

# “Ranking methodology for Islamic banking sectors – modification of the conventional CAMELS method”

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# RANKING METHODOLOGY FOR ISLAMIC BANKING SECTORS – MODIFICATION OF THE CONVENTIONAL CAMELS METHOD

## Abstract

The state of banking systems is an important issue. The purpose of this paper was to test whether the well-known CAMELS microeconomic methodology, generally used for ranking banks, is applicable to evaluating Islamic banking systems. The hypothesis was tested by implementing a method for a particular case, public, free data – from 2013 till the first quarter of 2018 – on Islamic banking systems from the “Islamic Financial Services Board” (IFSB) database. As expected, modifications were necessary. First, because of the lack of data (in Islamic databases, no data refer to the management (“M”)), and second, to avoid the subjectivity of the five-degree method and to reach more sensibility. Thus, a hundred-level (standardized) rating system was introduced – “CAELS 100”, where “100” refers to the levels. The other part of the methodology – creating a simple average of the (now level 100) rating of raw indicators to get the letters of CA(M)ELS in the relevant period – remained unchanged. After the data cleaning, only six countries (Bahrain, Egypt, Kuwait, Oman, Turkey, and the United Arab Emirates) were able to participate in the analysis.

The result showed that Egypt, Turkey and Kuwait were the best ones respectively. Thus, it was concluded that this “CAELS 100” methodology is suitable for evaluating Islamic banking systems.

## Keywords

modified banking evaluation methodology, bank's financial indicators, Islamic finance, Islamic Financial Services Board (IFSB) database

**JEL Classification** G15, G21

## INTRODUCTION

The rating of bank systems is an important issue. There are techniques for that, but most of them were developed for conventional banks and have not been used to rate Islamic bank systems.

The interest-free banking system began about fifty years ago when the first Islamic bank was founded in Dubai in 1975. This type of banking has widely spread to several non-Arabic (Pakistan, Malaysia, Indonesia, Turkey) and even non-Islamic countries like the USA and the UK (Karapinar & Dogan, 2015). One of the largest markets for Islamic finance is in Indonesia. In 1992, Bank Muamalat was established and the government improved banking regulations there.

After the 2008 financial crisis, more attention was paid to Islamic banking, as these banks had almost no ‘toxic’ assets as they run safer operations than conventional banks (Széles, 2015). The research question of this paper is whether the CAMELS microeconomic bank rating methodology is suitable for evaluating Islamic banking systems.

# 1. LITERATURE REVIEW AND ANALYSIS

The topic of Islamic banking is still poorly represented in the European literature. Similarly, in Islam countries, there are few publications referring to “conventional” banking.

Islamic banks must operate under the Islamic principles of Shari’ah rules, paying interest is prohibited. According to Islam, money is just a simple instrument, it has no value by itself. It is merely used to measure the value of things as the principles of the Muslims’ holy book the “Holy Quran” and “Sunnah” tell. Islamic finance emphasizes partnership and cooperation. The institutions, firms, and tools base their operations on interest-free transactions and profit and loss sharing. The parties share the risks, returns, and losses. Tabash and Dhankar (2014) pointed to the double importance of Islamic banking that comes from the remarkable growth and stability during the crises.

The Islamic banking sector is dynamically increasing. The data from the free database of the Islamic Finance Service Board (IFSB) show the growth rate between 2013 and 2018 is about 50%, considering total assets (Table 1). A similar tendency can be found for other indicators in the same table.

CAMELS – the methodology intended to use – was introduced in 1979 by the US banking supervisors to analyze the financial performances of banks. It was adopted by the North America Bank to know the financial and managerial reliability of commercial lending institutions. There are several other techniques for analyzing banks’ performance, but this is the most spread-up one, according to the literature (Baka et al., 2012). It is “a useful tool to examine the safety and soundness of banks, and help mitigate the potential risks, which may lead to bank failures” (Dang, 2011, p. 2) even after the banking crisis (Dang, 2011, p. 16). CAMELS can be used to rank Islamic banks’ performance, as evidenced by several publications on this issue (Kumar & Sayani, 2015; Ledhem & Mekidiche, 2020; Sarker, 2005). CAMELS was applied even to compare conventional and Islamic banks (Rozzani & Rahman, 2013; Kouser et al., 2011). Beck et al. (2012) also analyzed 510 banks from 22 counties, in the time period between 1995 and 2009, containing 88 Islamic banks. They create complex indicators containing indices referring to efficiency, asset quality and stability of a bank (Beck et al., 2012).

CAMELS is a subjective grading method that uses six criteria, the acronym comes from Capital Adequacy, Asset Quality, Management, Earnings, Liquidity, and Sensitivity to Risk. This model as-

**Table 1.** Selected aggregated Islamic financial indicators based on the Islamic Finance Service Board (IFSB) database

Source: PSIFIs countrywise data. Own edition based on IFSB (2019a).

Indicators	Currency	Unit	2013 Q4	2014 Q4	2015 Q4	2016 Q2	2017 Q4	2018 Q1	2018 Q2	2018 Q3	2018 Q4
Total assets	USD	B	1,168	1,282	1,332	1,531	1,684	1,700	1,652	1,692	1,754
Total Shari’ah-compliant financing	USD	B	753	810	854	937	1,021	1,033	1,013	1,028	1,052
Total funding/liabilities	USD	B	1,067	1,181	1,239	1,476	1,626	1,642	1,655	1,689	1,748
Number of Islamic banks	n.a.	G	169	171	175	182	190	190	191	189	189
Number of Islamic banking windows	n.a.	G	83	85	85	83	83	83	82	81	81
Number of branches in Islamic banks	n.a.	T	29	29	30	30	30	30	30	29	30
Number of employees in Islamic banks	n.a.	T	350	365	390	387	389	390	395	391	391

Note: T – thousand, G – general number, B – billions, USD – US dollars, n.a. – not applicable. The aggregated data for total assets (21 countries), total Shari’ah-compliant financing (19 countries), and total funding/liabilities (19 countries) are calculated from available countrywide structural data from Islamic banks and Islamic banking windows of conventional banks, converting into U.S dollar terms, at the end period exchange rates.

sesses the overall condition of a bank, its strengths and weaknesses. The composite ranges of the CAMELS rating system consist of five groups:

- Rating 1 (composite range 1-1.49): is a strong position, good working in every respect, resistance to external economic and financial disturbances, no cause for supervisory concern.
- Rating 2 (composite range 1.5-2.49): shows a satisfactory position, is stable and can withstand business fluctuations well, supervisory concerns are limited to extent that findings are corrected.
- Rating 3 (composite range 2.5-3.49): fair position, financial, operational, or compliance weaknesses ranging from moderately severe to unsatisfactory, easily deteriorates if actions are not effective in correcting weakness.
- Rating 4 (composite range 3.5-4.49): marginal position, the immoderate volume of serious financial weaknesses, without correction, high potential for failure, without correction these conditions could develop further and impair future viability.
- Rating 5 (composite range 4.5-5.00): unsatisfactory position, high immediate or near term probability failure, without immediate corrective actions, liquidation is likely to be lost.

The literature review proved the CAMELS methodology can be implemented for ranking Islamic banking sectors of countries.

## 2. HYPOTHESIS AND METHOD

The hypothesis of this paper is whether the CAMELS method, after modification, fulfils the needs for evaluating Islamic banking systems based on data from the ISFB database.

The methodology for testing the hypothesis will be the implementation of the (modified) method for a particular case. The test data come from the free, public IFSB (Islamic Financial Services Board) database – referring to the time period from 2013 till

the first quarter of 2018. Rating the Islamic banks' systems of the available countries, will be a new – by-product – result.

### 2.1. Relationship between the CAMELS and IFSB indicators

CAMELS has been invented for conventional banks, but the aim of this study is to investigate the systems of Islamic banks. The difficulty occurred because the indicators are not the same in these two banking systems. All indicators of the IFSB database will be presented, but only those that can participate in a CAMELS-type analysis are described in detail. The names of the indices will remain original, thus, the numbering of the indicators in the analysis will not be monotonous (Table 2).

**Capital Adequacy Ratio (C)** measures the safety and stability of banks. The equity capital shows the financial situation of a bank and allows one to write off losses if something goes wrong. CAR determines the ability of a bank to meet the obligation on time and other risks such as credit risk, etc. All core indicators correspond to equivalent IMF Financial Soundness Indicators (FSIs), except for Net Profit Margin and the Cost to Income ratio, which are commonly used banking indicators (IFSB, 2019b).

In most countries, the calculation of the capital adequacy ratio is regulated according to the Basel (I, II and III) recommendations. According to Basel II, the capital covers three types of risk, namely: credit risk (the risk of loss due to a counterparty defaulting on a contract), market risk (the risk of losses on on-and-off-balance sheet positions arising from movements in market prices, interest rates, and exchange rates), and operational risk (the risk of the non-perfect operation of the banking system).

For Capital Adequacy, both indicators are directly proportional (it is denoted by “+” after the short name of the indicator.)

**Asset Quality (A)** is the second area of a CAMELS analysis. Its main area is lending quality. Lending activities are particularly important for banks, so it is essential to analyze the quality of assets in

**Table 2.** Relationship between the CAMELS and IFSB indicators, with denotation of the proportionality

Source: Own edition based on IFSB database and CAMELS method.

CAMELS indicator	IFSB indicator 1	IFSB indicator 2	IFSB indicator 3	IFSB indicator 4
Capital adequacy (C)	CP01a + CAR Total regulatory capital Risk-weighted assets (RWA)	CP02a + Tier 1 capital to RWA Tier 1 capital RWA	–	–
Asset Quality (A)	CP04 - Gross nonperforming financing (gross NPF) ratio Gross NPF Total financing	CP05 – Net nonperforming financing (net NPF) to capital Net NPF Total regulatory capital	CP06 - Provisions for gross nonperforming financing (gross NPF) Provisions Gross NPF	–
Management (M)	–	–	–	–
Earnings (E)	CP07 + Return on assets (ROA) Net income (before extraordinary items, taxes, and Zakat) Total assets	CP08 + Return on equity (ROE) Net income (before extraordinary items, taxes, and Zakat) Equity	CP09 + Net profit margin Net income (before extraordinary items, taxes, and Zakat) Gross income	CP10 – Cost to income Operating costs Gross income
Liquidity (L)	CP13 + Liquid assets ratio Liquid assets Total assets	CP14 Liquid assets to short-term liabilities Liquid assets Short time liabilities	–	–
Sensitivity to risk (S)	CP17 - Net foreign exchange open position to capital Net FX open position Total regulatory capital	–	–	–

terms of a bank's successful operation and efficiency. Classified loans, especially non-performing loans (NPL), indicators in conventional banks, and non-performing financing (NPF) are mainly analyzed in Islamic banks. The NPL ratio provides information about the level of non-performing loans in the total loan portfolio. Non-performing assets are usually bad debts that are in default or near to be in default.

All Asset Quality (A) indicators are inversely proportional – denoted by “-” after the short name of the indicator.

The evaluation of the *Management (M)* for conventional banks is mainly based on the share price and the income-cost ratio of the relevant bank. Theoretically, it is possible to collect this information for every bank and take part in the analysis. However, given the bank systems of countries, this technique is impractical, unachievable due to the huge number of banks and the predicted lack of data.

In the IFSB database, there is no official indicator referring to Management. A possible methodological explanation can be the following. The role

of the management and the attitude of customers, owners – there are many governments owned, supported banks – is different in Islamic banks. Also, the share price consideration (inter alia because of religious causes) is also different in Islam. This way, the performance of management in the two banking systems is really incomparable.

Some information about the management is involved in other indicators, like capital adequacy and earnings. Thus, even if letter M is avoided, the ranking is based on the performance of the management as well.

*Earnings (E)* is necessary for banks to generate sufficient earnings to stay in the market for a longer period. The profitability indicator refers to the management effectiveness. Return on Equity (ROE) shows how equity produces profit. It shows the efficiency, profitability of a bank, how efficiently the bank uses its capital. Return on Assets (ROA) gives information about a bank's assets. ROA avoids the volatility of earnings linked with unusual items and measures the bank's profitability.

The Net profit margin is equal to a bank's total interest income minus total interest expenses. The



cost-to-income ratio is calculated by dividing the operating expenses by the operating income generated i.e. net interest income plus the other income. Three indices of Earnings are direct till the third one inverse proportional, as the lower the cost to income index, the better the operational efficiency of the bank.

**Liquidity (L)** is the ability of a firm to convert its financial assets into cash most rapidly or in quick succession. The indicators in the group of liquidity answer the question of how much a bank can fulfill its short-term liabilities using its current assets. The liquidity indicator shows how fast a bank's financial instruments can be converted to cash without losses. The liquidity indicators give information to what extent it can meet its short-term liabilities with short-term assets. The higher the index value, the more liquid a bank can be considered. The liquidity rate was counted by using cash, central bank deposits, loans to other banks, and the sum of securities compared to the balance sheet total. There is not enough information on the indicators of the new Basel III system, LCR (liquidity coverage ratio), and NSFR (Net stable funding ratio) for the relevant period of 2013–2018. Both liquidity indicators are directly proportional, since the growth of liquidity means an upward trend.

**Sensitivity to risk (S)** consists of the interest, operational and financial risks, like changes in interest rates, foreign exchange rates, and prices. It affects a bank's earnings. Of course, in the case of Islamic banks, there is no interest risk. In the IFSB database, there are three indicators for this field. CP17 refers to the Net foreign exchange open position to capital (see below). CP18 refers to the "Large exposures to capital" and CP19 for the Growth of financing to the private sector for sensitivity to risk. Due to the lack of data, the last two had to be deleted and only the first CP17 remained. This index is inversely proportional, since the lower it is, the better the bank's position.

## 2.2. CAELS 100 new methodology

At the beginning of the study, it became obvious that the original CAMELS methodology should be modified and somehow improved for the following reasons. First, there were no data for the

performance of the management in the IFSB database – thus, the "letter M" had to be left out, as was explained earlier. The second reason was the lack of sensibility, the third one – the method allows subjectivity. The last reason is a well-known property of the CAMELS analysis, which might be an advantage, if the evaluator wants to add some subjectivity, but a disadvantage when objectivity is the target of research. Given the proportionality of the criteria, a hundred-level evaluation was introduced that can be considered ratio (percentage, %) or standardization. It avoided the subjectivity and solved the lack of sensitivity problem. If a variable is directly proportional, the maximum got 100, the minimum 0, and vice-versa – if inverse proportional, the minimum got 100 and the maximum 0, or the composite indicators were the simple mathematical average of these standardized values created. To handle the remaining lack of data situation, "values of the letters" were created using the adaptive average technique. Available data were used and the missing ones were left out in the average construction – without any weight, simple mathematical average. For example, letter C (for Capital) is a simple mathematical average of CP01, CP02, and CP03 indicators (later, the indicator CP03 will be left because of the lack of data).

After having the CAELS average, the ranking of countries can be created, since it is part of the original CAMELS methodology.

The free of charge database of IFSB (Islamic Financial Services Board) was used for the investigation. That is an available comprehensive systematic collection of the Islamic banking data. The focus of the study was only on the countries with the Islamic banking systems, not on the Islamic windows. There were fifteen countries involved in the analysis: Bahrain, Brunei, Egypt, Indonesia, Iran, Jordan, Kuwait, Lebanon, Malaysia, Nigeria, Oman, Pakistan, Sudan, Turkey, and the United Arab Emirates. Due to the lack of data, it was necessary to delete not only some main or sub-indicators, but also some countries.

The database had 19 available indicators. The time series started with the average for 2013, continued quarterly until the first quarter of 2018, which amounted to 18 time-series data.

The original three-dimensional data cube contained  $19 \times 15 \times 18$  data (19 indicators, for 15 countries for 18 time periods). Two of them – CP11 (Capital to assets (balance sheet definition), Tier 1 capital, Total assets) and CP12 (Leverage (regulatory definition), Tier 1 capital, Exposure) – related to the leverage of the banking system and were not part of the CAMELS methodology, thus they were omitted first. Five additional indicators had to be omitted because of the lack of huge amount of data:

- indicator CP3 “Common Equity Tier 1 (CET1) capital to RWA”;
- indicator CP15 “Liquidity coverage ratio (LCR)”;
- indicator CP16 “Net stable funding ratio (NSFR)”;
- indicator CP18 “Large exposures to capital”;
- indicator CP1. “Large exposures to capital”.

LCR and NSFR have recently required indicators by the Basel III system, so it is obvious that there was no data for them.

In the raw data table of the CAELS 100 analysis (Tables A1–A6 in the Appendix), the names of indicators remained the same and were used in the IFSB database. Thus, one can relate it easily to the original IFSB data columns.

Fortunately, the withdrawal of these five indicators from the analysis did not make significant difficulty, as the technique of creating the “letter average” only from the available ones was implemented. In every group, at least one sub-indicator remained.

In the IFSB database, there was relevant data for 15 countries for 2013–2018 Q1 for Bahrain, Brunei, Egypt, Indonesia, Iran, Jordan, Kuwait, Lebanon, Malaysia, Nigeria, Oman, Pakistan, Sudan, Turkey, and the United Arab Emirates. Unfortunately, some countries had to be deleted because of two reasons. First, the lack of data occurred in the case of Iran, Jordan, and Nigeria. Second, the hazardous situation of the countries, like war. During this

period, there was a war in Lebanon. In addition, there were some doubts about comparability in the case of Sudan, since the country split up during that period. Iran was considered the biggest loss, as it plays an important role in the Islamic world with its purely Islamic banking system. Unfortunately, there could be no other additional data – this IFSB structure – obtained from other sources, so deleting data was the only solution.

After omitting the indicators and countries, there was even some particular lack of data, which are listed with the methodology for processing them below. The cleaned data are in Tables A1–A6 of the Appendix. The CAELS raw data of six countries are listed, with the original numbering from the IFSB database also with the proportionality of the variable (“+” or “–” directly or indirectly proportional). The CAELS averages were added as a new column (Remark: as only one variable refers to sensitivity, it is titled with S average as well – instead of duplicating the column). Into the row of proportionality in the average columns, there are “N.A.” written, as the proportionality was not applied for these variables. If for a certain average all of the raw variables taking part in the average are with the same proportionality, the relevant sign (“+” or “–”) appears in brackets, just as information not used for anything. The cells of the missing date remained empty, and the averages were created without them. The details of the implemented techniques are below:

- In the case of Bahrain, there was no data available for the Net foreign exchange open position to capital in the Sensitivity to Risks group. It was handled by creating the CAELS average from 5 criteria instead of 6.
- Also for Bahrain, the total column of CP14 “Liquid assets to short-term liabilities” was practically absent. For such cases, the CP13 Liquid assets ratio made the average of “L”. For the period of 2017Q4, the situation changed. There were data for CP14, but CP13 was missing. The creation of “L” has always been consistent with data availability.
- In the case of Egypt, there is no data for CP5 “Net non-performing financing (net NPF) to capital”, so the average of the two remaining asset quality indicators has to be created.

- In the case of Egypt, CP14 “Liquid assets to short-term liabilities” has no value, the average for “L” was created based on CP13.
- For Oman, six data were missing for column CP06. For these time periods, an average was generated without these values.

### 3. RESULTS

Time averages of CAELS 100 indices are presented in Table 3. Based on them, a ranking of countries can be compiled. It is in the last column.

Looking at Table 3, one can say that in terms of the Capital adequacy ratio (C), the average values of countries are close to each other, with a minimum value of 3.4% and a maximum value of 12.4%, ex-

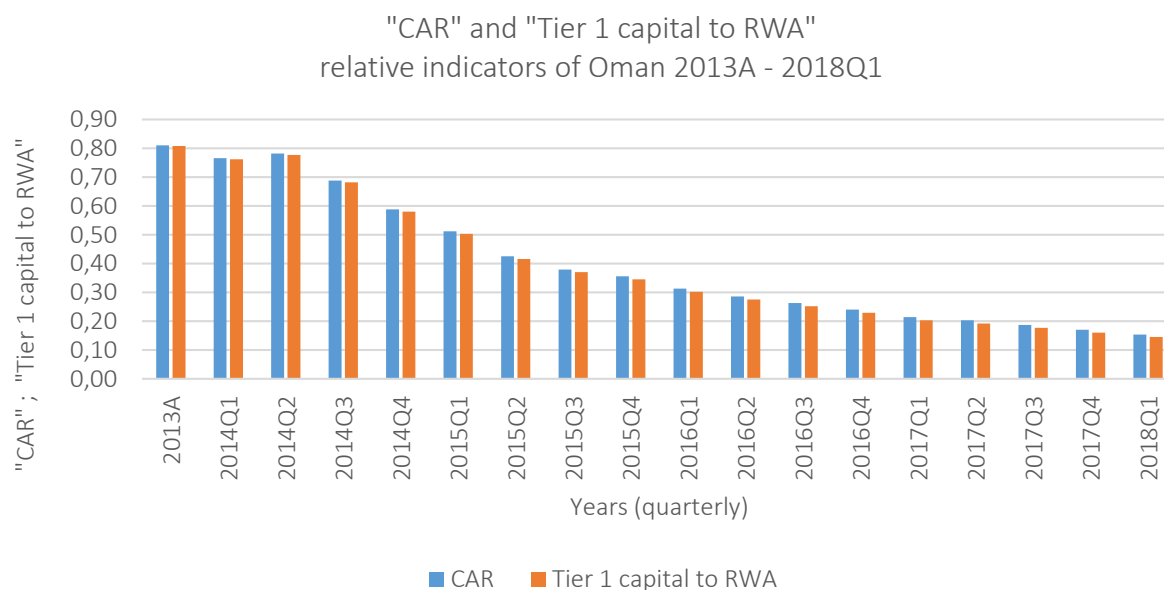
cept for Oman that differs with a value of 43.2 %. Despite the stability of a banking system, which is an important issue, this extremely high value refers to a very low risk-taking of banks in Oman. Looking beyond this fact, investigation of the original time series data of the indicators (CAR and Tier 1 capital to RWA) and also constructing the graph for them are needed (Figure 1). It was found, that the original indicators used were extremely high at the beginning of the period (81%), and it reached a value of 15%, which is a common value in other countries. The maximum values of other countries are 22% and 21%, the minimal are 11% and 7% for CAR and Tier 1 capital to RWA, respectively. The variance of these indicators for Oman is bigger than 22%, while the others are smaller than 2%. To sum up, the high average for Oman is due to the high value in the past, now they have reduced their CAR and Tier indicators to the general level for the region.

**Table 3.** CAELS 100 results and ranking of the six countries studied

Source: Own calculation based on the IFSB database.

Countries	C	A	E	L	S	Average	Ranking
Bahrain	12.39%	48.75%	52.95%	16.27%	–	32.59%	6
Egypt	3.43%	70.42%	71.37%	53.28%	92.60%	58.22%	1
Kuwait	11.09%	70.09%	55.21%	21.31%	88.95%	49.33%	3
Oman	43.19%	89.25%	33.14%	17.11%	53.20%	47.18%	4
Turkey	6.11%	57.85%	54.75%	35.05%	93.64%	49.48%	2
United Arab Emirates	9.99%	53.97%	54.37%	7.12%	47.53%	34.60%	5

Source: Own calculation based on the IFSB data.



**Figure 1.** Capital adequacy indicators: CAR (dark) and Tier 1 capital to RWA (grey) for Oman from 2013A to 2018Q1



In contrast to the capital adequacy ratio, there is a significant data dispersion in the asset quality, profitability and liquidity indicators. In terms of asset quality, Oman also plays a leading role with the best value (89.25%). It is followed by Egypt and Kuwait, with a score of about 70%, while the remaining three countries are below 58% (Remark: these values are scores on the 100-level ranking system, not the original values of the indices).

With regard to profitability, Egypt is the first and Oman is the last. It is not surprising, since Oman operated in the most risk-avoiding way, more than enough secure, thus, the country has the weakest profitable banking system. The performance of other four countries is very close to each other, from 53% to 55%, they produced almost the same relative profitability.

As for liquidity, Egypt leads the field with 53.28%, Turkey follows with 35.05%, and Kuwait, Oman, and Bahrain are in the middle, 16% – 21.5%. The worst liquidity situation is in the United Arab Emirates with a 7.1% relative value.

For the last value, which refers to Sensitivity, a two-fold situation occurred. While the United Arab Emirates has 34.6% and Oman has 53.2% –

they are at the bottom of the ranking – the other four countries have rather high points in the range of 88%-94%.

Figure 2 shows the CAELS based performance of the countries of the Islamic bank sector (There is no value for variable “S” for Bahrain, so the line is above the letter L).

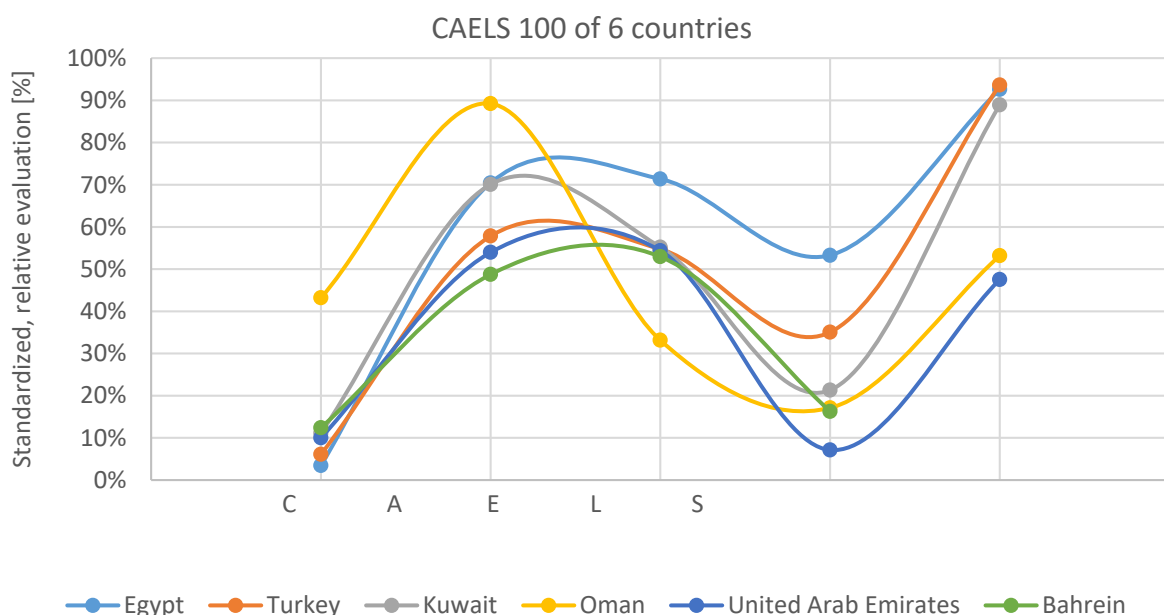
Figure 2 better shows how countries' scores match and how close – even the most sensitive CAELS 100 indices. This fact will form the basis of the grouping.

## 4. DISCUSSION

The final result of the CAELS 100 new method can be seen in Table 3. In the before the last column, one can find the standardized average for the period 2013–2018, on the basis of which the countries are ranked. Based on this result, four groups can be created, as some of the points are very close to each other. This means that the performance of the banking system is nearly at the same level:

- Egypt entered the first “group”, ranking first with an average relative score of 58.22%.

Source: Own calculation based on the IFSB data.



**Figure 2.** CAELS 100 results for the six countries investigated for the period 2013A–2018Q4

- The second group is made up of Turkey, Kuwait, and Oman with scores of 49.48%, 49.33% and 47.18%, respectively.
- The third group includes the United Arab Emirates and Bahrain with the averages of 34.6% and 32.59%.

Egypt is the first in three variables: “A”, “E”, and “L”. It ranks second in terms of “S” (Sensitivity to risk) just one relative point than Turkey. But Egypt is the last in the indicator of “C” (Capital adequacy), which indicates stability or risk-taking by banks. It can be stated that Egyptian banks are taking risks and are successfully coping with this, given this time period. Their

success is evidenced by the high values of other indicators.

Perhaps a more detailed investigation into the reasons for the Islamic bank system’s particular performance will be carried out, but apart from the page limit, the authors do not consider themselves empowered to analyze the detailed banking and economic policies of these countries.

In summary, it can be said that the hypothesis – CAMELS can be used to rank Islamic bank systems of countries – can be accepted, with the remark that methodology modification is needed, for example, deleting the “letter M” refers to management and creating a 100-level evaluation.

## CONCLUSION

Evaluation and comparison of banking systems is an important issue not only for conventional but also for Islamic banks. In the banking analysis literature, the use of the microeconomic CAMELS methodology is very common to evaluate banks. In this paper, this way was not used, but CAMELS was implemented at the macro level for the aggregated indices of countries with Islamic banking systems. This idea with a hundred-level evaluation and the interpretation of the management indicator make this publication a novelty, uniqueness.

Hypothesis testing based on free access data, IFSB data, contains aggregated data of Islamic bank sectors of countries.

The conclusion from this study is that CAMELS – after some modification – can be applied to rank Islamic bank sectors. The modified technique can be called “CAELS 100” because the letter “M”, an indicator referring to management, had to be deleted, since there was no data for it in the IFSB database. The name “100” refers to the level of grading. It is much more sensitive than five grades of the original CAMELS methodology. These were the novelties in the methodology.

As an additional conclusion of this study, a ranking of selected Islamic banking systems was compiled. The selection was based on data availability.

Egypt has the best Islamic banking system. The medium level: Turkey, Kuwait, and Oman, and the worst of all is in the United Arab Emirates and Bahrain. These groups were created because the indices – despite this more sensitive methodology – were very close to each other. The ranking of Islamic banking sectors of these countries for the period 2013–2018 is also a novelty of this publication.

## AUTHOR CONTRIBUTIONS

Conceptualization: József Varga.

Data curation: Gyöngyi Bánkuti, József Varga.

Formal analysis: Gyöngyi Bánkuti, József Varga.

Investigation: Gyöngyi Bánkuti.

Methodology: Gyöngyi Bánkuti, József Varga.

Software: Gyöngyi Bánkúti.

Supervision: József Varga.

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# APPENDIX A

**Table A1.** Standard CAELS data of Bahrain

Source: Own calculation based on IFSB database.

Country	Year	Capital adequacy			Asset quality				Earnings					Liquidity			Sensitivity to risks S average
		CAR	Tier 1 capital to RWA	C average	Gross non-performing financing ratio	Net non-performing financing to capital	Provisions for gross non-performing financing	A average	Return on assets (ROA)	Return on equity (ROE)	Net profit margin	Cost to income	E average	Liquid asset ratio	Liquid assets to short-term liabilities	L average	Net foreign exchange open position to capital
		CP01	CP02		CP04	CP05	CP06		CP07	CP08	CP09	CP10		CP13	CP14		CP17
+ Directly – Inverse	Proportional	“+”	“+”	N.A. (+)	“–”	“–”	“–”	N.A. (–)	“+”	“+”	“+”	“–”	N.A.	“+”	“+”	N.A. (+)	“–”
Bahrain	2013A	0.1525	0.1766	0.1646	0.2958	0.3171	0.8487	0.4872	0.1526	0.2019	0.9006	0.8637	0.5297	0.1964	–	0.1964	–
	2014Q1	0.1467	0.1709	0.1588	0.2660	0.3330	0.8065	0.4685	0.1553	0.2463	0.9010	0.8642	0.5417	0.1931	–	0.1931	–
	2014Q2	0.1361	0.1610	0.1486	0.1898	0.1841	0.8355	0.4031	0.1549	0.2444	0.9029	0.8660	0.5420	0.1953	–	0.1953	–
	2014Q3	0.1331	0.1584	0.1457	0.2294	0.2412	0.8228	0.4311	0.1500	0.2289	0.8935	0.8568	0.5323	0.1935	–	0.1935	–
	2014Q4	0.1382	0.1640	0.1511	0.4365	0.6784	0.6103	0.5751	0.1531	0.2435	0.8833	0.3945	0.4186	0.1877	–	0.1877	–
	2015Q1	0.1006	0.1342	0.1174	0.3423	0.4441	0.7939	0.5268	0.1534	0.2258	0.8997	0.8629	0.5355	0.1636	–	0.1636	–
	2015Q2	0.0876	0.1228	0.1052	0.3435	0.4150	0.8318	0.5301	0.1444	0.1870	0.8706	0.8342	0.5090	0.1721	–	0.1721	–
	2015Q3	0.0904	0.1258	0.1081	0.3198	0.3668	0.8305	0.5057	0.1543	0.2329	0.9143	0.8773	0.5447	0.1547	–	0.1547	–
	2015Q4	0.1009	0.1323	0.1166	0.2853	0.3557	0.8119	0.4843	0.1445	0.1897	0.8564	0.8202	0.5027	0.1544	–	0.1544	–
	2016Q1	0.0890	0.1223	0.1057	0.2596	0.2734	0.7866	0.4398	0.1393	0.1621	0.8496	0.8135	0.4911	0.1404	–	0.1404	–
	2016Q2	0.0831	0.1148	0.0990	0.2543	0.1737	0.8566	0.4282	0.1547	0.2428	0.9012	0.8643	0.5407	0.1366	–	0.1366	–
	2016Q3	0.0994	0.1296	0.1145	0.3267	0.2325	0.8546	0.4713	0.1419	0.1791	0.8673	0.8309	0.5048	0.1531	–	0.1531	–
	2016Q4	0.0961	0.1285	0.1123	0.3585	0.2882	0.8238	0.4902	0.1073	0.0144	0.7380	0.7037	0.3908	0.1486	–	0.1486	–
	2017Q1	0.0938	0.1276	0.1107	0.4594	0.3128	0.8080	0.5268	0.1450	0.1987	0.8731	0.8367	0.5134	0.1731	–	0.1731	–
	2017Q2	0.1108	0.1447	0.1278	0.4889	0.3626	0.7941	0.5485	0.1693	0.3158	0.8787	0.8422	0.5515	0.1889	–	0.1889	–
	2017Q3	0.1031	0.1330	0.1180	0.4688	0.3875	0.7496	0.5353	0.1927	0.4435	0.8816	0.8450	0.5907	0.1815	–	0.1815	–
	2017Q4	0.1000	0.1290	0.1145	0.0000	0.2698	1.0000	0.4233	1.0000	0.1579	0.8906	0.9741	0.7556	–	0.0129	0.0129	–
	2018Q1	0.0989	0.1234	0.1111	0.4303	0.2438	0.8240	0.4994	0.1526	0.2464	0.8927	0.8560	0.5369	0.1836	–	0.1836	–

**Table A2.** Standard CAELS data of Egypt

Source: Own calculation based on IFSB database.

Country	Year	Capital adequacy			Asset quality				Earnings					Liquidity			Sensitivity to risks S average
		CAR	Tier 1 capital to RWA	C coverage	Gross non-performing financing ratio	Net non-performing financing to capital	Provisions for gross non-performing financing	A average	Return on assets (ROA)	Return on equity (ROE)	Net profit margin	Cost to income	E average	Liquid asset ratio	Liquid assets to short-term liabilities	L average	Net foreign exchange open position to capital
		CP01	CP02		CP04	CP05	CP05		CP07	CP08	CP09	CP10		CP13	CP14		CP17
+ Directly – Inverse	Proportional	“+”	“+”	N.A. (+)	“_”	“_”	“_”	N.A. (–)	“+”	“+”	“+”	“_”	N.A.	“+”	“+”	N.A. (+)	“_”
Egypt	2013A	0.0414	0.0485	0.0450	0.3415	–	0.4906	0.4161	0.1666	0.6155	0.9409	0.9445	0.6669	0.9392	–	0.9392	0.9186
	2014Q1	0.0309	0.0376	0.0343	0.3197	–	0.5254	0.4226	0.1666	0.6155	0.9590	0.9491	0.6726	0.9654	–	0.9654	0.9399
	2014Q2	0.0290	0.0354	0.0322	0.4231	–	0.5177	0.4704	0.1666	0.6155	0.9602	0.9503	0.6731	0.9546	–	0.9546	0.9419
	2014Q3	0.0296	0.0363	0.0329	0.4721	–	0.5067	0.4894	0.1666	0.6155	0.9599	0.9485	0.6726	0.9577	–	0.9577	0.9419
	2014Q4	0.0385	0.0459	0.0422	0.5592	–	0.4912	0.5252	0.1753	0.6873	0.9610	0.9523	0.6940	0.9161	–	0.9161	0.9148
	2015Q1	0.0287	0.0403	0.0345	0.5374	–	0.5080	0.5227	0.1753	0.6873	0.9610	0.9540	0.6944	0.9253	–	0.9253	0.9380
	2015Q2	0.0283	0.0408	0.0345	0.5483	–	0.5041	0.5262	0.1753	0.6873	0.9610	0.9566	0.6951	0.9376	–	0.9376	0.9303
	2015Q3	0.0296	0.0427	0.0361	0.5701	–	0.4958	0.5329	0.1753	0.6873	0.9610	0.9554	0.6948	0.9623	–	0.9623	0.9283
	2015Q4	0.0325	0.0481	0.0403	0.5412	–	0.5271	0.5342	0.1774	0.7141	0.9613	0.9554	0.7021	0.9577	–	0.9577	0.9303
	2016Q1	0.0254	0.0409	0.0332	0.5848	–	0.4921	0.5385	0.1774	0.7141	0.9613	0.9692	0.7055	0.9654	–	0.9654	0.9303
	2016Q2	0.0306	0.0468	0.0387	0.6114	–	0.4983	0.5549	0.1774	0.7141	0.9613	0.9626	0.7039	0.9584	–	0.9584	0.9214
	2016Q3	0.0364	0.0496	0.0430	0.6038	–	0.5216	0.5627	0.1774	0.7141	0.9613	0.9658	0.7047	0.9652	–	0.9652	0.8869
	2016Q4	0.0000	0.0000	0.0000	0.6016	–	0.5720	0.5868	0.2017	1.0000	1.0000	0.9828	0.7961	0.9441	–	0.9441	0.8684
	2017Q1	0.0121	0.0153	0.0137	0.6174	–	0.5754	0.5964	0.2017	1.0000	1.0000	0.9705	0.7930	0.9460	–	0.9460	0.9018
	2017Q2	0.0193	0.0229	0.0211	0.6103	–	0.5454	0.5779	0.2017	1.0000	1.0000	0.9599	0.7904	0.9617	–	0.9617	0.9436
	2017Q3	0.0397	0.0367	0.0382	0.5821	–	0.5008	0.5414	0.2017	1.0000	1.0000	0.9489	0.7876	0.9817	–	0.9817	0.9395
	2017Q4	0.0464	0.0438	0.0451	0.6060	–	0.4639	0.5350	0.1839	0.6803	0.9678	0.9643	0.6991	0.9711	–	0.9711	0.9457
	2018Q1	0.0516	0.0518	0.0517	0.6550	–	0.4727	0.5638	0.1839	0.6803	0.9678	0.9701	0.7005	1.0000	–	1.0000	0.9461



Table A3. Standard CAELS data of Kuwait

Source: Own calculation based on IFSB database.

Country	Year	Capital adequacy			Asset quality				Earnings					Liquidity			Sensitivity to Risks
		CAR	Tier 1 capital to RWA	C average	Gross non-performing financing ratio	Net non-performing financing to capital	Provisions for gross non-performing financing	A average	Return on assets (ROA)	Return on equity (ROE)	Net profit margin	Cost to income	E average	Liquid asset ratio	Liquid assets to short-term liabilities	L average	Net foreign exchange position to open position to capital
		CP01	CP02		CP04	CP05	CP06		CP07	CP08	CP09	CP10		CP13	CP14		CP17
+ Directly – Inverse	Proportional	“+”	“+”	N.A. (+)	“–”	“–”	“–”	N.A. (–)	“+”	“+”	“+”	“–”	N.A.	“+”	“+”	N.A. (+)	“–”
Kuwait	2013A	0.1118	0.1562	0.1340	0.7823	0.6235	0.5853	0.6637	0.1471	0.2183	0.8387	0.9040	0.5270	0.3079	0.0270	0.1675	0.8935
	2014Q1	0.1018	0.1480	0.1249	0.7605	0.4647	0.6388	0.6213	0.1493	0.2310	0.8562	0.8942	0.5327	0.4296	0.0356	0.2326	0.9225
	2014Q2	0.1018	0.1480	0.1249	0.7823	0.5235	0.6149	0.6403	0.1493	0.2282	0.8580	0.9210	0.5391	0.4172	0.0335	0.2254	0.8974
	2014Q3	0.1061	0.1508	0.1284	0.8041	0.6588	0.5608	0.6746	0.1471	0.2197	0.8498	0.9051	0.5304	0.4018	0.0328	0.2173	0.8954
	2014Q4	0.0859	0.1167	0.1013	0.8095	0.6412	0.5750	0.6752	0.1580	0.2859	0.8609	1.0000	0.5762	0.4634	0.0362	0.2498	0.8761
	2015Q1	0.0845	0.1167	0.1006	0.8204	0.6882	0.5525	0.6870	0.1515	0.2479	0.8656	0.9279	0.5482	0.4742	0.0384	0.2563	0.8858
	2015Q2	0.0744	0.1071	0.0908	0.8204	0.6412	0.5737	0.6784	0.1515	0.2394	0.8658	0.9448	0.5504	0.4003	0.0319	0.2161	0.8993
	2015Q3	0.0701	0.1031	0.0866	0.8150	0.6588	0.5621	0.6786	0.1536	0.2549	0.8720	0.9428	0.5558	0.3972	0.0334	0.2153	0.8858
	2015Q4	0.0831	0.1180	0.1006	0.8639	0.8000	0.5022	0.7220	0.1536	0.2549	0.8533	0.9623	0.5560	0.3972	0.0312	0.2142	0.8858
	2016Q1	0.0859	0.1167	0.1013	0.8639	0.8059	0.4945	0.7214	0.1493	0.2408	0.8632	0.9296	0.5457	0.4203	0.0330	0.2267	0.9186
	2016Q2	0.0946	0.1235	0.1090	0.8639	0.7941	0.5048	0.7209	0.1493	0.2380	0.8583	0.9520	0.5494	0.4157	0.0329	0.2243	0.8974
	2016Q3	0.0931	0.1221	0.1076	0.8803	0.9941	0.3444	0.7396	0.1536	0.2606	0.8720	0.9635	0.5624	0.3772	0.0304	0.2038	0.9051
	2016Q4	0.1046	0.1330	0.1188	0.8803	1.0000	0.3315	0.7373	0.1450	0.2127	0.8492	0.9641	0.5427	0.3418	0.0280	0.1849	0.8896
	2017Q1	0.1075	0.1358	0.1216	0.8694	0.9000	0.4242	0.7312	0.1536	0.2606	0.8729	0.9623	0.5623	0.3941	0.0316	0.2129	0.9032
	2017Q2	0.1003	0.1290	0.1146	0.8694	0.9353	0.3953	0.7333	0.1536	0.2577	0.8696	0.9623	0.5608	0.3757	0.0310	0.2034	0.8529
	2017Q3	0.0946	0.1221	0.1084	0.8585	0.8706	0.4455	0.7249	0.1558	0.2803	0.8740	0.9692	0.5698	0.3526	0.0285	0.1906	0.8239
	2017Q4	0.1005	0.1287	0.1146	0.8817	0.8974	0.4254	0.7349	0.1538	0.2644	0.8655	0.9622	0.5614	0.3575	0.0299	0.1937	0.8852
	2018Q1	0.0941	0.1229	0.1085	0.8788	0.8512	0.4664	0.7321	0.1556	0.2767	0.8733	0.9636	0.5673	0.3736	0.0304	0.2020	0.8744

**Table A4.** Standard CAELS data of Oman

Source: Own calculation based on IFSB database.

Country	Year	Capital adequacy			Asset quality				Earnings					Liquidity			Sensitivity to Risks
		CAR	Tier 1 capital to RWA	C average	Gross non-performing financing ratio	Net non-performing financing to capital	Provisions for gross non-performing financing	A average	Return on assets (ROA)	Return on equity (ROE)	Net profit margin	Cost to income	E average	Liquid asset ratio	Liquid assets to short-term liabilities	L average	Net foreign exchange open position to capital
		CP01	CP02		CP04	CP05	CP65		CP07	CP08	CP09	CP10		CP13	CP14		CP17
<b>+ Directly – Inverse</b>	Proportional	“+”	“+”	N.A. (+)	“–”	“–”	“–”	N.A. (–)	“+”	“+”	“+”	“–”	N.A.	“+”	“+”	N.A. (+)	“–”
<b>Oman</b>	2013A	1.0000	1.0000	1.0000	1.0000	0.8941	–	0.9471	0.0000	0.0000	0.0000	0.0000	0.0000	0.5851	1.0000	0.7925	0.0000
	2014Q1	0.9368	0.9373	0.9370	1.0000	0.8941	–	0.9471	0.0216	0.0127	0.2552	0.2544	0.1360	0.8406	0.3149	0.5778	0.3887
	2014Q2	0.9598	0.9577	0.9588	1.0000	0.8941	–	0.9471	0.0281	0.0113	0.2982	0.2826	0.1550	0.7406	0.3392	0.5399	0.4061
	2014Q3	0.8247	0.8282	0.8265	1.0000	0.8941	–	0.9471	0.0238	0.0014	0.3025	0.3041	0.1580	0.4850	0.1986	0.3418	0.2340
	2014Q4	0.6809	0.6892	0.6851	0.9984	0.8929	0.9248	0.9387	0.0368	0.0085	0.4132	0.4176	0.2190	0.2879	0.1723	0.2301	0.6150
	2015Q1	0.5717	0.5842	0.5780	1.0000	0.8941	–	0.9471	0.0498	0.0127	0.5014	0.5389	0.2757	0.0708	0.0226	0.0467	0.6924
	2015Q2	0.4467	0.4656	0.4562	1.0000	0.8941	–	0.9471	0.0606	0.0141	0.5405	0.5565	0.2929	0.1663	0.0302	0.0983	0.6750
	2015Q3	0.3806	0.4029	0.3918	0.9984	0.8918	0.9171	0.9357	0.0887	0.0437	0.6731	0.6838	0.3723	0.1416	0.0302	0.0859	0.7485
	2015Q4	0.3475	0.3689	0.3582	0.9984	0.8941	0.4655	0.7860	0.0887	0.0394	0.6676	0.7031	0.3747	0.0631	0.0204	0.0418	0.8065
	2016Q1	0.2857	0.3103	0.2980	0.9984	0.8918	0.4268	0.7723	0.0995	0.0521	0.7055	0.7169	0.3935	0.0446	0.0195	0.0321	0.5937
	2016Q2	0.2469	0.2734	0.2602	0.9962	0.8882	0.7431	0.8759	0.1104	0.0704	0.7473	0.7488	0.4192	0.0169	0.0129	0.0149	0.5280
	2016Q3	0.2139	0.2421	0.2280	0.9935	0.8782	0.8965	0.9227	0.1125	0.0690	0.7473	0.7473	0.4190	0.0724	0.0182	0.0453	0.4835
	2016Q4	0.1808	0.2107	0.1958	0.9940	0.8782	0.8978	0.9233	0.1168	0.0789	0.7633	0.7583	0.4293	0.0801	0.0200	0.0500	0.4932
	2017Q1	0.1434	0.1753	0.1594	0.9940	0.8753	0.8952	0.9215	0.1190	0.0803	0.7695	0.7893	0.4395	0.1001	0.0205	0.0603	0.7001
	2017Q2	0.1276	0.1603	0.1440	0.9940	0.8741	0.8939	0.9207	0.1212	0.0901	0.7826	0.7744	0.4421	0.0616	0.0172	0.0394	0.5570
	2017Q3	0.1046	0.1399	0.1222	0.9913	0.8718	0.7708	0.8780	0.1255	0.1056	0.8028	0.8051	0.4598	0.0000	0.0109	0.0054	0.5899
	2017Q4	0.0806	0.1170	0.0988	0.9923	0.8749	0.7345	0.8673	0.1362	0.1439	0.8448	0.8282	0.4883	0.0295	0.0144	0.0219	0.5251
	2018Q1	0.0565	0.0963	0.0764	0.9908	0.9295	0.0000	0.6401	0.1359	0.1459	0.8445	0.8348	0.4903	0.0889	0.0221	0.0555	0.4651

Table A5. Standard CAELS data of Turkey

Source: Own calculation based on IFSB database.

Country	Year	Capital adequacy			Asset quality				Earnings					Liquidity			Sensitivity to Risks
		CAR	Tier 1 capital to RWA	C average	Gross non-performing financing ratio	Net non-performing financing to capital	Provisions for gross non-performing financing	A average	Return on assets (ROA)	Return on equity (ROE)	Net profit margin	Cost to income	E average	Liquid asset ratio	Liquid assets to short-term liabilities	L average	Net foreign exchange open position to capital
		CP01	CP02		CP04	CP05	CP06		CP07	CP08	CP09	CP10		CP13	CP14		CP17
+ Directly – Inverse	Proportional	“+”	“+”	N.A. (+)	“_”	“_”	“_”	N.A. (–)	“+”	“+”	“+”	“_”	N.A.	“+”	“+”	N.A. (+)	“_”
Turkey	2013A	0.0367	0.0570	0.0468	0.8251	0.4101	0.6685	0.6345	0.1590	0.3360	0.8722	0.9081	0.5688	0.7184	0.0613	0.3898	0.9512
	2014Q1	0.0435	0.0637	0.0536	0.8088	0.3849	0.6745	0.6228	0.1545	0.3131	0.8643	0.9047	0.5591	0.7041	0.0552	0.3796	0.9345
	2014Q2	0.0502	0.0712	0.0607	0.7771	0.1720	0.7410	0.5634	0.1544	0.3061	0.8600	0.9105	0.5578	0.7175	0.0605	0.3890	0.9082
	2014Q3	0.0464	0.0650	0.0557	0.7431	0.0084	0.7516	0.5010	0.1451	0.2399	0.8429	0.9010	0.5322	0.6131	0.0496	0.3313	1.0000
	2014Q4	0.0450	0.0640	0.0545	0.7637	0.2585	0.6742	0.5655	0.1340	0.1626	0.8187	0.8979	0.5033	0.6557	0.0573	0.3565	0.9240
	2015Q1	0.0405	0.0584	0.0495	0.7534	0.1939	0.6819	0.5431	0.1488	0.2742	0.8559	0.8980	0.5442	0.6416	0.0498	0.3457	0.9391
	2015Q2	0.0513	0.0632	0.0572	0.7362	0.1777	0.6858	0.5332	0.1466	0.2587	0.8514	0.8942	0.5377	0.6011	0.0464	0.3237	0.9240
	2015Q3	0.0418	0.0544	0.0481	0.7122	0.0875	0.6844	0.4947	0.1435	0.2372	0.8446	0.8952	0.5301	0.7589	0.0646	0.4117	0.9563
	2015Q4	0.0509	0.0534	0.0521	0.7200	0.1136	0.6951	0.5096	0.1386	0.2016	0.8318	0.8974	0.5174	0.6511	0.0499	0.3505	0.9162
	2016Q1	0.0506	0.0540	0.0523	0.6482	0.0613	0.6648	0.4581	0.1362	0.1814	0.8214	0.9165	0.5139	0.5104	0.0371	0.2737	0.9189
	2016Q2	0.0486	0.0530	0.0508	0.6459	0.0938	0.6524	0.4640	0.1398	0.2073	0.8289	0.9197	0.6295	0.5631	0.0403	0.3017	0.9196
	2016Q3	0.0610	0.0611	0.0611	0.8029	0.4029	0.6877	0.6312	0.1519	0.2949	0.8663	0.9126	0.5564	0.6341	0.0449	0.3395	0.9341
	2016Q4	0.0683	0.0631	0.0657	0.8008	0.4072	0.6755	0.6278	0.1494	0.2785	0.8602	0.9107	0.5497	0.7180	0.0589	0.3884	0.9583
	2017Q1	0.0749	0.0650	0.0699	0.7883	0.3872	0.6709	0.6155	0.1521	0.3093	0.8636	0.9186	0.5609	0.6699	0.0494	0.3597	0.9503
	2017Q2	0.0861	0.0727	0.0794	0.7902	0.4234	0.6564	0.6233	0.1560	0.3388	0.8720	0.9214	0.5720	0.5680	0.0394	0.3037	0.9324
	2017Q3	0.0838	0.0789	0.0814	0.8051	0.4773	0.6366	0.6397	0.1556	0.3339	0.8738	0.9187	0.5705	0.7276	0.0561	0.3919	0.9159
	2017Q4	0.0799	0.0752	0.0775	0.8338	0.5574	0.6198	0.6703	0.1549	0.3302	0.8726	0.9192	0.5692	0.5762	0.0395	0.3078	0.9276
	2018Q1	0.0907	0.0759	0.0833	0.8281	0.8719	0.4439	0.7146	0.1606	0.3774	0.8725	0.9373	0.5869	0.6810	0.0492	0.3651	0.9134

**Table A6.** Standard CAELS data of the United Arab Emirates

Source: Own calculation based on IFSB database

Country	Year	Capital adequacy			Asset quality				Earnings					Liquidity			Sensitivity to Risks S average
		CAR	Tier 1 capital to RWA	C average	Gross non-performing financing ratio	Net non-performing financing to capital	Provisions for gross non-performing financing	A average	Return on assets (ROA)	Return on equity (ROE)	Net profit margin	Cost to income	E average	Liquid asset ratio	Liquid assets to short-term liabilities	L average	Net foreign exchange open position to capital
		CP01	CP02		CP04	CP05	CP06		CP07	CP08	CP09	CP10		CP13	CP14		CP17
+ Directly – Inverse	Proportional	“+”	“+”	N.A. (+)	“_”	“_”	“_”	N.A. (–)	“+”	“+”	“+”	“_”	N.A.	“+”	“+”	N.A. (+)	“_”
United Arab Emirates	2013A	0.0888	0.1262	0.1075	0.5810	0.9647	0.4107	0.6521	0.1493	0.2310	0.8743	0.8379	0.5231	0.1601	0.0146	0.0874	0.7291
	2014Q1	0.0773	0.1153	0.0963	0.4123	0.0118	0.6072	0.3437	0.1558	0.2732	0.8933	0.8566	0.5447	0.1617	0.0143	0.0880	0.6382
	2014Q2	0.0759	0.1140	0.0949	0.4395	0.0000	0.6175	0.3523	0.1601	0.2887	0.9038	0.8669	0.5549	0.1817	0.0156	0.0986	0.4584
	2014Q3	0.0629	0.1044	0.0837	0.5048	0.2529	0.5756	0.4445	0.1580	0.2930	0.9035	0.8666	0.5553	0.1524	0.0141	0.0832	0.6015
	2014Q4	0.0629	0.1031	0.0830	0.5211	0.2118	0.5905	0.4411	0.1601	0.3042	0.9038	0.8669	0.5588	0.1139	0.0121	0.0630	0.4448
	2015Q1	0.0687	0.1085	0.0886	0.5592	0.3824	0.5660	0.5025	0.1623	0.3085	0.9053	0.8684	0.5611	0.1232	0.0124	0.0678	0.5086
	2015Q2	0.0644	0.1044	0.0844	0.5810	0.4412	0.5525	0.5249	0.1623	0.3056	0.9096	0.8727	0.5626	0.1109	0.0117	0.0613	0.5512
	2015Q3	0.0629	0.1044	0.0837	0.5810	0.4059	0.5621	0.5163	0.1601	0.3056	0.9088	0.8718	0.5616	0.1124	0.0118	0.0621	0.3636
	2015Q4	0.0601	0.1017	0.0809	0.5755	0.4235	0.5537	0.5176	0.1580	0.2775	0.9006	0.8638	0.5499	0.1170	0.0120	0.0645	0.2940
	2016Q1	0.0572	0.0990	0.0781	0.5918	0.5059	0.5344	0.5440	0.1558	0.2732	0.8901	0.8534	0.5431	0.1263	0.0124	0.0693	0.1218
	2016Q2	0.0730	0.1153	0.0942	0.6027	0.5647	0.5280	0.5651	0.1580	0.2718	0.8927	0.8560	0.5446	0.1170	0.0123	0.0646	0.2688
	2016Q3	0.0759	0.1180	0.0970	0.6082	0.6471	0.5061	0.5871	0.1558	0.2577	0.8892	0.8525	0.5388	0.1078	0.0119	0.0599	0.5396
	2016Q4	0.0816	0.1235	0.1026	0.5864	0.5176	0.5402	0.5481	0.1558	0.2549	0.8898	0.8531	0.5384	0.1124	0.0121	0.0622	0.3249
	2017Q1	0.0759	0.1167	0.0963	0.5918	0.5176	0.5383	0.5493	0.1601	0.2789	0.9009	0.8640	0.5510	0.1278	0.0129	0.0704	0.5725
	2017Q2	0.0759	0.1167	0.0963	0.5973	0.5176	0.5402	0.5517	0.1601	0.2845	0.9023	0.8655	0.5531	0.1170	0.0122	0.0646	0.5106
	2017Q3	0.0802	0.1208	0.1005	0.5973	0.5176	0.5396	0.5515	0.1580	0.2746	0.8980	0.8612	0.5479	0.1263	0.0127	0.0695	0.6769
	2017Q4	0.1563	0.1854	0.1709	0.9028	0.4940	0.8702	0.7556	0.1395	0.1629	0.8894	0.8261	0.5045	0.1288	0.0283	0.0786	0.9001
	2018Q1	0.1440	0.1741	0.1590	0.9145	0.5967	0.7874	0.7662	0.1318	0.1318	0.9111	0.7998	0.4936	0.1071	0.0267	0.0669	0.9058