Reserves accumulation and diversification: the case of Poland

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Abstract

The note provides an overview of foreign exchange reserves trends in Poland. At the end of October 2018, FX reserves reached the equivalent of USD 105.3 billion, placing Poland among the 20 largest reserves holders worldwide. Given the systematic inflow of EU funds and a crisis-driven fall in yields in major advanced economies, a consistent theme of reserves management by the Narodowy Bank Polski (NBP) over the past decade has been diversification into the so called non-traditional currencies. Along with the excursion into less traditional reserve currencies, the NBP has diversified its range of investable instruments. At present, in addition to sovereign bonds, which offer high liquidity and the lowest credit risk, the NBP invests in supranational bonds, bonds issued by local governments or agencies and corporate bonds. In 2018, the NBP made a strategic decision to expand its gold reserves by 25%. As a result, the share of gold in official reserve assets went up from 3.8% at the end of June 2018 to 4.5% in October 2018.

Keywords: National Bank of Poland, FX reserve management, FX reserve accumulation, FX reserve diversification, investment strategy, gold reserves.

JEL classification: E58, G11, G15, G32.

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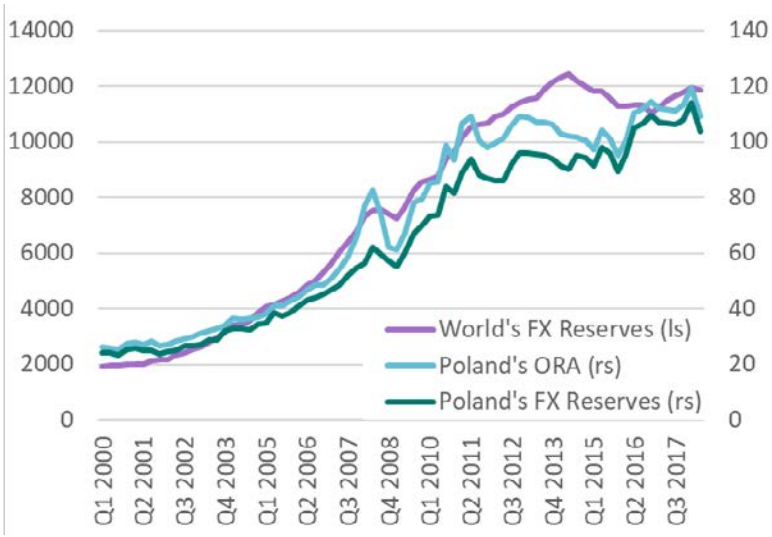
This note provides an overview of foreign exchange reserves trends in Poland, starting from their accumulation in recent years, through governance issues and management strategy. It presents a historical outline of changes in the currency structure of the NBP's FX reserves in the context of drivers and limits of diversification as well as the effects of diversification. It also describes the NBP's investment spectrum and the role of gold. The note closes with a brief discussion of the main directions for the development of the NBP's investment strategy in the coming years.

1. Overview of reserve management and accumulation

1.1 Reserves accumulation trends

The scale of FX reserves accumulation by the NBP has been broadly in line with global trends over the past two decades. At the end of October 2018, FX reserves – ie assets denominated in foreign currencies, mainly in the form of securities, deposits as well as repo/reverse repo transactions – reached the equivalent of USD 105.3 billion (19.1% of GDP as of Q2 2018), securing Poland's position among the 20 largest reserves holders worldwide. At the same time, official reserve assets (ORA)[2] – which, in addition to FX reserves, also comprise gold and SDR holdings, among others, and are used to assess reserve adequacy – accounted for USD 111.4 billion, increasing in USD terms roughly fourfold from USD 27.5 billion in 2000 and almost doubling over the past decade.

World's and Poland's FX reserves and Poland's ORA (in USD bn) since 2000 Graph 1

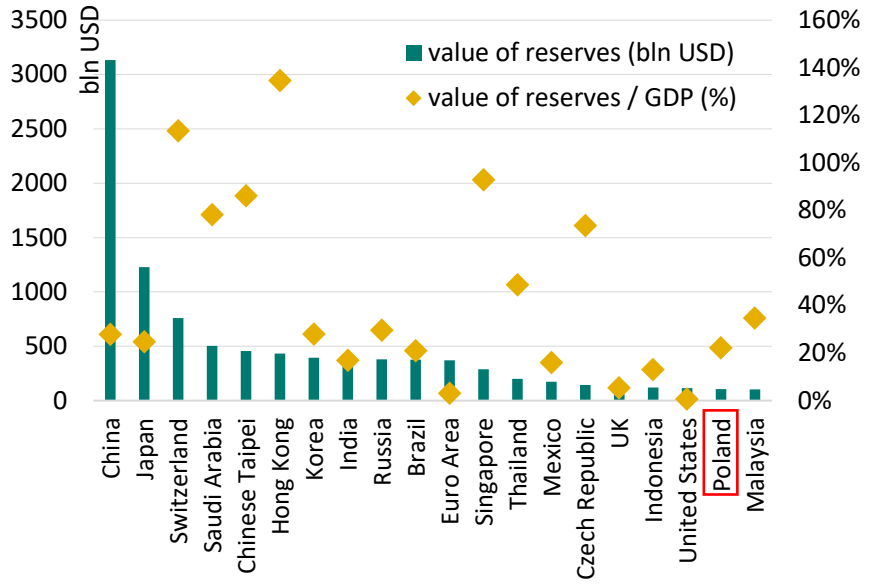


Sources: IMF, NBP.

[2] Official reserve assets include FX reserves (assets in foreign currencies, mainly in the form of securities, deposits and currencies, and other assets, such as reverse repo transactions), gold reserves, Special Drawing Rights (SDRs) and the reserve position in the International Monetary Fund.

However, while the scale of reserves accumulation in Poland largely mirrored global patterns, the primary sources or drivers were rather unlike those in most EMEs. In particular, **the successive growth in the value of official reserve assets over the past decade has resulted not from overt intervention, but mainly from the positive balance of external flows, driven largely by the inflow of funds from the European Union.**[3]

Largest holders of FX reserves (in USD bn) at the end of Q2 2018 Graph 2



Source: IMF.

Other important drivers included the changing scale of investments in reverse repo transactions carried out together with repos,[4] fluctuations in foreign exchange rates (valuation effect) and the return on investments.

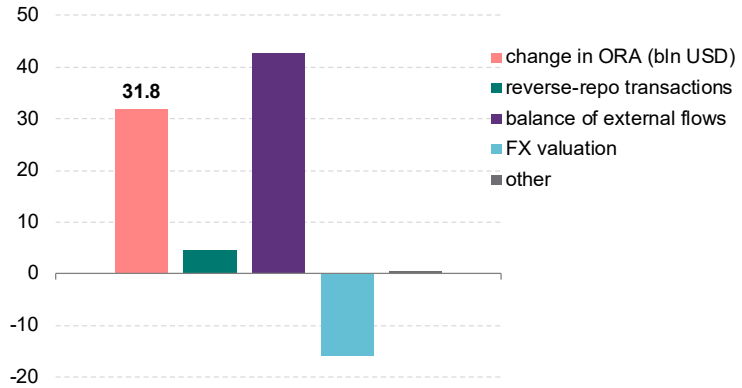
And indeed, a considerable inflow of EU funds in 2009–12 helps to explain why those years saw the fastest rate of reserves accumulation (on average 15.4% per year). In subsequent years, the pace of accumulation has slowed, with FX valuation effects and repo/reverse repo being the main drivers of portfolio size in USD terms.

In recent years, **the level of official reserve assets as well as foreign exchange reserves has been broadly adequate according to standard reserves adequacy indicators**, including the IMF's ARA metric and the optimisation model.

[3] According to the Ministry of Finance the net value of inflows from the EU since 2004 in September 2018 stood at EUR 103.1 billion (USD 119.9 billion). A significant part of these inflows has been converted into PLN by the NBP, increasing the NBP's foreign currency resources.

[4] In a repo transaction, the NBP agrees to lend a security in exchange for cash. The amount of cash received is recorded as a short-term liability of the NBP. When the NBP enters into this kind of transaction both the assets (official reserves) and the short-term liabilities (included also in external debt statistics) increase. When the transaction matures both official reserve assets and short-term liabilities decrease.

Main factors driving the change in the level of ORA from 2010 (USD bn) Graph 3



Source: NBP.

1.2 Institutional context for managing reserves: priorities and decision-making

Pursuant to the Act on Narodowy Bank Polski, the central bank holds and manages FX reserves, as well as taking measures to ensure the safety of Poland's foreign exchange operations in terms of payment liquidity. Our experience is **that, in the context of a floating exchange rate – such as in Poland – the role of FX reserves is primarily to enhance the country's financial credibility**, thereby reducing the cost of financing in the global markets and the volatility of the zloty exchange rate, as well as mitigating the risk of a sudden outflow of capital. Incidentally, FX reserves may be used to support the stability of financial markets or the banking sector in the event of significant disturbances in their functioning. Indeed, while **official intervention has been rather infrequent and targeted solely on curtailing excessive volatility of the zloty** (since 2010, the NBP has intervened six times, most recently in 2013), the NBP has in fact used reserves before to fulfil its mandate of ensuring financial stability. **In particular, as part of a broader set of measures implemented in 2008–09 – termed the Confidence Package – the NBP acted as a lender of last resort for domestic banks which could not access FX funding to close their on- and off-balance sheet open FX positions.**[5] While the demand for FX swaps offered by the NBP peaked at only about PLN 1 billion – ie much lower than potential needs, the rest being provided mostly by foreign parent companies – the experience did underscore how useful a liquid reserves portfolio can be, even in an economy with a fully floating exchange rate regime.

While managing FX reserves, the NBP aims primarily to ensure the safety and liquidity of invested funds, and – with these priorities satisfied – to maximise return, in given market circumstances. All resources are managed internally within an integrated investment strategy – ie without tranching – as laid out in the investment guidelines approved by the Management Board. The guidelines

[5] The open FX positions were due to the prevalence, at the time, of mortgages denominated in foreign currencies, mainly Swiss francs. As a consequence of harsh experience during the crisis as well as new supervisory measures, lending in foreign currencies has virtually stopped, with the legacy portfolio shrinking gradually.

comprise a set of principles, regulations and procedures which provide a framework for the whole investment process; in particular defining the decision-making process, the eligible asset classes, as well as the rules of financial risk management, including principles for establishing credit limits and the criteria for the selection of counterparties. Thus, although the Board does not specify its risk appetite directly in the form of a numerical risk budget, the approved investment guidelines nonetheless provide an implicit check on the degree of financial risk-taking consistent with the Board's preferences.

From an operational point of view, reserves are managed within a three-layer process, comprising strategic, tactical and portfolio management perspectives. The first step of the process is the approval by the Management Board of the strategic asset allocation (SAA) – or strategic benchmark – which sets the key parameters of the long-term investment strategy in accordance with the Board's risk-return preferences. The SAA framework is normally reviewed annually to ensure that a wide range of up-to-date macroeconomic and financial forecasts can be used in the underlying optimisation exercise. On a general level, the review provides key strategic parameters, in particular the currency structure and modified duration with their corresponding ranges for deviations which determine the scope of active management for tactical asset allocation and active portfolio management. Against this background, the FX Investment Committee is responsible for the tactical asset allocation (TAA), which tries to take advantage of medium-term market developments unforeseen in the strategic benchmark, with a view to outperforming the SAA. Finally, portfolio managers take active decisions on a day-to-day basis, striving to outperform the tactical benchmark.

Such a framework allows for adjustments of strategic asset allocation to medium- and short-term market fluctuations. This aims not only at enhancing returns but also at reducing downside risk and supporting capital preservation. An obvious precondition and, indeed, the major challenge for such an approach, is the ability of portfolio managers to anticipate market developments, define regimes, identify shifts in cycles at an early stage with either qualitative (macroeconomic leading indicators, sovereign risk analysis, early warning signals) or quantitative signals (technical analysis, momentum, volatility patterns). They should not be tempted to stick to the strategic benchmark during periods of increased market volatility, when protection against downside risk is most desired.

Decision-making process — Graph 4

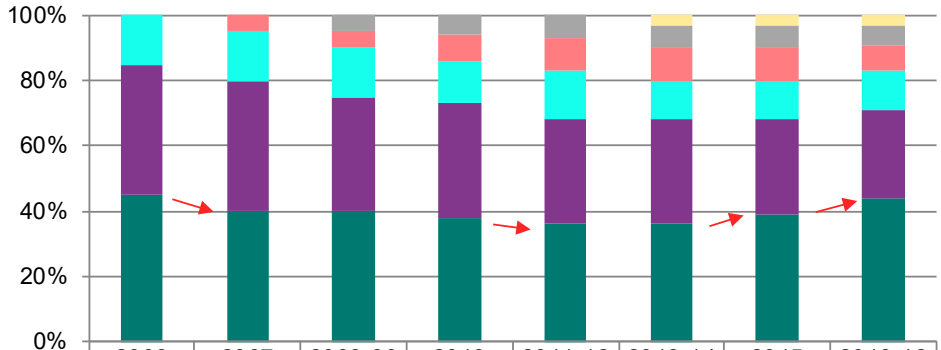
Source: NBP.

2. A look at the currency composition of the NBP's FX reserves portfolio

2.1 SAA in historical perspective

Given the systematic inflow of EU funds and the crisis-driven fall in yields in major advanced economies, a consistent theme of the NBP's reserve management over the past decade has been diversification into the so-called non-traditional currencies, subject to the credit, market and liquidity risk constraints discussed above. Specifically, starting from a portfolio featuring only USD (45%), EUR (40%) and GBP (15%) in 2006, the NBP has gradually added exposures to the Australian and New Zealand dollars (8% and 3% allocation, respectively) as well as the Norwegian krone (6%; Graph 5). Temporary positions – albeit on a much smaller scale – have also been taken in the Brazilian real and Mexican peso.

SAA currency composition of NBP's FX reserves — Graph 5



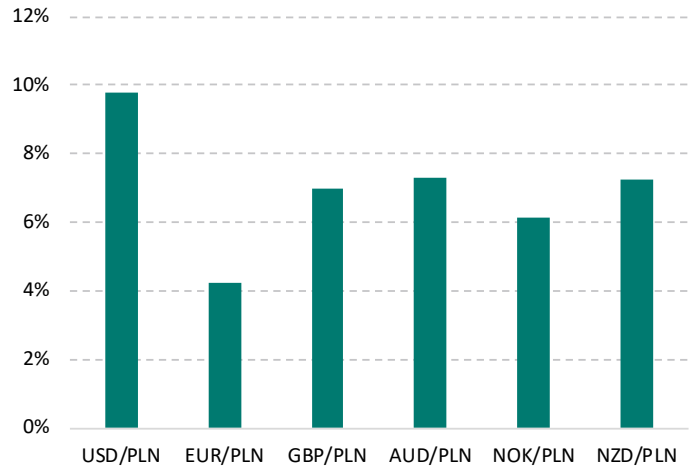
	2006	2007	2008-09	2010	2011-12	2013-14	2015	2016-18
NZD						3%	3%	3%
NOK			5%	6%	7%	7%	7%	6%
AUD		5%	5%	8%	10%	10%	10%	8%
GBP	15%	15%	15%	13%	15%	12%	12%	12%
EUR	40%	40%	35%	35%	32%	32%	29%	27%
USD	45%	40%	40%	38%	36%	36%	39%	44%

Source: NBP.

In line with global trends, the US dollar and the euro continue to play a dominant role in the NBP's foreign reserves portfolio, given the liquidity and investment opportunities offered by the US and German government bond markets. These are also perceived as the least credit-risky investments. Significant exposure in these markets ensures that the priorities of the central bank's FX reserves management – maximum security of the invested funds and adequate liquidity – are maintained. This assures efficient performance of central bank's responsibilities. That said, the allocation to the euro has declined over the past decade (from 40% in 2006 to 27% in 2016–18), to levels generally lower than observed in most regional peers. Still, the NBP maintains a non-trivial allocation towards the euro – in fact, the second largest in the portfolio – which is considered the main potential intervention vehicle, given

its dominant share in the FX spot market of the Polish zloty.[6] In addition, the euro has the lowest volatility against the zloty (both historical and implied) among the currencies in the reserve portfolio, which helps to improve the reserves' risk profile.

Volatility of reserve currencies against PLN in 2018 Graph 6



Source: NBP.

While direct comparisons may be difficult, the combined share of the USD and EUR in the NBP's portfolio at 71% is significantly lower than in the global reserves portfolio (83% at the end of the 2nd quarter of 2018), which indicates a relatively high degree of currency diversification of the NBP's FX reserves. Against this benchmark, we review below the main considerations driving currency diversification and comment briefly on the factors limiting it in future.

2.2 Drivers and limits of diversification: the NBP vs other emerging markets

The NBP's emphasis on maintaining a diversified currency structure is dictated by the desire to reduce market risk (especially FX volatility) and increase return in the long term.

The choice of currency structure underlying the strategic asset allocation is supported by macroeconomic forecasts (in both the base case as well as the stress-test scenario), optimisation and simulation analyses, as well as dynamic sovereign risk analyses based on selected macroeconomic factors – specific for each economy, but also assuring comparability – that make it possible to monitor the development of economic activity, fiscal conditions, international position, real estate and labour market conditions, as well as the soundness of the financial system. The size and liquidity of the market as well as investment opportunities in a given currency are also taken into account.

[6] Data from the Bank of England indicate that, in 2017, the share of EUR/PLN operations in the turnover on the London spot market of the Polish zloty was around 77%. On the domestic spot market of the Polish zloty, EUR/PLN transactions accounted for around 73% of the turnover.

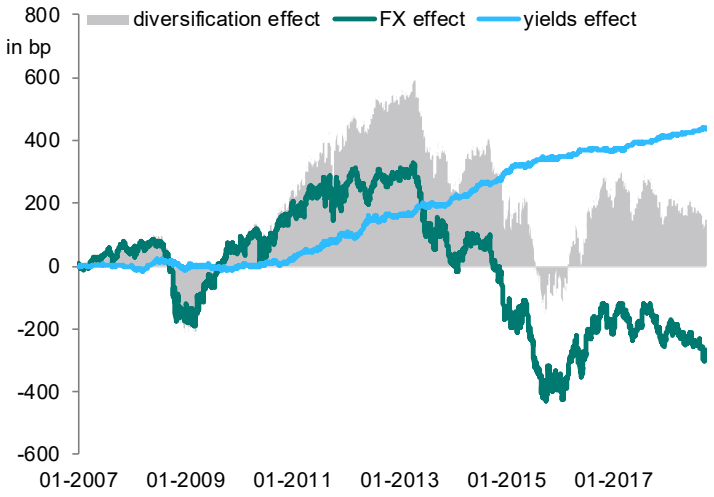
A significant level of foreign reserves and a free-floating exchange rate regime allows the NBP to run a slightly different investment strategy than some central banks in the region, where allocation is constrained by other criteria such as the currency structure of the central bank/government's or banking/financial sector's liabilities, the foreign exchange regime, or the geographical structure of imports.

Further diversification is constrained by the accepted risk level, the lack of asset classes and markets with sufficient depth, the lack of counterparties and the shortcomings of IT systems.

2.3 Benefits of FX diversification: how well has diversification served us?

One way to assess the NBP's overall experience with reserves diversification is to ask how well it has fared in delivering superior risk-return outcomes, as benchmarked against the original "undiversified" USD-EUR-GBP portfolio. Over the long run, currency diversification has contributed to a higher rate of return due to the stable positive impact of differences in the level of yields on individual markets, with a variable impact of changes in exchange rates (as shown in Graph 7).

Impact of diversification of currency structure on rate of return since 2007 Graph 7



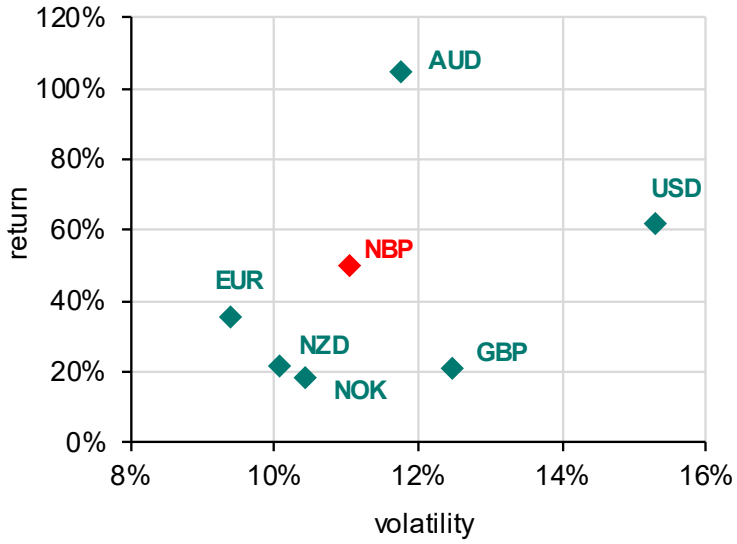
Source: NBP.

As a result of high bond yields combined with their significant decline since the beginning of 2007, the Australian dollar made the greatest contribution to the increase of the return. A smaller contribution came from the New Zealand dollar, which was added to the portfolio in 2013. Another positive effect of diversification was the reduction of the volatility of the rate of return.

A higher rate of return and the lower volatility of the diversified SAA currency structure translated into higher investment efficiency than before the start of the diversification process.

The positive impact of currency diversification is shown in Graph 8. Throughout the 2007–18 period, the euro, NZD and NOK portfolios have reduced risk of the total reserves whereas investments in USD and AUD contributed to the higher return.

Risk/return relation (in PLN) of FX portfolios and reserves (2007–18*) Graph 8



* The starting point for calculating NZD cumulative return and volatility is 2013 whereas for NOK it is 2008. For other currencies it is 2007.

Source: NBP.

3. Changes in the NBP's investment universe

3.1 Asset composition changes over the past decade

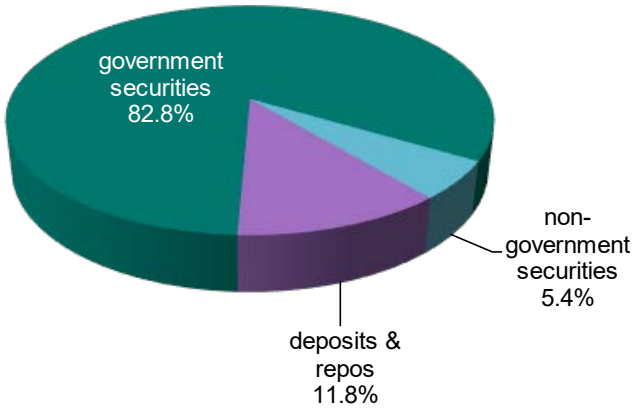
Along with its excursion into less traditional reserve currencies, the NBP has diversified the range of investable instruments, subject to the general investment guidelines and risk preferences set out by the Board. Naturally, the majority of FX reserves is still invested in sovereign bonds, which offer high liquidity and the lowest credit risk. In addition, the NBP also purchases supranational bonds, bonds issued by local governments or agencies, and corporate bonds. Most recently, inflation-linked bonds have been considered within active portfolio management. Some limited use of interest rate derivatives is also allowed, primarily for modified duration management.

Within predefined limits, traders are also allowed to make uncollateralised interbank deposits (with maturity of up to three months) and engage in securities lending or repo/reverse repo transactions. The contribution of each instrument to overall performance is generally not easy to disentangle and differs by market and currency but, thanks to the implemented Performance Attribution model, a detailed excess return decomposition is possible.

Within the diversification process, the NBP has set up a corporate bond portfolio in USD in June 2012. Corporate bonds have since become quite popular instruments among central banks. According to a recent BIS survey,[7] in 2018 some 51 central banks held corporate bonds issued by financial or non-financial corporations.

[7] Central Bank Reserve Management Practices 2018.

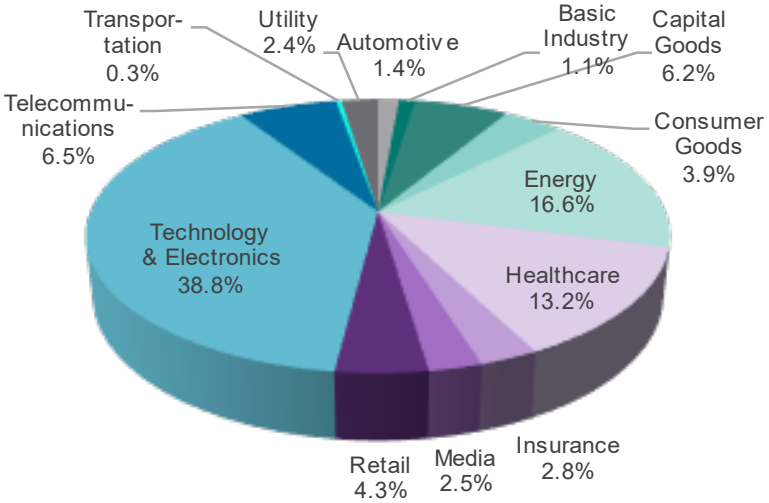
Share of investment instruments in the NBP foreign currency reserves excluding gold (as end-October 2018) Graph 9



Source: NBP.

Since the portfolio was built in-house, with the aim of gaining practical market expertise and know-how, the initial value of the corporate portfolio was set to a relatively low level of USD 500 million (0.6% of FX reserves), comprising bonds from a few strong, highly capitalised sectors. But, to avoid excessive concentration, investments in the financial sector were excluded, since the NBP already retained some exposure there through interbank deposits. As a practical matter, and in view of the somewhat lower market liquidity in the corporate bond space relative to sovereigns, the investment process was initially passive in nature and entailed close cooperation between the risk and portfolio management functions to select the appropriate portfolio characteristics.

Sector composition of the customised corporate bond index Graph 10

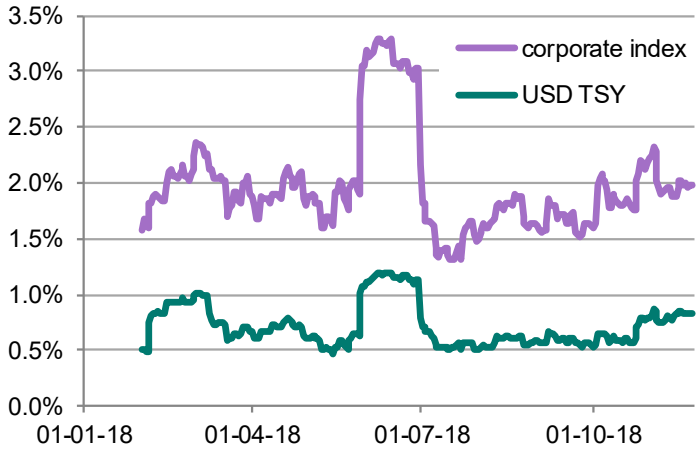


Source: NBP.

Over time, corporate bonds rose in prominence within the NBP's reserve management framework and, since the beginning of 2018, they have been included

as part of the USD investment portfolio with the share of 2%, covered by the three-layer decision-making process (SAA, TAA, APM). This decision was coupled with the introduction of a broad, diversified USD corporate bond index, appropriately customised to the NBP's risk profile (Graph 11). Reflecting the corporate bond market characteristics, the modified duration of the index exceeds that of the USD benchmark, translating into the former's somewhat higher volatility.

30-day rolling volatility of USD corporate bond index and USD benchmark in 2018 Graph 11



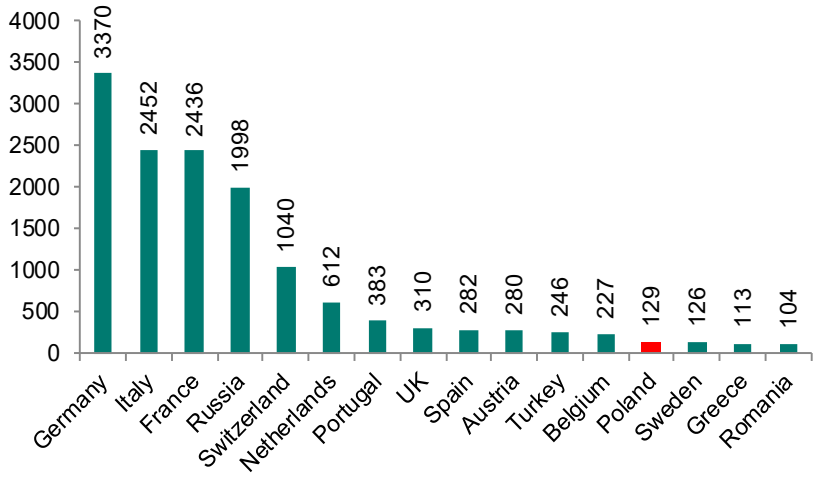
Source: NBP.

3.2 Gold as a strategic hedge

A somewhat distinct, yet by no means less important, part of the official reserves portfolio is made up by the NBP's gold holdings, which are perceived as an ultimate strategic hedge. Gold offers some unique investment features such as a virtual absence of credit risk, a historically strong performance during periods of high inflation, diversification benefits, scarcity and physical durability. These factors go a long way towards explaining why gold is seen as a safe haven asset in times of financial and political stress.

With these considerations in mind, the NBP made a strategic decision in 2018 to expand its gold reserves by 25%. The decision was supported by the fact that the NBP's gold holdings were lower than implied by the overall size of its reserves portfolio when benchmarked against those of other countries. The process of buying gold was finalised in October 2018, leading to an increase in the gold reserves to about 129 tons. As a result, the share of gold in official reserve assets went up from 3.8% at the end of June 2018 to 4.5% in October 2018. Currently, the NBP ranks 25th among central banks in the world and 13th in Europe in terms of gold holdings in tons (it ranked as 33rd and 16th before the purchase). Gold reserves are not included in the three-step investment process (SAA/TAA/APM). Decisions concerning the gold portfolio's size and investment strategy are taken by the Management Board. The NBP's gold is invested in deposits at central and commercial banks.

The biggest holders of gold in Europe (in tons) Graph 12



Source: IMF.

4. Conclusion: lessons learned and challenges for the future

As far as the future currency structure of the NBP's FX reserves is concerned, maintaining the dominant share of major reserve currencies (USD and EUR) seems to be reasonable as this should ensure the security and liquidity of the FX reserves. However, currency diversification should remain a key element of the NBP's investment strategy, aimed at reducing FX risk and maximising return over the long term. That said, the prospects of increasing the return on FX reserves through further diversification within the currently used asset classes would seem to be limited, given the NBP's preferences with respect to risk and liquidity. We may, therefore, be reaching a stage where further improvements in the risk-return profile of the reserves portfolio are likely to be achieved by gaining exposure to new asset classes, such as major equity markets or the EME space. Whether and how far we ultimately should go in that direction will be subject to further analysis.