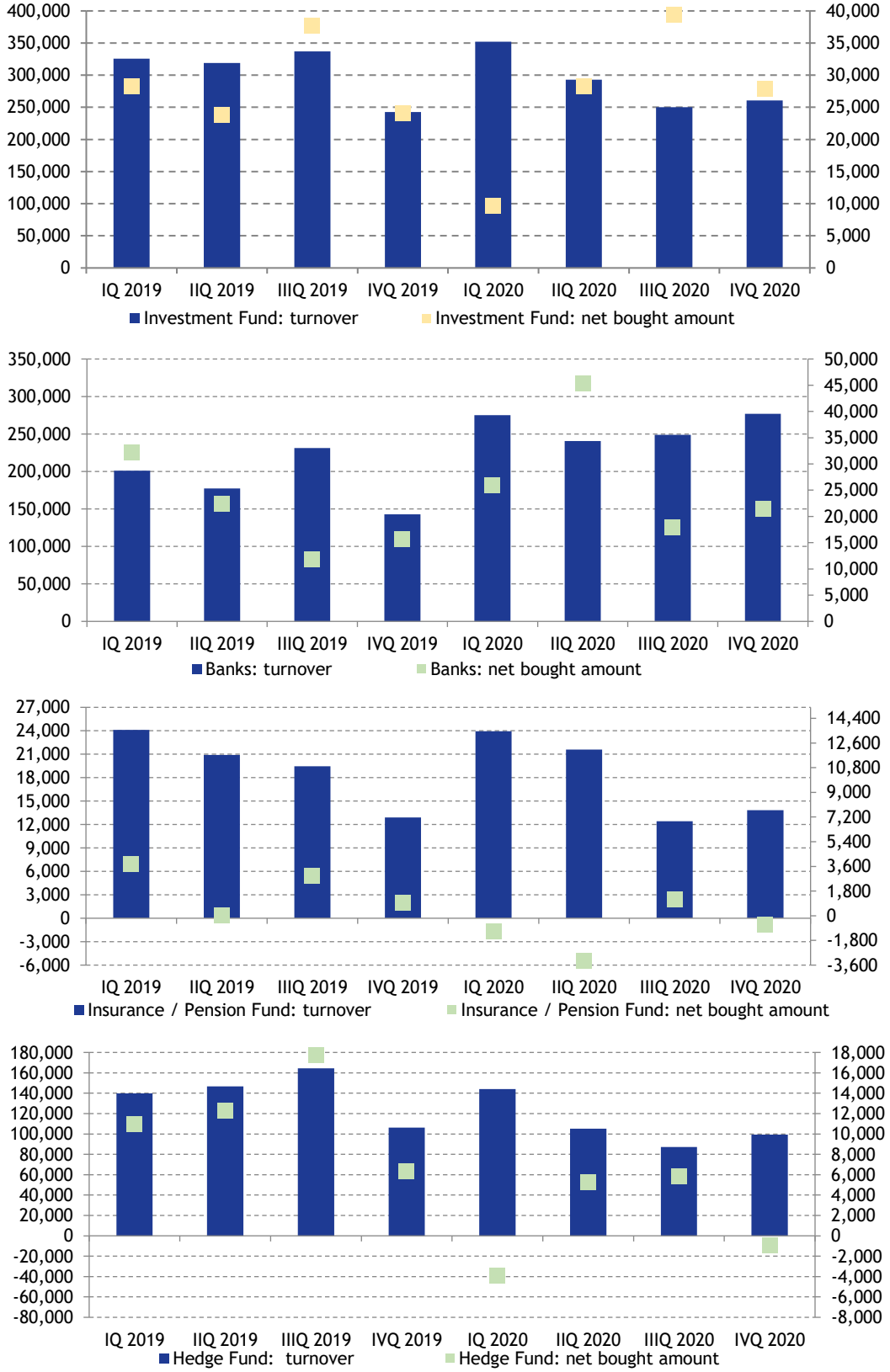
Trades broken down by type of counterparty

As mentioned above, the information gathered through the EMARs, especially from 2014 onwards (when the 'trade-by-trade' format was introduced), plays a very significant role indeed, as it allows for in-depth analysis into current dynamics among government bond investors. By aggregating the information contained in these reports, it is possible to monitor trends by sector, by geographical area and by type of investor, as well as the liquidity present on the various trading platforms.

With regard to the evolution of demand by type of investor, the charts below show the trend of absolute volumes and net amounts (purchases minus sales) traded with Specialists belonging to the main categories of investors - banks, investment funds, pension funds, insurance companies and hedge funds.

Chart II.17 highlights some very interesting trends from 2020. Investment funds and banks still represent the main investors in government securities, in terms of both absolute volumes and net purchase flows. Firstly, there was a return to investment funds providing important support, in terms of both absolute volumes (around 43% of total trades) and in terms of net purchases (just over 48%). Net purchases made by investment funds decreased slightly compared to 2019, in line with the trend of absolute volumes falling by more than 5%. The volumes traded by banks increased to 38%, contributing just over 50% to total net purchases, up from 33%. Another interesting aspect when looking at the banking sector is geographical distribution. While foreign banks recorded a significant increase in overall transactions (+67%), they also recorded a sharp decline in net purchases (-37%).

CHART II.17: QUARTERLY VOLUMES TRADED BY SPECIALISTS, BY TYPE OF COUNTERPARTY - FUND MANAGERS, BANKS, PENSION FUNDS AND INSURANCE COMPANIES, HEDGE FUNDS (€ MILLION)



Source: Based on EMAR data

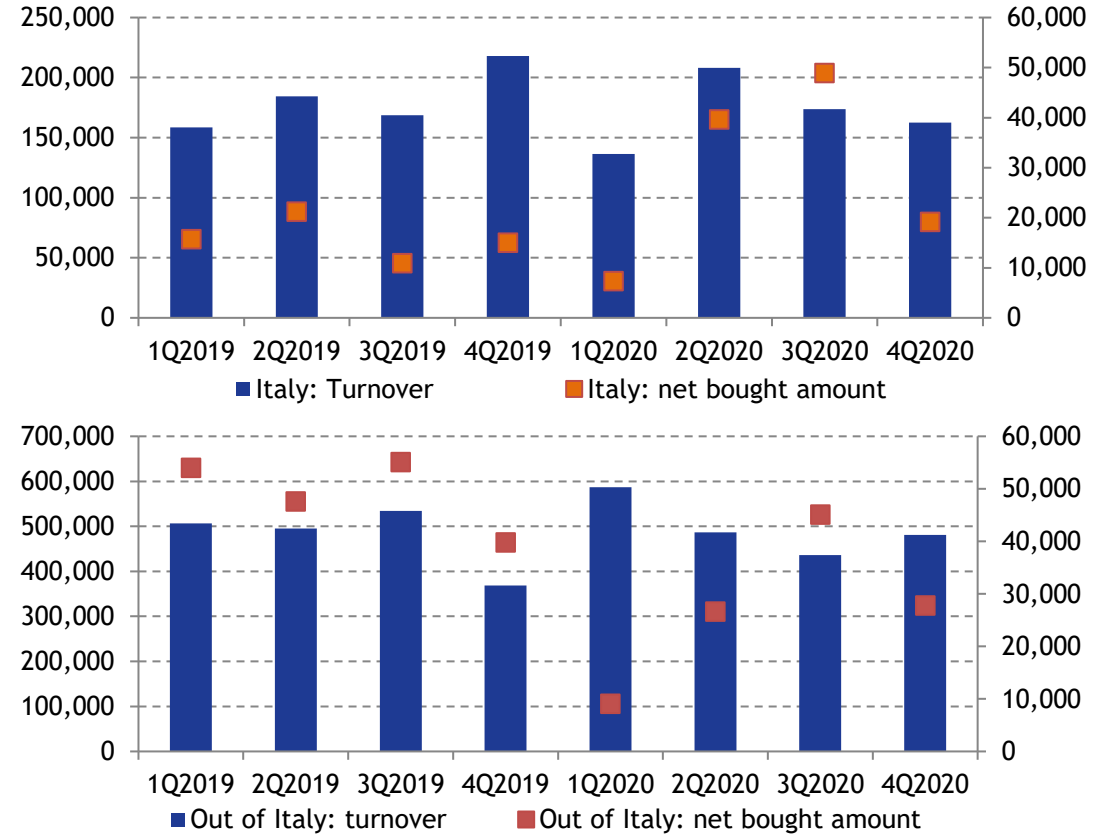
The investor category represented by pension funds and insurance companies made no substantial changes to its investment policies with regard to Italian government securities. 2020 saw these investors make a relatively modest contribution to the total number of transactions (below 3%), while in terms of net purchases the overall amount was negative.

Also, the strengthening trend of hedge funds in terms of total trading was interrupted. The volumes traded by this particular category of investor fell from around 21% to 16%, while their annual contribution to total net purchases decreased to around 3%.

Trades broken down by counterparties' geographical areas

The evolution of demand by geographical area in 2020, broken down between Italian and foreign investors, saw some trends continue that have been ongoing for a number of years: the share of total transactions carried out by Italian counterparties continued to decrease at a moderate rate, and in 2020 stood at just over 25%. The contribution of Italian investors to net purchases, on the other hand, returned to the high levels of 2018, settling above the exceptional value of around € 115 billion, especially in the second and third quarters, that is during the first phase of the pandemic.

CHART II.18: QUARTERLY VOLUMES TRADED BY SPECIALISTS ACCORDING TO COUNTERPARTY RESIDENCE (€ MILLION)



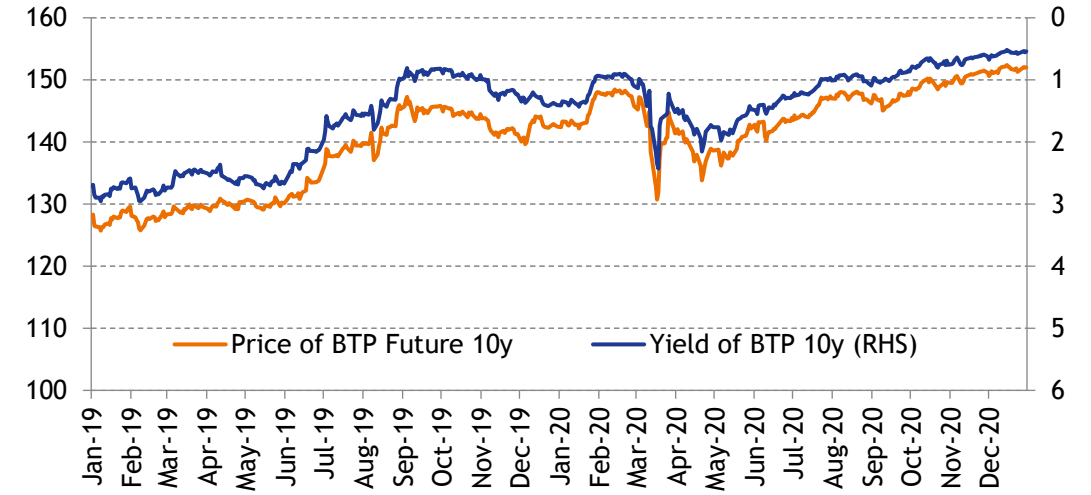
Source: Based on EMAR data

Foreign end investors represented the main share of total trades completed in 2020. More specifically, volume amounts grew by a further 4.5% in 2020 (after around +7% was recorded in 2019). With regard to the trend in net purchases, 2020 saw a significant drop from the € 200 billion reached in 2019 to € 108 billion, with a fall of around 45%. The time trend was, however, similar to that of domestic investors.

Evolution of the BTP Futures market

The evolution of Future contract prices on ten-year Italian government securities[55] (by far more liquid compared with contracts on three-year and five-year maturities) was perfectly in line with the performance of the ten-year benchmark BTPs (Chart II.19). However, there were some discrepancies during 2020 that coincided with phases of greater market volatility and the change of the benchmark BTP.

CHART II.19: PRICES OF THE BTP FUTURESA AND YIELD OF THE 10-YEAR BENCHMARK BTP (RIGHT-HAND SCALE INVERTED, IN %)



Source: Based on Bloomberg data

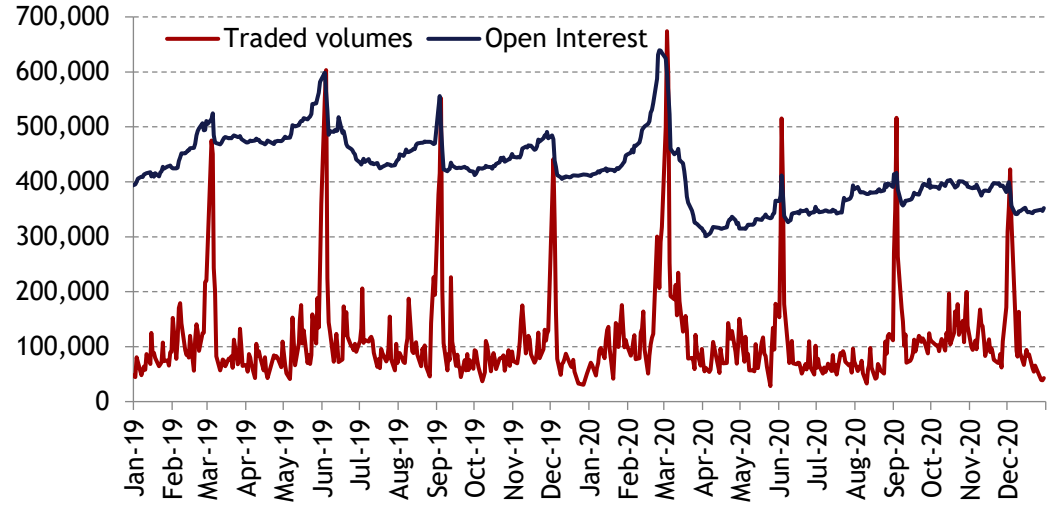
In 2020, the volumes traded for the 10-year Future contract increased marginally by around 6% compared to 2019. However, a significant decrease was recorded in open interest levels[56], of around 15 percentage points (Chart II.20).

Given the increase in the traded volumes of securities, it can be assumed that part of the hedging activity, normally carried out via futures contracts, took place directly on the spot market for securities.

[55] BTP futures contracts are traded on the Eurex platform.

[56] Open interest represents the number of outstanding futures contracts that are traded on the market (i.e. that have not yet been settled). It can therefore be defined as the sum of all long or short positions opened on 10-year BTPs via a Future contract in a certain moment in time. Steep increases normally indicate a large number of operators tending to move in the same direction.

CHART II.20: VOLUMES OF LOTS TRADED AND OPEN INTEREST FOR THE 10-YEAR BTP FUTURE CONTRACT TRADED ON THE EUREX MARKET



Source: Based on Bloomberg data

It should be noted that the highest levels of open interest were recorded for the contract expiring in March 2020, coinciding with when the BTP-Bund spread was at its widest point during the year. As in 2019, when the spread reached its peak in June, 2020 saw open interest levels continue to grow up until just before rolling of contract[57], to indicate that operators traded the future to manage risk on existing BTP positions (despite the particularly difficult conditions), rather than for merely speculative downward activity.

[57] The rolling of a future contract refers to when an operator closes the contract that is about to expire, moving its position to a future contract that expires at a later date.

III. PUBLIC DEBT MANAGEMENT IN 2020

III.1 OUTSTANDING GENERAL GOVERNMENT DEBT

The consolidated debt of the General Government (or public debt) is one of the main public finance aggregates relevant to the application of the Excessive Deficit Procedure (EDP) provided for in the Treaty establishing the European Union and governed by EU Regulation 479/2009[58]. According to these regulatory sources, public debt is defined as the total financial liabilities held by institutional units belonging to the general government sector, as broken down into the three subsectors of central government, local government and social security funds[59]. Liabilities are defined in gross terms, that is, without allowing for the deduction of any assets that might reduce the size of the aggregate, and in consolidated terms, as liabilities of a subsector held by another subsector or between two units belonging to the same subsector are not considered, thereby only accounting for the external exposure of the General Government as a whole. Specifically, the identification of institutional units and the calculation of the respective debt is based on the sector-specific and methodological criteria defined in the Regulation of the Council of the European Communities No. 549 of 2013, i.e., the European System of National and Regional Accounts (ESA2010).

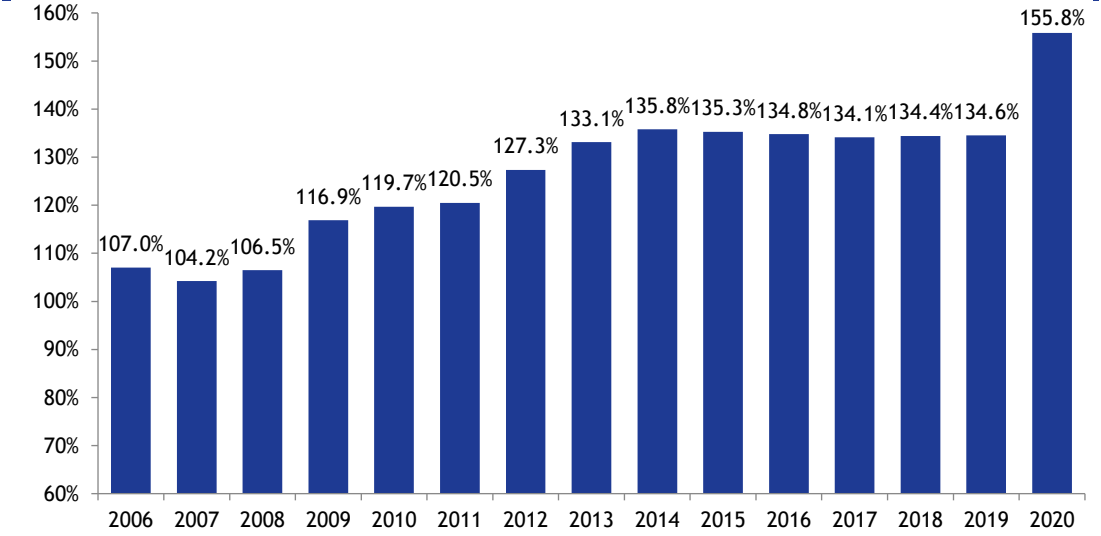
The absolute level of debt calculated by the Bank of Italy according to the abovementioned criteria reached a value of approximately € 2,537 billion at the end of 2020, with an increase of more than € 163,444 million compared to the previous year, which is quite significant especially when compared to the € 28,899 million change recorded in 2019. With regard to the financial instruments involved, the increase mainly reflects the conspicuous issuance of government bonds, which became necessary as of April to finance the expenses arising from the measures launched by the Government to address the pandemic emergency. The total value of the debt was also determined by the four loans received under the SURE (Support to Mitigate Unemployment Risks in an Emergency) programme, which disbursed to Italy a nominal amount of € 16.5 billion at the end of 2020. Second, a € 4.1 billion upward revision of the debt was made by the Bank of Italy, as result of recapitalisation interventions in the banking sector that led to the reclassification of units within the General Government perimeter. The public debt-to-GDP ratio soared to 155.8% as at 31 December 2020, with a variation of around 21 percentage points compared to the same aggregate measured at the end of 2019, to which the exceptional 7.8% contraction of the denominator also contributed.

The debt-to-GDP ratio has evolved over the past 15 years as follows:

[58] This regulation was amended by Regulations Nos. 679/2010 and 220/2014.

[59] A fourth subsector consisting of all the federal states is also taken into account in the federated Member States of the Union.

CHART III.1: 2006-2020 EVOLUTION OF THE DEBT-TO-GDP RATIO



With regard to outstanding financial instruments, as at 31 December 2020, debt represented by negotiable bonds of both the central government and local authorities amounted to 83.7% of total consolidated debt, in line with the same percentage measured at the end of 2019, of which 94.2% consisted of medium- or long-term bonds. Of these instruments, almost all are government bonds. On the other hand, non-marketable debt contracted in the form of loans amounted to 7.4% of total debt.

III.2 GOVERNMENT BONDS ACTIVITIES

Maturities and redemptions of government bonds

In 2020, € 376,007 million came due, which is approximately € 20.3 billion more than the € 355,736 million of the previous year and corresponds to a 5.7% increase. Taking into account the repurchases made as part of the buy-back and exchange transactions carried out during the year, the total volume of redemptions reached € 406,630 million.

In the short-term segment, redemptions of government bonds amounted to € 174,461 million, as compared with the € 154,363 million matured in 2019.

In the medium to long term, maturities amounted to € 201,546 million, which was only slightly different from the € 201,373 million matured in 2019. If the volumes subject to repurchase and exchange transactions are also taken into account, a total of € 232,169 million is reached, which is 7.2% higher than the € 216,552 million recorded in 2019. However, as in previous years, a slightly lower value (€ 228,696 million) was recorded in the State budget, which does not include the € 3,473 million from the Government Bond Sinking Fund used to redeem maturing bonds.

Net issues and requirement coverage

In 2020, the requirement of the State Sector was € 159,144 million, which is € 117.7 billion higher than in 2019 as a result of the significant reduction in collections and the increase in payments mainly due to the measures adopted to contain the COVID-19 epidemic emergency and manage its impact in terms of a marked slowdown in economic activity. Secondly, it should be noted that current expenditure has also increased as a result of the inclusion of Rete Ferroviaria Italiana (R.F.I. SpA) in the General Government segment, which took place during 2019 but was only actually accounted for in the public accounts starting last year.

The requirement was covered by the balance between the net issues of bonds recorded in the State budget[60] and other treasury movements, which amounted to a positive € 19,536 million, thus bringing total coverage to € 168,687 million. In anticipation of commitments on the maturity front, this made it possible to ensure a liquidity reserve at the end of the year that was € 9,543 million higher than at the end of 2019.

TABLE III.1: ISSUES*, MATURITIES AND COVERAGE OF THE STATE SECTOR'S REQUIREMENT (€ MILLION)

	2020
Nominal issues	550,668
Nominal redemptions	406,630
Issues valued as net proceeds (a)	553,289
Redemptions valued as net proceeds (b)	404,138
Net issues (c) = (a) - (b)	**149,151**
Other forms of coverage held in the State Treasury (f) = - (d) + (e) - (c)	**19,536**
Total coverage (c) + (f)	**168,687**
Change in Treasury Cash Account 31 Dec 2020 vs 31 Dec 2019 (e)	**9,543**
Cash balance of the State Sector (d)	**-159,144**

** Calculated for the whole year using the settlement date criteria and not by auction date.*

Source: MEF

The year 2020 was characterised by a large recourse to the market due to the COVID-19 epidemic emergency, while at the same time maturing bonds increased by more than € 20 billion compared to 2019 amounts. Another peculiarity was the increasing formation of the requirement starting in the second quarter of 2020, which was regularly distributed throughout the year.

As a result, as can be seen in Table III.2, the time profile of the issuance activity has been parallel to that of demand, with a slight slowdown only in the last quarter of 2020.

[60] Net issues are calculated as difference between issues and redemptions, respectively valued as follows: issues are valued at net proceeds, with the exception of BOTs, which are valued at nominal value (price 100), since the difference with respect to 100 is advanced by the State Treasury; redemptions are valued at nominal value, with the exception of bonds repurchased in exchange, which are calculated at net proceeds as CTZs are, since the interest component is already contained in the requirement of the State Sector.

TABLE III.2: GOVERNMENT BONDS ISSUED NET OF EXCHANGE TRANSACTIONS (€ MILLION)

	Total 2019	I Quarter 2020	II Quarter 2020	III Quarter 2020	IV Quarter 2020	Total 2020
Short-term totals (BOTs)	**160,839**	**45,525**	**57,788**	**46,341**	**32,161**	**181,815**
Medium-long term totals	**249,191**	**71,964**	**137,365**	**82,060**	**62,475**	**353,864**
of which:						
CTZ	31,156	10,109	12,563	10,777	4,500	37,949
BTP	175,273	53,502	86,656	59,359	42,107	241,624
BTP€i	13,871	3,779	4,900	1,772	2,000	12,451
BTP ITALIA	6,750	0	22,298	0	0	22,298
BTP FUTURA	-	0	0	6,132	5,711	11,844
CCTeu	14,771	4,575	2,949	4,019	4,901	16,444
Foreign bonds	7,371	0	8,000	0	3,255	11,255
TOTAL	**410,030**	**117,489**	**195,153**	**128,401**	**94,636**	**535,679**

Source: MEF

In order to deal with the exceptional requirement associated with the measures launched by the Government to manage the health and economic-financial crisis, as well as to continue to ensure the orderly functioning of the secondary market for Government bonds, the Treasury not only availed itself of a wide and diversified offer of existing debt instruments, but also introduced a number of innovations. First, in order to attract a greater share of retail investors, a new product exclusively addressed to this type of investor was launched, i.e., BTP Futura, whose issues were highly appreciated by a large number of individual investors. Secondly, the Treasury has increased the flexibility of the offer of bonds no longer being issued ('off-the-run') by making use of a new facility called 'Tap' issuances, which are reserved to Specialists in Government bonds on a dedicated portion of the telematic market and tend to take place in the weeks free of scheduled Government bond auctions. Another measure consisted in the possibility of derogating from the limits of the quotas reserved to Specialists in supplementary placements (30% for the first tranches and 15% for subsequent tranches, increasable by 5% for bonds with a residual life of more than 10 years), thereby allowing the Treasury to increase them at its own discretion in each auction.

Compared to 2019, the frequency of recourse to syndicated issues has further intensified, coming to propose new bonds also in maturity segments (such as the 5-year segment) outside of those traditionally reserved for this type of issue. These issues made it possible to allocate tranches of record size, in particular in the 10-year nominal segment, where around € 14 billion was placed in a single issue in June.

With reference to the functioning mechanism of the Government bond market, during 2020, the Treasury introduced new measures aimed at improving its efficiency, thus intervening both on the activity of Specialists and on their remuneration modalities.

A first intervention concerned the payment modality and structure of placement fees paid in relation to the nominal amount subscribed in Government bond auctions. Indeed, since July, such fees have no longer been paid indirectly (i.e., through the Bank of Italy, which manages the auction system) and at the same time as the settlement date of the auctions, but directly by the Treasury, though at separate times, by allocating a part on a quarterly basis according to a minimum

participation quota of 3%, and the rest at the end of the year in relation to the residual quota calculated on the actual amount subscribed. This has contributed to making the Italian Government bond market more competitive and attractive to auction participants.

The second intervention concerned the modification of the criteria adopted for the evaluation of Specialists, with reference to the qualitative indicator of primary market participation in medium-long term auctions (Auction Aggressivity Index, AAI). This indicator shows the degree of aggressiveness of each Specialist's auction participation strategy, that is, the combined effect of the deviation of prices presented at a level higher than the market level (overbidding) associated with requested quantities higher than a threshold quota established by the Treasury (overdemanding). In addition to the traditional mechanism of penalising above-market requests that exceed the threshold quota, since August, an intermediate interval has been introduced at which all requests whose price is above the market price are penalised. Therefore, by refining the mechanism for calculating the AAI, the Treasury managed to mitigate the phenomenon of overbidding, thus improving the results of the issues and facilitating the participation of final customers in the auctions.

Finally, despite the high uncertainty of yields typical of the emergency context, it should be noted that, in the second half of the year, the Treasury managed to finalise a new issue in US dollars of the Global programme and continue along the path of progressive rapprochement to this market started in 2019, in order to complete the yield curve in dollars and guarantee liquidity on the various maturities. With a view to differentiating the investor base, the transaction made it possible to strengthen the link with international investors operating in dollars - both US and non-US - thereby maintaining a more stable, solid presence.

Domestic bonds

BOTs

In 2020, gross issues of BOTs amounted to € 181,815 million, which was almost € 21 billion higher than in the previous year, partly due to longer maturities (€ 174,461 million against € 154,363 million in 2019) and partly related to a positive net issuance value of € 7,354 million.

As mentioned in Chapter II, following the national lockdown, the Italian Government issued a series of economic regulatory measures aimed at supporting the production and social sectors most affected by the spread of COVID-19. These actions have had a considerable impact on the Italian Government's revenue and expenditure outlook, thereby causing great uncertainty on the predictability of the Treasury's Cash Account balances. To deal with Italy's economic instability, the Treasury responded to the new cash needs both by increasing the issuance of Government bonds and by issuing new debt instruments, the purposes of which are described in the following paragraphs of this chapter. In virtue of the changed financing needs, starting from the April auctions, the Treasury returned to complementing the auctions of annual and semi-annual BOTs with bonds with quarterly maturities or new tranches of BOTs already in circulation. The choice of

issuing BOTs with a very short-term maturity or with a non-conventional duration, other than 6 or 12 months, was functional to the need to compensate for sudden, albeit limited in time, cash criticalities.

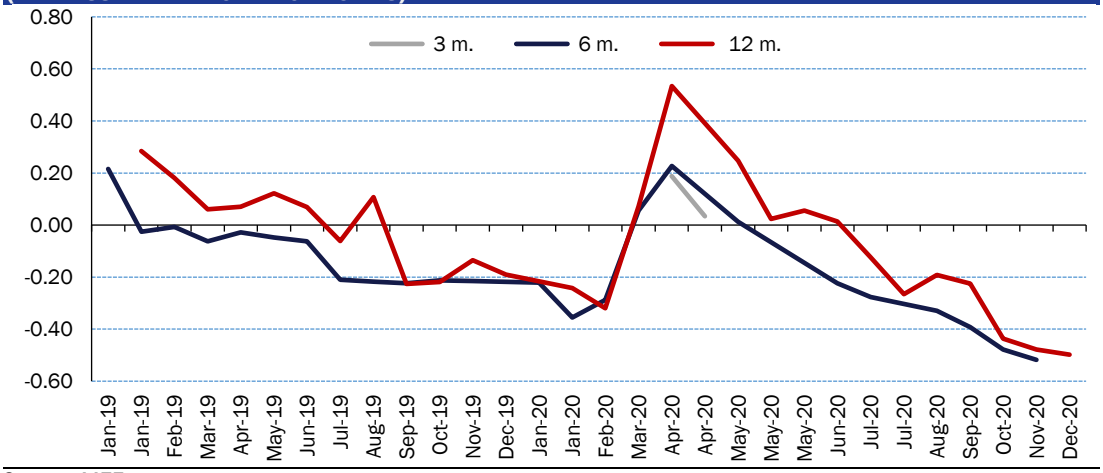
The increase in the issuance of BOTs took place not only through the recourse to the issuance of 3-month bonds and the reopening of 6- and 12-month bonds, but also through the increase in the amounts in issue of annual and semi-annual BOTs compared to the amounts maturing. This strategy was pursued throughout the second and third quarters of the year, i.e., in the period immediately following the outbreak of the pandemic, in order to deal with the immediate and important cash necessities, linked both to the lower tax revenues connected to the worsening of the macroeconomic framework and to the higher expenses incurred in order to contain the negative economic effects connected to the restrictions and closure of economic activities during the lockdown.

Given the intense issuance activity carried out in the mid-year, the last quarter saw the Treasury return to considering only BOTs on the traditional six-month and one-year maturities, with amounts in line with the related redemptions. This strategy was implemented also thanks to the tax and monetary measures undertaken by European institutions, which contributed to progressively reducing both monetary and medium/long-term absolute nominal rates, as well as spread levels against Germany. Accordingly, at year-end, the stock of outstanding BOTs was equal to € 121,283 million, including approximately € 87,123 million for one-year BOTs and approximately € 34,160 million for six-month BOTs. The total stock in 2020 increased by approximately € 7.3 billion compared to the year 2019 but, in percentage terms, was lower than that recorded in the previous year (5.64% in 2020 compared to 5.68% in 2019). Finally, most of the major issues made in the mid-year period, through quarterly BOTs or reopenings, were redeemed in the same year of issue, while only € 3.5 billion had maturities after 2020. Thus, although gross issuances increased substantially compared to 2019, they essentially performed the task of absorbing temporary liquidity shocks.

With regard to the evolution of auction yields (Chart III.2), the year was characterised by a discontinuous trend. In the first few months of the year, yields were lower than those recorded at the end of 2019, but then experienced a sudden increase precisely in correspondence with the spread of COVID-19 in Italy. Indeed, from the March auctions until the mid-June auction, yields at auctions of six-month and one-year BOTs returned to being even positive, with spreads towards the six-month Euribor rate of well over 30 basis points. The highest peak was recorded in April, when the annual BOT was placed at a yield of 0.534%, while the six-month BOT was at 0.227%. As anticipated, tensions gradually eased thanks to the abovementioned monetary policy interventions by the ECB and the announcement by the European Commission of the Next Generation EU programme. These interventions brought a certain stability also to the government bond market, so much so that, from the auctions of the second half of the year, BOT yields resumed a downward trend, thereby allowing new issues to be placed again at negative rates. Towards the end of 2020, yields fell further: November saw the all-time low for the six-month BOT (-0.518%), and the December auction saw the all-time low for the one-year BOT (-0.498%).

In spite of the tensions recorded on the auctions held in the first part of 2020, overall BOT yields recorded average yields lower than those of the previous year.

CHART III.2: GROSS COMPOUND YIELDS AT ISSUANCE OF 6- AND 12-MONTH BOTS, 2019-2020 (EXPRESSED IN PERCENTAGE POINTS)

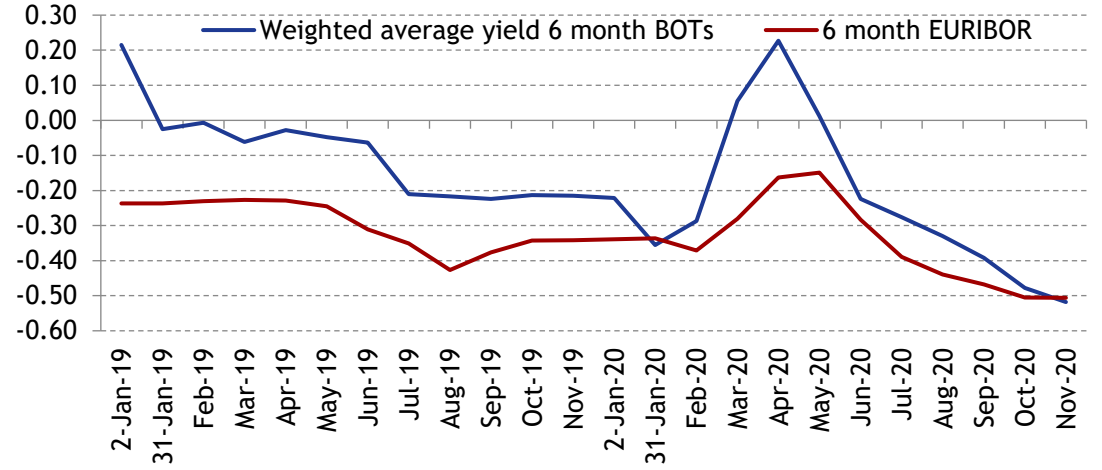


Source: MEF

Specifically, the average allotment yield of the BOT sector was -0.185% for 2020, i.e., down by more than 14 basis points (-0.043%) compared to the previous year. More specifically, the average yield on six-month and one-year bills in 2020 was -0.232% and -0.137%, respectively.

The graph below (Graph III.3) compares the yields on six-month BOTs with the Euribor rates for the same term. This makes it possible to appreciate the fact that the rate increases recorded in the BOT auctions from March to May were not a peculiarity of Italy situation but rather a consequence of the repricing of all the monetary curves, including those of interbank rates. However, it is undeniable that the widening of the BOT rate spread vis-à-vis Euribor was significant (from around 8 basis points pre-crisis to almost 40 basis points in the six-month auction at the end of April). However, if the period of greatest volatility is excluded, the remaining spreads never reached 12 basis points; in fact, in two 2020 auctions, yields on six-month bonds even went below Euribor rates. These levels are a clear sign of both the abundance of liquidity in the system and the perception of relatively lower risks with regard to Italian government bonds.

CHART III.3: YIELD AT ISSUANCE OF 6-MONTH BOTS AND COMPARISON WITH EURIBOR RATE - YEARS 2019-20 (EXPRESSED IN PERCENTAGE POINTS)



Sources: MEF, Bloomberg

In spite of the large yield fluctuations at which BOTs were placed during 2020, in terms of primary dealer participation to the auctions, interest gradually increased. Indeed, not only were the year's average bid-to-cover ratios 1.74 for the six-month BOT and 1.70 for the annual BOT, i.e., far higher than those of 2019 (1.57 and 1.56 respectively), but they showed a steadily increasing trend, especially towards the end of the year.

In conclusion, although the year was particularly turbulent from an economic point of view as well as in terms of secondary market volatility, the BOT segment maintained satisfactory levels of efficiency both on the secondary market, in terms of liquidity and depth, and on the primary market, in terms of allotment yields in the various monthly auctions and coverage ratios.

The composition of demand at auction, based on data collected through Government Bond Specialists according to the harmonised model defined at European level (EMAR[61]), was also characterised by a prevalence of foreign investors, averaging 70% of total demand, in 2020 as well. Overall and for the entire year, foreign demand was far greater than Italian demand, but during the COVID-19 emergency period and in the midst of the lockdown, a reduction in the foreign sector was noted to the benefit of domestic investors, who even exceeded the 50% threshold in April.

In terms of investor type, investment funds were the most stable component (38%), followed by banks with around 34%.

CTZs

In 2020, net issuance on the CTZ segment was positive. Indeed, against a higher volume of maturities compared to the previous year (€ 32,017 million compared to € 23,223 million in 2019), € 37,949 million of these bonds were issued, but the increase in the stock was only € 3,341 million, as the CTZs were subject to several repurchase transactions[62] for a total amount of € 2,590 million. This made it possible to satisfy the considerable demand observed in the sector, keeping the increase in the stock of this instrument contained, despite the additional financing needs stated in the April update of the Guidelines.

In addition, two new lines were opened during the year as planned:

- end of May: a bond maturing on 30 May 2022, which was offered in auction for € 4,000 million, followed by full subscription of the reopening reserved to government bond Specialists (€ 1,200 million); at the end of August, with the last tranche issued, this CTZ was outstanding for approximately € 16.35 billion;
- end of September: a bond maturing on 28 September 2022, initially offered and subscribed for 3.75 billion euro and reaching the end of the year with a total outstanding amount of approximately € 8.3 billion.

The amounts placed in the reopening auctions of the bonds already being issued (the two mentioned above plus those of the CTZ with maturity on 29 November

[61] See *supra*, Chap. II.
[62] See *infra*, Extraordinary transactions, pages 75-78.

2021, which was launched in October 2019 and concluded its issuance cycle with approximately € 18.3 billion outstanding) ranged from a low in January and November (€ 2,000 million) to a high in June (€ 3,500 million).

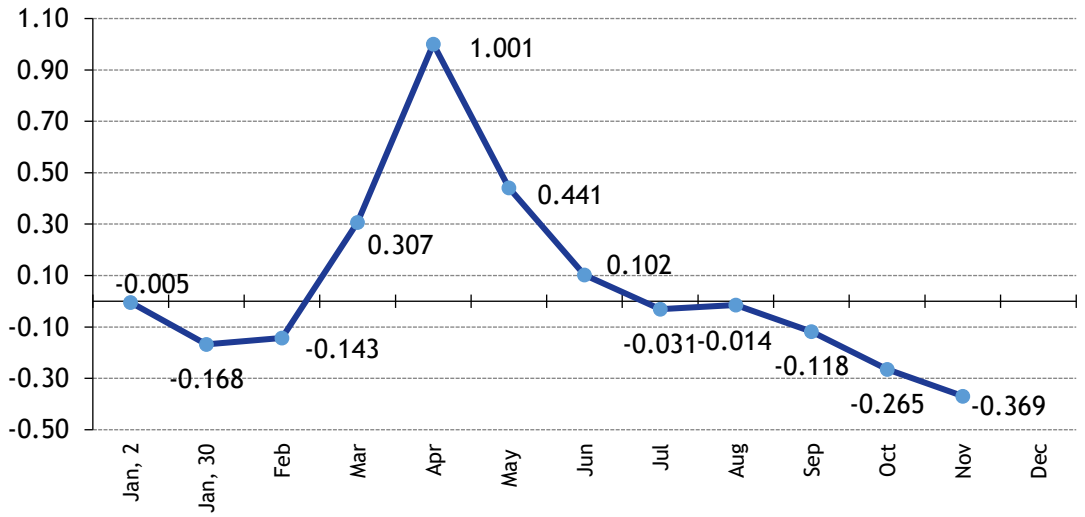
Coverage ratios were fairly regular, ranging from a low of 1.32 in June to a high of 1.77 in November. The average was 1.59, which was slightly lower than the 1.66 recorded in 2019 – a year also characterised by low variability.

Also for CTZs, a clear prevalence of foreign demand emerged near the auctions, though slightly less pronounced than in the BOT segment. Indeed, the Italian component accounted for an average of 33%, albeit with a variable distribution over time, which saw an Italian preponderance in the months of greatest volatility (with a maximum of 64% in March) against negative flows in January and October. The share of European investors was second in importance (with an average of 32%), followed by American investors, who recorded a significant increase from the previous year (25.5% compared to 14.6% in 2019). Demand from other regions also grew, thereby becoming even more constant over the year than in 2019, when it had only been present in April.

In terms of investor types, hedge funds and investment funds were the most significant categories, averaging 33.5% and 31.3% respectively. Banks were also a significant component grown from the previous year (23.4% compared to 17.6% in 2019).

Yields at issuance of CTZs were characterised by considerable variability (Chart III.4) and wide fluctuations. The first months of the year - April included - were characterised by an upward trend in yields, which fluctuated between the relative minimum at the end of January (-0.168%) and the absolute maximum for the year recorded in April (1.001%). Instead, a clear downward trend started in May, leading to negative values from July onwards, with a minimum value reached in the November auction (equal to -0.369%).

CHART III.4: CTZ YIELDS AT ISSUANCE (EXPRESSED IN PERCENTAGE RATES) IN 2020



Source: MEF

BTPs

In light of the additional financing needs announced in the April update of the Guidelines to address the emergency related to the COVID-19 pandemic, BTPs gross issuance in 2020 (net of placements in exchange transactions) reached € 241,624 million, which is significantly higher (+€ 66,351 million) than in the previous year.

In addition, as part of exchange transactions, 15,000 million BTPs were issued against repurchases (in the same exchange and buy-back operations) amounting to approximately € 24,611 million, with the weight of nominal BTPs on total government bonds in circulation remaining substantially stable, with a slight 0.11% decrease: indeed, it stood at 71.73% compared to 71.84% in 2019.

Issuance activity in this segment was particularly intense and diversified in terms of maturities, with even new types of bonds, introduced through syndicated placements that met with exceptionally high demand. The reopening of the September 2050 BTP, which was issued through a syndicate in January, was also carried out using the same placement method, which is particularly effective in favourable market contexts, allowing the amount of the issue to be significantly higher than that obtainable with an auction.

The first syndicated issuance, which was carried out in mid-January on the 30-year maturity, ended with the allotment of € 7 billion of the September 2050 BTP with a nominal annual rate of 2.45% (as paid in two semi-annual tranches), against a demand of no less than € 48 billion expressed by approximately 360 investors. As the allotment price was slightly below par, the corresponding effective yield was 2.5%.

The second syndicated transaction, carried out in February on the 15-year segment, recorded a demand of around € 50 billion for the new BTP maturing on 1 March 2036 and with an annual nominal rate of 1.45%, which was then placed for €9 billion at an effective yield of 1.49%. In this case, the number of investors participating was even higher, namely around 400.

April saw the syndicated placement of a new five-year bond maturing on 1 July 2025, combined with the reopening of the September 2050 BTP. The new five-year benchmark with an annual nominal rate of 1.85% was placed for € 10 billion, while the 30-year BTP was reopened for € 6 billion, against total demand of over € 110 billion, almost equally divided between the two bonds, from approximately 360 institutional investors. The actual yield on the July 2025 BTP was 1.93%, while that on the 30-year bond, which was placed at a price below par, was 3.13%.

The fourth syndicated transaction involving a new ten-year benchmark was carried out in June, at a time when demand for this maturity was particularly strong. In fact, the December 2030 BTP was placed for the high amount of € 14 billion, against an order book of 490 institutional investors and a demand of approximately € 108 billion, which marked an absolute record for a single bond issued through a syndicate. The effective yield on the bond issued was 1.71%.

The first new line on the 20-year maturity was opened through syndication in September, with the new March 2041 BTP being placed for € 10 billion at an annual nominal rate of 1.80% and an effective yield of just over 1.82%. Demand was particularly high for this issue as well - more than € 83 billion -, and the number of investors taking part in the placement was also high, up to 520.

Finally, at the end of October, a syndicated exchange was carried out with the issue of a new 30-year bond maturing on 1 September 2051 and the simultaneous repurchase of four BTPs and one CCTeu. The transaction was carried out as part of the Liability Management targets, simultaneously pursuing the objectives of lengthening the average life of the stock of outstanding bonds, reducing the cost of debt and easing the maturity profile in subsequent years. The 30-year bond was placed for € 8 billion in response to demand of almost € 90 billion, as expressed by a record number of investors of around 540. The annual nominal rate of the new bond was 1.70%, while the effective yield was 1.76%.

Placements carried out through the constitution of a syndicate of banks (in which all Government Bond Specialists participate, among which the Treasury selects the group of lead managers of the specific operation) offer the advantage of having more detailed and precise information on demand, as well as allowing a selection of allocations that favours a good future performance of the bond on the secondary market. Since there were seven syndicated issues of nominal BTPs in the year under review, it is particularly interesting to compare their distribution both in geographical terms (Table III.3) and by type of investor (Table III.4).

TABLE III.3: GEOGRAPHICAL DISTRIBUTION OF AWARDS IN SYNDICATED PLACEMENTS OF NOMINAL BTP IN 2020

	01 Sep 2050 BTP (€ 7 bln)	01 Mar 2036 BTP (€9 bln)	01 July 2025 BTP (€10 bln)	01 Sep 2050 BTP (€6 bln)	01 Dec 2030 BTP (€14 bln)	01 Mar 41 BTP (€10 bln)	01 Sep 2051 BTP (€8 bln)
Italy	31.9%	36.6%	24.0%	19.0%	24.0%	23.1%	29.1%
United Kingdom	18.3%	9.9%	33.0%	42.0%	23.0%	25.0%	23.7%
Germany/Austria/Switzerland	8.3%	13.6%	12.3%	13.5%	14.4%	12.8%	16.7%
Iberia	4.0%	5.0%	11.0%	5.5%	11.1%	6.6%	7.1%
Scandinavia	7.6%	7.4%	3.0%	3.3%	7.0%	8.2%	6.6%
France	8.4%	6.3%	4.7%	6.0%	7.4%	7.3%	7.0%
Benelux	-	1.2%	1.1%	1.2%	3.5%	-	-
Other European countries	2.4%	1.8%	4.3%	3.5%	4.9%	1.6%	2.6%
North America	15.1%	13.3%	2.5%	1.5%	3.3%	13.8%	5.1%
Asia	3.7%	2.7%	0.7%	1.5%	1.1%	0.8%	2.1%
Rest of the world	0.3%	2.2%	3.4%	3.0%	0.3%	0.8%	-

Source: syndicated placements

The geographical distribution of demand shows a greater presence of Italian investors in the syndicated issues at the beginning of 2020, on the 30- and 15-year maturities, with a subsequent reduction in the middle of the year. The ratio assigned to UK investors is still significant, though on average lower than that recorded in previous years, with the highest percentage recorded in the reopening of the 30-year BTP. On the other hand, the presence of investors from the Germanic area remained constant in 2020, with an average allocation quota of around 13%. It is also interesting to note the increased interest of non-European investors, with particular reference to North Americans in the two transactions conducted at the beginning of the year and on the occasion of the issue of the new 20-year bond in September.

TABLE III.4: DISTRIBUTION BY INVESTOR CATEGORY OF AWARDS IN SYNDICATED PLACEMENTS OF NOMINAL BTP IN 2020

	01 Sep 2050 BTP (€7 billion)	01 Mar 2036 BTP (€9 billion)	01 July 2025 BTP (€10 billion)	01 Sep 2050 BTP (€6 billion)	01 Dec 2030 BTP (€14 billion)	1 Mar 2041 BTP (€10 billion)	01 Sep 2051 BTP (€8 billion)
Investment funds	67.9%	53.0%	51.0%	53.0%	38.7%	59.9%	56.8%
Banks	13.3%	23.0%	33.0%	29.0%	35.6%	20.3%	20.4%
Pension funds and insurance companies	5.7%	12.0%	3.0%	3.5%	15.1%	10.2%	6.3%
Central Banks and Government Institutions	6.4%	6.5%	6.0%	7.5%	4.6%	4.2%	10.2%
Hedge Funds	6.5%	5.3%	7.0%	7.0%	5.5%	4.4%	3.5%
Non-financial entities	0.2%	0.2%	-	-	0.5%	1.0%	2.8%

Source: syndicated placements

The breakdown by type of investor reveals the significant presence of investors with a stable and long-term investment profile, in particular insurance companies and pension funds, whose weight was greater in placements on maturities between 10 and 20 years. Central banks and government institutions, on the other hand, were more present in the last transaction of the year for the issuance of a new 30-year BTP, in which a greater, albeit modest, participation of non-financial entities (companies and private banking) was also observed. This evolution is probably due to the general context of extremely low rates, which induced these entities to increase the share of investments in long-term instruments, in order to obtain a higher yield.

The significant number of syndicated issues of longer-term BTPs, as well as the size of the amounts placed therein, have undoubtedly contributed decisively to the increase in the weight of the ultra-long segment, which has also been fuelled by regular auctions.

In particular, for the 15-year maturity, the auction offer consisted of four issues: in April and November, for a maximum amount offered of € 1,250 million, with full subscription also of the € 250 million reopenings reserved to Government bond Specialists; in May, with the only reopening of the off-the-run BTP March 2035 for € 1,000 million; finally, in June with an issued amount of € 2,000 million, and a further € 400 million assigned to Specialists. Note that the June auction was held despite the syndicated issuance of the new 10-year BTP, taking advantage of the very robust demand at that time. At the end of the year, the 1 March 2036 BTP reached a total outstanding amount of € 14.4 billion, including the amounts allocated in additional placements.

In the 20-year segment, prior to the launch of the new bond in September, the March 2040 BTP was offered at auction several times, in January, March, May and July. On those occasions, the amounts offered ranged from a minimum of € 1,000 million in May to a maximum of € 2,000 million in the July auction, bringing the outstanding amount to € 13.32 billion at year-end (including the reopening for Specialists). Instead, since the new 1 March 2041 BTP was not reopened at auction after the syndicated issue, it closed 2020 with a circulating amount of 10 billion.

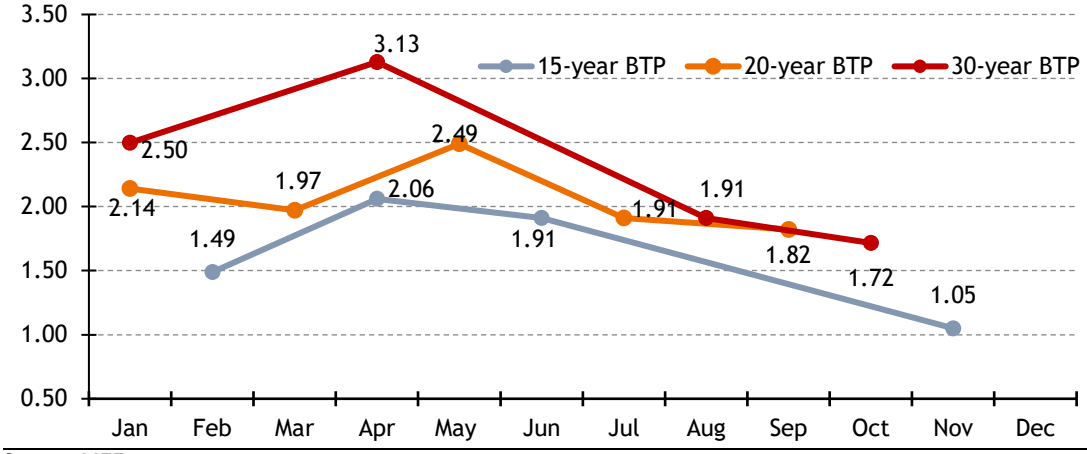
With regard to the 30-year maturity, after the launch in January of the 1 September 2050 BTP, a final auction was held in mid-April for the off-the-run bond maturing in September 2044 (with a residual life of 24 years), of which € 750 million

was placed, bringing the outstanding amount to over € 18 billion. The new bond with maturity in 2050, after being reopened in syndication at the end of April, was put up for auction twice - in August and October - before the issue of the new BTP with maturity on 1 September 2051, reaching a volume of just over € 15.8 billion at the end of the year.

The evolution of yields on issues in the ultra-long segment (Chart III.5) was affected by the dynamics that characterised all maturities of Italian Government bonds, with a rise in the middle months of the pandemic shock and a constant and progressive reduction in the second half of the year.

This contraction phase thus made it possible to close 2020 with yields lower than those at the beginning of the year, with the sharpest decline observed in the 30-year maturity.

CHART III.5: YIELDS ON LONG-TERM BTP ISSUES IN 2020 (IN PERCENTAGE POINTS)



Source: MEF

BTPs with maturities of up to 10 years were issued, as usual, in regular auctions at the beginning of the month (5- and 10-year) - and in the middle of the month (3- and 7-year).

The two shorter-dated bonds (3- and 5-year) were issued in similar proportions, with a slight prevalence of the 3-year BTP (€ 47,817 million) over the 5-year (€ 43,483 million), in line with expectations expressed in the Guidelines with regard to the proportions between the two bonds. In absolute terms, gross issues were significantly higher than in 2019 because, although initially the Treasury intended to calibrate the volumes to values similar to those of the previous year, the growing financial needs made it necessary to increase issues that, net of maturities, were largely positive on both maturities.

The slight prevalence of the 3-year maturity is also partly explained by the fact that, unlike in previous years, 2020 saw up to 12 auctions of the 3-year BTP, while only ten of the 5-year (issued at the end of the month, with settlement at the beginning of the following month), whose auction at the end of April was not held due to the previous syndicated issue on the 5-year segment. In addition, also in terms of auction bids, the amount allocated to the 3-year bond was on average higher, i.e., approximately € 3,479 million compared to € 2,825 million for the 5-year bond.

Both the 3-year and 5-year segments recorded the conclusion of the issuance cycle of the previous benchmarks: respectively, the 15 January 2023 BTP, which closed with a final outstanding amount of approximately € 15.36 billion, and the 1 February 2025 BTP, which reached a volume of just under € 19.47 billion at the end of March.

Three new lines were opened on the three-year maturity and two on the five-year maturity.

The first 3-year BTP, maturing on 15 June 2023, was opened in mid-March and offered until May, when it reached a final size of about € 14.28 billion. In June, the new 15 June 2020 - 15 August 2023 BTP was launched, it was then offered until September, reaching a total outstanding amount of about € 16.74 billion before the issuance of the new benchmark. The latter was issued in October with maturity on 15 January 2024 and reissued in the following two months, reaching a total outstanding amount of just over € 11 billion at year-end.

With reference to the 5-year BTP, after the syndicated issue in April, the bond with maturity on 1 July 2025 was offered until the auction at the end of July, when it reached a total outstanding amount of approximately € 18.56 billion. Finally, the new benchmark with maturity on 1 February 2026 was launched in August and was offered again until November (taking into account the cancellation of the December auction), thus closing 2020 with a circulating amount of € 14.35 billion.

An analysis of the coverage ratios of the two bonds at auction shows that the average coverage ratio is quite similar (1.45 for the 3-year BTP against 1.48 for the 5-year BTP), although there is less variability for the 3-year maturity: the difference between the maximum and minimum was 0.33 compared to 0.59 for the 5-year maturity. For both bonds, the correlation between the amount offered and the bid-to-cover ratio was in any case quite weak[63].

The fixation of coupon rates for the new bonds was obviously affected by market levels at the time of launch, and thus varied considerably over the year. Indeed, the coupons of the new bonds issued in the first half of the year, for both the 3-year and 5-year maturities, were higher than those of the previous benchmarks (0.05% and 0.35% respectively), which were opened in 2019. However, due to a more favourable market interest rate environment, coupon rates in the second half of 2020 for bonds launched on both maturities were broadly in line with those of the benchmarks at the start of the year.

The three-year BTP maturing in June 2023, which was launched in March, had a nominal annual rate of 0.60%, while the one maturing in August 2023 was offered for the first time in June with a nominal rate of 0.30%. Finally, in October, for the first time ever, the new January 2024 BTP was issued with a nominal rate of zero; since it was offered at a price above par, it even had a slightly negative yield at issuance (Chart III.5).

The situation was similar for the 5-year maturity: while the 1 July 2025 BTP, which was launched in syndication at the end of April, had a nominal annual rate of 1.85%, the following one, which was launched at the end of August with maturity on 1 February 2026, had a nominal annual rate of 0.50%.

[63] A detailed analysis of the results of all issues during the year can be found in the 'Treasury Issues in 2020' file on the public debt website: Treasury Issues in 2020.pdf (mef.gov.it)

In the intermediate part of the yield curve between 7 and 10 years, as for the other maturities, there was an increase in the volumes issued in line with what was forecast in the update to the Guidelines.

As regards the 7-year segment, in the first half of the year, the BTP maturing in January 2027 continued to be issued, until the new 7-year bond maturing on 15 September 2027 - with an annual coupon rate of 0.95% - was launched in mid-July. This bond was offered regularly in auctions every month until the end of 2020, reaching a total outstanding amount of approximately € 19.3 billion.

The bid-to-cover ratio at auction on 7-year BTPs averaged 1.54, with a low of 1.36 recorded in both February and April, and a high of 2.38 in March. In the latter case, the higher bid-to-cover ratio is related to the smaller size of the offer, given that in the March auction the 7-year bond was the subject of a joint offer with the 10-year for a total maximum amount of € 2,000 million, and allotted for € 795 million.

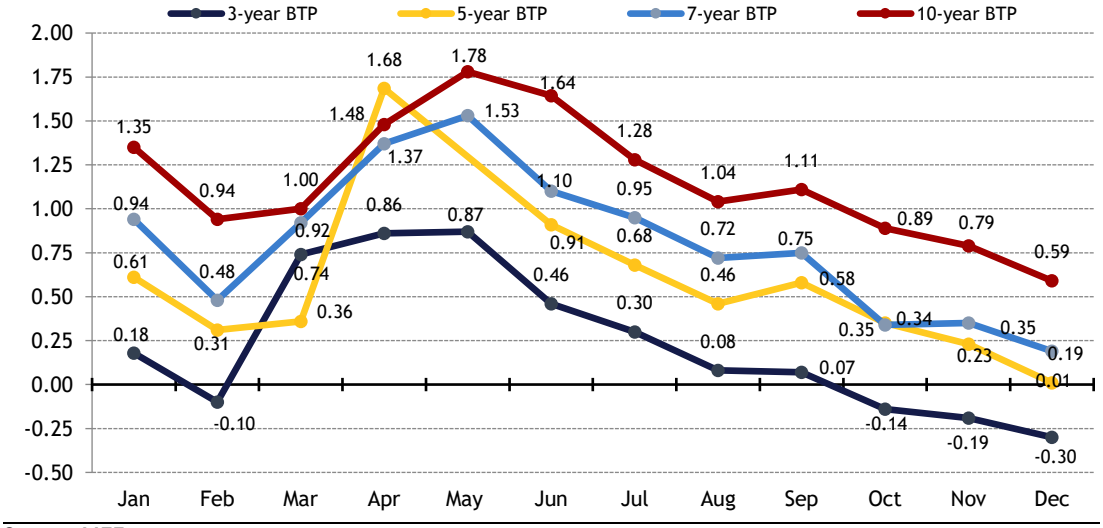
On the ten-year maturity, the previous benchmark with maturity in April 2030 and coupon of 1.35% was offered until April (thus also as an off-the-run after the launch of the 1 August 2030 BTP at the end of February), reaching an outstanding amount of just under € 22.3 billion. The new August 2030 benchmark, with nominal rate equal to 0.95%, was offered with regularity until the auction held at the end of June, reaching a total outstanding amount of approximately € 17.1 billion. In the latter auction, the bond was offered together with the next 1.65% benchmark BTP, with maturity on 1 December 2030, which was placed through a syndicate at the beginning of the same month. The latter concluded its issuance cycle at the auction held at the end of August with a total outstanding amount of € 23.1 billion, while in the final months of the year, the new 1 April 2031 BTP (0.90% coupon rate) was offered at auction, thereby reaching a total outstanding amount of approximately € 11.6 billion at year-end.

Given the significance of the 10-year maturity for the market, the issuance of BTPs with this maturity was the most significant overall, perfectly in line with the intentions announced in the Guidelines. It is also worth noting the regularity of the quantities offered in each single auction: indeed, with the exception of the last two auctions with which the April 2030 BTP cycle ended, which were characterised by smaller amounts, the first tranches of both new bonds issued at auction were calibrated on an offer between € 4 and 4.5 billion, while the subsequent tranches fluctuated in a range between € 2,500 and 4,000 million, except for the joint offer of two 10-year bonds at the end of June, in which the amount assigned to each bond was lower. Finally, the coverage ratios were, on average, constant and contained, fluctuating between the minimum recorded in the auction at the end of January settled at the beginning of the following month (1.24) and the maximum recorded in the auction settled at the beginning of July (2.07), which was nevertheless characterised by the joint offering of the August 2030 BTP and the December 2030 BTP.

Chart III.6 shows the yields at auction of all BTPs with maturities up to 10 years, which show an evident parallelism between the performance of the 3-, 7- and 10-year bonds whereas the 5-year maturity, although in line with the underlying trend, is slightly discordant in the first months of the year: in particular, in April the 5-year BTP reached a higher yield than the 7- and 10-year bonds placed in the same month.

Then, starting in April, the generalised descent became evident, bringing the yields of all BTPs with maturities of up to 10 years to levels below those at the beginning of 2020. The yield of the 5-year BTP at the auction at the end of November was close to zero, after reaching a high of 1.68 in April, followed by the low of the 3-year bond, whose yield stood at -0.30% in the December auction.

CHART III.6: YIELDS AT ISSUANCE OF BTPS WITH 3-10 YEAR MATURITIES IN 2020 (IN PERCENTAGE POINTS)



Source: MEF

FOCUS

Characteristics of auction demand for nominal BTPs: analysis by investor class and geographical area

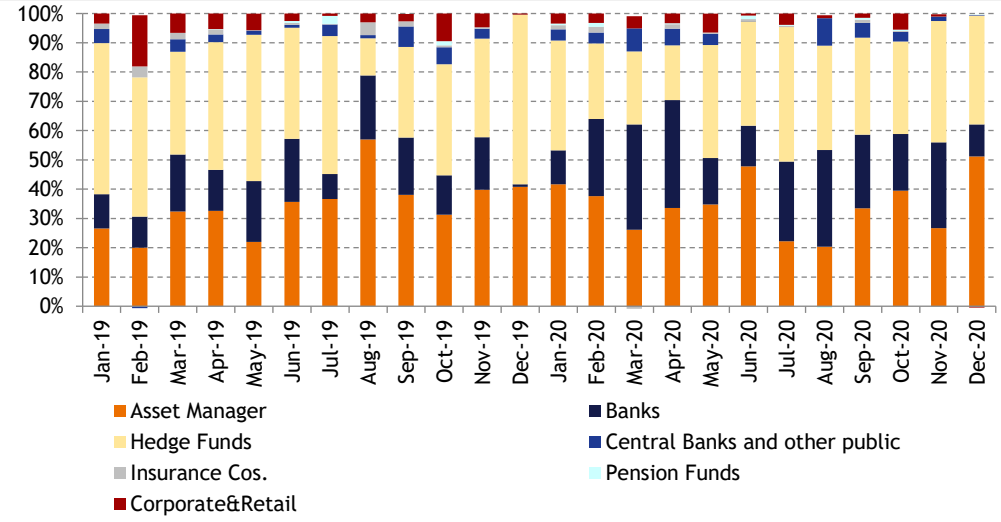
Among the data provided by Specialists in Government bonds in the context of communications according to the harmonised scheme adopted by the ESDM (European Sovereign Debt Markets) Subcommittee, the Treasury selects the flows observed from the day after the announcement of an auction until the day prior to the settlement of the auction itself. This data is particularly significant for nominal BTPs and is a good proxy for the demand at auction by end-investors.

Normally, on the days mentioned, all these flows involve buying. However, if the market environment is particularly mixed, a prevalence of selling may emerge for certain categories of investors or in certain geographical areas. In this case, the data contained in these Specialist communications reveals a less accurate indicator of demand at auction. Therefore in cases where, in a given month, the flows of a particular category of investors or geographic area are zero or negative, the contribution in that month is considered zero for the purposes of the graphical representation of the composition of demand at auction (Figures 3 and 4).

As regards the breakdown by type of investor, Figure 3 shows that, in contrast to the past two years, there was a significant increase in the participation of banking institutions in 2020, with a share of around 24% of the total compared to 16% in 2019. In contrast, this increase was largely offset by a reduction in the participation of hedge funds, thus interrupting the growth trend seen in recent years in all European government bond markets, while the participation of investment funds remained stable compared to the previous year. With regard to the participation of investors with a long-term investment horizon, there was a decrease in the participation of insurance companies, while the

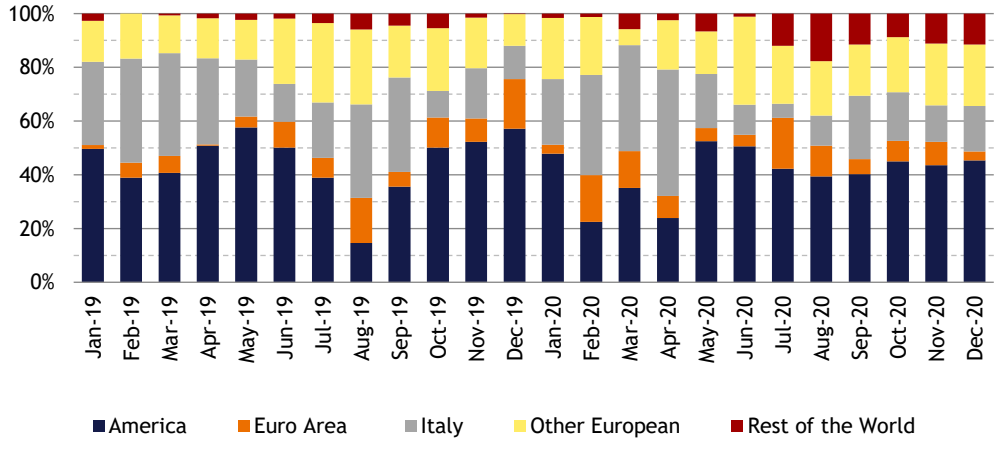
participation of pension funds remained fairly negligible. In 2020, there was a slight increase in the participation of official institutions and central banks, after the significant drop recorded the previous year. In this regard, it should be noted that purchases by Eurosystem central banks, which are not included in the Specialists' reports under this harmonised reporting framework, are not included in the latter category.

FIGURE 3: BREAKDOWN BY TYPE OF COUNTERPARTY OF ORDERS PLACED IN NOMINAL BTP AUCTIONS BY SPECIALISTS IN GOVERNMENT BONDS - YEAR 2020



Looking at flows by region, Figure 4 shows that the largest share of demand in the auctions came from US investors, although there was a slight decline in 2020 compared to 2019. The next largest group is domestic investors, whose share of participation was also down from the previous year. On the contrary, the participation of European investors grew, thereby becoming the third most significant component of demand, both in terms of demand from the eurozone and from other European regions (among which the UK usually represents the most significant component). Lastly, demand from the rest of the world grew substantially compared to 2019.

FIGURE 4: BREAKDOWN BY GEOGRAPHICAL AREA OF ORDERS PLACED IN NOMINAL BTP AUCTIONS BY SPECIALISTS IN GOVERNMENT BONDS - YEAR 2020



BTP€is

In the year under review, the total volume of issues of BTPs indexed to European inflation amounted to € 12,451 million, slightly lower than in the previous year (€ 13,871 million). In a context of a strong increase in total issues, this indicates a significant reduction in the percentages issued of these bonds and is consistent with a less favourable macroeconomic framework for this asset class. Unlike in 2019, however, net issuance was largely positive, given the absence of maturing bonds in the segment.

In addition, given the unfavourable market environment, the Treasury did not consider it appropriate to place a new benchmark on the long end of the real yield curve in 2020. This affected the distribution of issuance volumes, which were significantly concentrated on the five- and ten-year maturities, which absorbed approximately € 11,000 million of the total amounts placed in this segment.

The only new benchmark opened in 2020 was the 15 May 2026 BTP€i, which was launched directly at auction at the end of June and subsequently reissued at the end of October, ending the year with a nominal amount of € 3,350 million (i.e., not taking into account the inflation revaluation component). On the occasion of the other two auctions in January and November on the 5-year segment, instead, tranches of the bond maturing on 15 May 2023 were offered.

As regards the other maturities, the 10-year indexed BTP was offered in the February auction in conjunction with the September 2032 BTP€i (the only reopening on the 15-year segment) and in the end-month auctions in April, May, July and September, without a joint offering. The 2041 bond (originally a 30-year bond) was offered in isolation in the only auction held at the end of March.

The amounts offered at auction have always been fairly limited, with bids never exceeding € 1,250 million, except for the joint auction in February (€ 1,500 million) and the opening of the new 5-year benchmark in June, for which up to € 2,000 million was offered.

Auction coverage ratios in this market segment were quite high, ranging from a low of 1.48 in July on the 10-year bond to a high of 2.82 on the 15-year bond in February, with the indicator's variability more limited than in 2019.

Net of revaluations, at the end of 2020, the 10-year BTP€i reached a total outstanding amount of € 8,972 million, the 15-year bond slightly exceeded € 14,600 million and the bond maturing in September 2041 reached € 12 billion.

Demand for bonds indexed to European inflation[64] was fairly constant during the year, with a greater presence in the first half of 2020 and a slight drop in the second half, which saw no issues in August and December. Participation in auctions saw a significant increase in the share of American investors (45% compared to 27% in 2019), with a consequent decrease in European presence (37% from 53% the previous year). The share of domestic investors remained constant at 15%.

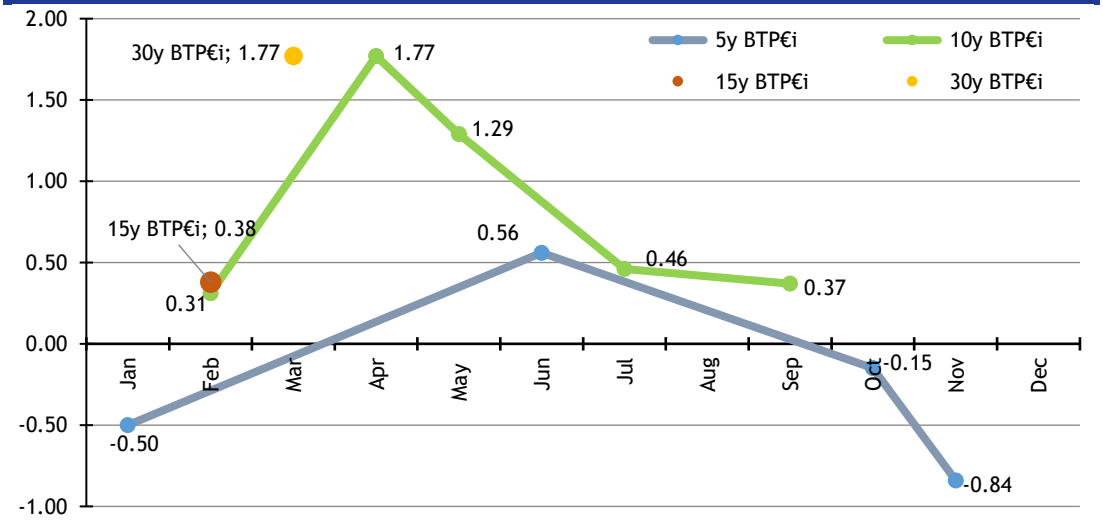
As regards the type of investor, the most significant component was that of hedge funds, with a share of around 43%, up considerably from 28% the previous year. Investment funds were also significant (32%), followed by banks with a share of 19%. Demand from pension funds, central banks and other public institutions was negligible.

[64] More precisely to the HICP, the Harmonised Index of Consumer Prices of the Eurozone

During 2020, real yields on bonds in this segment showed a similar trend to that observed for nominal bonds, as characterised by an increase in the first months of the year and a gradual decrease thereafter. Moreover, for five-year bonds, the decline recorded in the second half of 2020 was definitely more marked, reaching a negative yield of 0.84% in the November auction, below the values of the beginning of the year (Chart III.9).

However, it should be noted that, overall, in relative terms to nominal bonds, index-linked instruments became more expensive for the issuer during 2020.

CHART III.7: REAL YIELDS AT ISSUANCE OF BTP€I IN 2020 (IN PERCENTAGE POINTS)



Source: MEF

At the beginning of the year, expected inflation, which together with the real rate determines the total return on issuance of the index-linked instruments, stood at levels (Chart III.10, on the 10-year Break Even Inflation[65]) in line with those recorded during 2019. However, from March onwards, there was a phase of rapid and noticeable decline that, after a temporary rebound in April, fell further to a low close to zero in May. In the second half of the year, there was a gradual and steady recovery in inflation expectations, which nevertheless ended 2020 at lower levels than at the start of the year. This development is not surprising, given that inflation expectations fall in correspondence with negative economic growth expectations, which are obviously present due to the pandemic shock.

[65] The BEI (Break Even Inflation) is the measure of the inflation rate (on a European or Italian scale) that must be assumed to allow the yield at maturity of an indexed bond to equal that of a fixed coupon bond (e.g., a nominal BTP) with a similar residual life. This is to place the investor in a situation of indifference with respect to the type of bond to be subscribed. High EIBs generate bonds with low (real) coupons.

CHART III.8: 10-YEAR BREAK-EVEN INFLATION (BEI) 2019-2020 (EXPRESSED IN BASIS POINTS)

Source: Bloomberg

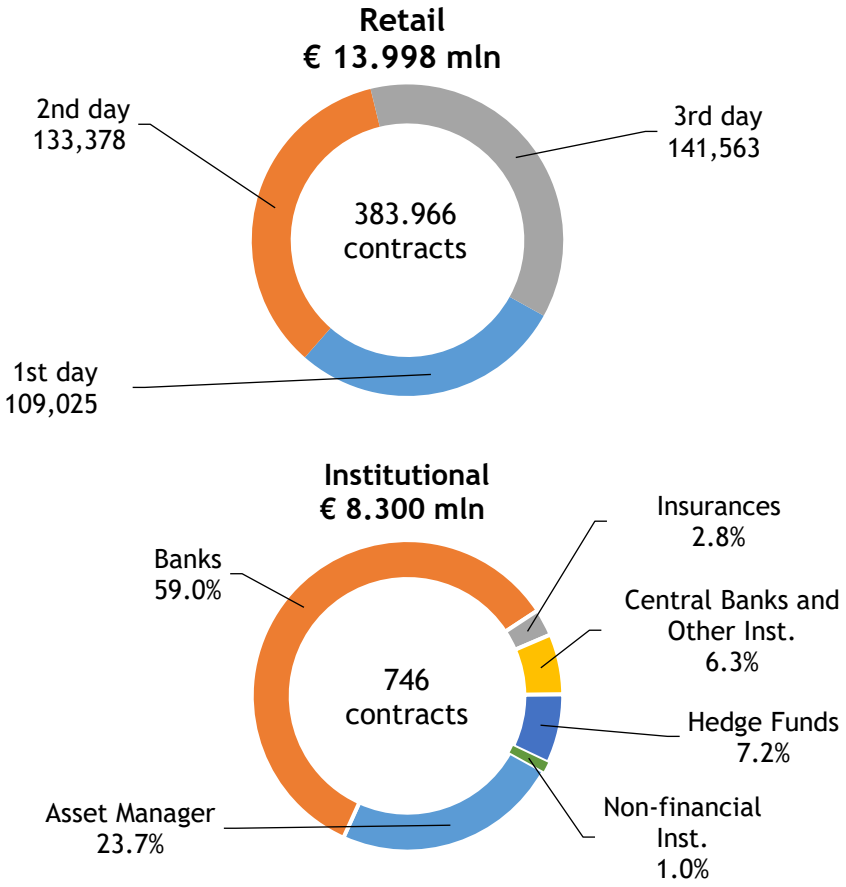
BTPs Italia

Unlike the previous year, two BTP Italia matured in 2020, for a total amount of approximately € 22.4 billion, against which a new BTP Italia was placed in May. As indicated in the April update to the Guidelines, in addition to providing continuity to a programme aimed primarily at involving retail investors, this issue contributed to cover the financial requirement associated with the measures adopted by the Government to address the crisis resulting from the COVID-19 pandemic.

For the first time, the maturity of the new bond was set at 5 years (with maturity on 26 May 2025), and the placement took place over four days: i.e. from 18 to 20 May with regard to the first phase for retail and assimilated investors, in which full satisfaction of demand was guaranteed and the option of early closure was not envisaged; the second phase, reserved to institutional investors, took place on 21 May, with the Treasury retaining the option of rationing the allocation of orders. As always, investors in the first phase were able to choose which channel to use to place their orders, which included accessing the MOT directly online. Further, a doubled loyalty premium compared to past issues equal to 0.80%, was envisaged in case of bond held until redemption. Moreover, the negotiability of the bond was always safeguarded by the Treasury, which selected four Specialists as dealers for the operation (Banca IMI, BNP Paribas, Monte dei Paschi di Siena and Unicredit) and specifically entrusted three Italian co-dealers (Banca Akros, ICCREA Banca and Banca Sella) with the ongoing listing on the MOT in the months following the issue.

The issue was very well received and set an all-time record in terms of volume issued, amounting to approximately € 22.3 billion. As shown in Chart III.9, approximately 384,000 retail orders for almost € 14 billion were received in the first phase. Institutional demand, flowed in during the two hours in which the operation was open (from 10 am to 12 noon), exceeded 19.5 billion, then rationed to 8.3 billion. The large number of contracts signed in the first phase should be noted, as it highlights the wide participation of small investors. In fact, 88% of retail demand was at or below € 50,000 and around 60% at € 20,000.

CHART III.9:RESULTS OF THE 26 MAY 2025 BTP ITALIA PLACEMENT FOR € 22,298 MILLION



Source: MEF

As usual, domestic investors (almost 100% in the first phase) were also prevailing in the institutional phase, with around 52% of demand. A sizeable 27.9% went to British investors, while the residual amount was distributed in various areas of continental Europe. The Middle Eastern component was interesting, albeit small in size (about 4.7%), while the American component was negligible (about 0.8%).

The breakdown by category of institutional investors shows that banks are the largest component (59%), followed by investment funds with 23.7%, central banks and other public institutions (6.3%) and hedge funds (7.2%), while the residual share of 2.8% went to insurance companies and pension funds.

Since market interest rates did not increase significantly between the announcement of the minimum guaranteed real rate and the closing of the transaction, the final real coupon was confirmed at 1.40%.

This issuance did not increase the value of BTP Italia in circulation at year-end, which was slightly negative due to the high redemptions and some buy-back transactions to which this instrument was subject.

BTPs Futura

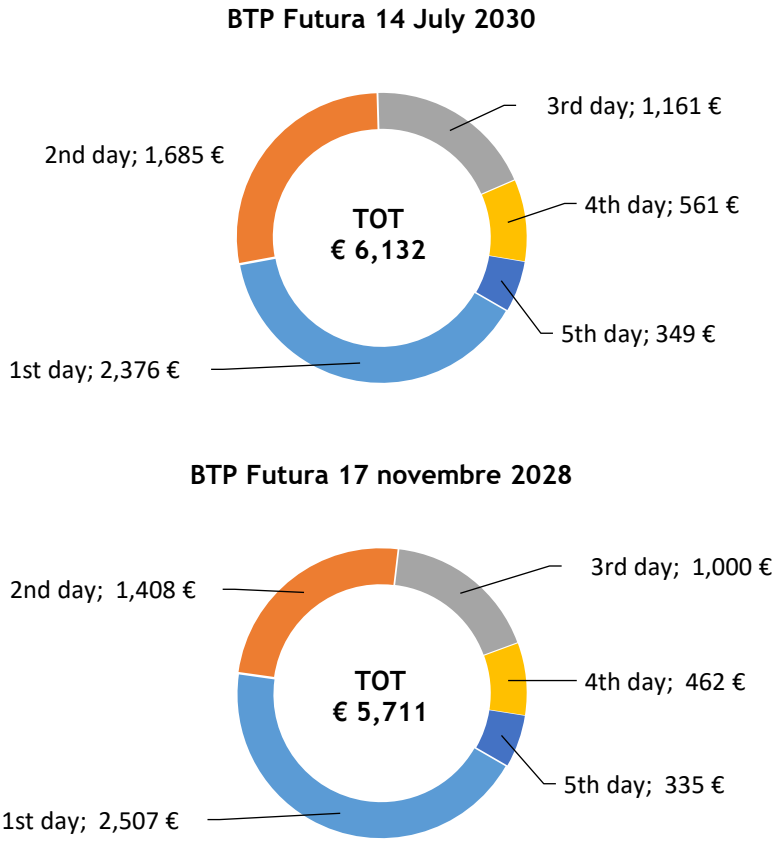
As anticipated in the update to the Public Debt Guidelines of April 2020, last year the Treasury introduced on the market the BTP Futura, which was conceived for "Italy's future" and dedicated to retail investors, with a first issue in July and a second one in November 2020. The proceeds of the issuance were used to cover the additional financial requirement related to the measures launched by the Government to tackle the health and economic-financial crisis resulting from the COVID-19 pandemic that hit global markets in 2020.

The new bonds, which were issued directly on the MOT platform, feature semi-annual coupons fixed on the basis of a series of predetermined nominal rates increasing over time (step-up mechanism), a one-off principal repayment at maturity at nominal value, and a loyalty premium linked to the annual growth rate of Italy's GDP for investors who purchase the bond at issuance and hold it until maturity. As regards the process of setting the series of increasing nominal rates, in order to protect investors and similarly to what occurs for the BTP Italia, on the weekday prior to the opening of the BTP Futura issue, the series of guaranteed minimum rates that the Treasury undertakes to pay is announced, reserving the possibility of raising them if market conditions deteriorate during placement days.

In the past year, the two issues of BTP Futura in July and November were well received by the market, with the product being appreciated by a large number of individual investors, who thus contributed to providing economic support to the country at a particularly delicate time. In detail, the first placement, which took place from 6 to 10 July, raised over € 6 billion from retail investors with 174 thousand contracts signed, with an average denomination of around € 35,000. Of the contracts concluded on the MOT, around 64% were for amounts of less than € 20,000, while if contracts of up to € 50,000 are considered, the figure rises to around 89% of the total. In addition, the participation of retail investors amounted to 62%, while the remaining 38% was subscribed by private banking. The first BTP Futura, the maturity of which was 10 years, was placed on the MOT through the two dealer banks Banca IMI S.p.A. and Unicredit S.p.A., as selected by the Treasury together with the two co-dealer banks Banca Akros S.p.A. and Banca Sella Holding S.p.A., which were in charge of ensuring quotations on the secondary market.

On the other hand, the second issue, which took place from 9 to 13 November, raised more than € 5.5 billion for more than 123 thousand contracts concluded during the five days of the placement, with an average denomination of around € 46 thousand. Of the contracts settled on the MOT, about 58% were for amounts of less than € 20,000, while contracts up to € 50,000 accounted for about 85% of the total. The proceeds of the second BTP Futura, the maturity of which was eight years, were used to finance the measures adopted to deal with the COVID-19 emergency; 54% of the participation came from retail investors, while the remaining 46% came from private banking. As with the first issue and in line with the financial characteristics of this instrument, issuance took place directly on the MOT through the two dealer banks Intesa Sanpaolo S.p.A. and Unicredit S.p.A., as selected by the Treasury together with the two co-dealer banks Banca Akros S.p.A. and Banca Sella Holding S.p.A., which were in charge of listing on the secondary market.

CHART III.10: RESULTS OF JULY 2030 AND NOVEMBER 2028 BTP FUTURA PLACEMENTS (€ MILLION)



Source: MEF

CCTeus

During the year, gross issues of CCTeus amounted to approximately € 16,444 million, exceeding maturing maturities by € 12,859 million. However, considering that this category of bonds was subject to several swap and repurchase transactions[66], net issuance in 2020 was positive at only € 966 million.

The floating-rate segment did not experience particularly robust demand, partly because only one bond would mature in December, thus removing the incentive to renew portfolio positions, which is particularly important for a niche instrument such as the CCTeu.

In order to reach a wider audience of buyers, after closing the issuance cycle of the bond maturing in January 2025 with the auction at the end of November 2019, the duration of the CCTeu opened in the regulated auction at the beginning of February was further shortened compared to previous years, going from 6 to 3 years. The new bond, which was regularly offered during the year for amounts that were not particularly high, had maturity on 15 December 2023 and a spread on the six-month Euribor fixed at 0.55%. At the end of November, in the last auction of the

[66] See *infra*, Extraordinary transactions, pages 75-78.

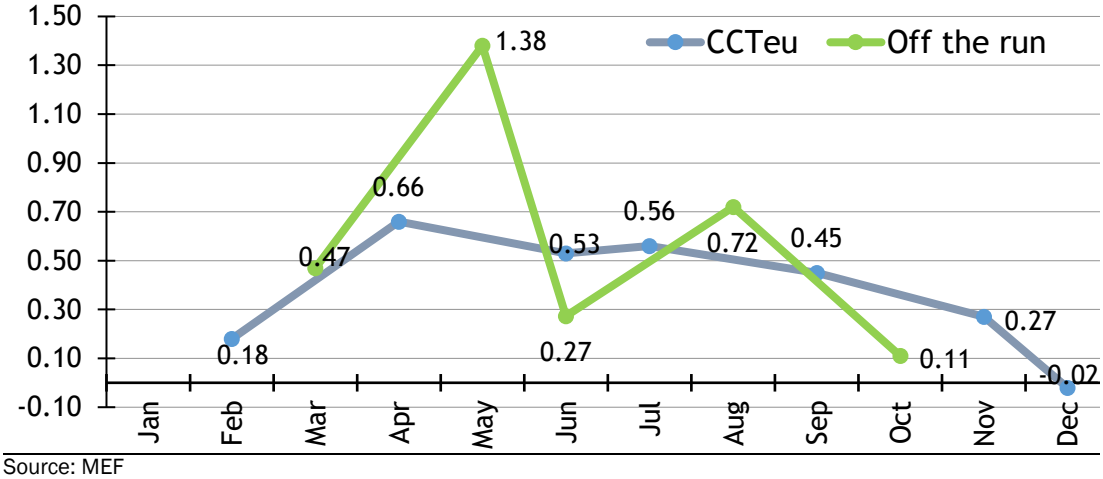
year, a new on-the-run bond was introduced with maturity 15 April 2026, with a spread on the six-month Euribor set at 0.50%.

The composition of demand was characterised by considerable variability, both in terms of geographical area and type of investor. With regard to the first aspect, the domestic component averaged 40%, with purchases by Italian operators being particularly significant in January and November; however, purchases were significantly lower in the remaining months of the year, thereby leaving room for the European component, which was the most significant overall (43%). The American portion was residual (5%), while the part from other geographical areas increased compared to last year (12%).

In terms of investor type, despite some fluctuations during the year, investment funds and banks were the two most consistently present categories, with ratios averaging 34% and 59% respectively (with bank participation increasing substantially from 31% in 2019). Unlike last year, hedge funds had a sporadic and insignificant presence, with around 8%. Central bank (non-Eurozone) participation was also only episodic, while private (corporate and retail) participation was almost nil.

Yields at issuance presented a trend not dissimilar to that of the medium-term BTPs, reaching a maximum of 0.66% in the auction at the end of March, which was settled at the beginning of April, and a minimum in the auction at the end of November, which was settled at the beginning of December, when the newly issued bond recorded a negative yield of -0.02%. On the other hand, the highest yield (1.38%) was reached in the auction at the end of April, when the October 2024 off-the-run bond was offered as an alternative (Chart III.11).

CHART III.11: CCTEUS' YIELDS AT ISSUANCE IN 2020 (EXPRESSED IN PERCENTAGE POINTS)



Source: MEF

Taking into account off-the-runs as well, the average CCTeu coverage ratio at auction was 1.85; however, if only the two on-the-run bonds are taken into account, the value is lower and equal to 1.72. The lowest (1.32) was recorded at the launch of the 5-year bond, when the offered amount of € 2,750 million was actually more than double the amount offered in all other auctions offering new tranches of the on-the-run CCTeu, in which the maximum amount of the available range was between € 750 and € 1,250 million. However, for these auctions, the variability of the bid-to-cover ratios did not show a significant correlation with the size of the offer. The highest value of € 2.06 million was nevertheless recorded in the € 1,000 million auction settled in November.

Foreign bonds

In 2020, redemptions of foreign bonds related only to euro liabilities and amounted to € 4,149 million. This amount includes not only the one-off maturities of EMTN bonds for € 3,150 million and the amortisation instalments of some loans for about € 279 million, but also € 720 million of a foreign bond originating from a private placement in 2005, for which the Treasury availed itself of the option of early redemption at par included in the original conditions of issue.

Despite a context of high volatility in world markets, such as that of 2020, the Treasury maintained an active presence in the international scenario, as planned in the Guidelines for the year. The activity was carried out both through the EMTN channel, with several private placements in the face of lively demand from institutional investors, and through a continued presence on the US bond market, thanks to a new issue in the Global format. All these operations resulted in a positive balance of net issues on the 2020 foreign market of approximately € 7,106 million.

Private placements under the EMTN format arise from reverse enquiries by institutional investors who request the issuance of bonds with specific characteristics, in response to particular needs that would otherwise be difficult to satisfy by accessing the issuer's ordinary offer. These requests are screened with the purpose of containing costs with respect to the corresponding domestic bonds issued at auction or in syndication, thus allowing the Treasury to seize the opportunities offered by the market, while at the same time guaranteeing correspondence with the objectives outlined in the debt management policy (for example, complex structures or those in conflict with instruments already offered to the market are avoided). In 2020, the Treasury took advantage of the high flexibility in terms of structure and maturity guaranteed by this issuance programme in order to contain costs compared to similar domestic issues, thereby pursuing an arbitrage.

In the second quarter, the Treasury focused on short-term issues, executing four zero-coupon private placements with the same counterparty for a total value of € 8 billion. All these issues had a maturity of approximately one year. Indeed, the Treasury implemented these new operations by adapting to the changed market situation, departing from the usual minimum duration criteria required for this type of issue. In this phase of strong market tension, the principle of minimising the cost of the Public Debt with respect to similar domestic issues through diversification of supply prevailed in part, rather than the objective of lengthening average life, given the economic and temporary situation.

On the other hand, in the second half of the year, a Private Placement was concluded in favour of an international investor who was interested in reinvesting in the 'Italian credit' through the purchase of a 20-year note. The floating-rate note has a value of € 725 million and pays a quarterly coupon indexed to 3-month Euribor plus a spread that, like the corresponding CCTeus, cannot generate negative interest. The note structured in this way was sold on more favourable financial terms than a domestic issue of the same maturity.

Over the course of 2020, the Treasury monitored the evolution of the US market in order to assess the performance of the bonds issued in 2019 and identify an optimal issuance window for the pursuit of its multiple objectives, namely guaranteeing a regular, constant presence on the dollar market so as to complete a yield curve similarly to that in euros, ensuring sufficient depth to the bonds issued

so as to guarantee liquidity on all the reference maturities, and maintaining a cost in line with existing issues.

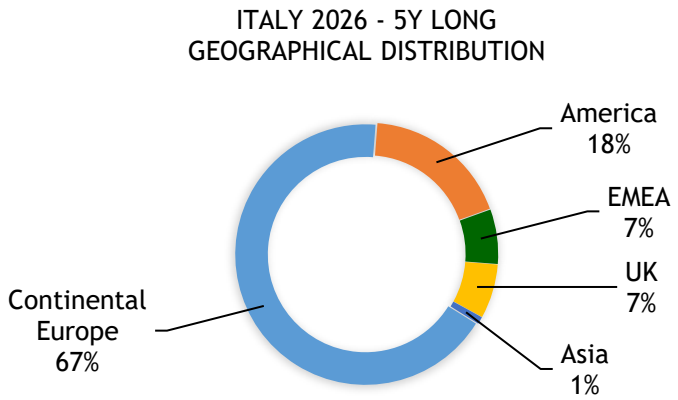
Following the return to the US market in 2019, November 2020 saw the Treasury issue a new bond in US dollars maturing in February 2026 (5 years long, to allow for maturity smoothing) through a syndicated placement.

Like the 2019 issue, this single-tranche issue was also very well received by the market, thus further confirming a sustained demand for Italian bonds denominated in the US currency, which is significant not only in America and Asia, but also in the Euro Area, and made it possible to satisfy investors' need to diversify investment portfolios also in terms of currency.

A total of USD 3 billion was issued, against orders for over USD 9.3 billion. The bond, with settlement on 24 November 2020 and maturity on 17 February 2026, pays a semi-annual coupon of 1.25%. The placement price was 99.638%, which corresponds to a gross yield at issuance of 1.322% in US dollar terms, in line with the yield of existing foreign bonds and thus without granting a premium.

Some 170 investors requested the bond, thereby considerably broadening the base of Italian debt holders, even among those who do not usually participate in placements of the corresponding domestic bonds in euro. The geographical distribution saw a preponderance of investors resident in Continental Europe (67%, of which 21% were from Italy), followed by the Americas (18%), the United Kingdom (7%), the Middle East and Africa (7%), and Asia (1%) (Chart III.12).

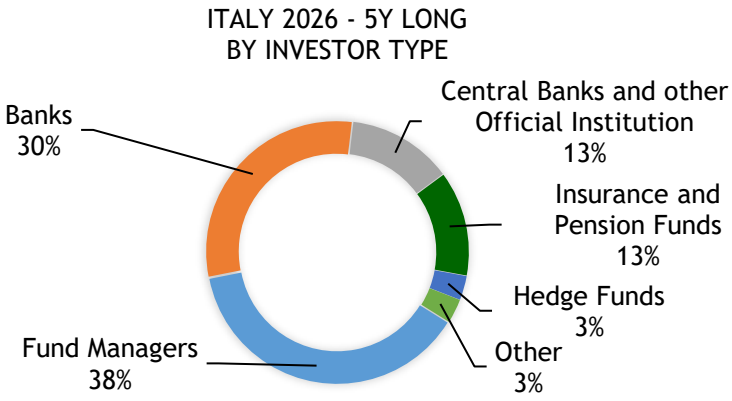
CHART III.12: GEOGRAPHICAL DISTRIBUTION OF THE DOLLAR ISSUE



Source: MEF

As regards the composition by type of investor, fund managers and banks took the lion's share of the issue (38% and 30% respectively). The portion allocated to central banks and other government institutions (13%) is also to be mentioned. As always, a similar, albeit not major share went to insurance companies and pension funds (13%). Chart III.13 provides full details of the operation.

CHART III.13: DISTRIBUTION OF THE DOLLAR ISSUE BY CATEGORY OF INVESTORS



Source: MEF

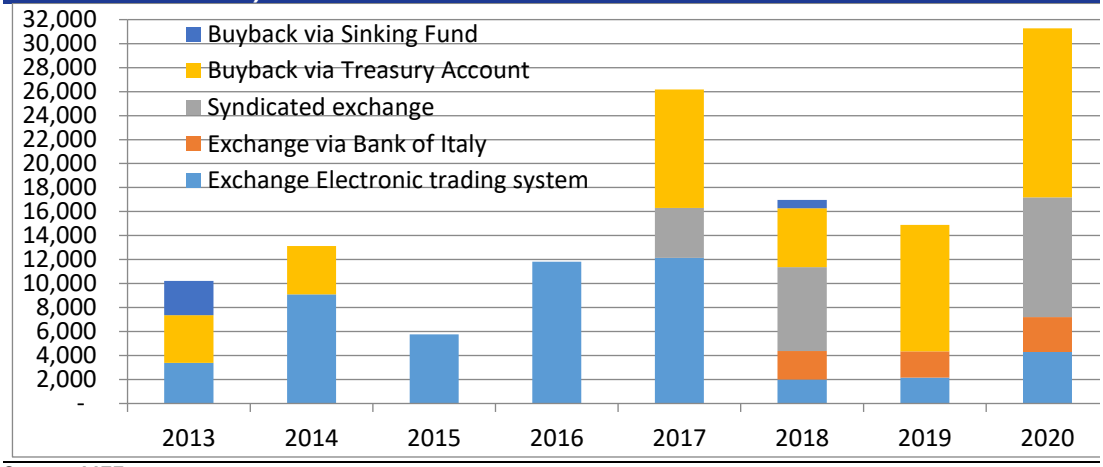
As always, a cross currency swap hedge was implemented, which neutralised the exposure to exchange rate and interest rate risk (see Paragraph III.3 below).

Extraordinary transactions

As indicated in the related Guidelines, also in 2020 the Treasury make use of extraordinary exchange and buyback operations aimed at achieving multiple objectives, such as the management of refinancing risk, the reshaping of the maturity profile, as well as the support of liquidity and efficiency of the Government bond market. As is well known, such operations do not follow a predetermined calendar and are thus extremely flexible, both in terms of execution and timing.

Looking at Chart III.14, it is clear that the Treasury's recourse to these operations has been gradually increasing over the years, so much so that in 2020 it reached a peak in terms of volumes repurchased with over € 31 billion, carrying out 10 operations in total and using all the operational channels at its disposal.

CHART III.14: AMOUNT REPURCHASED IN EXTRAORDINARY OPERATIONS - YEARS 2013-2020 (NOMINAL AMOUNTS IN € MILLION)



Source: MEF

In the first half of the year, the Treasury carried out one exchange operation and two buyback operations. The first of the two buyback took place on 10 March, when the measures restricting circulation in Italy were still limited to some northern regions, but volatility in stock and bond markets was already being experienced. The bonds subject to the buyback were chosen to reduce the tensions that were developing in the market within a stretch of the curve in which the Treasury issues a good percentage of its annual issues. About a week later, on 18 March to be precise, a swap operation took place through the Bank of Italy's auction procedure, and for the first time the Treasury issued three government bonds against the purchase of a single bond. Unlike the previous transaction, this one took place in the middle of a national lockdown and was carried out also in order to mitigate the tensions and instability of bonds on the secondary market, through the buyback of a bond in the 2022 area that was part of the basket of deliverable bonds for the short-BTP Future contract, also in order to contribute to the stabilisation of this market.

The second buyback operation took place in June, at a time when volatility on the secondary market for government bonds had clearly improved, though there was still some uncertainty about the forecasts of the balances in the Cash account, especially those for the end of 2020, as a result of further regulatory interventions by the Government. In order to optimise cash management in the third quarter without impacting year-end balances and given the presence of substantial maturities in the last quarter, the Treasury decided to partially redeem some of these bonds using the significant existing cash surpluses.

Thanks to a more comfortable cash situation and much more favourable market conditions, the second half of the year saw the Treasury carry out not only three exchange operations, one of which through a syndicate, but also four buybacks, two of which were conducted through the Bank of Italy's auction procedure and two in bilateral mode, using the balances in the Cash account.

As mentioned, of the three exchange operations, one was carried out in syndicate while the other two were carried out using the electronic trading system. The purpose of these two operations was mainly to reduce the number of bonds with very close maturities or with very important maturity peaks (mainly in 2023). In exchange, BTPs with very long maturities were offered in order to simultaneously obtain an increase in the average life of the debt and a reduction in the average cost of the debt, through the repurchase of high-coupon bonds.

In the final part of October, a syndicated exchange was carried out with the issue of a new 30-year BTP against the buyback of five bonds. The main reason for this operation was to reduce the maturing amounts of the bonds repurchased in order to contain refinancing risk and, at the same time, pre-funding for subsequent years.

For a summary of the exchange and buyback operations, see Tables III.5 and III.6 below.

TABLE III.5: SUMMARY OF EXCHANGE OPERATIONS (NOMINAL AMOUNTS IN € MILLION)

Operation date	Settlement date	Issued bonds		Allotted amount	Bought back bonds		Bought back amount	Operation typology
		Typology	Maturity year		Typology	Maturity year		
18 Mar 2020	20 Mar 2020	BTP	2023-2024	3,009	BTP	2022	2,907	Exchange at the Bank of Italy
18 Sep 2020	22 Sep 2020	BTP	2032	2,000	BTP CTZ and CCTeu	2021-2022	2,089	Electronic trading exchange
08 Oct 2020	12 Oct 2020	BTP	2033	2,000	BTP and CTZ	2021-2023	2,207	Electronic trading exchange
22 Oct 2020	29 Oct 2020	BTP	2051	8,000	BTP and CCTeu	2021-2023-2025	9,974	Syndicated exchange
Year total				**15,009**			**17,177**	

Source: MEF

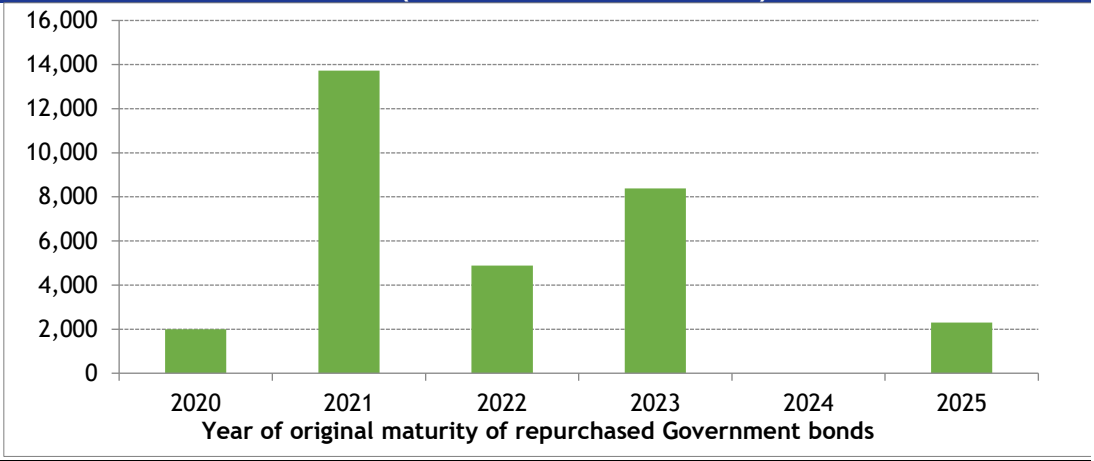
TABLE III.6: SUMMARY OF BUYBACKS FROM THE CASH ACCOUNT (NOMINAL AMOUNTS IN € MILLION)

Operation date	Settlement date	Bought back bonds		Bought back amount	
		Typology	Maturity year		
10 Mar 2020	12 Mar 2020	BTP	2022-2023-2025	1,946	Competitive auction at the Bank of Italy
18 Jun 2020	22 Jun 2020	BTP and BTP Italia	2020	2,000	Competitive auction at the Bank of Italy
05 Nov 2020	09 Nov 2020	BTP	2021	500	Bilateral buy-back
06 Nov 2020	10 Nov 2020	BTP, BTP Italia and BTP€i	2021-2022-2023	4,000	Competitive auction at the Bank of Italy
25 Nov 2020	27 Nov 2020	BTP, BTP Italia and CCTeu	2021-2023	900	Bilateral buy-back
16 Dec 2020	18 Dec 2020	BTP and CTZ	2021	4,760	Competitive auction at the Bank of Italy
Year total				**14,106**	

Source: MEF

Finally, Chart III.15 shows the significance of the effects of the extraordinary operations carried out in 2020 in reducing the amounts to be reimbursed in future years.

CHART III.15: DISTRIBUTION OF GOVERNMENT BONDS BOUGHT BACK IN EXTRAORDINARY TRANSACTIONS CARRIED OUT IN 2020 (NOMINAL AMOUNTS IN € MILLION)



Source: MEF

III.3 DERIVATIVES PORTFOLIO MANAGEMENT

The management activity

In compliance with current regulations, the Treasury entered into cross currency swap contracts (subject to a bilateral system of guarantees regulated by a Credit Support Annex) to fully hedge risks (perfect hedge) associated with the US dollar issue carried out in November. The banking counterparty was selected among the Government Bond Specialists with the aim of compressing execution costs, while ensuring competitiveness and full operability on large notional amounts, without impacting markets. Since these derivative transactions were executed at the time of issue, i.e., within the settlement date of the bond, they provide for an initial and final exchange of notional amounts. Indeed, public accounting foresees receipts and payments exclusively in Euros: therefore, through the initial exchange, the net proceeds of the bond in dollars are converted into Euros, to then become part of the State Budget; while at maturity, through the final exchange, the Euros will be converted into dollars to be able to repay the holders of the notes.

In detail, the bond was hedged by cross currency swaps executed in two tranches: two-thirds of the total exposure was executed at the same time as the issuance, while the remainder was finalised in the days immediately following the decision to increase the amount originally offered in syndication due to the large demand.

In the swaps, with settlement on 24 November 2020 and maturity on 17 February 2026, interest flows are paid to the Treasury determined on a notional of 3 billion dollars, at a rate of 1.25% (perfectly replicating the payments of the bond), while those paid are calculated on a rate of approximately 27 basis points calculated on a notional of €2.5 billion.

With regard to liability management, given the financial context that characterised 2020 with negative rates on almost all segments of the swap curve, the Treasury took steps to structure a programme to lengthen the duration through new IRSs, also with a view to containing the average rate to be paid on the entire

derivatives portfolio. Taking advantage of the market context, which was favourable until December 2020, new 30-year swaps were executed for € 3 billion, in which the Treasury pays an average annual fixed rate of approximately 0% and receives on the same notional the variable Euribor 6-month rate. These transactions can be structured as a macro-hedge of the debt portfolio, i.e., to protect against a rise in interest rates on a portion of domestic floating-rate securities (CCTeu), without necessarily creating a punctual hedge of the security-derivative.

With regard to other macro-hedging transactions for the risk of rising interest rates, a receiver swaption, signed following a previous restructuring, was exercised in 2020. The exercise resulted in the start of a swap with maturity in 2050 and a notional amount of € 2 billion, in which the Treasury periodically pays a fixed rate (in line with the average rate of its derivatives portfolio) and receives a floating rate.

With reference to the restructuring of transactions present in the derivatives portfolio, and in conformity with what has happened in past years, the Treasury has been engaged in its usual activity of examining the opportunities available during the year, in order to reduce the financial charges and/or the debt. However, no market conditions emerged in 2020 such as to be able to take advantage of opportunities to restructure outstanding instruments, without prejudice to the careful assessment of the reasons of each position in liability management.

On the other hand, the execution of a subjective novation of a transaction already in the portfolio to hedge a bond with a floating-rate structure and maturing in November 2025 should be noted. By assigning this interest rate swap from the original bank to another bank, the novation only led to a change in the counterparty in the derivative and left unchanged all other contractual and financial conditions previously related to the transaction.

III.4 DEBT MANAGEMENT RESULTS IN RELATION TO OBJECTIVES

Final composition of the year's gross issues

The extraordinary measures taken by central banks in response to the effects of the pandemic on financial markets made a decisive contribution to reducing volatility and squeezing yields along the government curve. Thus, in 2020, it was possible to continue the strategy of increasing the average life of debt by expanding long-term issues (with maturities of more than 10 years), especially in the nominal fixed-rate segment but also in international securities, as witnessed by the € 725 million 20-year floating-rate private placement under the EMTN programme and the placement of USD 1.5 billion on the 30-year maturity for the Global programme.

Table III.7 shows the composition of issues in the last three years in absolute and percentage terms, excluding swaps.

The same applies to CTZs, although their weight has only marginally decreased.

TABLE III.7: COMPOSITION OF 2018-2020 ISSUES, IN ABSOLUTE AND PERCENTAGE TERMS, EXCLUDING EXCHANGES*

	2018 Issuances	% of total	2019 Issuances	% of total	2020 Issuances	% of total
Flexible BOT	0	0%	0	0%	0	0%
3-month BOT	0	0%	0	0%	6,500	1.21%
6-month BOT	75,303	19.32%	86,882	21.19%	82,192	15.34%
12-month BOT	76,350	19.58%	73,957	18.04%	93,123	17.38%
Commercial Paper	0	0%	0	0%	0	0%
Total short-term securities	**151,653**	**38.90%**	**160,839**	**39.23%**	**181,815**	**33.94%**
CTZ	29,169	7.48%	31,156	7.60%	37,949	7.08%
CCTeu	23,863	6.12%	14,771	3.60%	16,444	3.07%
3-year BTP	31,500	8.08%	32,430	7.91%	47,817	8.93%
5-year BTP	31,675	8.12%	33,686	8.22%	45,750	8.54%
7-year BTP	30,717	7.88%	29,552	7.21%	36,369	6.79%
10-year BTP	36,145	9.27%	39,054	9.52%	61,353	11.45%
15-year BTP	5,471	1.40%	13,600	3.32%	16,996	3.17%
20-year BTP	14,134	3.63%	8,470	2.07%	17,505	3.27%
30-year BTP	8,098	2.08%	15,480	3.78%	15,835	2.96%
50-year BTP	883	0.23%	3,000	0.73%	0	0.00%
5-year BTP€i	7,782	2.00%	2,149	0.52%	6,038	1.13%
10-year BTP€i	5,645	1.45%	7,369	1.80%	4,972	0.93%
15-year BTP€i	2,745	0.70%	2,334	0.57%	600	0.11%
30-year BTP€i	494	0.13%	2,018	0.49%	841	0.16%
BTP Italia	9,873	2.53%	6,750	1.65%	22,298	4.16%
BTP Futura	-	-	-	-	11,844	2.21%
Foreign	0	0.00%	7,371	1.80%	11,255	2.10%
Total medium-long term securities	**238,192**	**61.10%**	**249,191**	**60.77%**	**353,864**	**66.06%**
TOTAL	**389,845**		**410,030**		**535,679**	

Compared to initial expectations, there was an increase in issues of BOTs and a return to the supply of maturities other than the conventional 6-month and 12-month bills. However, issues of short-term securities accounted for a significantly lower share of total issues than in the previous two years.

The decline in short-term issues was absorbed, on balance, by medium-long term issues.

In detail, it can be observed that the percentage weight of 3- and 5-year BTPs on total issuance increased for both maturities compared to the previous year (17.47% in 2020 against 16.12% in 2019), even though, as predicted at the beginning of the year in the Guidelines, the 3-year bond weighed slightly more than the 5-year.

Gross issuance of the 7-year BTP increased markedly with respect to the amount placed in 2019 (€ 36,369 million against € 29,552 million), but with a slight contraction in percentage terms, while the 10-year BTP absorbed a significant part of the additional financing needs compared to forecasts. This bond thus accounted for 11.45% of gross issuance in 2020, compared to 9.52% in 2019.

In continuity with the previous year, the offer of nominal BTPs with longer maturity was confirmed as being able to attract considerable demand from end investors, as witnessed by the syndicated placement of the new 15- and 20-year benchmarks, as well as two new securities on the 30-year stretch of the curve.

Overall, on the 15- to 30-year maturity section, volumes rose by around € 10 billion compared to 2019.

As regards inflation-indexed securities, the BTP€i segment was penalised by the macroeconomic environment characterised by low inflation expectations, which was further exacerbated by the COVID-19 emergency, with the relative share of volumes placed falling by around one percentage point. Overall, issues of the indexed segment consisting of the BTP€i and the BTP Italia increased both in absolute terms (€ 34,748 million compared to € 20,621 million) and in relative terms (6.49% compared to 5.03%), thanks to the higher-than-expected acceptance of the BTP Italia placed in May.

The new BTP Futura step-up sector, created in 2020, accounted for 2.21% of gross issues.

Still for the domestic securities sector, exceptional funding needs did not imply greater recourse to CCTeus, whose issuance, as envisaged in the Guidelines, remained at the 2019 volumes, with a decrease in relative weight with respect to overall issuance.

TABLE III.8: COMPOSITION OF 2018-2020 ISSUES, IN ABSOLUTE AND PERCENTAGE TERMS, INCLUDING EXCHANGES*

	2018 Issuances	% of total	2019 Issuances	% of total	2020 Issuances	% of total
Flexible BOT	0	0%	0	0%	0	0%
3-month BOT	0	0%	0	0%	6,500	1.18%
6-month BOT	75,303	18.78%	86,882	20.98%	82,192	14.93%
12-month BOT	76,350	19.04%	73,957	17.86%	93,123	16.91%
Commercial Paper	0	0%	0	0%	0	0%
Total short-term securities	**151,653**	**37.82%**	**160,839**	**38.83%**	**181,815**	**33.02%**
CTZ	29,169	7.27%	31,156	7.52%	37,949	6.89%
CCTeu	23,863	5.95%	14,771	3.57%	16,444	2.99%
3-year BTP	36,700	9.15%	32,430	7.83%	47,817	8.68%
5-year BTP	31,675	7.90%	33,686	8.13%	48,759	8.85%
7-year BTP	30,717	7.66%	29,552	7.13%	36,369	6.60%
10-year BTP	41,693	10.40%	43,224	10.44%	63,353	11.50%
15-year BTP	5,471	1.36%	13,600	3.28%	18,996	3.45%
20-year BTP	14,134	3.52%	8,470	2.04%	17,505	3.18%
30-year BTP	8,482	2.12%	15,480	3.74%	23,835	4.33%
50-year BTP	883	0.22%	3,000	0.72%	0	0.00%
5-year BTP€i	7,782	1.94%	2,149	0.52%	6,038	1.10%
10-year BTP€i	5,645	1.41%	7,369	1.78%	4,972	0.90%
15-year BTP€i	2,745	0.68%	2,334	0.56%	600	0.11%
30-year BTP€i	494	0.12%	2,018	0.49%	841	0.15%
BTP Italia	9,873	2.46%	6,750	1.63%	22,298	4.05%
BTP Futura	-	-	-	-	11,844	2.15%
Foreign	0	0.00%	7,371	1.78%	11,255	2.04%
Total medium-long term securities	**249,324**	**62.18%**	**253,361**	**61.17%**	**368,873**	**66.98%**
TOTAL	**400,977**		**414,200**		**550,688**	

* Off-the-run securities have been included in the category with the nearest residual life - Source: MEF

Table III.8 also includes the amounts deriving from the exchanges and, as shown by comparing Tables III.7 and III.8, the volume of off-the-run securities issued in the exchange transactions was about four times higher than the year before - € 15,009

million in 2020 against € 4,170 million in 2019 - while the increase was more limited compared to € 11,132 million in 2018. These transactions mainly improved the weight of the 30-year BTP, given that by a syndicated exchange was inaugurated the new benchmark, followed by BTPs with residual maturities of 5 years and between 10 and 15 years.

Composition of the stock of securities at the end of the year

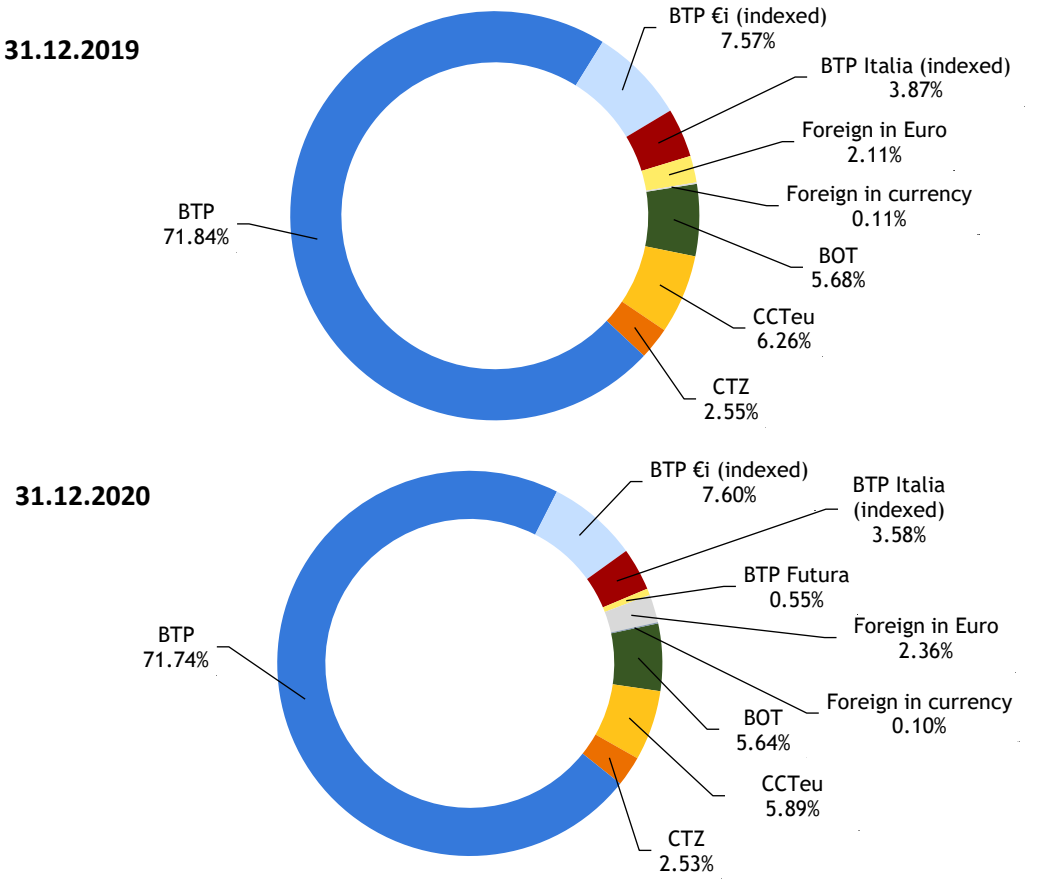
Over the whole year, changes in the debt composition were modest in size (Chart III.16), given that the issuance policy was in continuity with that of the previous years. The burden of the traditional sectors slightly decreased, the only exceptions being the BTP€i, climbed from 7.57% in 2019 to 7.60% in 2020, and the foreign sector (2.46% vs 2.22%) which specifically grew up to $15.5 billion in current assets of *Global* securities.

Despite the overall increase of market volumes, the BOTs portion on total debt stock remained the same, as it made use of instruments with deadlines falling in 2020.

On the other hand, the CCTeu and the BTP Italia showed a relevant reduction, the first to 5.89% vs 6.26% in 2019, while the second 3.58% against 3.87% in 2019.

The overall decrease was offset by the BTP Futura sector, that accounted for 0.55% of total current assets.

CHART III.16: COMPOSITION OF THE STOCK OF GOVERNMENT SECURITIES AT 31 DECEMBER 2019 AND AT 31 DECEMBER 2020



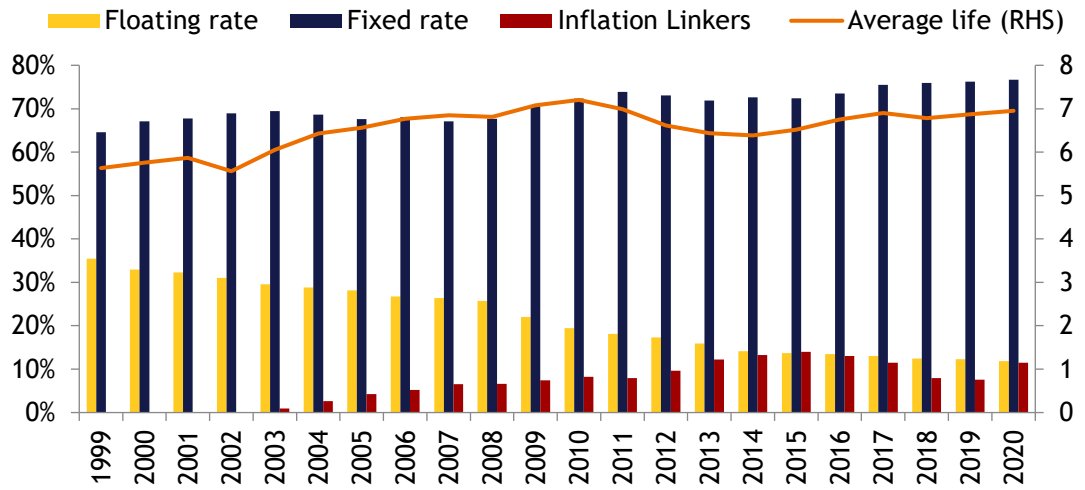
Source: MEF

Exposure to refinancing and interest rate risks

There was a slight increase in the average life of debt, from 6.87 years in 2019 to 6.95[67] years in 2020 (Chart III.17). This increase was primarily supported by issues on the long end of the yield curve, on which several new nominal benchmark bonds with maturities between 10 and 30 years were placed.

As usual, the extraordinary transactions in debt management allowed reducing the number of securities stocks with short residual life, by contributing to achieving the refinancing risk, together with the allocation of longer-term securities in case of exchanges and "Tap" reopening of off-the-run securities.

CHART III.17: EVOLUTION OF THE STRUCTURE AND AVERAGE LIFE OF DEBT (IN YEARS)



Source: MEF

Recent trends in average residual life are shown in Table III.9. Average residual life is only an indicator of the refinancing risk, while analysing the inherent risk in a debt portfolio also requires other aspects to be taken into consideration; it is therefore useful to adopt other types of synthetic indicators of the stock's exposure to market risks, such as the duration and ARP (Average Refixing Period), reported in Table III.10.

TABLE III.9: AVERAGE LIFE OF THE STOCK OF GOVERNMENT SECURITIES

	31/12/2018	31/12/2019	31/12/2020
Domestic securities	6.67	6.74	6.85
Foreign securities	11.77	12.48	10.82
Stock of government securities	6.78	6.87	6.95

Source: MEF

[67] The average residual life at the end of the year was 7.02 years if we also consider the loans under the SURE Programme.

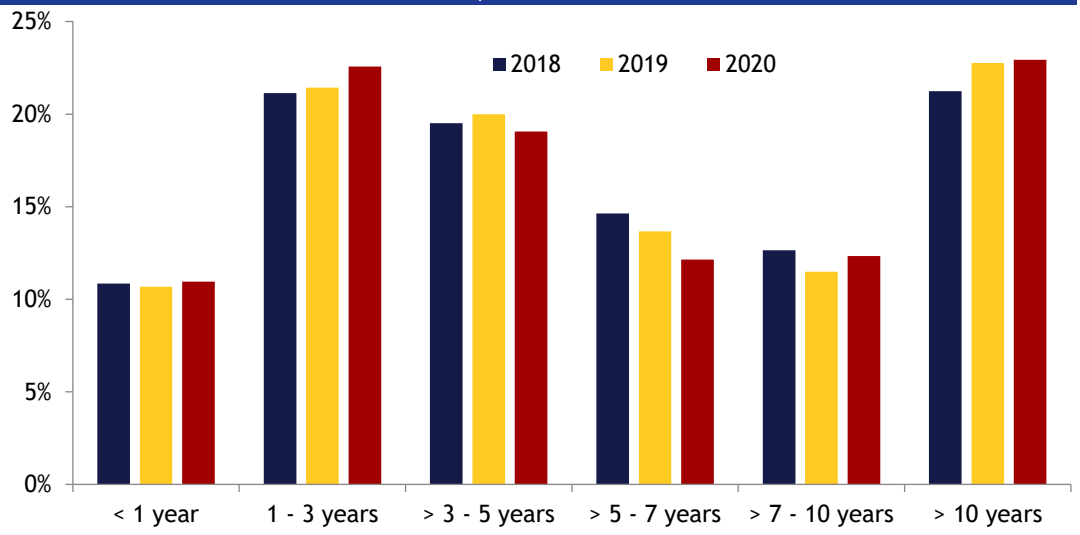
TABLE III.10: DURATION AND ARP TREND DURING THE 2018-2020 PERIOD, RELATING TO THE STOCK OF GOVERNMENT SECURITIES BEFORE DERIVATIVES (IN YEARS)

	Duration			ARP		
	31/12/2018	31/12/2019	31/12/2020	31/12/2018	31/12/2019	31/12/2020
Domestic securities before derivatives	5.26	5.70	6.22	5.65	5.78	6.00
Foreign securities before derivatives	6.99	8.42	8.09	6.46	7.56	6.58
Stock of government securities before derivatives	5.30	5.76	6.26	5.67	5.82	6.02

Source: MEF

In particular, the growth of the Average Refixing Period (measuring the average time taken by the debt stock to incorporate changes in rates) continued, leaded by the domestic issuances sector. On the other hand, the foreign issuances sector showed a decrease in the ARP following the focus of the issuance activity in 2020 on a single shorter maturity. As for the duration, weighted with the present value of flows and thus also affected by the change in market rates, the increase is even more relevant compared to other indicators. In fact, the yield curve for Italian government bonds dropped by an average of around 90 basis point at the end of 2020 compared with the previous year, as can be clearly seen in Chart III.19 below.

CHART III.18: MATURITIES BY RESIDUAL LIFE, 2018-2020



NB: the stock of inflation-linked securities takes into account the revaluation of the capital matured at the end of each year and foreign currency securities are valued after exchange swaps

Source: MEF

As shown in Table III.11, the lengthening effect of the derivatives portfolio was confirmed in 2020: in fact, the total duration of debt went from 6.26 pre-swaps to 6.68 years post-*swaps*, with an increase of nearly five months (similar to previous years).

Likewise, the derivatives portfolio also contributed to lengthening the Average Refixing Period of the debt: at the end of 2020, the overall post-swap ARP was still 6.41 years, almost five months higher than the corresponding pre-swap value of 6.02 years.

TABLE III.11: DURATION AND ARP TREND DURING THE 2018-2020 PERIOD, RELATING TO THE STOCK OF GOVERNMENT SECURITIES AFTER DERIVATIVES (IN YEARS)

	Duration			ARP		
	31/12/2018	31/12/2019	31/12/2020	31/12/2018	31/12/2019	31/12/2020
Domestic securities after derivatives	5.76	6.17	6.64	6.09	6.19	6.40
Foreign securities after derivatives	6.99	8.62	8.30	6.82	7.90	6.96
Stock of government securities after derivatives	5.79	6.22	6.68	6.11	6.22	6.41

Source: MEF

Market value trend of the stock of government securities and of the derivatives portfolio

The well-known inverse relationship between interest rates and market values, from a structural point of view, implies that, with all other conditions being equal[68], if market rates are lower than the previous ones, all fixed-rate financial instruments previously settled at higher rates shall have a negative market value for the payer and a positive market value for the receiver. This is regardless of the contractual nature of the instrument, i.e., regardless of whether the fixed rate is paid on the securities issued or is determined in different instruments, such as derivatives.

During 2020, the euro market continued to record a decreasing trend for interest rates, which was very marked at the beginning of the year, sharply interrupted by the pandemic outbreak, and then resumed at the end of the year. The credit component included in government yields (i.e., the premium required by the market for the credit risk) also showed a reduction compared to the end of the previous year along the whole curve, mostly in the long-term segment (10 to 30 year maturities). Therefore, government yields declined to a greater extent than the reduction of swap interest rates, leading to a negative present value for each fixed-rate payer position taken on previously[69]. Consequently, given the interest rate structure of the related portfolios:

1. As the notional amount of the derivatives portfolio compared with the previous year was substantially stable, with a slight increase of approx. € 2 billion, the *mark to market* was negative for € 38.25 billion on 31 December 2020 compared with € 34.33 billion on 31 December 2019. Taking into consideration only the derivatives referring to debt[70] (Table III.13), including all of the nominal amount

[68] The phenomena described herein relate to the market interest rate component, while changes in the interest rate component that remunerates the credit risk are independent from market rate variations (in terms of both size and direction); therefore, in the event of very significant and/or long-lasting changes in credit spreads, this latter interest rate component may amplify or mitigate the effects of the changes to market rates (depending on the direction in which the credit spread is moving).

[69] As can be seen, the mere existence of a negative (or positive) mark-to-market does not represent a loss or a profit for the issuer, let alone an indication as to the suitability of the decision to "fix" the rate or not. The formation and trend of the mark-to-market are instead connected to the relationship between the portfolio characteristics (fixed gradually over time on the basis of the well-known cost-risk trade-off, which the DMO addresses in relation to the portfolio characteristics, the market's absorption capacity and the fiscal objectives at the time) and the following - exogenous - trend in market rates. For a DMO, the decision to "fix" the debt interest rate is consistent with the objectives to mitigate risks for the public budget and the intention is not to take a position to "beat the market".

[70] In this case, derivatives contracts entered into with reference to loans granted pursuant to the Italian Finance Law for 2005 are excluded.

increase, the market value was negative for € 38.21 billion at the end of 2020 compared with € 34.27 billion at the end of 2019;

2. The market value of the stock of government securities (excluding the derivatives portfolio effect) increased by approximately € 232 billion, from € 2,245.2 billion in 2019, to € 2,476.9 billion at the end of 2020. The nominal value of the stock of government securities, as shown in Table III.12, also increased, albeit to a much lesser extent (around € 145 billion). As a result, the difference between the market value and the nominal value of the stock of government securities increased by around € 87 billion. In fact, this difference was approximately alike to € 327 billion at the end of 2020, against around € 240 billion at the end of 2019.

The increase of around € 232 billion (in absolute terms) in the market value of government securities is therefore attributable to two factors that both acted in the same direction: on the one hand, the significant increase of approximately € 145 billion in the nominal stock of securities; on the other hand, the increase of approximately € 87 billion, of the relative market value, as a result of the decline in government yields, due to the reduction of both components: credit and market.

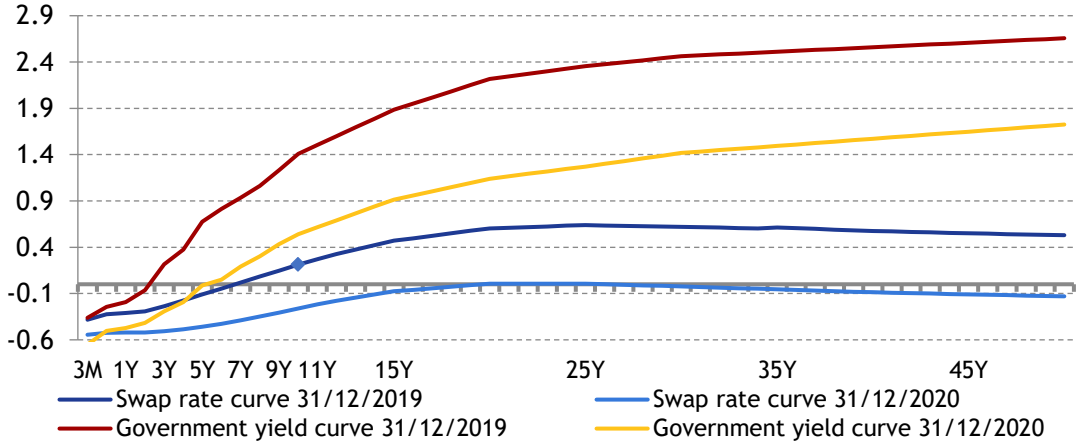
TABLE III.12: MARKET VALUE TREND OF THE STOCK OF GOVERNMENT SECURITIES (€ MILLION)

	MTM	Nominal Value	MTM - Nominal Value
31/12/2020	2,476,905	2,149,584	327,321
31/12/2019	2,245,197	2,004,766	240,431
Change			

Source: MEF

The market value trend for the two portfolios (derivatives and securities) reflects, net of stock variations, the performance of the reference interest rate curves: the swap curve for the derivatives portfolio and the government yield curve for the stock of government securities. These curves may move in different directions and/or with different changes and inclinations, thereby generating effects that may differ from one year to the next. The following shows the euro swap curve and the Italian government securities yield curve, with reference to 31/12/2019 and 31/12/2020 (Chart III.19).

CHART III.19: EURO SWAP CURVE AND ITALIAN GOVERNMENT SECURITIES YIELD CURVE AT 31/12/2019 AND 31/12/2020



Source: Bloomberg

Table III.13 below shows the notional amounts and the market values of the parts into which the derivatives portfolio may be broken down[71]. With regard to debt derivatives, cross-currency swaps refer to issues denominated in foreign currencies, while hedging IRSs refer to securities issued under the MTN programme and denominated in euro . In addition, the "duration IRS" category includes all the positions attributable to the strategy of protecting against the risk of interest rates rising. The "ex-ISPA IRS" segment includes all derivatives contracts associated with the liabilities of the company Infrastrutture S.p.A., which were transferred to the Treasury in accordance with the Italian Financial Law for 2007. Receiver swaptions not linked to pre-existing IRSs are included in the "Swaption" category. Finally, the values relating to derivatives on assets and the overall portfolio are reported.

TABLE III.13: DERIVATIVES PORTFOLIO – YEARS 2019-2020 (€ MILLION)

Debt derivatives

	31/12/2019				31/12/2020			
Instrument	**Notional amount**	**%**	**MTM**	**%**	**Notional amount**	**%**	**MTM**	**%**
ex-ISPA IRS	3,500	3.56%	-1,651	4.82%	3,250	3.24%	-1,867	4.89%
CCS (Cross-Currency Swap)	10,826	11.01%	260	-0.76%	13,174	13.13%	-354	0.93%
Hedging IRS (Interest Rate Swap)	6,177	6.28%	1,072	-3.13%	3,477	3.47%	1,278	-3.34%
Duration IRS (Interest Rate Swap)	75,658	76.93%	-31,976	93.32%	80,398	80.16%	-37,267	97.53%
Swaption	2,190	2.23%	-1,970	5.75%	0	0.00%	0	0.00%
Total debt derivatives	**98,351**	100.00%	**-34,266**	100.00%	**100,299**	100.00%	**-38,210**	100.00%
Outstanding government securities	**2,004,766**				**2,149,584**			
Debt derivatives/government securities	**4.91%**				**4.67%**			

Derivatives on assets (Italian financial law for 2005)

Instrument	**Notional amount**	**MTM**	**Notional amount**	**MTM**
IRS (Interest Rate Swap)	677	-67	451	-35

Total derivatives portfolio

Instrument	**Notional amount**	**%**	**MTM**	**%**	**Notional amount**	**%**	**MTM**	**%**
Debt derivatives	98,351	99.32%	-34,266	99.81%	100,299	99.55%	-38,210	99.91%
Derivatives on assets	677	0.68%	-67	0.19%	451	0.45%	-35	0.09%
Total derivatives	**99,028**	100%	**-34,333**	100.00%	**100,750**	100%	**-38,246**	100%

N.B.: **The MTM reported in this table does not include** the figures published by the Bank of Italy in the 'Financial Accounts Series'.

Mutual guarantee agreements on derivative financial instruments (*)		
The amounts indicated refer to the net amount of the guarantee posted at the end of each year		
Cash margin	***2,249***	***4,313***

(*) Provision of a mutual guarantee pursuant to Italian Ministerial Decree No. 103382 of 20 December 2017. Please refer to the 'Laws and Regulations on Government Debt - Rules on derivative transactions' section at http://www.dt.mef.gov.it/modules/documenti_en/debito_pubblico/normativa_spalla_destra/D.M._20.12.2017_-_Bilateral_collateral_with_reference_to_derivates.pdf

[71] For a more detailed description of the derivatives portfolio segments reported in this section, please refer to Annex 4 of this Report.

More in detail, two new exchange risk hedging transactions (CCS) were carried out in 2020. Both were executed in November for a notional amount of around € 2.5 billion, to hedge a Global Bond issue denominated in US dollars equal to 3 billion. In addition to the aforementioned securities, four IRSs to hedge foreign issues denominated in euro expired, for a total notional amount of approximately € 7 billion, followed by an IRS ex-ISPA with a notional amount of € 250 million.

With regard to IRSs and macro-hedging swaptions for the risk of rising interest rates, the total notional amount increased by almost € 5 billion due to different components: the execution of new swaps on 30 year maturities for an overall notional amount of € 3 billion, and the last macro-hedging swaption in portfolio was exercised, thus generating an IRS with notional amount equal to € 2 billion; the increase was mitigated by the payment of the instalments resulted from a previous restructuring. Following the abovementioned swaption and the latest payments of the instalments of the premium differential, deriving from the restructuring actions carried out over the last years[72], the portfolio part resulted from swaption finished.

Lastly, during 2020, collateralisation of the derivatives portfolio continued, with reference to both previous and new transactions. In fact, during the year, a new mutual guarantee framework contract (so-called 'CSA') was signed in implementation of Article 3, par. 1-bis of the T.U.D.P and Article 6 of the Guarantee Decree, concerning previous transactions with a counterpart that, on 31 December 2019, had the requirements stated under Article 4 of the Frame Decree 2020.

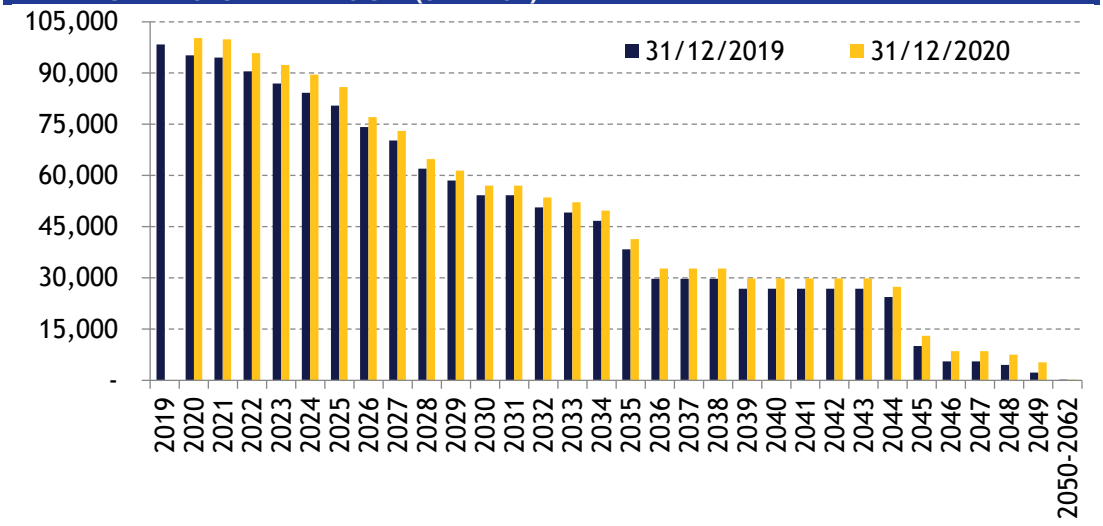
Moreover, a CSA on new transactions – already ratified in 2019 - was launched to subject the above-mentioned cross currency swaps to the mutual guarantee. At the end of 2020, the overall net amount of the guarantee paid to the counterparts was equal to € 4,313 million.

With regard to derivative instruments related to debt - excluding positions undertaken on loans granted, pursuant to the Italian Finance Law for 2005 - the following two charts show the evolution of the notional amount year by year, starting from 31/12/2019 and from 31/12/2020 respectively, until the last maturity of the portfolio (2062), assuming that all the swaptions present in the portfolio are exercised at the end of 2019.

In the ten-year period after 2021, the maturities in notional amounts are equally distributed. In the 2035-2036 two-year period, a considerable notional amount will expire, as it will in 2045. Following the strategy adopted in 2020, the expiration of IRSs in 2050 became more relevant. Subsequently, only one position related to an issue under the EMTN programme will remain, with a notional amount of € 250 million to expire in 2062.

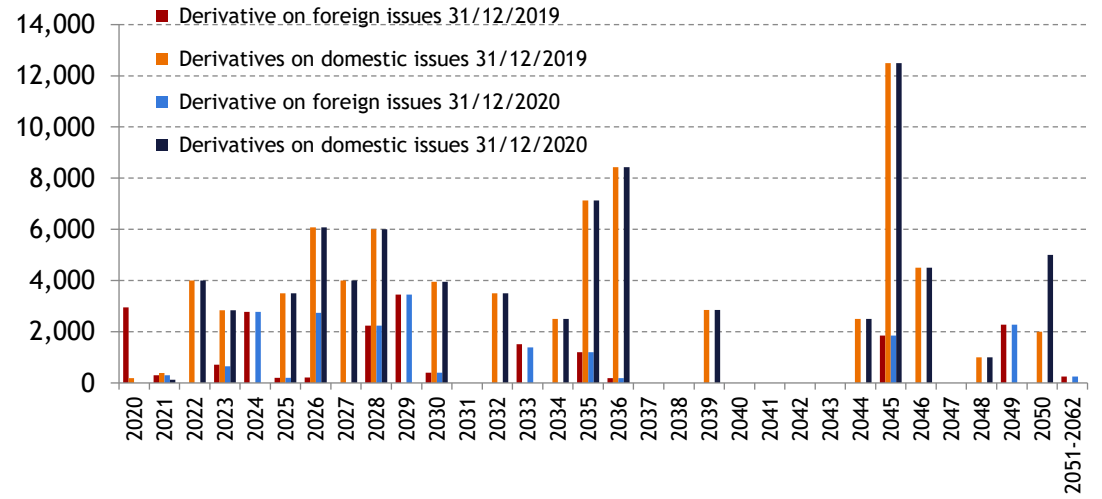
[72] For a more detailed description, please refer to the 2016 Public Debt Report, p. 87, and the 2017 Public Debt Report, p. 85.

CHART III.20: COMPARISON BETWEEN THE PROSPECTIVE TREND OF THE NOTIONAL AMOUNT FOR THE EXISTING DERIVATIVES PORTFOLIO, AS AT 31/12/2019 AND 31/12/2020, RESPECTIVELY, ASSUMING THAT ALL SWAPTIONS ARE EXERCISED (€ MILLION)



Source: MEF

CHART III.21: COMPARISON BETWEEN THE TERM STRUCTURE OF THE EXISTING DERIVATIVES PORTFOLIO, AS AT 31/12/2019 AND 31/12/2020, RESPECTIVELY, ASSUMING THAT ALL SWAPTIONS ARE EXERCISED (€ MILLION)



Source: MEF

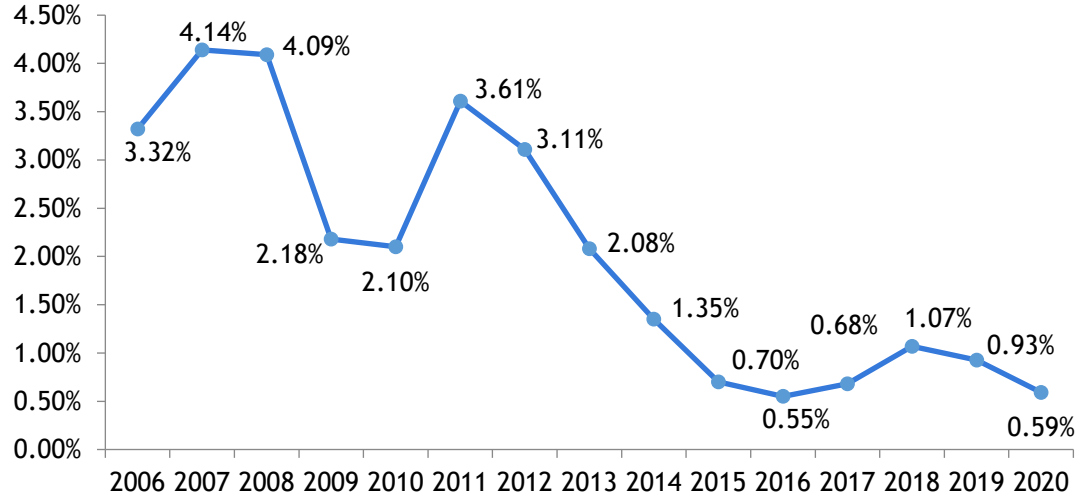
Debt cost

In 2020, the weighted average rate at issuance was equal to 0.59%[73], slightly higher than the absolute all-time low recorded in 2016, with a decrease of 34 basis points from 0.93% in 2019. This result was possible since government securities were placed in a market characterised by extraordinarily favourable financial conditions if we exclude the fast increase in the volatility of the return over the first months

[73] If loans under the SURE Programme are also taken into account, the average cost of issuance in 2020 has fallen to 0.57%.

of the pandemic. As already said above, this situation allowed moving the financing volumes to the medium-long term segment, thus reducing the weight resulting from the issuance of short-term instruments on the one hand and lowering the average debt cost on the other.

CHART III.22: AVERAGE COST AT ISSUANCE OF GOVERNMENT SECURITIES - 2006-2020 (PERCENTAGE RATES)



Source: MEF

On a cash basis, the average cost of debt, calculated as the ratio between cash interest[74] paid on government securities in year *t* on the stock of government securities in year *t-1*, was equal to 2.57% in 2020, compared with 2.65% in 2019. Despite the exceptional conditions described in this Report, there was therefore a reduction of 0.08%.

Including also all derivatives transactions, the total cash cost in 2020 fell to 2.67%, compared with 2.78% in 2019, therefore representing a reduction of 0.11%. In line with this, the impact of the derivatives portfolio also decreased: 0.10%, compared with 0.13% in the previous year18[75].

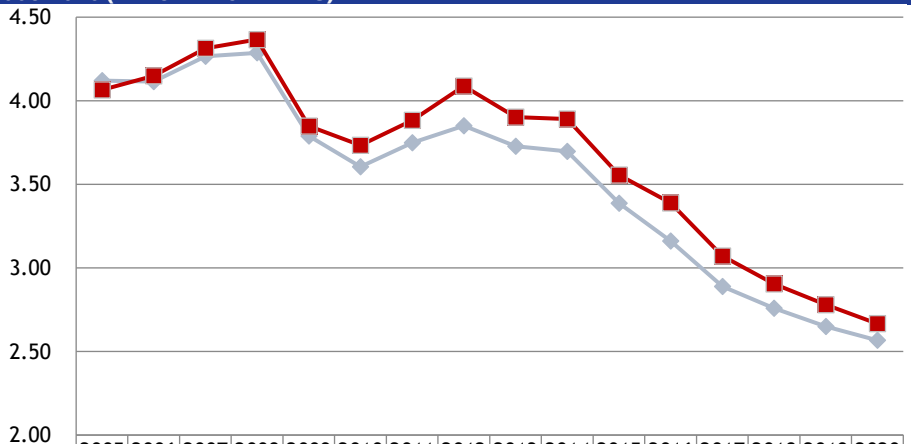
On 31 December 2020, the average rate paid on derivatives transactions to manage the duration of the domestic debt stock was equal to 3.772%; on the same data the stock of outstanding securities - with coupons exceeding 3.772% - amounted to approximately € 658 billion, thus confirming that the average rate paid on the portion of debt hedged by interest rate derivatives is well within the limits of the historical cost of Italy's fixed-rate debt.

Lastly, it should be noted that the public finance forecasts included in policy documents, as well as in the state budget, take into account the effect of derivatives with simulation hypotheses that are completely in line with the rest of the estimates. Similarly, all final figures also include the effects of the amounts collected or paid out as a result of derivatives transactions.

[74] It is not possible to calculate a similar ratio for expenditure on an accrual basis (ESA 2010), as the latter, by definition, excludes flows from derivatives transactions.

[75] Please note that the difference in costs between the debt portfolio before derivatives and that after derivatives represents the marginal cost borne by the Treasury to obtain a longer duration (therefore greater hedging of the risk of rising interest rates) compared to the duration resulting from issuing bonds only.

CHART III.23: AVERAGE COST OF THE STOCK OF GOVERNMENT SECURITIES, BEFORE AND AFTER DERIVATIVES - 2005-2020 (PERCENTAGE RATES)



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
before-derivatives	4.12	4.11	4.27	4.29	3.79	3.61	3.75	3.85	3.73	3.70	3.39	3.16	2.89	2.76	2.65	2.57
after-derivatives	4.06	4.15	4.31	4.37	3.85	3.73	3.88	4.09	3.90	3.89	3.56	3.39	3.07	2.90	2.78	2.67

Source: MEF

III.5 THE TREASURY'S CASH MANAGEMENT

The Treasury's cash management activities are closely related to its issuance activities. The purpose of cash management is to ensure an adequate level of liquidity to deal with the Treasury's many daily movements, as well as to appropriately remunerate the cash balances, based on market conditions and current risk levels.

The same conditions applied to cash management activities implemented in the first months of 2020 as in recent years, characterised by abundant liquidity and extremely negative rates. It should be reminded that, during 2019, the ECB had adopted several monetary policies (see PDR 2019), among which there was the 10-basis points reduction of the deposit rate at the ECB (Deposit Facility) – hence brought to -0.50% - and the resume of the Asset Purchase Programme (APP), to further support the monetary accommodation measures.

During 2020, following the outbreak of the Covid-19 pandemic, such expansionary trend in monetary policies was further strengthened. As reported in section II.1, during the extraordinary meeting in March the ECB Governing Council introduced a new 'Pandemic Emergency Purchase Programme, PEPP'[76] and, in the meeting held in June[77], the Council extended its duration and strengthened its scope. Lastly, in order to ease the liquidity conditions of the monetary market in the euro area, the Council prepared seven specific long-term refinancing actions to face the pandemic emergency (Pandemic Emergency Longer-Term Refinancing Operations, PELTRO)[78].

As is well known, the easing monetary policies adopted by the ECB over the last years and prosecuted in 2020 have benefited the government bond market on

[76] https://www.ecb.europa.eu/press/pr/date/2020/html/ecb.pr200318_1~3949d6f266.en.html
[77] https://www.ecb.europa.eu/press/pr/date/2020/html/ecb.mp200604~a307d3429c.en.html
[78] https://www.ecb.europa.eu/press/pr/date/2020/html/ecb.mp201210~8c2778b843.en.html

the one hand, in terms of lower yields and increased demand but, on the other, they have led to a number of critical cash management matters. In fact, in a context characterised by minimum demand for liquidity and negative returns, the Treasury found itself having to manage cash and cash equivalents trying to minimise the costs deriving from the strong penalty applied to the deposits held at the Bank of Italy, through operations of employment of the available resources at rates, albeit negative, higher than the rate applied to government deposits at the ECB, equal to that of the Deposit Facility.

The Treasury normally uses 'OPTES' operations for part of its cash management actions, involving active management of the Treasury's cash account. Thanks to the Bank of Italy and the MEF exchanging information on cash flows, OPTES operations aim to improve account balance forecasts, making it easier to manage debt and monetary policy transactions. As provided by law, funding and lending are carried out by selected counterparts through daily auctions and bilateral trading (OPTES operations), run directly by the Treasury or by the Bank of Italy on behalf of the MEF.

As the below analysis shows, 2020 was characterised by marginal use of OPTES operations, due to the excess liquidity in the system and, consistently, to the strong contraction in demand from market participants. Following the interruption of auctions, introduced from the second half of 2019, operations were exclusively carried out through bilateral negotiations.

Monitoring the Cash account and daily and monthly cash balance trends

As previously outlined, the monitoring activity is carried out by information being continuously exchanged between the State General Accounting Department, the Department of the Treasury and the Bank of Italy. The information shared refers to all incoming and outgoing transactions carried out on the State Treasury's accounts, with data being exchanged with regard to both estimates and final balances.

The main purpose of sharing this information is to forecast the end-of-day balance, estimated on the basis of continuous updates provided by the Bank of Italy (six times a day) which are then validated by the MEF. These institutions also share longer-term forecast scenarios covering a period of between 30 and 60 days, with weekly updates being provided.

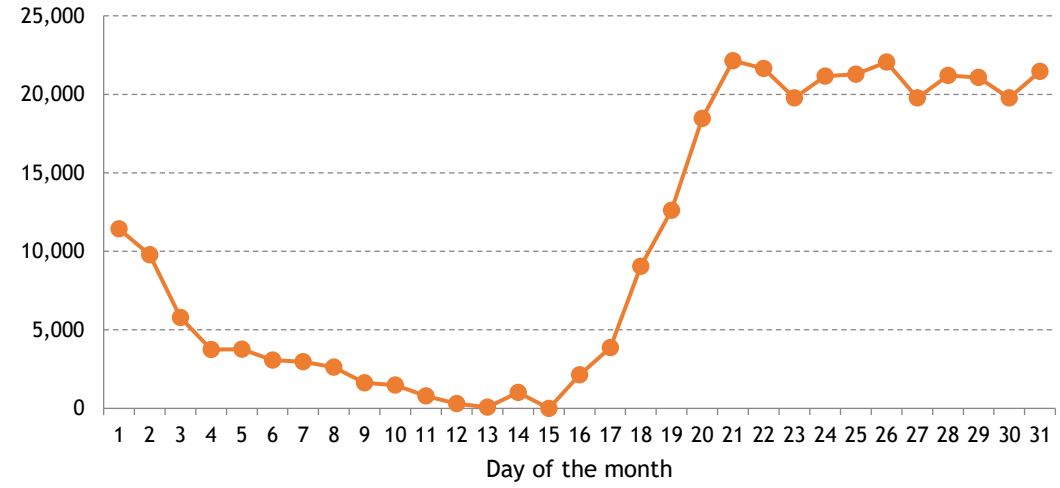
This latter exchange of information is particularly important for monetary policy purposes, as the Treasury sends its estimates regarding use of cash and government deposit balances for the period in question to the Bank of Italy, which in turn sends them to the ECB. The difficulties involved with this forecasting process stem from the large number of operators and the substantial cash flows running through the account. The average daily difference between the expected balance and the actual balance of the cash account is used as an indicator of the ability to make forecasts. In 2020, this indicator stood at around 1.6%[79], down compared to

[79] This value is calculated as the average of the percentage variations (in absolute terms) between the estimated balance of the Cash Account at 6 p.m. on day t-1 and the actual balance recorded at 9 a.m. on day t. This percentage therefore measures the average forecasting error made each day.

2019, confirming a satisfactory level of accuracy with regard to cash forecasts, despite the difficult context.

Notwithstanding the good forecasting ability in the short and medium term, the fluctuations recorded on the account are quite relevant, as shown in Chart III.24, reporting levels and cyclicality like those recorded in previous years[80].

CHART III.24: AVERAGE INTRA-MONTHLY CHANGES IN THE TREASURY'S AVAILABLE CASH - DIFFERENCES COMPARED WITH THE MONTHLY MINIMUM - 2020 (€ MILLION)



Source: MEF

As the above chart shows, balances are close to the minimum in the first part of the month and decrease to reach the lowest level towards the middle of the month, due to the substantial payments that need to be made (e.g., payment of social security allowances). This trend is then reversed in the second part of the month, with a peak in the last ten days mainly due to the collection of tax revenues.

These sudden fluctuations complicate cash management activities, as the Treasury must also hold substantial amounts of cash for significant redemptions of maturing government securities, which are not always simultaneously offset by similar issuances, especially not for medium and long-term bonds. In fact, it is market practice for securities other than BOTs to normally be distributed in several tranches over a number of months, while redemptions are made through a single payment on the maturity date. The fluctuations shown in the above chart are therefore also attributable to securities being issued and, above all, to those maturing, which may sometimes contribute to the significant decline at the beginning and half of the month. Other relevant causes connected to the account volatility are due to the misalignment between regular tax returns, usually distributed in the second half of the month, and the expenditures, mostly resulting from pensions and interest expenditure on government securities, which are instead distributed over the first days of the month.

The cash account's volatility is not only recorded on an intra-monthly basis, but also indicates significant discrepancies from one month to the next.

[80] In this regard, see sections IV.4 of the Public Debt Reports for the years 2014-19.

In 2020, the cash account management was particularly complex, mostly during the months following the pandemic outbreak. This issue clearly emerges in the account's volatility analysis. In March and May, the account was subject to a balance variation equal to around € 50 billion. A similar amount, over the course of the year, was recorded in November.

The increase in the account's fluctuations can be imputable to several factors, among which the most important are the fact that 2020 was a year characterised by many redemptions – mostly in the abovementioned months, and the unexpected increase of the government demand due to the expenditures connected to the health emergency.

In March 2020, the maturities of government securities amounted to around € 15 billion, recording an increase compared with the same month of the previous year. Moreover, an increase in the *trend* of the monthly government requirement was recorded in 2020 compared to 2019, namely € 12 billion in March, €15 billion in April and almost + € 25 billion in May extra amounts respectively were observed.

Against this backdrop, to face the increased volume of maturing government securities and the higher need to finance the government requirements (not only increasing but also difficult to calculate), the Treasury had to intensify the collection by mainly issuing new government securities, even as a precaution compared to the actual need, thus generating higher volatility of the Account.

The significant daily and monthly fluctuations are therefore mainly due to the volatility and misalignment recorded with regard to cash flows.

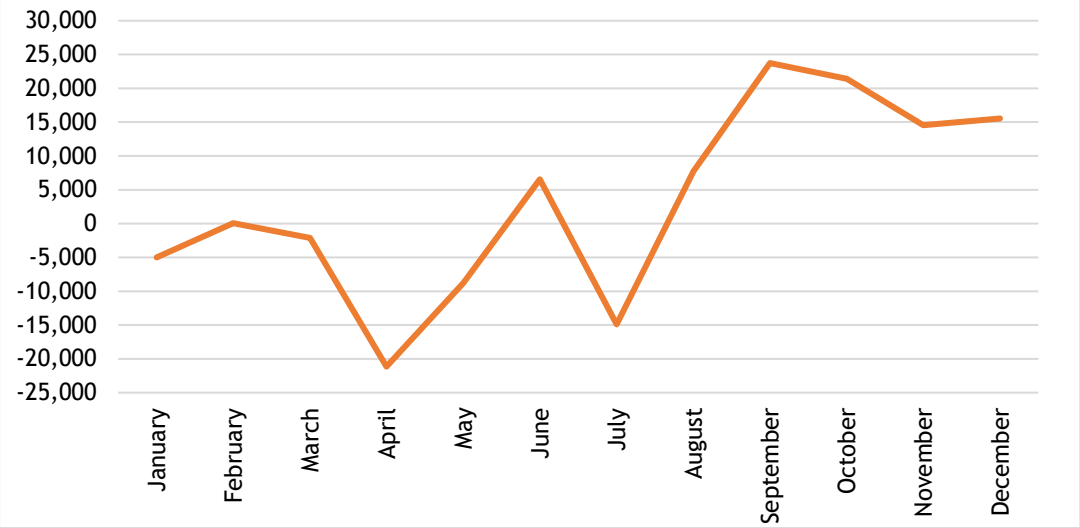
The Treasury's cash management activities therefore involved investing enough cash in the money market to reduce daily net fluctuations, at the same time as allowing the Treasury to hold an adequate supply of liquidity, in order to be able to prudently cope with redemptions and significant payments, even in changing market conditions.

As it will be pointed out later, due to the abovementioned uncertainties, the short-term use of liquidity drastically reduced in the central months of the year, to slowly increase from August on.

Cash management operations and market context

As shown in Chart III.25, the cash balances over the 12 months in 2020 compared to 2019 revealed a clear pattern: the first three months were generally in line with 2019, from April to July the balances were largely lower, but then reversed and were significantly higher in the final months of the year. This development is mainly explained by the fact that the first few months of the pandemic saw an extraordinary, sudden and unforeseeable net cash outflow, which was therefore not fully absorbed by government bond issuances. As the pandemic condition became a situation that was no longer temporary, thanks to monetary policy interventions and economic support measures adopted by the European Union and individual countries, the Treasury was able to accelerate funding activities, holding liquid assets that were on average higher to face a context that remained extremely uncertain.

CHART III.25: DIFFERENCE BETWEEN MONTHLY BALANCES OF THE TREASURY'S CASH ACCOUNT – 2019 VS 2020 (€ MILLION)



Source: MEF

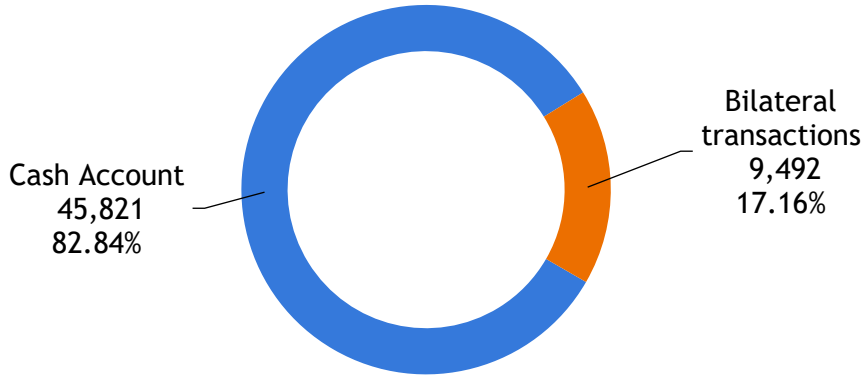
During 2020, the Treasury only used medium and long-term bilateral operations to invest the liquidity of the cash availability.

In 2020, the average stock of bilateral operations declined sharply to about € 9.5 billion from about € 17.6 billion a year earlier. In the early months of 2020, before the pandemic, the average stock of bilateral transactions was in line with that at the end of 2019, while since April, bilateral lending has fallen sharply. Initially, from the second half of March, there was a gradual reduction in the stock of loans due to the decrease in the Account balance. In fact, the intensification of the emergency due to Covid-19 prompted the government to mobilise substantial resources to deal with both the health and economic crises that were affecting the national productive fabric. Subsequently, when the ECB introduced the first monetary policies to support the pandemic, leading to a strengthening of monetary accommodation, the reduction in lending was caused by the effects of these monetary policies: the abundant presence of liquid assets on the market compressed demand from banking operators, reducing lending opportunities and leading to greater liquidity in the Treasury's availability account held at the Bank of Italy.

Compared to 2019, the average maturity of these transactions increased slightly to 30 days in 2020 compared to 24 days in 2019. The increase in the average maturity allowed the Treasury to obtain better opportunities to invest the excess liquidity, at more advantageous rates than the deposit facility rate.

Also, for 2020, although cash management conditions were out of the ordinary, the Treasury did not need to resort to OPTES funding operations.

CHART III.26: BREAKDOWN OF THE TREASURY'S LIQUIDITY - AVERAGE VALUES FOR 2020 (€ MILLION)



Source: MEF

The liquidity share related to the investments in long-term bilateral operations was equal to approximately 17.16%, while the remaining part was deposited in the cash availability, with an average deposit in 2020 close to 83% out of the total.

Table III.14 shows the overall consistency at the end of the liquidity month for the Treasury in 2020, divided into market operations and Cash account.

TABLE III.14: CASH ACCOUNT AND INVESTMENTS OF THE TREASURY'S LIQUIDITY AT THE END OF EACH MONTH - 2020 (€ MILLION)

Reference month	Balance of the Cash account	OPTES liquidity operations	Treasury's total available cash
January	44,016	27,000	71,016
February	45,340	27,500	72,840
March	17,606	12,000	29,606
April	44,617	500	45,117
May	57,974	3,000	60,974
June	57,266	3,000	60,266
July	79,524	4,000	83,524
August	97,825	2,500	100,325
September	75,426	8,500	83,926
October	68,091	9,500	77,591
November	51,710	9,000	60,710
December	33,997	8,000	41,997

Source: MEF

Conclusions

In 2020, cash management activities were particularly complex, due to the reasons provided above. In this changed context, the Treasury had to adapt its policy to ensure adequate cash availability and, where possible, use the exceeding liquidity in OPTES operations to reduce the impact of negative rates on the cash available in the Account. During the second half of the year, the Treasury continued to achieve the stabilisation of cash availability and limit the liquidity cost, by

intensifying bilateral operations with qualified counterparts for the average duration of one month.

It should nonetheless be noted that, despite the growing difficulties involved with cash management, the effect of quantitative easing measures and the low level of interest rates along the entire yield curve were altogether favourable for Italy's public debt management.

ANNEXES

ANNEX 1

The Treasury's involvement in international discussions on debt management

Please find below a list of the main ways in which the Treasury is involved in international discussions on public debt management issues:

- Regular liaison with European DMOs is ensured as part of the special subcommittee (European Sovereign Debt Markets - ESDM) of the EU Economic and Financial Committee (EFC); the EFC has an advisory role vis-à-vis the European Commission and the Council of the European Union and is appointed to define actions for the coordination of Member States' economic and financial policies.
- Regular participation in the working groups organised by supranational institutions such as the OECD[81], the IMF and the World Bank. The Treasury is also involved in the OECD's 'Working Party on Public Debt Management' (WPDM)1, which constitutes a stable platform to compare the public debt management policies and techniques of the organisation's member countries, as well as in the 'Government Borrowers' Forum' organised annually by the World Bank for the 40 participating countries to share their practical experiences. The Treasury's standing with regard to public debt management is implicitly recognised by the 'Public Debt Management Network'[82], a joint initiative promoted by the OECD, the World Bank and the Italian Department of the Treasury (the only government institution alongside these two multilateral institutions), the aim of which is to share knowledge, information and research on public debt management issues.
- Another key opportunity for institutional coordination is the Treasury's participation in Eurostat statistical working groups and its contribution to drawing up the six-monthly notifications as part of the Excessive Deficit Procedure (EDP), especially in relation to entries being correctly recorded that are directly linked to public debt, in accordance with the harmonised European System of Accounts (ESA). By overseeing these accounting aspects, the Treasury is able to keep all relevant profiles under control, also moving beyond general considerations of a purely financial nature and with a direct impact on the state budget.
- Finally, the Treasury attends the annual 'International Retail Debt Management Conference', made up of the DMOs of a limited number of countries; this conference is specifically dedicated to the operational issues involved with the placement of government securities among non-institutional investors and, every

[81] The WPDM began to meet as an OECD working group of public debt management experts in 1979. Italy's Treasury has continuously contributed to the annual work of the WPDM since 1985 and is part of the Steering Group established in 2003. Currently, the DMOs of all 36 OECD countries contribute to the work of the WPDM, as do the International Monetary Fund, the World Bank and the European Commission, as observers.

[82] Cfr. http://www.publicdebtnet.org

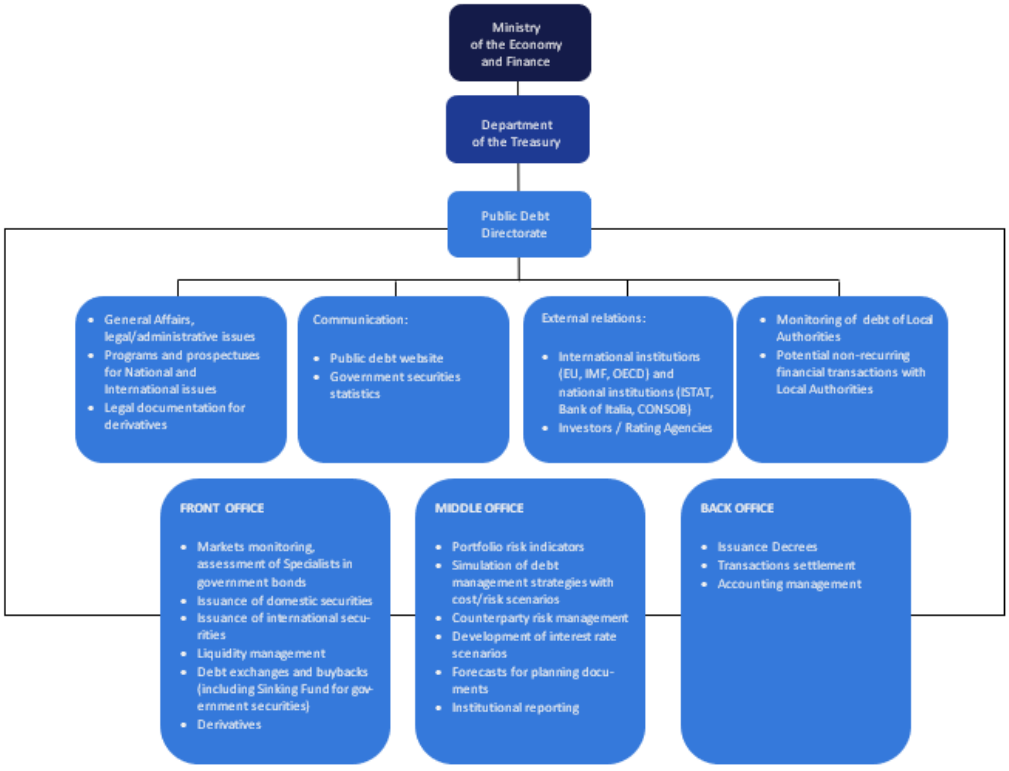
two years, it is supported by the World Bank to include emerging countries in its comparisons.

ANNEX 2

The Department of the Treasury's Public Debt Directorate: organisational structure

The Department of the Treasury's 'Second Directorate', dedicated to public debt management, is made up eleven offices. This Directorate carries out its tasks by working closely together with other institutional structures, such as the other directorates within the Department of the Treasury, the State General Accounting Department and the Bank of Italy. The various responsibilities of the Public Debt Directorate are shown in the chart below, grouped according to function.

ORGANISATION OF THE PUBLIC DEBT DIRECTORATE



The Directorate has a front, middle and back office, as is typically the case for financial market operators and other Debt Management Offices (DMOs) managing public debt in advanced countries.

The Front Office covers all activities in direct contact with the market. These primarily involve all issuance activities that define primary market operations, regarding both the domestic and foreign market; said issuance activities take into

account funding requirements, from market analysis to the decisions as to which type of securities to offer and the relative placement procedures and time frames.

Front Office activities also include the very short-term management of liquidity and extraordinary debt exchange and buyback transactions, as well as derivative transactions.

Front Office activities also entail monitoring the various aspects of the government securities secondary market, as well as selecting and assessing dealers specialising in government securities.

The Middle Office is responsible for risk management[83], carrying out all the necessary analyses, including legal and market analysis activities, to define the cost-risk profile that must drive and/or restrict Front Office operations. The various issuance portfolios identified, with their respective cost and risk combinations, (which, for many years[84], have been based on a specific software that allows for 'Cost-at-Risk' analysis based on a probabilistic model), are used by the Front Office to define the most appropriate issuance and hedging strategies. Risk management activities also include the monitoring of counterparty risk, determining the constraints that must be respected in terms of both derivative portfolio management and liquidity investment operations.

Middle Office activities also include multi-annual forecasts on interest expenditure and general government debt to be used for policy documents and institutional reporting purposes[85].

The work carried out by the Back Office includes preparing issuance decrees and the stricter accounting activities relating to procedures to ensure timely payments.

All debt management activities are underpinned by the work to prepare the relative legal documentation for loans and derivatives, as well the drafting of prospectuses, both for international issuance programmes (Global, MTN) and for other securities placed with methods other than auctions. Likewise, since the Public Debt Directorate falls within the administrative context of the Department of the Treasury, it also carries out all the other legal-administrative and accounting tasks common to ministerial organisations.

The Public Debt Directorate also carries out other tasks of crucial importance.

These include the very important activities that may be classed under "communications", focusing on real-time information regarding issuances, as well as statistics about the structure, dynamics and composition of debt represented by government securities and the relative market. The main channel for these

[83] For a more detailed assessment of best practices regarding Sovereign Debt Portfolio Risk Management, please refer to the International Monetary Fund's Working Paper "A Primer on Managing Sovereign Debt-Portfolio Risks", produced in partnership with dozens of DMOs, including the Italian Treasury.

[84] See the information contained in Annex 3 below.

[85] In particular, the Economic and Financial Document ('DEF') provided for by Italian Law no. 39 of 7 April 2011 (in relation to which Directorate II contributes to Section I "Italy's Stability Programme" and Section II "Analyses and Trends in Public Finances"), the DEF Update, the Draft Budgetary Plan ('DPB') as required by EU Regulation no. 473/2013, the Annex to the so-called 'Quarterly Cash Report' (referred to by Art. 14 of Italian Law no. 196/2009 as the 'Report on the General Government's Consolidated Cash Account'), the Report to Parliament on the sinking fund for government securities (an annex to the General Financial Statement of the Italian State) as referred to by Art. 44, paragraph 3, of Italian Presidential Decree no. 398/2003, and the half-yearly Report to the Court of Auditors on public debt management pursuant to the Italian Ministerial Decree dated 10/11/1995.

activities is the public debt website. These activities also include the statistics stemming from the monitoring of the debt and derivatives exposure of local authorities.

In addition to this monitoring, the Directorate is also responsible for any extraordinary operations relating to local authorities' debt, as governed by specific regulations.

The role of liaising with external institutions, in particular at international level, is also of great importance; this includes: contributing to the coordination of public debt managers in Europe as part of a dedicated subcommittee (European Sovereign Debt Markets - ESDM) of the EU Economic and Financial Committee; taking part in Eurostat statistical working groups and contributing to preparing the six-monthly notifications as part of the Excessive Debt Procedure (EDP); participating in the various working groups of supranational institutions, such as the OECD and the IMF; the network between the Italian Treasury, the OECD and the World Bank regarding public debt management issues; relations with institutional investors and rating agencies[86].

Finally, across-the-board IT services refer to all offices, since almost all the Directorate's work processes are computerised; some are shared by all government departments, with the same applications for the Department of the Treasury or for the entire Ministry, and others are specific to public debt, featuring dedicated tools and applications[87]. The latter are structured on the basis of the Directorate's specific needs[88] and use both internal information and data flows from the Bank of Italy, from Monte Titoli S.p.A. - the company that guarantees the centralised management of government securities - or from the company that manages the electronic government securities market (MTS S.p.A.).

[86] For more detailed information on when and how the Italian Treasury takes part in international discussions in this regard, please refer to Annex 1 of this Report.
[87] Databases and applications are designed and maintained in collaboration with the Department of the Treasury's IT Coordination department and with SOGEI, the supplier of digital architecture and support services. Società Generale d'Informatica S.P.A. ('SOGEI') is an Information Technology company that is 100% owned by the Italian Ministry of Economy and Finance.
[88] For example, please refer to the particularly significant aspects involved with developing and managing 'SAPE', the Issuance Portfolio Analysis Software, as illustrated in Annex 3 below.

ANNEX 3

SAPE (Issuance Portfolio Analysis Software)

The mathematical models and corresponding software (SAPE – Issuance Portfolio Analysis Software) used by the Treasury to support its management choices regarding the public debt portfolio are the result of a research project, made possible thanks to the FIRB 2003 funding received from the Italian Ministry of Education, University and Research (D.D. 2186-Ric 12/12/2003), and issued by the Institute for Calculation Applications of the Italian National Research Council (which heads up a group that also includes other academic institutions, such as Bocconi University, the University of Milan and Tor Vergata University of Rome); this funding was granted as part of the strategic programme entitled "Humanities, economics and social sciences", project objective "Public debt management". In the early 2000s, this project launched the modelling and software development work that led the Department of the Treasury to adopt a tool that could support it in making decisions regarding public debt management; by using stochastic simulation techniques, this tool could analyse the cost and risk profile of government securities portfolios.

Over the years, this model underwent various development phases, managed in collaboration with the Department of the Treasury and the various bodies involved, currently made up of the "M. Picone" Institute for Calculation Applications ('IAC') of the Italian National Research Council ('CNR') and the Cambridge Judge Business School at the University of Cambridge, as well as SOGEI, the Italian Treasury's IT solutions provider for the public administration.

The mathematical models and corresponding software are subject to continuous updates in order to take into account ongoing developments of the reference techniques. This allows for the various databases to be integrated in an increasingly comprehensive way, as well as taking into account the various management activities that may affect future scenarios. Since the end of 2017, the outstanding debt database used by SAPE has been made up of domestic securities, derivatives and securities in USD.

The main objective of the portfolio analysis is to measure debt servicing costs on an annual accrual basis, in accordance with ESA 2010 rules. The choice between different possible issuance portfolios must be weighted by taking into account both the cost, in terms of interest expenditure, and the interest rate risk for each individual portfolio compared with a representative sample of how interest rates may evolve.

For each possible issuance portfolio, it is possible to simulate the cost function distribution with respect to all the scenarios regarding how interest rates may evolve. This distribution simulation provides all the necessary information about costs (i.e., where the distribution is positioned) and risks (the scale of the distribution) for the portfolio in question. SAPE calculates different summary cost

indicators (average cost, CaR - Cost at Risk-, maximum cost, etc.) and risk indicators (standard cost deviation, relative CaR, ES - Expected Shortfall - etc.), allowing for the possible issuance portfolios to be studied in as much detail as possible.

After choosing the cost and risk functions, a consolidated portfolio selection technique involves building an "efficiency frontier". This "frontier" is identified by first drawing a Cartesian graph in which each portfolio is represented by a point whose coordinates record its respective risk and cost, thereby providing a summary of their overall dynamic evolution. Portfolios are classed as "efficient" when each fixed risk value corresponds to the lowest cost. Selecting one of the best portfolios, i.e. those that can be classed as efficient, is based on (i) the debt manager's risk aversion or risk appetite, in line with the Public Debt Management Guidelines regarding the strategy for the issuance and management of government securities (these guidelines indicate, inter alia, the approach to be adopted in order to fulfil the Treasury's strategic requirements regarding how to manage the main risks), and (ii) how practical/feasible each individual portfolio is with respect to investors' needs and the evolution of market conditions. The efficiency frontier is normally created by observing the cost and risk variables at the end of the prediction interval.

This model shows how the cost distribution evolves over time for each individual portfolio. This allows for accurate checks into the evolution of the selected costs and risks, making it possible for the decision maker to choose the portfolio whose temporal evolution profile best matches the policy and strategy choices in question.

The model underwent initial significant development when mutual guarantee agreements were introduced for derivative instruments[89]; this development allowed

for the estimate of effects in terms of Credit Value Adjustment and, as a result, in terms of the guarantees to be established/received as part of the Credit Support Annexes, to be included in the simulations.

The SAPE software's central element is the module that generates the scenarios regarding how interest rates will evolve. This module interacts with the cost and risk calculation module in a completely transparent way and also offers the possibility to use a range of stochastic models to generate medium/long-term scenarios for interest rates and inflation rates; above all, this is useful in order to assess the expected performance, in terms of cost-risk analysis, of the various strategies relating to public debt issuance policies. More generally speaking, by generating scenarios, expected exposure can be quantified with respect to yield curve volatility. Joint estimate models for the forward interest rate structure include government and break-even inflation (BEI) curves and swap curves (Euro and USD).

A five-year forecast period is generally used for cost-risk analyses on issuance portfolios. The scenarios generated by the model's stochastic simulation are in line with historical data in terms of the statistical properties of the yield curves, particularly in terms of the variance calculated for the different maturities and covariance between nominal rates and BEI and between nominal and swap rates.

[89] For further information in this regard, please refer to Annex 4 below.

ANNEX 4

Derivatives used by the Treasury: role, types, and collateralisation system

Introduction

In principle, the derivatives sector is considerably vast, encompassing transactions that have very different structures and purposes, used in almost all areas of finance and the economy. Sovereign issuers such as the Italian Treasury only use a few types of derivatives, for specific risk management objectives underlying its debt portfolio, with particular regard to interest rate and exchange rate risks. Please find below a description of (i) the role played by derivatives in managing Italy's public debt; (ii) the types of transactions that are used; and, (iii) the collateralisation system.

The role of derivative transactions used by the Treasury

As highlighted at the beginning of this Report[90], the objective of curbing debt costs at the same time as maintaining an acceptable level of risk inherent in the existing debt structure, imposed upon DMOs by international best practices, does not end upon issuance and in relation to the market conditions at the time. This objective is instead achieved in a dynamic way, through ongoing actions that regard the entire portfolio and continue even after issuance.

In addition to debt exchange and buyback transactions, DMOs may also use derivatives to mitigate these risks after issuance.

Any mismatch between the structure of the portfolio resulting from the outcome of capital market placements and the management objectives considered preferable[91] can thus be rectified with the use of derivatives, increasing the DMO's compliance with policy objectives and partly separating the achievement of these objectives from the performance recorded at the time of placement.

Furthermore, while issuance activity is managed with continuity and predictability, in order to create the technical prerequisites of the necessary investment liquidity for potential buyers, derivative transactions, on the other

[90] For an indispensable, more in-depth examination of the objectives pursued by public debt managers, also using derivative instruments, please refer to Chap. I.1 above, as well as the documents mentioned therein.

[91] A document drawn up jointly by best practice experts from the OECD, the IMF and the World Bank in 2008 highlighted the practice adopted in this regard by many sovereign debt managers, emphasising the fact that: "*the implementation of the debt strategy may include the use of derivatives to separate funding decisions from the optimal portfolio composition decision, reduce the cost of borrowing, and manage risks in the portfolio (in particular, interest rate refixing risk and refinancing risk)*". - OECD (2008) "Use of Derivatives for Debt Management and Domestic Debt Market Development: Key Conclusions", available at http://www.oecd.org/fr/finances/dette-publique/39354012.pdf.

hand, do not have a pre-defined timetable. In fact, derivative contracts may be signed at any time, when market conditions allow for DMOs' specific needs to be met; in this way, they contribute to removing a certain degree of rigidity from DMOs' management activities.

In authorising the use of derivatives on an annual basis, the Framework Decree states that they should contribute to achieving the general management objectives of curbing overall borrowing costs and protecting against market risks and refinancing risks, based on the information available and market conditions.

From an operational point of view, management of the derivatives portfolio must also take into account two main aspects: (i) the guarantee agreements that assist these transactions, and (ii) the existing constraints for certain types.

With regard to the first aspect, please refer to the specific paragraph below on the objectives and characteristics of mutual guarantee agreements (collateralisation).

With regard to the second aspect, in September 2014, Eurostat issued new rules on how to record the market value of derivatives, only applicable to swaps arising from the restructuring of pre-existing swaps or to swaptions being exercised. In fact, for these specific cases, it was established that these transactions shall affect debt stock levels from an accounting point of view (despite them not entailing actual recourse to the capital market).

The types of derivative contracts used by the Treasury

The types of derivative contracts used by the Treasury Please find below the functional characteristics of the three types of derivative transactions used and/or usable to manage the Treasury's debt portfolio.

- Cross-currency swaps ('CCS') are used to synthetically convert liabilities generated by bond issues denominated in a foreign currency into euro denominated liabilities, with no alterations to the foreign-currency denominated security purchased by the investor. These instruments therefore eliminate the exchange rate risk for the Treasury and make it possible to directly compare the funding costs obtained on international markets with the cost of domestic debt. As outlined in this Report, the international issuance programme allows for the institutional investor base for Italian public debt to be diversified and to obtain competitive cost conditions compared with those for domestic debt.
- Interest rate swaps ('IRS') involve an exchange of flows involving a fixed rate being paid versus a floating rate being received, usually on long-term maturities. With a view to managing the debt portfolio in a comprehensive way, this type of derivative extends the financial duration of debt and acts as a precaution against expected interest rate increases. As already mentioned, this choice is in line with the need to manage the portfolio's cost-risk trade-off and, in particular, with the specific characteristics of Italian public debt management, as described in Chapter I of this Report.

- Finally, receiver swaptions[92] are derivative contracts that act in a similar way to IRS, in that they extend the financial duration of debt and mitigate interest rate risk, but they also provide cash benefits deriving from the sale of an option. Options sold by the Treasury give the counterparty the right to enter into an interest rate swap agreement, at a future date, under pre-defined conditions, as long as a lump sum (premium) is paid to the Treasury when the contract is signed. The IRS generated by sold receiver swaptions being exercised, like those that have not been sold as an option, are generally medium/long-term swaps, whereby the Treasury pays a fixed rate and receives a floating rate starting from a given date if the counterparty exercises its option. Swaptions are exercised if the market conditions are favourable for the Treasury's counterparty as at the date of the option being exercised (i.e., interest rates have fallen below the market expectations at the time the relative contract was signed); any IRS generated by the option being exercised shall nonetheless act as medium/long-term insurance for the Treasury.

Collateralisation agreements - objectives and characteristics

Collateralisation agreements were introduced for the derivative transactions carried out by the Italian government with two objectives in mind.

The first objective was to align with standard practices in the derivatives market. In fact, for all financial instruments, the market value of the transaction (Mark to Market) may significantly vary in terms of size and whether it is positive or negative, depending on market trends. For government bonds and securities, these variations affect, inter alia, the credit risk borne by the security holder[93], and therefore how they are accounted for and the relative allocations to provisions. For derivatives (for example, interest rate derivatives), on the other hand, changes in the transaction value may generate potential credit exposure for the party (the government or counterparty for a derivative) for whom the instrument has a positive value at a given moment in time. This means that, over time, either of the two parties may become, alternatively, the potential creditor/debtor of a sum, which may change significantly in terms of its size and whether it has a positive or negative value; however, said sum shall only become 'real' if one of the two counterparties goes bankrupt or if the transaction is closed before its natural expiry (by definition, the market value at the transaction date is equal to zero).

While the interbank derivatives market has always been a collateralised market, sovereigns' use of guarantee schemes to manage the credit exposure associated with derivative contracts has only been examined relatively recently. On the one hand, the 2008 crisis revealed the risks involved with governments being exposed vis-à-vis the banking sector without guarantees. On the other hand, the subsequent and consequent tightening of regulatory constraints on banks gradually

[92] A receiver swaption is an option that is sold/purchased to/by a counterparty that entitles the purchaser to enter into a swap contract at a future date, whereby the purchaser will pay a floating rate and receive a fixed rate on a given notional amount.

[93] By contrast, the issuer, by definition, is not exposed to any credit risk.

made it more expensive for the latter to maintain significant, unsecured exposure vis-à-vis governments, and, beyond certain limits, this even became unsustainable without capitalisation measures. Governments therefore also began using the market standard of mutual guarantee mechanisms as part of their ongoing operations.

The second objective regards the regulatory constraints on banks: given these obligations, the creation of a collateralisation system gives the Italian government the possibility to implement new hedges at sustainable costs (for example, hedges against exchange rate risk in the case of securities denominated in a foreign currency being issued).

It should also be noted that, by freeing up the resources that banking regulations require to be allocated to such exposure, the presence of collateral can

indirectly allow the Italian government to strengthen the support of these counterparties for Italy's public debt, on both the primary and secondary market.

Guarantee agreements ('Credit Support Annexes' or 'CSA') are regulated by Italian Ministerial Decree no. 103382 of 20 December 2017 ("Guarantee Decree") and, indeed, are annexes to the ISDA Master Agreement ('ISDA MA') in place with each counterparty.

The Public Debt Directorate has drawn up a model governed by Italian law, in line with the regulations governing each ISDA MA signed by the Italian government and all the relative confirmations. When drawing up the contracts to be signed, the Directorate in question based its choices, on the one hand, on public finance constraints, pursuant to Art. 6, paragraph 3, of the "Guarantee Decree", and, on the other, on its own organisational requirements, which led to a bespoke CSA being drafted. The contractual specifications defined in the CSA refer to margining frequency, the minimum amount, and the rounding of margins.

The resources necessary to pay the guarantees are allocated to a specific expenditure item, established by Italy's 2019 Budget Law and called "Expenses deriving from guarantee transactions on derivatives exposure"; from this expenditure item, the guarantees are transferred to a special accounting system specifically set up for this purpose. Pursuant to Art. 5 of said Decree, the guarantee must be made up of cash in euro.

CSAs may be distinguished between those connected with previous derivative transactions and those relating to new transactions. The initial phase focused on pre-existing derivative instruments with a number of counterparties, which resulted in the latter having significant credit exposure vis-à-vis the Italian government, above a threshold originally set at € 4 billion (as per the joint provision of Art. 6, paragraph 1, letter b), of the "Guarantee Decree" and Art. 4, paragraph 4, of the 2018 "Framework Decree"). As of 31 December 2017, there were only very few counterparties that met the requirements to sign a guarantee agreement for derivative positions already in the Italian government's portfolio.

A collateral structure was therefore defined, aimed at limiting the outgoing amounts for the Italian government. For each agreement, full collateralisation is not required upon signing, as the annual guarantee amounts to be paid to the counterparty are defined within a narrow 'corridor', which tends to expand as time goes by. According to estimates, the Italian Treasury will have to pay limited and almost constant amounts over a considerable number of years; said amounts will gradually tend to hedge the counterparty's entire credit exposure vis-à-vis the

Treasury. The expenditure commitments are therefore not only very limited compared with the overall exposure of the individual portfolios but are also set over a significant period, starting from when the agreement in question is signed. The margin to pay shall only be less than the expected amount, with a subsequent reduction in outgoing cash flows for margining purposes, if there are substantial increases in the interest rate swap curve, leading to a reduction in the overall mark-to-market of the collateralised portfolio. Time frames for the 'corridor' to be applied to the cash flows is based on the need to mediate between the sustainability of the guarantee from the point of view of public finances (which makes it essential, at least in the early years, to limit said time frames) and the need to provide counterparties with a guarantee on their overall exposure vis-à-vis the Italian government within a reasonable number of years.

The work to prepare the guarantee agreement required a significant amount of time, which was necessary in order to carry out the legal analysis and the strictly financial analysis, with the latter aimed at defining, with each counterparty, the appropriate amount of the benefit to be paid to the Treasury, pursuant to Art. 6, paragraph 2, of the Guarantee Decree. All CSAs therefore only became operational in the second half of 2018 and only with regard to pre-existing transactions with the banks that met the relative requirements.

The second phase, on the other hand, involved signing CSA agreements with all dealers specialising in government securities, with reference to any new transactions[94]. This phase was completed in the second half of 2018, with a residual part being completed at the beginning of 2019. These agreements referred exclusively to derivative transactions carried out after the relative agreement was signed. These agreements were signed pursuant to Art. 6, paragraph 1, let. a), of the "Guarantee Decree" with the same format being used for each individual counterparty, thereby meeting uniformity requirements with a view to treating all counterparties equally.

[94] Primarily, derivative contracts aimed at hedging new issuances in a foreign currency.

STATISTICAL ANNEX

INFORMATION SOURCES ABOUT PUBLIC DEBT AVAILABLE AT THE TREASURY'S WEBSITE

The Treasury's website hosts a dedicated area about public Debt (http://www.dt.mef.gov.it/en/debito_pubblico/index.html) featuring a wide range of both qualitative and quantitative information about each one of the operational issues included in this Report.

Information available in this area provides details about (but is not limited to) issuance timetable and official communications, auction results, securities' features and relevant legal framework, Specialist's assessment and extraordinary transactions, available cash as well as documents of a more general nature, as the several releases of this Report or the annual Guidelines for the public Debt management.

The area also includes a data-rich statistical Section (http://www.dt.mef.gov.it/en/debito_pubblico/dati_statistici) providing quantitative information about all public Debt topics, namely featured in the Quarterly Bulletin, including trends recorded in the government securities' portfolio composition, coupons, yields at issuance and average life, risks indicators and derivatives portfolio.

The dataset is steadily updated according to operations, while also keeping past data series available.

The following pages complete the information already provided in this Report by featuring selected Charts and Tables about some of the information available in the website.

TABLES AND CHARTS

GROSS ISSUES AT NOMINAL VALUE – SECURITIES UP TO TWO YEARS (€ MILLION)

	BOT			CTZ	
	flexible	3 months	6 months	12 months	24 months
Jan-17	-	-	13.000	7.700	2.500
Feb-17	-	-	6.150	6.548	2875
Mar-17	-	-	6.500	6.500	2.875
Apr-17	-	-	6.600	6.000	2300
May-17	-	-	6.000	7.150	3.554
Jun-17	-	-	6.750	6.500	2500
Jul-17	-	-	6.500	6.750	2.300
Aug-17	-	-	6.000	6.692	2300
Sep-17	-	-	6.000	6.500	1.556
Oct-17	-	-	6.000	6.000	3900
Nov-17	-	-	5.500	5.510	2.000
Dec-17	-	-	-	4.750	-
Jan-18	-	-	6.500	7.500	4.501
Feb-18	-	-	6.500	6.500	2.300
Mar-18	-	-	6.000	6.500	3.830
Apr-18	-	-	6.000	6.000	2.300
May-18	-	-	6.000	6.500	1.750
Jun-18	-	-	6.050	6.600	2.013
Jul-18	-	-	7.150	6.600	2.051
Aug-18	-	-	6.450	6.000	2.013
Sep-18	-	-	6.103	6.600	2.013
Oct-18	-	-	6.050	6.000	3.900
Nov-18	-	-	6.000	5.500	2.500
Dec-18	-	-	6500	6.050	-
Jan-19	-	-	14.300	7.700	5.046
Feb-19	-	-	6.000	6.500	2.588
Mar-19	-	-	6.600	6.525	2.300
Apr-19	-	-	6.600	6.102	4.550
May-19	-	-	6.810	6.500	2.875
Jun-19	-	-	6.600	6.747	2.588
Jul-19	-	-	6.500	7.150	2.300
Aug-19	-	-	6.600	7.150	2.300
Sep-19	-	-	7.150	7.150	1.598
Oct-19	-	-	7.150	6.600	3.000
Nov-19	-	-	6.500	5.834	2.013
Dec-19	-	-	6.072	-	-
Jan-20	-	-	13.000	7.000	2.300
Feb-20	-	-	6.025	6.000	2.588
Mar-20	-	-	7.000	6.500	3.163
Apr-20	-	6500	7.700	7.150	3.163
May-20	-	-	7.150	14.700	5.200
Jun-20	-	-	7.157	7.431	4.200
Jul-20	-	-	7.700	10.274	3.501
Aug-20	-	-	7.460	7.035	3.450
Sep-20	-	-	6.500	7.372	3.827
Oct-20	-	-	6.500	7.161	2.500
Nov-20	-	-	6.000	5.500	2.000
Dec-20	-	-	-	7000	-

GROSS ISSUES AT NOMINAL VALUE – SECURITIES EXCEEDING TWO YEARS (€ MILLION)

	CCTeu	BTP €i				BTP								BTP Italia	BTP Futura
	5 - 7 years	5 years	10 years	15 years	30 years	3 years	5 years	7 years	10 years	15 years	20 years	30 years	50 years	4 - 8 years	8 - 10 years
Jan-17	2.013	-	-	1.105		3.001	2.500	2.750	1.725	6.000	1.500	-	-	-	-
Feb-17	2.588	828	-	-	-	3.163	3.163	2.875	5.200	-	-	1.516	-	-	-
Mar-17	2.196	-	3.000	-	-	2.750	5.200	3.500	2.300	1.387	-	-	-	-	-
Apr-17	2.661	738	-	512	-	5.850	2.251	2.875	2.500	-	2.400		750	-	-
May-17	4.550	-	984	-	472	2.819	2.875	2.588	3.163	-	-	1.251	-	8.590	-
Jun-17	2.013	539	-	-	-	2.875	3.450	3.450	3.163	-	-	6.500	-	-	-
Jul-17	1.725	-	1.438	-	-	2.838	2.875	2.695	5.047	1.471	-	-	-	-	-
Aug-17	1.725	-	-	-	-	-	4.891	-	2.588	-	-	-	-	-	-
Sep-17	2.013	791	-	709	-	2.501	3.450	4.001	2.875	-	1.500	-	-	-	-
Oct-17	1.725	-	1.438	-	-	5.200	2.875	2.300	2.300	-	-	1.713	-	-	-
Nov-17	4.550	-	-	-	-	2.002	2.875	2.729	2.875	1.577	-		-	7.107	-
Dec-17	2.013	-	-	-	-	-	-	-	2.013	-	-	-	-	-	-
Jan-18	2.001	914		836	-	3.000	2.414	3.431	1.500	-	9.000	-	-	-	-
Feb-18	2.300	1.008	1.292	-	-	2.875	1.798	3.090	5.463	-	-	2.250	883	-	-
Mar-18	1.973	3.250		-	-	2.875	5.200	5.200	2.300	1.290	-	-	-	-	-
Apr-18	2.300	-	1.334	708	-	5.200	2.875	2.875	3.450	-	1.464	1.575	-	-	-
May-18	3.502	-	604	-	-	3.116	2.750	2.875	3.000	1.552	-	-	-	7.709	-
Jun-18	2.300	964	1.270	-	494	2.300	2.013	2.467	2.158	-	-	1.045		-	-
Jul-18	2.300	-	-	-	-	2.300	2.000	2.300	2.688	1.500	1.500	-	-	-	-
Aug-18	1.725	-	-	-	-	-	2.300	-	4.999	-	-	-	-	-	-
Sep-18	755	-	-	1.200	-	2.526	3.750	4.856	2.250	-	-	1.800	-	-	-
Oct-18	1.250	-	1.146	-	-	4.550	2.000	1.725	2.000	1.130	-	-	-	-	-
Nov-18	1.060	1.000	-	-	-	2.758	2.276	1.898	2.750	-	1.500	-	-	2.164	-
Dec-18	702	-	-	-	-	-	2.300	-	2.588	-	-		-	-	-
Jan-19	863	-	845	-	486	3.450	2.300	2.588	1.738	10.000	-	1.500	-	-	-
Feb-19	3.575	977	-	481	-	2.251	3.163	2.588	2.875	-	-	8.000	-	-	-
Mar-19	1.250	-	1.070	-	-	5.200	2.000	2.875	4.000	-	1.500	-	-	-	-
Apr-19	1.150	-	-	1.045	-	2.875	4.224	4.875	3.163	1.800	-	-	-	-	-
May-19	1.150	728	709	-	-	2.750	2.875	2.500	3.450	-	-	1.755	-	-	-
Jun-19	750	-	745	-	422	3.163	1.886	1.735	2.750	1.800	6.000	-	-	-	-
Jul-19	1.150	444	-	808	-	3.079	2.588	2.500	3.163	-	-	-	3.000	-	-
Aug-19	1.280	-	-	-	-	-	3.163	-	3.738	-	-	-	-	-	-
Sep-19	1.150	-	-	-	450	4.001	2.588	2.588	4.000	-	-	1.800	-	-	-
Oct-19	841	-	4.000	-	-	3.163	3.776	2.588	3.129	-	970	830	-	6.750	-
Nov-19	863	-	-	-	660	2.500	2.875	3.251	3.450	-	-	957	-	-	-
Dec-19	750	-	-	-	-	-	2.250	-	2.750	-	-	-	-	-	-
Jan-20	-	1.438	-	-	-	3.450	2.155	2.746	2.501	-	1.250	7.000	-	-	-
Feb-20	3.575	-	900	600	-	2.250	3.163	2.750	3.738	9.000	-	-	-	-	-
Mar-20	-	-	-	-	841	3.500	2.500	795	4.000	-	1.500	-	-	-	-
Apr-20	751	-	1.150	-	-	5.378	12.750	3.600	3.500	1.500	-	6.000	-	-	-
May-20	-	-	1.150	-	-	5.400	0	3.000	4.303	-	1.200	-	-	22.298	-
Jun-20	1.000	2.600	-	-	-	6.500	2.500	3.000	18.000	2.400	-	-	-	-	-
Jul-20	1.438	-	1.022	-	-	4.200	3.111	5.302	2.208	-	2.400	-	-	-	6.132
Aug-20	-	-	-	-	-	2.750	2.954	2.750	3.900	-	-	1.250	-	-	-
Sep-20	1.331	-	750	-	-	3.293	5.850	3.448	3.000	-	10.000	-	-	-	-
Oct-20	-	750	-	-	-	4.488	3.000	2.700	5.023	-	-	1.585	-	-	-
Nov-20	1.150	-	-	-	-	3.600	3.000	2.100	3.600	1.500	-	-	-	-	5.711
Dec-20	2.500	-	-	-	-	3.008	2.501	3.000	3.003	-	-	-	-	-	-

Note: Not including securities placed under exchange transactions

GROSS ISSUES AT NOMINAL VALUE – RE-OPENING OF OFF-THE-RUN SECURITIES (€ MILLION)

	CCTeu	BTP€i			BTP			
	7-year infl.	2 - 10 years	11 - 15 years	16 - 30 years	2 - 5 years	6 - 10 years	11 - 15 years	16 - 30 years
Jan-17	-	-	-	-	-	1.005	-	-
Feb-17	-	536	-	-	1.150	-	-	1.184
Mar-17	1.254	-	-	-	-	1.150	-	1.562
Apr-17	-	-	-	-	1.000	-	1.200	-
May-17	-	-	-	-	-	-	-	1.499
Jun-17	-	461	-	-	-	-	-	-
Jul-17	-	-	-	-	-	-	-	929
Aug-17	-	-	-	-	-	-	-	-
Sep-17	-	-	-	-	-	-	-	-
Oct-17	-	-	-	-	-	-	-	-
Nov-17	-	-	-	-	-	-	-	-
Dec-17	-	-	-	-	-	-	-	-
Jan-18	-	-	-	-	-	1.000	-	-
Feb-18	-	-	-	-	-	-	-	-
Mar-18	-	-	-	-	-	-	-	960
Apr-18	-	-	-	-	-	-	-	-
May-18	-	647	-	-	-	-	-	-
Jun-18	-	-	-	-	-	-	-	468
Jul-18	-	-	-	-	-	-	-	-
Aug-18	-	-	-	-	-	-	-	-
Sep-18	996	-	-	-	-	-	-	-
Oct-18	-	-	-	-	-	-	-	670
Nov-18	-	-	-	-	-	-	-	-
Dec-18	700	-	-	-	-	-	-	-
Jan-19	-	-	-	-	-	849	-	-
Feb-19	-	-	-	-	-	-	-	-
Mar-19	-	-	-	-	-	-	-	-
Apr-19	-	-	-	-	-	-	-	-
May-19	-	-	-	-	-	-	-	-
Jun-19	-	-	-	-	-	1.466	-	-
Jul-19	-	-	-	-	-	-	-	-
Aug-19	508	-	-	-	-	-	-	-
Sep-19	-	-	-	-	-	-	-	-
Oct-19	-	-	-	-	-	-	-	-
Nov-19	-	-	-	-	-	-	-	639
Dec-19	-	-	-	-	-	-	-	-
Jan-20	-	-	-	-	-	-	-	-
Feb-20	-	-	-	-	-	-	-	-
Mar-20	1.000	-	-	-	-	1.205	-	-
Apr-20	-	-	-	-	-	1.500	-	900
May-20	858	-	-	-	-	2.800	1.200	-
Jun-20	340	-	-	-	-	645	580	-
Jul-20	-	-	-	-	-	1.292	903	748
Aug-20	1.250	-	-	-	-	-	-	-
Sep-20	-	-	-	-	-	-	-	-
Oct-20	1.251	-	-	-	-	-	-	-
Nov-20	-	1.250	-	-	-	-	-	-
Dec-20	-	-	-	-	-	-	-	-

Note: Not including securities placed under exchange transactions

COMPOUNDED GROSS YIELDS AT ISSUANCE OF GOVERNMENT BONDS (WEIGHTED MONTHLY AVERAGE)

	BOT			CTZ	CCTeu	BTP€i (*)				BTP								BTP Italia (*)	BTP Futura
	3 months	6 months	12 months	24 months	5-7 years	5 years	10 years	15 years	30 years	3 years	5 years	7 years	10 years	15 years	20 years	30 years	50 years	4 - 8 years	8 - 10 years
Jan-17	-	-0.301	-0.250	-0.071	0.58	-	-	2.52	-	0.06	0.54	1.15	1.77	2.53	2.53	-	-	-	-
Feb-17	-	-0.294	-0.247	0.029	0.73	1.14	-	-	-	0.25	0.92	1.59	2.37	-	-	3.43	-	-	-
Mar-17	-	-0.294	-0.226	-0.085	0.79	-	2.50	-	-	0.37	1.11	1.90	2.28	2.87	-	-	-	-	-
Apr-17	-	-0.326	-0.239	-0.075	0.70	0.93	-	2.45	-	0.47	1.04	1.69	2.25	-	2.84	-	3.44	-	-
May-17	-	-0.358	-0.304	-0.078	0.93	-	2.23	-	3.08	0.37	1.04	1.65	2.29	-	-	3.32	-	1.16	-
Jun-17	-	-0.372	-0.351	-0.167	0.92	0.64	-	-	-	0.15	0.88	1.35	2.15	-	-	3.54	-	-	-
Jul-17	-	-0.362	-0.352	-0.160	0.83	-	2.26	-	-	0.23	0.81	1.57	2.16	2.77	-	-	-	-	-
Aug-17	-	-0.356	-0.337	-0.139	0.77	-	-	-	-	-	0.88	-	2.16	-	-	-	-	-	-
Sep-17	-	-0.382	-0.326	-0.220	0.81	0.69	-	2.52	-	0.05	0.84	1.52	2.09	-	2.74	-	-	-	-
Oct-17	-	-0.400	-0.334	-0.167	0.75	-	2.14	-	-	0.15	0.83	1.53	2.19	-	-	3.33	-	-	-
Nov-17	-	-0.436	-0.395	-0.337	0.60	-	-	-	-	-0.02	0.58	1.21	1.86	2.38	-	-	-	0.93	-
Dec-17	-	-	-0.407	-	0.46	-	-	-	-	-	-	-	1.73	-	-	-	-	-	-
Jan-18	-	-0.437	-0.420	-0.237	0.48	0.52	-	2.33	-	0.04	0.60	1.35	1.86	-	2.99	-	-	-	-
Feb-18	-	-0.403	-0.401	-0.216	0.42	0.62	2.19	-	-	0.05	0.66	1.43	2.06	-	-	3.16	3.19	-	-
Mar-18	-	-0.430	-0.403	-0.225	0.42	0.75	-	-	-	0.00	0.89	1.47	2.06	2.45	-	-	-	-	-
Apr-18	-	-0.421	-0.399	-0.275	0.35	-	1.82	2.12	-	0.05	0.68	1.27	1.83	-	2.59	2.88	-	-	-
May-18	-	1.213	-0.361	0.350	0.23	-	2.51	-	-	0.07	0.56	1.34	1.70	2.38	-	-	-	1.77	-
Jun-18	-	0.092	0.550	0.917	2.00	2.00	-	-	3.58	1.16	2.32	2.37	3.00	-	-	3.54	-	-	-
Jul-18	-	0.066	0.337	0.647	1.67	-	2.79	-	-	1.10	1.82	2.31	2.77	3.04	3.28	-	-	-	-
Aug-18	-	0.438	0.679	1.277	1.75	-	-	-	-	-	1.80	-	2.87	-	-	-	-	-	-
Sep-18	-	0.206	0.436	0.715	2.31	-	-	2.89	-	1.20	2.44	2.55	3.25	-	-	3.55	-	-	-
Oct-18	-	0.159	0.949	1.626	1.77	-	3.40	-	-	2.51	2.03	3.28	2.90	3.66	-	-	-	-	-
Nov-18	-	0.163	0.630	0.995	2.32	2.18	-	-	-	1.98	2.58	3.12	3.36	-	3.90	-	-	2.55	-
Dec-18	-	-	0.370	-	2.31	-	-	-	-	-	2.35	-	3.24	-	-	-	-	-	-
Jan-19	-	0.095	0.285	0.518	1.81	-	2.52	-	3.51	1.07	1.79	2.35	2.70	3.41	-	3.68	-	-	-
Feb-19	-	-0.007	0.181	0.592	1.65	1.63	-	3.02	-	0.99	1.49	2.26	2.60	-	-	3.91	-	-	-
Mar-19	-	-0.062	0.060	0.288	1.83	-	2.37	-	-	1.06	1.59	2.05	2.81	-	3.35	-	-	-	-
Apr-19	-	-0.028	0.070	0.697	1.83	-	-	2.77	-	1.08	1.71	2.05	2.61	3.00	-	-	-	-	-
May-19	-	-0.048	0.122	0.818	1.77	1.58	2.43	-	-	1.24	1.72	2.23	2.59	-	-	3.65	-	-	-
Jun-19	-	-0.063	0.069	0.431	1.95	-	1.88	-	2.98	1.05	1.81	1.96	2.60	2.87	3.15	-	-	-	-
Jul-19	-	-0.210	-0.061	0.041	1.60	0.53	-	1.65	-	0.49	1.34	1.24	2.09	-	-	-	2.88	-	-
Aug-19	-	-0.217	0.107	0.008	1.06	-	-	-	-	-	0.80	-	1.56	-	-	-	-	-	-
Sep-19	-	-0.224	-0.226	-0.236	0.77	-	-	-	1.67	-0.01	0.32	0.56	0.96	-	-	-	2.06	-	-
Oct-19	-	-0.213	-0.219	-0.112	0.52	-	0.98	-	-	0.05	0.26	0.60	0.88	-	1.78	2.03	-	0.68	-
Nov-19	-	-0.215	-0.135	-0.033	-	-	-	-	2.02	0.22	0.42	0.91	1.06	-	-	2.29	-	-	-
Dec-19	-	-	-0.191	-	0.71	-	-	-	-	-	0.64	-	1.29	-	-	-	-	-	-
Jan-20	-	-0.288	-0.242	-0.091	-	0.06	-	-	-	0.18	0.61	0.94	1.35	-	2.14	2.50	-	-	-
Feb-20	-	-0.287	-0.319	-0.143	0.18	-	0.96	1.13	-	-0.10	0.31	0.48	0.94	1.49	-	-	-	-	-
Mar-20	-	0.055	0.072	0.307	-	-	-	-	2.15	0.74	0.36	0.92	1.00	-	1.97	-	-	-	-
Apr-20	0.105	0.227	0.534	1.001	0.66	-	2.02	-	-	0.86	1.68	1.37	1.48	2.06	-	3.13	-	-	-
May-20	-	0.012	0.149	0.441	-	-	1.50	-	-	0.87	-	1.53	1.78	-	2.49	-	-	1.41	-
Jun-20	-	-0.224	0.014	0.102	0.53	0.78	-	-	-	0.46	0.91	1.10	1.64	1.91	-	-	-	-	-
Jul-20	-	-0.276	-0.159	-0.031	0.56	-	0.97	-	-	0.30	0.68	0.95	1.28	-	1.91	-	-	-	1.29
Aug-20	-	-0.330	-0.192	-0.014	-	-	-	-	-	0.08	0.46	0.72	1.04	-	-	1.91	-	-	-
Sep-20	-	-0.392	-0.225	-0.118	0.45	-	0.78	-	-	0.07	0.58	0.75	1.11	-	1.82	-	-	-	-
Oct-20	-	-0.478	-0.436	-0.265	-	0.24	-	-	-	-0.14	0.35	0.34	0.89	-	-	-	-	-	-
Nov-20	-	-0.518	-0.478	-0.369	0.27	-	-	-	-	-0.19	0.23	0.35	0.79	1.05	-	-	-	-	0.61
Dec-20	-	-	-0.498	-	-0.02	-	-	-	-	-0.30	0.01	0.19	0.59	-	-	-	-	-	-

Note: Not including securities placed under exchange transactions

(*) Gross yield including inflation expectation at time of issue

COMPOUNDED GROSS YIELDS AT ISSUANCE OF GOVERNMENT BONDS – RE-OPENING OF OFF-THE-RUN SECURITIES (WEIGHTED MONTHLY AVERAGE)

	CCT	BTP€i (*)			BTP			
	7 years infl.	2 - 10 years	11 - 15 years	16 - 30 years	2 - 5 years	6 - 10 years	11 - 15 years	16 - 30 years
Jan-17	-	-	-	-	-	1.71	-	-
Feb-17	-	2.20	-	-	0.37	-	-	3.31
Mar-17	0.53	-	-	-	-	2.05	-	3.42
Apr-17	-	-	-	-	0.40	-	2.53	-
May-17	-	-	-	-	-	-	-	3.38
Jun-17	-	1.72	-	-	-	-	-	-
Jul-17	-	-	-	-	-	-	-	2.93
Aug-17	-	-	-	-	-	-	-	-
Sep-17	-	-	-	-	-	-	-	-
Oct-17	-	-	-	-	-	-	-	-
Nov-17	-	-	-	-	-	-	-	-
Dec-17	-	-	-	-	-	-	-	-
Jan-18	-	-	-	-	-	1.83	-	-
Feb-18	-	-	-	-	-	-	-	-
Mar-18	-	-	-	-	-	-	-	2.92
Apr-18	-	-	-	-	-	-	-	-
May-18	-	1.08	-	-	-	-	-	-
Jun-18	-	-	-	-	-	-	-	3.42
Jul-18	-	-	-	-	-	-	-	-
Aug-18	-	-	-	-	-	-	-	-
Sep-18	2.32	-	-	-	-	-	-	-
Oct-18	-	-	-	-	-	-	-	3.79
Nov-18	-	-	-	-	-	-	-	-
Dec-18	2.22	-	-	-	-	-	-	-
Jan-19	-	-	-	-	-	2.50	-	-
Feb-19	-	-	-	-	-	-	-	-
Mar-19	-	-	-	-	-	-	-	-
Apr-19	-	-	-	-	-	-	-	-
May-19	-	-	-	-	-	-	-	-
Jun-19	-	-	-	-	-	1.94	-	-
Jul-19	-	-	-	-	-	-	-	-
Aug-19	1.11	-	-	-	-	-	-	-
Sep-19	-	-	-	-	-	-	-	-
Oct-19	-	-	-	-	-	-	-	-
Nov-19	0.40	-	-	-	-	-	-	-
Dec-19	-	-	-	-	-	-	-	-
Jan-20	-	-	-	-	-	-	-	-
Feb-20	-	-	-	-	-	-	-	-
Mar-20	-	-	-	-	2.50	1.29	-	-
Apr-20	-	-	-	-	-	1.44	-	2.49
May-20	-	-	-	-	-	1.43	2.23	-
Jun-20	-	-	-	-	-	1.24	1.55	-
Jul-20	-	-	-	-	-	1.20	1.36	1.59
Aug-20	-	-	-	-	-	-	-	-
Sep-20	-	-	-	-	-	-	-	-
Oct-20	-	-	-	-	-	-	-	-
Nov-20	-	-0.39	-	-	-	-	-	-
Dec-20	-	-	-	-	-	-	-	-

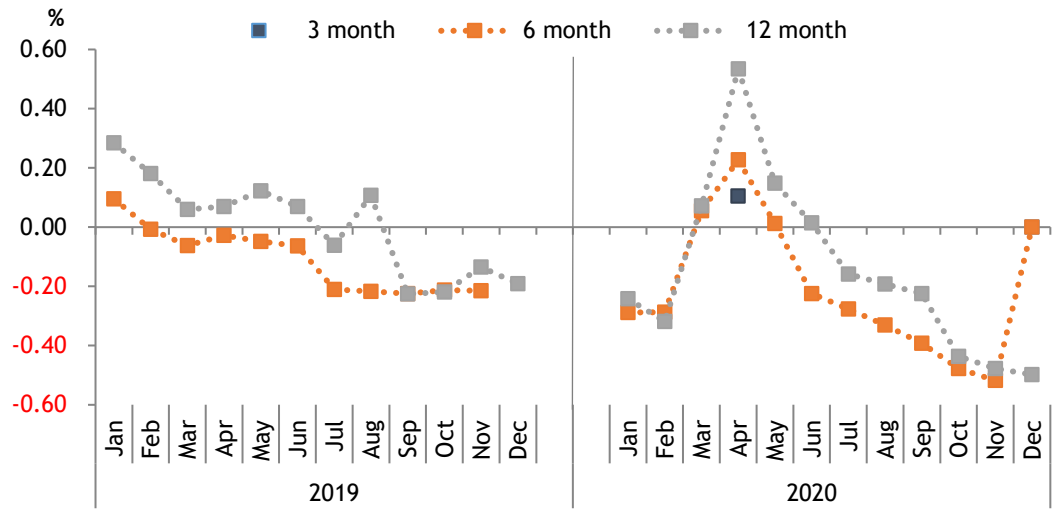
Note: Not including securities placed under exchange transactions
(*) Gross yield including inflation expectation at time of issue.

WEIGHTED AVERAGE RESIDUAL LIFE OF GOVERNMENT BONDS (MONTHS)

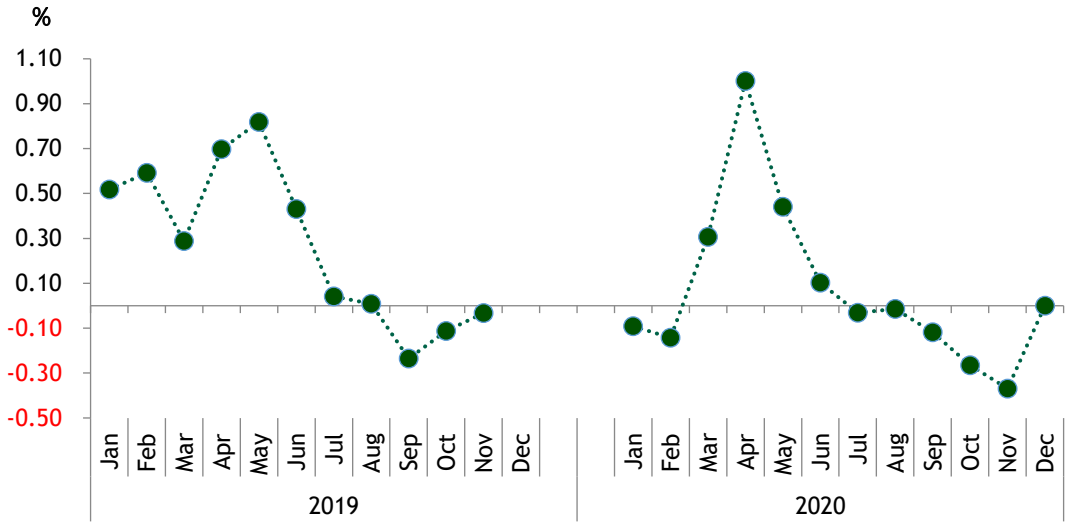
	BOT	CCT	CCTeu	CTZ	BTP				Foreign (*)	TOTALE (*)
					ordinary	indexed	Futura	Italia		
Jan-17	5.08	0.95	43.27	9.82	92.10	95.57	-	36.29	144.29	80.27
Feb-17	5.16	0.03	43.17	13.05	93.18	94.55	-	35.36	143.43	81.17
Mar-17	5.17	-	43.05	12.73	92.60	94.37	-	34.35	143.60	80.95
Apr-17	5.14	-	42.83	12.23	91.91	93.53	-	41.14	142.74	81.00
May-17	5.16	-	43.31	12.28	93.09	93.42	-	43.51	142.48	81.47
Jun-17	5.18	-	45.98	11.95	94.34	92.37	-	44.58	147.28	82.69
Jul-17	5.19	-	45.60	11.47	93.63	91.70	-	43.56	146.32	82.02
Aug-17	5.17	-	45.09	14.60	94.08	90.68	-	42.54	145.33	82.46
Sep-17	5.20	-	44.68	13.87	93.07	99.87	-	41.55	145.06	82.30
Oct-17	5.16	-	48.84	13.87	92.26	99.12	-	40.51	144.33	82.10
Nov-17	5.08	-	49.58	13.36	92.72	98.28	-	53.92	143.50	83.04
Dec-17	4.86	-	49.66	12.34	92.16	97.26	-	52.90	142.59	82.81
Jan-18	5.05	-	49.20	12.28	93.01	96.42	-	51.88	144.09	82.88
Feb-18	5.15	-	48.91	11.78	94.24	95.42	-	50.96	143.17	83.46
Mar-18	5.14	-	48.41	14.88	93.24	93.71	-	49.95	145.36	82.95
Apr-18	5.11	-	52.46	14.48	92.46	93.33	-	48.96	145.41	82.82
May-18	5.11	-	52.39	13.80	92.28	92.23	-	52.90	145.34	82.49
Jun-18	5.18	-	52.11	13.17	92.70	91.69	-	51.91	144.42	82.50
Jul-18	5.21	-	51.67	12.49	91.82	90.89	-	50.89	143.52	81.67
Aug-18	5.18	-	51.12	11.78	92.43	89.87	-	49.88	142.49	81.75
Sep-18	5.20	-	50.64	11.07	91.62	96.53	-	48.89	141.83	81.53
Oct-18	5.14	-	49.92	11.09	91.58	95.66	-	49.58	141.99	81.34
Nov-18	5.07	-	53.14	10.70	90.63	94.40	-	48.50	141.97	80.80
Dec-18	4.93	-	52.57	12.37	90.75	93.38	-	47.48	141.20	81.37
Jan-19	5.11	-	51.74	12.40	90.56	93.10	-	46.46	140.17	80.73
Feb-19	5.18	-	51.35	11.94	92.53	92.14	-	45.54	139.24	81.83
Mar-19	5.16	-	50.44	11.30	93.14	91.25	-	44.52	137.44	81.89
Apr-19	5.13	-	49.62	11.50	92.82	90.74	-	43.54	137.00	81.37
May-19	5.11	-	48.76	13.39	93.16	89.61	-	42.52	139.56	81.72
Jun-19	5.18	-	47.78	12.95	92.87	89.31	-	41.80	138.84	81.44
Jul-19	5.24	-	46.92	12.37	92.71	88.53	-	40.79	141.83	81.17
Aug-19	5.22	-	46.09	11.76	92.63	87.51	-	39.77	144.51	80.73
Sep-19	5.27	-	45.25	11.04	93.40	98.43	-	38.78	144.23	81.72
Oct-19	5.22	-	44.46	13.47	93.43	98.20	-	43.27	149.82	82.43
Nov-19	5.14	-	47.96	12.93	92.65	98.03	-	42.27	148.80	82.27
Dec-19	5.00	-	47.04	11.75	92.74	97.01	-	41.25	149.77	82.42
Jan-20	5.09	-	46.02	11.61	93.03	95.44	-	40.23	154.29	82.29
Feb-20	5.09	-	45.08	11.12	94.03	94.88	-	39.27	153.36	82.73
Mar-20	5.09	-	44.18	14.17	94.71	94.87	-	38.25	152.15	83.50
Apr-20	5.00	-	43.20	13.56	94.61	94.09	-	46.35	139.97	83.48
May-20	5.06	-	42.25	13.63	94.61	93.26	-	49.15	129.67	82.42
Jun-20	5.00	-	41.25	13.39	94.94	91.92	-	48.30	135.97	82.42
Jul-20	5.19	-	40.23	12.91	94.04	91.07	119.51	47.28	135.15	81.76
Aug-20	5.07	-	39.37	12.37	93.13	90.06	118.49	46.26	135.43	80.82
Sep-20	5.03	-	38.43	12.07	94.56	89.19	117.50	45.28	134.30	81.52
Oct-20	5.10	-	37.23	11.49	96.50	88.07	116.48	48.43	133.21	83.04
Nov-20	4.95	-	36.25	13.87	96.56	86.79	105.92	47.48	128.96	83.39
Dec-20	4.91	-	39.42	13.07	95.51	85.78	104.90	46.46	129.79	83.40

Note: Not including securities placed under exchange transactions

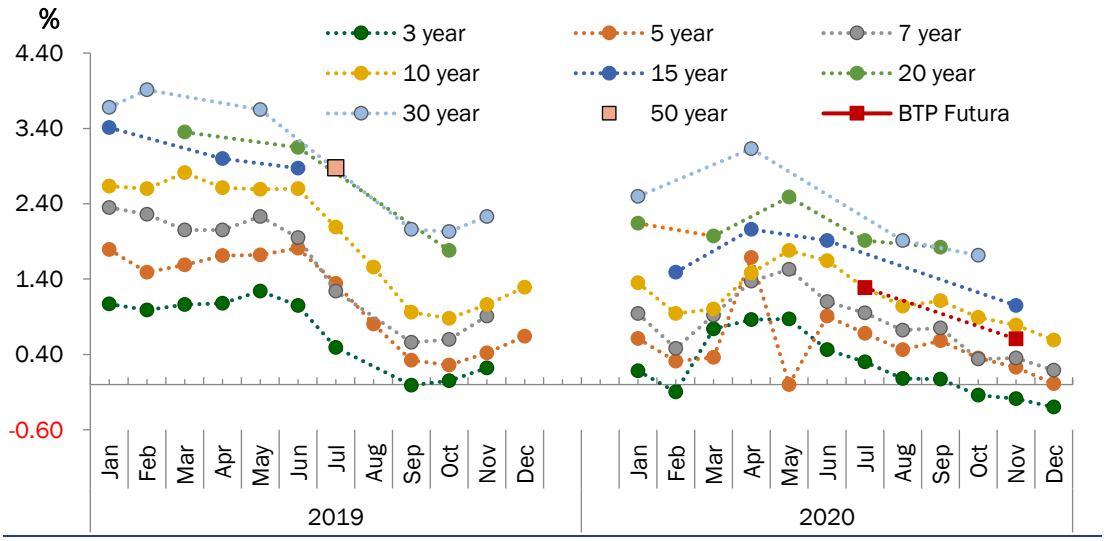
BOT: COMPOUNDED GROSS YIELDS



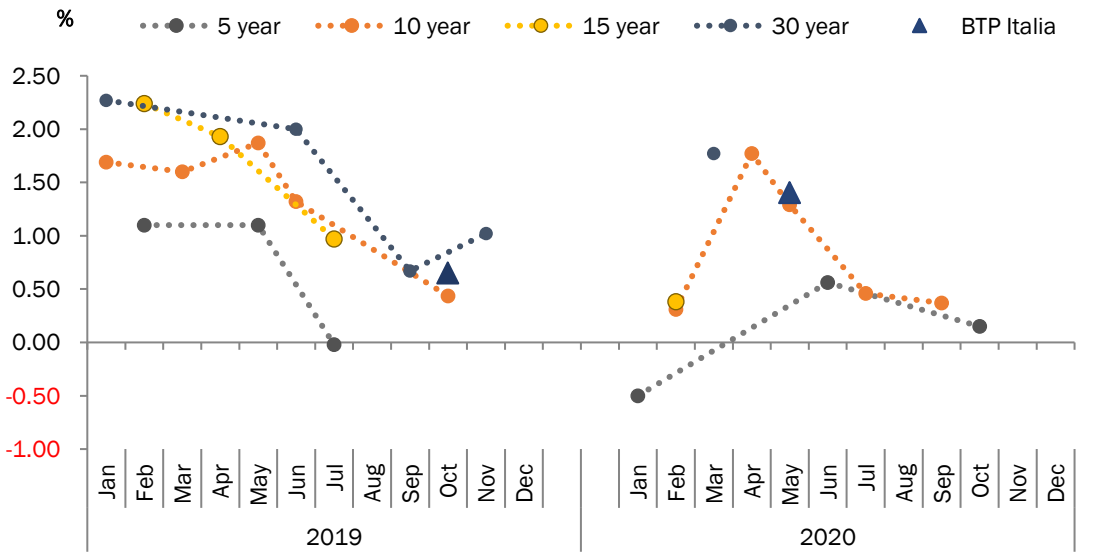
CTZ: COMPOUNDED GROSS YIELDS



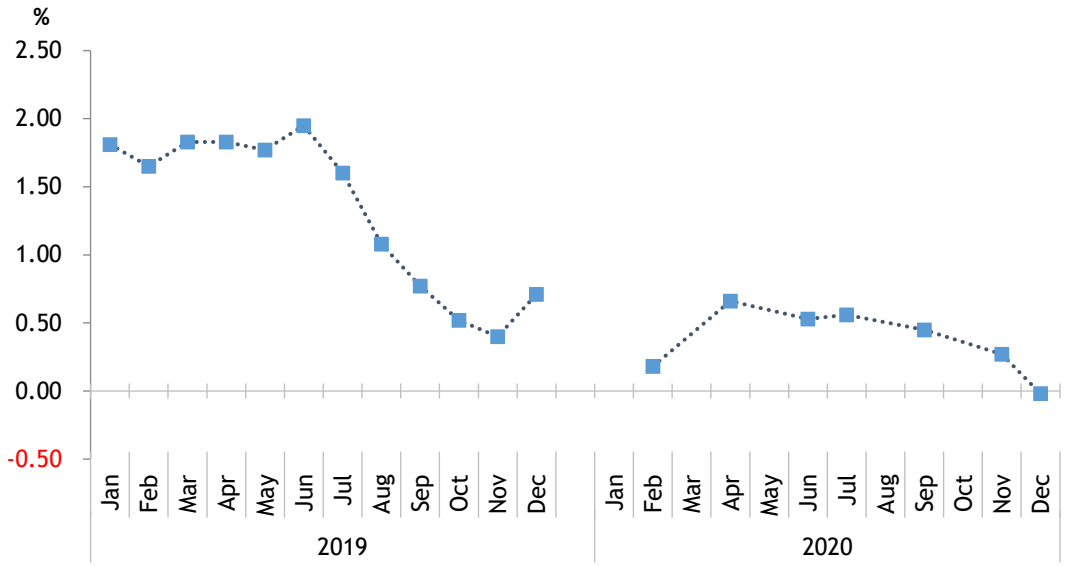
BTP: COMPOUNDED GROSS YIELDS



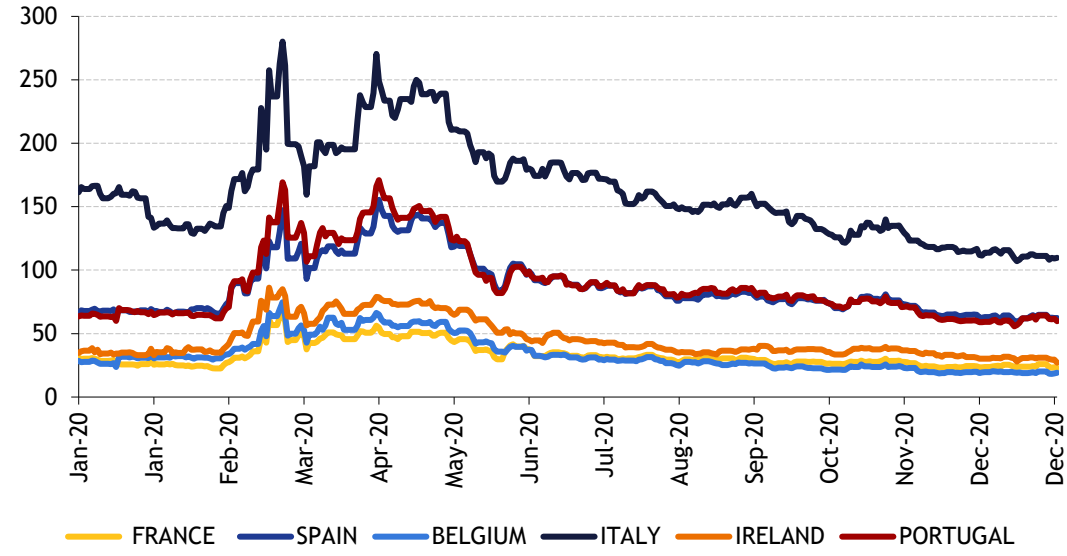
BTP ITALIA AND BTP€I - REAL YIELDS



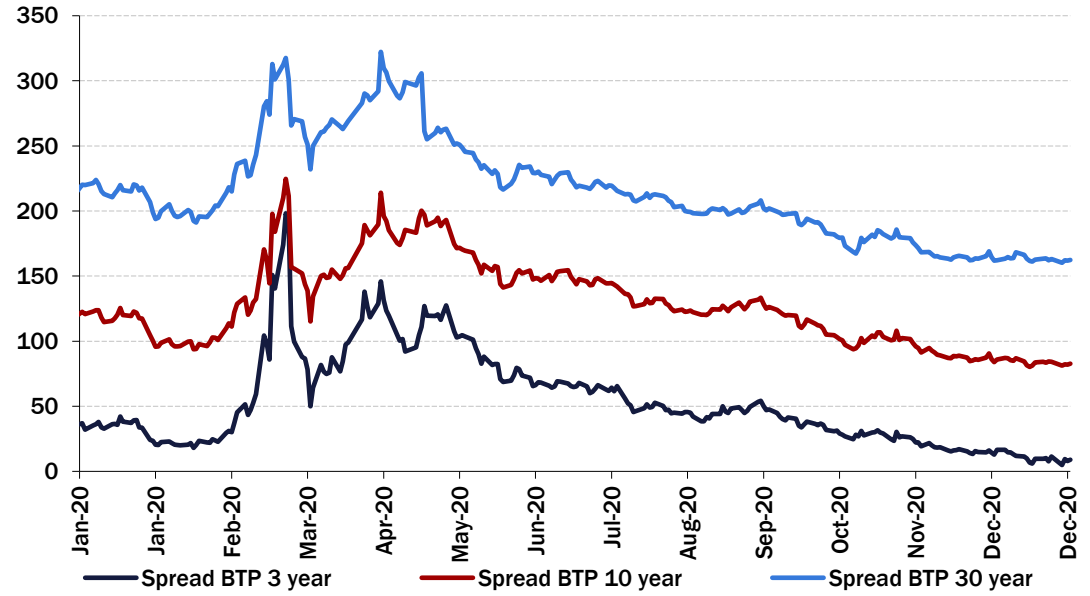
CCTEU: COMPOUNDED GROSS YIELD



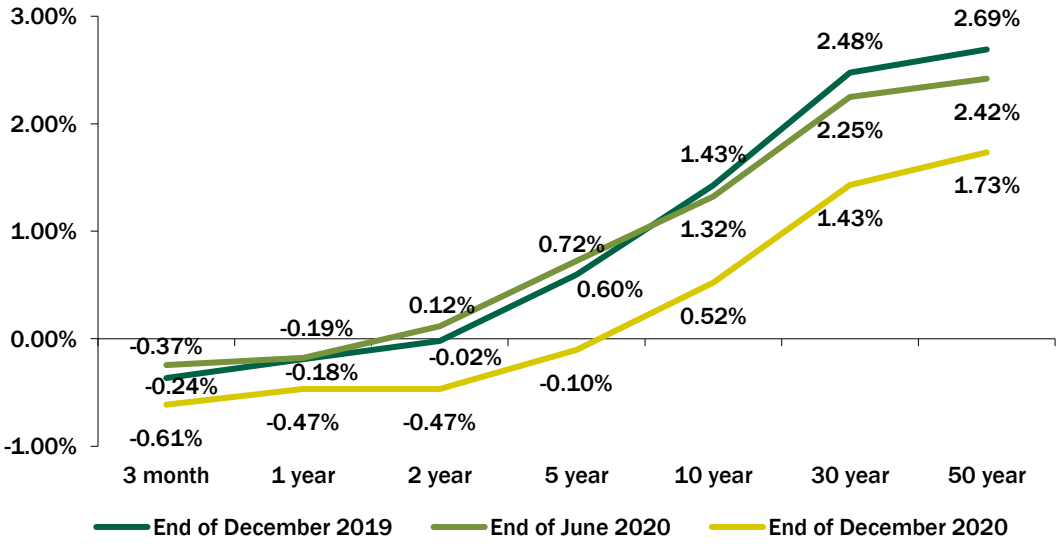
EURO AREA 10-YEAR BENCHMARK SPREADS OVER BUND (BASIS POINTS)



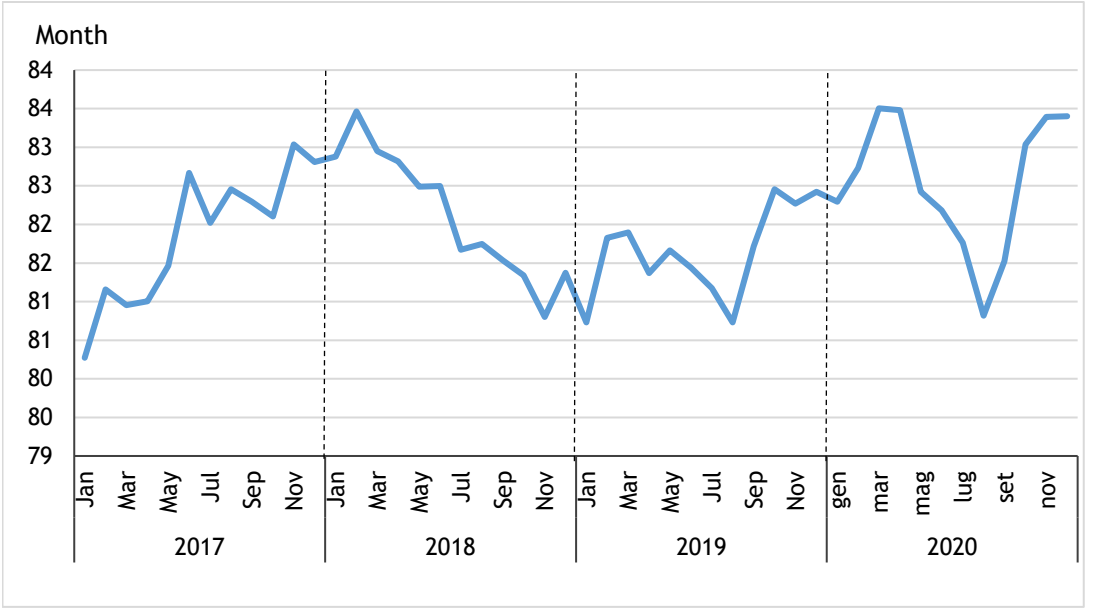
ASSET SWAP SPREAD (BASIS POINTS)



SECONDARY MARKET YIELD CURVE



MONTHLY TREND OF WEIGHTED AVERAGE RESIDUAL LIFE OF GOVERNMENT BONDS (MONTHS)



Ministero dell'Economia e delle Finanze