Results of Analysis of Data Collected from Banks for Part of QIS Relating to Impact of Application of New Regulatory Framework - Pillar 1

Sarajevo, March 2017

CONTENTS:

LIST OF ABBREVIATIONS AND OTHER TERMS USED

Agency	Federation of Bosnia and Herzegovina Banking Agency
Basel III	International Agreement on Capital Measurement and Standards
BIA	Basic Indicator Approach
BCBS	Basel Committee for Bank Supervision
BiH	Bosnia and Herzegovina
CBBiH	Central Bank of Bosnia and Herzegovina
COREP	Single framework for regulatory reporting at the level of the EU
CRD IV	Directive 2013/36/EU on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC
CRM	Credit risk mitigation
CRR	Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012
ECA	Export Crediting Agency
ECAI	External Credit Risk Assessment Institution
FBiH	Federation of Bosnia and Herzegovina
QIS	Quantitative Impact Study
SA	Standardized Approach for Calculation of Capital Requirements for Credit, Operating, and Market Risk
SIBs	Systemically Important Banks
Strategy of the Agency	Strategy of the Federation of Bosnia and Herzegovina Banking Agency for Basel III Introduction
UBBiH	Association of Banks of Bosnia and Herzegovina
VaR	Value at Risk

INTRODUCTION

In compliance with activities of the entity banking agencies on the preparations for implementation of the Strategy of the Agency, activities were performed in 2016 and 2017 on the implementation of the QIS for the implementation of new requirements in regards to regulatory capital, calculation of capital requirements for the credit, operating, and market risk.

The objective of the QIS was to analyze the effect of the impact that the introduction of the new regulatory framework would have on the banking system in BiH, in compliance with the requirements of the EU, i.e. CRD IV and CRR. Those activities were implemented in a coordinated manner between the entity banking agencies at the level of the banking system of BiH, in cooperation with the UBBiH.

QIS covers the calculation of regulatory capital, the financial leverage rate, capital requirements for credit risk under the SA, including the CRM techniques, capital requirements for operating risk under the BIA and SA, capital requirements for market risk under the SA.

The Questionnaire accompanying the QIS is a document that represents the qualitative part of the QIS and contains questionnaires / questions that the banks should fill in relating to regulatory capital, financial leverage, credit, operating, and market risk.

The instructions for filling out the reporting templates for the requirements of the QIS contains general notes and instructions for filling out the COREP templates for capital adequacy, credit risk, operating risk, market risk, and financial leverage. Along with the COREP templates, additional templates were delivered, explaining individual positions in the COREP templates and containing other necessary data for analyzing the effects of application of new regulatory requirements. Examples were also delivered for the calculation of capital requirements for credit, operating, and market risk.

The banks were supposed to fill in the data in the QIS as of the financial date of September 30, 2016.

As of September 30, 2016, 16 banks held a baking license in FBiH. Because of a status related change – acquisition of one bank by another bank, the analysis of data in the QIS includes 15 commercial banks. The resulting bank was not able to ensure data for the requirements for filling out the COREP templates for the bank that was acquired, as that required upgrading the information management system of the bank that was acquired, by the owner, which required additional resources and time.

After the delivery of the QIS by the banks in FBiH, the review of the submitted documentation was initiated. In parts of the QIS submitted by the banks where certain issues with logic were noticed, the banks were contacted, and additional explanations were requested, or certain corrections, i.e. revisions, if necessary.

From the aspect of quality of the data submitted by the banks in FBiH, one may say that they represent an acceptable, i.e. a good initial basis for the requirements of implementation of the QIS. Continued process of implementation of the Strategy of the Agency implies the implementation of other quantitative studies, as well, once the conditions for that are met.

For the requirements of the analysis, the banks in FBiH were classified based on three aspects, in the following manner:

1. **<u>According to size of their assets:</u>**

a) **banks in group I** – banks with assets exceeding BAM 2 billion (2 banks), which represent 47.8% of the total assets of the banking system of FBiH,
b) **banks in group II** – banks with assets of between BAM 1 and 2 billion (3 banks), representing 23.2% of the total assets of the banking system of FBiH,
c) **banks in group III** –banks with assets of between BAM 500 million and BAM 1 billion (4 banks), comprising 18.5% of the total assets of the banking system FBiH, and
d) **banks in group IV** - banks with assets of up to BAM 500 million (6 banks), representing 10.5% of the total assets of the banking system of FBiH;

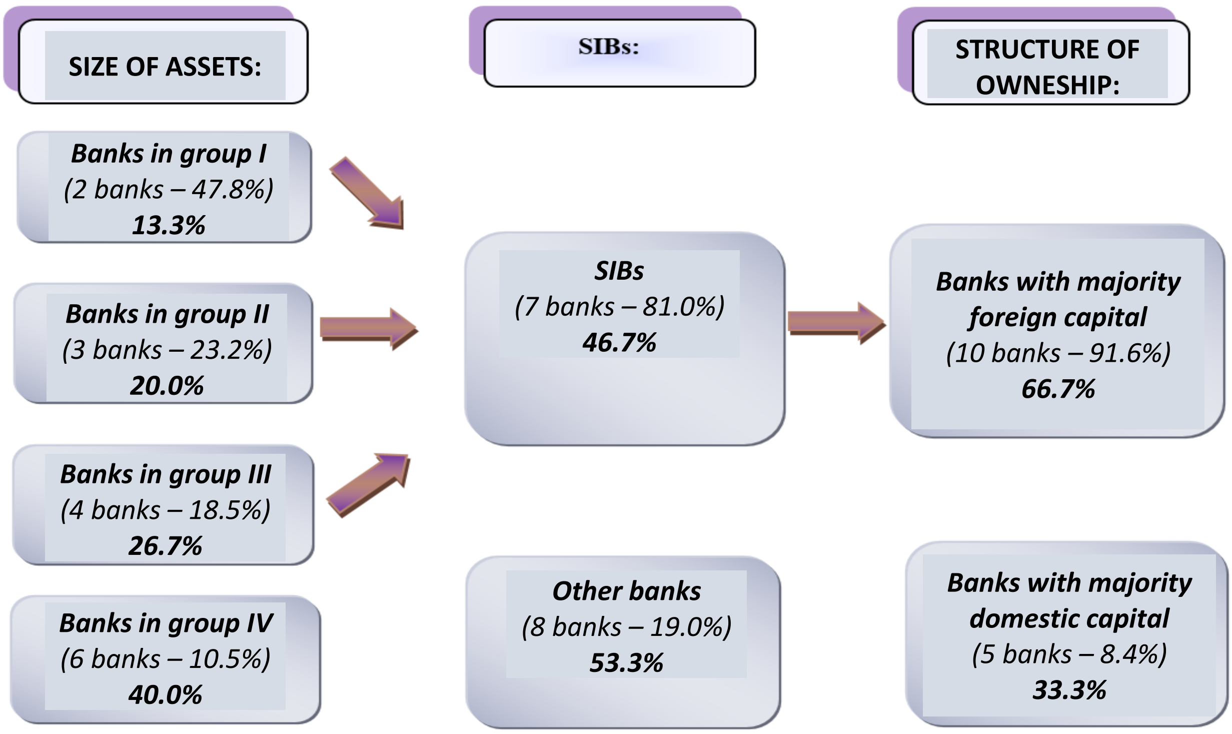
2. **<u>Under the Methodology for Determination of the List of Systemically Important Banks in BiH, i.e. Updated List of Banks in BiH according to Systemic Importance for 2016, of the Department for Financial Stability of the CBBiH</u>:**

a) SIBs (7 banks) participate with 81.0% and
b) Other banks (8 banks) participate with 19.0% in the total assets of the banking system of u FBiH; as well as

3. **<u>By ownership:</u>**

a) Banks with foreign or majority foreign capital (10 banks) participating with 91.6% and
b) Banks with domestic or majority domestic capital (5 banks) participating with 8.4% in the total assets of the banking system of FBiH.

SIBs, by the size of their assets, fall into banks in groups I, II, and III (two banks) and they are all, by the structure of ownership, banks with foreign and majority foreign capital, which can also be seen in the following chart:



1. REGULATORY CAPITAL AND FINANCIAL LEVERAGE

1.1 QUANTITATIVE PART

Under the existing regulatory framework, the banks included in the analysis of QIS in FBiH had the following structure of capital as of September 30, 2016:

- in BAM thousands-

DESCRIPTION	Existing regulatory framework
CORE CAPITAL	2,012,367
SUPPLEMENTAL CAPITAL	334,344
ITEMS DEDUCTED FROM BANK CAPITAL	190,971
NET CAPITAL	**2,155,740**

On the basis of data submitted in the C 01.00-Regulatory Capital-KA 1 template, the banks disclosed in the regular core capital their share capital, premiums on shares, other reserves that concern statutory and other capital reserves, as well as the profit retained from previous years. The banks included in items deducted from regular core capital (regulatory adjustments) bought out own shares, losses from previous years, and losses for the current period, goodwill, and other intangible assets and instruments of regular core capital of entities of the financial sector in which the bank has significant investments and those in which the bank does not have a significant investment. Additional core capital was disclosed by one bank in FBiH.

In the supplemental capital, the banks disclosed the paid capital instruments and subordinated debts (share capital from the bases of the nominal amount of preferential cumulative shares, hybrid items of capital and other instruments of capital).

The disclosure of positive and negative revaluation reserves was, taking into account the financial date of implementation of QIS, performed in compliance with the existing regulatory framework, i.e. Decision on Minimum Standards for Management of Capital in Banks and Capital Protection, as well as general corrections of value for credit risk, 1.25% of risk weighted assets, at the most. The listed item shall be subject to harmonization in the following period.

The structure of items of capital, on the basis of the processed data from the banks in the QIS, under the new regulatory requirements, is provided in the following review:

- in BAM thousands-

DESCRIPTION	New regulatory framework
REGULAR CORE CAPITAL	1,934,808
ADDITIONAL CORE CAPITAL	8,463
CORE CAPITAL	1,943,271
SUPPLEMENTAL CAPITAL	144,672
REGULATORY CAPITAL	**2,087,943**

The effect of changes in the regulatory capital was a reduction in the regulatory capital in comparison with the existing regulatory framework (net capital) by BAM 67,797 thousand, i.e. by 3.1%. The effect of reduction is the result of the different methodology for calculation of regulatory capital, as well as the new items for deduction from capital of the bank (for example, investments of the bank into financial sector entities if the bank has, or does not have, significant investments), as well as of the amount of general reserves for the coverage of credit losses for bank assets assessed as category A – good assets that is not included into the calculation of regulatory capital under the new regulatory framework.

In the total regular core capital, the share of SIBs is 78.05%, while the other banks have the share of 21.95%; banks with foreign or majority foreign capital have the share of 90.79%, while the banks with domestic or majority domestic capital have the share of 9.21%. Relating to the share of the groups of banks based on the size of assets, groups I and II represent the 69.60% share in the total regular fixed capital of the banks.

In compliance with the existing regulatory framework and the requirement that the amount of supplemental capital cannot exceed one third of the fixed capital of the bank (starting with the stock as of the date of December 31, 2016), and, taking into account the data submitted by the banks, one may conclude that as of September 30, 2016, none of the banks in FBiH would exceed the aforementioned limit.

Taking into account that the banks were under obligation to submit two versions of the KR-SP template for credit risk, starting from the following:

- correction of value according to IAS 39 and provisioning under IAS 37, and
- correction of value or loan loss provisioning (LLP), whichever of the two is higher, an analysis was performed of the impact on the capital of the banks, taking into account the aforementioned alternatives.

The capital adequacy rate (net capital rate) of the banks, under the existing regulatory framework, based on the stock as of the date of September 30, 2016, amounts to 16.1% and is higher than the rate prescribed under the law, of 12%. According to the banks, the rate ranged from 11.5% and 41.1%.

The table below provides the rates of capital of banks in FBiH under the new regulatory framework:

DESCRIPTION	New regulatory framework
RATE OF REGULAR CORE CAPITAL 6.75%	15.26%
RATE OF CORE CAPITAL 9%	15.33%
RATE OF TOTAL CAPITAL 12%	16.47%

The rate of total capital at the level of the banking system of FBiH in compliance with the new capital requirements would amount to 16.47%. According to the banks, the rate of total capital ranged from 11.80% and 44.52%.

All the banks would meet the rate of regular core capital and the rate of core capital, while two banks would have the rate of total capital lower than 12.0% (11.80% and 11.91%). One of the aforementioned banks is a SIB, and the reason for the reduction is the decrease of total capital on the basis of the decrease by significant investments in financial sector entities, as well as the disclosed lower amount of general corrections of value for credit risk included in supplemental capital, and, at the same time, the bank had a more conservative approach, and for individual items in assets it used higher weights than the ones prescribed in the draft Decision on Calculation of Capital in Banks.

All the banks would have the buffer for preservation of capital, i.e. regulatory capital in the form of regular core capital in the amount of 2.5% of the total amount of exposure to risk.

Rates of capital in the banks, under the new regulatory framework, by groups of banks, are provided in the following review:

Groups of banks	Rate of regular core capital	Rate of core capital	Rate of total capital
SIBs BANKS	14.76%	14.76%	16.01%
OTHER BANKS	17.34%	17.69%	18.40%
	15.26%	**15.33%**	**16.47%**
FOREIGN / MAJORITY FOREIGN CAPITAL	14.89%	14.89%	15.99%
DOMESTIC / MAJORITY DOMESTIC CAPITAL	20.31%	21.27%	22.92%
	15.26%	**15.33%**	**16.47%**
BANKS IN GROUP I	15.04%	15.04%	16.80%
BANKS IN GROUP II	14.77%	14.77%	15.25%
BANKS IN GROUP III	15.06%	15.06%	15.41%
BANKS IN GROUP IV	17.98%	18.67%	20.08%
	15.26%	**15.33%**	**16.47%**

From the review, it is evident that the highest rates of regular core capital, as well as the rates of core, ie. total capital, are kept by the banks that are not SIBs, i.e. banks with domestic or majority domestic capital and the banks that belong to banks in group IV based on their asset size.

The structure, i.e. the share of total exposure by risks, under the existing and the new regulatory framework, is provided in the table below:

- in BAM thousands-

DESCRIPTION	Existing regulatory framework		New regulatory	
	amount	share	amount	share
CAPITAL ADEQUACY RATE / RATE OF TOTAL CAPITAL	**16.10%**		**16.47%**	
EXPOSURE TO CREDIT RISK	12,400,768	92.60%	11,566,979	91.25%
EXPOSURE TO OPERATING RISK	990,880	7.40%	919,227	7.25%
EXPOSURE TO MARKET RISK	-	-	190,487	1.50%
	13,391,648	**100.00%**	**12,676,693**	**100.00%**

Under the new regulatory framework, the share of exposure to credit risk is 91.25%, the share of exposure to operating risk is 7.25%, while the share of exposure to market risk is 1.50%. The reduction of the total exposure to risks in the amount of BAM 714,955 thousand, i.e. by 5.3% is the consequence of the reduction of exposure to credit risk and inclusion of exposure for market risk.

If the banks used only the corrections of value under IAS 39 and provisioning under IAS 37, the effect would be an increase of regulatory capital by BAM 125,965 thousand, i.e. 5.8%, i.e. the rate of total capital would amount to 17.3%.
In case the banks applied the SA approach to operating risk, the exposure of banks by operating risk would decrease by around 10%.

1.2. FINANCIAL LEVERAGE

Under the current regulations, i.e. the Decision on Minimum Standards for Management of Capital in Banks and Capital Protection, the banks are under obligation to ensure and maintain the financial leverage rate, as additional capital protection, at least in the amount of 6%, starting with the stock as of the date of December 31, 2015.
The rate of financial leverage of the banks that are included in the analysis of the QIS, as of the date of September 30, 2016, amounts to 9.9%.

Under the new regulatory framework, the rate of financial leverage would amount to 10.2%. All the banks would meet the financial leverage rate requirement, and by individual banks, the rate of financial leverage would range from 6.8% to 25.2%.

The rates of financial leverage under the new regulatory framework, by groups of banks, are provided in the following review:

Groups of banks	Rate of financial leverage
SIBs	9.8%
OTHER BANKS	12.1%
	10.2%
FOREIGN / MAJORITY FOREIGN CAPITAL	10.1%
DOMESTIC / MAJORITY DOMESTIC CAPITAL	11.9%
	10.2%
BANKS IN GROUP I	9.4%
BANKS IN GROUP II	10.7%
BANKS IN GROUP III	11.0%
BANKS IN GROUP IV	11.9%
	10.2%

The highest financial leverage rates are the ones in banks that are not SIBs, i.e. banks with domestic or majority domestic capital, and banks that belong into banks in groups III and IV based on asset size.

The difference compared to the financial leverage rate under the current regulations relates to the treatment of off-balance positions and application of conversion factors, as well as inclusion of financial derivatives in the calculation.

1.3. ANALYSIS OF QUESTIONNAIRE – CAPITAL AND FINANCIAL LEVERAGE SEGMENT

In the qualitative part of the QIS, not a single bank in FBiH offered an answer to the question on using capital preservation measures. In addition to that, not a single bank in FBiH is applying measures of limitation of distribution relating to the establishment of the internal system for calculation of the amount of the highest distributable amount (NRI), defined in the Draft Decision on Calculation of Capital in Banks.

According to the answers offered, three banks, i.e. 20% (two SIBs that are, at the same time, banks with foreign or majority foreign capital, and one other bank that is a bank with domestic or majority domestic capital) have a plan compiled for preservation of capital according to the draft of the new regulatory requirements, while eleven banks or 73.3% of banks lacks such a plan, and one bank. i.e. 6.7%, failed to provide an answer.

The banks are developing and adjusting the plans for capital with the existing regulatory capital requirements, and, in connection with that, also the policy of dividends and receipts which is conditioned by the plan for business operations, the strategy for capital, while the adjustment with the new regulatory framework is planned for the coming period.

From the perspective of regulatory adjustments, from the capital of the banks defined in the draft Decision on Calculation of Capital in Banks:

- only one bank in FBiH has disclosed reciprocal mutual investments in instruments of regulatory capital (the bank belongs into the banks of group IV by size of assets, it is not a SIB, i.e. the bank is in domestic or majority domestic capital),
- five banks have significant investments in financial sector entities (four SIBs that are, at the same time, banks with foreign or majority foreign capital and one other bank with domestic or majority domestic capital),
- ten banks have investments in financial sector entities that are not significant (four SIBs that are, at the same time, also banks with foreign or majority foreign capital, and six other banks of which two are banks with foreign and majority foreign capital, and the remaining four are with domestic or majority domestic capital, and all the banks belong in banks in groups I to IV),
- four banks in FBiH have, simultaneously, significant investments and investments that are not significant in financial sector entities (three SIBs that are, at the same time banks with foreign or majority foreign capital, and one other bank with domestic or majority domestic capital, and based on the size of assets they are banks in groups I, III, and IV).

The draft Decision on Calculation of Capital in Banks has prescribed the rate of regular core capital, the rate of core capital, and the rate of total capital, calibrated at the capital adequacy rate under the current rate in BiH (12%). In FBIH there are three banks that responded that they had internal limits that are stricter than the defined rates for capital in the draft of the aforementioned Decision (two SIBs and one other bank, which are, at the same time, banks with foreign and majority foreign capital, i.e. two banks that are banks in group II, and one bank in group IV, based on the size of assets).They prescribed the internal limits in their internal enactments, as well as measures envisaged in cases of exceeding the prescribed limits.

Relating to the new methodology for the calculation of the financial leverage rate, defined under the draft Decision on Calculation of Capital in Banks, only one bank in FBiH (a SIB that belongs into the groups of banks with foreign and majority foreign capital, i.e. group I based on asset size) has been calculating that rate for its own needs, and made comparisons with the existing calculation of financial leverage. In both cases, the bank would disclose the financial leverage rate that exceeded the prescribed one.

The majority of banks (nine banks) have organized internal reporting on the basis of financial leverage in compliance with the current regulations. Five banks (two SIBs and three other banks, i.e. four banks with foreign or majority foreign capital and one with domestic or majority domestic capital) lack an organized internal reporting on the basis of financial leverage, while one bank failed to provide an answer.

2. CREDIT RISK (TEMPLATE KR-SP) – DATA ANALYSIS

2.1 Value of Exposures

Exposures that are subject to the calculation of risk weighted assets according to the SA approach differ from the exposures defined under the Decision on Minimum Standards for Management of Capital in Banks and Capital Protection. The balance sheet items are reduced by the amount of significant investment in financial sector entities that represent an item to be deduced from the capital of the banks, and that is prescribed in the draft Decision on Calculation of Capital in Banks, and which differ from the provisions relating to the stocks in the capital of other legal persons that exceed 5% of the level of core capital of banks under the existing regulations. In addition, balance sheet items are, to a smaller degree, reduced by the amount of securities classified as assets for trading, for which, under the QIS, the capital requirement for market risk is calculated.

Off balance sheet exposures are increased by the unused credit lines that may be unconditionally recalled in any moment in time or that effectively facilitate automatic termination because of the worsening of credit worthiness of the debtor, but they do not affect the amount of risk weighted assets, as they carry the conversion coefficient of 0%. On the other hand, off balance exposures are reduced by the item – foreign currency and BAM bought under contracts on foresing currency SWAPs, futures, and currency options, and liabilities of the clients that the banks had accepted and that result from that type of contracts, as for them, under the new regulations, the capital requirement for market risks is calculated.

In compliance with the aforementioned, the initial amount of balance sheet exposures is lower by 1%, i.e. BAM 54 million, compared to the gross balance sheet exposure under the current regulation, and the off-balance sheet exposure is lower by 9% or BAM 277 million.

The banks were under obligation to submit to the Agency two versions of KR-SP templates for credit risk, taking into account:

1. only corrections of value under IAS 39 and provisioning under IAS 37, and
2. corrections of value or loan loss provisioning (LLP) whichever of the two is higher.

The net value of exposures under the first alternative amounted to BAM 20,448 million, and under the second alternative, it amounted to BAM 20,057 million.

2.2 Analysis of Submitted Data by Risk Weights

The basic changes compared to the existing calculation of risk weighted assets relate to the redefining of individual categories of exposures, harmonization of certain definitions, and, in compliance with that, use of changed and new risk weights. The risk weight for credit risk for each individual exposure is awarded according to the class of exposure and the level of credit quality, which is determined on the basis of credit ratings awarded by recognized ECAI.

Group of exposures with risk weight of 0% in compliance with the provisions of the new regulatory framework amounts to BAM 4,931 million and is lower by 9%, i.e. BAM 482 million compared to existing regulations. The aforementioned reduction relates, for the most part, to the fixed assets secured in full amount which according to the QIS approach carries the weight of 100% (amounting to BAM 403 million). In addition, investments secured with collateral in the form of cash deposit and potential liabilities of the bank that are secured with a collateral in the form of cash deposit (BAM 204 million) carry the risk weight of the debtor (for example, population, economic companies etc.), while the non-riskiness of such a receivable is disclosed through the CRM techniques. On the other hand, the increase related to the part of the group with the risk weight of 20%, more accurately a portion of receivables from the banks (a vista assets) that are, under the QIS methodology, classified into monetary assets.

Group of exposures with risk weight of 20% according to the data submitted for the requirements of the QIS amounts to BAM 604 million. Because of the difference that was described in the last paragraph concerning the a vista deposits in banks, this group is, under the QIS, smaller than under the existing methodology, by 42%.

Group of exposures with risk weight of 50% has suffered significant changes. Under the existing regulations, it comprised receivables from banks in BiH exclusively (BAM 12 million). Under the QIS, it may comprise receivables on various bases, classified in different categories, all in compliance with credit ratings. Therefore, the scope of this group covers exposures to central governments and central banks, exposures to regional governments and local governments, exposures to public sector bodies, exposures to institutions, exposures to economic companies, exposures to institutions and economic companies for which short-term credit rating are available. According to the data submitted for the requirements of QIS, it amounts to BAM 255 million, which is the result of transfer of individual exposures from the above listed categories.

Group of exposures with risk weight of 75% is the group introduced for the requirements of this QIS in compliance with the provisions of Basel III. The banks shall award the credit risk weight of 75% to exposures to households. Therefore, the scope of this group covers exclusively receivables from households and a portion of receivables of legal persons that, under the definition stated in the QIS belong into the category of households (BAM 5,183 in total), and which, according to the existing regulatory framework, carry the weight of 100% and are classified as all remaining assets.

Group of exposures with risk weight of 100% has suffered the most significant changes, and it had the most significant impact on the reduction of the total amount of risk weighted assets. Under the existing regulatory framework, it contained "all remaining assets" (the most significant amount related to receivables under credits of legal and natural persons) and off-balance positions (after credit conversion). As, under the QIS approach, receivables from legal and natural persons are classified in groups of 20%, 50%, 75%, 100%, and 150%, depending on the credit rating, securities, or simply the weight prescribed, this group was reduced by BAM 4,796 million, i.e. 65%. Taking into account the new group of weights (75%), the subject group recorded a reduction only because of the reason of transferring into this group by BAM 5,183 million. On the other hand, in compliance with the instructions for the QIS, an increase was recorded of this risk group, primarily in compliance with credit ratings, as well as explicitly prescribed weights (for example, for fixed assets).

Group of exposures with risk weight of 150% is another group introduced for the requirements of this QIS in compliance with the provisions of Basel III. The group (BAM 622 million) comprises, for the most part, of exposures on the basis of matured outstanding receivables, although it is possible for high-risk exposures to be classified into the same group, as well as receivables from all other categories, if the credit rating is extremely poor.

All the aforementioned could be summarized in the following table:

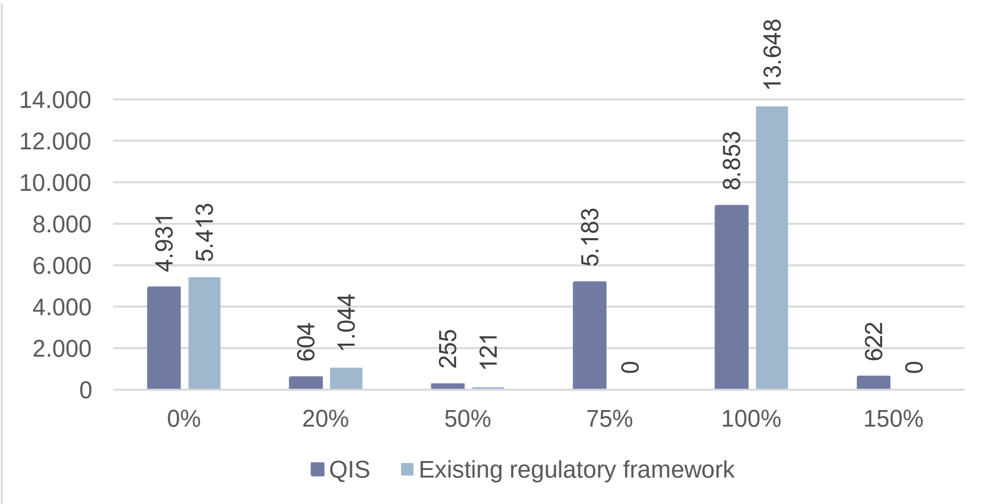
Table 1. Net amount of exposure (**alternative one**) and assets weighted according to risk weights

- in BAM thousands-

Distribution of total exposure by risk weights:	QIS		Existing regulatory framework	
	Stock of position	Weighted assets	Stock of position	Weighted assets
0%	4,931,010	0	5,413,176	0
20%	603,894	114,032	1,044,086	208,818
50%	254,954	116,776	120,368	60,183
75%	5,183,422	3,542,105	0	0
100%	8,852,617	7,397,074	13,648,143	12,131,767
150%	622,025	909,887	0	0
TOTAL:	**20,447,922**	**12,079,874**	**20,225,773**	**12,400,768**

As is evident in the table above, the total risk weighted assets and credit equivalents would, upon practical application of SA under Basel III decrease from BAM 12,401 million to BAM 12,080 million, i.e. by 3%.

Net exposure of assets by risk weights under the existing regulatory framework and QIS (first alternative)



Risk weighted assets under the existing regulatory framework (first alternative)

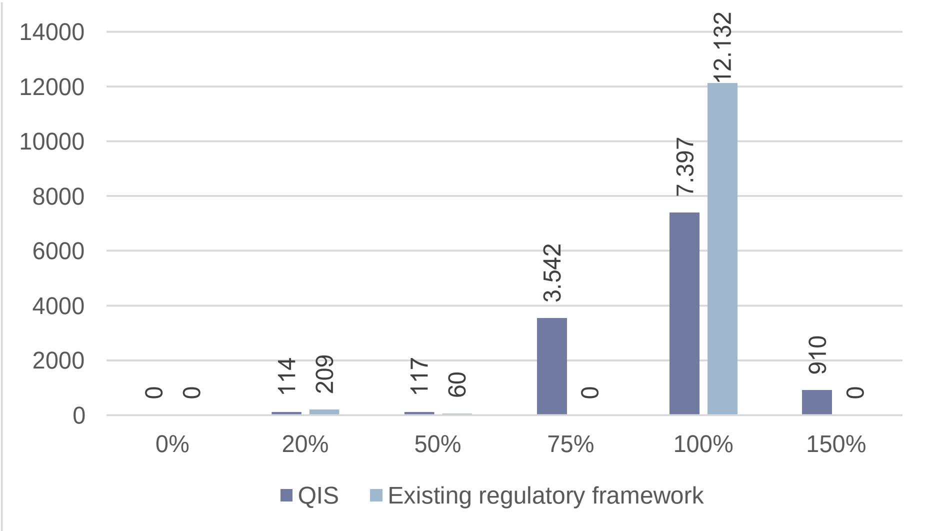


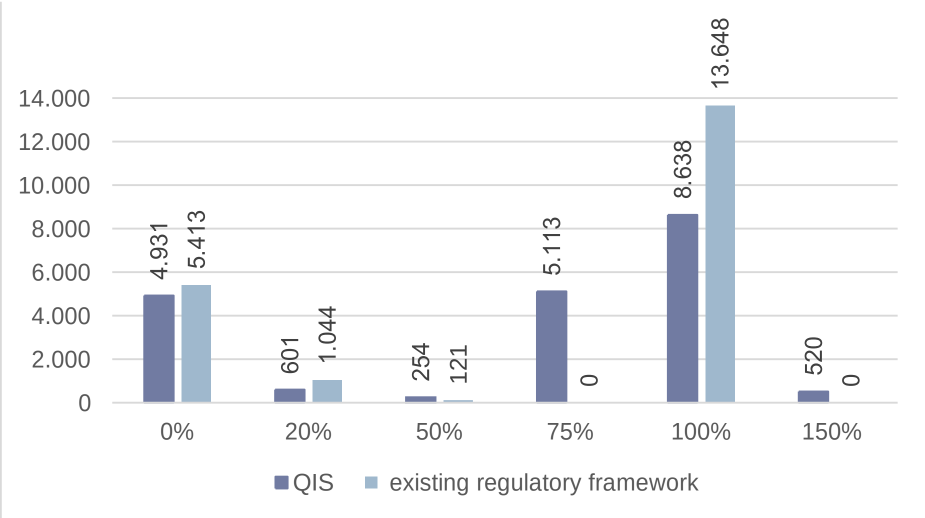
Table 2. Net amount of exposure (**second alternative**) and weighted assets by risk weights

- in BAM thousands-

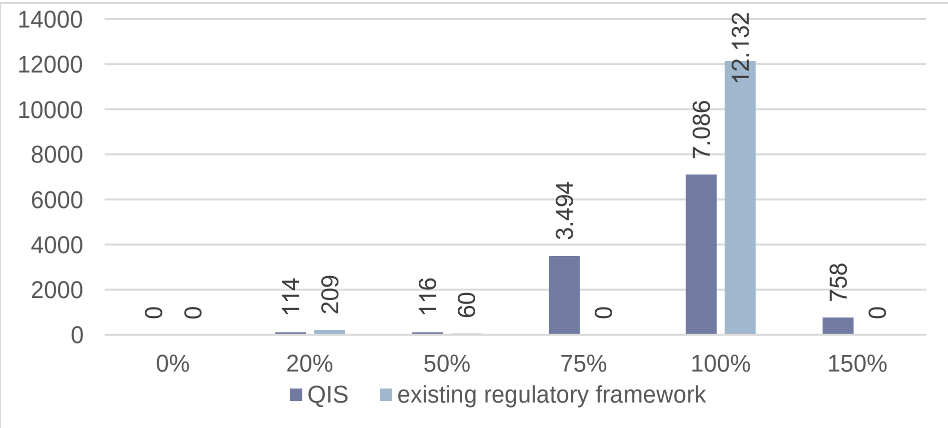
Distribution of total exposure by risk weights:	QIS		Existing regulatory framework	
	Stock of position	Weighted assets	Stock of position	Weighted assets
0%	4,931,091	0	5,413,176	0
20%	601,250	113,813	1,044,086	208,818
50%	253,878	116,311	120,368	60,183
75%	5,112,783	3,493,520	0	0
100%	8,637,580	7,085,429	13,648,143	12,131,767
150%	520,139	757,913	0	0
TOTAL:	**20,056,721**	**11,566,986**	**20,225,773**	**12,400,768**

In case of the second alternative, i.e. taking into account which is higher, the correction of value or the loan loss provisioning, the total risk weighted assets and credit equivalents would, upon the application of the SA approach under Basel III decrease from BAM 12,401 million to BAM 11,567 million, i.e. by 7%.

Net exposure of assets by risk weights under the existing regulatory framework and the QIS (second alternative)



Risk weighted assets under the existing regulatory framework and QIS (second alternative)



Total risk weighted assets, in compliance with the SA approach (first alternative) amount to BAM 12.080 million, while under the second alternative they amount to BAM 11,567 million. Speaking of the first alternative, in a larger number of banks (9 of them) the amount of risk weighted assets and credit equivalents decreased by BAM 684 million, while in the remaining 6 banks it increased by BAM 364 million. The most significant decrease was recorded by four SIBs in the amount of BAM 561 million (82% of the total reduction), primarily because of the application of lower risk weights by certain risk categories, especially of the weight of 75%. The most significant increase of risk weighted assets relates to one SIV (75% of the total increase). One should emphasize that, taking into account that in the first alternative only corrections of value are taken into account, the new exposure is not reduced by the regulatory provisioning formed from profits for assessed losses based on balance sheet assets an doff-balance sheet items (onset in the course of transfer to IAS 39/37), and in the aforementioned SIB that amount is significant, which has, to a large extent, affected the total increase of risk weighted assets. In addition to the aforementioned SIB, five other banks also recorded increases in risk weighted assets, primarily because of the increase in the risk weights from 100% to 150% for the category of exposure with the status of default (default), and reduction in non-risky exposures which, under the existing regulations, carry the risk weight of 0%. At the same time, the use of the more favorable risk weight of 75% did not increase in those banks, to an extent that would be significant to compensate for the aforementioned increase of the amount of weighted assets. It is important to mention that the draft Decision on Calculation of Capital in Banks does not envisage risk weights of 35% and 50%, to exposures or parts of exposures that are fully secured with mortgages on residential / commercial real estate, and in compliance with the Strategy of the Agency.

2.3 Credit Risk Mitigation (CRM) Techniques (CRM)

Credit protection may be unfunded and funded. Unfunded credit protection is the credit risk mitigation technique under which the reduction in the credit risk under exposures results from the liability of the third person to perform the payment of a certain amount to the bank in case of failure on the part of the debtor to meet the liability or onset of another contracted credit related event that concerns that debtor (a guarantee). Funded credit protection comprises financial collateral (for example, cash and cash equivalents in the bank, gold. specific types of debt and equity securities etc.), and other instruments of funded credit protection (for example, insurance policies etc.).

Although CRM represents a novelty compared to the existing regulatory framework, essentially the elements of the CRM (cash deposits, insurance policies) are also used in the current regulations, but their treatment is partially different concerning the calculation of risk weighted assets and credit equivalents.

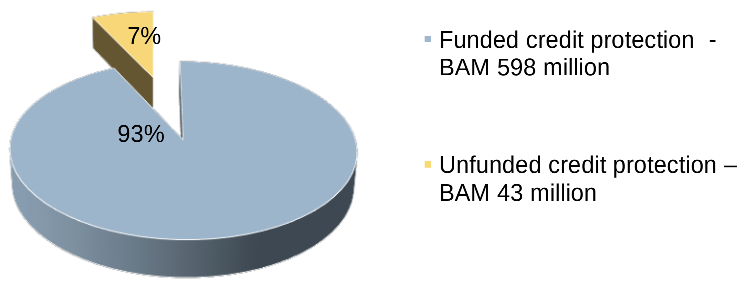
Credit Risk Mitigation (CRM) Techniques may be the following:

1. with effects of replacement on exposures (simple method), and
2. techniques of credit risk mitigation that affect the amount of exposures (complex method of financial collateral).

2.3.1. Simple CRM Method

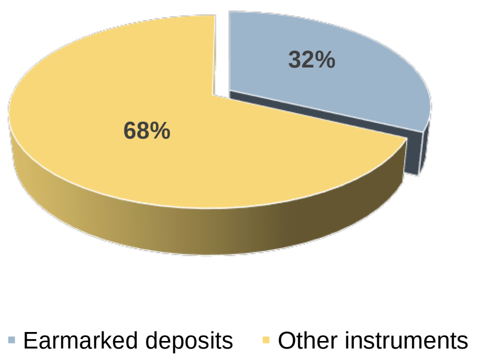
According to the approach used thus far, investments or parts of investments of banks that are secured with collateral in the form of cash deposits carried the weight of 0%, while under the CRM approach, through earmarked deposits, net exposure of a specific investment is initially classified into the risk weight according to the credit worthiness of the debtor, and after that is reduced by the amount of deposit that represents coverage. Therefore, the end effect of both approaches on the level of risk weighted assets is equal. Under the QIS, the banks in the banking system in FBiH disclosed, based on the simple method of CRM, the total performance of CRM at the level of BAM 641 million, which can be seen in the chart below.

Total performance of CRM techniques



Of the total funded credit protection shown in the graph below, financial collateral, i.e. earmarked deposits that serve as collateral, represent BAM 191 million, while BAM 407 million was disclosed by the banks as other instruments of funded credit protection, where, for the most part, credit insurance policies are disclosed. Such a type of protection instrument has increasing presence in the banking practice, i.e. it has become a mandatory part of the list of requirements in the course of credit approval for a large number of banks.

Total funded credit protection



The amendment that has, in part, affected a reduction in the risk weighted assets is the use of unfunded credit protection (guarantee). Although the banks have, in their practice thus far, used guarantees as security for the repayment of their receivables, they had not affected the calculation of the risk weighted assets. The banking system in FBiH filled out the data in the tables on BAM 43 million of receivables secured with guarantees (7% of total amount of effects of replacement) which, through a reduction in the weights, had a direct effect on the level of weighted assets.

2.3.2. Complex Financial Collateral Method

In the course of valuation of financial collateral for the requirements of the complex method of financial collateral, the banks are applying corrective factors to the market value of financial collateral, in order to take into account the volatility of prices.
If the collateral is denominated in a currency that differs from the currency in which the relevant exposure if denominated, the banks, along with the corrective factor for collateral, also apply the corrective factor for exchange rate risk.

For the requirements of calculating the amount of risk weighted exposures, the maturity mismatch occurs when the remaining period of maturity of credit protection is shorter than the maturity of the protected exposure.
Therefore, the banks were, for transactions to which funded or unfunded credit protection applies in compliance with the complex method of financial collateral, were under obligation to adjust the value of collateral for the maturity of credit protection and exposure.

The complex method of the credit risk mitigation techniques was used by five SIBs in the total amount of BAM 168 million, specifically as the adjusted value of financial collateral. One should emphasize that four out of the aforementioned five banks used both the simple and the complex method of CRM, which is not in compliance with the draft Decision on Calculation of Capital in Banks, i.e. the banks could use only one of the two aforementioned methods.

2.4. ANALYSIS OF QUESTIONNAIRE – CREDIT RISK SEGMENT

2.4.1. Exposures to Central Governments and Central Banks

In the course of credit risk assessment, the banks use ECAI or ECA for exposures to central governments, central banks, and other banks abroad. On the basis of the submitted answers of the banks in FBiH, one may conclude that the majority of the banks are using credit ratings of ECAI / ECA in the course of assessing the risks of aforementioned institutions, i.e. 9 banks, i.e. 60% (5 SIBs and 4 other banks - 2 banks with domestic or majority domestic capital and 2 banks with foreign or majority foreign capital), while 6 banks, i.e. 40% (2 SIBs and 4 other banks – 3 banks with domestic or majority domestic capital and one banks with foreign or majority foreign capital) are not using the aforementioned ratings. In addition, one SIB stated that it was using aforementioned ratings exclusively as additional information in the course of its own assessment of credit rating.
In their responses, banks in FBiH stated that in the course of risk assessment they were using credit ratings of reputable rating agencies, such as S&P, Moody᾽s, and Fitch.

2.4.2. Exposures to Multilateral Development Banks / Public Sector Entities / Religious Communities / Covered Bonds

Exposures of banks to multilateral development banks are present in two SIBs, i.e. 13%, while other banks do not have aforementioned exposure. Multilateral development banks to which banks in FBiH are exposed are the European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB), the International Finance Corporation (IFC), the Council of Europe Development Bank (CEB), the Development Bank of the Netherlands (FMO), the European Fund for South-East Europe (EFSE), the OPEC Fund for International Development (OIFD).
10 banks, i.e. 67% (5 SIBs and 5 other banks – 4 banks with domestic or majority domestic capital and one bank with foreign or majority foreign capital) are exposed to public sector entities, while 5 banks, i.e. 33% (2 SIBs and 3 other banks – 2 banks with domestic or majority domestic capital and one bank with foreign or majority foreign capital) do not have the aforementioned exposure. The banks stated that they were exposed to the following public sector entities: cantons, municipalities, institutes, agencies, public enterprises, governmental nonprofit organizations, governments of the entities FBiH and RS, funds, non-banking financial institutions. Based on the aforementioned, one may conclude that the banks in FBiH have not adequately classified their exposures to the given category of exposures in compliance with the draft Decision on Calculation of Capital in Banks, as public enterprises are to be classified in the category of economic companies, and entity governments in the category of regional government or local authorities etc.

Exposures to religious communities are present in 3 banks, i.e. 20% (one SIB and 2 other banks with foreign or majority foreign capital), while other banks, i.e. 80%, do not have the aforementioned exposure. However, exposures to religious communities in SIBs are not present in a significant amount, while only one bank from the group of other banks has a large exposure from the given category of exposures.

None of the banks in FBiH has any investments in covered bonds.

2.4.3. Exposures to Households, in Default Status and Secured with Real Estate

According to data submitted by banks, the diversification of the portfolio of households is determined by 5 banks, i.e. 33%, of which 4 SIBs and one banks with domestic or majority domestic capital, while 10 banks, i.e. 67% do not determine the diversification of the portfolio of households. One bank monitors the diversification of placed credits by the volume and the quality of the investments, and on the basis of the segment of employers / sources of earnings of the clients. Other banks are segmenting clients according to internal rating, based on coverage with eligible collaterals, by days in default, by type of product (consumer credit, mortgage credits, overdrafts in current accounts, credit cards), as well as through checking the granularity of the portfolio.

13 banks, i.e. 87% have historical data on losses from outstanding receivables for economic companies and households for the period of time exceeding 5 years, while 2 SIBs, i.e. 13%, have data for the period of time from 4 to 5 years. Individual banks, i.e. 4 banks from the group of other banks (2 banks with domestic or majority domestic capital, and 2 banks with foreign or majority foreign capital) have at their disposal the same data for the entire period of operations of the bank.

According to the statements and experiences of the banks, residential real estate with all the SIBs and with 3 banks with domestic or majority domestic capital (71%) represents the more efficient means of settlement of receivables than commercial real estate, while 4 banks, i.e. 29% (3 banks with domestic or majority domestic capital and one bank with foreign or majority foreign capital) are of the opinion that commercial real estate represents more efficient means of settlement. However, one SIB stated that it assessed commercial property as the more efficient means of settlement of receivables in the segment of collection on receivables from legal persons, and residential property in the segment of collection from natural persons. Within the framework of residential real estate, the more efficient means of settlement are apartments, while in the segment of commercial real estate, the more efficient means of settlements are retail premises, administrative premises, and warehousing premises, compared to commercial and administrative centers and industrial complexes. In addition, there are many other parameters that affect the determination of efficiency of sale of real estate, such as the location, the purpose, the current situation in the real estate market etc.

Internally prescribed minimum ratio of value of the real estate that serves as the means of security and the credit ranges from 60% to 150%, depending on the bank, the type and amount of the collateral and credit, the region, the segment of the client, i.e. policies and procedures prescribed in the banks. The highest internally prescribed coefficient amongst the SIBs is up to 100%, apart from one SIB which, in case of exposures exceeding 5% of core capital, may be 150%. The aforementioned coefficient in other banks may grow to 150%. Exception to that rule applies to credit for the financing of agriculture and industry, and tourist facilities and facilities for recreation, which have a somewhat lower coefficient. Individual banks apply the minimum required amounts of weighted coverage with collateral, and then the collateral matrix depending on the awarded rating of the enterprises within the bank, as well as the determined minimum threshold of the ratio of credits and the value of real estate. One SIB stated that for the credit given for a period shorter than 24 months the coverage with real estate was not mandatory.

According to data submitted by the banks, 12 banks, i.e. 80% perform assessment of value of real estate in compliance with international standards for assessment, of which 6 are SIBs, while 3 banks, i.e. 20% (one SIB and 2 banks from the group of other banks) do not perform the assessment of value of real estate in compliance with international standards. Depending on the types and purpose of the facilities, the banks are also using different internationally recognized methods of assessment of real estate.

The banks are using the following methods of assessing the value of real estate:

- comparison method, which is being used for assessment of undeveloped land, apartments, and houses.
- revenue capitalization methods, which is being used for assessment of commercial retail premises, office premises, shopping centers, patrol pumps, hotels, motels, and exceptional land, and
- cost based method, which cannot be used as an independent method, but only in combination with one of the aforementioned methods, depending on the specific purpose of the subject real estate,

Assessment of value of real estate performed by external valuer is being used by 8 banks, i.e. 57% (2 SIBs and 6 banks from the group of other banks), while 6 banks, i.e. 43% do not use exclusively the assessment of an external valuer, but instead own an internal valuer, independent from the credit process, who is meeting the conditions under Article 2 of Item (28) of the draft Decision on Calculation of Capital in Banks. One bank from the group of other banks with foreign or majority foreign capital stated that it was using exclusively the assessment of value of real estate of an external valuer in the course of establishing the collateral, while for re-valuation it owns internal valuers who partially meet the conditions from the aforementioned draft Decision.
Banks are performing the assessment of market value of other collaterals depending on the type of collateral. In case the collateral is eligible movable property, the banks are using the nominal value of the collateral, i.e. the invoiced value for new equipment, or an assessment of the expert reduced by the value of the VAT and the percentage of exploitation. For used equipment, the banks are using the nominal value of the collateral, which represents the market value determined on the basis of assessment of the court expert, and revised by the internal valuer of the bank. In addition, individual banks perform the assessment of value of movable property through annual amortization, whose amount depends on the type of movable property. In case the remaining collateral is a deposit, the nominal value of collateral is the stock of deposited assets on a certain date for which individual banks are performing daily revaluation. For securities, the nominal value of collateral is the market value of those securities according to data from relevant stock markets on a specific date, while for insurance policies, bank or corporate guarantees, the assessment of credit worthiness of the issuer of the instrument is performed. In addition, individual banks accept assessment of court experts as relevant, and perform reductions of their value (“haircuts”) by using their internal methodologies.

The average time of collection on the basis of realization of pledged real estate, in 73%, i.e. 11 banks, is 5 years. The remaining 4 banks, i.e. 27% of them (one SIB and 3 banks from the group of other banks – one bank with domestic or majority domestic capital and 2 banks with foreign or majority foreign capital) stated that the average time of collection of a pledged real estate was around 3 years.

2.4.4. Off-Balance Sheet Items and Financial Derivatives

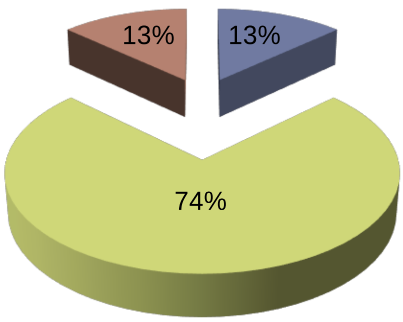
All the off-balance sheet items in the bank are secured with some kind of credit protection. The banks listed the following, as typical types of credit protection of off-balance items:

- guarantees – 15 bans (7 SIBs and 8 other banks),
- letters of credit – 8 banks (5 SIBs and 3 other banks),
- for other off-balance sheet items: overdrafts on current account, approved unused amount under credits, overdrafts, cards, and frameworks, the banks stated that they were secured with some kind of credit protection, and most frequently with real estate, pledges, and other types of credit protection prescribed under the policies and procedures of the banks.

All the banks from the ranks of the SIBs in FBiH are doing business with financial derivatives, i.e. 7 of them, i.e. 47%, while 8 banks, i.e. 53%, are not doing business with financial derivatives. Of the aforementioned 8 other banks, 6 banks do not intend to do business with them in the coming period, while one bank plans to perform the tasks of currency forwards and currency swaps, and one bank with domestic or majority domestic capital failed to state whether it was planning to do business with aforementioned instruments. Financial derivatives with which the banks are doing business are currency derivatives and, specifically, the currency "time option", currency forward and interest rate swaps. All the banks that are doing business with financial derivatives are using the method of market value, exclusively, while one SIB stated that it used the method of "add-on" factors.

2.4.5. Credit Risk Mitigation Techniques

Banks in FBiH sometimes, or frequently, use collateral denominated in a currency that differs from the currency of the receivable, for securing their receivables. The exception and the 2 banks, i.e. 13%, with domestic or majority domestic capital, which are not using it, which can be seen in the chart below.



The banks are, for the most part, not using credit protection whose maturity is shorter than the maturity of the secured receivable, i.e. 9 banks, i.e. 60% (2 SIBs and 7 other banks). The exception to that rule applies in 6 banks, i.e. 40% (5 SIBs and one bank with domestic or majority domestic capital), which use credit protection whose maturity is shorter than the maturity of the secured receivable for securing their receivables sometimes, but rarely. The majority of banks, i.e. 12 banks, i.e. 80% (5 SIBs and 7 other banks) never use credit protection with the clause on early termination / notice on dismissal, i.e. with the option of suspension of credit protection, either by the person that is providing credit protection of by the bank. The exception concerns 3 banks, i.e. 20% (2 SIBs and one other bank with domestic or majority domestic capital), which use that only when the maturity of the credit protection is limited under the conditions of the credit line or when it is not possible to structure the transaction in any other way.

According to data submitted by banks, the majority of banks, 8 of them, i.e. 53% (6 SIBs and 2 other banks – one bank with domestic or majority domestic capital and one bank with foreign or majority foreign capital) often accept more than one type of credit protection for securing a single receivable, if the credit protection is eligible in compliance with the bank's policies and procedures, while 7 banks, i.e. 47% (one SIB and 6 other banks – 4 banks with domestic or majority domestic capital and 2 banks with foreign or majority foreign capital) have the same practice, but use it in rare situations.

2.4.6. Collateral (Funded Credit Protection)

According to the submitted data and the analysis performed on the answers of the banks, the following instruments of funded credit protection participate in the total amount of collateral in the bank, as follows:

a) Deposits:
  - 100% share with one of the SIBs; ▪69% with one of the SIBs;
  - the remaining 13 banks, i.e. 87% (5 SIBs and 8 other banks) have the share ranging from 0.5% to 10%;

b) Debt securities:
  - only 2 banks (one SIBs and one bank with domestic or majority domestic capital) stated that they used debt securities as collateral in the amount of 0.7%;

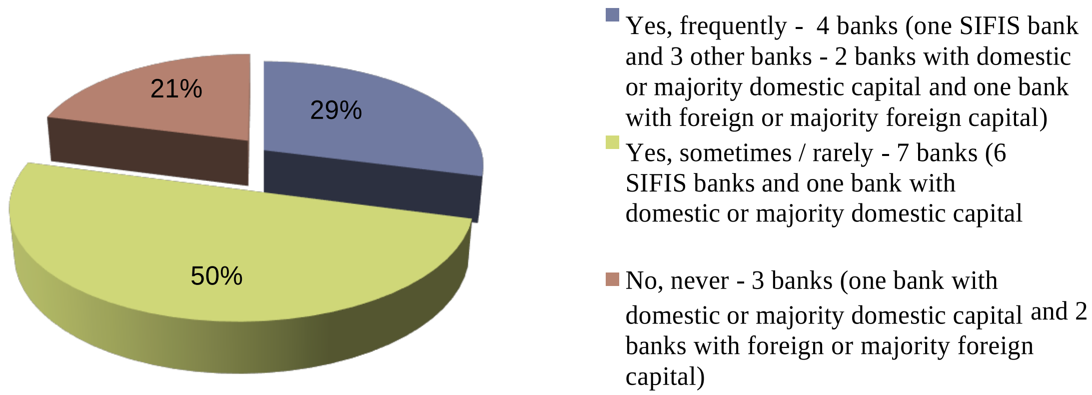
c) Shares:
  - 6 banks states that they used shares as collateral, ranging from 0.1% to 0.8%, while only one other bank with foreign or majority foreign capital is using it in the amount of 27.6%;

d) Other:
  - 8 banks or 53% (4 SIBs and 4 other banks with domestic or majority domestic capital) stated that they are using in amounts exceeding 90% all types of real estate and movable property, as well as life insurance policies, cessions of receivables, and guarantees, as unfunded credit protection.

The banks that are using debt securities for securing their receivables most often accept bonds (state bonds, bank bonds, and corporate bonds), pledges in stocks, bills, as well as securities that are both listed and not listed in the stock exchange.

Of the total number of banks that are using debt securities as collateral, 4 banks are, in the course of assessment of eligibility, taking into account the ratings of the ECAI (Fitch, S&P, and Moody's) if the aforementioned rating for debt securities or the rating of the issuers of debt securities exists. The other banks, of which 3 are SIBs and one is a bank with foreign or majority foreign capital, are using internal credit ratings. One SIB stated that it is using the credit ratings of recognized ECAI only as additional information in the course of its own assessment of eligibility of debt securities.

In addition to using the cash / bank deposits, debt securities, and shares, the majority of banks, except for one bank with domestic or majority domestic capital which failed to offer an answer, are using other financial instruments as well as collateral, which can be seen in the chart below.



The banks, for the most part, stated that they used as collateral insurance policies, as other financial instruments. Of the insurance policies, they most often use life insurance policies, credit insurance policies, insurance policies for insurance from accidents, death, or illness, insurance policies for job insurance, insurance policies in case of reaching the contracted age with a guaranteed redemption value etc.

All the banks, with the exception of one bank with domestic or majority domestic capital, accept more than one type of collateral for securing a single receivable, and of the aforementioned banks, 8 banks, i.e. 53% (2 SIBs and 6 other banks) emphasized that it also happens very rarely in practice.

The majority of banks (al the SIBs and 3 other banks - 2 banks with domestic or majority domestic capital and one with foreign or majority foreign capital) are valuing the financial instrument received as collateral at their market prices, and specifically one SIB on the daily basis, 3 SIBs on the monthly basis, 3 banks (one SIB and 2 banks with domestic or majority domestic capital) on the quarterly basis, and 3 banks on the annual basis. In case of a decline in the market value of financial instruments received as collateral, the majority of banks demand from the debtors additional financial instruments as collateral, while 4 banks, i.e. 30% (one SIB and 3 other banks - 2 banks with domestic or majority domestic capital and one bank with foreign or majority foreign capital) do not require any additional capital. In addition, more than half the banks in FBiH, i.e. 8 banks, i.e. 53% (4 SIBs and 4 other banks - 3 banks with domestic or majority domestic capital and one bank with foreign or majority foreign capital) do not accept collateral in the form of shares that are not listed in a recognized stock exchange, while 7 banks, i.e. 47% (3 SIBs and 4 other banks - 2 banks with domestic or majority domestic capital and 2 banks with foreign or majority foreign capital) sometimes or rarely accept collateral in the form of shares that are not listed in a recognized stock exchange.

All the banks in FBiH are checking the legal security of the collateral, i.e. checking whether there are any obstacles to the realization of collateral in the course of its acceptance, and 2 SIBs, in addition to the aforementioned, also perform regular checking up to the date of maturity of the secured receivable. The majority of banks own a legal opinion confirming that documentation on the collateral facilitates the settlement of the receivable for all, or for the majority of types of collateral, while 3 banks (one SIB, one bank with domestic or majority domestic capital and one bank with foreign or majority foreign capital) have the same only for specific types of collateral.

On the basis of the submitted answers of the banks, one may conclude that the banks in FBiH currently do not have signed standardized contracts on netting, with the exception of one bank that failed to provide a response to the question, and one SIB that has an ISDA contract signed, but currently does not have such a product and is not contracting transactions that would be based on the netting of two banks.

Banks in FBiH are not performing repo and reverse repo deals, with the exception of one SIB which did not perform repo deals in 2016, as the liquidity position with the aforementioned bank is on a satisfactory level and there was no need for repo deals, but in the past it had performed repo deals with the parent bank because of its liquidity needs.

In addition to that, banks from FBiH did not invest in investment funds, apart from one SIB and one bank with domestic or majority domestic capital that invested in the closed-ended investment fund CROBiH, Hypo equity, Oif Lilium Balanced, Oif Lilium Cash, and Oif Raiffeisen Cash.

2.4.7. Guarantees (Unfunded Credit Protection)

Banks in FBiH are using guarantees as unfunded credit protection. On the basis of the responses submitted by the banks, one may conclude that the practice in the majority of banks is to secure their receivables with the type of unfunded credit protection that is denominated in a currency different from the currency of the receivable. Only 4 banks, i.e. 27% (one SIB, 2 banks with domestic or majority domestic capital and one bank with foreign or majority foreign capital) are never using the aforementioned. The most frequent providers of guarantees and banks in the domestic and foreign market, and legal persons with acceptable credit worthiness, as well as funds, development agencies, states, entities, cantons, municipalities / cities, etc. On the basis of the submitted responses, one may conclude that out of the total number of banks, 8 banks, i.e. 53% (5 SIBs and 3 other banks - one bank with domestic or majority domestic capital and 2 banks with foreign or majority foreign capital) have exposures that are covered with a counter-guarantee, while 7 banks, i.e. 47% (2 SIBs and 5 other banks - 4 banks with domestic or majority domestic capital and one bank with foreign or majority foreign capital) do not have the aforementioned exposure. The most frequent issuers of counter guarantees are domestic and external banks and international banking groups. Some of the listed ones are: RBI, City

Bank - New York, Bank of Amerika - San Francisco, Raiffeisen Bank - Poland, Komerčni Bank – Czech Republic, ING Bank - Belgium, Credit Agricole -France, Barclays Bank PLC, HSBC Bank - London, Landesbank Baden Wuerttemberg, RBA Zagreb.

2.5. ADDITIONAL TEMPLATES FOR CREDIT RISK REQUIREMENTS – LTV AND REAL ESTATE

2.5.1. Additional LTV Template

LTV coefficient (“loan to value”) represents the ratio of the approved credit and the assessed value of real estate over which the mortgage is being established, multiplied with 100, i.e. the coefficient of necessary borrowing and the value of real estate which the user of the credit is planning to buy, On the basis of the aforementioned it derives that the lower the LTV coefficient, the more secure the credit, as, in case the procedure of collection over the real estate is initiated, the bank has already ensured the repayment of the assets.

The Agency has, on the basis of additional templates submitted in the framework of implementation of the QIS, implemented the research and compiled the analysis of data submitted by 15 banks, i.e. 7 SIBs and 8 banks from the group of other banks.

The average LTV coefficient with all the banks in FBiH at the occasion of approving credits to legal persons and households amounted to 90%, and as of the date of September 30, 2016, it amounted to 70.7%, which is probably the result of a reduction in liabilities of the debtor, i.e. reduction in credit amounts, and it could also be the result of an increase in the value of real estate, or acquisition of additional collateral, which is less probable. The aforementioned coefficient amounted to 97.7% with the SIBs at the time of credit approval, and 72.8% as of the date of September 30, 2016, while with other banks it amounted to 85.2% at the time of credit approval, and 69.2% as of September 30, 2016.

The average LTV coefficient with legal persons, for both the sector or trade and the sector of manufacturing, which have the largest shares in total credit, amounted to 76.2% at the time of credit approval, i.e. 55.6% as of September 30, 2016, which is positive taking into account that the sector of manufacturing has the highest share of NPLs in total credits (19.2%). The value of the aforementioned coefficient with SIBs was 79.3% at the time of credit approval, i.e. 48.8% as of September 30, 2016, and with other banks 74.3% at the time of credit approval and 61.1% as of September 30, 2016.

In the sectors of financial intermediation, public administration, and defense, because of the low value of collateral or, in general, lack of collateral (in compliance with internal enactments of the banks), the average LTV coefficient at the level of the entire banking system of FBiH was extremely high, i.e. 225.4% at the time of credit approval and 182% as of September 30, 2016. The average LTV coefficient with the SIBs amounted to 320% at the time of credit approval and 184% as of September 30, 2016, and with other banks 162.3% at the time of credit approval and 172% as of September 30, 2016. The aforementioned may lead to the conclusion that with other banks in the sectors of financial intermediation, public administration, and defense there was a decrease in the value of real estate that represented collateral, or problems with the collection of receivables.

Although the construction sector has a high share of NPLs, of 18.4% (second highest in the system), it also, at the same time, has satisfactory coverage with collateral, where the average LTV coefficient amounts to 86.1% at the time of credit approval and 60.7% as of September 30, 2016. The same coefficient with SIBs was somewhat higher and amounted to 91.6% at the time of credit approval, i.e. 51% as of September 30, 2015, while with other banks it amounted to 82.7% at the time of credit approval and 69.2% as of September 30, 2016.

In addition, in the sector of agriculture, the LTV coefficient is unfavorable and amounted to 117.4% at the time of credit approval and 96.3% as of September 30, 2016. With the SIBs the aforementioned coefficient amounted to 107.3% at the time of credit approval, i.e. 97% as of September 30, 2016. Other banks had similar values, i.e. 123.8% at the time of credit approval and 95.8% as of September 30, 2016. However, although the sector of agriculture has high values of LTV, the aforementioned coefficient is not concerning, taking into account that this sector has the lowest share of 1% in total credits.

Credits to households for general consumption at the level of the banking system in FBiH have the highest LTV coefficient amounting to 109.6% at the time of credit approval and 100.2% as of September 30, 2016. Amongst the SIBs the coefficient is quite high, with the value of 135.2% at the time of credit approval and 113.5% as of September 30, 2016, and among other banks it is somewhat lower and amounts to 91.3% at the time of credit approval and 86.8% as of September 30, 2016. The aforementioned coefficients are expected, as the credits to households for general consumption are not earmarked credits and similar credits, which are, for the most part, approved in the absence of collateral.

The LTV coefficient for credits to households approved for housing construction amounted to 74.6% at the time of credit approval and 63% as of September 30, 2016, for all the banks u FBiH, which is realistic, as the housing credits are, for the most part, secured with real estate, whose assessed value is equal or higher than the amount of the approved credit. In addition, minor differences in the values of the coefficients were also present in the SIBs and other banks.

Credits to the household approved to craftspeople had the best ratio of credit and collateral, which amounted to 70.7% at the time of credit approval and 50% as of September 30, 2016, in all the banks in FBiH. On the basis of submitted data one may conclude that the SIBs and other banks had a similar coefficient at the time of credit approval, while as of September 30, 2016, SIBs had the LTV coefficient valued at 43.5%, while the other banks had the aforementioned coefficient of 55%.

2.5.2. Additional Template – Real Estate

Within the framework of the QIS, the banks were under obligation to also fill out an additional template, “Real Estate” with the objective of determination of the realized value of real estate (commercial and residential) acquired in the process of collection of receivables, as well as realized losses / profits from their sale, i.e. determination of the amount of collection of receivables through the realization of collateral.

On the basis of data submitted by the banks from FBiH, the total number of real estate items that represent the means of security for credits amounted to 29,844, in the total value of BAM 11 billion, of which 22,435 items of real estate, in assessed value of BAM 7.2 billion, relates to the SIBs, while 7,409 items of real estate, whose assessed value was BAM 3.9 billion, concerned other banks. Of the total number of real estate items that represented collateral, 75% concerned the SIBs, and 25% concerned other banks.

The banks stated that out of the total number of real estate items, the residential real estate represented 67%, i.e. 19,917 item of real estate, while commercial real estate represented 33%, i.e. 9,927. Of the total number of real estate items that represent collateral with SIBs 70%, i.e. 15,756 are residential real estate items, while 30%, i.e. 6,679 are items of commercial real estate, and with other banks 20%, i.e. 4,161 items of real estate represent residential real estate, while 80%, i.e. 3,248 represent commercial real estate. However, from the data submitted by all the banks in FBiH, one may notice that, although the residential real estate that represents collateral comprise 67% of all real estate, the average assessed value of the real estate in question is significantly lower compared to the assessed value of commercial real estate (four times).

In the course of the last 5 years, the banks in FBiH have, because of it being impossible to collect receivables from debtors, repossessed as collateral 674 items of real estate, in the value of BAM 171.6, of which SIBs repossessed 85%, i.e. 571 items of real estate, in the value of BAM 142.8 million, while other banks repossessed 15%, i.e. 103 items of real estate, in the value of BAM 28.7 million.

Of the total number of real estate items repossessed, 370 commercial and residential real estate items were realized, in the total value of BAM 127.8 million, of which 87%, i.e. 322 items of real estate, in the total value of BAM 117 million, related to SIBs, and 13%, i.e. 48 items of real estate, in the total value of BAM 10.8 million, related to other banks. On the basis of the data submitted from banks in FBiH, one may conclude that 238 items of real estate, i.e. 64% were sold below the value of the credit, i.e. with debt remaining of the value of the credit as of the date of sale of the real estate, whose value amounted to BAM 84.9 million, of which 66%, i.e. 211 item of real estate, in the value of BAM 80.7 million, related to SIBs, while 56%, i.e. 27 items of real estate, in the value of BAM 4.2 million, related to other banks.

All the banks at the level of the banking system in FBiH stated that they sold 132 items of real estate, i.e. 36% of all real estate, at a price above the value of the remaining portion of the credit as of the date of the sale, in total value of BAM 42,9 million, of which 111 items of real estate related to SIBs, in the total value of BAM 36.3 million, and 21 items of real estate related to other banks, in the total value of BAM 6.6 million.

Banks from FBiH stated that they sold 336 items of real estate, i.e. 90%, below the assessed value of collateral (at the time of credit approval), whose total value amounted to BAM 110.9 million. Of the aforementioned number, 296 items of real estate, with total value of BAM 110.3 million, related to SIBs, and 40 items of real estate, in the total value of BAM 10.6 million, related to other banks.

Compared to the value of the most recent assessment of collateral, all the banks in FBiH sold 299 items of real estate below their assessed value, in the total amount of BAM 105.4 million, of which 283 items of real estate, i.e. 95%, in the value of BAM 101.5 million, related to SIBs, and 16 items of real estate, i.e. 5%, in total value of BAM 3.9 million, related to other banks.

On the basis of the data submitted by the banks, 304 items of residential and commercial real estate, acquired in the process of collection of receivables, in the value of BAM 43.7 million, are yet to be sold. Of the aforementioned number, 249 items of real estate, i.e. 82%, whose value if BAM 25.8 million, relate to SIBs, and 55 items of real estate, i.e. 12%, in total value of BAM 17.8 million, relate to other banks.

Individual other banks disclosed an enormously high assessed value of real estate compared to the amount of credit, which points to suspicions concerning the adequacy of their assessment, i.e. points to poor practices in credit risk management. As the assessed value of real estate affects the calculation of the correction of value under IAS 39, there are also doubt concerning the realism of the financial result with the aforementioned banks.

3. OPERATING RISK – DATA ANALYSIS

The Decision on Minimum Standards for Operating Risk Management in Banks stipulates minimum standards and criteria that banks are under obligation to ensure and apply in their business operations, in operating risk management. The aforementioned decision prescribes the basic indicator approach to the calculation of capital requirements for operating risk. The Strategy of the Agency also envisages SA for the calculation of capital requirements for operating risk, in the draft Decision on Calculation of Capital in Banks.

The focus of the QIS in the domain of operating risk is to analyze the readiness of banks in FBiH for the introduction of the SA, in order to analyze the impact of reduction of capital requirements for operating risk, collect data on the type of harmful events, the manner of allocation of gross losses of banks in business lines, as well as recording of the type and the number of harmful events connected with operating risk that were disclosed for the first time in the reporting period, analysis of the highest and the lowest thresholds, etc.

The banks submitted two COREP templates for operating risk - “C 16.00 (OPR)” i “C17.00 – Operating Risk: Gross Losses and Returns by Business Lines and Type of Events in Preceding Year (OPR Detailed Data)” Template, as well as the Questionnaire from the segment of operating risk. The analysis of submitted data (Standardized Approach) covers thirteen banks, as two banks failed to submit the requested data within the given timeframe, of which one SIB and one other bank (in group III by size of assets). This concerns banks that lack adequately developed information management systems.

3.1. Analysis of "C 16.00 (OPR)" Template – Simple / Basic vs. Standardized Approach

On the basis of collected and controlled data, at the level of all the banks in FBiH that are included in the analysis, one may conclude that the majority of banks would, upon transferring to SA, allocate significantly less on capital requirements compared to what they allocate under the BIA.

Of all the banks in FBiH that are included in the analysis of the QIS, two banks disclosed unrealistic data that result in capital requirements differing enormously between BIA and SA, and because of that they were excluded from this part of the analysis. In all other banks in FBiH it is evident that the significant real difference in capital requirements between BIA and SA, of 17.3%, i.e. BAM 18,826 thousand less in the total sum of lower capital requirements for operating risk, favoring the SA. This represents a significant impact of the reduction of capital requirements compared to BIA, as well as for the total exposure to operating risk at the level of the banking system in FBiH, under the assumption that the data sent by the banks for SA are correct.

In the SIBs (excluding one banks that failed to submit corrected data, to the very moment of development of this QIS), the effect is somewhat smaller (16% in the total sum of lower capital requirements for operating risk favoring SA). In other banks in FBiH it amounted to 16.2%, in banks with foreign or majority foreign capital 17.75%, in banks with domestic or majority domestic capital only 5.9% which clearly shown that the group of banks in question is the group least ready for transferring to SA.

Relating to the banks in group I, the effect of transfer to SA would be a reduction in capital requirements of 9%, while in banks in group II (with the exclusion of one bank because of unrealistic data), the reduction of capital requirements amounts to 11%. The smallest difference (4.2%) between BIA and SA is in the banks in group III, upon exclusion of two banks from the analysis (they lack information management systems supporting the filling out of the SA). In group IV, upon exclusion of two banks from the analysis (unrealistic data submitted), the effect is negligible (0.1%), because of the reason that only one bank, of all the banks in FBiH, submitted data stating that under SA it would have somewhat higher capital requirements.

Under the SA the banks allocate their activities in eight business lines. On the basis of submitted templates, the business line of Corporate Finance was the only one for which no data was submitted in the "C 16.00 (OPR)" template, which contradicts the data that the banks submitted in the template "C17.00 – Operating Risk: Gross Losses and Returns by Business Lines and Type of Events in Preceding Year (OPR Detailed Data)". The highest amounts are, as logical, in the business line of Retail Banking, followed by Commercial Banking, Payments and Settlements, Trading and Sale, Assets Management, Agency Services, and Retail Brokerage, which is presented in the table below:

ALLOCATION OF ACTIVITIES IN BUSINESS LINES	
CORPORATE FINANCING	0%
TRADING AND SALES	6,42%
RETAIL BROKERAGE	0,01%
COMMERCIAL BANKING	30,25%
RETAIL BANKING	54,02%
PAYMENTS AND SETTLEMENTS	9%
AGENCY SERVICES	0,1%
ASSET MANAGEMENT	0,2%

Note: *analysis based on average for the last three years, based on data submitted by banks in FBiH*

Concerning the banks with domestic or majority domestic capital, the data were sent for the following business lines: Commercial Banking – the most dominant business line, Retail Banking, Payments and Settlements, and Asset Management. For the following business lines there were no data available, which points that they still have not been introduced in this group of banks (along with Corporate Financing):

Trading and Sales, Retail Brokerage, and Agency Services.

In banks in group III, only three business lines were present: Trading and Sales, Commercial Banking, and Retail Banking.

In general, only one bank, out of all the banks in FBiH, disclosed a negative result in Trading and Sales in one business year.

On the basis of all of the above, one may conclude that the majority of banks in FBiH are ready for the allocation of activities by business lines, and thus far they lacked sufficiently developed information management systems.

3.2. Analysis of "C 17.00 (OPR) - Operating Risk: Gross Losses and Returns by Business Lines and Type of Events in Preceding Year (OPR Detailed Data)" Template

Recording of the types and number of harmful events is disclosed in the template "C17.00 - Operating Risk: Gross Losses and Returns by Business Lines and Type of Events in Preceding Year (OPR Detailed Data)" i.e."C17.00 OPR-DET", as is stated in the COREP template for operating risk. The aforementioned template is not being used for the calculation of capital requirements for operating risk, as it is envisaged for the requirements of the advanced approach, but instead it is filled out for the requirements of recording the number of harmful events and amounts of losses in banks in FBiH.
Of the total of 15 banks, one SIB failed to submit the aforementioned template within the set timeframe, and so the analysis was performed on the basis of data received from 14 banks.
The banks were under obligation to disclose the number of events and the amount of losses by the following business lines and types of events:

Business lines:

- Corporate Financing
- Retail Brokerage
- Commercial Banking
- Retail Banking
- Payments and Settlements
- Agency Services
- Operating Items

Types of events:

- Internal Fraud
- External Fraud
- Relations with Employees and Work Place Safety
- Clients, Products, and Operating Practices
- Damage to Tangible Assets
- Interruption of Operations and Disruption to System Operations
- Execution of Deliveries and Process Management

For all the business lines, with the exception of the business line of Retail Brokerage, specific events, i.e. losses for operating risk were disclosed.

Table 1. Total number of events and amount of losses by business lines (banking system in FBiH)

Business lines	Number of events	Total amount of loss	Sum of highest individual losses	Sum of five highest losses	Total return of losses	Total amount of losses	
						Thresh old Lowest	Thresh old Highes
CORPORATE FINANCING	95	3,620,317	1,280,994	0	309,411	7,503	1,980,031
TRADING AND SALES	111	1,287	1,287	1,287	0	1,287	1,287
COMMERCIAL BANKING	156	23,200,978	21,106,823	22,867,134	159,741	18,843	20,770,187
RETAIL BANKING	4,399	938,669	202,101	295,954	156,655	33,404	406,977
PAYMENTS AND SETTLEMENTS	12	354,770	173,443	1	351,928	207,816	353,767
AGENCY SERVICES	5	2,191	1,700	0	420	491	1,700
ASSET MANAGEMENT	57	129,719	83,191	7,796	118,900	7,806	83,193
OPERATING ITEMS	51	362,051	215,244	277,873	7,040	21,645	218,744

In Table 1 it is evident that the largest number of events in the amount of 4,399 i.e. 90% was recorded in the business line of Retail Banking, but that it did not cause a significant amount of losses, just BAM 939,000, taking into account that the total return for the aforementioned business line amounted to BAM 157 thousand. However, the line with the largest amount of loss of BAM 23 million, i.e. 81% is Commercial Banking (for the most part, comprising banks from group III, by asset size), regardless of the small number of events recorded (156). The business line of Commercial Banking, according to the description, is realizing, in sum, five largest losses, while other lines exhibit significantly lower amounts, which is, for the most part, caused by the activities of Execution of Deliveries and Process Management, approximately 96%. Of the total return of loss, the highest return was executed with the business line of Payments and Settlements, in the amount of BAM 352 thousand, i.e. 99% One should also mention that the loss for the aforementioned business line was settled in full. Another line with a high amount of loss, of BAM 3.6 million, is Corporate Financing, of which the largest part concerns two SIBs.

Table 2. Total Number of events and amount of losses by types of events for SIBs

Business lines	Number of events	Total amount of loss	Sum of highest individual losses	Sum of five highest losses	Total return of losses	Total amount of losses	
						Thresh old Lowest	Thresh old Highes
CORPORATE FINANCING	39	3,618,817	1,279,494	0	309,411	7,503	1,978,531
TRADING AND SALES	1	1,287	1,287	1,287	0	1,287	1,287
COMMERCIAL BANKING	81	23,177,731	21,097,554	22,867,134	159,741	16,368	20,757,012
RETAIL BANKING	796	871,310	149,795	295,954	156,125	32,404	348,384
PAYMENTS AND SETTLEMENTS	12	309,771	154,508	1	324,904	165,881	309,261
AGENCY SERVICES	2	2,191	1,700	0	420	491	1,700
ASSET MANAGEMENT	8	7,806	7,804	7,796	1,702	7,806	7,806
OPERATING ITEMS	5	277,873	171,129	277,873	7,040	21,645	174,629

Table 3. Total Number of events and amount of losses by types of events (banking system in FBiH)

Description	TYPES OF EVENTS							
	INTERNAL FRAUD	EXTERNAL FRAUD	RELATIONS WITH EMPLOYEES AND WORK PLACE SAFETY	CLIENTS, PRODUCTS, AND OPERATING PRACTICES	DAMAGE TO TANGIBLE ASSETS	INTERRUPTIONS OF OPERATIONS AND DISRUPTION OF SYSTEM OPERATIONS	EXECUTION OF DELIVERIES AND PROCESS MANAGEMENT	TOTAL
Number of events	30	345	56	2,500	79	432	4,380	7,822
1. Total amount of loss	181,422	541,507	1,986,890	4,288,083	139,778	96,699	21,375,605	28,609,984
2. Total return of losses	61,727	377,316	0	27,536	68,119	55,006	514,391	1,104,095
Total (1-2)	**119,695**	**164,191**	**1,986,890**	**4,260,547**	**71,659**	**41,693**	**20,861,214**	**27,505,889**

Table 2 describes the total number of events and amount of losses by types of events in the gross and net amount after reduction for the total return of losses. According to the table, the Execution of Deliveries and Process Management holds a share 75% of the total amount of losses, and 56% of the total number of events. In addition to that, and a large amount of losses is connected to the type of event - Clients, Products, and Operating Practices in the amount of BAM 4.3 million with an insignificant return of losses, and also with a large number of events (2,500). The largest percentage share of return of losses is related to external fraud, with 70%.

Table 4. Total Number of events and amount of losses by types of events for SIBs

Description	TYPES OF EVENTS							
	INTERNAL FRAUD	EXTERNAL FRAUD	RELATIONS WITH EMPLOYEES AND WORK PLACE SAFETY	CLIENTS, PRODUCTS, AND OPERATING PRACTICES	DAMAGE TO TANGIBLE ASSETS	INTERRUPTIONS OF OPERATIONS AND DISRUPTION OF SYSTEM OPERATIONS	EXECUTION OF DELIVERIES AND PROCESS MANAGEMENT	TOTAL
Number of events	29	280	50	77	40	85	383	944
1. Total amount of loss	181,422	443,253	1,986,636	4,205,200	50,390	68,721	21,331,165	28,266,787
2. Total return of losses	61,727	301,929	0	620	26,308	55,006	513,753	959,343
Total (1-2)	**119,695**	**141,324**	**1,986,636**	**4,204,580**	**24,082**	**13,715**	**20,817,412**	**27,307,444**

In Table 4 it is evident that the total number of events, as well as the amount of loss for the banking system are the results of the number of events and amounts of loss of SIBs, and therefore, there was no need to a more detailed analysis of data from the aforementioned table.

3.3. ANALYSIS OF QUESTIONNAIRE – OPERATING RISK SEGMENT

The text below provides an analysis of the Questionnaire for operating risk, developed on the basis of data collected by banks in FBiH.

Relating to the level of acquaintance with the issues of operating risk management in the context of Basel III and CRR, of the total of 15 banks, no bank provided a response. Of the total of 7 SIBs, two banks stated that there was knowledge of the set of problems on all three levels (in general in the bank, at the level of the management, and on the operating level). Three banks stated that there was knowledge on two levels, while two banks stated that there was a level of knowledge on the operating level only. Of the total of 8 other banks, two banks stated that there was knowledge of the set of problems on all three levels. Five banks stated that there was knowledge on one level. One bank failed to provide an answer to the question posed.

From the aspect of classification on the basis of ownership, it is characteristic that four banks with domestic or majority domestic capital stated that there was a level of knowledge on one level only, while four banks with foreign or majority foreign capital stated that there was knowledge of problems on all three levels.

The analysis has shown that the non-systemic banks are, regardless of the size of assets, less acquainted with the problems of management compared to the SIBs.

All the banks but one have recognized the need to get acquainted with this set of problems, especially on the operating level, while the majority of banks are acquainted with the set of problems on two levels.

All the banks have, in compliance with their internal enactments, determined the employees for the identification, measurement, monitoring, and reporting, but there is a lack of a unified approach of the banks relating to the schematic structure of the jobs, i.e. the organizational part.

In all the SIBs, the internal audit is performing the auditing of the system of operating risk management. In addition, in other banks, as well, with the exception of one bank, internal audit is performing the auditing of the system of operating risk management.

All the banks are, within the framework of their regular audits of individual business areas, providing an assessment of operating risk management in the audited area.

The majority of banks, twelve in total, have defined the level and the tolerance towards operating risk, while three banks failed to define the level and tolerance to operating risk.

All the SIBs have defined the level and the tolerance towards operating risk, but in different ways. Of the total of 8 other banks, the majority have defined the level and the tolerance towards operating risk.

Speaking of the analysis of the banks from the position of the other two classifications, it is characteristic that one bank from the group of banks with foreign or majority foreign capital, i.e. from group III, and two banks with domestic or majority domestic capital, i.e. group IV, failed to determine the level and tolerance to operating risk.

Four SIBs stated that they performed the identification and assessment of operating risk in compliance with the following methods: self-assessment, risk mapping, key risk indicators, quantitative analysis, scenario analysis etc. One SIB stated that it was performing identification and assessment in compliance with four methods. Two SIBs stated that they were using three methods. One bank from the group of other banks stated that it used three methods. Three banks stated that they used two methods, while four banks stated that they used one method.

The majority of banks from the group with foreign or majority foreign capital are performing identification and assessment of operating risk according to all the methods.

The majority of banks, especially SIBs, have recognized the significance of regular and comprehensive identification and assessment of operating risk.

Thirteen banks have integrated the management of operating risk into the system of management and decision making, of which four banks partially. The banks have included the results of measurement and determination of operating risk in the process of implementation of business changes and introduction of new products, i.e. decision making in general.

Two banks failed to include operating risk into the system of governance and decision making.

All the SIBs have integrated the management of operating risk into the system of governance and decision making.

Analyzing from the aspect of ownership over share capital, one bank from the group of banks with foreign or majority foreign capital and one bank from the group of banks with domestic or majority domestic capital failed to include operating risk into the system of governance and decision making.

From the aspect of the classification of banks according to the size of assets, the banks that have failed to include operating risk in the system of governance and decision making are from groups III and IV.

Of the total of 15 banks, six banks answered that there was information technology support for the mapping of business lines in compliance with SA for the calculation of capital requirements for operating risk, however one bank responded that it did not intend to use the SA approach. Two banks responded that the establishment of information technology support was ongoing. Seven banks responded that there was no information technology support for the mapping of business lines.

Of the total number of SIBs, four have information technology support for the mapping of business lines in compliance with the SA approach for the calculation of capital requirements for operating risk, one SIB is in the process of establishment of information technology support, while two lack information technology support for the mapping of business lines in compliance with the standardized approach for calculation of capital requirements. Only one bank from the group of other banks has information technology support for the mapping of business lines, and one bank has information technology support, but it does not intend to use it.

Relating to the classification of banks from the aspect of ownership over share capital, five banks that have information technology support belong to the group of banks with foreign or majority foreign capital, while only one bank that has information technology support belongs into the group of banks with domestic or majority domestic capital.

From the aspect of classification of banks according to the size of their assets, it is characteristic that two banks from group II and one bank each from groups I, III, and IV have information technology support for the mapping of business lines in compliance with the SA approach for the calculation of capital requirements for operating risk.

The banks have recognized the significance of information technology support in relation to the mapping of business lines in compliance with the SA approach for the calculation of capital requirements for operating risk, although the majority of banks still lack information technology support.

Concerning the manner of treatment of activities that are common for all business lines (for example, accounting etc.), it is evident that the banks are treating in different ways the activities that are common for all the lines of business. The manner of treating the activities that are common for all the business lines does not depend on the manner of classification of the banks, and, in that context, it is not possible to prepare a review that would exhibit characteristics of individual groups of banks.

All the banks have differing experiences in the mapping of various events that are causing operating risks, and what is common to all of them is that no problems have been recorded.

One bank failed to provide a response, but as it responded to other question, it is to be assumed that it did not record any problems.

The bank that failed to provide a response belongs to the group of other banks, i.e. group of banks with domestic or majority domestic capital, i.e. group IV according to the size of assets.

Of the total of fifteen banks, 10 banks stated different experiences relating to individual losses that exceed 10% of total losses, in general, as well as the number of those losses. Four banks stated that they had no individual losses that would exceed 10%, and they fall into the group of other banks, while one bank failed to respond.

As for the classification of banks according to ownership over share capital, two banks from the group of banks with foreign or majority foreign capital and three banks from the group of banks with domestic or majority domestic capital had no individual losses exceeding 10%.

Two banks from group III and three banks from group IV, by size of assets, had no individual losses exceeding 10%.

The majority of banks, twelve in total, have internal thresholds prescribed on the basis of recording operating risks in the bank. Three banks lack internal thresholds prescribed for recording operating risks.

Six SIBs have internal thresholds prescribed on the basis of recording risk, and only one SIB lacks prescribed threshol.

From the aspect of classification of banks by ownership of share capital, one bank from the group of banks with foreign or majority foreign capital and two banks from the group of banks with domestic or majority domestic capital lack prescribed thresholds.

One bank from group III and two banks from group IC lack internal thresholds prescribed on the basis of recording operating risks in the bank.

Of the total of 15 banks, seven banks have described their results in the context of materially significant losses, while eight banks stated that they had no materially significant losses.
Two SIBs and six other banks did not record any materially significant losses.

Speaking of the classification of banks by ownership, four banks from the group of banks with foreign or majority foreign capital and four banks from the group of banks with domestic or majority domestic capital had no materially significant losses.

According to the classification of banks by the size of assets, it is characteristic that all the four banks that had no materially significant losses, fall into group IV.

Speaking of the experiences of the banks in keeping records of the events that are the source of operating risks, by types of causes, fourteen banks stated that they kept the records, of which thirteen banks responded that there had been no problems, and one bank wrote that the problems relate to the reluctance of people to report events. Only one bank failed to submit an answer. The bank that failed to submit an answer is from the group of other banks, i.e. the group of banks with domestic or majority domestic capital, i.e. from group IV by asset size.

All the banks expressed their opinion in a similar manner concerning the causes of operating risk (human factor, processes, systems, external factors, and others). Therefore, one bank each from the groups of SIBs and other banks opted for all five factors, five banks each from both of the groups selected four causes, one bank each from the group of SIBs and other banks selected three causes, and one bank from the group of other banks selected two causes. In addition to that, the groups of banks based on other classification also show similarity between banks from different groups.

The banks assessed the coverage of the database of operating risks and proposals for supplementing the database in different ways, and, in that context, it is not possible to prepare a review that would show characteristics of individual groups of banks.

Relating to the ways of comparing / additionally controlling accuracy / complexity of data entered into the database (accounting, other databases) thirteen banks responded that they were additionally controlling the accuracy and complexity of data entered into the database.
One bank responded that it was performing partial control, while one bank responded that it was not performing control. The banks that are performing partial control, i.e. that were not performing control, are from the group of other banks, i.e. from the group of banks with domestic or majority domestic capital, i.e. from group IV of banks according to asset size.

Relating to the organizational solutions that concern the measurement, monitoring, and reporting of operating risk, all the banks, apart from one, have a separate organizational part established.

The bank that does not have a separate organizational part is from the group of SIBs, i.e. from the group of banks with majority foreign capital, i.e. from group IV.

It is characteristic that the banks have a different number of employees who are directly in charge of identification, measurement, and reporting on operating risk. The number of employees does not depend on the manner of classification of banks, and, in that context, it is not possible to prepare a review that would exhibit characteristics for individual groups of banks.

Relating to the methodology of determination of internal transfer prices, as well as the connection with liquidity transfer prices (LTP) in the process of liquidity risk management, four banks stated that they had methodology determined, while eleven banks stated that they had no methodology for determination of internal transfer prices.

Four SIBs have methodology for the determination of internal transfer prices, while other banks do not have it. Four banks from the group of banks with foreign or majority foreign capital have methodology for the determination of internal transfer prices, while others do not.

Analysis from the aspect of asset size has shown that all the banks from group I and one bank each from groups II and III have the methodology of determination of internal transfer prices, while other banks do not.

4. MARKET RISK – DATA ANALYSIS

4.1. EXISTING REGULATORY FRAMEWORK

Regulatory requirements in regards to calculation of capital requirements for market risks, i.e. the minimum standards for the management of market risks in banks are prescribed under the Decision on Minimum Standards for Market Risk Management in Banks, dating from 2007. The subject Decision was compiled in accordance with the Amendment for Capital Requirements that Include Market Risks, dating from November of 2005. The harmonization with the subject Decision, i.e. the deadline of its implementation, is delayed until further notice.

In compliance with the existing regulatory framework, the exchange rate risk is prescribed under the Decision on Minimum Standards for Exchange Rate Risk Management in Banks that regulates the minimum standards for adoption and implementation of programmes, policies, and procedures for assuming, monitoring, control, an management of exchange rate risk, and prescribes limits for open individual and total foreign currency position (long or short), calculated based on the core capital of the banks.

In order for the Agency to monitor the compliance of banks with the prescribed limits, and the level of exposure to exchange rate risk, the banks are under obligation to report to the Agency on the daily basis. On the basis of control, monitoring, and analysis of submitted reports, one may conclude that the banks are complying with the prescribed limits and that they are performing their foreign currency activities within those frameworks.

Viewed by the banks, and in total, at the level of the banking system of FBiH, one may conclude that the exposure of banks and the system to exchange rate risk in 2016 ranged within the framework of prescribed limits.

At the level of the group of SIBs, as of September 30, 2016, the total short currency position was disclosed in the amount of BAM 67,480 thousand, i.e. 4.4% of the total core capital of banks, which is by 25.6% lower than the allowed level. In the structure by currencies, the most significant impact is the impact of the individual currency position for EUR, which is a short currency position, and amounts to BAM 70,502 thousand, i.e. 4.6% of the total core capital of the banks, which is by 25.4% below the allowed level. On the side of the long position, the most significant is the individual long position in other currencies (GBP, HRK, CAD, AUD, SEK, and DKK), which amounts to BAM 1,721 thousand, i.e. 0.1% of core capital, which is by 19.9 percentage points lower than the allowed overdraft. More detailed review is provided in Table 1.

Table 1.

	SIBs				
POSITION:	**EUR**	**USD**	**CHF**	**OTHER**	**TOTAL**
(+) LONG POSITION AMOUNT			1,492	1,721	
(+) expressed in %			0.1	0.1	
(-) SHORT POSITION AMOUNT	70,502	191			67,480
(-) expressed in %	4.6	0.010			4.4
ALLOWED OVERNIGHT POSITION	30.0	20.0	20.0	20.0	30.0
HIGHER than allowed (+) or (-) in %					
LOWER than allowed (+) or (-) in %	25.4	19.9	19.9	19.9	25.6
Core capital	1,534,474				

Speaking of the group of other banks, as of September 30, 2016, the total long currency position was disclosed in the amount of BAM 56,308 thousand, i.e. 11.8% of the total core capital of the banks, which is by 18.2% lower than the allowed position. In the structure by currencies, the most significant impact is the impact of the individual currency position for EUR, which is long and amounts to BAM 51,651 thousand, i.e. 10.8% of total core capital of banks, which is by 19.2% lower than the allowed position. Following the EUR, the most significant share is in the USD currency, which is also an individual long position, amounting to BAM 2,251 thousand, i.e. 0.5% of core capital, which is by 19.5% lower than the allowed overdraft. More detailed review is provided in Table 2.

Table 2.

	OSTALE BANKE				
POSITION:	**EUR**	**USD**	**CHF**	**OTHER**	**TOTAL**
(+) LONG POSITION AMOUNT	51,561	2,251	509	417	56,308
(+) expressed in %	10.8	0.5	0.1	0.4	11.8
(-) SHORT POSITION AMOUNT					
(-) expressed in %					
ALLOWED OVERNIGHT POSITION	30.0	20.0	20.0	20.0	30.0
HIGHER than allowed (+) or (-) in %					
LOWER than allowed (+) or (-) in %	19.2	19.5	19.9	19.6	18.2
Core capital	477,538				

If one reviews the banks from the aspect of their asset size, then, as is to be expected, the highest share in total open position at the level of the system was held by the largest banks in the system. Detailed review is provided in tables 3, 4, 5, and 6.

Banks in group I have the total short currency position disclosed in the amount of BAM 43,382 thousand, i.e. 8.2% of the total core capital of the banks, which is by 21.8% lower than the allowed position.

Table 3.

	GROUP I				
POSITION:	**EUR**	**USD**	**CHF**	**OTHER**	**TOTAL**
(+) LONG POSITION AMOUNT				313	
(+) expressed in %				0.0	
(-) SHORT POSITION AMOUNT	41,827	142	13		41,669
(-) expressed in %	4.7	0.0			4.7
ALLOWED OVERNIGHT POSITION	30.0	20.0	20.0	20.0	30.0
HIGHER than allowed (+) or (-) in %					
LOWER than allowed (+) or (-) in %	25.3	20.0	20.0	20.0	25.3
Core capital	888,612				

Banks in groups II, III, and IV have long currency positions disclosed, which, by groups, amount to BAM 22,901, BAM 23,773, and BAM 29,625, i.e. represent 4.8%, 5.8%, and 12.3% of the total core capital of those groups. In the structure by currencies, the most significant impact in all the groups is the impact of individual currency positions in EUR.

Table 4.

	GROUP II				
POSITION:	**EUR**	**USD**	**CHF**	**OTHER**	**TOTAL**
(+) LONG POSITION AMOUNT	24,042	12	71	1,058	22,901
(+) expressed in %	5.1	0.0	0.0	0.2	4.8
(-) SHORT POSITION AMOUNT					
(-) expressed in %					
ALLOWED OVERNIGHT POSITION	30.0	20.0	20.0	20.0	30.0
HIGHER than allowed (+) or (-) in %					
LOWER than allowed (+) or (-) in %	24.9	20.0	20.0	19.8	25.2
Core capital	473,146				

Table 5.

	GROUP III				
POSITION:	**EUR**	**USD**	**CHF**	**OTHER**	**TOTAL**
(+) LONG POSITION AMOUNT	20,695	169	1,665	2,283	23,773
(+) expressed in %	5.0	0.0	0.4	0.6	5.8
(-) SHORT POSITION AMOUNT					
(-) expressed in %					
ALLOWED OVERNIGHT POSITION	30.0	20.0	20.0	20.0	30.0
HIGHER than allowed (+) or (-) in %					
LOWER than allowed (+) or (-) in %	25.0	20.0	19.6	19.4	24.2
Core capital	240,283				

Table 6.

	GROUP IV				
POSITION:	**EUR**	**USD**	**CHF**	**OTHER**	**TOTAL**
(+) LONG POSITION AMOUNT	26,233	2,023		2,109	29,625
(+) expressed in %	10.9	0.8		0.9	12.3
(-) SHORT POSITION AMOUNT			740		
(-) expressed in %			0.3		
ALLOWED OVERNIGHT POSITION	30.0	20.0	20.0	20.0	30.0
HIGHER than allowed (+) or (-) in %					
LOWER than allowed (+) or (-) in %	19,1	19,2	19,7	19,1	17,7
Core capital	240,283				

If one views the banks from the aspect of ownership over share capital, the structure of open positions by currencies is shown in tables 7 and 8:

Table 7.

	BANKS WITH FOREIGN OR MAJORITY FOREIGN CAPITAL				
POSITION:	**EUR**	**USD**	**CHF**	**OTHER**	**TOTAL**
(+) LONG POSITION AMOUNT			1,786	2,700	
(+) expressed in %			0.1	0.2	
(-) SHORT POSITION AMOUNT	30,070	209			33,869
(-) expressed in %	2.1	0.0			1.9
ALLOWED OVERNIGHT POSITION	30.0	20.0	20.0	20.0	30.0
HIGHER than allowed (+) or (-) in %					
LOWER than allowed (+) or (-) in %	27.9	20.0	19.9	19.8	28.1
Core capital	1,816,185				

Table 8.

	BANKS WITH DOMESTIC OR MAJORITY DOMESTIC CAPITAL				
POSITION:	**EUR**	**USD**	**CHF**	**OTHER**	**TOTAL**
(+) LONG POSITION AMOUNT	19,129	2,269		2,102	22,697
(+) expressed in %	9.8	1.2		1.1	11.6
(-) SHORT POSITION AMOUNT			803		
(-) expressed in %			0.4		
ALLOWED OVERNIGHT POSITION	30.0	20.0	20.0	20.0	30.0
HIGHER than allowed (+) or (-) in %					
LOWER than allowed (+) or (-) in %	20.2	18.8	19.6	18.9	18.4
Core capital	195,827				

Although in the conditions of functioning of the currency board, the banks are not exposed to exchange rate risk for the most significant currency, the EUR, they are under obligation to comply with prescribed limits for each of the currencies, as well as for the total currency position, and to manage that risk on the daily basis in compliance with adopted programmes, policies, procedures, and plans.

4.2. INITIAL GROUNDS FOR QIS

The QIS, which is the subject of the analysis, represents the study of quantitative impact of the application of SA for the calculation of capital requirements for market risk in banks in FBiH.

It comprises two parts, specifically:

1. COREP templates for the market risk segment, C 18.00 - Market Risk: Standardized Approach for Risks of Position of Debt Securities Being Traded (TR SP RPDVP), C 21.00 - Market Risk: Standardized Approach for Risks of Position of Equity Securities (TR SP RPVVP), C 22.00 – Market Risks: Standardized Approach for Exchange Rate Risk (TR SP VR), and C 23.00 – Market Risks: Standardized Approach for Commodity Risk (TR SP RR), and templates for the trading book, DIPKT – Detailed Report on Trading Book Deals, and DSKT – Report on Trading Book – Daily Stocks, with the corresponding Instructions for Filling Out Reporting Templates for QIS Requirements – Standardized Approach to Calculation of Capital Requirements for Market Risk and Additional Templated for Market Risk Segment, i.e. for the requirements of the QIS, the banks were required to submit the following data:

   - data on the trading book,
   - general and specific risk of debt instruments,
   - general and specific risk of equity instruments,
   - exchange rate risk, and
   - commodity risk.

   In contrast to the templates C 18.00 - Market Risk: Standardized Approach for Risks of Position of Debt Securities Being Traded (TR SP RPDVP) i C 21.00 Market Risk: Standardized Approach for Risks of Position of Equity Securities (TR SP RPVVP), which contain exclusively data from the trading book, the data that are entered into the templates C 22.00- Market Risks - Standardized Approach for Exchange Rate Risk (TR SP VR), and C 23.00 Market Risks: Standardized Approach for Commodity Risk (TR SP RR) also imply positions from the banking book.

2. Questionnaires accompanying the QIS on the implementation of new requirements in regards to regulatory capital, calculation of capital requirements for credit, operating, and market risk – in the market risk segment.

The banks were under obligation to fill out the aforementioned templates in summary, as well as templates C 18.00 Market Risk: Standardized Approach for Risks of Position of Debt Securities Being Traded (TR SP RPDVP), and C 21.00 Market Risk: Standardized Approach for Risks of Position of Equity Securities (TR SP RPVVP) individually by currencies and by markets, as defined in the corresponding Instructions. This quantitative part also provides textually, through the Instructions, the explanation of individual positions by each of the forms, i.e. columns and rows of the templates that need to be filled in are marked. In addition, for the requirements of filling out those templates, the banks were also provided with practical examples of calculations, which are the precondition for acquiring the data that are entered into the templates and based on which capital requirements are calculated, as well as practical examples of for the method of filling out the templates.

The part of the QIS that concerns the Questionnaire contains questions to which the banks were supposed to provide their answers, relating to the application of the SA for the calculation of capital requirements for market risk.

The analysis of the QIS should show how the banks are planning, in which way they are preparing, and how ready they are for the implementation of the new regulatory framework, to which market risks are the banks exposed and to which extent, what is the current practice of their management like in the banks, which potential difficulties are identified in the process of preparation and implementation. Analysis of the quantitative part of the QIS discusses the projected capital requirement at the level of the banking sector in FBiH by applying the SA for the calculation of capital requirements for market risk

In the following part of the QIS results are provided of the data processed for the banking system in FBiH, as of the financial date of September 30, 2016.

4.3. MARKET RISK – DATA ANALYSIS

4.3.1. C 18.00 Template - Market Risk: Standardized Approach for Risks of Position of Debt Securities Being Traded (TR SP RPDVP)

C 18.00 Template was submitted by only one bank from the group of SIBs, i.e. Group I. The bank registered position risk, i.e. the total amount of exposure to risk of BAM 635 thousand, as well as the capital requirement for general risk amounting to BAM 16 thousand. Based on specific risk, the capital requirement amounts to BAM 60 thousand.

Owning positions in debt instruments that are being traded in the trading book was reported by only one bank from the group of other banks, i.e. group IV. The bank reported position risk, i.e. the amount of position that is subject to capital requirement of BAM 7,697 thousand, as well as the capital requirement for general risk in the amount of BAM 184 thousand. Concerning specific risk, there were no capital requirements because of the reason that exposures on the basis of debt securities (bonds on the basis of war related damages of FBiH and bonds of FBIH) are classified in risk category I with weight of 0%.

In the C 18.00 templates that were submitted by banks from groups II and III, quantitative data on investments and amounts of debt securities from the trading book were not provided, and therefore it is concluded that the banks that fall into those groups are neither actively trading with debt instrument, nor are exposed to general and/or specific position risk, i.e. market risk in that context, and, analogously, they did not disclose capital requirements for that segment of market risk.

According to the submitted C 18.00 templates, the total amount of exposure to risk of banks with foreign or majority foreign capital, i.e. banks with domestic or majority domestic capital amounts to BAM 635 thousand, i.e. BAM 1,533 thousand, while capital requirements amount to BAM 76 thousand, i.e. BAM 184 thousand.

Total amount of risk exposure of the banking system in FBiH amounts to BAM 2,168 thousand, while the total capital requirement for position risk of debt securities from the trading book, after the application of new regulations, amounts to BAM 260 thousand.

4.3.2. C 21.00 Template - Market Risk: Standardized Approach for Risks of Position of Equity Securities (TR SP RPVVP)

In the C 21.00 templates that were submitted by banks from the group of SIBs, quantitative data were found on the amounts of investments in equity instruments from the trading book, in the amount of BAM 178 thousand, i.e. capital requirements for general position risk of equity securities were disclosed in the amount of BAM 21 thousand. According to the summary template for the group of other banks, the value of positions that are subject to capital requirements, i.e. total exposures to risk, amounts to BAM 1,379 thousand, while the total capital requirement amounts to BAM 165 thousand (capital requirements for general risk amount to BAM 98 thousand, while capital requirements for specific risk amount to BAM 65 thousand, and capital requirements for positions in investment funds amount to BAM 3 thousand).

According to data submitted by banks in group I, only one bank reported on position risk, i.e. the total amount of exposure to risk of BAM 2 thousand. It did not disclose capital requirements for that segment of market risk.

Groups II, III, and IV reported on positions in equity instruments that are being traded in the trading book. Banks of group II reported on position risk, i.e. stated the amount of positions that are subject to capital requirement of BAM 176 thousand, and the capital requirement for risk in the amount of BAM 21 thousand. Banks of group III reported on position risk, i.e. the amount of positions that are subject to capital requirement of BAM 1,084 thousand, as well as the capital requirement for risk in the amount of BAM 130 thousand. Group IV is recording capital requirement in the amount of BAM 35 thousand, i.e. the total amount of exposure to risk of BAM 295 thousand.

According to the submitted C 21.00 templates, the total amount of exposure to risk of banks with foreign or majority foreign capital, i.e. banks with domestic or majority domestic capital amounts to 1.262 thousand, i.e. BAM 295 thousand, while capital requirements amount to BAM 151 thousand, i.e. BAM 35 thousand.

Total amount of exposure to risk of the banking system in FBiH amounts to BAM 1,557 thousand, while the total capital requirement for position risk of equity securities from the trading book, after the application of new regulations, amounts to BAM 186 thousand.

4.3.3. C 22.00 Template - Market Risks: Standardized Approach for Exchange Rate Risk (TR SP VR)

In the C 22.00 templates submitted by banks from the group of SIBs, data are provided on the amounts of positions that are subject to capital requirements for exchange rate risk, i.e. the total amount of risk exposure of BAM 108,046 thousand, i.e. the banks disclosed capital requirements for exchange rate risk in the amount of BAM 12,965 thousand.

According to the summary form of the group of other banks, the value of positions that are subject to capital requirements, i.e. the total exposure to risk amounts to BAM 78.716 thousand, while the total capital requirement amounts to BAM 9,445 thousand.

According to data submitted by the banks in group I, the total amount of exposure to exchange rate risk amounts to BAM 36,749 thousand, while the disclosed capital requirement amounts to BAM 4,410 thousand.

Banks of group II reported on exchange rate risk, i.e. stated that the amount of total exposures to risk that are subject to capital requirement amounted to BAM 63,801 thousand, while the disclosed capital requirement amounted to BAM 7,655 thousand.

Banks of group III recorded exchange rate risk, i.e. total exposure to risk that are subject to capital requirement amounting to BAM 50,576 thousand, while the disclosed capital requirement for risk amounted to BAM 6,069 thousand.

Group IV recorded capital requirement in the amount of BAM 4,276 thousand, i.e. the total amount of risk exposure of BAM 35,636 thousand.

According to the C 22.00 templates submitted, the total amount of exposure to risk of the banks with foreign or majority foreign capital, i.e. the banks with domestic or majority domestic capital amounted to BAM 158,300 thousand, i.e. BAM 28,462 thousand, while capital requirements amounted to BAM 18,995 thousand, i.e. BAM 3,415 thousand.

The total amount of exposures to exchange rate risk of the banking system of FBiH amounts to BAM 186,762 thousand, while the total capital requirement for exchange rate risk after the application of the new regulations amount to BAM 22,410 thousand.

4.3.4. C 23.00 Template - Market Risks: Standardized Approach for Commodity Risk (TR SP RR)

According to the submitted data, the banking system of FBiH, i.e. the banks in FBiH are not exposed to commodity risk, and in compliance with that no data were recorded relating to the exposure to commodity risk and capital requirements for it. In that context, the impact of the new regulations is neutral.

4.3.5 Detailed Report on Operations of Trading Book and Report on Trading Book- Daily Stocks

Two banks from the group of SIBs, i.e. group I filled out the templates for the trading book - Detailed Report on Trading Book Deals, and the Report on Trading Book – Daily Stocks. In the Detailed Report on Trading Book Deals, those two banks recorded bonds of old foreign currency savings, shares of companies that are listed in the stock exchange, i.e. derivatives (forward and swap contracts). In the Report on Trading Book – Daily Stocks, the banks also reported on the percentage share of the trading book in the total assets of the banks, which in one bank never exceeded 0.01%, while in the other bank ranged between 0.08% and 5.30%.

From the group of other banks, i.e. groups III and IV, the Detailed Report on Trading Book Deals, and the Report on Trading Book – Daily Stocks were also filled out by two banks. In the Detailed Report on Trading Book Deals those two banks recorded shares and ownership stocks of companies, bonds for war related damages, and bonds of the FBiH Government, i.e. stocks in investment funds. Those two banks, under the Report on Trading Book – Daily Stocks, have the highest percentage share of the trading book in the total assets of the banks of 1.77%, i.e. 0.07%.

In connection with the aforementioned, if the preliminarily determined limits were applied for the small volume of the trading book, all the banks that submitted data from the subject reports would replace the capital requirements for the deals from the trading book from the draft Decision on Calculation of Capital in Banks that relates to capital requirements for market risk with the capital requirement calculated in compliance with the draft Decision on Calculation of Capital in Banks that relates to capital requirements for credit risk for their deals from the trading book, as the scope of their balance sheet and off balance sheet deals from the trading book meets both conditions, that it usually amounts to less than 5% of total assets, and BAM 30 million, and that it never exceeds 6% of total assets, and BAM 40 million.

4.4. ADDITIONAL TEMPLATES FOR MARKET RISK REQUIREMENTS

Under this QIS, the banks were also provided with additional templates accompanying market risk. Of the additional templates that were submitted to the banks for the needs of the QIS, the new development compared to the existing practice is the Template DVU – Additional Value Adjustments.

Additional value adjustments apply to all the assets measured at fair value in the course of calculation of regulatory capital and are deducted from the regular core capital. Two banks from the group of SIBs, i.e. two banks from the group of other banks reported on additional value adjustment for assets measured at fair value. The banks from the group of SIBs recorded BAM 232 thousand, as an item deductible from the regulatory capital, while the banks from the group of other banks disclosed the amount of BAM 42 thousand.

The amount of positions by groups of banks to which additional value adjustments apply is provided in the following table.

- in BAM thousand -

Group	Fair value of positions	Item deducted from regulatory capital
SIBs	231,924	232
Other banks	41,722	42

If the additional value adjustments are analyzed by groups of banks from the aspect of asset size, additional value adjustment for the assets measured at fair value were recorded by banks from groups III and IV, in the amounts of BAM 232,496 thousand, i.e. BAM 41,150 thousand. As the item deductible from regulatory capital, the banks from groups III and IV recorded amounts of BAM 232 thousand, i.e. BAM 42 thousand.

4.5. ANALYSIS OF QUESTIONNAIRE IN MARKET RISK SEGMENT

The qualitative part of the QIS, i.e. the questionnaire accompanying the QIS in regards to implementation of the new regulatory requirements in the segment of market risk contains questions which the banks should have provided their answers, relating to the application of the SA for the calculation of capital requirements for market risk.

Analysis of this part of the QIS should, additionally, show how the banks are planning, in which way they are preparing themselves, and to which extent they are ready for the implementation of new regulatory requirements in the segment of market risks.

The text below provides an analysis of the most significant responses to the questions from the group of SIBs and other banks.

A bank from the group of SIBs has established specialized organizational parts in which identification, monitoring, and management of market risks are being performed. In the group of other banks, the organizational structure is defined in such a manner that, under the organizational scheme, it is assumed that there exist independent organizational parts for the management of market risks, i.e. the segment of management with market risk is organizationally positioned within other larger organizational parts, but those are not filled with staff.

Of the market risks to which the banks from the group of SIBs and other banks are exposed, exchange risk and position risks are the ones mentioned.

The segment of market risk is, in the group of SIBs, most often regulated under the risk management strategy, market risk management policies, i.e. policies and procedures for the management of exchange rate risk, policies and procedures for investments in portfolios of securities, as well as certain guidelines and other instructions.

The banks from the group of other banks defined market risk in the policies and procedures for exchange rate risk management, policies and procedures for investments in securities, policies for interest rates, and other internal enactments of the banks.

In regards to their own methodology for the determination of limits for trading and monitoring of limits for trading, four banks from the group of SIBs stated that they had no methodology of their own, while two banks stated that they had no methodology of their own, but that they were using the group's methodology. One banks from the group of SIBs stated that the limits for certain investments in securities were set by the countries that are stipulated by the parent group. The limits for currencies are set in the same way.

In the group of other banks, one bank stated that it had its own methodology for determination of limits for trading, two banks stated that they did not have a methodology, while three banks stated that they lacked the trading book, so that no limits were defined in that part. In two banks, there are internal limits set for open currency position by currencies, and they are significantly lower than the limits prescribed by the Agency.

Relating to the policy of investing in portfolios intended for trading, three banks from the group of SIBs stated that it was defined in the Policy of trading with securities, i.e. the Policy of financial portfolio management, and that it was based on business objectives and strategies of the banks. Four banks from the group of SIBs stated that they lacked the policy of investing in portfolio intended for trading. The reasons listed were that they were not allowed to purchase securities for active trading, that they did not have the trading book, i.e. that the bank, in the part of transactions with foreign currencies, traded only on account of the client, etc.

Five banks from the group of other banks stated that they had no portfolio for trading, and, therefore, they had no investment policy. Another bank from the group of other banks stated that the investment policy was based on the trends on the subject money / capital market in the narrower and broader geographic scope, as well as global trends in regulated market and potential risks, as well as determined limitations. The majority of the portfolio that is intended for trading comprise bonds of the FBiH Government, i.e. investments in debt securities of the issuers.

Concerning the question on the manner in which the banks were performing identification, measurement, and monitoring of risk, i.e. determination of portfolio quality, three banks from the group of SIBs stated that they were monitoring that through the country rating and the approved limit for total exposure defined in the statements on assuming risk, i.e. identification of risk is performed at the very introduction of the product through the process of introduction of a new product, and in the course of the annual re-assessment of risk, i.e. the tools of the group are used. The risks are measured and monitored on the daily basis, in such a manner that the exposures to market risks are calculated and the control of compliance with limits is performed. In addition, developments of prices in the market are monitored, in addition to potential impacts of significant (stressful) changes onto the portfolios. Four banks from this group of banks have no exposures in the trading book.

In regards to the banks from the group of other banks, and in connection with the manner in which they identify, measure, and monitor risk, five banks from this group stated that they had no exposures in the trading book. The other banks from the aforementioned group monitor changes in the net value of assets on the daily basis and, in compliance with that, provide proposals in connection with the portfolio for trading.

The groups of SIBs and other banks are, on the daily level, performing reporting on market risk on the existing regulatory requirements for exchange rate risk. Banks from the group of SIBs are performing reporting on market risk on the regular periodic basis to the parent group, as well as to the management and supervisory boards of the banks.

The banks from the group of other banks are, on regular periodic basis, reporting to the management and the supervisory board of the banks on the situation relating to the exposure to market risk.

Relating to the issue of information technology support for the management of market risk and trading, all the banks from the group of SIBs stated that they had adequate information technology support in the context of using applicative solutions, i.e. using of different programmes and platforms, such as, for example, Murex, Zeus, SAP, Reuters, Oracle-paris, Reuters for trading, the foreign currency platform for trading 360T etc.

Four banks from the group of other banks stated that they had information technology support in the context of using the modules for importing exchange rate lists, i.e. information technology support that facilitates adequate basis for classification of items in assets, so that it would be possible to prepare reports, as well as simulations and stress tests of various categories of market risk. Four banks from the group of other banks have no adequate information technology support.

Five banks from the group of SIBs are monitoring, on the daily basis, risks that result from market risks in the context of monitoring positions for trading, utilization, breaches of limits, currency positions, and others. One bank from this group stated that currency positions were closed on individual level, i.e. upon individual deals in case of a change in the market exchange rate or on aggregated level in the course of closing of the individual foreign currency position by individual currencies. The risks that result from trading with clients are being monitored on individual level. However, the remaining bank in the group of SIBs stated that it had no exposures in the trading book.

In the group of other banks, three banks stated that they were monitoring that on the daily basis, three banks stated that they had no exposures in the trading book, while the remaining two banks stated that they complied with legally prescribed limits for trading with securities, i.e. internally prescribed limits for exchange rate risk.

From the group of SIBs, four banks responded that there were no breaches of internal limits in the course of the last year, and three banks stated that breaches had occurred. The breaches occurred in the case of the “VaR” limit for the open foreign currency position of the banks, the breach of the “Credit spread” of VaR, and the breach of the limit of investments resulting in losses.

From the group of other banks, six banks reported that there were no breaches of internal limits in the course of the last year, one bank that the breaches had occurred (internal limit for foreign currency position in EUR), while one bank stated that it did not have a trading book.

In the majority of cases, in both the group of SIBs and the group of other banks, the trading deals are being performed in the domestic (Sarajevo and Banja Luka stock exchanges) and international money and capital markets.

In general, the SIBs responded that they were using more complex quantitative and/or analytical methods that the bank was using for identification, measurement, monitoring, and control of market risk. Some of those are: “Monte Carlo simulation” with 10,000 consecutive calculations for the period of holding of 1 day and the level of reliability of 99% (VaR for exchange rate risk, share risk, credit spread risk), the “JPM variance – covariance method” (exchange rate risk), measures of sensitivity with limits for sensitivity, limits for VaR and nominal limits, GAPs, “Credit basis Point value” etc.

The banks from the group of other banks are using, inter alia, the Gap analysis of positions of interest rate risk, simulations / stress tests of more significant changes in the items of assets / liabilities, by calculating the scenarios through the standard method and impact on economic value of capital by applying the rate of +/-2%, etc.

All the banks from the group of SIBs are using derivatives, and, most often, in the form of currency term contracts and currency swaps, while one bank is using interest rate swaps as well.

Other banks are not using any derivative instruments.

Of the seven banks from the group of SIBs, one stated that it was using derivatives as protection. All other banks responded that they did not use them in that context.

Of all the banks from the system in FBiH, only one bank from the group of SIBs stated that in its portfolio for trading it had securities whose issuers were countries from the Euro zone, and, specifically, debt securities issued by governments of Austria and Croatia.

On all other questions in the qualitative part of the QIS, from question No. 4.19 to question No. 4.22, which relate to deals with certain recognized stock exchanges that were not referred to in Attachment III of the draft Decision on Calculation of Capital in Banks, and trading with stocks in investment funds in the last 3 years, share indices in portfolios intended for trading and performing deals fo underwriting in the context of Article 140 of the draft Decision on Calculation of Capital in Banks, all the banks in the banking system in FBiH responded negatively, i.e. that they did not deal with the aforementioned deals and they did not participate in any recognized stock exchanges, apart from those in Attachment III of the draft Decision on Calculation of Capital in Banks, with the exception of one bank from the group of other banks which stated that it had bought stocks in investment funds.

4.6. CONCLUDING CONSIDERATIONS – MARKET RISK SEGMENT

The analysis of data from the segment of market risks, as well as the conclusion that resulted from it, were developed exclusively on the basis of data from the banks that were, as such, submitted to the Agency. The Agency performed logical controls and other appropriate checks of accuracy of submitted information, but because of the fact that it concerned a new regulatory framework and new practices in banks, the focus should not be on quantitative results, but instead the results of this analysis should be used more for information purposes, to create a general picture and improved understanding of the comprehensive impact of the new regulatory framework on the banking system of FBiH.

Currently, the segment of market risks is regulated only in the part of exchange rate risk, specifically through the Decision on Minimum Standards for Exchange Rate Risk of Banks. Mandatory capital requirements for market risks are not prescribed.

Therefore, the impact of new regulations is reflected in the fact that, in contrast to the existing regulations, capital requirements shall be required for all the risks from the segment of market risks, and the total capital requirements shall be increased by the total amount of capital requirements for market risk, which shall be required and calculated by applying the new standards.

- in BAM thousand -

Template	Capital requirement	Amount to exposure to risk
C 18.00 – Position risk, debt instruments	260	2,168
C 21.00 – Position risk, equity instruments	186	1,557
C 22.00 – Exchange rate risk	22,410	186,762
C 23.00 – Commodity risk	0	0
Total	**22,856**	**190,487**

From the results of the QIS there is an evident increase of capital requirements for market risk in the amount of BAM 22,856 thousand. The largest capital requirement concerns exchange rate risk and amounts to BAM 22,410 thousand, i.e. 98% of total capital requirements calculated under the new regulations. On the other hand, no banks are calculating the capital requirements for commodity risk. One should emphasize that in the structure of capital requirements for exchange rate risk, the largest amount concerns the currency of EUR, i.e. the total amount of exposure to exchange rate risk in the banking system in FBiH in EUR amounts to BAM 164,549 thousand. The current position is that, although the banks, in the conditions of functioning of the currency board, are not exposed to the exchange rate risk, they are under obligation to comply with prescribed limitations for each of the currencies, the total currency position, to manage that risk on the daily basis, and to calculate capital requirements.

The results of the QIS have also shown that, if the preliminarily determined limits were applied for the small volume of the trading book, all the banks would calculate the capital requirement in compliance with the part of the draft Decision on Calculation of Capital in Banks that relates to capital requirements for credit risk for their deals from the trading book. In that context, the capital requirement for the position risk of debt securities from C 18.00 Template would equal zero, taking into account that all the instruments listed in the answers of the banks from that template relate to the instruments issued by the issuers that, according to the part of the draft Decision on Calculation of Capital in Banks for the segment of credit risk are classified in the category of exposures to regional governments or local authorities, which the prescribed risk weight of 0%, i.e. the capital requirement equals zero. Concerning the position risk of equity securities from Template 21.00, the capital requirement would remain on approximately the same level, taking into account that, according to submitted data, the issuers of those instruments are legal persons and investment funds that are, according to the part of the draft Decision on Calculation of Capital in Banks, classified for the segment of credit risk into the category of exposure with the risk weight of 100%.

In addition to the impact on the increase in capital requirements, the new regulatory framework envisages additional impact on capital in the context of additional value adjustments being prescribed for all the assets measured at fair value (the banks recorded the amount of BAM 273,646 thousand), which would be recorded as an item deductible from regulatory capital. According to the submitted reports, the capital at the level of the system in FBiH will be reduced by the amount of BAM 274 thousand.

According to the responses submitted from the qualitative part of the QIS, the majority of the banks are not dealing with trading deals, and those banks that are dealing with that have established specialized organizational parts in which identification, monitoring, and management of market risk are being performed, methodologies for monitoring of limits (methodologies of the groups), and identification, measurement, and monitoring of the risk, i.e. determination of the quality of the portfolio, necessary internal enactments (strategies, policies, etc.), i.e. they are managing the market risk in the manner that corresponds to the complexity of the trading activities.

In regards to the issue of exchange rate risk, all the banks are, on the daily basis, monitoring and reporting on exchange rate risk. In addition to that, certain banks are also monitoring on the daily basis other risks that result from market risks, in the context of monitoring the positions for trading, utilization, breaches of limits, etc.

All the banks from the group of SIBs are using derivatives and, most often, in the form of exchange rate term contracts and currency swaps, while the banks from the group of other banks are not using derivative instruments.

In the majority of cases, the banks are performing their trading deals on the domestic (Sarajevo and Banja Luka Stock Exchange) and international money and capital markets.

The results of this analysis presented above, viewed in the context of the introduction of new regulatory requirements in the segment of market risks, point to the general conclusion that the banks are no, to a significant extent, dealing with trading deals, and that they do not intend to do so in the near future (especially in the context of the trading deals with stocks in investment funds, share indices in portfolios intended for trading, and underwriting deals).

5. CONCLUSION

The of the QIS was developed exclusively on the basis of data from the banks that were, as such, submitted to the Agency, which performed logical controls and other appropriate checks of accuracy of submitted information, but because of the fact that it concerned a new regulatory framework and new practices in banks, the focus should not be on quantitative results, but instead the results of this analysis should be used more for information purposes, to create a general picture and improved understanding of the comprehensive impact of the new regulatory framework on the banking system of FBiH.

According to the analysis of data submitted in the QIS, upon applying the alternative of the correction of value or provisioning for credit losses, whichever of the two was higher (alternative 2), the effect of changes in the regulatory capital under the new regulatory framework was a reduction in the regulatory capital in comparison with the existing regulatory framework (net capital) by BAM 67,797 thousand, i.e. by 3.1%.

The effect of reduction is the result of the different methodology for calculation of regulatory capital, as well as the new items for deduction from capital of the bank, as well as of the amount of general reserves for the coverage of credit losses for bank assets assessed as category A – good assets that is not included into the calculation of regulatory capital under the new regulatory framework.

The rate of total capital at the level of the banking system of FBiH would amount to 16.47%, which is, compared to the rate under the existing regulatory framework, higher by 0.30%.

All the banks would meet the rate of regular core capital and the rate of core capital, while two banks would have the rate of total capital lower than 12.0%. The banks that are not systemically important, i.e. the banks with domestic or majority domestic capital and banks that belong into group IV by asset size would have the highest rate of regular core capital, as well as the rate of core, i.e. total capital. One of the banks that is disclosing the rate of total capital below 12% is a SIB, on the basis of a reduction for significant investments in financial sector entities, as well as the disclosed lower amount of general corrections of value for credit risk included in supplemental capital, and, at the same time, the bank had a more conservative approach, and for individual items in assets it used higher weights than the ones prescribed in the draft Decision on Calculation of Capital in Banks.
In addition, the analysis has shown that all the banks would have a buffer for capital preservation, i.e. regulatory capital in the form of regular core capital in the amount of 2.5% of the total amount of risk exposure.

If the banks used only the corrections of value under IAS 39 and provisioning under IAS 37 (alternative 1), the effect would be an increase of regulatory capital by BAM 125,965 thousand, i.e. 5.8%, i.e. the rate of total capital would amount to 17.3%.

In case the banks applied the SA approach to operating risk, the exposure of banks by operating risk would decrease by around 10%.

According to the new regulatory framework (alternative 2), the total amount of exposure is BAM 12,676,693 thousand, wherein the share of exposure to credit risk is 91.25%, the share of exposure to operating risk is 7.25%, while the share of exposure to market risk is 1.50%. The total exposure, according to the new regulatory framework (alternative s) is lower by BAM 714,955 thousand, i.e. by 5.3% compared to the existing regulatory framework, and it is the consequence of the reduction of exposure to credit risk and inclusion of exposure for market risk.

The total risk weighted assets and credit equivalents under alternative 1 would, upon practical application of SA under Basel III decrease from BAM 12,401 million to BAM 12,080 million, i.e. by 3%. In case of alternative No. 2, the total risk weighted assets and credit equivalents would, upon practical application of SA under Basel III decrease from BAM 12,401 million to BAM 11,567 million, i.e. by 7%.

Speaking of both options, in 9 banks the amount of risk weighted assets and credit equivalents was reduced, while in the remaining 6 banks it was increased, which resulted in the reduction of the total risk weighted assets and credit equivalents by the net amount of BAM 321 million (first alternative), i.e. by 834 million (second alternative). The most significant reduction was recorded, primarily, because of the application of the lower risk weights in individual risk categories, especially of the weight of 75%. In addition to the aforementioned, the increase of risk weighted assets was recorded primarily because of the increase of the risk weight from 100% to 150%. It is important to note that the draft Decision on Calculation of Capital in Banks does not envisage the risk weights of 35% and 50% to exposures or parts of exposures that are fully secured with mortgages on residential / commercial real estate, in compliance with the Strategy of the Agency.

The rate of financial leverage of banks included into the analysis of the QIS as of September 30, 2016, amounts to 10.2%, which is above the prescribed minimum both under the existing and under the new regulatory framework.

In the part of the implemented QIS, in the segment of operating risk, an analysis was performed of, primarily, the differences in capital requirements for the calculation of operating risk, by comparing the existing BIA and the SA approach (if the banks opt for transition and the Agency provides consent). The desired effect is to compare to which extent the banks are ready to switch to the SA approach, i.e. to see to which extent the banks would allocate less for capital requirements for the calculation of operating risk in comparison with the existing, BIA approach.

In regards to assessment of operating risk, significant data were acquired on the frequency of harmful events and their significant material effects on the banks, One may conclude that the damages caused by operating risk, in the period under review, had no significant impact on capital requirements for that risk.

One may conclude that, depending on the specific approach in the management of operating risk, the following have the biggest effect on the impact of the indicators: size of the banks, ownership over share capital, development of information management systems, organizational structure, etc. The banks have recognized the need for independent approach to operating risk assessment, i.e. its effects on the capital.

The impact of new regulations from the segment of market risk is reflected in the fact that, in contrast to the existing regulations, capital requirements shall be required for all the risks from the segment of market risks (position, exchange rate, and commodity risk), and therefore the total capital requirements will be increased by the total amount of capital requirements for market risk, which will amount to BAM 22.856 thousand. Based on the results of the QIS there is an evident increase of total capital requirements for market risk in the amount of BAM 22,856 thousand. The largest capital requirement concerns exchange rate risk and amounts to BAM 22,410 thousand, i.e. 98% of total capital requirements calculated under the new regulations. On the other hand, no banks are calculating the capital requirements for commodity risk. One should emphasize that in the structure of capital requirements for exchange rate risk, the largest amount concerns the currency of EUR, i.e. the total amount of exposure to exchange rate risk in the banking system in FBiH in EUR amounts to BAM 164,549 thousand. The current position is that, although the banks, in the conditions of functioning of the currency board, are not exposed to the exchange rate risk, they are under obligation to comply with prescribed limitations for each of the currencies, the total currency position, to manage that risk on the daily basis, and to calculate capital requirements.

The results of the QIS have also shown that, if the preliminarily determined limits were applied for the small volume of the trading book, all the banks would calculate the capital requirement in compliance with the part of the draft Decision on Calculation of Capital in Banks that relates to capital requirements for credit risk for their deals from the trading book.

In that context, the capital requirement for the position risk of debt securities from C 18.00 Template would equal zero, taking into account that all the instruments listed in the answers of the banks from that template relate to the instruments issued by the issuers that, according to the part of the draft Decision on Calculation of Capital in Banks for the segment of credit risk are classified in the category of exposures to regional governments or local authorities, which the prescribed risk weight of 0%, i.e. the capital requirement equals zero. Concerning the position risk of equity securities from Template 21.00, the capital requirement would remain on approximately the same level, taking into account that, according to submitted data, the issuers of those instruments are legal persons and investment funds that are, according to the part of the draft Decision on Calculation of Capital in Banks, classified for the segment of credit risk into the category of exposure with the risk weight of 100%.