KELER CENTRAL DEPOSITORY LTD.

Consolidated Financial Statements prepared in accordance with International Financial Reporting Standards as adopted by the European Union
and
Independent Auditor's Report

for the year ended 31 December 2018

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Explanation of the abbreviations used in the financial statements:

AC	Financial asset measured at amortized cost
AFS	Available-for-sale (financial instruments)
ARO	Asset retirement obligation
CBH	Central Bank of Hungary
CCP	Central Counterparty (may mean: clearing house)
CGU	Cash-generating unit
DKJ	Treasury Bills issued by the Hungarian State
EAD	Exposure At Default
ECC	European Commodity Clearing
ECL	Expected Credit Loss
EMIR	European Market Infrastructure Regulation
EPS	Earnings per share
CRR	Capital Requirement Regulation
FVTOCI	Fair value through other comprehensive income
FVTPL	Fair value through profit or loss
GCM	General Clearing Member
HAS	Hungarian Accounting Regulation
HTM	Held to maturity (financial asset)
IAS	International Accounting Standards
IFRIC/SIC	Interpretations of the International Financial Reporting Standards
IFRS	International Financial Reporting Standards
LGD	Loss Given at Default
LR	Loans and receivables (financial asset)
MÁK	Government Bonds issued by the Hungarian State
MHUF	Million Hungarian forints
OTC	Over-The-Counter
PD	Probability of Default
ROU	Right of use asset
SPPI	Cash Flow test of 'Solely Payments of Principal and Interest'
WACC	Weighted average cost of capital

INDEPENDENT AUDITOR'S REPORT

To the Shareholders of KELER Ltd.

Opinion

We have audited the consolidated financial statements of KELER Ltd. and its subsidiaries (the „Group”) for the year 2018 which comprise the consolidated statement of financial position as at December 31, 2018 – which shows a total assets of HUF 157,575 million –, and the related consolidated statement of comprehensive income – which shows a total comprehensive income for the period of HUF 1,630 million –, consolidated statement of changes in equity and consolidated statement of cash flows for the year then ended and notes to the consolidated financial statements including a summary of significant accounting policies.

In our opinion, the accompanying consolidated financial statements give a true and fair view of the consolidated financial position of the Group as at December 31, 2018 and of its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with International Financial Reporting Standards as adopted by the European Union (the „EU IFRS”), and the consolidated financial statements were prepared in all material respects in accordance with the provisions of the effective Hungarian Act C of 2000 on Accounting (hereinafter: "the Accounting Act") relevant to the entities preparing consolidated financial statements in accordance with EU IFRS.

Basis for Opinion

We conducted our audit in accordance with the Hungarian National Standards on Auditing and the effective Hungarian laws and other regulations on audits. Our responsibilities under these standards are further described in the "*The Auditor’s Responsibilities for the Audit of the Consolidated Financial Statements*" section of our report.

We are independent of the Group in compliance with the relevant effective Hungarian regulations and the “Rules of conduct (ethical rules) of the auditor profession and the disciplinary process” of the Chamber of Hungarian Auditors and, in respect of matters not regulated therein, the “Code of Ethics for Professional Accountants” (the IESBA Code) issued by the International Ethics Standards Board for Accountants, and we have fulfilled our other ethical responsibilities in accordance with the same ethical requirements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Key Audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

<table>
<tr><th>Key audit matter</th><th>How our audit addressed the matter</th></tr>
<tr><td colspan="2">Settlement of fees and commissions for depository and clearing services</td></tr>
<tr><td>(Please, see Note 22 of the notes of the consolidated financial statements for details.)

The Group's income on fees and commissions of depository and clearing sevices is HUF 6.166 Million in current year.

There is a risk that whether the income of these fees and commissions related to depository and clearing services have been settled in accordance with the terms of the relevant contractual arrangements or the terms and conditions of the business rules published in the notices of fees.

Considering these facts above, the accounting of these depository and clearing services' revenues was considered as a key audit matter.</td><td>The relevant audit procedures performed by us related to incomes from depository and clearing services included the followings:

• examining the design, implementation and operating effectiveness of depository and clearing services' fees' and commissions' determination, approval, recording in the clearing system, modification of fixed fee parameters in the basic internal control systems;
• examining the design, implementation and operating effectiveness of the basic internal control systems related to the process of financial settlement of stock exchange (BÉT) or over-the-counter (OTC) transactions' fees (recording on cash and securities accounts, etc.) affecting the accounting of certain significant custodian and credit institution activities within the depository services;
• examining the design and implementation of basic internal control systems related to other activities in depository and clearing services (fixing of master data of partners, opening of accounts, closing of accounts, recordings of certain output services, settlements);
• recalculating and analyzing some of the major custodian and credit institution fees and certain major clearing fees within the custodian services with the help of the underlying data (transactions or stocks, as well as contractual or announcement specific rates);
• substantive detailed test based on statistical sample selection for the total amount of custody and clearing fees.
We have examined the relevant accounting and disclosures.</td></tr>
</table>

Other Information: The Consolidated Business Report

Other information includes the consolidated business report of the Group for 2018. Management is responsible for the preparation of the consolidated business report in accordance with the relevant provisions of the Accounting Act and other regulations. Our opinion on the consolidated financial statements provided in the section of our independent auditor's report entitled „Opinion" does not apply to the consolidated business report.

Our responsibility in connection with our audit of the consolidated financial statements is to read the consolidated business report and, in doing so, consider whether the consolidated business report is materially inconsistent with the consolidated financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated.

Furthermore, in accordance with the Accounting Act, our responsibilities also include assessing whether the consolidated business report was prepared in accordance with the relevant provisions of the Accounting Act and other regulations, and to express an opinion on the above and on whether the consolidated business report is consistent with the financial statements.

In our opinion, the consolidated business report of the Group for 2018 corresponds to the consolidated financial statements of the Group for 2018 and the relevant provisions of the Accounting Act in all material respects. As the Group is not subject to additional requirements under any other regulation in connection with the consolidated business report, we have not formulated an opinion on this matter.

In addition to the above, based on the information obtained about the Group and its environment, we must report on whether we became aware of any material misstatements in the consolidated business report and, if so, on the nature of such material misstatements. We have nothing to report in this regard.

Responsibilities of Management and Those Charged with Governance for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with the Accounting Act, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

The Auditor's Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives during the audit are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue, on the basis of the above, an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the Hungarian National Standards on Auditing and the effective Hungarian laws and other regulations on audits will always detect a material misstatement when it exists. Misstatements can arise from fraud or error, and they are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with the Hungarian National Standards on Auditing and the effective Hungarian laws and other regulations on audits, we exercise professional judgment and maintain professional scepticism throughout the audit.

We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify the opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in the Group's internal control that we identify during the audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in

extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

Report on Other Legal and Regulatory Requirements

In compliance with Article 10 (2) of Regulation (EU) No. 537/2014 of the European Parliament and the Council, we provide the following information in our independent auditor's report, which is required in addition to the requirements of International Standards on Auditing:

Appointment of the Auditor and the Period of Engagement
We were appointed as the auditors of the KELER Ltd. by the General Meeting of Shareholders on May 17, 2017 and our uninterrupted engagement has lasted for 2 years.

Consistence with the Additional Report to the Audit Committee
We confirm that our audit opinion on the consolidated financial statements expressed herein is consistent with the additional report to the Audit Committee of the KELER Ltd., which we issued on May 13, 2019 in accordance with Article 11 of Regulation (EU) No. 537/2014 of the European Parliament and the Council.

Provision of Non-audit Services
We declare that no prohibited non-audit services referred to in Article 5 (1) of Regulation (EU) No. 537/2014 of the European Parliament and the Council were provided by us to the Group. In addition, there are no other non-audit services which were provided by us to the KELER Ltd. and its controlled undertakings and which have not been disclosed in the consolidated business report.

The engagement partner on the audit resulting in this independent auditor's report is the signatory of the report.

Budapest, May 13, 2019

The original Hungarian version has been signed

Nagyváradiné Szépfalvi Zsuzsanna
on behalf of Deloitte Auditing and Consulting Ltd.
and as a statutory registered auditor

Deloitte Auditing and Consulting Ltd.
1068 Budapest, Dózsa György út 84/C.
Registration number: 000083
Registration number of statutory registered auditor: 005313

		31.12.2018	**31.12.2017**
Cash and cash equivalents	5	28 970	24 564
Placements with other banks	5	50 045	41 300
Financial assets measured at amortized cost	6	14 232	0
Debt instruments measured at fair value through other comprehensive income	6	35 380	0
Available for sale financial assets	6	0	50 570
Income tax receivable	9	150	219
Deferred tax assets	17	0	3
Trade receivables from gas clearing operation	7	4 941	4 135
Receivables from fees and commission	8	622	662
Receivables from foreign clearing houses	10	19 753	13 595
Other receivables	9	1 690	840
Intangible assets	11	996	784
Property, plant and equipment	12	796	286
TOTAL ASSETS		**157 575**	**136 958**
Deposits from customers	15	115 053	96 388
Liabilities from Guarantee Funds	16	8 276	5 828
Income tax payable	14	0	0
Deferred tax liability	18	0	57
Trade payable from gas clearing operation	7	4 908	4 106
Trade payables	13	333	224
Provisions	27	0	786
Other payables	14	746	673
TOTAL LIABILITIES		**129 316**	**108 062**
Share capital	18	4 500	4 500
Retained earnings		23 463	23 780
Statutory reserves	19	267	122
Available for sale financial asset revaluation reserve		0	494
Financial instruments measured at fair value through other comprehensive income (FVTOCI) revaluation reserve		29	0
Equity holders of the Parent Company		28 259	28 896
Non-controlling interest		0	0
TOTAL SHAREHOLDERS' EQUITY		**28 259**	**28 896**
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY		**157 575**	**136 958**

		01.01.2018-31.12.2018	***01.01.2017-31.12.2017***
Income from clearing and depository activity	***22***	***6 166***	***5 750***
Income from infrastructural services		0	0
Interest income	23	1 055	1 072
Interest expenses	23	-373	-163
Net interest income		***682***	***909***
Gains on securities, net	24	-3	72
Expected credit loss (ECL)	29	-6	0
Income from the principal activity		***6 839***	***6 731***
Bank fees, commissions and similar items	25	-232	-209
Personnel expenses	26	-2 786	-2 423
Depreciation and amortization	27	-551	-518
Services and support for infrastructure	27	-793	-847
Professional fees	27	-397	-236
Telecommunication services	27	-71	-75
Insurance fees	27	-14	-14
Materials, supplies	27	-40	-43
Rental fees	27	-125	-106
Marketing fees	27	-8	-9
Education	27	-37	-41
Taxes and levies on operations	27	-229	-358
Operational services	27	-249	-370
Fees and levies paid to regulatory bodies	27	-41	-87
Legal and other administration fees, costs, levies	27	-77	-103
Expenses and income related to onerous contract	27	786	-786
Other sundry operational expenses	27	-1	-5
Expenses from non deductable VAT	27	-119	-108
Operating expenses		***-4 984***	***-6 339***
Impairment of non-financial assets		-159	-3 342
Other income and expenses	28	138	53
Operating income		***1 834***	***-2 897***
Other financial income and expenses	28	44	-3
Financial income		***44***	***-3***
INCOME BEFORE INCOME TAX		***1 878***	***-2 900***

Income taxes	30	-267	-86
NET INCOME FOR THE PERIOD		***1 611***	***-2 987***
Other comprehensive income:			
Gains/losses on fair value measurements of financial assets measured at fair value through other comprehensive income (FVTOCI) / available for sale (AFS)	31	18	95
Income tax of other comprehensive income		1	-9
Other comprehensive income for the period		***19***	***86***
Of which later to be reclassified to net income:		19	86
Of which later not to be reclassified to net income:		0	0
TOTAL COMPREHENSIVE INCOME FOR THE YEAR		***1 630***	***-2 900***

All profit or loss and other comprehensive income is attributable to the shareholders of Parent Company.

	Issued capital	Fair value trough other comprehensive income reserve / Available for sale financial asset revaluation reserve	Retained earnings	Statutory reserve	**Equity attributed to the shareholders of the parent**	**Non-controlling interest**	**Sum**
Balance on 1st January 2017	**4 500**	**408**	**24 292**	**2 596**	**31 796**	**0**	**31 796**
Total comprehensive income	0	86	-2 986	0	-2 900	0	-2 900
Transfer to statutory reserve	0	0	2 474	-2 474	0	0	0
Balance on 31st December 2017	**4 500**	**494**	**23 780**	**122**	**28 896**	**0**	**28 896**
Changes in accounting policy	0	-484	-926	0	-1 411	0	-1 411
Total comprehensive income	0	19	1 611	0	1 630	0	1 630
Transfer to statutory reserve	0	0	-145	145	0	0	-145
Dividend declared (30th May 2018)	0	0	-857	0	-857	0	-857
Balance on 31st December 2018	**4 500**	**29**	**23 463**	**267**	**28 259**	**0**	**28 259**

	01.01.2018-31.12.2018	**01.01.2017-31.12.2017**
CASH FLOW FROM OPERATING ACTIVITIES		
PROFIT BEFORE TAXES	1 878	-2 900
Interest expense	373	163
	2 251	*-2 737*
Non cash items - adjustments		
Interest income	-1 055	-1 072
Depreciation and amortization charged	551	518
Adjustment due to incentive on lease	0	0
Recognition of provision	-786	786
Unrealized gain on cash and cash equivalents	-17	-7
Impairment of intangible assets	159	3 342
Gain on disposing property plant and equipment	-4	-7
Remeasurement of FVTPL financial assets	-	-
Changes in the guarantee fund liability	2 449	403
Operating cash-flow before working capital adjustments	**3 548**	**1 226**
Changes in the net balance of gas market transactions, net	-3	-47
Changes of the deposits of clients, net (loro accounts)	18 665	15 733
Changes in the receivables from balance with other clearing houses	-6 122	-5 669
Decrease/(increase) in trade and other receivables	529	-608
Increase/(decrease) in trade and other payables	196	-144
Cash proceeds/cash paid from financial instruments	-2 020	2 644
Net (increase) / decrease in placements with other banks, net of allowance for losses	-8 745	-20 068
	6 050	*-6 933*
Interest paid	-391	-172
Taxes paid (-/+)	-98	-367
Cash generated/(used) in operation	**5 561**	**-7 472**
CASH FLOW FROM INVESTING ACTIVITIES		
Acquisition of property, plant and equipment	-619	-64
Acquisition of intangible asset	-856	-892
Cash proceeds from disposal of property plant and equipment	11	13
Cash proceeds from/cash spent on financial asset held for investing purposes	-	-
Proceeds from interest	1 149	1 071
Cash generated/(used) from investing activity	**-315**	**128**

	01.01.2018-31.12.2018	**01.01.2017-31.12.2017**
CASH FLOW FROM FINANCING ACTIVITIES		
Dividend payment	-857	-
Cash generated/(used) from/in financing activity	-857	-
Net increase / (decrease) in cash and cash equivalents	4 389	-7 344
Opening cash and cash equivalents	24 564	31 901
Foreign exchange rate difference on cash and equivalents		
Closing cash and cash equivalents	28 970	24 564
Unrealized gain on cash and cash equivalents	17	7
Net (decrease)/increase in cash and cash equivalents	4 389	-7 344

NOTE 1: GENERAL

Statement of IFRS compliance

The consolidated financial statements of KELER Central Depository Ltd. (hereinafter referred as “KELER” or “Company” or “Parent Company”) and its’ consolidated subsidiaries (also referred to as together the ‘Entity’ or ‘Group’) were prepared in accordance with IFRSs. The management declares that the Group fully complied with the provisions of IFRSs/IASs and IFRICs/SICs as endorsed by the European Union applicable in the current period. The management made this declaration in full awareness of its responsibility.

The management determined that the Group will be able to continue as a going concern, which means that there are no signs that would indicate that the Group intends to terminate or significantly reduce its operations in the foreseeable future.

These financial statements are also the consolidated financial statements of the Group, which are also deposited after the approval of the owners.

These financial statements were prepared using the accrual basis.

The Group generally measures its assets on a historical cost basis, except for cases where a given item should be measured at fair value under IFRS. Additional disclosures about measurement basis further discussed in Note 2.

Presentation of the Group (legal form, seat)

The KELER Central Depository Ltd. is a limited liability company incorporated under the laws of Hungary on 12 October 1993. The official address of the company: H-1074 Budapest, Rákóczi str. 70-72.

The KELER Central Depository Ltd. is a special credit institution operating pursuant to Act CXX of 2001 on the Capital Market and Act CCXXXVII of 2013 on Credit Institutions and Financial Enterprises. The Company’s primary activities are central securities depository services, specialized bank services, issuer services and ancillary CSD services. Supervisory authority order 33001/1994. designated KELER Ltd. to undertake central securities depository activities in Hungary.

KELER’s owners

National Bank of Hungary	53,33%
Budapest Stock Exchange	46,67%.

There are no change in the ownership during ther period.

KELER KSZF Central Counterparty Ltd. (“KELER CCP”), as a subsidiary of KELER was founded by KELER and BSE in 2008.

KELER CCP was founded as a limited liability company according to the Hungarian laws. In 2011, KELER CCP was transformed to a private company limited by shares. Company's seat: H-1074 Budapest, Rákóczi str. 70-72.

KELER CCP's owners on 31 December 2018

- KELER 99.81%
- CBH 0.1%
- BSE 0.09%

KELER CCP's owners on 31 December 2017

- KELER 99.72%
- CBH 0.15%
- BSE 0.13%

The ultimate parent of the Group is CBH, the shareholder of CBH is the Hungarian state.

KELER CCP is a central counterparty business association pursuant to the requirements of the Act CXX of 2001 on Capital Market ("Act on Capital Market") operating and guaranteeing the settlement of stock exchange and over-the-counter transactions. KELER CCP as central counterparty undertakes guarantee for transactions concluded on the Budapest Stock Exchange and for the financial performance of the gas market (Daily natural gas and capacity trading market) transactions. KELER CCP as general clearing member undertakes guarantee for the financial performance of power market transactions towards European Commodity Clearing AG. KELER CCP's direct partners are commodities service, securities service providers, financial institutions, participants of an organized market, or organizations performing clearing house activity. KELER CCP's activity ensures that market participants' guaranteed trades are settled risk free.

The upper limit of the settlements guarantee set is based on the equity of the Group.

One of the shareholder of the Company (Central Bank of Hungary) regularly enters into transactions with Entity. These transactions are not regarded as shareholder transactions since they are done on regular business terms same as if they were done with independent parties. The ultimate parent of the Group classified as a government entity in accordance with *IAS 24 Related Party Disclosures*. The Group applies the disclosure exemption granted in IAS 24.25.

Changes in the group structure

The group structure did not change during the period. The controlling governmental party of the Group is the Central Bank of Hungary. The Group does not enter in material transaction with other governmental entities and has no material outstanding balance at the end of this reporting period.

NOTE 2: BASIS OF PREPARATION

a) Basis of measurement

The Group generally measures its assets and liabilities on historical cost basis, except for cases where a given item should be measured at fair value under IFRS. Latter one includes derivatives and debt instruments measured at fair value through other comprehensive income (and AFS instruments in the comparative period) that are measured at fair value.

b) Functional currency, presentation currency

Items included in the consolidated financial statements are measured using Hungarian Forint, which is the currency of the primary economic environment in which the Group operates (‘the functional currency’).

These consolidated financial statements are presented in Hungarian Forints rounded to the nearest million (“MHUF”).

c) Use of estimates and judgements

The preparation of consolidated financial statements in accordance with IFRS requires the management to make judgments, estimates and assumptions that affect the application of accounting policies and the reported amounts of assets, liabilities, income and expenses. Actual result may differ from these estimates.

In preparing its financial statements, the Group made critical estimates in connection with the following topics, which, as a result, are sources of uncertainty.

- The fair value of the financial instruments are valued at fair value as required by the IFRSs. These fair values are mostly quoted prices or based on quoted prices (Level 1 and Level 2). However they may change significantly over time leading to significantly different values as expected at the measurement day. Items measured at fair value, which is Level 3 measurement is especially judgmental, since the input date was determined based on information not directly observable. The information regarding the level of measurement of the items is presented in Note 35.

- The management's judgment in calculating the expected credit loss (ECL) of financial assets is key important decision. These estimations are done by risk management experts using based on information provided by other area. KELER uses wildly accepted principles and assumptions. The recording of impairment loss based on ECL directly impacts net profit (excluding the adjustment recorded directly in retained earnings due to transition to IFRS 9 in amount of opening balance of ECL.)

- The useful lives, the residual values and the recoverable amounts of intangible assets and property, plant and equipment are all based on estimates. Changes in these estimates may significantly change reported figures

- Certain items of the Group's assets can be tested for impairment at at cash generating unit (CGU) level only. Identifying CGUs requires complex professional judgment. In addition, when determining the recoverable value of CGUs, the Group's management is forced to rely on forecasts for the future which are uncertain by nature. The Group identified two CGUs which corresponds the legal entities (KELER CD, and CCP).

- The Group applies estimates and judgments to determine the value of the Customer relationship asset (recognized as an intangible). The recoverable amount of this asset is reviewed annually. This estimation is a major judgment and source of uncertainty (See Note 11).

- Deferred tax assets and liabilities depend on the legal environment. Changes in the legal environment may result in a significant change in the value of such items.

Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimate revised and in any future period affected.

NOTE 3: SIGNIFICANT ACCOUNTING POLICIES

a) Basis of consolidation

Subsidiaries

The Group consists of the Parent Company and the subsidiaries. The Group includes all entities which are directly or indirectly controlled by the Parent Company.

Since the financial year beginning on 1 January 2014, control is defined in accordance with *IFRS 10 Consolidated Financial Statements* ("IFRS 10"). According to this standard, an investor has control over an investee if it has rights to the variable positive returns generated by the investee and bears the consequences of negative returns and has the ability to direct operations and, as a result, to affect those returns through its decisions (power). This ability to power of operation arises from rights.

Control is primarily obtained through equity ownership, agreements with other shareholders or a special market position (e.g. monopoly). KELER obtained control over all of the entities included in these consolidated financial statements by virtue of equity ownership.

Associates and joint arrangements

The Group does not have associates or joint arrangements during this reporting period.

Transactions eliminated during consolidation

Intercompany balances and transactions, and any unrealized gains arising from intercompany transactions are eliminated in the frame of consolidation.

Goodwill

Goodwill arising in a business combination is measured initially as the excess of the cost of the business combination over the acquirer's interest in the net fair value of the acquired identifiable assets, liabilities and contingent liabilities recognized. Goodwill is subject to an annual impairment test.

Negative goodwill

Negative goodwill arising in a business combination is measured initially as the excess of the net fair value of the acquired identifiable assets, liabilities and contingent liabilities recognized over the cost of the business combination. Negative goodwill that arise during the year is credited to the profit or loss.

b) Foreign currency transactions

Transactions in foreign currencies are translated to Hungarian forint at the foreign exchange rate effective at the date of the transaction. Monetary assets and liabilities denominated in foreign currencies at the end of reporting period are translated to Hungarian forint at the foreign exchange rate officially published by National Bank of Hungary and effective at that date. Foreign exchange differences arising on translation are recognized in the Consolidated Statement of Comprehensive Income. Non-monetary assets and liabilities denominated in foreign currencies that are stated at fair value are translated to Hungarian forint at foreign exchange rates effective at the dates the values were determined.

Financial statements of foreign operations (if any) are translated to Hungarian forint. At the calculation, Company uses the closing foreign currency rate method: assets and liabilities are translated to Hungarian forint at the foreign exchange rate officially published by National Bank of Hungary and effective at that date, items of statements of comprehensive income are translated based on average of foreign currency rates during the period (approx. to dates of transactions). Equity elements are translated based on foreign currency rates at recognition.

c) Cash and cash equivalents

Cash includes deposits repayable on demand. Cash equivalents includes liquid investments with maturity of three months or less when acquired at that there is insignificant risk of value change. Typically certain state bonds and treasury bills may meet the foresaid definition. Cash and cash equivalents are carried at amortized cost in the Consolidated Statements of Financial Position.

d) Financial assets and financial liabilities

Classification

Financial assets or financial liabilities at fair value through profit or loss (FVTPL) are financial assets and financial liabilities that are classified as held for trading mainly for the purpose of profit-taking or are derivative instruments.
(Note: The Group did not have any financial instruments during the current period which is classified to the category FVTPL due to its nature being held for trading.

Debt instruments that meet both SPPI test (i.e. cash flows from those are solely payments of principal and interest) and the business model of it is hold to collect the cash flows (business model test) will be classified o financial assets measured at amortised costs (AC category) and will be carried at amortized cost. This category include the state bonds (MÁK) of the Group, balances of trade and other receivables, receivables from foreign clearing houses and cash balances.

Debt instruments that meet SPPI test with, but based on the business model the purpose is collect the cash flows from holding the instruments or sell those will be classified at FVTOCI category.

(Note: the treasury bills held by the entity are classified and measured in this FVTOCI category)

The Group classifies the held equity instruments – excluded instruments held for trading purposes – into the FVTOCI category, that shall be measured at fair value at each reporting date (where in certain cases the cost of the instrument will be considered to be the fair value).

Other liabilities contain all financial liabilities that were not classified as at fair value through profit or loss.
(Note: Other liabilities contain interbank takings and loans from other banks, deposits from customers, liabilities relating to clearing and depository activities and liabilities from repo deal open as at the end of reporting period contracted with unconsolidated entities.)

In the previous periods, the entity applied *IAS 39 Financial Instruments: Recognition and Measurement* ("IAS 39"). For the comparative figures – as prescribed in the transitional requirements – no restatement was made, those are measured in accordance with IAS 39. Therefore in the case of the comparative figures (31st December 2017) the former classification and measurement rules were applied in the consolidated financial statements.

Recognition

Financial assets and liabilities are recognised in the financial statements of the Group on the settlement date, except for derivative assets, which are recognised on the trade date. Financial assets or financial liabilities are initially measured at fair value plus (for an item not subsequently measured at fair value through profit or loss) transaction costs that are directly attributable to its acquisition or issue in case of all financial instruments that are not measured at fair value through profit or loss

Derecognition

Financial assets are derecognized when the rights to receive cash flows from the financial assets expire or the Group transfers substantially all risks and rewards of ownership of the financial asset (without retaining significant right).

Measurement

Subsequent to initial recognition, all financial assets and financial liabilities measured at fair value through profit or loss, and financial assets measured through other comprehensive income are measure at fair value. If no quoted market price exists from an active market and fair value cannot be reliably measured, the Group uses valuation techniques to determine fair value.

Financial assets classified to AC and all financial liabilities other than financial liabilities measured at fair value through profit or loss, are measured at amortized cost. Premiums and discounts, including initial transaction costs, are included in the carrying amount of the related instrument and amortized based on the effective interest rate of the instrument.

The debt instruments – except for items measured at fair value through profit or loss – are presented in the statements on an amount representing the deduction by accumulated impairment loss recorded based on expected credit losses. The part of this accumulated impairment loss based on expected credit losses attributable to current year is taken to the profit or loss.

Gains and losses on financial assets or financial liabilities measured at fair value through profit or loss are recorded in Consolidated Statement of Comprehensive income, as gains on securities (as an element of current year profit or loss, on a net basis)

Income calculated from effective interest method on a FVTOCI debt instrument will be taken to profit or loss, separately from the impairment losses and reversal determined based on expected credit losses (which is recognized in a different category of net profit) of the instrument. Gains or losses on disposal of instruments are recognized in profit or loss
The adjustments from fair value measurement of such a financial asset shall be recognized in other comprehensive income, that is accumulated on a separate reserve within the equity. In the case of disposal, the previously accumulated other comprehensive income is reclassified to the profit or loss.

In the case of disposal FVTOCI instruments other than debt instruments, the previously accumulated other comprehensive income cannot reclassified to the profit or loss, that is transferred to retained earning within the equity.

Fair value measurement

The fair value of financial instruments is determined based on the requirements of *IFRS 13 Fair Value Measurement* (“IFRS 13”) and internal policies established in accordance with that
Generally, the fair value is

- quoted market price at the end of reporting period without any deduction for transaction costs.
- If a quoted market price is not available, the fair value of the instrument is estimated using valuation models or discounted cash flow techniques.

Where discounted cash flow techniques are used, estimated future cash flows are based on the Group’s economic estimates and the discount rate is a market related rate at the end of reporting period for an instrument with similar terms and conditions. Where valuation models are used, inputs are based on market related measures at the end of reporting period.

- Level 1: The input for the fair value is the unadjusted quoted price, no other input is used for the valuation.

- Level 2: All inputs are directly or indirectly observable but there are inputs other than the quoted price.
- Level 3: The fair value of derivatives that are not exchange-traded are estimated at the amount that the Group would receive upon normal business conditions to terminate the contract at the end of reporting period taking into account current market conditions and the current creditworthiness of the counterparties.

The fair value of the treasury bills of the Entity is classified into Level 2. The fair value is based mainly on observable prices however, when the fair value of these assets cannot be determined based on such quoted prices, instrument are measured based on yields remarkable for similar financial instruments and generally used valuation techniques (Level 2).

Measurement of amortised cost

The amortized cost of a financial asset or financial liability is the amount at which the financial asset or financial liability is measured at initial recognition minus principal repayments, plus or minus the cumulative amortization using the effective interest method of any difference between that initial amount and the maturity amount, and minus any reduction for impairment or uncollectibility for financial assets.

The effective interest rate is the rate that exactly discounts estimated future cash payments or receipts through the expected life of the financial instrument or, when appropriate, a shorter period to the net carrying amount of the financial asset or financial liability. When calculating the effective interest rate, the Group estimates cash flows considering all contractual terms of the financial instrument but shall not consider future credit losses.

Impairment of financial assets (expected credit losses)

For financial assets measured at AC or FVTOCI, impairment losses is recognised based on expected credit losses. ECL can be determined as the cash shortfall throughout the life of the financial asset. The expected credit loss is determined from multiplying:

- exposure at default (EAD);
- loss given default (ratio) (LGD);
- probability of default (PD) for the relevant period.

When items are recognized the 12-month ECL is considered. This is arrived to using the 12 month PD, reflecting the probability of default occurring in the next 12 months (referred as ‘Stage 1’). This loss is considered without lowering the gross carrying amount of the instrument but a contra-active asset is used (allowance). The gross carrying amount (i.e. calculated without ECL) of the asset remains unchanged.

If the credit quality of the asset significantly deteriorates, the instrument is reclassified into Stage 2, where impairment loss is calculated based on expected credit losses determined in accordance with probability of default during the whole lifetime of instrument. Impairment is recorded in profit or loss, without deduction of gross carrying amount.

It is assumed that the credit quality of the asset is deteriorated when any of following conditions is met or based on assessment of the management this is occurred.

- the contractual cash flows are more than 30 days past due (‘DPD 30 days rule’), excluding that case, when the delay has another reason.
- Regardless DPD 30 days rule, increase in risk shall be assumed, if based on market information the financial status of the partner is deteriorated, that can cause shortfall if cash flows.

It is assumed that there is significant deterioration in the credit quality if any of the following situations exist:

- severe financial difficulties of the issuer or the borrower;
- breach of the contract, missing repayment of capital or pricipal repayment;
- renegotiation of the contract or other reliefs due to the financial difficulties of the counterparty;
- it becomes probable that borrower will be subject to liquidation or other similar reorganizational procedure
- disappearance of an active market
- it can be concluded that the contractual cash flows are not going to be collected.

If the credit quality of the asset deteriorates even further – so the asset becomes impaired – the item will be classified into Stage 3, in that case the item’s carrying amount is directly deducted with any previously recognized accumulated impairment loss.

It is considered that an item is ‘defaulted’ if the contractual cash flow are 90 days past due (‘DPD 90 days rule’) excluding that case, when the delay has another reason. Regardless to DPD 90 days rule, default can be determined if market conditions suggest the defaulted status may be concluded earlier.

The following signs are considered to be deteriorations in the credit quality and to be impaired:

- market data
- change in the economic environment
- independent rating agencies
- comparable data
- conclusions of the risk assessors
- forbearance
- payment behaviour

If the quality of the financial asset later improves the asset may be reclassified back from Stage 3 to Stage 2 and from stage 3 to Stage 1.

For certain individually small balance receivables ECL is calculated on a collective basis. In the case of accounts receivables the simplified method is applied, where immediately the lifetime ECL is charged but there is no continuous tracking of credit quality.

For this purpose the Group splits the accounts receivables into two portfolios: receivables from the gas activity other account receivables.

The ECL is determined using the following ratios:

Past due	**ECL ratio**
Less than 90 DPD	1%
Between 90 – 180 DPD	50%
Over 181 DPD	100%

For the gas portfolio:

Past due	**ECL ratio**
Less than 90 DPD	0,001%
Between 90 – 180 DPD	1%
Between 181 – 365 DPD	25%
Between 366 – 550 DPD	90%
Over 551 DPD	100%

If ECL decreased, reversal of impairment loss shall be recognized in profit or loss (decreasing the expected credit loss expense).

Impairment of financial assets

e) Impairments of non-financial assets and identifying CGUs

The Group tests its significant assets for impairment each year. Testing consists of two stages. The first stage is to examine whether there are signs indicating that the assets in question are impaired. The following are signs that a given asset is impaired:

- damage;
- decline in income;
- unfavourable changes in market conditions and a decline in demand;
- increase in market interest rates.

Should there be any indication that an asset is impaired, a calculation which allows the recoverable amount of the asset to be determined is performed (this is the second step). The recoverable amount is the higher of the fair value of the asset reduced by the cost of disposal and the present value of the cash flows derived from continuous use.

If the value in use of a group of assets cannot be determined as it does not generate any cash flows itself (it is not in use), the test is performed with respect to the cash-generating units (CGUs).

Firstly, the impairment is determined on the level of the individual asset (if possible).

If the value in use can only be determined with respect to the CGUs and impairment needs to be accounted for, impairment losses are recognized as follows:

- firstly, damaged assets are impaired;
- secondly, goodwill is reduced;
- thirdly, the remaining amount of impairment losses are split among property, plant and equipment (PPE) and intangible assets in the CGU in proportion to their carrying amount prior to impairment.

The value of assets may not drop below their fair value reduced by their individual cost of disposal.

Impairment testing is performed by the Group at the year-end or when it is clear that impairment needs to be recognized.

The impairment – in case of changes in the circumstances – may be reversed against net profit. The book value after the reversal may not be higher than the book value if no impairment loss was recognized previously.

The Group concluded that it has two CGUs. The CGUs are represented by the legal entities therefore the first CGU is the depository and specialized financial institution activities and other one is the CCP activity.

f) Property, plant and equipment

Property, plant and equipment are stated at cost less accumulated depreciation and impairments, if any. Depreciation is calculated using the straight-line method at rates calculated to write off the cost of the asset over its expected economic useful life.

Property, Plant and Equipment	**Depreciation**
Rented property	In accordance with rental contract, but 6% as minimum level
Electronic networks, wires	8%
Computing devices	25%
Photocopiers, faxes, telephones	25%
Mobile phones	50%
Vehicles	20%
Office machines	33%
Furnitures	14,5%

Expenditures incurred to replace a component of an item of property, plant and equipment that are accounted for separately, including major inspection and overhaul expenditures, are capitalized. Other subsequent expenditures are capitalized only when they increase the future economic benefits embodied in the item of property, plant and

equipment. All other expenditures are recognized in the statement of comprehensive income as expense as incurred.

g) Intangible assets

Intangible assets are stated at cost less accumulated depreciation and impairments, if any. Depreciation is provided using the straight-line method at rates calculated to write off the cost of the asset over its expected economic useful life.
For software, valuable rights and interests 25% depreciation rate is used on a straight-line basis.

When the Group develops software to support the activities they decide about the eligibility of the capitalization according to the following criteria:

- the project is technically feasible
- there is an intention to complete the project
- the Group is able to use the asset (or sell it)
- the software will generate future economic benefits
- the resources needed to finish the projects are available
- the cost of the project is identifiable.

These criteria are also taken into consideration when the software is developed by external party, but it is coordinated by the Group.

If the Group acquires intangible assets with indefinite useful life the asset will be subject to annual impairment testing.

h) Trading on gas market

Based on the principle of the anonymity of the customers and the suppliers on the daily natural gas and capacity trading market, the transactions are made with the participation of KELER CCP. KELER CCP stands between the counterparties as a technical partner (customer and supplier) during the buying and selling transactions. The inventory of gas held by KELER CCP is always zero at the end of a day. Therefore, buying and selling of the gas is recorded by net method settlement in the Consolidated Statement of Comprehensive Income while in the accounts in Consolidated Statement of Financial Positions (receivables-liabilities) it is recorded gross.

i) Trading on energy market

KELER CCP as a general clearing member of European Commodity Clearing AG (ECC) maintains positions and clears the cash side of the trades to it's non-clearing members towards ECC. KELER CCP receives all relevant information from ECC that is acting as central counterparty of all trades of the power market, and KELER CCP does guaranty all account transfer according the received information between ECC and the non-clearing members.

j) Sale and repurchase agreements and lending of securities

The sale and repurchase agreement (repo) do not qualify for derecognition under IFRS, so these items – which are legally considered sold – remain recognized in the financial

statements and a liability is recognized embodying the settlement liability in the future periods. Analogically, reserve (passive) repo transaction not results recognition, instruments acquired under reverse (passive) repo are not recognized in the statement of financial position, but a receivable is recognized (debt instrument) together with the related interest income over the period of the repo agreement. The difference between the purchase and selling price is recognized as interest by the Group. Repos between the Group entities are eliminated in the consolidated financial statements. The ECL requirements defined by IFRS 9 are applicable for all outstanding receivables from repo deals, considering the credit quality of the underlying security.

The account rules to security lending agreement are similar to repo agreement, i.e. those do no result derecognition. Thus, security lent in the frame of lending deals for customers are no recognised from Consolidated Statement of Financial Position.

k) Tre*atment of differences due to not identical trading days*

In certain cases the trading day on the markets are not identical (ie. some markets do trade on certain days, some markets are closed – especially around the yearend). This situation may lead to certain transactions on the clearing market not accounted for fully (ie. the transaction is settled with the CCP but not settled with the CCP's client on the same day or vica versa). Differences arising from these technical issues are accounted for as receivables and payables. Those itmes are considered to be AC financial assets and other liabilities carried at amortized cost.

l) Revenue recognition

- **Fee revenue**

The Group realises revenue from its guarantee, clearing and depository service providing activities (including clearing on the gas and electricity market), such revenue is recognized when these services are performed.

The performance obligations (PO) of the Group are not complex, so all revenue are accounted for in the period when the service was rendered or the goods were sold (derecognition).

If the Group acts as an agent (as defined by *IFRS 15 Revenue from Contracts with Customers* ("IFRS 15")) in a transaction, the revenue and the related expense is presented on a net base.

- **Interest income**

Interest income is recognized in the profit or loss for all interest bearing instruments on an accrual basis using the effective interest method under IFRS 9.

- **Trading activity**

Sales income is recognized on the trading day when the actual sales (and purchase) occur. See more details above for trading on gas and energy market.

m) Income taxes

The Entity assess on tax-by-tax basis if the a legally payable tax qualifies for income tax under IAS 12 Income Taxes ("IAS 12") standard.

Income tax inn the Consolidated Statement of Comprehensive Income for the year comprises current and deferred taxes. Income tax is recognized in the profit or loss, except to the extent that it relates to items recognized in other comprehensive income, in which case it is recognized there.

Deferred income tax is recorded, using the balance sheet method, for all temporary differences arising between the tax bases of assets and liabilities and their carrying values for financial reporting purposes. The amount of deferred tax is recorded based on the expected manner of realization or settlement of the carrying amount of assets and liabilities, using tax rates enacted or substantially enacted at the end of the reporting period.

Current tax is the expected tax payable on the taxable income for the year, using tax rates enacted at the end of the reporting period, and any adjustment to tax payable in respect of previous years.

A deferred tax asset is recognized only to the extent that it is probable that future taxable profits will be available against which the asset can be utilized.

The Group considers all taxes that are charged to any level of profit or loss to be income taxes and other taxes are presented separately from income taxes.

n) Provisions

A provision is recognized when the Group has a legal or constructive obligation as a result of a past event, and it is probable that an outflow of economic benefits will be required to settle the obligation.

o) Financial guarantee contract liability

The nature of the activity of the Group requires to cover all the risk that are coming from default events (i.e. that KELER CCP must settle the compensation of the transaction even if one of the parties of the clearing agreement is unable to pay/act). To deal with the statistically uncovered exposure the Group recognizes a financial guarantee contract liability based on the available collateral and the probability of a loss event regardless how small this probability is.

p) Guarantee fund liability

As an element of the guarantee system, KELER CCP operates several collective guarantee funds. The purpose of the guarantee fund is to reduce the risk arising from default or failure of cleared and guaranteed transactions made by the Clearing Members.

Contributions of the Members are kept in cash. These funds are recognized as liabilities and are measured at amortized cost.

q) Statutory reserves

The statutory reserves are items which are recognized through as a transfer from other elements of the equity based on local legislation. The recognition or the release of such items does not affect the other comprehensive income.

i. General reserve

In accordance with Section 83 of Act CCXXXVII of 2013 on Credit Institutions and Financial Enterprises, a general reserve equal to 10% of the net after tax income is required to be made in the Hungarian statutory financial statements. The use and release of general reserve does not effect the comprehensive income statement.

ii. General risk reserve

Under Section 87 of formerly effective Act CXII of 1996 on Credit Institutions and Financial Enterprises, a general risk reserve of maximum 1.25% of the risk-weighted assets was made until 31 December 2013. This statutory reserve was recognised through as a transfer from retained earnings. Since 1 January 2014, there is no legal right to record such type of reserve and formerly recorded reserves can be used to cover unexpected credit losses only.

r) Hedging

The Group does not establish separate accounting policy to the accounting of hedge relationships, any potential hedge relationship is treated in accordance with general rules of IFRS 9.
(Note: the Group has no hedge relationship currently)

s) Statement of cash flows

Information about the cash flows of the Group is useful in providing users of financial statements with a basis to assess the ability of the Group to generate cash and cash equivalents and the needs of the Group to utilize those cash flows.

For the purposes of reporting cash flows, cash and cash equivalents include cash, balances, certain treasury bills and government bonds and placements with the National Bank of Hungary, except those with more than three months maturity from the date of acquisition.

t) Events after end of the reporting period

Events after the reporting period are those events, favourable and unfavourable, that occur between the end of reporting period and the date when the financial statements are authorized for issue. These events can be adjusting and non-adjusting events.

All adjusting events after the end of reporting period have been taken into account in the preparation of the consolidated financial statements of the Group. The material non-adjusting events after the end of the reporting period are presented in Note 41.

u) Off balance sheet items

KELER provides settlement service for certain contractual domestic partners regarding securities transaction made in the XETRA System of Deutsche Börse. KELER has a partnership with CITIBANK Frankfurt, which is a clearing member in XETRA Clearing AG. KELER CCP has to provide collateral for CITIBANK Frankfurt regarding XETRA settlement. KELER requires collateral from his clients at least the same size, but with a minimum amount of EUR 50.000.
KELER CCP is entitled to require a collateral from its Clearing Members using its central counterparty services. The form of collateral can be cash, foreign exchange, securities and bank guarantees. As clearing member of European Commodity Clearing AG (ECC) KELER CCP has to provide collateral for ECC regarding the settlement of power market position of power market non-clearing members of KELER CCP.

NOTE 4: FINANCIAL RISK MANAGEMENT

a) Introduction and overview

The Board of Directors receives reports regularly regarding principles of credit, market, liquidity and operational risk management of the Group.
KELER outsourced risk management tasks to KELER CCP, KELER CCP undertakes daily risk management tasks in line with a separate administrative order, however KELER's Chief Risk Officer is responsible for risk management and related decision making. KELER CCP measures and manages risks related to the central counterparty activity of KELER CCP.
Risk management function is separated from business.
The Group is exposed to the following main risk types arising from its operation and strategy:

- credit and counterparty risks,
- market risks,
- operational risks,
- general business risks,
- winding-down or restructuring risks

The exposures of the Group to the above risk types, the objectives, policy and procedures to measure and manage risks, and capital management by the Group are discussed below. The risks that are managed separately due to the different operation of the central securities depository and the central counterparty are covered separately for both entities.
Regarding risk management the compliance of the provisions of the CSDR[1] has been changing demands in recent years. According to the requirements of the CSDR, KELER must be re-authorized for its central counterparty and banking services. KELER submitted its reauthorization application to its competent Supervisory Authority on the 29th September 2017; the process is currently ongoing. To comply with the provisions of CSDR, KELER has modified its risk management methods and policies at several points and has already put them into application.
KELER is subject to the provisions of CSDR as a central securities depository which besides core services provides non-banking and banking-type ancillary services, therefore it shall comply with the Tpt. and Hpt. as well. KELER's risk assumptions are exclusively related to the services authorized by the CSDR. Hereinafter we refer to the activity of KELER as the central securities depository function, including the central securities depository and ancillary credit institution functions also.
As of 2014, KELER CCP operates as a qualifying central counterparty licensed under EMIR; thus, it complies with EU and Hungarian legislation regulating qualifying central counterparties. Hereinafter we refer to the activity of KELER CCP as the central counterparty function.
Changes in capital requirement stemming from different risk types are presented in the chapter about Capital Management.

[1] Regulation (EU) No 909/2014 of the European Parliament and of the Council of 23 July 2014 on improving securities settlement in the European Union and on central securities depositories and amending Directives 98/26/EC and 2014/65/EU (CSDR)

b) Investment risk

Two subcategories are defined under investment risk:

- credit and counterparty risks,
- market risks.

i. Credit and counterparty risk

Credit risk is the risk of loss impacting profitability and the capital position arising from default (or failure to perform as contracted) by the counterparty, i.e. from default on (on or off the balance sheet) liabilities towards the Group.

Counterparty risk is the potential loss arising from failure by the counterparty to meet contractual obligations before closing the transaction (final settlement of cash flows). As a type of credit risk, this risk typically relates to derivatives, repo and other securities financing transactions.

The various sub-types of credit and counterparty risks are introduced in the following chapters. Due to the activity undertaken by the Group, there is no risk taking arising from special lending exposures and FX lending. Off-balance sheet items related risks are considered under credit and counterparty risks.

i. Credit risk of the issuer of securities

Central securities depository function

KELER's portfolio consists exclusively of Hungarian forint denominated government securities. The Hungarian forint denominated exposure towards the Hungarian State is considered risk-free, so no capital requirement is required.

ii. Credit and counterparty risk related to Treasury activity

Central securities depository function

Contrary to a traditional commercial bank, in the case of KELER credit risks are not considered complex and decisive; accordingly, this is not the risk with the greatest share in the capital requirement.

Pursuant to Article 46 of the CSDR, KELER applies the following investment policy:

1) KELER holds its financial assets at central banks, authorised credit institutions or authorised CSDs.

2) KELER has prompt access to its assets, when required. Financial resources are invested in cash or in highly liquid financial instruments with minimal market and credit risk. Investments are also capable of being liquidated rapidly with minimal adverse price effect (Hungarian government securities).

3) Investments that do not meet the aforementioned provisions (i. e. holdings), are fully deducted from own funds.

4) KELER also assures that investments remain within acceptable concentration limits.

In line with the above requirements the central securities depository can use the available funds of the shareholders' equity to perform the most common deal types that are the following:

- buy/sell of fixed rate government securities denominated in HUF
- security repo and reverse repo deals
- FX transactions
- O/N, T/N or S/N interbank and MNB deposit placements,
- interbank and MNB loans.

Limiting the risks inherent in KELER's treasury activities beyond the regulatory constraints of the partners is comprehensively provided by the partner rating system, the daily monitoring and internal limit system. As part of daily monitoring, KELER CCP Risk Management informs the Assets and Liabilities Committee on limit violations. Regarding the operation of the treasury limit system and possible limitations, KELER's Board of Directors receives regular information in the framework of quarterly measurements performed by KELER CCP Risk Management Department. The KELER Risk Management submits the annual summary on the operation of the limit system and any limit violations to KELER's Board of Directors.

The central securities depository determines the capital requirements for credit and counterparty risks at both regulatory (CSDR, EBA RTS[2] supplementing CSDR , CRR[3]) and ICAAP-ILAAP level. On regulatory level the central securities depository applies the standard method pursuant to CRR, while under ICAAP-ILAAP it uses a method similar to the standard method applied under the regulatory level to calculate capital need, relying on the results of its own internal rating also to determine risk weights. There is no difference in determining the value of exposure under the two methods.

Central counterparty function

KELER CCP clearing members include credit institutions, investment firms and commodity exchange service providers in the capital market, in the energy markets cleared by the ECC and the gas markets (TP, CEEGEX) power and gas traders are the direct clients of KELER CCP. For KELER CCP as central counterparty, counterparty risk is financial (or securities) default by its clearing members and non-clearing members (in the energy market). Besides, exposures and liabilities related to fees may also arise due to the operation of KELER CCP.
In case of clearing member and energy market non-clearing member default on spot market purchase price, derivative market variation margin, KELER CCP as central counterparty is required to compensate non-defaulting participants in line with the default process, by using collaterals and guarantees, and its shareholders' equity also if needed. Therefore, counterparty risk monitoring and management are of outstanding

[2] Commission-delegated Regulation (EU) 2017/390 of 11 November 2016 supplementing Regulation (EU) No 909/2014 of the European Parliament and of the Council with regard to regulatory technical standards on certain prudential requirements for central securities depositories and designated credit institutions offering banking-type ancillary services (EBA RTS)
[3] Regulation (EU) No 575/2013 of the European Parliament and of the Council on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012 (CRR)

importance to enable the central counterparty to assess potential exposures and have the appropriate amount of capital and liquid assets to compensate non-defaulting parties.

KELER CCP rates regularly capital market clearing members, gas market clearing members and energy market non-clearing members according to objective (capital, liquidity and profitability indicators) and subjective aspects determined in its internal rating methodology. If the rating of a counterparty deteriorates significantly, KELER CCP pays special attention to the positions taken and uncovered risk, and based on individual assessment, on the grounds of perceived risk increase, it may impose additional financial collateral on the counterparty concerned.
The elements of the guarantee system are designed to cover credit risk arising from default by KELER CCP clearing and non-clearing members; no separate capital requirement is made. Due to the operation of the guarantee system, when the collateral requirement of a portfolio is determined, the counterparty risk factor is not quantified. In order to manage the resulting risk of negligible amount the existence of which cannot be examined historically, KELER CCP makes financial reserve in line with the bucket method. The part uncovered by the risk measure confidence level used to calculate collateral instruments and the maximum probability of occurrence were taken into account to determine financial reserve.
In line with the requirements of EMIR, KELER CCP calculates capital requirement on fee and trade receivables related to its credit risks based on CRR.

iii. <u>Risk of CSD links, indirect contacts and intermediary institutions</u>

Central securities depository function
KELER has relationship with several types of institutions by reasons of its involvement in the cross-border transactions and in relation to energy market performances that are intermediated for settlement by KELER CCP; consequently, exposures are generated to these institutions.

KELER’s foreign exchange account balances and exposures to CSDs that possess a banking authorization are determined on the basis of the business activities of the clients that use its settlement services; consequently, KELER has limited and indirect influence only due to its business activities.

A reliable and stable background and a good reputation are the key criteria when selecting CSD links, indirect relationships and intermediaries. In addition to the usual ratings, the result of the Due Diligence survey and the credit rating of the country where the registered office of the institution is located are also taken into account.

The quantification of the capital requirement is presented in chapter Credit and counterparty risk related to Treasury activity.

iv. <u>Receivables From Other Counterparties (mostly fee receivables)</u>

Central securities depository function

Other counterparties include natural and legal persons against which KELER may have a financial claim (or such claim may regularly occur) and those whose financial or other non-performance – not mentioned above – may cause financial loss for KELER or may

have a negative impact on KELER’s operation (e.g. current or future financial claim, faulty or late performance or loss).
Other counterparties include partners that KELER creates a relationship with in the course of its operation (e.g.: buyers, suppliers, clients, participants, account holders, service providers.) The risk taking related to these partners is consciously limited by KELER, for example through the rules for the selection of suppliers. As KELER does not perform a counterparty rating in respect of such partners, no counterparty limits are set. The risk assessment process for the securities system participants, in accordance with CSDR, is currently under development.

v. Credit risk of holdings

Central securities depository function

KELER as central securities depository has a qualifying interest (99.81%) in KELER CCP Ltd., and has minimal share in the Association of National Numbering Agencies (ANNA). Both are fully deducted from the own funds of the central securities depository. The part deducted from the own funds is not considered when capital requirement is determined, other exposures to KELER CCP are managed as credit and counterparty risks, as exposures to the company. Regarding ANNA, KELER only assumes the risk of non-significant fees representing the holding, the risk taking is up to the annual membership fee.

As the majority owner of KELER CCP, KELER assumes indirect risk for the contractual liabilities of KELER CCP towards contracted clearing members and energy market non-clearing members arising from the activity of KELER CCP as central counterparty.

As the holding is fully deducted from own funds, no further capital requirement is required.

Central counterparty function

KELER CCP does not hold any investments.

vi. Intra-day credit risk

Central securities depository function

Pursuant to Section C b) of the CSDR Annex, KELER provides a cash credit line to KELER CCP, under full coverage.
KELER provides the intra-day-cash credit line to be repaid on the next business day at latest, in accordance with KELER's actual conditions of acceptance of securities and currencies collateral document.

vii. Off-balance sheet exposures

KELER's off-balance sheet exposure arises on the one hand from the intraday cash credit line granted to KELER CCP, and on the basis of the loan provided explicitly for its subsidiary, KELER CCP. In addition to the above, off-balance sheet exposures arise due to the guarantee KELER offers for the rental of the office.

The CRR contains the rules pertaining to putting off-balance sheet items on the balance sheet. As a result, the capital requirement is determined with the help of the weights specified in Article 111 of the CRR.

viii. Large exposure

Large exposure is defined as the risk taking at least ten percent of eligible capital for a customer or group of customers as per Article 387-403 of CRR.

Central securities depository function

KELER CSD manages and monitors it large-exposures on a daily basis in line with the provision of CRR. Excessive large-exposures are maximized by the limits set based on the available own funds. In case of limit violation on trading book items, additional capital requirement is calculated as required in Article 4. of CRR 397-398.

ix. credit risk of default exposure

Central securities depository function

KELER defines in its internal policies which exposures are considered defaulted. In case of defaulting partners, KELER assigns a higher risk weight to the counterparty, thus determining additional capital requirement.

x. Credit risk of international settlement

Central securities depository function

KELER provided access to the XETRA system of Deutsche Börse (foreign XETRA) for Hungarian market participants. The service was terminated, however, until the end of August 2018 covered guaranteed and non-guaranteed transactions were provided within the service. For guaranteed transactions the operating model is as follows: Deutsche Börse trades are cleared by EUREX, KELER is involved as Settlement Agent through Citibank London (GCM, general clearing member) and Citibank Frankfurt (Settlement Agent).

Collateral collected in advance from clients and the capital requirement made provide adequate coverage for the risks inherent in settlement processes.

xi. Residual risk

Central securities depository function

Residual risk is the risk of large scale depreciation or restricted enforceability of credit exposures related collaterals, or in other words the risk that the recognized credit risk mitigation techniques applied by the credit institution prove to be less efficient than expected. For certain trades (e.g., repo trades), the central securities depository can accept collateral. In practice, credit risk mitigation instruments are accepted for repos, and the cash-credit line offered for KELER CCP only.

In the case of KELER, this risk arises indirectly, through the holding, related to the collateral portfolio of KELER CCP. KELER CCP manages this risk satisfactorily, with haircuts in line with legislation. The central securities depository does not determine separate capital requirement for residual risks.

Central counterparty function

As part of the guarantee system operated by KELER CCP, the clients of KELER CCP are required to provide collateral. Instead of using the full market value, the collateral portfolio is taken into account after deduction of the haircuts determined in the valid KELER CCP condition lists on accepting securities and foreign currencies, this is a risk management technique to eliminate residual risk. The applicable condition list of KELER CCP determines the types of eligible collateral also; thus, jointly with the use of haircuts, residual risk is minimized.

The central counterparty does not determine separate capital requirement for residual risks either.

xii. Settlement risk

Settlement risk is the risk that a settlement executed through a payment system is performed in a way other than expected. Settlement risk may include credit and liquidity risk elements also.

Central securities depository function

In the case of the central securities depository function, treasury transactions may have settlement risk involved, the central securities depository manages this risk with the settlement and pre-settlement limits set up in the limit system. Separate limit amounts are determined for Forint settlements and for FX settlements that represent increased risk.
KELER concludes proprietary trades in the OTC market only, the DVP principle is met when possible. Exceptions to this include FX trades with outer circle entities due to different Forint and FX cut-offs.

Central counterparty function

In line with the investment policy of KELER CCP, the amount of minimum capital requirement is invested in short-term government securities that are held until maturity. The portfolio includes a few securities; settlement risk upon trade settlement is negligible.

In the case of KELER CCP, no capital requirement is established for credit risk arising from settlement risk.

xiii. Concentration credit risk

Risk concentration is the risk exposure that intra-risk or inter-risk across various risk types can lead to loss that jeopardizes the business as usual operation (usual continuous operation with reasonable profits) of the entity or makes a material change in the risk profile of the entity.

Central securities depository function

Credit risk concentration towards individual clients and trade partners is a distribution of receivables when default by a group of relatively small number of clients/partners or by a larger group of clients/partners, attributable to common reason/reasons puts at risk the business as usual operation (usual continuous operation with reasonable profits) of the entity. The term "clients and trade partners" covers not only individual clients/partners, but also the groups of individual clients/partners that are closely connected (through ownership and/or funding). It has two major groups:

- concentration of risk taking to individual client/client group (large exposure): the source of risk is default on exposure to a relatively small group of clients or partners,
- sector concentration: risk of joint default due to common reason/reasons.

Credit counterparty credit risk stemming from interbank treasury activity is managed by the internal treasury limit system focusing on the partner and partner group limit.

Investment concentration risk can be identified on the asset side due to the high proportion of government securities. However, no concentration limit is set for exposures to the state and central banks. Currently, the concentration of instruments in the entire securities portfolio is monitored on a daily basis by KELER CCP RM using the Herfindahl – Hirschman Index (HHI).

The volume of credit and country risks concentration resulting from relationships with CSD links, indirect links and intermediary institutions are determined by the turnover, which KELER is unable to limit. Concentration is limited by country risk, regulatory capital and ICAAP-ILAAP credit risk capital requirements.

The concentration of exposures to KELER CCP consists of several different types of exposures, mainly from the shareholding in KELER CCP, and from the agreements between KELER and KELER CCP. The management and control of the above risks is achieved through ownership control, the rating of the share in KELER CCP and the regular monitoring and analysis of credit line usages. KELER is indirectly involved in the collateral portfolio of KELER CCP and in the concentration risks associated with the positions taken by its clearing members and members of the energy market clearing members. In the latter two cases, the concentration risk - and its management - is not reported by KELER, only by KELER CCP.

Central securities depository function does not establish separate capital requirement to concentration risk.

Central counterparty function
Concentration risk related to the central counterparty activity of KELER CCP arises in two ways. On the one hand, due to the concentration of positions taken by KELER CCP clearing members and energy market non-clearing members, on the other hand it is due to the concentration of collaterals on the other.
The market and capital position limit is designed to manage risk concentration related to counterparties towards which KELER CCP as central counterparty undertakes guarantee in exchange settlements. If these limits are exceeded, additional financial collateral can be collected in line with the General Business Rules of KELER CCP due to perceived risk increase to mitigate risks arising from increased concentration.

KELER CCP applies concentration limits in line with ESMA TS 153/2013, among others by individual issuer, asset type, to the concentration of securities in the central counterparty collateral portfolio.

KELER CCP does not make capital requirement for concentration risks.

xiv. Country risk

Country risk is the risk of loss generated by an event (economic, political, etc.) occurring in the country, controllable by the country (government) given and uncontrollable by the partner of KELER.

Central securities depository function
Exposures to foreign equity, international transactions, and funds placed with foreign counterparties are considered foreign exposures based on the relevant legislation and KELER's risk-taking willingness. KELER is indirectly exposed to the country risk of KELER CCP's receivables through its ownership in KELER CCP.
KELER treats exposures to branches operating in Hungary as foreign risk exposure. The central securities depository applies conservative limits depending upon the external credit rating of the country and the amount of own funds. Additionally, positions in foreign currencies are monitored daily.

Central counterparty function
The country exposure of KELER CCP increases gradually due to the strategy followed as KELER CCP provides services to foreign counterparties and has multiple connections with international settlements. Some of the foreign counterparties are clearing members that are considered foreign legal entities as they transformed into branches, and for this reason the country risk of the parent company is to be taken into account also. Additionally, foreign clearing members/non-clearing members, partly related to the settlement of the MTS market, are also part of the KELER CCP counterparty group. Several energy market non-clearing members are registered abroad. Related to energy market clearing, KELER CCP has account management relationship with Citibank Frankfurt and clearing relationship with ECC, through this link KELER CCP is involved in foreign energy market clearing also.

In terms of country risk, the largest exposure is towards Germany due to the exposures to ECC and Citi Frankfurt. Germany is an EU member state and a superpower, with safe background. KELER CCP has no material exposure to non-EU member states

currently and such exposure is not expected in the future either. Risks due to existing country risks are managed in the guarantee system.

KELER CCP does not make capital requirement for concentration risk.

ii. Market risk

Market risk is the risk that the real value of the future cash flows of a financial instrument will be volatile due to changes in market prices. Market risk reflects the risks associated with interest-bearing assets, shares, indexes and, it may include foreign exchange risk and commodity risks as well.

i. Trading and non-trading book interest rate risk

Central securities depository function

KELER runs HUF interest rate risk and limited foreign exchange risk only.

KELER as central securities depository applies various limits to monitor market risks that are related to the following risk types: non-trading and trading book interest rate risk, FX rate risk, and full open FX position risk.

Market risk management involves daily measurement, monitoring, reporting on the one hand, and periodic stress tests on the other.

KELER manages separately the market risks arising in the trading and non-trading books.

Since February 2018, KELER has changed the classification of government securities in its portfolio, so the trading-book consists only of discount treasury bills.

The non-trading book portfolio typically included interbank trades and MNB loans/deposits and foreign currencies, and the government bonds reclassified from the trading-book.
The following tables show the structure and changes in the trading and non-trading books as of 31 December 2017 and 31 December 2018, in HUF millions:

Trading book	**2018**	**2017**	**Change**
Discount treasuries	32 376	28 774	12,52%
Government bonds	15 061	15 202	-0,93%
Total	47 437	43 976	7,87%

Non-trading book	**2018**	**2017**	**Change**
Deposit With the central bank	9 945	10 755	-7,53%
Interbank deposit	3 000	2 000	50,00%
Total	12 945	12 755	1,49%

Capital requirement for trading book interest rate risk / position risk is determined in line with the maturity-based calculation standard methodology on regulatory level (general position risk, CRR Article 339). Capital requirement on ICAAP-ILAAP level is calculated with modified duration based interest rate sensitivity.

The central securities depository determines capital requirement for the interest rate risk of non-trading book items in line with ICAAP-ILAAP only, the methodology is identical to the ICAAP-ILAAP methodology of trading book capital requirement calculation.
The following tables illustrate changes in interest rate sensitivity of the trading and the non-trading books in 2017 and 2018, based on the last day of the month, in HUF millions:

Trading book	**2018**	**2017**
January	704,5	880,3
February	184,2	912,4
March	203,5	951,3
April	205,3	948,3
May	193,9	927,7
June	212,8	850,6
July	188,1	776,4
August	198,1	736,4
September	170,7	709,7
October	139,5	705,8
November	131,2	732,3
December	148,4	683,3

Non-trading book	**2018**	**2017**
January	2,3	16,6
February	509,1	7,0
March	473,9	19,7
April	535,1	13,7
May	507,6	12,6
June	481,8	19,7
July	475,4	11,7
August	459,9	7,1
September	446,1	7,9
October	433,6	3,8
November	432,6	0,4
December	423,9	1,4

In addition to daily capital requirements calculation, daily value at risk (VaR) for the trading and non-trading book portfolio is calculated daily. VaR calculation is based on 99% confidence level and 1 day relative change.
The following tables show VaR changes in 2017 and 2018, based on the last day of the month, in HUF millions:

Trading book	**2018**	**2017**
January	33,0	89,4
February	2,1	95,6
March	3,4	88,0
April	5,0	81,6
May	12,8	71,2
June	27,8	60,9
July	20,1	58,7
August	23,7	50,4
September	13,2	38,1
October	6,6	37,2
November	7,5	34,1
December	12,1	31,0

Non-trading book	**2018**	**2017**
January	0	5,9
February	39,1	3,2
March	39,7	5,4
April	36,1	5,3
May	55,0	3,3
June	77,6	5,3
July	78,5	4,2
August	81,7	1,6
September	76,3	0,,5
October	70,9	0,01
November	58,7	-0,017
December	56,0	-0,082

ii. Foreign exchange interest rate and exchange rate risk

Only the own FX positions (FX account balances) represent FX risk for KELER, clients take the FX rate risk of foreign currency balances owned by clients and deposited in the accounts of the central securities depository. The primary purpose of foreign currency assets held by KELER is to make sure that the services provided by KELER CCP as central counterparty in the guaranteed markets and the international settlement services provided by KELER are secure and seamless and to ensure the related FX conversion service. The amount of the portfolio that can be held at the end-of-day is limited in each currency, thus the amount of risk that can be taken is limited also. FX risk is measured with historic analyses and daily VaR calculation.

Changes in open own FX portfolio and calculated VaR changes in 2017 and 2018, on the last day of the month, in HUF million, are as follows:

	2018		2017	
Date	**Portfolio**	**VaR**	**Portfolio**	**VaR**
January	91,4	0,7	91,4	0,9
February	110,6	0,9	105,1	0,9
March	102,4	0,8	95,3	0,8
April	116,7	0,9	105,4	0,8
May	94,5	0,8	97,6	0,8
June	93,8	0,8	72,3	0,6
July	98,3	0,9	103,5	0,9
August	107,0	0,9	72,8	0,7
September	99,0	0,9	94,2	0,7
October	106,6	1,0	104,7	0,9
November	113,9	1,0	82,7	0,8
December	126,7	1,2	99,1	0,8

Central counterparty function

In the case of KELER CCP, there are several approaches to discuss market risk.

One approach is that related to the operation of the central counterparty a potential default can convert counterparty risk into market risk, upon default by the member concerned KELER CCP has to fund, temporarily or finally, cash/securities or derivative market variation margin with the sales proceeds of existing collaterals or with own resources if the former are not sufficient.

KELER CCP analyzes regularly the market risk of collaterals, i.e. the terms of eligibility: in line with the requirements of EMIR it analyzes monthly that the haircuts applied on eligible instruments are appropriate, if found inappropriate, haircuts are amended, and KELER CCP consults quarterly the Risk Committee on haircut levels. The group of eligible collaterals is in line with the requirements of EMIR.

Additionally, prudent margining is designed to cover the market risk of cleared instruments; the appropriateness of margining is monitored continuously.

Market risk can arise at KELER CCP as a part of own resources, that is the minimum capital requirement under EMIR (7.5 million EUR), is invested in Hungarian government securities, treasury bills that are held until maturity, thus market risk is not material related to these instruments.

As an ECC clearing member, KELER CCP provides guarantee undertaking to its non-clearing members in spot and futures energy market clearing. The entire amount of collective guarantee fund contribution payable to ECC is to be made in euro. Consequently, KELER CCP has a material FX portfolio that is the ECC guarantee fund contribution; however, it does not give rise to real FX rate risk in daily operation, it is

not converted to HUF. The contribution to the ECC guarantee fund is deducted when the available capital is calculated.

KELER CCP does make capital requirement for market risk.

iii. Liquidity and funding risks

Central securities depository function

Liquidity is the ability of the entity to fund and meet the increase in assets, expiring liabilities without material unplanned risks. Based on the ICAAP-ILAAP manual liquidity risks can be put into two groups: liquidity and funding risks.

Liquidity risk: the risk that the entities are not able to meet financial liabilities on time within the day, operatively (30 days), in the short (1-3 months) and medium term (3-12 months) or due to related market liquidity risks they can sell balancing capacities at a material loss due to the inadequate depth of the market or other market disturbances. (Market liquidity risk is the risk that the entity is not able to realize positions at appropriate market prices, i.e. market liquidity risk is the risk that a market position cannot be closed at market prices during a short period of time, it can be closed at a worse price only, thus it is required to maintain the position to realize the appropriate market price, which may need depositing or taking liquid assets.)

Funding risk: the risk that in the long term, over the year, entities are not able to meet financial liabilities without unacceptable increase in funding costs. Thus, in the long term, entities cannot keep their funding stable.

The special activity of KELER, in particular seamless settlement requires liquid assets that can be mobilized quickly at all times. Partly due to the former requirement, the assets the central securities depository can keep are strictly regulated by legislation (see Article 46 of CSDR). In addition to legal restrictions, KELER endeavors to select financial instruments that can be sold quickly under normal market conditions if needed and can be used to create intra-day liquidity also. In terms of liquidity risk, the relationship with KELER CCP as central counterparty is of great importance, mainly due to the settlement loan service.

The liquidity risk limits determined by the central securities depository are monitored daily, capital requirement is determined on monthly basis. The Assets and Liabilities Committee discusses the reports. Additionally, a comprehensive report is prepared at least once a year for the KELER Board of Directors.

Central counterparty function

There are two major functions related to which KELER CCP needs liquidity: on the one hand liquidity is needed for guarantee undertaking, the main activity of KELER CCP - typically, KELER CCP is able to provide this liquidity with shareholder's equity. On the other hand, a variable amount of liquid assets is required for the daily operation of KELER CCP. One part of it is represented by the transfer price payable to KELER; the larger part consists of financial liabilities arising from ECC clearing membership. Liquidity needs related to guarantee undertaking may arise several times during a day, in line with market settlement times.
Regarding default related liquidity risk management, EMIR requires the capability to cover the liquidity need uncovered by individual collateral related to the two members with the largest exposures in the market.
The liquidity need expected on the following day and in some cases on later days is analyzed and forecast daily. It is assessed monthly, retrospectively, whether KELER CCP was able to meet the requirement of EMIR to cover the liquidity need arising from the risk of the two largest members uncovered by individual collateral.
KELER CCP does not create capital requirement for liquidity risk.

c) Operational risks

Operational risks are managed at Group level (KELER and KELER CCP – hereinafter Group – joint regulation).

Operational risk means the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events, and includes legal risks (CRR, Article 4, section 52). Operational risk includes legal risk but does not include reputation and strategic risk (Based II, International Capital Framework, 2005.). According to the ICAAP-ILAAP manual, KELER examines and manages legal, reputational risk and ICT risk under operational risk.

Operational risk measurement and management under ICAAP-ILAAP is based on a Group-wide loss database that is supplemented by expert estimates and the collection of key risk indicators. All organizational units of the Group are to be involved in the collection of operational risk events, the regular assessment, evaluation and mitigation of risks. This way it can be ensured that the operational risk management system covers comprehensively KELER and KELER CCP that are intertwined in terms of operation and activity.

An operational risk management contact person is appointed in each Group unit; this person is responsible for forwarding to the operational risk management officer loss events that the contact person becomes aware of and the key risk indicators collected by its unit. In addition to the system of contact persons, there is an Operational Risk Committee (ORC) that meets regularly and decides on necessary action plans and monitors the implementation of measures earlier taken. The operational risk management officer reports to ORC quarterly.

The reports prepared for committee meetings and the minutes of the meetings that include the action plans are to be sent to the Supervisory Boards of KELER and KELER CCP. The Boards of Directors of KELER and KELER CCP are provided thorough information annually on operational risks and their management.

Operational risks within the KELER Group are regularly identified and quantified based on the self-assessment interviews with the organizational units,

Changes in operational risks are monitored through the regular collection of loss data. The regular analysis and reporting to Management of loss events ensures risk monitoring and is the basis of taking risk management measures.

The key risk indicator is an indicator moving parallel with operational risk losses that helps monitor changes in risk exposures. KRIs are collected to ensure the continuous monitoring of operational risks. KRIs are regularly assessed, the Operational Risk Committee continuously monitors KRIs and changes in KRIs over time, and it takes risk mitigation measures if needed.
The Group determines operational risk capital requirement at regulatory level based on the BIA model, in terms of internal approach, applies a risk sensitive model that is nearly AMA level.

d) General business risk

Central securities depository function
Pursuant to the provisions of Article 47 of CSDR, the central securities depository must cover general business risks with capital. The EBA RTS provides additional information in this regard that is in line with the requirements of the ICAAP-ILAAP manual. Because of its special position, KELER follows primarily the provisions of the CSDR to determine the capital requirement for general business risks, but at the same time it also takes into account the requirements set forth in the ICAAP-ILAAP manual when identifying applicable scenarios (standard scenario and at least 1 stress scenario). The specified capital requirement is intended to cover losses between normal and stress scenarios.

e) Winding-down or Restructuring Risk

Central securities depository function
Pursuant to Article 47 (2) of the CSDR, KELER must maintain a plan with respect to the following:

a. additional capital increase in case its equity capital approaches or falls below the requirements laid down by law;
b. ensuring the orderly winding-down or restructuring of its operations and services if KELER is unable to raise new capital.

With respect to raising additional capital, KELER's Recovery Plan contains the relevant provisions.

f) Capital management (Regulated institutions' capital management)

Central securities depository function

Besides acting as a central securities depository pursuant to the CSDR provisions, KELER provides non-banking and banking type ancillary services, therefore it shall comply with the applicable provisions of the Hungarian regulation (Tpt., Hpt. and ICAAP-ILAAP manual) and with the EU legislations (CRR) and guidelines related to the operation of credit institutions.

The central securities depository is required to comply with the own funds related requirements of CRR. The calculation of capital adequacy should be determined in accordance with Hungarian Accounting Rules available values.

The own funds of KELER consist of the following components:

- Tier 1 capital (T1):
  - Common Equity Tier 1 (CET1): subscribed capital, retained earnings, general reserves (based on regulation 10 % of profit for the period),
  - Additional Tier 1 (AT1): none,
- Tier 2 (T2): general risk reserve (additional reserves are not made), allocated reserves (currently none)

Intangible assets and the loss of current business year is subtracted from the common equity tier 1 capital (Article 36 of CRR). Furthermore, the amount of the adjustments determined under Article 105 of CRR and, in accordance with Article 46 (4) of the CSDR, the total value of the investments in KELER CCP and ANNA shall be deducted. In addition, any investment that does not comply with Article 46 (3) of the CSDR, including the value of securities blocked until maturity related to the renting of office (approximately HUF 43 million), should be deducted as well..

KELER does not apply Group level capital adequacy.

The following table shows the calculation of central securities depository own funds and capital adequacy ratio as of 31 December, data in million HUF:

	2018[4]	**2017**
Subscribed capital	4 500	4 500
Retained earnings	20 958	20 981
profit for the period	1 450	-219
FVTOCI reserves	27	0
General reserves	267	0
Tier 1, total	**27 201**	**25 262**
General risk reserves	0	111
Tier 2, total	**0**	**111**
Deductions(-)		
Intangible assets	-865	-520
Limit excess due to investment restrictions	0	0

[4] Non-audited data

Value adjustments due to the requirements for prudent valuation	-130	-130
Limit excess due to large exposure taking restrictions	0	0
Other deductions	-6 589	-4 545
Tota deductions	**-7 583**	**-5 195**
OWN FUNDS	19 618	20 177

Capital adequacy ratio	**2018**	**2017**
CET1 Capital Adequacy Ratio	21,9%	24,34%
Total Capital Adequacy Ratio	21,9%	24,47%

The minimum level of capital adequacy expected by the applicable regulations has been increasing gradually since 2016; however, in light of the current capital position of KELER, no additional intervention is needed.

Based on the capital requirements of the central securities depository calculated for regulatory risks and risks defined by ICAAP-ILAAP, Risk Management at KELER CCP determines for each day the capital to be created and checks that own funds are sufficient.

The following table details the calculation methodology applied for regulatory and internal capital requirement for certain risk types:

Risk	**Regulatory**	**ICAAP-ILAAP**
Credit and counterparty risks	Standard method	Based on own weights, similarly to the regulatory method
Intra-day credit risk	Based on article 8 of EBA RTS	Based on own weights, similarly to the regulatory method
Risk of credit obligation exposures	Based on article 127 of CRR	Based on the ICAAP-ILAAP manual (risky portfolios)
Off-balance sheet items	Based on article 111 of CRR	Based on own weights, similarly to the regulatory method
International settlement credit risk (terminated in 2018)	-	Based on historical data
Position risk/Trading book interest rate risk	Position risk: maturity based approach	Based on interest rate sensitivity
FX exchange rate risk	8% of the total net position of foreign currencies owned, if the net open position reaches 2% of own funds.	Supervisory Var model
Liquidity and financing risk	-	The sum of the liquidation cost of the securities portfolio calculated on a 6 month GARCH basis weighting

Operational risk	BIA method	Based on actual losses, theoretical events and scenario results, with Monte Carlo simulation and with VaR
General business risk	Based on article 6 of EBA RTS	Equivalent to the regulatory method
Winding-down or restructuring risk	based on article 7 of EBA RTS	Equivalent to the regulatory method

KELER created the following capital requirements on 31st December 2017 and 31st December 2018[5]:

2018 **Risk**	**Capital requirement, regulatory (CSDR+CRR)**	**Capital requirement, internal (ICAAP-ILAAP)**
Position risk/Trading book interest rate risk	149	222
Credit and counterparty risks[6]	900	1 006
FX rate risk	33	28
Operational risk	914	683
Non-trading book interest rate risk	0	636
Liquidity and financing risk	0	14
General business risk	1 421	1 421
Winding-down or restructuring risk	2 842	2 842
Total	**6 259**	**6 852**

2017 **Risk**	**Capital requirement, regulatory (CSDR+CRR)**	**Capital requirement, internal (ICAAP-ILAAP)**
Position risk/Trading book interest rate risk	482	1 367
Credit and counterparty risks	700	780
FX rate risk	0	27
Operational risk	914	555
Non-trading book interest rate risk	0	3
Liquidity and financing risk	0	8
General business risk	973	973
International settlement credit risk	2 270	2 270
Winding-down or restructuring risk	0	509
Total	**5 339**	**6 492**

[5] Not audited data
[6] Total without international settlement credit risk

For each risk the higher of the regulatory and internal capital requirement is to be made. In line with the above rule, the final capital requirement to be made based on 31 December 2017 data would be HUF 6.852 million, while the actual capital requirement to be made as of 31 December 2018 would be HUF 7.165 million.

Central counterparty function

KELER CCP is not a credit institution; the Basel requirements, the CRR or the CRD do not apply directly to KELER CCP. However, the requirements of EMIR cover the capital requirements of CCPs also. Central counterparties are required to have shareholders' equity of at least 7.5 million Euros on a permanent basis (Capital requirement II) and the amount of shareholders' equity is required to be proportionate to the risk arising from the central counterparty activity. The ESMA technical standard details the calculation method of capital requirement.

KELER CCP is required to determine the amount of capital requirement for the following risks (Capital requirement I):

1. capital requirement on credit and counterparty risks,
2. capital requirement on operational and legal risks;
3. capital requirement on market risks (FX rate and securities position risk),
4. capital requirement on winding up or restructuring of the activity of the central counterparty,
5. capital requirement on business risk

Determination of available capital

The amount of available capital equals the components of shareholders' equity:

- subscribed capital
- issued but not paid capital (-)
- capital reserves
- retained earnings
- tied-up reserves
- revaluation reserve
- profit or loss for the year

And the following items are to be deducted from this:

- Intangible assets
- contribution to the guarantee fund of other CCPs (ECC Euro guarantee fund contribution)
- contribution to own guarantee fund

The available capital is required to cover the following elements:

- Minimum capital requirement
- Dedicated own resources = (0,25 * MAX (Capital requirement I., Capital requirement II.)
- Other financial resources (remaining amount after deduction of the above two items)

The following table shows KELER CCP capital adequacy at the end of 2017 and 2018:

	2018	**2017**
Available capital	5 790	4 117
Minimum capital requirement	2 697	2 559
Dedicated own resources	613	582
Other financial resources	2 480	977

NOTE 5: CASH AND CASH EQUIVALENTS

	31.12.2018	31.12.2017
Due from banks and balances with CBH		
Within one year		
In HUF	10 160	11 013
In foreign currency	18 816	11 006
Cash equivalents	0	2 545
	28 976	24 564
Opening balance of expected credit loss (ECL)	0	0
Effect of transition to IFRS 9	6	0
Changes in the balance of expected credit loss (ECL)	0	0
Closing balance of expected credit loss (ECL)	6	0
Closing balance, net of ECL	28 970	24 564

The cash equivalents include treasury bills issued by the Hungarian State that has the maturity of less than three months when acquired. These are highly liquid financial assets subject to insignificant risk of value change. The cash equivalents are stated at amortised cost.

	31.12.2018	31.12.2017
Placements with other banks, net after deduction of impairment losses calculated based on ECL		
Within one year		
In HUF	3 153	2 209
In foreign currency	46 907	39 091
	50 060	41 300
Opening balance of expected credit loss (ECL)	0	0
Effect of transition to IFRS 9	11	0
Changes in the balance of expected credit loss (ECL)	4	0
Closing balance of expected credit loss (ECL)	15	0
Closing balance, net of ECL	50 045	41 300

The bank accounts are demand deposits, available immediately for withdrawal. The interest on the bank account is between (-0,15%) to 0,30% for HUF deposits [(-0,05%)-(-0,15%) in 2017], (-1,6%) - 0,00% for foreign currency deposits. These expenses are recorded as interest paid in the profit or loss.

For cash and cash equivalents, impairment based on expected credit loss shall be recognized All items in this group belongs to stage 1 for ECL purposes. For the calculation 45% LGD is used and the 12 month PD is measured between 0,003% and 0,006%.

Designated deposits

The designated deposit balance includes HUF deposits that are received from the clients as contribution to the Guarantee funds (see Note 16). These cash balances may only be used for certain purposes, strictly regulated by EMIR (such as day-end repos). These cash balances are included in the above figures.

Based on the requirements for compulsory reserves set by the CBH, the balance of compulsory reserves amounted to approximately HUF 575,7 and HUF 522,7 million on average in 2018 and 2017, respectively. This compulsory reserves are kept on the deposit with CBH due within one year.

Daily balance of interbank statements was HUF 207,7 million and HUF 203,5 million as at 31 December 2018 and 2017, respectively.

Interbank placements include bank accounts at Clearstream Bank, SIX SIS, Citibank A.G., Citibank NY, Citibank London, CBH, OTP Bank Plc. and MKB Bank Plc., Gránit Bank Plc., Societe Generale, Société Générale Spółka Akcyjna Oddział w Polsce (this latter only in 2018)

NOTE 6: STATE SECUTIRIES

	31.12.2018	**31.12.2017**
Financial assets measured at amortized cost	14 232	0
Financial assets measured at fair value through OCI	35 380	0
Available for sales financial assets (MÁK)	0	15 162
Available for sales financial assets (DKJ)	0	35 408
	49 612	50 570

Financial assets measured at amortized cost	**31.12.2018**	**31.12.2017**
Hungarian government bonds		
Opening balance	15 162	0
Elimination of impairment under previous GAAP	7	0
Changes in the business model (reclassification)	171	0
Changes in the business model (reclassification)	-1 177	0
Changes in the business model (reclassification)	-534	0
Reclassification	45	0
Acquisition	779	0
Derecognition at maturity	-218	0
Impairment loss (3rd stage ECL)	0	0
Interest accrued (Amortization)	-1	0
Gross value of debt instruments	**14 234**	0
Opening balance of expected credit loss (ECL)	0	0
Effect of transition to IFRS 9	-2	0
Changes in the balance of expected credit loss (ECL)	0	0
Closing balance of expected credit loss (ECL)	**-2**	0
Closing balance, net of ECL	**14 232**	0

Financial assets measured at fair value trough other comprehensive income (FVTOCI)	**31.12.2018**	**31.12.2017**
Opening balance	35 408	0
Securities transferred by repo agreement		
Debt instruments maturing under 3 months	2 545	0
Opening accumulated revaluation		
Acquisition	51 132	0
Derecognition at maturity	-53 777	0

Impairment loss (3rd stage ECL)	0	0
Interest accrued (Amortization)	49	0
Remeasurement (Fair Value Adjustment)	27	0
	35 384	**0**
Opening balance of expected credit loss (ECL)	0	0
Effect of transition to IFRS 9	-4	0
Changes in the balance of expected credit loss (ECL)	0	0
Closing balance of expected credit loss (ECL)	**-4**	0
Closing balance, net of ECL	**35 380**	**0**

	31.12.2018	**31.12.2017**
Available for sale financial instruments		
Treasury Bills (issued by the Hungarian State)		
Opening balance	0	39 045
Acquisition	0	35 380
Derecognition at maturity	0	-39 045
Interest accrued	0	19
Remeasurement	0	9
	0	35 408

	31.12.2018	**31.12.2017**
Available for sale financial instruments		
Government Bonds (issued by the Hungarian State)		
Opening balance	0	14 074
Acquisition	0	3 953
Derecognition at maturity	0	-2 815
Interest accrued	0	-13
Remeasurement	0	-37
	0	15 162

The interest of the FVTOCI instruments (DKJ) was taken to the Consolidated Statement of Comprehensive Income using the effective interest method, and the changes in the fair value was recognized as other comprehensive income (OCI). This OCI will be reclassified to the profit or loss when the underlying financial asset is derecognized.

Interest on AC category instruments is calculated using the effective interest method in the statement of comprehensive income. These assets do not required to be measured at fair value at the end of the year.

Market value of AC assets at end of period:

	2018.12.31	**2017.12.31**
Fair value of financial assets measured at cost (AC)	14 937	15.162

There are no adjustments from remeasurement in case of AC securities in the consolidated financial statements (except for accumulated impairment loss based on ECL)
The fair value of these assets can be determined based on readily available quoted prices published by Hungarian Debt Agency (Level 1). However, when the fair value of these assets cannot be determined based on such quoted prices, instrument are measured based on yields quoted for similar financial instruments and adjusted using generally applied valuation techniques (Level 2). See more information in Note 35.

The ECL of these instruments are based on the credit quality of these instruments, derived from the classification of the issuer (Hungarian State) also considering the requirements of the so called 'standard risk management methodology'. In respect of ECL, both treasury bills and government bonds are all classified in the Stage 1 category.

NOTE 7: TRADE RECEIVABLES AND TRADE PAYABLE RELATING TO GAS MARKET

Accounting policies relating to the trading on the gas market is presented in Note 3. This balance relates to receivables from the participants on the foresaid gas market. These are paid – according to the contract – in less 30 than days. These balances are neither impaired nor past due. The collateral behind the receivable guarantees that the chance of any type of un-collectability is far beyond remote.

The receivable from the gas market services are also subject to ECL. Here – due to the nature of the receivable – the Group uses the simplified method, so immediately the life-time ECL is recorded without further tracking of the individual credit quality. Due to the collateral behind these transactions the loss ratio is low (see accounting policy for details).

The gas market guarantee system guarantees the settlement of claims.

The balance of this receivable depend on the trading activity on the market that the entity does not influence.

The liabilities from the gas market are they payable amount that is the other "party" of the clearing transaction. The payables are – by contractual agreement – due on the same day as the corresponding receivable.

The fair value of these receivables and payables are close to their carrying amount (the payment is done in a short time and no other issues require adjustment).

NOTE 8: TRADE RECEIVABLES FROM CENTRAL COUNTERPARTY AND DEPOSITORY OPERATION

Receivables relating to clearing and depository activities	**31.12.2018**	**31.12.2017**
Receivables gross book value	657	702
Receivables written off	-3	-4
Accumulated impairment losses (collective)	-32	-36
Accumulated impairment losses (specific)		
Receivable balance net of accumulated impairment	622	662

Accumulated impairment losses of trade receivables		
Opening accumulated impairment losses	-40	-38
Impairment losses recognized in the current period, collective	-8	-10
Impairment losses recognized in the current period, specific	0	0
Impairment losses derecognized in the current period	13	8
Closing accumulated impairment losses	-35	-40

These trade receivables include the not yet paid part of the rendered CCP, Depository and similar services. The balances are stated at invoiced amounts since they become payable in a short time.

The expected credit loss on the receivables is assessed by the Group based on simplified manner thus immediately the life-time ECL is recorded without further tracking of the individual credit quality. The impairment loss based on ECL – if it not assessed individually – shall be determined based on aging table (see details in Notes 3.)

The derecognized impairment loss is due to the recovery of receivables that were previously identified as impaired and impairment loss was recognized.

The impairment loss or gain of the reversal is reported on a separate line in Consolidated Statement of Comprehensive Income, on a net basis.

The fair value of these receivables do not show significant difference from the amortized cost as carrying amounts, thus carrying amount shows the best estimation of the fair value.

NOTE 9: OTHER RECEIVABLES, TAX RECEIVABLE

	31.12.2018	31.12.2017
Other receivables		
Receivables from settlement day differences	844	0
Prepaid expenses	446	259
Prepaid Interest	55	39
Tax receivables (other than income taxes)	8	485
Advances to suppliers	16	8
Loans to employees	30	27
Sundry other receivables	291	21
	1 690	840
Accumulated impairment loss based on expected credit loss of other receivables	0	0
Closing balance, net of ECL	1 690	840
Opening balance of expected credit loss (ECL)	0	0
Effect of transition to IFRS 9	0	0
Changes in the balance of expected credit loss (ECL)	0	0
Closing balance of expected credit loss (ECL)	0	0
Closing balance, net of ECL	1 690	840

Prepaid expenses and tax receivables are not subject to IFRS 9, thus calculation of ECL is not required, however for financial assets under other receivables ECL was calculated.
The other receivable also include a balance that was the result of an administrative malfunction and a duplicated bank transfer, both was resolved in the first month of 2019.
The items include the following material claims: KELER CCP and the Foreign Clearing House (ECC) operated on different days around the end of the year and due to different banking days, the total settlement of some items did not break (the ECC deposit was reduced, however. the decrease in customer accounts was only on the first banking day of 2019). The resulting difference was recognized as a receivable, which was settled on the first banking day of 2019. The amount resulting from this discrepancy is determined by the Group based on the net position of the ECL.
Other accruals include cost items that have been prepaid for several years of support, but their performance period is comprised of the following reporting periods (HUF 392 million) and some prepaid operating cost items.
The other tax receivables consist of the following balances:

Tax receivables (other than income taxes)	31.12.2018	31.12.2017
Value added tax	0	474
Personal income tax	0	0
Social security contributions	1	8
Local tax	7	3
	8	**485**

All tax balances are related to the Hungarian Tax Authority.

The income tax receivable is disclosed separately in the consolidated financial statement (at the end of 2018 year: 150 MHUF; at the end of 2017 year: 219 MHUF). The Group considers corporate income tax and for KELER Depository Ltd. local tax and innovation contribution to be income tax for accounting purposes. The KELER Group considers for KELER KSZF the corporate income tax regulated Act LXXXI of 1996 on Corporate Income Tax and Dividend Tax as income tax and for KELER Zrt. the aforementioned tax and the local tax and innovation contribution (regulated by Act C of 1990 on Local Tax and Act LXXVI of 2014 on Scientific Research, Development and Innovation, respectively) as income tax.

These receivables do not yield interest and they are all to be received within one year. They are not impaired nor past due. The fair value of these receivables is the same with the carrying amount.

NOTE 10: RECEIVABLES FROM CLEARING HOUSES

KELER CCP as a general clearing member of the ECC is entitled to provide power market non-clearing membership services from 1 July 2010 on the spot power market, and 1 July 2011 on the futures power market. According to the GCM status clearing members have to comply with specified margin and collective guarantee requirements of ECC. During 2013 ECC introduced the daily spot margining system and a new margin calculation method which resulted a relatively high amount of margin call towards KELER CCP.

The receivable is denominated in euro. In the original currency the receivable from power market is: 61.447.500 EUR on 31 December 2018 (40.036.633 EUR on 31 December 2017).

The clearing receivable is subject to ECL. The receivable was classified in Stage 1 category. The full receivable is with one counterparty therefore it embodies risk concentration.

The fair value of these receivables do not show significant difference from the amortized cost as carrying amounts, thus carrying amount shows the best estimation of the fair value.

NOTE 11: INTANGIBLE ASSETS

Intangible assets	**Concessions and similar rights**	**Intellectual property**	**Total**
Cost			
Balance as on 1 January 2018	171	11 632	11 803
Additions	0	807	807
Scrapping, derecognition	0	-3 412	-3 412
Settlement of advances	0	-2	-2
Proceeds from advances	0	18	18
Disposal	0	0	0
Balance as on 31 December 2018	171	9 043	9 214
Accumulated Depreciation, Amortization and Impairment			
Balance as on 1 January 2018	151	10 868	11 019
Current year depreciation	0	452	452
Impairment of intangible assets	0	159	159
Scrapping, derecognition	0	-3 412	-3 412
Disposal	0	0	0
Balance as on 31 December 2018	151	8 067	8 218
Net book value			
Balance as on 1 January 2018	20	764	784
Balance as on 31 December 2018	20	976	996

Intangible assets	**Concessions and similar rights**	**Intellectual property**	**Total**
Cost			
Balance as on 1 January 2017	171	10 624	10 795
Additions	0	1 008	1 008
Proceeds from advances	0	0	0
Disposals	0	0	0
Balance as on 31 December 2017	171	11 632	11 803
Accumulated Depreciation, Amortization and Impairment			
Balance as on 1 January 2017	151	7 193	7 344
Current year amortization	0	332	332
Impairment of intangible assets		3 342	3 342
Disposals	0	0	0
Balance as on 31 December 2017	151	10 868	11 019
Net book value			
Balance as on 1 January 2017	20	3 431	3 451
Balance as on 31 December 2017	20	764	784

Net addition during the year includes purchases, developments. Content of development

- Development of data warehouse
- Server base system
- Other small value items

Performance of the impairment review test - Rights

Rights include a customer list acquired (purchased) by KELER CCP in 2015 (cost: 24 MHUF). This is considered to be having an indefinite useful life. A part of the foresaid intangible asset was derecognized in 2016, since a customer – acquired through this list – left the operation. The value of the amount to be derecognized was calculated based on revenue share. in 2018 (nor 2017), there was no similar partial derecognition, the net asset value is stated at 20MHUF. Based on the results of impairment review test to this asset, no such circumstances have been identified which refer to impairment loss.

Performance of the impairment review test – Intellectual properties

Intellectual properties include mainly software products of the Group.

Software products under development

In 2017, the Group recognized impairment of software under development for its core system (in amount of 3.342 M HUF). As a result of the investigations, it was found that the development is not usable in the future, and that the errors inherent in its functionality cannot be eliminated with reasonable effort. Therefore, during the 2018 business year, the development was scrapped by the Company following the decision of the Board of Directors. Disposal had no effect on results in 2018, as impairment was already recognized in 2017.

During the 2018 business year, a system under development cannot be utilized in a pre-planned form due to a change in the business model. Since improvement of development was not economically feasible, the development was relaunched on the basis of the new business model, the previous development - as not used - was written and scrapped by the Group in 2018 (result effect: HUF 70 million).

During the year, another project (BRM) was completed by the Group, but due to the failure of the contract, it had to be written down (HUF 89 million).

Other software products

Based on the results of impairment review test to this asset, no such circumstances have been identified which refer to impairment loss.

Commitments

Instead of replacing the former core system, the Group decided to achieve its goals through a major overhaul of the existing information system. The transformation will bring significant improvements in the coming periods. At the end of 2018, financial commitment from this project has not yet been recognized.

The Group initiated a project during the period to provide services for the Kazah market and act as a clearing house. The project is still in early stage, so no direct expenditure arise as of the end of the current business period.

NOTE 12: PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment **Cost**	**Buildings and improvements**	**Machinery and equipments**	**Total**
Balance as on 1 January 2018	135	1 811	1 946
Purchases	3	602	605
Proceeds from advances	0	15	15
Sale	0	-36	-36
Balance as on 31 December 2018	138	2 392	2 531
Accumulated Depreciation and Amortization			
Balance as on 1 January 2018	89	1 571	1 660
Current year's depreciation	6	97	103
Sale	0	-28	-28
Balance as on 31 December 2018	95	1 640	1 735
Net book value			
Balance as on 1 January 2018	46	240	286
Balance as on 31 December 2018	43	752	796

Property, plant and equipment **Cost**	**Buildings and improvements**	**Machinery and equipments**	**Total**
Balance as on 1 January 2017	158	1 805	1 963
Purchases	0	94	94
Sale	23	88	111
Balance as on 31 December 2017	135	1 811	1 946
Comulated Depreciation and Amortization			
Balance as on 1 January 2017	88	1 464	1 552
Current year's depreciation	59	130	189
Sale	58	23	81
Balance as on 31 December 2017	89	1 571	1 660
Net book value			
Balance as on 1 January 2017	70	341	411
Balance as on 31 December 2017	46	240	286

The above items contribute to the business activity. The buildings and improvements include improvements on leasehold property (the headquarter office of Group). These improvement include incentives received from the lessor (original value: 33 MHUF). The lessor – in order to encourage the entry in the lease agreement – purchased certain items for the Group. These items may only be used by the Group (they are built in the leased property). As the Group concluded that these assets are controlled by them they recognized them as non current asset. The income relating to this is deferred. The deferred income is released in line with the deprecation charged for these received assets.

The majority of the machinery and equipment are computers, servers and similar IT equipment that is customized for the activity of the Group. A smaller portion of this position is fixtures and fittings for the administrative activity.

In the course of the business year, the replacement of basic computer hardware took place (cost: HUF 540 million). These are three independent tangible assets, two of which are individually significant for KELER. Although the device consists of several components that can be replaced independently - the useful life of the components is the same. In the context of hardware, there is a significant amount of support contract in place that does not represent the cost of the device, by the provision of support it is expensed in the income statement.

Currently there are no commitment to purchase tangible assets. There are no pledges or similar items limiting the transfer or use of these assets.

The depreciation is charged to the Consolidated Statement of Comprehensive Income.

NOTE 13: TRADE PAYABLES

Payables from other activities that are not classified to other positions are under trade payables. These amounts are usually due within 60 days. The trade payables are mainly denominated in HUF and in EUR.

An individually significant item in the trade payables is a fee for an IT service provider (HUF 42 million).

NOTE 14: OTHER PAYABLES

	31.12.2018	**31.12.2017**
Other payables		
Accrued expenses	358	428
Other Taxes payable	296	91
Sundry other expenses	87	150
Financial guarantee contract	5	4
	746	673

	31.12.2018	**31.12.2017**
Taxes payable (other than income taxes)		
Personal income tax	33	25
Rehabilitation contribution	3	2
Healthcare contribution	12	9
Labor market contribution	0	21
Health insurance and pension contributions	26	4
Social security contributions	37	30
Value added tax	182	0
Other taxes	3	0
	296	91

The accrued expenses consist of sundry expenses that relate to this period but they were not yet invoiced, incurred. The liabilities due to discounts include items that were granted to clients based on their activity in the previous periods. These discounts are calculated at the end of the period and deducted from the revenues.

Advances received include prepayment received in connection with the AIX project (Kazakh clearing house activity).

The balance of this liability includes a financial guarantee contract liability due to the central counterparty activity of the Group. The nature of the activity of the Group requires to cover all the risk that are coming from default events (i.e. that the central counterparty must settle the compensation of the transaction even if one of the parties of the clearing agreement is unable to pay/act). To ensure the source of these payments the entity operates guarantee system with several funds collected from the participants of the markets. These funds are based on calculations which are not designed to provide

full coverage (i.e. it is impossible to provide 100% guarantee). Starting from 2015 the entity decided to set up a separate liability to reflect this. To deal with the statistically uncovered exposure the entity recognizes a financial guarantee contract liability based on the available collateral and the probability of a loss event regardless how small this probability is. The changes in the FGC balance is fully explained by the movements of the guarantee funds.

NOTE 15: DEPOSITS FROM CUSTOMERS, FINANCIAL GUARANTEE CONTRACT

	31.12.2018	31.12.2017
Deposits from customers		
Interest-bearing		
Within one year		
In HUF	32 728	34 286
In foreign currency	42 254	23 323
Non interest-bearing		
Within one year		
In HUF	141	50
In foreign currency	39 930	38 729
	115 053	96 388

These balances include the deposits of the customers. These balance are available for the customers for immediate withdrawal.

The deposits are stated at amortized cost (the fair value of these liabilities are close to their book value).

The Group paid an annual average rate of -0,1% in year 2018 and 2017 for the HUF interest-bearing deposits, and did not pay interests for the foreign exchange deposits, or the deposited amount received negative interest (2018: -1,6%, 2017: -0,9%)

NOTE 16: GUARANTEE FUND LIABILITIES

	31.12.2018	31.12.2017
Liabilities for Guarantee Funds		
Exchange Settlement Fund	4 016	1 571
Collective Guarantee Fund	2 381	2 924
Gas Market Collective Guarantee Fund	970	1 002
CEEGEX Market Collective Guarantee Fund	929	351
Less own contribution	-20	-20
	8 276	5 828

As an element of the guarantee system, KELER CCP operates several collective guarantee funds. The purpose of the guarantee fund is to reduce the risk arising from default or failure of cleared and guaranteed transactions made by the Clearing Members. Contributions of the Members are kept in cash on 31 December.

The amount of the above contributions depends on the member's activity on the given market. Therefore these amounts are changing frequently.

The collected amounts are subject to interest. Interest is paid on a regular basis. These liabilities are recognized at amortized cost which is equal to their fair value.

Since the Group itself transacts on the above markets, it must have contributed to these funds. The own contribution for this fund was removed from the liability and on the other hand no receivable were recognized (the positions were netted).

The changes in the FGC is recognized in the Consolidated Statement of Comprehensive Income. The fair value of the FGC was arrived to by using the collateral's fair value, adjusted with haircut, taking into consideration the not yet covered risks.

The fair value of the liabilities are close to their carrying amount.

NOTE 17: DEFERRED TAXES, RECONCILIATION OF THEORETICAL AND ACTUAL TAX

When calculating deferred taxes related to income tax type in accordance with IAS 12 and relevant accounting policy, the Group compares the amounts to be considered for taxation purposes with the carrying value for each asset and liability. If the difference is reversible (i.e. the difference is equalized in the foreseeable future), then a deferred tax liability or asset is recorded in a positive or negative amount as appropriate. Recoverability was separately examined by the Group when recording each asset.

Deferred tax may only be recognized for corporate income tax. When measuring the deferred tax, the Group applied a flat rate of 9%. The tax strategy of the entities confirms that the recognized tax assets will be recovered. The changes in the deferred tax balances are recognized in net profit expect changes related to FVTOCI instruments where the changes are taken to other comprehensive income.

Deferred tax assets are supported by a tax strategy which confirms that the asset is expected to be recovered based on the information available.

The change in deferred taxes was recognized in the profit or loss and for the available for sale financial instruments in the other comprehensive income.

The tax balances and temporary differences for 2018 are as follows:

Balance	Tax base	Carrying Amount	Deductible, taxable difference	Deferred tax through profit or loss	Deferred tax through OCI
Cash and cash equivalents	28 970	28 970	0	0	0
Receivables relating to clearing and depository activities	622	622	0	0	0
Other receivables	1 690	1 690	0	0	0
Assets measured at amortized cost	14 232	14 232	0	0	0
Debt instruments measured at amortized cost	35 353	35 380	27	0	-2
Property, plant and equipment	701	796	95	-9	0
Intangible assets	1 157	996	-161	14	0
Trade payables	333	333	0	0	0
Other payables and accrued expenses	821	746	-75	7	0
Statutory reserves	267	267	0	0	0
Provisions	0	0	0	0	0
Accrued loss	0	0	0	0	0
Deferred tax assets				21	
Deferred tax liability				-9	-2
Accrued loss after settlement	**Total deferred tax assets**			**0**	

The tax balances and temporary differences for 2017 are as follows:

Balance	Tax base	Carrying Amount	Deductible, taxable difference	Deferred tax through profit or loss	Deferred tax through OCI
Cash and cash equivalents(*)	63 661	66 207	2 545	0	(229)
Trade receivables	5 049	5 049	0	0	0
Other receivables	14 716	14 716	0	0	0
Available for sale financial assets	58 062	57 238	-826	-106	180
Property, plant and equipment	191	288	95	-9	0
Intangible assets	4 103	1 162	-2 940	32	0
Trade payables	4 582	4 582	0	0	0
Accruals and other liabilities	110 663	110 721	-58	5	0
General risk reserve	122	907	-786	71	0
Financial guarantee contract liability	0	5	-5	0	0
			Deferred tax assets	3	0
(*) includes discount treasury bill matured within 3 months			Deferred tax liability	-8	-49

Deferred tax balances are not discounted.

The Group has a significant amount of accrued loss that can be used to offset taxable profit in later periods. As the Group does not have a formal tax strategy, the Group did not recognize a deferred tax asset from accrued losses.

The entity will start to use IFRS in the separate financial statements starting from the financial year 2018. The Group is required to prepare the separate financial statements of both entities in the Group under IFRS. The transition will require the entities to reassess the tax base of the assets and liabilities of the companies, since before 2018 all calculation was derived from the net asset values under the Hungarian rules.

On transition to reporting under IFRS the group assesses the differences from tax perspective and differences arising from the two system influencing tax will be considered for taxation. The Parent of the Group – considering the legislation on income taxes, especially the minimum requirement – computes the tax base using the approach of the previous GAAP in 2018 and if certain criteria is met also in 2019. The Group decided that all taxable/deductible differences are considered immediately on transition.

NOTE 18: SHARE CAPITAL

There was no change in the share capital of the Company compared to the prior year. The share capital consists of 900 shares with nominal (par) value of HUF 5 million per share as on 31 December 2018. All 900 shares have been authorized, issued and fully paid.

	31.12.2018	**31.12.2017**
Share capital		
Magyar Nemzeti Bank (Central Bank of Hungary)	2 400	2 400
Budapesti Értéktőzsde (Budapest Stock Exchange)	2 100	2 100
	4 500	4 500

There are no special rights or limitations attributed to shareholders by these shares.

Magyar Nemzeti Bank (Central Bank of Hungary) held 53.33% of the shares directly and 37,96% indirectly as of 31 December 2018 (same at the end of last reporting period).

Budapesti Értéktőzsde (Budapest Stock Exchange) held 46.67% of the shares directly as on 31 December 2018 and 31 December 2017.

Non-controlling interest represents the 0.017% share of non controlling shareholders of BSE in KELER CCP.

NOTE 19: STATUTORY RESERVES

	31.12.2018	**31.12.2017**
Statutory Reserves		
General reserve	145	0
General risk reserve	122	122
	267	122

These reserves are recognised due to legislative requirements. Certain regulation requires the Parent Company to transfer from earnings certain amounts to these reserves, so they will not be available for distribution, but only for the cover of operating losses.

General reserve

The general reserve is 10% of the annual profit after tax (calculation is based on data in separate financial statements of the Parent Company). The reserve created here can only be used to cover losses (if the profit reserve is negative).

General risk reserve

The general risk reserve (which was previously calculated from pre-tax profit) can no longer be recognized due to changes in the legislation. The remaining balance can be transferred to profit reserve in case of use.

NOTE 20: FAIR VALUE TROUGH OTHER COMPREHENSIVE INCOME RESERVE

This reserve accumulates the revaluation of FVTOCI debt instruments. This reserve is reclassified to net profit when the asset is derecognized. Since FVTOCI debt instruments only include treasury bills all the balance of 1st January 2018 was reclassified to net profit during the period.

The deferred tax asset of performed transfer is also reflected in the reserves.

NOTE 21: STATEMENT OF FINANCIAL POSITION CATEGORIES BASED ON CURRENT-NON CURRENT DISTINCTION

The Entity presents it's Consolidated Statement of Financial Position in liquidity order. The reason for that is that the KELER is a financial institution and as such it is usual to follow this order. The Consolidated Statement of Financial Position based on the current – non-current distinction is the following.

	31.12.2018	**31.12.2017**
Non-current assets	1 792	1 073
Current assets	155 782	135 885
Short term liabilities	129 240	107 942
	28 334	29 016
Financed by:		
Long term liabilities	75	120
Net assets	28 259	28 896
	28 334	29 016

The non-current assets include the intangible assets, the property, plant, and equipment and the deferred tax asset.
The long-term liabilities include certain employee benefits and the financial guarantee contract liability.
All other items of the Consolidated Statement of Financial Position are current. The Group defines an item of the Consolidated Statement of Financial Position being current if the due date is within 12 months.

Maturity analysis of assets and liabilities
The Group prepares a maturity analysis to present when the assets and liabilities of the entity are/becoming due. This analysis presents the surplus or deficit in items available for settlement. The main considerations on liquidity risk is presented in Note 4.

As on 31 December 2018	**Within 3 months**	**Within one year and over 3 months**	**Within 5 years and over one year**	**Over 5 years**	**Without maturity**	**Total**
Cash and cash equivalents	28 970	0	0	0	0	**28 970**
Placements with other banks	50 045	0	0	0	0	**50 045**
Financial assets measured at amortised cost	0	2 720	8 295	3 217	0	**14 232**
Financial assets measured at fair value through OCI	7 690	27 690	0	0	0	**35 380**
Income tax receivable	0	150	0	0	0	**150**
Deferred tax receivable	0	0	0	0	0	**0**
Trade receivables relating to gas market	4 941	0	0	0	0	**4 941**
Receivables relating to clearing and depository activities	622	0	0	0	0	**622**
Receivables from foreign clearing houses	19 753	0	0	0	0	**19 753**
Other receivables	1 661	4	17	8	0	**1 690**
Intangible assets	0	0	0	0	996	**996**
Property, plant and equipment	0	0	0	0	796	**796**
TOTAL ASSETS	**113 682**	**30 564**	**8 312**	**3 225**	**1 792**	**157 575**
Deposits from customers	115 053	0	0	0	0	**115 053**
Liabilities for Guarantee Funds	8 276	0	0	0	0	**8 276**
Income tax payable	0	0	0	0	0	**0**
Deferred tax liability	0	0	0	0	0	**0**
Trade payable from gas market activity	4 908	0	0	0	0	**4 908**
Trade payables	333	0	0	0	0	**333**
Provisions	0	0	0	0	0	**0**
Other payables	671	0	75	0	0	**746**
TOTAL LIABILITIES	**129 241**	**0**	**75**	**0**	**0**	**129 316**
LIQUIDITY (DEFICIENCY)/EXCESS	**-15 558**	**30 564**	**8 237**	**3 225**	**1 792**	**28 259**

As on 31 December 2017	Within 3 months	Within one year and over 3 months	Within 5 years and over one year	Over 5 years	Without maturity	Total
Cash and cash equivalents	24 564	0	0	0	0	**24 564**
Placements with other banks	41 300	0	0	0	0	**41 300**
Available for sale financial assets	13 129	22 490	10 129	4 822	0	**50 570**
Income tax receivable	0	219	0	0	0	**219**
Deferred tax receivable	3	0	0	0	0	**3**
Trade receivables relating to gas market	4 135	0	0	0	0	**4 135**
Receivables relating to clearing and depository activities	662	0	0	0	0	**662**
Receivables from foreign clearing houses	13 595	0	0	0	0	**13 595**
Other receivables	825	2	10	3	0	**840**
Intangible assets	0	0	0	0	784	**784**
Property, plant and equipment	0	0	0	0	286	**286**
TOTAL ASSETS	**98 213**	**22 711**	**10 139**	**4 825**	**1 070**	**136 958**
Deposits from customers	96 388	0	0	0	0	**96 388**
Liabilities for Guarantee Funds	5 828	0	0	0	0	**5 828**
Income tax payable	0	0	0	0	0	**0**
Deferred tax liability	0	57	0	0	0	**57**
Trade payable from gas market activity	4 106	0	0	0	0	**4 106**
Trade payables	224	0	0	0	0	**224**
Provisions	786	0	0	0	0	**786**
Other payables	610	0	63	0	0	**673**
TOTAL LIABILITIES	**107 942**	**57**	**63**	**0**	**0**	**108 062**
LIQUIDITY (DEFICIENCY)/EXCESS	**-9 729**	**22 654**	**10 076**	**4 825**	**1 070**	**28 896**

When the maturity of an item is not determinable the group classifies the asset as being without a maturity, the liability to the within 3 months category.

NOTE 22: INCOME FROM CLEARING AND DEPOSITORY ACTIVITY

Income from clearing and depository activity	**01.01.2018-31.12.2018**	**01.01.2017-31.12.2017**
Income from security lending activity	0	1
Income from settlement activity	3 513	3 295
Income from issuer activity	634	526
Income from clearing activity	1 368	1 263
Income from collateral handling	1	1
Income from communication	42	43
Income from depository services	246	313
Income from banking activity	85	84
Income from reporting activity	140	83
Income from WARP	137	141
	6 166	5 750

One of the main revenue generating activity of the Group is the fee income from acting as a central counterparty on several markets and as central depository. These revenues are allocated to the period when the service is provided.

NOTE 23: NET INTEREST INCOME

Net income from interest	**01.01.2018-31.12.2018**	**01.01.2017-31.12.2017**
Interest income		
Income from interest on financial assets measured at amortized cost	538	0
Income from interest on financial assets measured at fair value through other comprehensive income	50	784
Interest income from client accounts	446	277
Interest from repos	16	6
Interest on statutory reserves placed at CBH	5	5
	1 055	**1 072**
Interest expense		
Interest expense on bank accounts	363	156
Interest on repos	10	7
	373	**163**
	682	**909**

The other revenue generating activity of the Group is – as a financial institution – to hold free financial assets to gain from net interest. The deposits of the clients are placed on the market to reach maximum yield. Gain from this activity is calculated on net basis.

NOTE 24: GAINS AND LOSSES FROM TRADING WITH SECURITIES

This line in the Consolidated Statement of Comprehensive Income includes the realized gains and losses from trading of treasury bills and government bonds. The revaluation gains and losses of treasury bills and government bonds are taken to the other comprehensive income and reclassified to profit or loss upon realization. No other instruments resulted in gains or losses from trading.

NOTE 25: BANK FEES, COMMISSION AND SIMILAR ITEMS

This position fees, commissions charged by other financial institutions and the stock exchange for the activities of the entity.

	01.01.2018-31.12.2018	**01.01.2017-31.12.2017**
Operating expenses		
Banking expenses		
Depository services	22	16
Banking services	130	145
LEI issuance services	58	36
TR service - mediated	18	8
Other mediated services	5	4
	232	**209**

NOTE 26: PERSONNEL EXPENSES

	01.01.2018-31.12.2018	**01.01.2017-31.12.2017**
Personnel expenses		
Wages	1 973	1 687
Base wages	1 726	1 505
Bonuses	247	182
Social security and other contributions	491	452
Other cost of personnel	322	284
	2 786	2 423

All the personal expenses are relating to short-term employee benefits – including accumulating paid leaves – except the jubilee bonuses which is a long term employee benefit.

The average number of employees was 184 in the period ended 31 December 2018 169 in the period ended 31 December 2017.

NOTE 27: EXPERT, TELECOMMUNICATION, IT-SUPPORT FEES AND OTHER OPERATING EXPENSES

The Group classifies it's operation expenses according to the type of the cost incurred. Material items (like expert fees, telco fees and IT-support) are disclosed separately on the face of the Consolidated Statement of Comprehensive Income.

The other expenses are those operational items that do not fall into the previous categories. The breakdown of that line is the following:

	01.01.2018-31.12.2018	**01.01.2017-31.12.2017**
Operating expenses		
Depreciation and amortization	551	518
Expenses from maintenance of assets		
Software	741	802
Hardware	41	35
Operation assets	12	10
	793	**847**
Professional fees		
Professional fees (operational)	248	141
Professional fees (development)	109	55
Audit fees	30	31
Administrative fees	9	9
	397	**236**
Telecommunication services		
Postal services	7	7
Telephone, internet and transmission lines	49	50
Data trafficing (T2S, SWIFT, Reuters)	15	18
	71	**75**
Insurance fees	14	14

Material type expenses		
Utility bills	26	24
Expenses related to vehicles	6	7
Expenses related to buildings	1	1
Expenses related to IT assets	2	6
Other material type expenses	5	5
	40	**43**
Rental fees		
Rental fees - real estate	104	81
Other rental fees	21	25
	125	**106**
Marketing expenses		
Advertisement	3	2
Sponsorship agreements	5	7
	8	**9**
Training and education		
Professional trainings	12	13
Conferences	25	28
	37	**41**
Taxes on operation		
Sectorial tax on financial institution	196	321
Non-deductable VAT	- 4	2
Local taxes	37	35
	229	**358**
Services		
Services related to real estates	107	107
Services related to vehicles	4	4
Services related to transportation and taxi	6	6
Travel expenses, accomodation	25	42
Cost of temporary employment	23	20
Membership fees	21	20
Expenses from other services	63	171
	249	**370**

Levies		
Levies paid to oversight institutions	41	87
Other levies	0	0
	41	**87**
Legal and other procedural fees and stamp duties	77	103
Other risk related expenses		
Recognition and release of provisions	-786	786
Other non-financial activity related expenses	1	5
Elimination difference due to VAT differences	119	108

KELER identified that a contract of the Group is onerous therefore a provision was recognized. When recognizing provisions for onerous contract, the Group only considered legal and constructive obligations existed at the end of the reporting period.

The contract has been closed during 2018 and based on the agreement the counterparty has renounced the validation its contractual right. Thus, the former provision is released.

The rental fees include buildings (office and server spaces) leases. These leases are operating leases. The lease commitment for the effective leases is the following:

	31.12.2018
In 1 year	100
Over 1 year but no later than 5 years	490
Over 5 years	37
Total commitment	**627**

NOTE 28: OTHER INCOME AND EXPENSES, FINANCIAL INCOME AND EXPENSES

Certain sundry incomes and expenses that cannot be classified as operating activities or do not relate to the activity of the Group are presented as other incomes and expenses. These items include gains and losses on disposing property, plant and equipment.

Foreign exchange gains and losses are presented as financial income and expenses together with net interest income of those entities of the Group whose core activity does not include banking services.

NOTE 29: IMPAIRMENT LOSS OF FINANCIAL ASSETS

The impairment loss is calculated based on the expected credit loss model as required by IFRS 9. For instruments other than accounts receivable, the general method is used, where the instruments are classified into three stages. At the end of the reporting period all financial assets are in the first stage and the calculation of the impairment loss allowance is the following:

	Cash and cash equivalents	Placements with other banks	Assets measured at amortized cost	Debt instruments measured at amortized cost	Receivables relating to clearing and depository activities	Receivables from foreign clearing houses
Opening balance of expected credit loss (ECL)	0	0	0	0	0	0
Effect of transition to IFRS 9	1	14	2	5	7	2
Changes in the balance of expected credit loss (ECL)	0	2	0	0	-1	1
Closing balance of expected credit loss (ECL)	**1**	**16**	**2**	**5**	**6**	**3**

The effect of transition to IFRS 9 is recognized directly to retained earnings, the changes in the ECL however is taken to the profit or loss (separate line item).

For the calculation the so called ‘standard model’ is used, where preset PDs and LGDs are applied for the counterparty, using the TTC (Through The Cycle) approach.

For the accounts receivable the simplified method is used, using the ageing approach. This led to the following amounts:

	Receivables relating to clearing and depository activities
Opening balance of expected credit loss (ECL)	0
Effect of transition to IFRS 9	7
Changes in the balance of expected credit loss (ECL)	-1
Closing balance	**6**

All items are in stage 1 and no transfers between stages took place during the current period. The previous year's figures were not restated, but the transition is recorded as an adjustment to the 2018 opening balances.

NOTE 30: INCOME TAX EXPENSE

Items classified as income taxes in accordance with IAS 12 are listed in Note 9.
The corporate income tax rate is 9% (pervious year: 19% and 10% (up to HUF 500 million profit)) in Hungary. The local tax is 2%, and for the innovation contribution it is 0,3%. The tax base of latter two is derived from the gross profit (actual gross profit or in case of the depository activity the net interest).

A breakdown of the income tax expense is:

	01.01.2018-31.12.2018	**01.01.2017-31.12.2017**
Income Taxes		
Current corporate income tax	29	125
Deferred corporate income tax	100	-175
Local tax	119	120
Innovation contribution	18	17

NOTE 31: OTHER COMPREHENSIVE INCOME

The other comprehensive income includes two elements: the revaluation of the debt instruments measured at fair value through other comprehensive income and the deferred tax effect of this.

	01.01.2018-31.12.2018	**01.01.2017-31.12.2017**
Re-measurement effect on financial assets measured at fair value through other comprehensive income	18	95
Retranslation of foreign operation	1	-9
	19	86

NOTE 32: SECURITIES SAFEGUARDED AND DEPOSITED; OFF BALANCE SHEET ITEMS

Foreign securities means amounts in security accounts of the counterparties.

	NOMINAL (PAR) VALUE	
	31.12.2018	**31.12.2017**
SECURITIES		
Physical securities		
Physical securities HUF	123 178	146 805
Physical securities CHF	1 577	1 467
Physical securities USD	0	0
	124 755	**148 272**
Dematerialized securities		
Dematerialized securities HUF	35 613 011	31 884 892
Dematerialized securities AUD	143	721
Dematerialized securities CAD	68	88
Dematerialized securities CHF	30 722	30 496
Dematerialized securities CNY	0	47
Dematerialized securities CZK	79 325	99 056
Dematerialized securities DKK	0	3
Dematerialized securities EUR	2 519 046	2 385 415
Dematerialized securities GBP	3 978	3 611
Dematerialized securities HKD	5	59
Dematerialized securities NOK	2	2
Dematerialized securities PLN	27 966	20 548
Dematerialized securities RON	233	224
Dematerialized securities RUB	76	98
Dematerialized securities SEK	0	11
Dematerialized securities SGD	0	0
Dematerialized securities TRY	66	85
Dematerialized securities USD	318 430	357 743
Dematerialized securities ZAR	0	0
	38 593 071	**34 783 099**
	38 717 826	**34 931 371**

NOTE 33: OFF BALANCE SHEET ITEMS

	31.12.2018	**31.12.2017**
Guarantees received		
Cash		
In HUF	13 640	18 320
In foreign currency	43 762	27 106
Security	40 779	29 199
Bank guarantee	1 078	3 542
	99 258	**78 167**

	31.12.2018	**31.12.2017**
Specific safeguards		
Cash		
In foreign currency	19 756	16 045
Bank guarantee	41	43
	19 797	**16 088**

Under specified circumstances these items maybe used by the Group. When certain market irregularity occurs (i.e. insolvency of a participants) the safeguards are used according to strictly regulated order to cover the losses.

NOTE 34: RELATED PARTY TRANSACTIONS

A number of transactions are entered into with related parties and owners of the Group in the normal course of business. These include deposit placed and services provided. These transactions were carried out on commercial terms and at market rates. The volumes of related party transactions, outstanding balances at the end of reporting period, and relating income and expense for the year are as follows.

CENTRAL BANK OF HUNGARY	**31.12.2018**	**31.12.2017**
Term deposit placements	10 153	10 959
	10 153	10 959

	01.01.2018-31.12.2018	**01.01.2017-31.12.2017**
Interest income	-2	70
Other income	0	0
	-2	70
Bank account costs	12	16
Other costs	1	0
	13	16

As stated before the parent of the Group is the Central Bank of Hungary (CBH). CBH is a government-related entity (as defined by IAS 24). This Group uses the exemption in IAS 24.25 and does not make disclosures regarding balances and transactions with other government related entities. These transactions with other government related entities are immaterial and if they exist they are at arm's length condition.

Members of the key managements are related parties.

Key management (during the period preparing the financial statements):

Board of Directors of the Parent Company:

- Dr. Selmeczi-Kovács Zsolt, chairman of BoD
- Mónus Attila, chief executive officer
- Szalai Sándor, director of operation (until 11 January 2019)
- Balogh Csaba Kornél, member of BoD
- Nagy Márton, member of BoD
- Végh Richárd, member of BoD

Supervisory Board of the Parent Company

- Bartha Lajos, chairman of SB
- Kardos Miklós,
- Pintér Klára
- Varga Lóránt

	01.01.2018-31.12.2018	**01.01.2017-31.12.2017**
Board of Directors	136	145
Supervisory Board	23	25
	159	170

These are all short-term employee benefits.

Remunerations above include all type of disbursement paid to members of Directory Board and Supervisory Board. Other than the above stated remuneration no transactions are made with the foresaid people.

On 11 January 2019, Sándor Szalai resigned from the Board of Directors and terminated his employment on 15 February 2019.

NOTE 35: CLASSIFICATION AND FAIR VALUE OF FINANCIAL INSTRUMENTS

a) Classification of financial instruments

31 December 2018	Financial instruments measure at fair value (fair value option)	Financial assets measured at amortised cost	Financial assets measured at fair value through other comprehensive income	Financial liabilities measured at amortised cost	**Total carrying amount**	**Fair value**
Cash and cash equivalents	0	28 970	0	0	**28 970**	**28 970**
Placements with other banks	0	50 045	0	0	**50 045**	**50 045**
State issued securities	0	0	35 380	0	**35 380**	**35 380**
Receivables relating to clearing and depository activities	0	25 316	0	0	**25 316**	**25 316**
Deposits from customers	0	0	0	123 330	**123 330**	**123 330**
Accounts payable	0	0	0	5 241	**5 241**	**5 241**

31 December 2017	Financial instruments measure at fair value (fair value option)	Financial assets measured at amortised cost	Financial assets measured at fair value through other comprehensive income	Financial liabilities measured at amortised cost	**Total carrying amount**	**Fair value**
Cash and cash equivalents	0	24 564	0	0	**24 564**	**24 564**
Placements with other banks	0	41 300	0	0	**41 300**	**41 300**
State issued securities	0	0	50 570	0	**50 570**	**50 570**
Receivables relating to clearing and depository activities	0	18 392	0	0	**18 392**	**18 392**
Deposits from customers	0	0	0	102 216	**102 216**	**102 216**
Accounts payable	0	0	0	4 330	**4 330**	**4 330**

b) Assets and liabilities measured at fair value – Fair value hierarchy

31 December 2018	Fair value Level 1	Fair value Level 2	Fair value Level 3	Total
Debt instruments measured at fair value through other comprehensive income	0	35 380	0	35 380

31 December 2017	Fair value Level 1	Fair value Level 2	Fair value Level 3	Total
Debt instruments measured at fair value through other comprehensive income	0	50 570	0	50 570

c) Assets and liabilities measured at non-fair value – Fair value hierarchy

31 December 2018	Fair value Level 1	Fair value Level 2	Fair value Level 3	Total
Cash and cash equivalents	28 970			28 970
Placements with other banks		0	50 045	50 045
Receivables relating to clearing and depository activities	0	0	25 316	25 316
Debt instruments measured at amortized cost (MÁK)	0	14 232	0	14 232
Other financial assets measured at amortized cost	0	0	0	0
Deposits from customers	0	0	123 330	123 330
Accounts payable	0	0	5 241	5 241

31 December 2017	Fair value Level 1	Fair value Level 2	Fair value Level 3	Total
Cash and cash equivalents	24 564	0	0	24 564
Placements with other banks	0	0	41 300	41 300
Receivables relating to clearing and depository activities	0	0	18 392	18 392
Deposits from customers	0	0	102 216	102 216
Accounts payable	0	0	4 330	4 330

No items were classified as fair value through profit or loss, or held to maturity during the years presented.
Receivables or similar items including counter party risk where the risk factor is not readily determinable are classified under Level 3 measurement.

NOTE 36: TRANSITION TO IFRS IN THE SEPARATE FINANCIAL STATEMENTS

The Parent company has adopted IFRS for it's separate financial statements in 2018. The date of initial application of IFRS – according to IFRS 1 – is 1st January 2017. When transiting to IFRS the parent applied the short term exemption allowed in IFRS 1 appendix E, so the separate financial instruments in the comparative period are presented according to the previous GAAP, which is the Hungarian regulation. The adoption of IFRS 9 in the financial statements are presented as changes in the accounting policy for 2018 in the separate financial statements. The transition does not effect the consolidated financial statements, since the short term exception in IFRS 1 appendix E could not be applied.

The KELER KSZF is also a first time adopter of IFRS in it's separate financial statement. KELER KSZF applied the exemption in IFRS 1 Appendix D paragraph 16-17, so the opening statement of financial position was derived from the consolidated financial statements.

The detailed explanation of the transition is included in the separate financial statements.

NOTE 37: NEW STANDARDS AND INTERPRETATIONS NOT YET ADOPTED

Standards and interpretation effective from current year

The following amendments to the existing standards and new interpretation issued by the International Accounting Standards Board (IASB) and adopted by the EU are effective for the current reporting period:

IFRS 9 "Financial Instruments" - adopted by the EU on 22 November 2016 (effective for annual periods beginning on or after 1 January 2018). For the effect of the first application of this standard see Note 37.

IFRS 15 "Revenue from Contracts with Customers" and amendments to IFRS 15 "Effective date of IFRS 15" - adopted by the EU on 22 September 2016 (effective for annual periods beginning on or after 1 January 2018),

Amendments to IFRS 2 "Share-based Payment" - Classification and Measurement of Share-based Payment Transactions – adopted by the EU on 26 February 2018 (effective for annual periods beginning on or after 1 January 2018),

Amendments to IFRS 4 "Insurance Contracts" - Applying IFRS 9 Financial Instruments with IFRS 4 Insurance Contracts – adopted by the EU on 3 November

2017 (effective for annual periods beginning on or after 1 January 2018 or when IFRS 9 "Financial Instruments" is applied first time),

Amendments to IFRS 15 "Revenue from Contracts with Customers" - Clarifications to IFRS 15 Revenue from Contracts with Customers – adopted by the EU on 31 October 2017 (effective for annual periods beginning on or after 1 January 2018).

Amendments to IAS 40 "Investment Property" - Transfers of Investment Property – adopted by the EU on 14 March 2018 (effective for annual periods beginning on or after 1 January 2018),

Amendments to IFRS 1 and IAS 28 due to "Improvements to IFRSs (cycle 2014 - 2016)" resulting from the annual improvement project of IFRS (IFRS 1, IFRS 12 and IAS 28) primarily with a view to removing inconsistencies and clarifying wording – adopted by the EU on 7 February 2018 (amendments to IFRS 1 and IAS 28 are to be applied for annual periods beginning on or after 1 January 2018),

IFRIC 22 "Foreign Currency Transactions and Advance Consideration" – adopted by the EU on 28 March 2018 (effective for annual periods beginning on or after 1 January 2018).

The adoption of these amendments to the existing standards has not led to any material changes in the Company's financial statements.

New and revised Standards and Interpretations issued by IASB and adopted by the EU but not yet effective

In this part effect from changes from the Standards and Interpretations effective after the end of reporting periods are presented. The effects from the changes from the Standards and Interpretations known at the end of reporting period is not analysed due to the fact that based on the judgement of the management those have no significant effect to the financial statements, omitting of those have no effect on the decision making of user of the financial statements

The following Standards and Interpretations (including the changes of those) will be effective in business year 2019 or later.

Adopted, but not yet effective standards

IFRS 16 Leases

This standard fundamentally changes the accounting treatment of leases: as a general rule, all leased items are recognised by the lessee as an asset in its statement of financial position, along with the related lease liability. Operating leases as a category will be effectively abolished. The accounting treatment on the lessor's side is not subject to change, but the classification of leases will be. In addition to the fundamental changes, the new standard also amends measurement rules and allows a wider range of variable items to be included in the calculation of lease fees. Furthermore, the definition of lease

is also subject to change and certain capacity usage contracts will no longer qualify as leases. The application of the standard will be mandatory as from 2019. The Group is currently examining the other potential changes in its financial statements that the standard may cause. This standard has been endorsed by the EU.

For the possible effect of the changes see Note 43.

IFRS 17 Insurance Contracts
The new standard adopts a different approach to the presentation of insurance contracts and at the same time repeals the *IFRS 4 Insurance Contracts* standard. The standard creates a so-called general model based on the premium allocation model. The standard measures the cash flows of insurance contracts, timing and certainty of cash flows, current interest rates, and takes into account the options and warranties of the insured. Given that the Group has no insurance contracts, the standard will not have any impact on the financial statements based on current expectations.

Amendments to IFRS 9: Negative Compensation for Prepayment
The amendment to the standard makes it clear that the prepayment fee, irrespective of its sign, is compatible with the SPPI test if it is rationally compensated by the receiving party in connection with the prepayment. The mere fact that this value is negative does not mean that the requirement in the SPPI test is not met.

The Group does not expect any change due to this change.

Amendment to IAS 28: Investments in Associates and Joint Ventures
The amendment makes it clear that if equity method consolidation is not applied, an investment in an associate or joint arrangement should be impaired under IFRS 9.
The Group does not expect any changes to be made.

Amendment to IAS 12 Income Taxes
The amendment makes it clear that the consequences of the income tax should be shown in the dividend and which category of income it is affected.
The Group does not expect any changes to be made.

Amendment to IAS 23 Borrowing Costs
The amendment clarifies that if a loan with a specific purpose persists after the related asset is ready for use, the loan is considered to be included in the general purpose loan.
The Group does not expect any changes to be made.

Amendment to IFRS 3 Business Combinations
The amendment states that if the Company obtains control of an entity that is a business and a joint operation, the rules for the acquisition of the share are fully applied, including the requirement to reassess the previous share.
The Group does not expect any changes to be made.

Amendment to IFRS 11

The amendment clarifies that if the Company obtains a joint control over an interest and then acquires joint control and the agreement is a joint activity, the previously acquired interest cannot be revalued by the company.

The Group does not expect any changes to be made.

Amendment to IAS 19 Employee Benefits
The amendment to standard sets out how to manage the cost of the service, change, arrange and reduce the program, along with the asset ceiling.
The Group does not expect any changes to be made.

IFRIC 23 “Uncertainty over Income Tax Treatments”

IFRIC 23 is a new interpretation that requires the entities to assess the effect of tax audits and uncertainties of tax positions. The interpretation requires the Entity the make judgement about the expected outcomes and also prepare adequate disclosures. This standard is effective starting from 1st January 2019. The Group assessed the effect of this interpretation in 2018 and do not expect changes.

The Group does not effect any significant change to the consolidated financial statements from other those changes of IFRS that are not detailed above. The Group has elected not to adopt these new standards and amendments to existing standards in advance of their effective dates. The Company anticipates that the adoption of these standards and amendments to existing standards will have no material impact on the financial statements of the Entity. in the period of initial application.

Standards and Interpretations issued by IASB but not yet adopted by the EU

At present, IFRS as adopted by the EU do not significantly differ from regulations adopted by the International Accounting Standards Board (IASB) except for the following new standards, amendments to the existing standards and new interpretation, which were not endorsed for use in EU as at [date of publication of financial statements] (the effective dates stated below is for IFRS in full):

- **IFRS 14 “Regulatory Deferral Accounts”** (effective for annual periods beginning on or after 1 January 2016) - the European Commission has decided not to launch the endorsement process of this interim standard and to wait for the final standard,
- **Amendments to IAS 1 “Presentation of Financial Statements” and IAS 8 “Accounting Policies, Changes in Accounting Estimates and Errors”** - Definition of Material (effective for annual periods beginning on or after 1 January 2020),
- **Amendments to References to the Conceptual Framework in IFRS Standards** (effective for annual periods beginning on or after 1 January 2020).

The Group anticipates that the adoption of these new standards, amendments to the existing standards and new interpretations will have no material impact on the financial statements of the Company in the period of initial application.

Other

Hedge accounting for a portfolio of financial assets and liabilities whose principles have not been adopted by the EU remains unregulated.
According to the Company's estimates, the application of hedge accounting to a portfolio of financial assets or liabilities pursuant to IFRS 9 would not significantly impact the financial statements, if applied as at the end of reporing period.

NOTE 38: EFFECT OF THE INTRODUCTION OF IFRS

Since the financial instruments form a material part of the Group's asset the transition to IFRS 9 Financial Instruments (from the previous IAS 39 standard) will have material impact on both the Consolidated Statements of Financial Position and the Consolidated Statement of Comprehensive Income of the Group.

Securities

The Group launched a project during 2017 where the Group assessed if the financial instruments under IFRS 9 meet the SPPI test, so if the payments for those assets only consist of repayment of principle and interest. Due to the simple nature of the instruments held by the entity this assessment was not complex and the entity concluded that the SPPI test is met for the securities.

The project then analysed the business model of the Group. This concluded that there are two subsets in the current portfolio:

- *Government bond:* this part of the portfolio is going to be classified in the amortized cost category (AC) since these instruments are going to be held until their maturity and the primary gain from these assets are the interest earned through them;
- *Discount Treasury bills:* these short term instruments are held with the purpose of resale (if needed) or they might be held to maturity depending on short term tendencies. Therefore these assets are classified in the fair value trough other comprehensive category (FVTOCI) with the cumulative gain reclassified to the net profit on disposal.

The transition to IFRS 9 was done according to IFRS 9.7.2, which requires the entity to assess the business model of the firm regardless the information available for past periods. The effect of the transition was recorded on 1st January 2018 without restating previous periods. Therefore:

- the comparative period was presented according to classification under the previous regulation – IAS 39 (all debt instruments are AFS, measured at fair value)
- on transition the government bonds were classified to the AC category and at the same time the revaluation surplus previously recorded was eliminated from the book value of the instrument and from the AFS reserve;
- the treasury bills were classified to the FVTOCI category without changing the value of the instrument and the heading for the revaluation difference accumulated in equity was renamed to FVTOCI revaluation reserve.

IFRS 9 requires detailed tasks to be carried out for debt instruments for recognizing expected credit losses. Both type of debt securities held be the Group falls within the scope of IFRS 9.

The Group developed a methodology the prepare the classification for the debt instruments. It was concluded that non of the financial assets belong to the 2nd or the 3rd stage for the purpose of ECL.

IFRS 9 has exhaustive requirements on the recognition of credit losses. Both of the above stated instruments are going to require an allowance for their calculated ECL. At the date of transition to IFRS 9 (i.e. 1st January 2018.) the Group will determine which stage the assets do belong to. The assessment concluded that all financial instruments are in Stage 1 (on the date of the transition). Furthermore the ECL allowance of the assets are calculated and the effect is recognized as an adjustment of opening retained earnings.

The Group assessed the value of the expected credit losses (ECL). The ECL was recognized for the balances on the date of initial application against the opening retained earnings.

Transition to IFRS 9	**MÁK**	**DKJ**	**Total**
Book value under IAS 39, items classified as AFS instrument	15 162	35 408	**50 570**
Elimination of previous revaluation in retained earnings	-1 375	0	**-1 375**
Elimination of previous revaluation in AFS revaluation reserve	-166	-9	**-175**
Recognition of FVTOCI reserve		9	**9**
Recognition of ECL on debt instruments	-2	-4	**-6**
Opening balance under IFRS 9	**13 620**	**35 404**	**49 024**
Deferred tax asset of adjustments	106	0	**106**
Deferred tax asset of adjustments	16	0	**16**
Adjustment recognized			
Adjustment recognized in retained earnings	-1 271	-4	**-1 275**
Adjustment recognized in FVTOCI reserve	-150	-9	**-159**

In 2018, the Parent is considered to be a first-time adopter for its separate financial statements. In the first application, the Parent has applied the option in paragraphs 1-2 of Appendix 1 to IFRS 1 in connection with the transition to IFRS 9.

The Group's single equity instrument under IFRS 9 is the ANNA share held by the Group in the FVTOCI category (the carrying amount of the investment remains below the rounding-off value and is therefore not recognized in the financial statements).

Other financial instruments

The Group prepared the SPPI test and business model test to financial assets other than securities and categorized the assets based on the that in accordance with requirements of IFRS 9.
The Group appropriately classified all financial liabilities as well.
Based on the above classification:

- all financial assets other than securities were classified into the AC category. The value of these assets did not change on transition, except the recognition of the opening ECL.
- All financial liability meet the other liabilities category classification conditions, therefore they are measured at amortized cost (AC);
- there are no account receivable balances with significant financing component;
- the simplified approach for ECL calculation was only applied to trade receivable balances.

NOTE 39: DISCLOSURE OF INTERESTS IN OTHER ENTITIES

The Group did not face any uncertainty or had to deal with any more complex issues when it considered how its investments would be treated in terms of consolidation.

In the subsidiaries the Parent have a voting right of 99.81%. There was no need to identify a non-controlling interest within the Group because each subsidiary of the subsidiary is controlled by the ultimate parent company.

The company has no associated company.

The Group does not have to face any restrictions on its access to net assets, profit or cash flow in the context of its consolidated business.

The Group has no consolidated or unconsolidated interests in which control is not based on voting rights or where voting rights are not used to control the relevant activities leading to control (structured entities).

No member of the Group is an investment company or participates in it.

NOTE 40: TRANSITION TO IFRS 16

The company has identified that the following items will be recognized in the financial statements as a lease:

• R70 office building lease
• Server Room Rental.

The incentive accrued in connection with the office building has to be removed.
Based on current information, the Company reclassifies the application of IFRS 16 using the modified retrospective method, meaning that the lease liability is the present value of the remaining cash flows and the ROU has the same value at recognition. According to preliminary calculation, this will have an impact on the balance sheet as of January 1, 2019:

Adjustments	**ROU**	**Lease liability**	**ARO**
Balances under IAS 17	0	0	0
Effects of transition to IFRS 16	487	-460	-27
Balances under IFRS 16	**487**	**-460**	**-27**

The transition is expected to have no impact on retained earnings, given the chosen transition.
According to the preliminary calculation, the lease is expected to increase assets and liabilities by HUF 487 million at the time of transition. Thus, operating expenses in the first year lowered by 84 million the depreciation will be higher by HUF 81 million and financial expenses higher by HUF 18 million. The ARO is an estimated liability for expected expenditures related to the dismantling expense of the office building;

The interest rate applied for the transition to IFRS 16, which is an incremental interest rate of 3.82% pa.

NOTE 41: SUBSEQUENT EVENTS

Management of the Parent does not propose a dividend for the current period.

During the preparation of consolidated financial statements no such events have occurred that would have significant effect to the consolidated financial statements.

1. The management of the Group has decided to develop a new system instead of the former core system, which is being implemented through the development of the currently used software. The conclusion of the contract for the project started in 2019. The financial statements do not yet include items resulted from this project.

2. The Group's subsidiary is in dispute with the Romanian stock exchange. The subsidiary started to develop a software for the Romanian stock exchange, which could have been used to account and clear for gas trading in that market. However, the Romanian party stepped back from the contract. Currently, the parties are in dispute regarding the settlement of the contract termination. Consolidated financial statements do not include any receivables or other assets in connection with this demand. The necessary legal steps are being considered.

NOTE 42: APPROVAL OF THE FINANCIAL STATEMENTS

These consolidated financial statements were authorized for issue by the Board of Directors on 13 May 2019. KELER's General Meeting is entitled to approve the consolidated financial statements

Budapest, 13 May 2019

Attila Mónus
Chief Executive Officer