4.3. Main risks in the mBank Group's business

The Management Board of mBank takes measures necessary to ensure that the Bank manages all material risks arising from the implementation of the adopted strategy of mBank Group, in particular, through approving strategies and processes for managing material risks in the Group.

The following risks were recognized as material in the operations of the Group as of the end-2016:

Credit risk	• Counterparty/default risk: risk of losses resulting from counterparty's failure to perform their obligations and the risk of reduction in the economic value of the credit exposure as a result of deterioration in the counterparty's ability to serve the liability. • Concentration risk: risk of a high concentration of credit losses resulting from high exposures. • Residual risk: risk resulting from the defective nature of collateral accepted and, hence, ineffectiveness of applied techniques of credit risk mitigation. • Reserve risk: risk of an underestimation of loan loss provisions for exposures in default status. • Participation investment risk: risk of decrease in economic value of participation exposure not traded on a regulated capital market as a result of worsening economic and financial situation of the issuer.
Market risk	Risk resulting from unfavourable change of the current valuation of financial instruments in the Bank's portfolios due to changes of the market risk factors, in particular interest rates, foreign exchange rates, stock share prices and indices, implied volatilities of relevant options and credit spreads.
Operational risk	Risk of loss resulting from a mismatch or unreliability of internal processes, people or systems or external events. Operational risk includes, in particular, the following sub-categories: legal risk, IT systems risk, personnel and organizational risk, security risk, compliance risk.
Business risk	Risk of losses resulting from deviations between actual net operating result of the mBank Group and the planned level.
Liquidity risk	Risk of failure to fund assets and meet payment obligations arising from balance sheet and off-balance sheet items owed by the Bank in a timely manner and at a market price.
Reputational risk	Risk resulting from a negative perception of the image of the bank or other member of the group among their stakeholders.
Model risk	Risk of negative consequences connected with the decisions made on the basis of the output data of models which have been improperly constructed or are improperly administered.
Capital risk	Risk resulting from the lack of sufficient capital to absorb unexpected losses.

mBank monitors all the aforementioned risks. The following section presents the rules of monitoring credit, market, liquidity and operational risk in mBank Group using risk measures applied by mBank and taking into account differences in the profile and scale of business of the Group.

The detailed information on managing the abovementioned risks as well as information concerning the management of other types of risk, that is business risk, reputational risk, model risk and capital risk are included in the Consolidated Financial Statement of mBank Group in the chapter 3. Risk Management.

Credit risk

The Bank organises credit risk management processes in line with the principles and requirements set out in the resolutions and recommendations of the Polish Financial Supervision Authority (in particular Recommendation S and T) and CRR/CRDIV, which address issues related to credit risk management.

<u>Tools and measures</u>

Credit risk inherent in financing of mBank Group clients is assessed based on shared statistical models developed for the AIRB (Advanced Internal Rating-Based) approach and uniform tools, and is based on common definitions of terms and parameters used in the credit risk management and rating process. The Bank ensures their cohesion at the Group level.

The Group uses different models for particular client segments. The rules governing clear assignment of clients to a system are defined in the Bank and Group subsidiaries internal regulations.

The Bank and Group subsidiaries in their credit risk management process use the core risk measures defined under the AIRB approach:

- PD – Probability of Default (%),
- LGD – Loss Given Default (%),
- EAD – Exposure at Default (amount),
- EL – Expected Loss (amount), as well as related measures including:
- RD – Risk Density, which is defined as EL to EAD (%),
- LAD - Loss at Default (amount of LGD).

In the decision-making process, for reporting and communication with business units, PD and EL are expressed in the language of rating classes whose definitions (Masterscale) are uniform across the Commerzbank Group.

In its credit risk management process, the Bank also attaches great importance to the assessment of unexpected loss risk. Capital required to cover unexpected loss is estimated at a confidence level of 99.91%. For this purpose, the Bank uses the following measure:

- RWA – Risk Weighted Assets used under the AIRB approach to calculate regulatory capital required to cover credit risk (unexpected loss).

In managing mortgage-secured credit exposures for different types of real estate and also for different products, the Group uses the LtV ratio (Loan to Value), i.e., the value of the loan to the market value (or mortgage banking calculated value) of the real estate which secures the loan.

Thanks to its simplicity, this measure is broadly used in communication with clients and in the construction of price matrices for credit products.

Stress testing is an additional tool of credit risk assessment which supplements CVaR (Credit Value at Risk) measurement of unexpected loss. Stress testing of the economic capital required to cover credit risk is measured quarterly.

Stress tests of credit risk are two-dimensional, analysed separately and jointly:

- The analysis of sensitivity of ECVaR model indications to assumptions concerning credit exposures (e.g., correlation) – i.e., parametric tests.
- The analysis of extreme credit losses on the assumption of an unfavourable macroeconomic situation – i.e., macroeconomic tests in which an econometrical model forecasts values of input parameters for the economic capital model (PD, LGD) based on assumptions of the Chief Economist about macro parameters in the case of the negative economic scenario. The risk parameters developed according to the above scenario form the basis for calculating economic capital both before and after the assumptions of parametric tests are taken into account.

In addition to the tools listed above, which are applied both in corporate and in retail credit risk measurement, the Group uses tools specific to these areas.

For corporate credit risk, the Group defines maximum exposure to a client/group of related clients using the following credit risk mitigating measures:

- MBPZO (Maximum Safe Total Exposure), which defines the maximum level of financial debt of an entity from financial institutions calculated under the Bank's methodology, approved by the Bank's competent decision-making body.
- LG (General Limit), which defines the level of credit risk financial exposure to a client/group of related clients acceptable to the Group, approved by the Bank's competent decision-making body. LG includes a structured limit and products granted outside the structured limit.

To minimise credit risk, the Group uses a broad range of collateral for credit products, also necessary to actively manage the capital requirement. In their assessment of the quality of risk products, mBank and mLeasing use the MRV ratio (Most Realistic Value), which reflects the worst-case scenario of debt enforcement through forced sale of collateral.

In addition, the decision-making process and the assessment of profitability per client in the CRM system use the RORAC ratio (Return on Risk Adjusted Capital), or return on the capital invested in risk products.

Retail credit risk measures are constructed to reflect the characteristics of this customer segment and, in the case of portfolio measures, the high granularity of the loan portfolio:

- DtI (Debt-to-Income) - i.e. monthly credit payments to the net income of a household (used for individual customers).
- DPD (Days-Past-Due) - a family of portfolio risk measures based on the number of days past due date (e.g. share of contracts which are from 31 to 90 days past due date in the total portfolio by number or by value).
- Vintage ratios, which represent the quality of cohorts of loans at a different phase of their lifetime taking into account disbursement time (e.g. each quarter), clients' characteristics etc., based on DPD.
- RC LLP (Risk Cost LLP) - cost of risk for a loan portfolio (segment), i.e. increment in loan loss provisions to the performing loan portfolio balance.
- Roll-rates, which measure the migration of contracts between days-past-due brackets (1-30, 31-60, 61-90 DPD, etc.).

Strategy

Corporate and Investment Banking

In accordance with the Corporate Credit Risk Management Strategy in mBank Group, the main goal in the corporate credit risk management is defining a safe level of risk appetite in sales of risk-bearing products to the Group clients and use synergies by integrating the offer of the Bank and Group subsidiaries. The strategy is realised by policies of the credit risk area, limits reducing the risk (limit book) and the principles of risk assessment of business entities applying for financing. The Bank manages credit risk both at the single entity level and the consolidated level. Implementation of uniform risk measures and risk controlling processes at the Group level takes into account the specificities of the Group entities. In 2016 the update of the strategy implemented further unification of corporate credit risk management parameters applied in mBank and Commerzbank which is reflected in extending High Attention Part of Steering Matrix used to on-going management of concentration risk.

In H1 2016 "The credit policy of the financing developers by mBank Group" was drafted and approved. A uniform approach to credit risk assessment of developers was adopted in mBank and mBank Group subsidiaries. A framework was set up to safely build a developers finance exposures portfolio by defining the preferred acquisition market and outlining the recommended terms of financing.

To complement Food & Agribusiness (F&A) clients finance policy approved in May 2015 by KRK, at the beginning of 2016 the process of servicing F&A clients was finally implemented, including individual farmers serviced in corporate area of mBank.

The diversified approach to corporate clients is tied to the client's risk level as measured by PD and credit risk concentration measured with LAD of a client or group of related clients, taking into account the exposure of the Group subsidiaries.

The credit decision-making system is consistent with the Corporate Credit Risk Management Strategy and the approved principles of the Credit Risk Policy. The competent decision-making levels are defined in a decision-making matrix. On that basis, depending on the EL-rating and the aggregate exposure for a client or group of related clients, the appropriate decision-making level responsible for the credit decision is assigned.

mBank follows a simplified credit decision-making procedure for a defined group of clients and transactions, in particular transactions under fast credit procedures (FCP), which enhances effectiveness while ensuring compliance with all legal and supervisory requirements and good practice of credit risk management.

The restructuring of the process also includes phased implementation of anti-fraud mechanism. The new strategy has enabled not only the development of a new workflow platform but also in accordance with the spirit of 'Client centric' simplified documentation, required and delivered to client, and its digitisation in credit process. The Group actively manages credit risk aiming to optimise profitability taking into account return on risk. Analyses of the Group's risks are performed on an on-going basis. Risk management is supported by analyses of the Group's credit portfolio structure and the resulting formal limits, guidelines and recommendations on the Group's exposure to selected companies, sectors and geographic markets. In its current credit risk management and determination of concentration risk, the Bank performs quarterly portfolio analyses using a Steering Matrix which incorporates PD rating and LAD.

In order to mitigate the risk of lending and guarantees, the Bank classifies and monitors credit risk products. The Group uses write-offs and provisions under the International Financial Reporting Standards (IFRS). The Bank also monitors credit portfolio on a quarterly basis including an analysis of the dynamics of change in size and (sector) segmentation of the credit portfolio, client risk (analysis of PD rating), quality of collateral against credit exposures, the scale of change in EL, Risk Density, and default exposures.

In the corporate banking, the Group avoids concentration in industries and sectors whose credit risk is considered excessively high. The acceptable risk level is defined taking into account market segmentation and sector concentration limits. In compliance with Recommendation S of the Polish Financial Supervision Authority, the Bank has identified a mortgage-secured credit exposure portfolio, not only in retail banking but also in corporate banking. The Bank manages the mortgage-secured credit exposure portfolio risk with a focus on defining an optimised portfolio structure in terms of quality (rating), currencies, country regions, tenors, and types of properties. The main principles of mortgage-secured credit exposure risk management in corporate and investment banking, the risk profile, division of responsibilities, rules of determining internal limits, and rules of reporting are set out in the mBank Mortgage-Secured Credit Exposure Risk Management Policy.

mBank Group strives to unlock synergies with Commerzbank more broadly in syndicated finance of selected Group clients. For international companies, non-banking financial institutions and biggest corporate clients, mBank Group promotes innovative products which are low in capital consumption, in particular products of investment banking (ECM, DCM, M&A), transactional banking and financial markets, as well as arrangement of syndicated finance for selected big ticket clients to ensure satisfactory profitability and mitigate the risk of high concentration of individual clients/groups of related companies.

mBank promotes financing alternative to banking loans by arranging public and private programmes and club deals for bonds issued by clients with a stable financial position.

<u>Retail Banking</u>

Lending in retail banking is a key segment of the Group's business model, both in terms of the share in total assets and the contribution to its profits.

The Bank's retail credit offer covers a broad range of products financing the needs of individual customers (OF) and micro-companies (MF). The offered credit products in combination with the state-of-the-art transactional platform, savings and insurance products address all financial needs of clients within the Group.

Apart from the Polish market, the Retail Banking credit products are offered through the foreign branches (OZ) of the Bank in the Czech Republic and Slovakia in an online banking model similar to that operating in Poland. The share of the foreign branches' exposure portfolio was around 10% of the aggregate retail portfolio at the end of 2016 (by value). The Bank ensures the coherence of the credit risk management policy on all markets; any differences in specific rules or parameter values derive from the specificities of local markets or different goals of business strategies and are at each time subject to approval by the Retail Banking Risk Committee.

As credit exposures are highly granular (more than 2 million active loans), the retail banking credit risk management process is based on a portfolio approach. This is reflected in the statistical profile of risk rating models including the models which fulfil the regulatory requirements of the Advanced Internal Ratings-Based approach (AIRB). The AIRB parameters (PD, LGD and EL) are used widely in order to estimate credit requirements, to determine acceptance criteria and terms of transactions, and to report risks.

Furthermore, the Retail Banking credit risk management has the following characteristics:

- high standardisation and automation of the credit process, including decision-making, both in acquisition, post-sale services, and debt collection;
- little (as compared to Corporate Banking) discretionary competences in the decision-making process (e.g. no discretionary adjustment of clients' ratings);
- extensive risk reporting system based on portfolio analysis of credit exposure quality, including vintage analysis and roll-rates analysis.

Under the portfolio approach, exposures are classified (separately for each market) as ML (mortgage-secured products) or NML (unsecured products or products with non-mortgage collateral). Furthermore, the segmentation includes products for individuals (ML OF, NML OF) and products for business clients (ML MF, NML MF).

The main point of reference in the retail banking credit risk management process is risk appetite defined in correlation with the strategy of the Bank which provides for:

- optimisation of the balance-sheet structure in terms of profitability and financing by reducing the growth rate of credit portfolios with long tenors (and low margins) while supporting growth of short-term loans (with high margins),
- developing long-term financing of the Group's lending with mortgage bonds issued against retail mortgage loans.

Taking into account the above assumptions, the general principle underlying the lending strategy of the Group is to address the offer to clients who have an established relationship with the Bank or to address it to new clients for whom the loan is a product initiating a long-term relationship of highly transactional nature. Consequently, the Bank continues to focus its NML policies on lending to existing clients with a high creditworthiness while systematically growing the acquisition of external clients.

These initiatives include lending to clients under a joint project of mBank and one of the biggest telecom operators (Orange Finanse Project). Furthermore, the Bank increasingly provides financing to clients doing shopping online. To reduce operational risks of accepting new clients, the Bank develops its credit policy using, among others, credit testing and is actively developing its fraud prevention system.

mBank decided to stop acquisition of mortgage products for private individuals commencing July 1, 2016. In mBank Group, the sale of loans for financing residential real estate has been transferred to mBank Hipoteczny. The new acquisition is restricted to products which may be financed with issue of mortgage bonds - non-purpose mortgage loans and loans to finance cooperative ownership right to premises are withdrawn from the offer. Only mortgage loans for Private Banking clients remain in the offer of mBank's retail banking area. The conservative policy of assessing borrowers' reliability and creditworthiness is maintained; taking into account, inter alia, current, historically lowest, levels of interest rates, the Group attaches special attention to the application of long-term estimates of interest rate while assessing creditworthiness.

Additionally, in order to mitigate the risk associated with a decrease in the value of mortgage collateral in relation to the value of credit exposure, the Group's credit offer is (and will be) directed mainly to clients who buy properties within large urban areas.

Quality of the mBank Group loan portfolio

As of December 31, 2016, the share of impaired exposures in the total (gross) amount of loans and advances granted to clients decreased to 5.4% from 5.7% at the end of 2015.

Provision for loans and advances to customers decreased from PLN 2,975.9 million at the end of 2015 to PLN 2,817.5 million at the end of 2016. The IBNI (Incurred But Not Identified) loss provision decreased from PLN 247.2 million to PLN 226.4 million in that period.

The ratio of provisions to non-performing loans decreased by 2 pp. to 57%.

In 2016, the Bank issued no enforcement orders for corporate clients compared to 110 a year earlier. Demands for payment in 2016 stood at 7 compared to 3 a year earlier.

In terms of Retail Banking segment, the Bank issued 9,582 enforcement orders for non-mortgage loans (compared with 12,283 a year earlier). The number of enforcement orders for mortgage loans decreased to 88 in 2016 (249 a year earlier).

To assess impairment, the Bank applies credit risk parameters based on those derived from the A-IRB methodology.

The manner of identifying evidence of default is based on all available credit data of a given client and encompasses all of the client's liabilities towards the Bank.

At the end of 2016, the loans and advances (net) to customers rose by almost 4.2%, where the increase was driven mainly by the rising loans to individuals.

In the corporate portfolio, the growth of term loans and loans in current accounts was nearly offset by the decrease in reverse repo/buy sell back transactions and other receivables.

The table below presents the quality of mBank Group's loan portfolio as at the end of 2016 compared to the end of 2015.

Quality of the mBank Group loan portfolio	31.12.2016 (in thousand PLN)	31.12.2015 (in thousand PLN)
Loans and advances to individuals:	**48,949,829**	**46,258,683**
- current accounts	6,458,369	5,897,129
- term loans, including:	42,491,460	40,361,554
- housing and mortgage loans	35,369,113	34,184,208
- other	-	-
Loans and advances to corporate entities:	**34,174,289**	**33,446,644**
- current accounts	4,125,405	3,976,187
- term loans:	**28,267,897**	**26,976,422**
- large enterprises	5,037,182	5,825,318
- medium & small enterprises	23,230,715	21,151,104
- reverse repo/buy sell back	56,676	1,031,029
- other	1,724,311	1,463,006
Loans & advances to public sector	1,228,230	1,520,728
Other receivables	228,424	183,355
Total (gross) loans and advances to customers	**84,580,772**	**81,409,410**
Provision for loans and advances to customers (negative amount)	-2,817,495	-2,975,864
Total (net) loans and advances to customers	**81,763,277**	**78,433,546**
Short-term (up to 1 year)	26,909,693	26,169,938
Long-term (over 1 year)	54,853,584	52,263,608
Incurred but not identified (IBNI) losses		
Gross balance sheet exposure	**80,043,614**	**76,777,938**
IBNI loss provision for portfolio exposures	-226,430	-247,198
Net balance sheet exposure	**79,817,184**	**76,530,740**
Impaired exposures		
Gross balance sheet exposure	4,537,158	4,631,472
Provisions for impaired exposures	-2,591,065	-2,728,666
Net balance sheet exposure	**1,946,093**	**1,902,806**

Market risk

mBank organises market risk management processes in line with the requirements resulting from law and recommendations issued by regulators, in particular PFSA Recommendations (among others A, G and I) and EBA guidelines, concerning market risk management.

Tools and measures

In its business, mBank is exposed to market risk, i.e., the risk of unfavourable changes in the present value of financial instruments in the Bank's portfolios due to changes in market risk factors: interest rates, FX rates, stock share prices and indices, the implied volatility of options, and credit spreads. In terms of the banking book mBank identifies interest rate risk, which is defined as a risk of adverse change in both valuation of banking book positions and net interest income arising from adverse movements in interest rates.

The Bank identifies market risk related with positions of the trading book measured at fair value (using the direct measurement method or the model measurement method), which may materialise in the form of losses reflected in mBank's financial performance. Moreover, the Bank attributes market risk to the banking book positions, regardless of the methods for calculating earnings generated from those positions used for the purpose of accounting reporting. In particular, in order to measure the interest rate risk of Retail and Corporate Banking products without a fixed interest revaluation date or with rates administered by the Bank, the Bank uses replicating portfolio models. Since 2013, the Bank uses the capital modelling concept, which is reflected in market risk measurement at the level of the Bank's internal organisational structures. Market risk measures of the interest positions of the banking book are calculated with the use of net present value (NPV) models.

Market risk exposure is quantified by measurement of Value at Risk (VaR), measurement of Stressed Value at Risk (Stressed VaR), measurement of expected loss under condition that this loss exceeds Value at Risk (ES – Expected Shortfall) and by use of stress tests. Market risk, in particular interest rate risk of the banking book, is also quantified by measurement of Earnings at Risk (EaR) of the banking book.

The mBank limited risk appetite for interest rate risk in long term buckets by setting BPV (+1bp) limit for total interest rate mBank Group position for tenors above 20 years and above 30 years, as well as it established allowed risk appetite for credit spread risk by setting CS BPV (+1bp) limits in structure described by rating categories for all treasury, commercial and own receivables debt papers on mBank Group portfolio from 1 January 2016.

Strategy

The implementation of market risk management strategy involves managing the Bank's positions in a way enabling to maintain market risk profile within the risk appetite defined by the Bank. The Bank is focused on meeting customers' business needs, while reducing trade in derivatives in terms of currency, currency pairs, nominal values and tenors of transactions, as well as applying the principle of lack of commodity open positions. The Bank conducts trading activity on well-known markets using financial instruments the Bank has adequate expertise in and that have been approved for trading.

The market risk profile is derived from the strategic goals of business units, the policy of Committee (ALCO) in charge of shaping the structure of the Group's assets and liabilities and the limits on market risk exposure established by the Financial Markets Risk Committee (KRF) at the Bank level, and by the Management Board and Supervisory Board at the Group level. The system of limits reflects in a quantitative manner the defined risk appetite.

In accordance with the previously described general principles of risk management, market risk management is organized under so-called three lines of defence. The main principle of organisation of the market risk management process stipulates separation between the market risk monitoring and control function and the functions related with opening and maintaining open market risk positions.

In addition, the Bank applies the rule of organizational separation between managing banking book operations (including portfolios of Treasury Department, Debt Securities Issue Department and Structured and Mezzanine Finance Department) and trading book operations (including portfolios of Financial Markets Department and Own Transactions Department in Brokerage Bureau).

Measuring mBank's risk

Value at Risk

In 2016, the Bank's market risk exposure, measured by Value at Risk (VaR, for one day holding period, at 97.5% confidence level), was moderate in relation to the VaR limits. The VaR figures for the Bank's portfolio were driven mainly by portfolios of instruments sensitive to interest rates and to selected credit spread – T-bonds portfolios in the banking book and in the trading book including interest rate swap positions. The portfolios of instruments sensitive to changes in exchange rates, such as FX futures and options, and the exposure of the portfolios to equity price risk and the risk of implied volatility of options traded on the WSE had a relatively low impact on the Bank's risk profile.

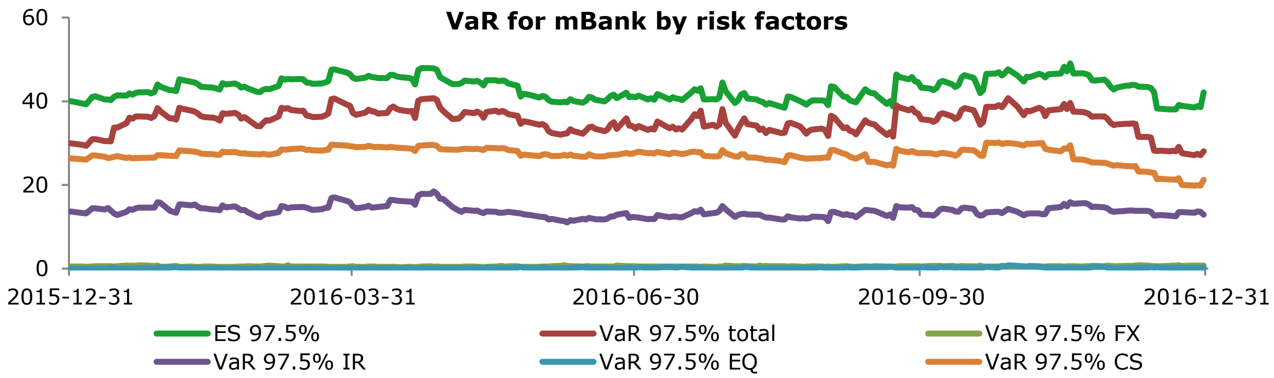
In H1 2016, mDom Maklerski was merged with mBank. As a result of merger of units carrying out its operations focusing on financial instruments traded on the stock exchanges, Own Transactions Division in Brokerage Bureau was established and replaced previous Brokerage Bureau. Increase of market risk measures caused by the merger was insignificant.

The table below presents VaR statistics of mBank's portfolio in 2016:

PLN thou.	2016				2015			
	31.12.16	average	max	min	31.12.15	average	max	min
VaR IR	12,903	13,721	18,454	11,042	13,688	16,085	23,329	12,739
VaR FX	772	547	816	351	496	685	1,096	453
VaR EQ	199	214	791	62	79	5,170	6,588	67
VaR CS	21,249	27,172	30,150	19,856	26,320	23,916	26,345	20,426
VaR	**28,037**	**35,306**	**40,726**	**27,124**	**29,943**	**27,877**	**34,881**	**21,266**

VaR IR – interest rate risk
VaR FX - FX risk
VaR EQ – stock price risk
VaR CS – credit spread risk

The graph below presents changes in VaR for mBank in 12 months to December 31, 2016 (PLN million):



VaR statistics in stress conditions

Since the beginning of September 2015 new VaR statistics in stress conditions have been introduced (it is a tracked measure). The table below presents VaR statistics in stress conditions in 2016 in comparison to statistics of this measure for Q4 2015:

PLN thou.	2016				Q4 2015			
	31.12.16	average	max	min	31.12.15	average	max	min
Stressed VaR IR	45,288	43,671	50,339	36,293	37,742	35,742	39,293	31,053
Stressed VaR FX	2,339	1,363	2,655	576	1,338	1,376	2,933	516
Stressed VaR EQ	422	342	1,495	2	4	8,721	13,074	4
Stressed VaR CS	87,930	87,516	96,278	74,731	73,992	75,255	77,899	73,530
Stressed VaR	**124,833**	**119,771**	**130,662**	**105,462**	**103,060**	**111,038**	**116,945**	**102,035**

Stress testing

The utilisation of stress tests for mBank in 2016 is presented in the table below:

PLN M	2016				2015			
	31.12.16	average	max	min	31.12.15	average	max	min
Base stress test	97	82	120	20	74	107	134	68
CS stress test	752	695	782	623	640	689	770	611
Total stress test	**849**	**777**	**892**	**656**	**714**	**796**	**900**	**699**

Base stress test – standard stress test.
CS stress test – stress test with scenarios including credit spread changes.
Total stress test – total stress test (sum of the standard stress test and the stress test with scenarios including credit spread changes).

In 2016, the average utilisation of the stress test limits for mBank without capital modelling was 60% (PLN 776.6 million). The main part of the presented stress test results is the value of stress tests for change of the credit spread of T-bond portfolios because the stress test scenarios assume on average a 100 bps increase of credit spreads.

Interest rate risk of the banking book

In 2016 the interest rate risk of the banking book as measured by EaR, i.e. potential decrease of interest income within 12 months assuming an unfavourable 100 bps change of market interest rates (parallel shift of the curve by 100 basis points) and based on a stable value of the portfolio over the period, was as presented in the table below:

PLN M	2016				2015			
	31.12.16	average	maximum	minimum	31.12.15	average	maximum	minimum
PLN	171.8	78.3	180.0	34.7	99.4	55.4	122.2	8.4
USD	9.3	7.5	13.8	1.2	3.7	2.4	7.5	0.7
EUR	64.9	70.6	142.3	50.2	52.5	37.3	63.1	0.0
CHF	0.0	4.1	21.6	0.0	2.4	8.1	38.8	0.0
CZK	3.1	4.1	7.5	2.4	2.7	2.3	4.8	1.3

Measuring mBank Group's market risk

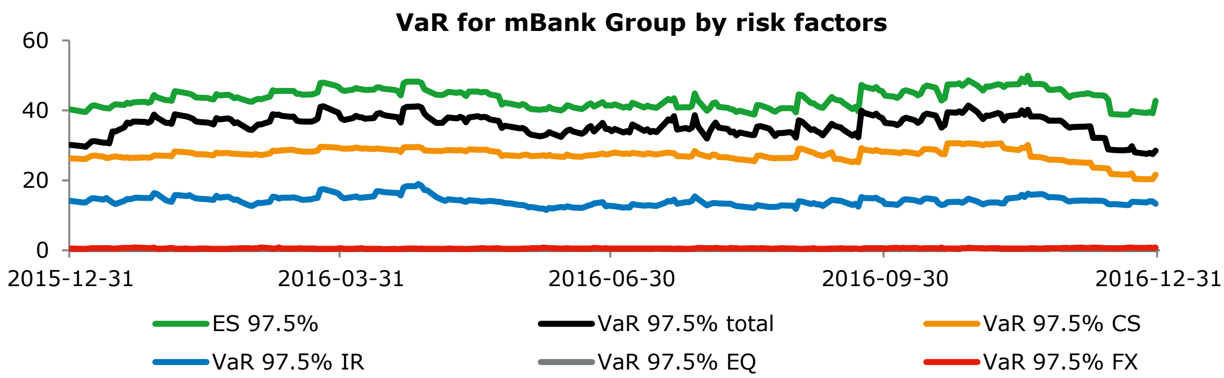
The main sources of market risk of the Group are mBank's positions. The table below shows VaR statistics (VaR at a 97.5% confidence level for a one-day holding period) for mBank Group in 2016 for individual members of the Group in which market risk positions were identified (i.e., portfolios of mBank, mBank Hipoteczny, mLeasing) and their decomposition to the VaR corresponding to the main risk factor types – interest rate risk (VaR IR), foreign exchange risk (VaR FX), stock prices/index value risk (VaR EQ), and credit spread risk (VaR CS).

The table below presents VaR statistics in 2016:

PLN thou.	mBank Group	mBank	mBH	mLeasing
VaR IR average	14,143	13,721	187	278
VaR FX average	558	547	29	17
VaR EQ average	224	214	0	0
VaR CS average	27,352	27,172	197	0
VaR average	35,879	35,306	330	273
VaR max	41,393	40,726	770	339
VaR min	27,515	27,124	100	192
VaR 31.12.2016	**28,438**	**28,037**	**459**	**212**

For comparison, at the end of 2015, VaR for mBank Group was PLN 30,158 thousand, including VaR of mBank at PLN 29,943 thousand, mBank Hipoteczny – PLN 99 thousand and mLeasing – PLN 273 thousand.

The graph below presents changes in VaR for mBank Group in 2016 (PLN million):



Stress testing

The utilisation of stress tests for mBank Group in 2016 is presented in the table below:

PLN M	2016				2015			
	31.12.16	average	max	min	31.12.15	average	max	min
Base stress test	102	87	125	26	78	111	139	72
CS stress test	767	710	798	639	647	691	772	613
Total stress test	**869**	**797**	**914**	**679**	**725**	**802**	**905**	**705**

Base stress test – standard stress test.
CS stress test – stress test with scenarios including credit spread changes.
Total stress test – total stress test (sum of the standard stress test and the stress test with scenarios including credit spread changes).

In 2016, the average utilisation of the stress test limits for mBank Group without capital modelling was 59% (PLN 797.2 million) and with capital modelling was 58% (PLN 788.1 million).

Liquidity risk

mBank organises liquidity risk management processes in line with the requirements resulting from law and recommendations issued by regulators in particular PFSA Recommendations (among others P, H and S) as well as EBA guidelines concerning liquidity risk management.

Tools and measures

In its operations, mBank is exposed to liquidity risk, i.e., the risk of being unable to honour its payment obligations, arising from the Bank's balance-sheet and off-balance-sheet positions, on terms favourable to the Bank and at a reasonable price.

In terms of its sources, liquidity risk may result from internal factors (reputation risk resulting for instance in excessive withdrawal of cash by Bank clients, materialisation of credit risk) and external factors (turbulences and crises in the financial markets, country risk, turbulences in the operation of clearing systems).

For this purpose, the Bank has defined a set of liquidity risk measures and a system of limits and warning thresholds which protect the Bank's liquidity in the event of unfavourable internal or external conditions. Independent measurement, monitoring and controlling of liquidity risk is performed daily by the Financial Markets Risk Department. The main measures used in liquidity risk management of the Bank include ANL (Available Net Liquidity) measures, the regulatory measures (M1, M2, M3, M4) and LCR, and NSFR for analysis only. ANL measures reflect the projected future cash flow gap of assets, liabilities and off-balance-sheet commitments of the Bank, which represents potential risk of being unable to meet liabilities within a specific time horizon and under a certain scenario. ANL scenarios include base scenario (ANL Base), and three liquidity stress test scenarios: internal (ANL Stress), systemic (ANL Stress Market) and a combination of both (ANL Stress Combined). Cash flow projections used in these measures are based on crisis scenarios, which include excessive withdrawal of cash by the Bank's clients and being unable to liquidate some assets due to an external crisis occurring to various extent dependent on assumed scenario. Moreover the Bank has a process of reporting and monitoring of intraday liquidity position including crisis scenario for intraday liquidity. The reverse stress scenario is the complement of the liquidity stress testing system.

In order to support the process of liquidity risk management, the Bank has a system of early warnings indicators (EWI). It is composed of indicators monitoring the level of regulatory and internal limits and additionally, indicators monitoring significant changes of market factors, as well as changes in the Bank's balance sheet. Exceedance of thresholds by defined indicators may be a trigger for the launch of the Contingency Plan or the Recovery Plan.

Since September 2016 the Bank reports LCR measure according to the standard compliant with Commission Delegated Regulation (EU) No. 2015/61 of October 10, 2014.

In terms of NSFR the Bank reports to NBP according to standards set by EBA in 2014, as well as to the PFSA in a form of a dedicated questionnaire.

Strategy

The liquidity strategy is pursued by active management of the balance sheet structure and future cash flows as well as maintenance of liquidity reserves adequate to liquidity needs depending on the activity of the Bank and the current market situation as well as funding needs of the Group subsidiaries.

The Bank manages liquidity risk at two levels: strategic (within committees of the Bank) and operational (Treasury Department).

Liquidity risk limiting covers supervisory and internal measures.

The first category includes four liquidity measures determined by the Polish Financial Supervision Authority: M1, M2, M3, M4 and LCR measure, which is additionally reported to the NBP. NSFR measure (Net Stable Funding Ratio) is monitored.

The liquidity risk internal limit system is based mainly on defining acceptable level of gaps in defined tenors for ANL measures in stress conditions in specific time horizons and for different liquidity risk profiles (for all currencies in aggregate converted to PLN) and for specific foreign currencies.

The Bank has a centralised approach to the Group's funding management in order to increase the efficiency of liquidity resources used. Financing of subsidiaries is done from mBank via the Treasury Department, with the exception of mBank Hipoteczny and mLeasing. mBank Hipoteczny raises funding in the market by issuance of covered bonds, short-term debt securities and from mBank, mLeasing raises funding by issuance of short-term debt securities and from mBank, while other subsidiaries raise all of their funding from mBank.

The Contingency Plan in case of the threat of losing financial liquidity is in place in the Bank, that sets the strategy and procedures in the event of a situation related to the threat of loss of liquidity by the Group of mBank to neutralize this. The regulation defines the division of responsibility for monitoring, identifying threats and actions during the emergency. The Contingency Plan is tested at least annually.

The Recovery Plan of mBank Group was created parallely to the Contingency Plan and covers situations for which a broader set of actions is required than those defined in the Contingency Plan.

The Bank limits the volume and term concentration of foreign currency funding of mBank with FX-swaps and CIRS. The limit is set in order to determine the relevant risk appetite accepted by the Bank in this respect. In addition, the limit is decomposed into individual limits for CIRS and FX-swaps as well as limits for funding in EUR and CHF. The limit structure reflects the Bank's preference for currency funding with long tenors.

Measuring mBank's liquidity risk

The liquidity of mBank remained safe in 2016, as reflected in the high surplus of liquid assets over short-term liabilities in ANL measures and in regulatory measures. Since May 21, 2016, the data includes Dom Maklerski mBanku, which was merged with mBank S.A. on that day.

The table below presents the ANL gaps for tenors up to 1M and 1Y in 2016 as well as the regulatory measures M1, M2, M3, M4 and LCR:

Measure*	2016			
	31.12.2016	**mean**	**maximum**	**minimum**
ANL Base 1M*	20,428	16,767	21,088	12,252
ANL Base 1Y*	18,694	16,597	20,837	12,392
ANL Stress 1M*	17,579	14,473	18,903	10,377
ANL Stress 1Y*	15,845	14,303	18,473	10,109
ANL Market 1M*	17,436	13,310	18,405	9,650
ANL Combined 1M*	16,411	12,437	17,404	8,706
M1	15,117	13,570	17,974	7,681
M2	1.42	1.40	1.54	1.26
M3	4.79	4.82	5.20	4.03
M4	1.41	1.34	1.41	1.28
LCR	200%	154%	200%	126%

** ANL Base, ANL Stress, ANL Stress Market, ANL Stress Combined and M1 are shown in PLN million, M2 is a relative measure presented as a decimal, ANL Stress is limited up to 1Y, ANL Stress Market and ANL Stress Combined are limited up to 1M.*

*** Means, maximums and minimums are calculated for period starting from February 1, 2016.*

Measuring the Group's liquidity risk

The Group's liquidity risk measurement includes mBank Hipoteczny, mLeasing, and until May 20, 2016 ,Dom Maklerski mBanku, which was merged with mBank S.A. on May 21, 2016. mBank monitors liquidity risk of the subsidiaries in the ANL Stress tenors so as to protect liquidity also at Group level in the event of adverse events (crises).

The Group's liquidity was safe in 2016, as reflected in the high surplus of liquid assets over short-term liabilities in the ANL Stress tenors and LCR measure calculated at Group level.

The table below presents the ANL Stress gap for tenors up to 1M and 1Y and LCR measure at mBank Group level:

Measure*	2016			
	31.12.2016	mean	maximum	minimum
ANL Stress 1M**	19,153	15,798	19,905	12,214
ANL Stress 1Y**	17,170	15,642	19,608	11,952
LCR Group***	181%	179%	187%	173%

** ANL Stress is shown in PLN million.*

*** Means, maximums and minimums are calculated for period starting from February 1, 2016.*

**** Mean, maximum and minimum are calculated for period starting from September 30, 2016.*

Operational risk

mBank organises the operational risk management process taking into account the rules and requirements set out in the Regulation (EU) No 575/2013 of the European Parliament and of the Council of June 26, 2013 as well as in recommendations of the Polish Financial Supervision Authority (including Recommendations M, H and D, in particular), which constitute a starting point for developing the framework of the operational risk control and management system in mBank Group.

Tools and measures

The Bank understands operational risk as the possibility of incurring a loss arising from inadequate or defective internal processes, systems, errors or actions taken by the Bank's employee or from external events. In particular, operational risk includes legal risk.

Operational risk accompanies all processes at banks (inadequate or defective internal processes, systems, human errors or external events) and its consequences can be often very harmful. It is characterized by an asymmetric distribution of losses; overwhelmingly, these are small value losses. Large losses are rare but the size of such a loss may exceed the sum of all the remaining operational losses in a given reporting period.

In order to effectively manage operational risk (identification, monitoring, measurement, assessment, reporting as well as reduction, avoidance, transfer or acceptance of operational risk), the bank applies quantitative and qualitative methods and tools. The tools applied by the Bank intend to cause-oriented operational risk management.

The basic qualitative tool is the internal control system self-assessment carried out once a year by the Bank's organizational units. The aim of the process is to increase the awareness of operations risk, create a platform for communication about the necessity of changes and improvements in control processes, and thus a more active approach to operational risk management. The end result of the self-assessment is to identify and assess key risks and control mechanisms as well as to create recovery plans aimed at changing the structure or the optimization of the control mechanisms in order to improve the adequacy and effectiveness of internal control system. The implementation of the self-assessment process was completed in the Bank in September 2015. The process replaced formerly existing functional control and Business Environment Assessment Surveys. The implementation of the self-assessment process in mBank Group subsidiaries and foreign branches was completed in H1 2016.

The Bank prepares also scenario analyses describing risks associated with rare operational risk events with potentially very serious consequences.

The key risk indicators (KRI) are another tool. Ongoing monitoring of risk factors recognized as key at the given moment will allow for prediction of an increased level of operational risk and adequate response by the organizational units in order to avoid the occurrence of operational events and losses.

In accordance with the requirements of Recommendation M, the Bank has a process for identifying threats associated with operational risk in all relevant areas of the Bank's operations and for creating new and modifying existing products, processes and systems, as well as for changes in the organizational structure.

Quantitative tools of the operational risk methodology include mainly collection of data on operational events and effects. With the use of the database available at the mBank Group, data on operational risk losses are recorded with an emphasis on the cause. Recorded data are analysed by the Integrated Risk and Capital Management Department and at organizational units, which allows organizational units to carry out ongoing monitoring of their current risk profile. mBank has an access to external operational loss databases and applies them to analyse operational risk and potential threats, that institutions operating in the financial sector are exposed to.

Strategy

The operational risk control and management system, forms an organisational basis in order to enable effective control and management of operational risk at every level of mBank's organisational hierarchy. The structure of operational risk control and management covers in particular the role of the Management Board of the Bank, the Business and Risk Forum, the Chief Risk Officer, the Integrated Risk and Capital Management Department, and the tasks assigned to persons managing operational risk in particular organisational units and business areas of the Bank. The operational risk control and management process at mBank is developed and co-ordinated by the central operational risk control function while operational risk management takes place in every organisational unit of the Bank and in every subsidiary of mBank Group. It consists in identifying and monitoring operational risk and taking actions aimed to avoid, mitigate or transfer operational risk.

The entire operational risk control process is supervised by the Supervisory Board of the Bank through its Risk Committee.