

3. Management of the Debt Portfolio and Risk Limits

3.1. Management of the State's Derivatives Portfolio

In 2018, the composition of the State's derivatives portfolio was marked by the early repayment of SDR 4,570.6 million to the IMF, which led to a significant reduction in the portfolio.

Throughout the year, foreign-exchange derivative operations were intended to roll over existing positions and to manage prepayments to the IMF, so as to keep the exchange-rate risk in remaining positions close to fully hedged¹⁶.

Table 2 – IMF Loan (SDR million)

	IMF loan			Currency hedging	
	Total outstanding	EUR Component	Other currencies	Principal	Interest
31-Dec-17	4,570.6	1,488.4	3,082.2	98.6%	92.5%
29-Mar-18	3,862.7	1,254.4	2,608.3	98.3%	94.5%
29-Jun-18	3,862.7	1,238.0	2,624.7	99.2%	87.4%
28-Sep-18	3,862.7	1,239.3	2,623.4	99.1%	86.6%
31-Dec-18	0.00	0.00	0.00	-	82.3%

Source: IGCP

The market value of the foreign-exchange derivatives portfolio decreased compared to the end of 2017, mainly due to the cancellation of the IMF loan hedges. The net income of EUR 426.4 million was mainly due to cross-currency interest rate swaps (EUR 376.9 million) and FX swaps/forwards (EUR 68.1 million), which benefited from a depreciation of EUR against USD (-4.48%, YoY) and JPY (-6.99%, YoY).

Table 3 – Change in the financial derivatives portfolio (EUR million)

	Market Value		CF period	Results
	Dec-2017	Dec-2018		
Interest rate	-91.4	-158.1	48.0	-18.7
IRS	51.3	0.0	48.0	-3.3
Swaptions	-142.7	-158.1	0.0	-15.4
Exchange rate	527.6	427.4	545.3	445.1
CCIRS	517.4	402.7	491.6	376.9
Swaps/forwards	10.2	24.8	53.6	68.1
Options	0.0	0.0	0.1	0.1
Others	-5.4	-0.6	-4.7	0.0
CARRIS	-5.4	-0.6	-4.7	0.0
Total	430.8	268.7	588.6	426.4

Source: IGCP

¹⁶ Advance payments to the IMF relate only to the equity component of the loan and no immediate payment of accrued interest is required. For this reason, as of 31 December 2018, the amount of the last interest payment, which would occur on 6 February 2019, was still outstanding.

3.2. EPR Derivatives Portfolio

As part of its duties in managing the State direct debt, IGCP is responsible for monitoring the derivatives portfolio of public enterprises that are financed through the State Budget (EPR – State-owned companies within General Government).

Considering that the EPR are restricted from obtaining financing in the market, no new financial derivatives for risk coverage were contracted. Throughout 2018, the only changes to the derivatives portfolio involved instruments of *Metropolitano de Lisboa*: one derivative matured; another derivative was terminated after the exercise of a mandatory break clause.

At the end of 2018, there were 18 derivative instruments in the EPR portfolios, with a market value of approximately EUR -783.3 million and a contractual value of EUR 827.8 million. Compared to 2017, the portfolio's market value improved by around EUR 203.2 million, which is explained by the payment of cash flows of around EUR 232.0 million and by a negative net result of EUR 28.8 million. The unfavourable result is mainly due to the fall in EUR swap rates for maturities of 2 years and over.

Table 4 – EPR derivatives portfolio (EUR million)

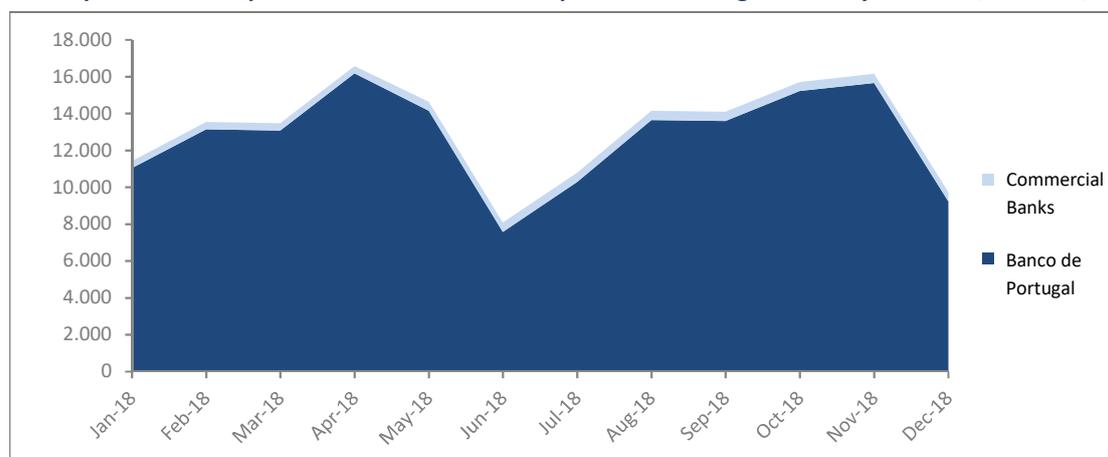
	No. Derivatives	Contractual amount	MtM 2018	MtM 2017	CF	Result
<i>Metropolitano de Lisboa</i>	14	635.2	-402.7	-540.1	-152.2	-14.8
<i>Metro do Porto</i>	4	192.6	-380.6	-446.3	-79.8	-14.0
Total	18	827.8	-783.3	-986.5	-232.0	-28.8

Source: The valuation of the counterparties is presented where available; otherwise IGCP's valuation is given.

3.3. Cash Management

During 2018, the main objective of cash management was to ensure maximum liquidity in the State's cash balances. In this sense, of all the instruments available to manage liquidity, preference was given to deposits with Banco de Portugal.

Graph 19 – Developments in the amount of deposits of the Single Treasury Account (EUR million)



Source: IGCP

In 2018, the absolute cost of maintaining the cash position fell to a minimum, notably benefitting from the decreasing cost of debt financing (regardless of the calculation methodology considered). Compared to 2017, there was also a reduction in the average cash balance.

Table 5 – Estimate of the cost of the cash position

(EUR million)	Implicit rate total stock ⁽¹⁾			Average cost (BT+OT) ⁽²⁾			Average cost (BT) ⁽³⁾		
	2016	2017	2018	2016	2017	2018	2016	2017	2018
Average balance of deposits	12.378	14.439	13.441	12.378	14.439	13.441	12.378	14.439	13.441
Funding cost (%)	3,2%	3,0%	2,8%	1,5%	1,4%	0,9%	0,0%	-0,2%	-0,3%
Average cost of funding of the Treasury cash balance	394	433	374	181	197	116	3	-33	-44
Interest received from Treasury applications	-4	-4	1	-4	-4	1	-4	-4	1
Net cost of the Treasury cash balance	391	429	375	178	194	117	-1	-37	-43
As a % of the average balance of deposits	3,2%	3,0%	2,8%	1,4%	1,3%	0,9%	0,0%	-0,3%	-0,3%
As a % of the average balance of the State's direct debt	0,2%	0,2%	0,2%	0,1%	0,1%	0,0%	0,0%	0,0%	0,0%
As a % of GDP	0,2%	0,2%	0,2%	0,1%	0,1%	0,1%	0,0%	0,0%	0,0%

¹⁾ Implicit interest rate is computed as the ratio between interest paid on State direct debt paid on an accrual basis and the average debt stock in a given year.

²⁾ Funding cost of *BT* and *OT* corresponds to the average interest rate of new financing of *BT* (funded issues) and *OT* during the year.

³⁾ Funding cost of *BT* corresponds to the average interest rate of new financing of *BT* (funded issues) during the year.

Source: IGCP

Other factors that influenced cash management in 2018 were the execution of *OT* buybacks and advance payments to the IMF.

Table 6 – Buybacks made in 2018 (EUR million)

	18-Q1	18-Q2	18-Q3	18-Q4	Total 2018 ¹⁾
<i>OT</i>	250.0	0.0	266.5	2.267.0	2.783.5
IMF loan	834.1	0.0	0.0	4.708.2	5.542.3
Others	144.0	0.0	0.0	0.0	144.0
Total	1,228.1	0.0	266.5	6,975.2	8,469.8

¹⁾ Includes exchange operations.

Source: IGCP

3.4. Cost Indicators

On 31 December 2018, the market value of the State direct debt¹⁷ was EUR 271,214 million, reflecting a premium of 9.4% over its nominal value. The average coupon of the portfolio decreased slightly in 2018 to 2.9%, while the average yield increased to 1.6%. The average debt repayment term declined to 7.8 years.

¹⁷ In relation to the total portfolio used as reference in previous years reports, the State direct debt (compatible with the definition reported in IGCP's Monthly Bulletin and with the portfolio considered for the purposes of the risk indicators reported quarterly to the ESDM – Economic and Financial Committee's Sub-Committee on EU Sovereign Debt Markets) does not include cash investments and includes the cash-collateral received in the margin accounts associated with financial derivatives and securities issued for delivery as collateral.

Table 7 – Cost indicators¹⁸ at year-end (EUR million)

	2016	2017	2018
Outstanding	233,895	237,515	244,499
Average coupon	3.1%	3.0%	2.9%
Average yield	1.8%	1.4%	1.6%
Average redemption period (years)	8.3	8.1	7.8
Market value	260,747	269,556	271,214
Premium (incl. accrued interest)	9.9%	12.0%	9.4%

Source: IGCP

Marked-to-market cost

The provisional benchmark model was maintained in 2018. Under this model, active debt management operations carried out by IGCP are included in a separate portfolio, where a mark-to-market assessment is used to measure the performance of IGCP's active management.

In 2018, the marked-to-market cost of the Adjusted Debt Portfolio¹⁹ was 2.16%. A cost of 2.15% was calculated for the benchmark portfolio in the same period, resulting in an unfavourable cost differential of 1 basis point.

Given that no new active management operations were contracted and that the Benchmark Portfolio is being reformulated, the assessment of IGCP's performance through this metric is of little significance.

3.5. Risk Indicators

The Guidelines for the Management of Government Debt (Guidelines) identify the risk indicators considered most relevant for the debt portfolio and set limits to its exposure. The Guidelines set maximum limits to the interest rate risk (refixing profile and modified duration), refinancing risk, exchange rate risk and credit risk of the adjusted portfolio.

CaR – Cost at Risk

The CaR estimate of the debt portfolio quantifies the effect of changes in risk-free interest rates on the value of the charges associated with the debt portfolio, assessed on a cash flow basis in the relevant future time horizon. Absolute CaR is the maximum amount that the cash-flow cost can reach with 95% probability over the following year; relative CaR reflects the maximum deviation of this cost compared to its expected value.

Considering the funding needs outlined in the State Budget for 2019, the portfolio's position at the end of 2018, the assumption of constant financing spreads and the various scenarios simulated²⁰ for the swap curve dynamic:

- The expected value of portfolio costs in 2019 (national accounts basis) is EUR 6,696 million;

¹⁸ The average coupon is calculated by annualising the accrued interest between the last two working days of the year divided by the outstanding for the last day. The premium indicator is obtained by subtracting the unit at market value without accrued interest divided by the outstanding balance. The average yield corresponds to considering an *OT* with maturity equal to the average redemption period, which pays the average coupon annually and has a price equal to the market value, without accrued interest divided by the outstanding.

¹⁹ The Adjusted Debt Portfolio refers to all the instruments that make up the State direct debt, including financial derivatives, with the exception of retail debt and *CEDIC* and *CEDIM*.

²⁰ To simulate the interest-rate scenarios the 2-factor Cox, Ingersoll and Ross (1985) model was used

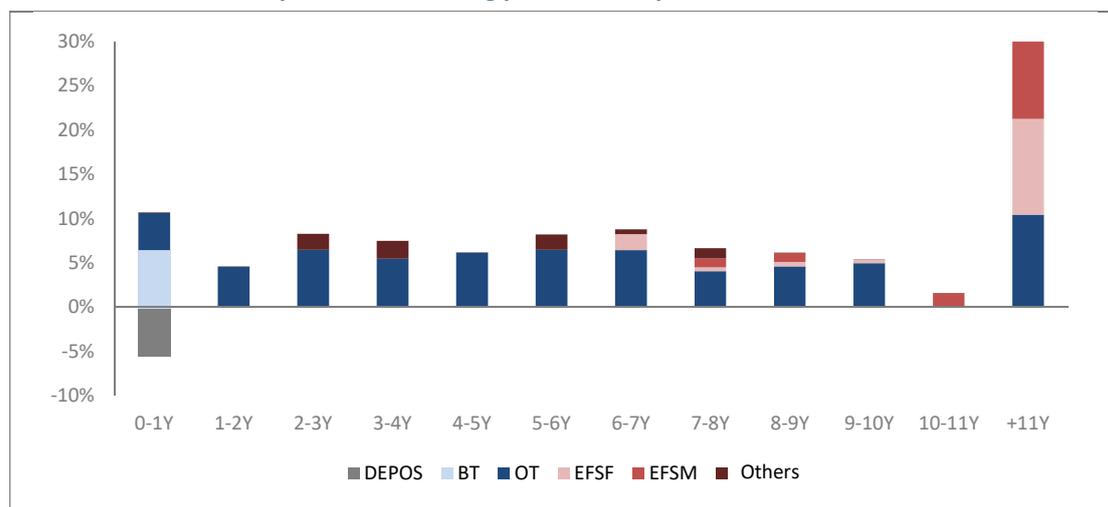
- There is only a 5% probability of this amount exceeding EUR 6.971 million (absolute CaR), as a result of changes in risk-free interest rates.
- The relative CaR for the same significance level is EUR 275 million. Comparing with GDP, the probability of the deficit-to-GDP ratio increasing by more than 0.14 pp in 2019 as a result of changes in risk-free interest rates is lower than 5%.

Refinancing risk

In addition to market variables (e.g. tradability, liquidity, maintaining a benchmark yield curve of the Republic), the management of the debt portfolio takes into account the debt refinancing profile, so as to avoid an excessive concentration of redemptions that may lead to higher financing costs in the future.

The absolute limits set on the percentage of the portfolio maturing in a 12-month, 24-month and 36-month period are 25%, 40% and 50%, respectively. At the end of 2018, the adjusted portfolio had the following refinancing profile, complying with these limits in full.

Graph 20 – Refinancing profile of the portfolio at end-2018



Source: IGCP

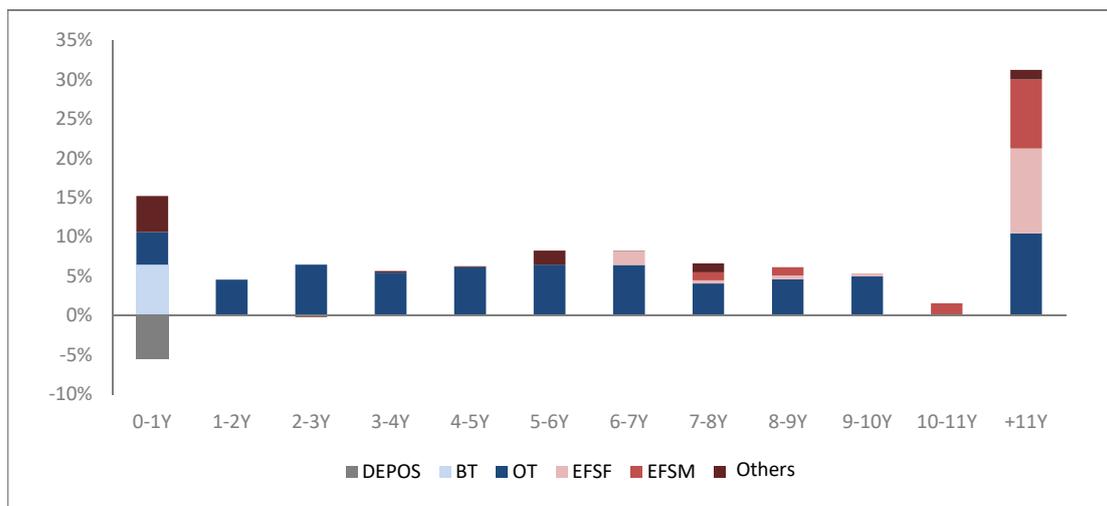
Interest rate risk

At the end of 2018, the modified duration²¹ of the total debt portfolio and the adjusted portfolio was 5.07 and 5.69, respectively. Throughout 2018, the duration of the adjusted portfolio was always higher than the established lower limit (4.0).

At the end of 2018, the debt portfolio had the following refinancing profile (i.e. percentage of the nominal value of the adjusted portfolio to be refixed or maturing, by term):

²¹ The modified duration measures the elasticity of the portfolio's market value to changes in market yields

Graph 21 – Refixing profile at end-2018



Source: IGCP

Exchange rate risk

At the end of 2018, primary currency exposure (i.e. excluding hedging operations) was 2.04% of the total adjusted debt portfolio, far below the 20% limit set by the Guidelines. This exposure is the result of *OT* issued in foreign currency (USD and NOK).

At the end of the year, the net exchange rate exposure was 0% (i.e. after hedging through swaps and forwards).

Credit risk

The assumption of credit risk by the Republic results from operations involving derivatives, repos and money market applications. The Guidelines in force, approved by the Secretary of State in 2013, establish the diversification of risk and the limits of exposure assigned to each counterparty according to its credit rating.

The credit risk of each counterparty (i.e. of all their derivatives contracts with the Republic) is calculated using a methodology which includes two components: its current market value (which represents the substitution value of each transaction), plus an add-on (designed to estimate the potential change of that value in the future). Finally, the market value of the collateral received or delivered under the CSA should be subtracted from the amount resulting from the sum of these two components.

Throughout 2018, the credit risk exposure of the derivatives portfolio remained below the overall limit set at 3% of the adjusted portfolio. At the end of the year, the exposure amounted to 0.12% of the value of the adjusted portfolio, i.e. that limit was occupied by 4.09%.

Table 8 – Risk indicators at year-end (EUR million)

	2016	2017	2018
Primary Foreign Exchange Exposure (%adjusted portfolio)	8.26%	3.85%	2.04%
Net Foreign Exchange Exposure (% adjusted portfolio)	0.00%	0.07%	0.00%
Total Portfolio Duration (years)	5.71	5.46	5.07
Adjusted Portfolio Duration (years)	6.26	5.98	5.69

Source: IGCP