Does the quality of democracy in countries influence the profitability of their credit institutions? An empirical analysis of selected jurisdictions

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Working Paper, August 2024

Abstract

Democracy influences economies positively. In the light of the recent decline of democratic regimes, characteristics of those are becoming an increasing subject of interest. This paper focuses on the impact of a country's democratic quality on its credit institution's profitability. Before one can draw general conclusions, different quantification methodologies for the quality of democracy must agree on the defining characteristics of democracy. To analyse this, four indices for democratic quality are compared. A correlation analysis yields that different indices are highly, but not perfectly positively correlated. Afterwards, several regression analyses are conducted for a panel of 165 countries over the last 25 years. Regarding this, one must take a low availability of data, as well as a high multicollinearity between democratic quality and other explanatory variables, into account. They lead to a spurious correlation. For this sample, no influence of democratic quality on credit institutions' profitability was found.

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1 Introduction

In the light of youngest geopolitical tensions, political mindshifts, and challenges in supply chains, the world seems to have reached a turning point: From globalisation to deglobalisation.[3] Leading countries in international cooperation are now focusing on independence rather than interdependence, at least in business areas regarding a country's critical infrastructure. A prominent example for this development would be the United Kingdom deciding to leave the European Union (EU) in 2016. Often, politicians do not only discuss economic, but political and moral concepts equally.[4] Democracy, next to autocracy, is one of the predominant political concepts in all countries all over the world. As they claim democracy to be the preferable form of government, countries of the 'Western World' endeavour to promote this form of government across the globe.[5]

"As democracy has spread over the past three decades to majority of the world's states, analytic attention has turned increasingly from explaining regime transitions to evaluating and explaining the character of democratic regimes."[6] Such characteristics become even more an object of interest, since the world observes a decline in democratic regimes.[7] As empirical studies have proofed, democracy[8] as well as international trade[9] influence economies positively. Democratic regimes tend to implement institutional constraints, which strengthen property rights, reduce uncertainty, and increase investments.[10] Further, due to an orderly, predefined process for elections, the transfer of power in democratic regimes is much more stable, than in autocracies.[11] Since those are characteristics that do not only support economic

[3] Cf. Harold, James: Deglobalisation: The Rise of Disembedded Unilateralism, in: Annual Review of Financial Economics, No. 20, 2018, pp. 219-237.
[4] Cf. Antràs, Pol: De-Globalisation? Global Value Chains in the Post-Covid-19 Age, NBER Working Paper Series, No. 28115, 2020, pp. 19-38.
[5] Cf. Börzel, Tanja A.: The noble west and the dirty rest? Western democracy promoters and illiberal regional powers, in: Democratization, No. 22/3, 2015, pp. 519-535.
[6] Diamond, Larry/ Morlino, Leonardo: Assessing the Quality of Democracy, Baltimore, 2005, p. IX.
[7] Cf. Freedom House: Freedom in the World 2023. Making 50 Years in the Struggle for Democracy, Washington DC, 2023a, pp. 1-15.
[8] Cf. Buser, Whitney/ Connors, Joseph: The Impact of Democracy on theTransition Through the Middle Income Range, in: Hall, Joshua C. et al.: Economic and Political Institutions and Development, Chem, 2019, pp. 109-118.
[9] Cf. Krugman, Paul R. et al.: International Economics, 9th Edition, Boston, 2012, p. 4.
[10] Cf. Weingast, Barry R.: The Economic Role of Political Institutions: Market-Preserving Federalism and Economic-Development, in: Journal of Law, Economics, & Organization, No. 11/1, 1995, pp. 1-31.
[11] Cf. Buser, Whitney/ Connors, Joseph, 2019, pp. 109-118.

growth in general, but represent favourable conditions for the banking sector as well, this paper analyses the question, if the democratic quality of a country influences the profitability of its credit institutions. Following the influence of democracy on the overall economy, democracy is expected to influence bank's profitability positively. Due to large economic and political differences between various geographical regions, the paper also compares the relationship between democratic quality and profitability in different continents. Literature suggests that the marginal effects of democratic quality on profitability are decreasing with an increase in GDP per capita.[12] Thus, the paper further analyses the relationship between democratic quality and profitability across four different income categories.

There is already an extensive stock of empirical analyses regarding the determinants of credit institutions' profitability. An overview about already known determinants of bank's profitability is given in 2.2. The number of studies analysing this specific relationship is rather limited. Nevertheless, an overview about existing literature is given in 2.2.3. The most common approach to analyse the impact of a suggested determinant on profitability is to estimate profitability in a multivariate regression model, using Ordinary Least Squares (OLS).[13] An equal approach is used in this paper in order to answer the question if the democratic quality of a country influences its credit institutions' profitability in the fourth part. It is structured as follows: For each subsample, the same descriptive and regression analyses are conducted. 4.1 covers the description of the overall panel data, followed by the regression analyses on a global level. 4.2 follows the same structure, but for the panel being split into subsamples according to continents. The same is done in 4.3, with the panel being split according to the country's income categories.

To draw general conclusions about the impact of democratic quality, a large consensus about the definition of qualitative democracy is necessary. In this case, several quantification methodologies should agree on their rankings of analysed countries. Following this logic, another question arises: Are the different methods, attempting to quantify democratic quality, interchangeable? Therefore, four different

[12] Cf. Ngobo, Paul V./ Fouda, Maurice: Is ‚Good' governance good for business? A cross-national analysis of firms in African countries, in: Journal of World Business, No. 47, 2012, pp. 435-449.

[13] Cf. Short, Brock: The relation between commercial bank profit rates and banking concentration in Canada Western Europe, and Japan, in: Journal of Banking & Finance, No. 3/3, 1979, pp. 209-219; see also: ECB: The ECB's monetary policy and bank profitability, in: Financial Stability Review, No. 2016/2, Frankfurt am Main, 2016, pp. 69-72.

methodologies, the Freedom in World Index, the EIU Democracy Index, the Democracy Barometer, and the Democracy Matrix, which aim to quantify democratic quality in different countries, are introduced in section 2.1.2. By comparing the different indices regarding their definition of democracy, their way of measuring the included indicators and their aggregation methods, differences between the individual indices are explained in 2.1.3. This part also conducts a correlation analysis between the indices to analyse the extend, to which the four indices deviate in their quantifications of democratic quality. As all approaches, which quantify democratic quality are rather similar to each other, the correlation is anticipated to be a highly positive one.

Before one can answer any of the research questions, one must understand the concept of democracy, including its several dimensions and forms. Therefore, the paper starts with a brief definition of democracy in 2.1.1. Section 5 discusses limitations of the paper' methodology and concludes.

2 Theoretical Background and Literature Review

2.1 About Democracy

2.1.1 Definition of Democracy

Democracy is a compounded word, etymologically derived from the Greek words 'demos', which means 'the people', and 'kratos', which translates into the verb 'to rule'.[14] In the past, democracy meant exactly that. "A government in which, in contradistinction to monarchies and aristocracies, the people rule."[15] Nowadays, the term expanded. Democracy is no longer used to describe a specific political order only, but also used to characterise states, social institutions, and moral concepts.[16] This leads to a situation in which "there is no consensus in politics, scholarship and society about what democracy means in detail."[17] Further, as Louis Guttman states, "there is no point in arguing about what a 'correct' definition is."[18]

[14] Cf. Buchstein, Hubertus: Demokratie, in: Politische Theorie, 1st Edition, Wiesbaden, 2004, pp. 47-67.
[15] Held, David: Models of Democracy, Stanford, 1987, p. 2.
[16] Cf. Buchstein, Hubertus, 2004, pp.47-67.
[17] Lauth, Hans- Joachim/ Schlenkrich, Oliver: Conception of the Democracy Matrix, www.democracymatrix.com/conception, consulted on 04/09/2023, pp. 3-10.
[18] Guttman, Louis: Louis Guttman on Theory and Methodology: Selected Writings, Dartmouth, 1994, p. 12.

Often, literature distinguishes between three scopes for a definition of democracy: A minimal, a middle-ranged and a maximal definition. The minimal definition is based on the concept of Dahl, stating that a democratic concept is based on two attributes, namely the competition between the candidates and parties during election and the equal possibility to politically participate for all people.[19] This definition gets expanded in the middle-ranged definition, by requiring the equal political participation to be not just a concept, but a fundamental value of the political system. For example, the looser of an election accepts the result without further action.[20] In Contrast, the maximal definition does not only include organizational concepts, but also moral concepts. Thus, it includes the concept of a welfare state and the political goal to reduce socio-economic inequality in the definition of a democratic state.[21] The latter, however, is often criticized of including too much of "conceptual stretching".[22]

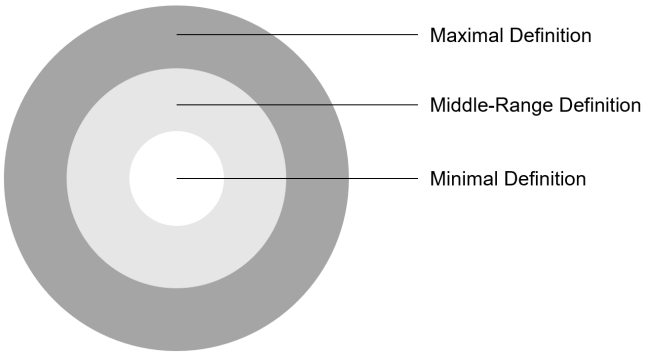

Figure 1: Ranges of democracy definitions (own representation, based on Lauth, Hans-Joachim/ Schlenkrich, Oliver, www.democracymatrix.com/conception, consulted on 04/09/2023, p. 3)

Further, one can differentiate between various types of democracy. There is a great diversity of post authoritarian regimes, all of them sharing important attributes of democracy. To account for such differences in concepts, the term democracy often gets used in combination with adjectives.[23] This gets visible by recalling some of the names of different democratic models. Popular examples for variants of democracy

[19] Cf. Dahl, Robert: Polyarchy: Participation and Opposition, New Haven, 1971, pp. 2-9.
[20] Cf. Fenske, Hans et al.: Geschichte der politischen Ideen. Von der Antike bis zur Gegenwart, Frankfurt am Main, 1994, pp. 405-414.
[21] Cf. Meyer, Thomas: Theorie der Sozialen Demokratie, Wiesbaden, 2005, pp. 136-156.
[22] Collier, David/ Mahon, James: Conceptual ‚Stretching' Revisited: Adapting Categories in Comparative Analysis, in: The American Political Science Review, No. 87/4, 1993, pp.845-855.
[23] Cf. Collier, David/ Levitsky, Stephen: Democracy with Adjectives: Conceptual Innovation in Comparative Reserach, in: World Politics, No.49/3, 1997, pp. 430-451.

are the competitive elitist democracy, pluralism, the legal democracy, the participatory democracy, and the direct democracy.[24] Some categories of democracy are more specified than others. While a more specified model includes a higher number of attributes than a less specified model, it usually shows a lower number of regimes and entities that it refers to and vice versa.[25]

In many, mainly European and American[26], countries, a democratic principle is part of the constitution. In Germany, it is enshrined in Article 20 of the Grundgesetz für die Bundesrepublik Deutschland.

2.1.2 Quantification of Democratic Quality

There are plenty organisations with different methodologies for quantifying the quality of democracy. The choice about which index to include in this paper was guided by three criteria: Firstly, the respective organisations should not have been assigned to the development of such an index by any government. Secondly, the resulting index should have, at least, an ordinal level of scale. Thirdly, the data should be available to a large scope, both in terms of the countries and the periods of time included.

All indices have in common that they consider a democracy as qualitative, when it shows a high degree of fulfilment of the attributes defined in 2.1.1.[27] It is important to note, that due to conflicts between the fulfilment of different attributes, even a democracy of high quality cannot fulfil all attributes completely at the same time. An example for such a trade-off would be the introduction of gender-quotas: it would complement the democratic principle of equality but hurt the principle of freedom at the same time.[28] It is expected from each democratic regime to find the right balance between those trade-offs democratically legitimated.[29]

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[24] Cf. Collier, David/ Levitsky, Stephen, 1997, p.4.
[25] Cf. Collier, David/ Mahon, James, 1993, pp. 845-855.
[26] Cf. Bundeszentrale für politische Bildung: Verbreitung demokratischer Staaten, www.bpb.de/kurz-knapp/zahlen-und-fakten/globalisierung/52838/verbreitung-demokratischer-staaten/, consulted on 04/09/2023.
[27] Cf. Diamond, Larry/ Morlino, Leonardo, 2005, pp.XI-XIV.
[28] Cf. Dworkin, Ronald: Do Liberty and Equality Conflict?, in: Barker, Paul: Living as Equals, Oxford, 1996, pp. 39-57.
[29] Cf. Lauth, Hans-Joachim: Demokratie und Demokratiemessung. Eine konzeptionelle Grundlegung für den interkulturellen Vergleich, Wiesbaden, 2004, pp.19-125.

2.1.2.1 Freedom in World Index

The Freedom in World Index was developed and published by the Freedom House Organisation. In the following, it will be referred to as DEMO_1. Since 1973, the Freedom in World Report is provided yearly by this organisation, assessing the democratic quality in 195 countries worldwide. Freedom House is a Non-Governmental-Organisation (NGO), founded in 1941 with the goal to defend democracy worldwide and has its headquarters in Washington DC. [30]

Its concept for quantifying democratic quality is based on the definition that democracy is "in its ideal form, (…) a governing system based on the will and consent of the governed, institutions that are accountable to all citizens, adherence to the rule of law, and respect for human rights."[31] As this definition includes human rights, it can be allocated to the maximal definition of democracy. The overall index is based on two broad categories: Political rights, making up for 40 % of the index, and civil liberties, which make up the remaining 60 % of the index. Each category is disaggregated in several subcategories. For political rights, the subcategories are 'electoral processes', 'political pluralism and participation', and 'the functioning of the government'. The category civil liberties is divided into the subcategories 'freedom of expression and beliefs', 'associational and organisational rights', 'rule of law', and 'personal autonomy and individual rights'. Each subcategory gets split again into questions, amounting to a total of 25 questions. For a better understanding, this concept tree gets visualized in Figure 2. The 25 questions are answered on country level, the answers being ranked on a scale between zero, for the smallest degree of freedom, and four, for the highest degree of freedom. To answer the questions, a broad range of sources, such as news articles, academic analyses, and reports from other NGOs are evaluated by an analysist and discussed in a series of review meetings. The overall index score is derived via addition of the ranks of all questions, ranking from 0-100.[32]

[30] Cf. Freedom House: About Us, www.freedomhouse.org/about-us, consulted on 06/09/2023.
[31] Cf. Freedom House, 2023a, p. 21.
[32] Cf. Freedom House: Freedom in World 2023. Methodology Questions, Washington DC, 2023b, pp. 1-17.

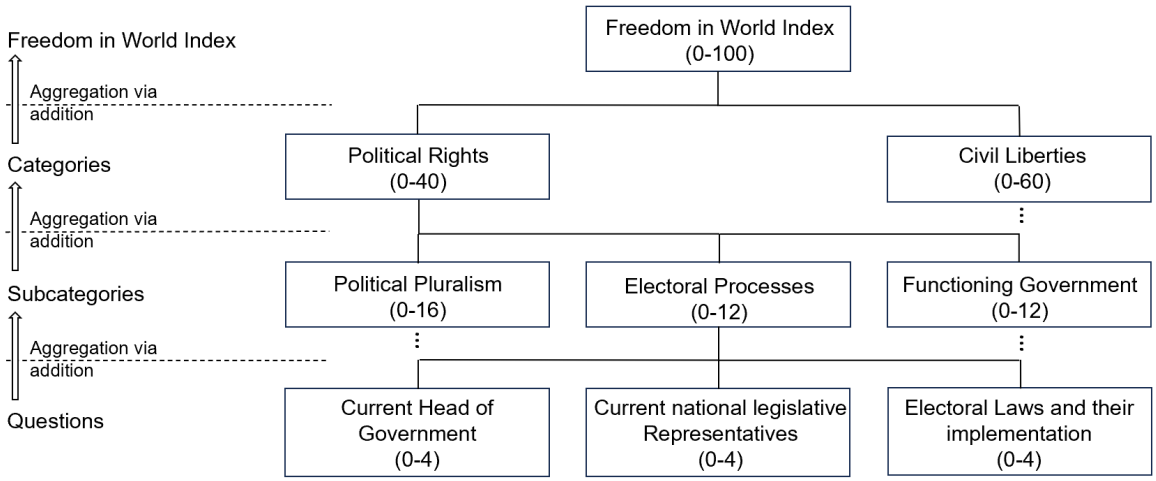

Figure 2: Concept tree of DEMO_1 (Own representation, based on Freedom House, 2023a, pp. 2-6).

2.1.2.2 EIU Democracy Index

Starting in 2006, the Economist Intelligence Unit (EIU) Democracy Index, in the following referred to as DEMO_2, is published yearly for 165 countries in a democracy index report.[33] Its publisher is the EIU, the research division of the Economist Group, which was created 1946 to "specifically (…) address the issues that readers of The Economist were asking."[34]

The underlying democracy definition for DEMO_2 fits a middle-ranged definition of democracy. It defines a liberal democracy, in which "a set of practices and principles (…) institutionalise (…) and (…) protect freedom."[35] As depicted in Figure 3, the index is disaggregated into five categories to reach an overall score ranking on a scale between 0 to 10. The respective categories are: 'Electoral processes', 'civil liberties', 'the functioning of government', 'political participation', and 'political culture'. Each category is ranked on a 0 to 10 scale, based on 60 underlying indicators, which are ranked either 0, if an indicator shows the form of a non-democratic regime, 1, if it indicates a democracy, and 0.5, if it is something in the middle. The ranking of each indicator is based either on expert judgement or on data derived from the World Values Survey, the latter being a NGO, conducting interviews on human beliefs with the population of different countries. By adding the indicators' ranks, the index of each category is derived. The overall DEMO_2 represents the mean of the categories' indices.[36]

[33] Cf. EIU: Democracy Index 2022. Frontline democracy and the battle for Ukraine, 2022, pp. 7-78.
[34] EIU: The EIU Story, www.eiu.com/n/about/our-story/, consulted on 29/09/2023.
[35] EIU, 2022, p. 64.
[36] Cf. EIU, 2022, pp. 66-68.

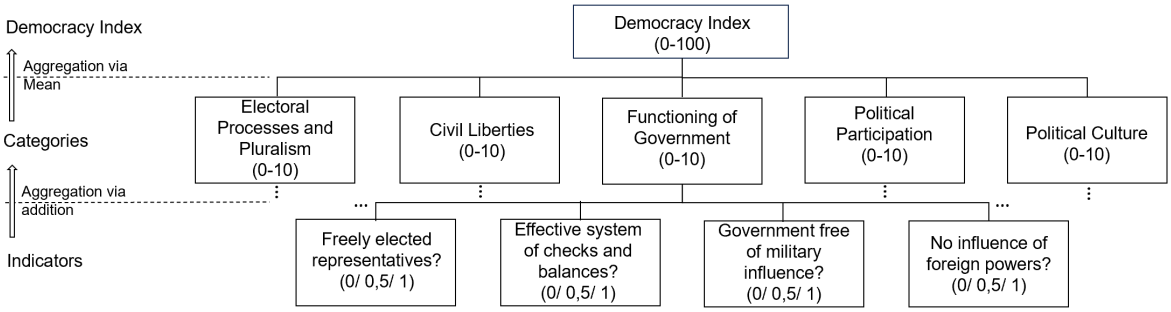

Figure 3: Concept tree of DEMO_2 (Own representation, based on EIU, 2022, pp. 66-68).

2.1.2.3 Democracy Barometer

The Democracy Barometer, in the following referred to as DEMO_3, started as a joint project between the Berlin Social Science Centre (WZB) and the Centre for Democracy Studies Aarau (ZDA). Since 2018, the ZDA and the Department of Political Science at the University of Zurich (UZH) are responsible for it.[37] In its latest version, DEMO_3 was assessed for 53 countries between 1990 and 2017.[38]

DEMO_3 is based on a middle-ranged definition of democracy. To assess the democratic quality of a country, the overall index is divided into the three fundamental principles 'freedom', 'equality' and 'control'. Further, each fundamental principle is split into three democratic functions, making up a total of nine democratic functions. Namely, those functions are: 'Individual liberties', 'the rule of law', 'public sphere', 'competition', 'mutual constraints', 'governmental capability', 'transparency', 'participation', and 'representation'.[39] For each democratic function, there are two components, which can be disaggregated in several subcomponents, which again are segregated into several indicators. In total, the democracy barometer measures 98 indicators, ranking them either 0, if a certain criterion is not fulfilled, and 1, if it is. Those indicators are meant to mainly measure 'hard' data whenever possible to avoid heavy reliance on expert judgement, which is considered as easily biased.[40] Indicators and subcomponents are aggregated using their mean, components and democratic functions are aggregated using an aggregation formula.[41] Equally to

[37] Cf. Democracy Barometer: Project, https://democracybarometer.org/team/, consulted on 29/09/2023.

[38] Cf. Engler, Sarah et al.: Democracy Barometer. Codebook, No. 7, Aarau, 2020, p. 6.

[39] Cf. Bühlmann, Marc et al.: Demokratiebarometer: Ein neues Instrument zur Messung von Demokratiequalität, in: Zeitschrift für vergleichende Politikwissenschaft, No. 6, Wiesbaden, 2012, pp. 115-159.

[40] Cf. Engler, Sarah et al., 2020, p. 7.

[41] The aggregation formula reads as follows: $= [\prod_{i=1}^{n} X_i]^{\frac{1}{n}}$, with DB representing the index on next aggregation level and X_i being the indices on the lower aggregation level.

DEMO_1 and DEMO_2, the concept tree of DEMO_3 is visualized in Figure 4 for a better understanding. DEMO_3 is not presented on a normalized scale, due to the reason "that no theoretical maximum or minimum is defined."[42]

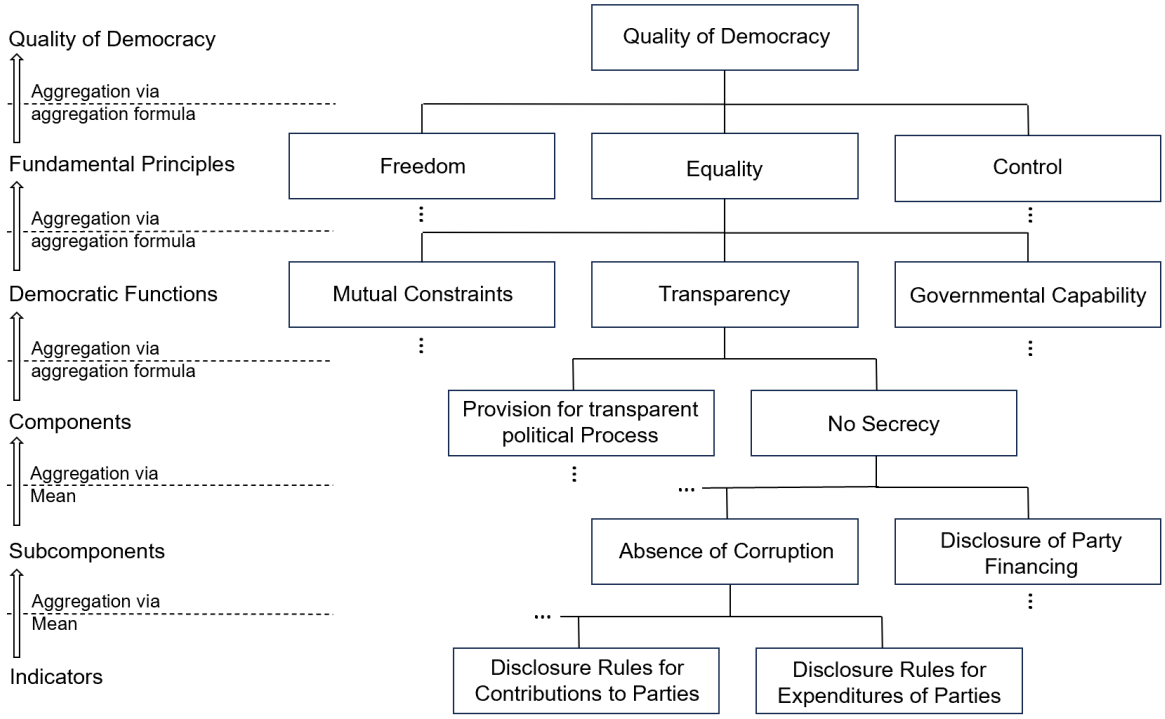

Figure 4: Concept tree of DEMO_3 (Own representation, based on Engler, Sarah et al., 2020, pp. 6-9).

2.1.2.4 Democracy Matrix

Throughout this paper, the index of the Democracy Matrix will be referred to as DEMO_4. It is the result of a project of the Julius-Maximilan University (JMU) in Würzburg, which started in 2006 and is financed by Deutsche Forschungsgemeinschaft (DFG). Between 1900 and 2017, the project measured DEMO_4 in 170 countries.[43]

The index uses a democracy definition which can be classified as middle-ranged. Based on three dimensions, namely 'political freedom', 'political equality', and 'political and legal control', and five institutions, which include 'procedures of decision', 'regulation of the intermediate sphere', 'public communication', 'guarantee of rights', and 'rules settlement and implementation', a matrix with 15 fields is derived. The resulting matrix is visualized in Figure 5. Each field is ranked between 0 and 1, based on underlying indicators. In contrast to the previously described indices, the

[42] Engler, Sarah et al., 2020, p. 10.
[43] Cf. Lauth, Hans-Joachim et al.: Democracy Matrix (DeMax) in a nutshell, for URL see Refrences, consulted on 05/09/2023.

Democracy Matrix does not measure the indicators itself, but uses the Varietes-of-Democracy (V-Dem) database.[44] V-Dem is a project of the University of Gothenburg in Sweden, aiming to measure over 500 indicators for democratic quality by aggregating expert judgement.[45] Following the suggestion of Munck and Verkuilen, aggregation is carried out by means of multiplication. Thus, compensation between different indicators or matrix fields, as it would be possible if they were aggregated via addition, is avoided.[46] The single matrix fields are aggregated to three dimensional indices, which again are aggregated to the total score of DEMO_4.[47]

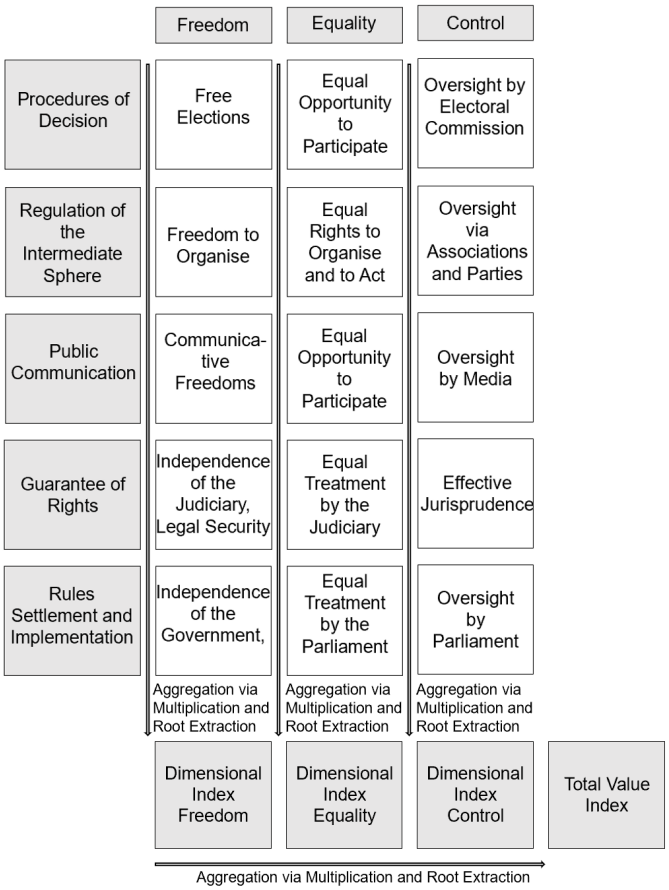

Figure 5: Concept tree of DEMO_4 (Own representation, based on Lauth, Hans-Joachim/ Schlenkrich, Oliver, www.democracymatrix.com/aggregation, consulted on 17/09/2023).

[44] Cf. Lauth, Hans-Joachim/ Schlenkrich, Oliver: Conception of the Democracy Matrix, www.democracymatrix.com/conception, consulted on 04/09/2023, pp. 4-9.
[45] Cf. V-Dem: The V-Dem Project, www.v-dem.net/about/v-dem-project/, consulted on 05/09/2023.
[46] Cf. Munck, Gerardo/ Verkuilen, Jay: Concepualizing and Measuring Democracy. Evaluating Alternative Indices, in: Comparative Political Studies, No. 35/1, 2002, pp. 5-34.
[47] Lauth, Hans-Joachim/ Schlenkrich, Oliver: Aggregation in the Democracy Matrix, www.democracymatrix.com/aggregation, consulted on 17/09/2023.

2.1.3 Comparison of Indices for Democratic Quality

The methodologies which have been presented above, consider definitions and attributes of a democratic regime which are rather alike. This is why a nearly perfect, positive correlation between the different indices is expected. However, Cheibub et al. "believe, that existing measures of political regimes are significantly different (…) and, for this reason, should not be treated as interchangeable."[48] They claim the indices' differing definitions of democracy, approaches to measure indicators, and their aggregation methods to be the reasons for deviations.[49] To delve deeper into this, the introduced indices are compared regarding the suggested criteria, as shown in Table 2.

	DEMO_1	DEMO_2	DEMO_3	DEMO_4
Definition of democracy	Maximal	Middle-ranged	Middle-ranged	Middle-ranged
Measurement of indicators	Uses expert judgement; based on reports and articles.	Uses either expert judgement, takes data from the World Values Survey, which conducts interviews on human beliefs.	Uses 'hard' data, whenever possible. Uses as little expert judgement as possible.	Data are taken from V-Dem, which uses expert judgement.
Aggregation method	Addition	Addition up to categories, mean afterwards	Mean until components, aggregation formula afterwards	Multiplication and root extraction

Table 1: Comparison between different indices for democratic quality.

It becomes clear that Cheibub et al. are right about their suggested individuality of each index, as well as about their suggested reasons for such deviations.

To gain a better understanding of the extend of those deviations, a correlation coefficient between the different indices was calculated. Since the indices for democratic quality have an ordinal level of scale, correlation coefficients were calculated using the Spearman's Rank-Order Correlation. The formula of which reads as follows:

[48] Cheibub, Josè Antonio et al.: Democracy and Dictaorship, in: Public Choice, No. 143/1,2, 2009, pp. 67-101.
[49] Cf. Cheibub, Josè Antonio et al., 2009, pp. 67-101.

$$\rho_{SP} = \frac{\sum_{i=1}^{n}(rg(x_i) - \overline{rg}_X)(rg(y_i) - \overline{rg}_Y)}{\sqrt{\sum_{i=1}^{n}(rg(x_i) - \overline{rg}_X)^2 \sum_{i=1}^{n}(rg(y_i) - \overline{rg}_Y)^2}}$$

Equation 1: Spearman's Rank-Order Correlation Coefficient

ρ_{SP} is the correlation coefficient between the two indices for democratic quality X and Y, with $rg()$ being the rank of a certain observation, and $\overline{rg}$ being the mean of all ranks within an index for democratic quality.[50] The respective correlation coefficients are depicted in Table 1.

	DEMO_1	DEMO_2	DEMO_3	DEMO_4
DEMO_1	1***	0.9550***	0.8260***	0.9533***
DEMO_2		1***	0.8380***	0.9265***
DEMO_3			1***	0.7796***
DEMO_4				1***

Table 2: Correlation coefficients for the different indices measuring democratic quality.
*Note: Level of significance is depicted with * for p<0.1, ** for p<0.05, and *** for p<0.01.*

The different indices show a highly significant, positive correlation with each other. However, DEMO_3 shows a significantly lower correlation than the other indices to each other. The highest correlation is to find between DEMO_1 and DEMO_2. No two indices are perfectly positively correlated. One should keep those differences in mind, when analysing the impact of democratic quality on credit institutions' profitability later.

2.2 About Profitability of Credit Institutions

2.2.1 Definition and Measures of Profitability

Profitability is the "banks' ability to generate (…) profits".[51] Since profitable banks can increase their capital by retaining earnings and attract investors at the capital market, this is of utmost relevance for a banks' business model. There is a large body of empirical studies that have investigated determinants for credit institutions' profitability. Commonly, profitability is measured using the ratios return before taxes on yearly averaged total assets (RoA)[52] and return before taxes on yearly averaged

[50] Cf. Fahrmeier, Ludwig et al.: Statistik. Der Weg zur Datenanalyse, 8th Edition, Berlin, 2016, pp. 133-136.
[51] ECB, 2016, pp. 69-72.
[52] Cf. Bourke, Philip: Concentration and other Determinants of Bank Profitability in Europe, North America and Australia, in: Journal of Banking & Finance, No. 13/1, Dublin, 1986, pp. 65-79.

equity (RoE)[53]. RoA reflects the profits a credit institution can generate per one averaged unit of its assets, although it can be biased by off-balance sheet activities. RoE, often referred to as equity multiplier, serves as an indicator for the return shareholders get on their equity.[54]

2.2.2 Determinants of Profitability

According to the recent literature, determinants of bank's profitability can be categorized either as 'bank-specific', 'macroeconomic', or 'structural determinants'.[55] This classification will be used in this paper as well. It is important to note that the following list of determinants is not complete. Due to its limited capacity, the following leaves out determinants whose data was not available for further analysis. Examples for those would be the size and the ownership structure of the respective credit institutions.

2.2.2.1 Bank-specific Determinants

Bank-specific determinants are variables controlled and decided on by the bank's management, such as the level of liquidity, the quality of a loan portfolio and the capitalization. Typically, data for those determinants are micro-data, derived from the credit institution's balance sheet or profit or loss statement.[56]

One important factor, influencing profitability, is the capitalization of a bank. Evidence from empirical studies show ambiguous impacts on profitability. Higher capitalization leaves more room for banks to seek profit opportunities in additional business areas[57] and reduces the costs of uninsured funds[58]. Thus, one would expect a positive relationship between capitalization and profitability.[59] Other studies, however, show that the positive effects of high capitalization only hold up to a certain

[53] Cf. Short, Brock, 1979, pp. 209-219; see also: Gambacorta, Leonardo/ Van Rixel, Adrian, Structural bank regulation initiatives: approaches and implications, BIS Working Papers No.412, p. 6.
[54] Cf. Athanasoglou, Panayiotis et al.: Bank-specific, Industry-Specific and Macroeconomic Determinants of Bank Profitability, Bank of Greece Working Paper, No. 25, Athen, 2005, pp. 15-25.
[55] Cf. ECB: Bank profitability challenges in euro area banks: the role of cyclical and structural factors, in: Financial Stability Review, No. 2015/1, Frankfurt am Main, 2015, pp. 134-145.
[56] Cf. ECB, 2015, pp. 134-145.
[57] Cf. ECB, 2015, pp. 134-145.
[58] Cf. Molyneux, Philip/ Thornton, John: Determinants of European bank profitability: A note, in: Journal of Banking & Finance, No. 16/6, 1992, pp. 1173-1178.
[59] Cf. Bourke, Philip, 1986, pp. 65-79; see also: Anthanasoglou, Panayiotis et al.: Determinants of Bank Profitability in the South and Eastern European Region, Athen, 2006, pp. 16-19.

capital ratio, having a negative relationship afterwards. Further, as higher profitability may lead to higher capital ratios when earnings are not fully paid out, Berger argues that the causality in this relationship could be both ways. [60]

Another factor found to influence profitability is the expenses management, including staff- and other operating expenses. As higher operating expenses influence profitability negatively,[61] there is a positive impact of qualitative management on a credit institution's profitability.[62]

The quality of a credit institution's loan portfolio reflects the credit risk an institution has on its balance sheet. Since increasing risks potentially lead to an increasing accumulation of unpaid loans[63] and a risky portfolio causes high risk premia to be paid on uninsured funds[64], empirical evidence shows a negative relationship between credit risks and profitability.[65]

More recent studies analysed the impact of diversification of bank's business areas on their profitability. The results, however, were rather inconclusive. On the one hand, diversification enables the spreading of fixed costs over more products.[66] Further, non-interest margins can compensate for, as a result of competition and a low interest rate environment, low interest margins.[67] Thus, one might expect a positive relationship.[68] On the other hand, gains from diversification are often offset by additional operating costs.[69] Also, non-interest income shows lower revenues per unit of

[60] Cf. Berger, Allen N.: The Relationship between Capital and Earnings in Banking, in: Journal of Money, Credit and Banking, No. 27/2, 1995, pp. 432-456.
[61] Cf. Bourke, Philip, 1986, pp. 65-79; see also: Anthanasoglou, Panayiotis et al., 2006, pp. 16-19
[62] Cf. Molyneux, Philip/ Thornton, John, 1992, pp. 1173-1178.
[63] Cf. Miller, Stephen/ Noulas, Athanasios G.: Portfolio mix and large-bank profitability in the USA, in: Applied Economics, No. 29/4, 1997, pp. 505-512.
[64] Cf. Berger, Allen N., 1995, pp. 432-456.
[65] Cf. Berger, Allen N., 1995, pp. 432-456; see also: Anthanasoglou, Panayiotis et al., 2006, pp. 16-19.
[66] Cf. Saunders, Anthony/ Walter, Ingo: Universal Banking in the United Sates: What Could We Gain? What Could We Lose?, 1994, New York, pp. 69-82.
[67] Cf. Carbo Valverde, Santiago/ Rodriguez Fernandez, Francisco: The determinants of bank margins in European banking, in: Journal of Banking & Finance, No. 31/7, 2007, pp. 2043-2063.
[68] Cf. Beckmann, Rainer: Profitability of Western European Banking Systems: Panel Evidence on Structural and Cyclical Determinants, Bundesbank Series 2 Discussion Paper, No. 17/2007, Frankfurt am Main, 2007, p. 20; see also: Carbo Valverde, Santiago/ Rodriguez Fernandez, Francisco, 2007, pp. 2043-2063.
[69] Cf. Stiroh, Kevin J./ Romble, Adrienne: The dark side of diversification: The case of US financial holding companies, in: Journal of Banking & Finance, No. 30/8, 2006, pp. 2131-2161.

risk.[70] Both would cause diversification to have a negative impact on a bank's profitability.[71] Other studies suggest that the relationship is non-linear, but that profitability is increasing only until a certain degree of diversification.[72]

Regarding the level of liquidity, empirical studies find a negative impact on profitability.[73] This is due to the costs of holding liquidity.[74]

2.2.2.2 Macroeconomic Determinants

Macroeconomic determinants are variables that reflect the economic and legal environment of a credit institution. Usually, they are based on macro-data which are measured on country level.

Empirical evidence uniformly agrees on a positive impact of high interest rates on a bank's profitability. Often, interest rates are used as a proxy for capital scarcity within the economy. This relationship is caused by the higher interest income that banks generate in times of higher interest rates, which leads to higher interest margins and an increase in profitability.[75]

Closely linked to that are the effects of inflation, as interest margins adapt faster than wages and other operating expenses.[76] Hence, more recent studies show a positive impact of inflation, and expected inflation, on profitability.[77]

Another macroeconomic determinant for profitability is the overall economic condition. Lending volume and interest margins increase in times of a boom.[78] Vice versa, in times of an economic downturn, the quality of the loan portfolio decreases, leading to an increase in Non-Performing Loans (NPLs) and funding costs.[79] Consequently, many studies proofed the cyclicality of credit institutions' profitability.[80]

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[70] Cf. Stiroh, Kevin J.: Diversification in Banking: Is Noninterest Income the Answer?, in: Journal of Money, Credit and Banking, No. 36/5, 2004, pp. 853-882.
[71] Cf. Stiroh, Kevin J./ Rumble, Adrienne, 2004, pp. 853-882.
[72] Cf. Gambacorta, Leonardo/ Van Rixel, Adrian: 2013, p. 6.
[73] Cf. Molyneux, Philip/ Thornton, John, 1992, pp. 1173-1178.
[74] Cf. Molyneux, Philip: Structure and Performance in European banking, Diss, Bagnor, 1993, p. 240.
[75] Cf. Short, Brock, 1979, pp. 209-219; see also: Molyneux, Philip/ Thornton, John, 1992, pp. 1173-1178.
[76] Cf. Athanasoglou, Panayiotis et al., 2005, pp. 15-25.
[77] Cf. Demirguc-Kunt, Asli/ Huizinga, Harry: Financial Structure and Bank Profitability, World Bank Mimeo, No. 2430, Washington DC., 2000, p.10; see also: ECB, 2016, pp. 69-72.
[78] Cf. Bernanke, Ben S./ Gertler, Mark: Inside the Black Box: The Credit Channel of Monetary Policy Transmission, in: Journal of Economic Perspectives, No. 9/4, 1995, pp. 27-48.
[79] Cf. Bikker, Jacon A./ Hu Haixa: Cyclical Patterns in Profits, Provisioning and Lending of Banks, DNB Staff Reports, No. 86, Amsterdam, 2002, pp. 143-175.
[80] Cf. Bikker, Jacon A./ Hu Haixa, 2002, pp. 143-175; see also: Beckmann, Rainer, 2007, p. 20.

2.2.2.3 Structural Determinants

Structural determinants are variables, describing the structure of the banking industry. Similarly to the macroeconomic data, they are measured on country-level.

Most empirical studies find a positive impact of market concentration on bank profitability.[81] There are two hypotheses aiming to explain this relationship. On the one hand, the "structure-conduct-performance" hypothesis argues that banks can earn monopolist profits in a highly concentrated market.[82] On the other hand, the "efficient structure" hypothesis suggests a superior efficiency of banks with a high market share to be the reason for the positive correlation.[83] Nevertheless, Demirguc-Kunt and Huizinga find a negative relationship between market concentration and profitability. They explain their findings due to the tougher competition and pressure on the prices in a highly concentrated market.[84]

For the relationship between the capital market orientation of an economy and its credit institution's profitability, studies on this topic do not agree with each other. Beckmann reasons that a stock market-oriented economy enables banks to participate in additional, fee-based or trading-based, business areas, as he finds a positive correlation. Further, a developed capital market can contribute to a faster spreading of information, which in turn would accelerate the evaluation of credit risks.[85] Demirguc-Kunt and Huizinga however, do not find any statistically significant relationship.[86]

2.2.3 Democracy as Determinant for Profitability

To the author's best knowledge, there are only very few studies studying the impact of democracy on profitability. Of those that do, not one focuses on the impact of democracy on the banking sector specifically. Nevertheless, some of their findings might hold for the banking sector and the manufacturing industry, equally.

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[81] Cf. Rhodades, Stephen A.: Structure and Performance in Banking: A Summary and Evaluation, Staff Studies from Board of Governors of the Federal Reserve System, No. 92, Washington DC., 1977, pp. 12-14; see also: Anthanasoglou, Panayiotis et al., 2006, pp. 16-19.

[82] Cf. Bain, Joe S.: Relation of Profit Rate to Industry Concentration: American Manufacturing, 1936-1940, in: Quarterly Journal of Economics, No. 65/3, 1951, pp. 293-324.

[83] Cf. Demsetz, Harold: Industry Structure, Market Rivalry, and Public Policy, in: Journal of Law and Economics, No. 16/1, 1973, pp. 1-9.

[84] Cf. Demirguc-Kunt, Asli/ Huizinga, Harry, 2000, p. 10.

[85] Cf. Beckmann, Rainer, 2007, pp. 15-21.

[86] Cf. Demirguc-Kunt, Asli/ Huizinga, Harry, 2000, p. 10.

Regarding a country's overall economy, democratic regimes are argued to reduce business risks by providing property and contract rights.[87] Further, due to orderly, predefined processes regarding elections, transfers of power does cause no such instability in democracies, as it usually does in autocracies.[88] Ngobo and Fouda find, hence, a positive relationship of a democratic form of government on African firm's profitability.[89] Those characteristics, affect the banking industry positively, too. Either directly, due to the reduction of business risks, or indirectly, due lower credit risks caused by an improved economic and financial stability. Also, improved institutions and property rights foster an increase in incentives for investments, thus, an increase in credit demand. This is why in the following, a positive effect of democratic quality on credit institutions' profitability is expected. Wan suggests, that the impact of democratic regimes is especially high in developing and emerging economies, as they have the highest need for improved institutions and stability.[90] This is supported by Ngobo and Fouda, who observe decreasing marginal effects of democratic forms of government with increasing income per capita.

3 Data and Methodology

3.1 Introduction of Predictors

In the following, explanatory variables, each of which representing one of the determinants for bank's profitability explained in 2.2.1, are introduced. Since the indices that aim to measure democratic quality in a country were already explained in detail in part 2.1.2, this part focuses on the remaining predictors that were commonly tested and found to be significant in previous literature. The labels for all predictors, chosen to be included in the empirical analysis of this paper, are listed in Annex 1. Predictors were chosen according to the number of empirical studies, in which they were included, and their availability. If the most cited proxy for a certain determinant was not available, it got substituted by an alternative, less cited proxy. This was the case for the ratio of loan loss provisions to total assets, of loans to total assets ratio,

[87] Cf. Olson, Mancur: Dictatorship, democracy and development, in: American Political Science Review, No. 87/3, 1993, pp. 567-576; see also: Clague, Christopher et al.: Property and contract rights in autocracies and democracies, in: Journal of Economic Growth, No. ½, 1996, pp. 243-276.
[88] Cf. Buser, Whitney/ Connors, Joseph, 2019, pp. 109-118.
[89] Cf. Ngobo, Paul V./ Fouda, Maurice, 2012, pp. 435-449.
[90] Cf. Wan, William P.: Country Resource Environments, Firm Capabilities, and Corporate Diversification Strategies, in: Journal of Management Studies, No. 42/1, 2005, pp. 161-182.

and of staff expenses to total assets, which were substituted by the NPL ratio, loan to deposit ratio, and the ratio of operating costs to total assets, respectively.

3.1.1 Bank-specific Predictors

Commonly, a credit institution's capitalization is measured using the ratio of the bank's capital, reserves, and provisions as percentage to total, unweighted assets.[91] In the following, it will be referred to as CPTL.

As a proxy for the quality of the management, several measures for the operating costs can be used. Possible measures are the ratio of a bank's staff expenses as percentage to total assets[92], the ratio of operating costs divided by gross income[93], and the ratio of operating costs to total assets.[94] In this paper, the latter will be used and referred to as OPCSTS.

To measure the quality of the credit institution's loan portfolio, most often the ratio of loan loss provisions to total loans is used.[95] Other measures to proxy this variable are the number of failures per 1 million inhabitants[96] or the ratio of risk weighted assets to total assets.[97] Labelled as NPLs, the ratio of gross loans in default as percentage to the overall gross loans[98] will be used in the following.

A typical proxy for the level of liquidity is the loans to total assets ratio[99], despite producing inferior results in comparison to alternative measures.[100] Alternatively, one might use the ratio of liquid assets to total assets[101], of liquid assets as percentage to short-term funding[102], and of loans to deposits.[103] Sometimes, the latter gets used as a proxy for credit risk as well.[104] Further, it has the major disadvantage of not giving information about the riskiness and liquidity of the bank's remaining assets

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91 Cf. Bourke, Philip, 1986, pp. 65-79; see also: ECB, 2016, pp. 69-72.
92 Cf. Bourke, Philip, 1986, pp. 65-79; see also: Molyneux, Philip/ Thornton, John, 1992, pp. 1173-1178.
93 Cf. Cabo Vaverde, Santiago/ Rodriguez Fernandez, Francisco, 2007, pp. 2043-2063.
94 Cf. Berger, Allen N., 1995, pp. 432-456; see also: ECB, 2016, pp. 69-72.
95 Cf. Athanasoglou, Panayiotis et al., 2005, pp. 15-25; see also: ECB, 2016, pp. 69-72.
96 Cf. Berger, Allen N., 1995, pp. 432-456.
97 Cf. Bikker, Jacon A./ Hu, Haixa, 2002, pp. 143-175.
98 Cf. Cabo Vaverde, Santiago/ Rodriguez Fernandez, Francisco, 2007, pp. 2043-2063.
99 Cf. Bourke, Philip, 1986, pp. 65-79; see also: Beckmann, Rainer, 2007, pp. 15-21.
100 Cf. Athanasoglou, Panayiotis et al., 2005, pp. 15-25.
101 Cf. Anthanasoglou, Panayiotis et al., 2006, pp. 16-19.
102 Cf. Cabo Vaverde, Santiago/ Rodriguez Fernandez, Francisco, 2007, pp. 2043-2063.
103 Cf. Athanasoglou, Panayiotis et al., 2005, pp. 15-25; see also: Anthanasoglou, Panayiotis et al. 2006, pp. 16-19.
104 Cf. Athanasoglou, Panayiotis et al., 2005, pp. 15-25.

and liabilities.[105] Nevertheless, due to its availability, the loan to deposit ratio was chosen to be included in this paper, referred to as LtD.

3.1.2 Macroeconomic Predictors

In order to account for the height of interest rates within an economy, most studies include the respective country's 10-year government bond rate in their empirical analysis.[106] The same is included in this paper, labelled as INT. Only Short uses the central bank's discount rates as a proxy for the capital scarcity within an economy.[107]

Inflation is measured using the country's annual changes in prices, measured using the Consumer Price Index (CPI).[108] In the following, the CPI will be referred to as such.

Most commonly, the overall economic condition is estimated by interpreting the annual Gross Domestic Product (GDP) growth rate. If this rate is positive, the economy is growing and the other way around.[109] An alternative, less used proxy for this determinant would be the output gap. If a country's GDP in a certain period was about its potential output, the output gap would be positive, indicating an economic upswing. In case of a GDP, which is below its potential output, the output gap would be negative, indicating an economic downturn.[110] In this paper, labelled as GDPG, the annual GDP growth rate will be used.

3.1.3 Structural Predictors

Typical proxies for concentration in the banking sector are the Herfindahl-Hirschmann Index[111] and the market share of the three[112] or five largest banks within a country.[113] The Herfindahl-Hirschmann Index ranges between 0 and 1, with 1 representing a monopoly. It is calculated by summing up the squared market shares of all institutions within the respective economy.[114] Referred to as CONC, this paper will use the ratio of the assets of the five largest banks as percentage to the overall assets of banks within an economy.

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[105] Cf. Anthanasoglou, Panayiotis et al., 2006, pp. 16-19.
[106] Cf. Bourke, Philip, 1986, pp. 65-79; see also: ECB, 2016, pp. 69-72.
[107] Cf. Short, Brock, 1977, pp. 209-219.
[108] Cf. Bourke, Philip, 1986, pp. 65-79; see also: ECB, 2016, pp. 69-72.
[109] Cf. Bikker, Jacon A./ Hu, Haixa., 2002, pp. 143-175; see also: ECB, 2016, pp. 69-72.
[110] Cf. Athanasoglou, Panayiotis et al., 2005, pp. 15-25.
[111] Cf. Berger, Allen N., 1995, pp. 432-456; see also: ECB, 2016, pp. 69-72.
[112] Cf. Molyneux, Philip, 1993, p. 258; see also: Demirguc-Kunt, Asli/ Huizinga, Harry, 2000, p. 10.
[113] Cf. Bourke, Philip, 1986, pp. 65-79; see also: ECB, 2016, pp. 69-72.
[114] Cf. Beckmann, Rainer, 2007, p. 25.

To quantify the capital market orientation of an economy, the stock market capitalization is used most. It is measured as the ratio of the total value of all listed shares in a stock market as percentage to GDP.[115] In the following, this ratio will be called STOCK.

3.2 Collection of Data

Besides the indices for democratic quality and the data for INT, all data was taken from the world bank's data base.[116] The indices for democratic quality were downloaded from the websites of each of the projects.[117] In case of DEMO_3 and DEMO_4, the most recent versions of the data were chosen. The data for INT were taken from the Organisation for Economic Cooperation and Development (OECD) data base[118], and complemented by data from the IFS[119]. All variables are annual datapoints on country level.

The panel includes data for 165 countries across the world. Selected were the countries, for which data on its RoA and RoE have been available for at least one year. A list of the included countries can be found in Annex 2. Further, it covers the period of the last 25 years, from 1997 to 2022. However, some variables were not available for the whole 25 years in all countries equally. Thus, most countries show missing values for either a whole time series, or for single years within a time series of a certain variable. CPTL and NPLs show with 1728 and 1738 observations respectively the lowest numbers of included observations, GDPG with 4,055 observations the highest.

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[115] Cf. Demirguc-Kunt, Asli/ Huizinga, Harry, 2000, p. 10; see also: Albertazzi, Ugo/ Gambacorta, Leonardo: Bank profitability and the business cycle, Banca d'Italiia: Temi di discussione, No. 601, Rome, 2006, pp. 12-14.

[116] Cf. World Bank: DataBank, https://databank.worldbank.org/metadataglossary/all/series, consulted on 06/10/2023.

[117] Cf. For DEMO_1: Freedom House: Freedom in the World, https://freedomhouse.org/report/freedom-world, consulted on 06/10/2023; for DEMO_2: Our World in Data: Democracy, https://ourworldindata.org/grapher/democracy-index-eiu?tab=table, consulted on 06/10/2023; for DEMO_3: Democracy Barometer: Data and Documentation, https://democracybarometer.org/data-and-documentation/, consulted on 06/10/2023; for DEMO_4: Democracy Matrix: Download, https://www.democracymatrix.com/download, consulted on 06/10/2023.

[118] Cf. OECD Data: Long-term interest rates, https://data.oecd.org/interest/long-term-interest-rates.htm, consulted on 06/10/2023.

[119] Cf. IFS: Interest Rates selected indicators, https://data.imf.org/regular.aspx?key=63087881, consulted on 06/10/2023.

3.3 Econometric Specification

In the following, a regression analysis is conducted, to test for a statistically significant impact of democratic quality on credit institutions' profitability. To do so, an univariate analysis was conducted, using the OLS method[120], with profitability as dependent variable and democratic quality as predictor. Same was done for the bank-specific, macroeconomic, and structural predictors. Thus, the following regression model is derived, with Π_{st} being the credit institutions' profitability in country s in time t, with s=1, …, S and t=1, …, T. X is the included predictor, c is a constant term, and ε represents the disturbance term:

$$\Pi_{st} = c + \beta X_{st} + \varepsilon_{st}$$

Equation 2: Univariate Regression Model

Those explanatory variables, which did not show statistically significant impact on profitability in the univariate analysis, were not included in the following, multivariate estimation. This is the case for DEMO_3 and STOCK.

The multivariate analysis tests, whether the impact of democratic quality stays statistically significant, if predictors of the other categories were included as well. Doing so, one avoids a possible bias due to the omittance of another, statistically significant predictor. The multivariate regression model was derived, using an explorative way to select the included predictors, the backwards stepwise selection method. As a starting point, a regression model, including profitability as dependent variable, and all predictors, which proofed statistical significance in the univariate analysis, is set up. Since they are supposed to indicate for the same variable, only one democratic index at a time is included in the model. Thus, the following model was derived. The Xs are predictors, grouped into bank-specific, macroeconomic, structural, and democratic determinants, *j*, *l*, *m*, and *n* respectively.

$$\Pi_{st} = c + \sum_{j=1}^{J} \beta_j X_{st}^{j} + \sum_{l=1}^{L} \beta_l X_{st}^{l} + \sum_{m=1}^{M} \beta_m X_{st}^{m} + \beta_n X_{st}^{n} + \varepsilon_{st}$$

Equation 3: Multivariate Regression Model, starting point.

From this regression model, the explanatory variable with the lowest explanatory power, measured as partial correlation with the dependent variable, is removed from

[120] Cf. Fahrmeier, Ludwig et al., 2016, pp. 437-475.

the model. Step by step, explanatory variables are removed this way, until the removal of one other variable would lead to a significant change in R^2.[121] In this paper, the significance level was defined at a p-value of 10 %. As this was done for both measures of profitability separately, following models were deduced. None of the models include a structural predictor:

$$RoA_{st} = c + \beta_1 CPTL_{st} + \beta_2 LtD_{st} + \beta_3 NPLs_{st} + \beta_4 CPI_{st} + \beta_5 GDPG_{st} + \beta_6 DEMO\_2_{st} + \varepsilon_{st}$$

Equation 4: Multivariate Regression Model, estimating RoA

$$RoE_{st} = c + \beta_1 CPTL_{st} + \beta_2 LtD_{st} + \beta_3 NPLs_{st} + \beta_4 CPI_{st} + \beta_5 GDPG_{st} + \beta_6 DEMO\_4_{st} + \varepsilon_{st}$$

Equation 5: Multivariate Regression Model, estimating RoE

The same procedure was conducted for models, in which the profitability variable was lagged by one, and by two years. As the model's goodness of fit was decreasing with an increasing time lag, the model without time lag will be used in the following regression analysis. Furthermore, alternative explorative methods for the final, multivariate regression model's derivation, namely the forwards- and the stepwise selection, were conducted.[122] The models derived, show a lower R^2 than the models derived using the backwards selection method, which is why they got discarded.

In the following, a regression analysis is conducted for the overall sample, as well as for different subsamples. In 4.2, the panel is split up into different continents, in 4.3 into different income categories. To test for possible differences in determinants for profitability between continents and income categories, the same models that estimate relationships in the overall sample are used for the varying subsamples.

4 Empirical Analysis

4.1 Empirical Analysis on Global Level

4.1.1 Description of Global Data

For the time included, the profitability measures RoA and RoE show a rather stable annual average of about 1.7 % and 16.54 % respectively. Regarding both measures

[121] Cf. Steyer, Rolf: Wahrscheinlichkeiten und Regression, 1. Auflage, Berlin, 2003, p. 232.
[122] Cf. Steyer, Rolf, 2003, p. 232.

for profitability, one can observe a height between 2004 and 2007, where the average rises clearly above 20 % for RoE, followed by a dip in 2009 to 13.69 %. This anomaly is the consequence of the global financial crisis in 2007 and 2008[123] and is clearly visible in Figure 6. The global financial crisis also shows its impact on GDPG, which shows a rather stable trend at about 3.64 % and a clear dip in 2009.[124] Due to the Covid-19 pandemic and the following containment measures, GDPG shows another clear dip in 2020.[125]. As for CPI, it has an overall average of 7.07 %, even though it ranges between 4 % and 6 % between 2009 and 2019. Due to the rising commodity prices in 2008[126] and the combination of rising commodity prices and a supply-bottleneck in 2022[127], CPI shows clear peaks in the respective years. DEMO_4 shows an increasing trend from 0.5764 in 1997 to 0.613 in 2012, and a decreasing trend afterwards. A similar trend can be observed in the development of DEMO_1. DEMO_3 shows a decreasing democratic quality for the whole period considered. As DEMO_3 is not included in Figure 6, it can be found in Annex 4.

[123] Cf. Edey, Malcolm: The Global Financial Crisis and Its Effects, in: Economic Papers, No. 28/3, 2009, pp. 186-195.
[124] Cf. Edey, Malcolc, 2009, pp. 186-195.
[125] Cf. ECB: Annual Report 2020, Frankfurt am Main, 2021, pp. 6-18.
[126] Cf. World Bank: Global Economic Prospects: Commodities at the Crossroad, Washington DC, 2009, p. 30.
[127] Cf. IMF: World Economic Outlook, April 2022: War Sets Back The Global Recovery, Washington DC, 2022, pp. 11-14.

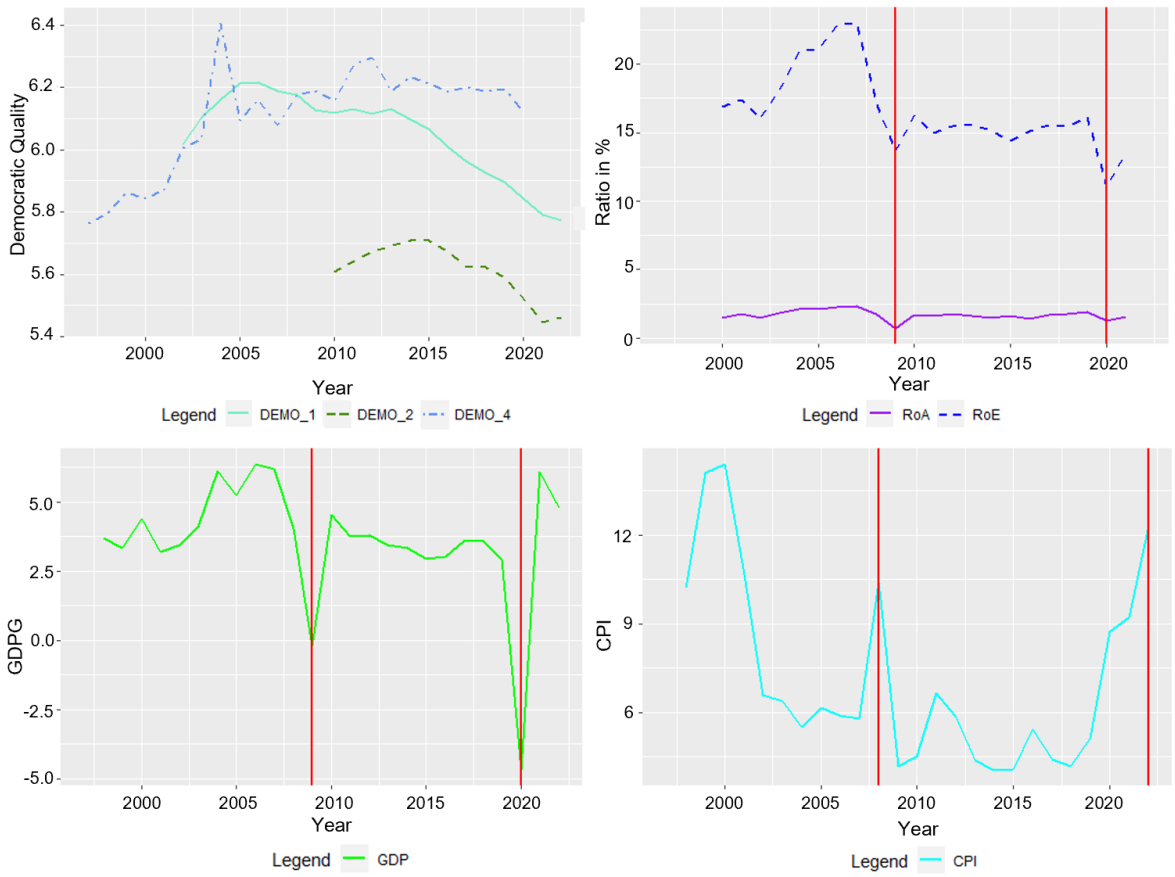

Figure 6: Development of selected variables on global level, (own representation, based on data of the World Bank database, https://databank.worldbank.org/metadataglossary/all/series, consulted on 06/10/2023). Note: DEMO_1 and DEMO_4 were adjusted to the scale of DEMO_2 using multiplication. DEMO_3 is not included, as it is no scaled index.

Bank-specific determinants show more stability. None of them show peaks or dips as clearly visible as those of RoE and GDPG.

Regarding all variables, the panel shows heterogeneity in terms of a standard deviation, which is often close to the mean, and a high range, which is often a multiple of the mean. The full descriptive analysis is depicted below.

Total panel	Mean	Max.	Min.	Std. dev.	Obs.	Time available
RoA	1.69 %	38.88 %	-55.41 %	2.33 %	3,148	2000-2021
RoE	16.54 %	257.59 %	-112.19 %	15.24 %	3,116	2000-2021
DEMO_1	60.5065	101	-1	28.8328	3,459	2002-2022
DEMO_2	5.6206	9.93	0.74	2.1707	2,325	2006-2022
DEMO_3	3.8867	4.6305	2.987	0.3127	764	1997-2017
DEMO_4	0.6091	0.9802	0.0261	0.2751	3,722	1997-2020

CPTL	9.7 %	244.91 %	-1.26 %	7.82 %	1,728	2000-2022
NPLs	6.26 %	61.11 %	0.09 %	7.51 %	1,738	2000-2022
LtD	98.79 %	2,861.11 %	8.61 %	91.63 %	3,708	1997-2021
GDPG	3.64 %	86.83 %	-50.34 %	5.26 %	4,055	1998-2022
CPI	7.07%	557.2%	-16.86%	21.25%	3,758	1998-2022

Table 3: Descriptive analysis of global data, (own calculations, based on data of the World Bank database, https://databank.worldbank.org/metadataglossary/all/series, consulted on 06/10/2023).

4.1.2 Empirical Results on Global Level

Estimating the impact of democratic quality on credit institutions' profitability using an univariate regression analysis, democratic quality shows a highly significant, negative coefficient. This holds for both measures of profitability, as well as for all indices of democratic quality, but for DEMO_3, which is insignificant. Naturally, the coefficients are higher in the model estimating RoE, as the denominator of the dependent variable is much smaller.

		RoA	RoE
DEMO_1	Coef.	-0.0121***	-0.0892***
	R^2	2.29 %	2.99 %
	Obs.	2,896	2,870
DEMO_2	Coef.	-0.1669***	-1.3582***
	R^2	3.36 %	4.06 %
	Obs.	2,024	2,009
DEMO_3	Coef.	0.0448	2.8317
	R^2	0.01 %	0.36 %
	Obs.	622	619
DEMO_4	Coef.	-1.3029***	-9.538***
	R^2	2.12 %	2.73 %
	Obs.	2,897	2,869

Table 4: Results of univariate regression model on global level.
*Note: Level of significance is depicted with * for p<0.1, ** for p<0.05, and *** for p<0.01.*

The goodness of fit, however, is rather low. Nearly all models do not reach 4 %, only the model estimating RoE using DEMO_2 as a predictor and a constant is slightly above that, showing a R^2 of 4.06 %. This expression becomes also clearly visible

while looking at the univariate models graphically. Doing so, there does not seem to be much of a relationship between the indices for democratic quality and bank's profitability, as profitability scatters equally along the democratic indices scale.

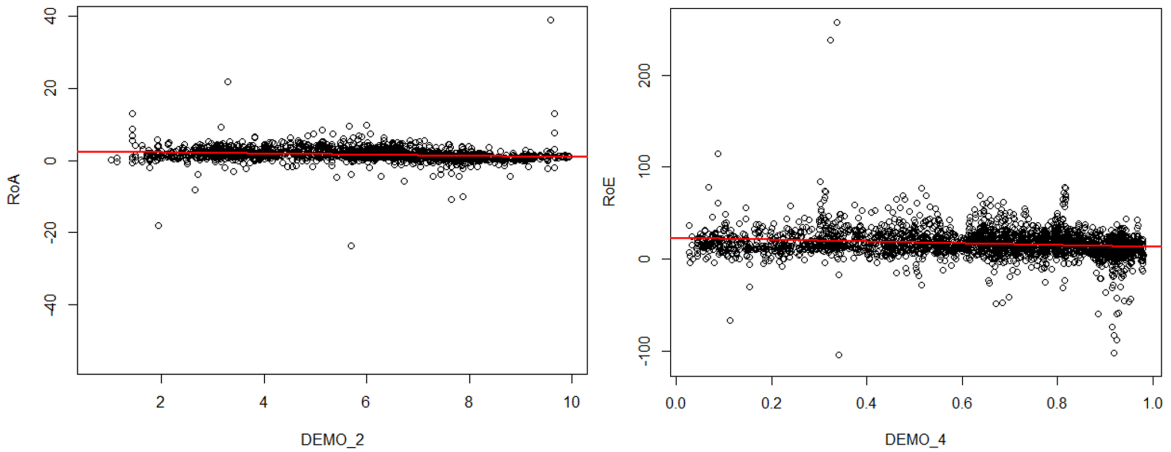

Figure 7: Visualization of the univariate regression models, (own representation, based on own calculations). On the left: RoA estimated by DEMO_2 and a constant. On the right: RoE estimated by DEMO_4 and a constant. Note: Red lines represent the respective regression models, black dots represent single data points.

To further test the impact of democratic quality that was indicated in the univariate model, a multivariate regression analysis is conducted, as described in 3.3. Doing so, the model's goodness of fit shows improvement to 14.54 % in the model estimating RoA, and to 19.07 % in the model which estimates RoE. Further, the F-statistics show a probability of 0 % for the models to include at least one variable without any impact on profitability whatsoever.

Equally to the univariate models, the indices for democratic quality show a highly significant, negative impact on profitability. The other included predictors are highly significant as well, except CPTL in the model estimating RoE, which has a p-value of 62.42 %.

In the model, which estimates RoA, CPTL shows a positive impact on profitability. This fits the findings of previous studies on this predictor and shows that high capital quotas have a positive effect on credit institutions' profitability.[128] One possible reason for this are the reduced expenses on uninsured funds.[129] Another explanation is the additional, higher yielding business opportunities a well-capitalized bank

[128] Cf. Bourke, Philip, 1986, pp. 65-79; see also: Anthanasoglou, Panayiotis et al., 2006, pp. 16-19.
[129] Cf. Berger, Allen N., 1995, pp. 432-456; see also: Demirguc-Kunt, Asli/ Huizinga, Harry, 2000, p. 10.

faces.[130] NPLs show a negative relationship with profitability. Since NPLs serve as an indicator for the quality of a credit institution's loan portfolio, it implies a negative effect of a high risky portfolio on the bank's profitability. Cabo Valverde and Rodriguez Fernandez reason that the higher interest expenses on uninsured funds as a consequence of low-quality assets cause the negative relationship.[131] This result is in line with previous findings.[132] With a coefficient of -0.0037 in the model, estimating RoA, and -0.0297 in the model estimating RoE, LtD shows a slightly negative impact on credit institutions' profitability. As a proxy for liquidity, these findings disagree with previous findings of Molyneux and Thornton.[133] As a proxy for credit risk, however, the negative relationship between LtD and profitability matches previous findings. A higher LtD causes higher credit risk, which in turn causes an increase in interest expenses the bank has to pay on uninsured funds.[134]

As for the macroeconomic determinants, both included predictors show a highly significant, positive relationship with profitability. These are in line with the relationships that have already been found in common literature.[135] For GDPG, as a proxy for the business cycle, the positive relationship that has been found indicates pro-cyclicality of bank's profits.[136] CPI shows a coefficient of 0.0448 in the model estimating RoA, and 0.4098 in the model that estimates RoE. A possible reason for that is given by Athanasoglou, who argues that in times of high inflation, interest margins increase faster than wages adapt.[137]

		RoA	RoE
Democratic predictors	DEMO_2	-0.1699***	-
	DEMO_4	-	-11.0126***
Bank-specific predictors	CPTL	0.043***	0.0324
	LtD	-0.0037***	-0.0297***

[130] Cf. ECB, 2016, pp. 69-72.
[131] Cf. Cabo Valverde, Santiago/ Rodriguez Fernandez, Francisco, 2007, pp. 1751-1765.
[132] Cf. Berger, Allen N., 1995, pp. 432-456; see also: Anthanasoglou, Panayiotis et al., 2006, pp. 16-19.
[133] Cf. Molyneux, Philip/ Thornton, John, 1992, pp. 1173-1178; see also: Molyneux, Philip, 1993, p. 240.
[134] Cf. Berger, Allen N., 1995, pp. 432-456; see also: Anthanasoglou, Panayiotis et al., 2006, pp. 16-19.
[135] Cf. Bikker, Jacon A./ Hu, Haixa, 2002, pp. 143-175; see also: Molyneux, Philip/ Thornton, John, 1992, p. 240.
[136] Cf. Bikker, Jacon A./ Hu, Haixa, 2002, pp. 143-175; see also: ECB, 2016, pp. 69-72.
[137] Cf. Anthanasoglou, Panayiotis et al., 2005, pp. 15-25.

	NPL	-0.0605***	-0.3552***
Macroeconomic predictors	CPI	0.0448***	0.4098***
	GDPG	0.0906***	0.9027***
R^2		14.54 %	19.01 %
Prob(F-statistic)		0.00 %	0.00 %
Obs.		1,238	1,286

Table 5: Results of multivariate regression model on global level.
*Note: Level of significance is depicted with * for p<0.1, ** for p<0.05, and *** for p<0.01.*

Testing for partial correlation between the explanatory variables by calculating the variance inflation factors, democratic indices show an especially high variance inflation factor. According to the interpretation guidelines given by Fahrmeier et al., a variance inflation factor indicates for multicollinearity, if it exceeds a value of 5.[138] With variance inflation factors of 14.4427 for DEMO_2, regarding the model estimating RoA, and 11.1652 for DEMO_4 in the model estimating RoE, it can be assumed that there is high multicollinearity between the democratic indices and the remaining predictors. High multicollinearity bears the problem of different predictors of a model explaining the same part of a dependent variable. Thus, coefficients and p-values of the model might become biased to an unknown extend, which makes interpretation no longer possible. However, since the democracy indices are the only predictors showing a variance inflation factor above 5, they are the least reliable predictors in this model. It can be concluded that the highly significant, negative coefficients of the democratic indices in the univariate analyses and in the multivariate regression model, are spurious correlations only. This, in turn, would implicate that there is no impact of a country's democratic quality on the profitability of its credit institutions.

4.2 Empirical Analysis in Different Continents

In the following, the panel is split into different groups of continents to test for differences between various geographical regions. First, the panel was split into each continent, resulting in 6 groups of continents. As Oceania comprises three countries only, it needed to be put into one subsample with another continent. Oceania shows, regarding its variable's descriptive statistics, the highest resemblance with Europe,

[138] Cf. Fahrmeier et al. 2016, pp. 477-499.

which is why they are put together into one subsample. The same holds for South- and North America. Separately, they include a low number of countries and observations. Since their variables are very alike to each other in terms of their averages, they make up another group of subsamples.

Some countries officially do belong to not one, but two continents. This is the case for Russia and Turkey. In the remaining of this paper, Russia is assigned to Asia, while Turkey is included in the European/ Oceanian subsample. It is important to note that these assignments are free from any political motivation or implication. An overview about countries included in each continent, can be found in Annex 2. Even after their merger, the North- and South American subsample includes with 31 countries the lowest number of countries. The African subsample includes with 45 countries the most.

4.2.1 Description of Data on Continent Level

Within the continent subsamples, variables are equally heterogeneous in terms of a high standard deviation and range, as they are in the overall sample. The different subsamples show different averages for different variables for the included time. The European/ Oceanian subsample displays the, on average, highest democratic quality, with an average index of 0.8341 for DEMO_4 and 5.5344 for DEMO_2. Further, it has the highest LtD. Regarding the GDPG, CPI, and both measures for profitability, the European/ Oceanian subsample shows the lowest averages across the continent subsamples. In comparison, the African subsample shows with its CPI, NPL, and both profitability measures the highest averages across the subsamples. Its LtD is the lowest of all subsamples. The Asian subsample shows the highest averaged CPTL, and GDPG, while it shows the lowest democratic quality, regarding both indices. In the Asian subsample, DEMO_2 shows an average of 4.3793, and DEMO_4 of 0.4161. The North-/ South American subsample displays the lowest NPL across the continent subsamples. For the overall descriptive analysis, please see Annex 5.

It is also interesting to note that, even though all subsamples show dips and peaks in their variables, equal to those of the overall sample, they sometimes vary in the strength of a certain anomaly, as well as in the exact starting point of it. This is

especially obvious for Roe and, next to other developments and differences in those, can be seen in Figure 7.

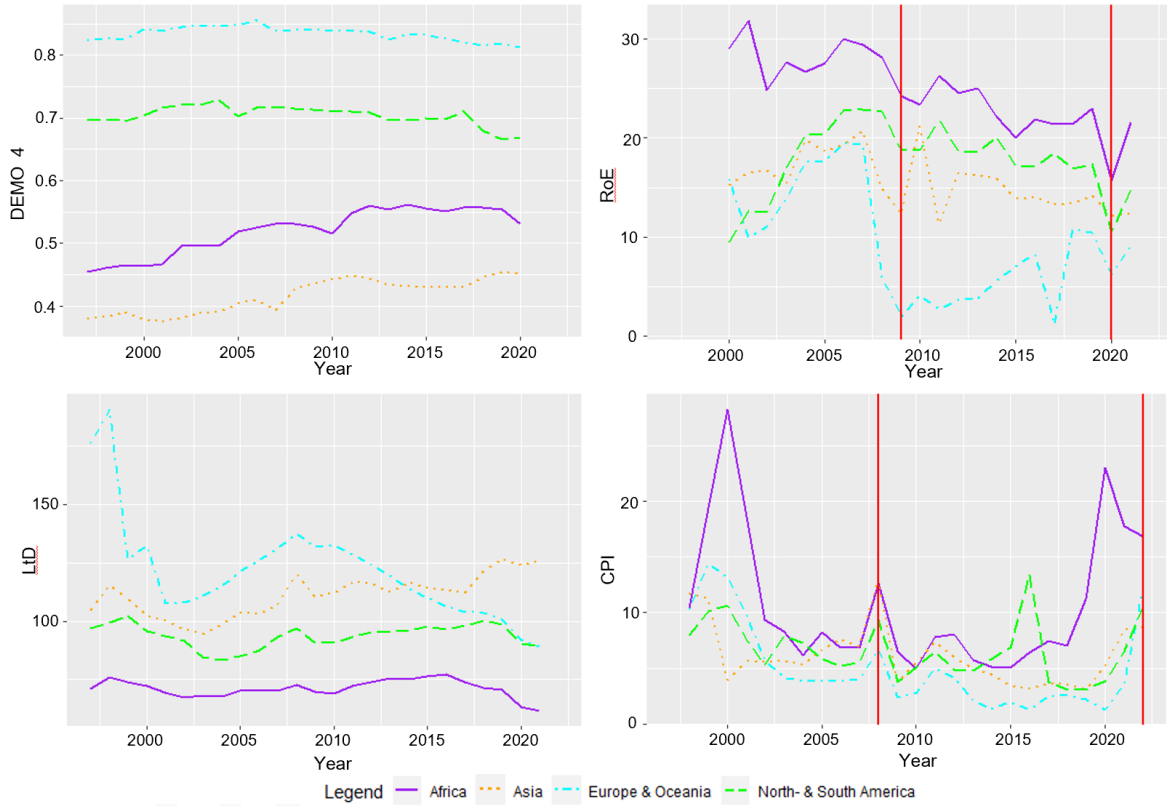

Figure 8: Development of selected variables in different continents, (own representation, based on data of the World Bank database, https://databank.worldbank.org/metadataglossary/all/series, consulted on 06/10/2023).

4.2.2 Empirical Results on Continent Level

Running the univariate regression models for the subsamples, the relationship between democratic indices and profitability, indicated by the univariate analysis of the overall panel, is no longer so clear. Not only does the significance vary strongly between the different subsamples, even the direction of the relationship differentiates between the different subsamples and the different democratic indices. One example for that is the impact of DEMO_1, which is significantly positive in the African subsample, significantly negative in the univariate models estimating RoE in the Asian, and North-/ South American subsamples, and not significant in the model estimating RoE in the European/ Oceanian subsample. These mixed findings support the conclusion from 4.1.2 that the impact of democratic quality on credit institutions' profitability is only a spurious correlation. Another possible explanation for such mixed findings could be a non-linear relationship between democratic quality

and profitability.[139] However, since such a relationship is neither indicated by a visual analysis of the data (please see Figure 7), nor by any economic reasoning, this explanation is discarded.

Equal the univariate analyses of the overall panel, R^2 mostly reports even lower values. The only exceptions for that are the analyses regarding the impact of DEMO_3 on profitability, which show R^2 of up to 16.86 % for the univariate model estimating RoA in the North-/ South American subsample, and of 19.15 % for the univariate model estimating RoE in the African subsample. These exceptions are caused by the low number of observations those specific models display. Further do those models, which display an insignificant coefficient for the democratic index, show a F-statistic of a height which indicates the insignificance of the whole model.

		Africa		Asia	
		RoA	RoE	RoA	RoE
DEMO_1	Coef.	0.0075**	0.0571**	-0.0054	-0.0118
	R^2	0.67 %	0.75 %	0.24 %	0.04 %
	Obs.	754	748	759	758
DEMO_2	Coef.	0.0594	0.2138	-0.084**	-0.2541
	R^2	0.37 %	0.07 %	0.84 %	0.11 %
	Obs.	544	541	551	551
DEMO_3	Coef.	-0.8513	-38.0883	-0.8239	1.4031
	R^2	4.79 %	19.15 %	1.19 %	0.01 %
	Obs.	15	15	20	20
DEMO_4	Coef.	0.0683	-0.15	-0.5283	-2.9164
	R^2	0.00 %	0.00 %	0.27 %	0.3 %
	Obs.	772	765	768	767
		Europe/ Oceania		North-/ South America	
		RoA	RoE	RoA	RoE

[139] Cf. Gambacorta, Leonardo/ Van Rixel, Adrian, 2013, p.6; see also: Gambacorta, Leonardo et al.: Diversification and bank profitability: a nonlinear approach, in: Applied Economics Letters, No. 21/6, Basel, 2014, pp. 438-441.

	Coef.	-0.0158***	-0.0368	-0.0084***	-0.1118***
DEMO_1	R^2	1.54 %	0.23 %	1.31 %	3.68 %
	Obs.	841	822	542	542
	Coef.	-0.0283	-0.0843	-0.084**	-0.2541
DEMO_2	R^2	0.03 %	0.01 %	0.84 %	0.11 %
	Obs.	588	576	551	551
	Coef.	0.0743	3.8023*	-1.1366***	-4.4044
DEMO_3	R^2	0.01 %	0.63 %	16.86 %	1.73 %
	Obs.	536	533	51	51
	Coef.	-1.822***	-3.0732	-0.5283	-10.9331
DEMO_4	R^2	1.62 %	0.13 %	0.27 %	3.16 %
	Obs.	841	821	768	516

Table 6: Results of univariate regression model in different continents.
*Note: Level of significance is depicted with * for p<0.1, ** for p<0.05, and *** for p<0.01.*

By conducting multivariate analyses, using models as derived in 3.3, the models for the African, and for the European/ Oceanian subsample each show a goodness of fit close to the one of the overall panel analyses. The Asian subsample, however, shows a R^2 of 6.44 % in its model estimating RoA, and a R^2 of 4.31 % in its model estimating RoE, which is much lower than the other model's R^2s. Further, the Asian subsample is the only one displaying a probability for the F-statistic above 0.00 %. Even though the overall model is still highly significant, it does not seem to fit the Asian subsample equally well as it does the other subsamples. This difference is neither explainable by looking at the descriptive statistics, nor is it already visible in the univariate analyses. In contrast, the North-/ South American subsample reaches a comparatively high goodness of fit, displaying a R^2 of 27.18 % for the model estimating RoA, and of 37.65 % for the model estimating RoE. This is explainable, since this subsample includes the least observations across the continent subsamples, with only 225 observations for the RoA, and 246 observations for the RoE model.

Matching the results from the univariate analyses, DEMO_2 and DEMO_4 show mixed impacts on the credit institutions' profitability. For the models estimating RoA, DEMO_2 is insignificant in the European/ Oceanian, and Asian subsample, significantly positive in the African subsample, and significantly negative in the North-/

South American subsample. DEMO_4 shows equally mixed results regarding its impact on RoE. While having a significantly negative impact on RoE in the European/ Oceanian, and the North-/ South American subsample, it has no significance in the remaining subsample's models. Again, these ambiguous results can be explained due to the multicollinearity between the indices for democratic quality and the remaining predictors, as described in 4.1.2.

In contrast to the overall panel analysis, CPTL shows ambiguous impacts on profitability for the different subsamples. Regarding the models estimating RoE, CPTL shows a significantly positive impact on profitability in the European/ Oceanian subsample, a significantly negative impact in the African subsample, and no significance in the remaining subsamples. To explain this ambiguity, Berger suggests the relationship between CPTL and profitability, not to be linear, but non-linear. He argues that the positive effects of a high capitalization, which were explained in detail in 2.2.2.1 and 4.1.2, only hold up to a certain ratio. After exceeding a certain threshold, the marginal costs for a high capitalization exceed the additional profits it earns.[140] Identical to the findings in 4.1.2, NPLs show a significantly, negative impact on profitability. LtD is insignificant in most subsamples, displaying a significantly negative impact on profitability only in the African subsamples, and the European, Oceanian subsample, which estimates RoE. An explanation for those negative relationships is given in 4.1.2 in detail.

GDPD and CPI show results, matching to those of the common literature and the overall panel analysis in 4.1.2. Explanations about why the predictors influence profitability positively are given in 4.1.2 in detail, too. For the full regression analyses of the subsamples, please see Annex 7.

4.3 Empirical Analysis in Different Income Categories

Additional to differences in various geographical regions, it would be interesting to test for differences of democratic quality's impact in different income categories. To do so, the overall panel is split into the four categories low, lower-middle, upper-middle, and high income. Those categories, as well as the assignment of the countries to each of the category, are based on the classification of lending groups by

[140] Cf. Berger, Allen N., 1995, pp. 432-456.

the world bank.[141] The countries are assigned to each category, according to their annual Gross National Income (GNI) per capita. To account for inflation, those thresholds are adjusted every year. Since the assignment is based on annual data, many countries change their income category during the period included in this panel. It is, therefore, hard to include a list, which sorts an income category to each country for a time series analysis. A table, where the thresholds for each income category over the respective period of time are listed, is displayed in Annex 3.

4.3.1 Description of Data in Income Categories

Equal the continent subsamples and the overall sample, the income subsamples are still rather heterogeneous in terms of a high standard deviation and range of the different variables. The highest heterogeneity can be observed in the upper-middle income subsample, with the exception of CPTL, which are most heterogeneous in the high income subsample.

One can observe a clear trend regarding the averages of the individual variables across the income categories. With increasing income, the profitability drops from an average RoA of 2.74 % in the low income subsample to 0.98 % in the high income subsample, and an average RoE from 25.17 % to 10.51 %. Further, one can observe an increase in the indices for democratic quality with increasing income categories. In the low income subsample, DEMO_2 has an average of 3.854, DEMO_4 of 0.4471. In the high income subsample, the average of DEMO_2 is 7.4246, the average of DEMO_4 0.8163. For the annual GDPD, the high income subsample displays a 2.28 % lower average GDPG than the low income subsample. Equal trends are observable for the other variables as well: With an increasing income category, the averaged LtD increases, while CPTL and CPI decreases.

Furthermore, the income subsamples show trends, peaks, and dips identical to those of the overall panel and the continent subsamples. For the full descriptive analysis, please see Annex 6.

[141] Cf. World Bank: World Bank Country and Lending Groups, https://data-helpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups, consulted on 09/10/2023.

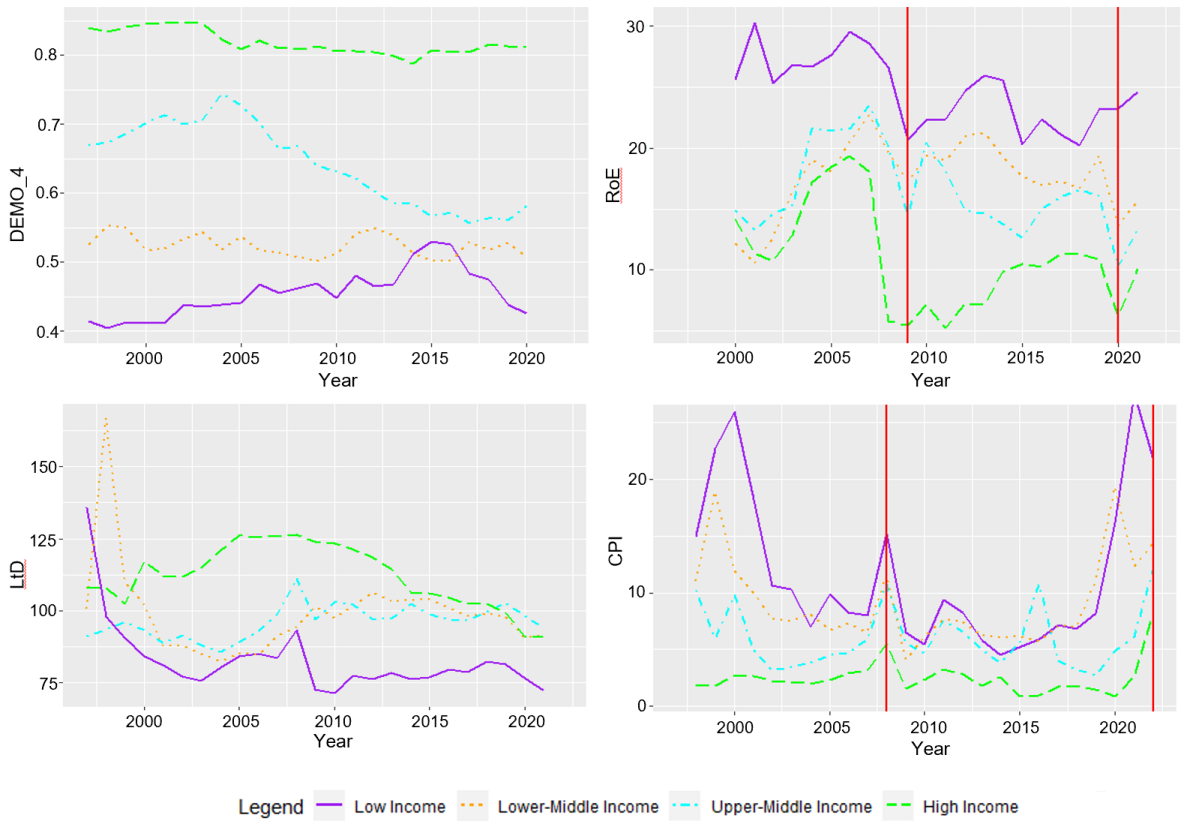

Figure 9: Development of selected variables in different income categories, (own representation, based on data of the World Bank database, https://databank.worldbank.org/metadataglossary/all/series, consulted on 06/10/2023).

4.3.2 Empirical Results in different Income Categories

In the following, the relationship between democratic quality and profitability is analysed in subsamples regarding the countries' income, using univariate analyses. Doing this, one gets results equally ambiguous as those of the univariate analyses in 4.2.2. However, there is a certain trend observable. The highest number of significant models can be found in the low, and in the high income subsample. In those, the indices for democratic quality show contrasting directions regarding their impact on profitability. While the significant models in the low income subsample all indicate for a positive impact of democratic quality on profitability, those models which are significant in the high income subsample indicate for the opposite. The subsamples of the income categories in between show a low number of significant models. Nevertheless, the few models of significance support the suggested trend. This trend is explainable not by the democratic quality itself, but by the bank-specific and macroeconomic predictors, which, according to the descriptive analyses described in detail in 4.3.1, follow a certain trend on their own, and are highly correlated with the

democratic predictors. As concluded in 4.1.2, the correlation between the democratic predictors and profitability is a spurious correlation. Thus, the behaviour, which DEMO_2 and DEMO_4 show along the increasing income category of the subsamples, are caused by the other predictor's trends, not by a relationship between democratic quality and profitability itself.

		Low income		Lower-middle income	
		RoA	RoE	RoA	RoE
DEMO_1	Coef.	0.0116***	0.1382***	0.0039	0.0238
	R^2	1.58 %	3.16 %	0.17 %	0.24 %
	Obs.	543	539	721	717
DEMO_2	Coef.	0.2605***	2.3313***	0.0613	0.1295
	R^2	3.75 %	3.9 %	0.25 %	0.04 %
	Obs.	337	335	512	510
DEMO_3	Coef.	Insufficient Obs.	Insufficient Obs.	5.5164*	34.9967
	R^2			17.89 %	11.14 %
	Obs.			17	17
DEMO_4	Coef.	0.1831	4.0059	0.3552	0.7466
	R^2	0.03 %	0.22 %	0.12 %	0.02 %
	Obs.	596	590	728	724

		Upper-middle income		High income	
		RoA	RoE	RoA	RoE
DEMO_1	Coef.	0.0039	0.0184	-0.0141***	-0.0667***
	R^2	0.13 %	0.09 %	3.47 %	1.75 %
	Obs.	721	713	906	896
DEMO_2	Coef.	0.027	0.2431	-0.1211***	-0.5713**
	R^2	0.09 %	0.08 %	1.47 %	0.81 %
	Obs.	530	527	643	635
DEMO_3	Coef.	-0.1555	0.7721	0.8624**	10.9308***
	R^2	0.05 %	0.01 %	1.24 %	4.27 %

	Obs.	118	118	487	484
	Coef.	0.4403	1.5663	-1.6913***	-7.8755***
DEMO_4	R^2	0.15 %	0.06 %	5.05 %	2.68 %
	Obs.	717	708	847	838

Table 7: Results of univariate regression model in different income categories.
*Note: Level of significance is depicted with * for p<0.1, ** for p<0.05, and *** for p<0.01.*

Including bank-specific and macroeconomic predictors in the regression models, the goodness of fit increases to a level slightly above the one of the overall panel analysis. The only exceptions are the subsample of lower-middle income countries, which shows a relatively low R^2 of only 9.95 % in the model estimating RoA, and the upper-middle income subsample, which displays a R^2 of only 6.74 % in the model estimating RoE. As those subsamples are not exceptional regarding their descriptive measures, a possible reason for such a low goodness of fit might be that the combination of variables included in this model do not fit the banking structure in those countries. With a probability of the F-statistic below 1 %, all models are highly significant.

For the models which estimate RoE, DEMO_4 is insignificant in all income subsamples. Identical to the multivariate analyses conducted in 4.2.2, as well as the univariate analyses at the beginning of this part, DEMO_2 shows ambiguous impacts on RoA in the different income categories. For the low income subsample, the significant coefficient of 0.3873 indicates a positive impact of DEMO_2 on RoA. The opposite is suggested by the coefficient of -0.1386, which is significant in the upper-middle income category. A possible explanation for this behaviour of the impact of DEMO_2 on profitability is given at the beginning of this section.

CPTL impacts profitability, especially in the model estimating RoE, differently along the income categories. While showing a highly significant, negative relationship in the lower income categories, it is significantly positive in high income countries. For the upper-middle income subsample, the impact is slightly positive, but insignificant. Considering the descriptive statistics for the respective subsamples, where CPTL shows a decreasing mean in increasing income categories, this behaviour is perfectly in line with the argumentation of Berger. He argues for a non-linear impact of

CPTL on profitability, as explained in detail in 4.2.2.[142] NPLs shows a highly significant, negative impact on profitability, in both models respectively. This fits the findings of previous empirical studies, as well as of the previous analyses of this paper. Interestingly, the strength of the impact slightly increases with higher income categories, from -0.0624 in the lower-middle income subsample for the model estimating RoA to -0.0929 in the high income subsample. A possible reasoning is a higher sensitivity of depositors within high income countries to quality changes in the credit institutions' loan portfolios. Since NPLs decreases in its mean along increasing income categories, another explanation would be a non-linear approach to the impact of NPLs on profitability. Equally to the findings of 4.1.2 and 4.2.2, LtD has a negative impact on profitability in all income categories. Including the descriptive statistics, one can observe that the impact is stronger, the lower the loan to deposit ratio's mean of the respective income category is. This again indicates for a non-linear impact of LtD on profitability. An economic reasoning for such a relationship would be a decrease in marginal costs for granting a loan when the LtD is higher. Such behaviour is explainable due to an exploration of economies of scale[143], and higher diversification opportunities within the loan portfolio.[144]

As for the macroeconomic predictors, their impact in the income subsamples matches the results from the overall panel analysis in 4.1.2, and the analysis for the different continents in 4.2.2. In contrast to the bank-specific predictors, neither GDPG, nor CPI display any kind of trend in their coefficients along the different income subsamples. For the output table of the full regression analysis, please see Annex 8.

5 Conclusion and Outlook

The impact of a country's democratic quality on its credit institutions' profitability is a topic, which did not receive much attention in literature, yet. This paper aimed to shed some light on this relationship.

[142] Cf. Berger, Allen N., 1995, pp. 432-456.
[143] Cf. Eichengreen, Barry/ Gibson, Heather D.: Greek Banking at the Dawn oft he new Millenium, CERP Discussion Paper, No. 2791, London, 2001, pp. 12-22.
[144] Cf. Boyd, John H./ Runkle, David E.: Size and Performance of banking firms: Testing the predictions of theory, in: Journal of Monetary Economics, No. 31/1, 1993, pp. 47-67.

The second question asked, if different indices attempting to quantify democratic quality are interchangeable, must be answered with a clear rejection. As correlation coefficients range between 0.7796 and 0.955, the analysis did not confirm the author's expectations of a nearly perfect, positive correlation, but the statement given by Cheibub et al. that "existing measures of political regimes are significantly different".[145] Further, it yielded, that some indices for democratic quality are more alike to each other than others. Possible reasons for deviations of the indices from each other are differing definitions of democracy, approaches to measure the indicators, or aggregation methods of the individual indices. Consequently, one must be careful with drawing general conclusions about the impact of democratic quality on credit institutions' profitability, as different indices for democratic quality do not perfectly agree on what highly qualitative democracy is.

To answer the first question asked, if democratic quality impacts profitability significantly, several OLS regression models were estimated. Univariate analyses on global level displayed a significantly negative impact of democratic quality on profitability. This relationship stayed in place, when bank-specific- and macroeconomic predictors were added to derive a multivariate analysis. However, due to high multicollinearity between the indices of democratic quality and the remaining predictors included, the correlation between democratic quality and profitability is a spurious correlation. This also becomes clear, when analysing the correlation visually. The analysis, hence, proofs the expectations, that democratic quality influences credit institutions' profitability positively, wrong.

The same holds for the relationship in different geographical regions. In the subsamples in which the panel is divided in groups according to each country's continent, democratic quality shows mainly insignificant, inconsistent impacts of democratic quality on profitability. This behaviour reflects the high multicollinearity between democratic quality and the remaining explanatory variables. Following the literature, which suggests the marginal effects of democracy on profitability decrease with increasing income, the paper further splits up the overall panel into subsamples according to the country's income category. Analysis of these subsamples support the findings of the overall panel analyses, as well as those of the continent-

[145] Cheibub, José et al., 2009, pp. 67-101.

subsamples. Due to high multicollinearity, the correlation between democratic quality and profitability is a spurious one. Consequently, one must conclude, that the democratic quality of a country does not impact the profitability of its credit institutions' profitability.

As for the bank-specific and macroeconomic predictors, which were included in the multivariate regression model, the impacts found were in line with those discussed in previous literature. Further, bank-specific predictors displayed trends in their impact's strength on bank's profitability along the increasing income categories. So did the strength of the negative impact of NPLs and LtDs increase with an increasing income category. Regarding CPTL, the relationship even changes its direction. From a negative impact on profitability in the lower income categories to a positive one in the high income subsample. Those trends can be explained with the descriptive analyses, as the lower income subsamples tend to have a lower mean in LtD, and higher means regarding CPTL and NPLs. This again, suggests a non-linear relationship between the respective bank-specific predictors and profitability.

When using a linear OLS regression model, one ought to bear following limitations in mind. Firstly, the indices of democratic quality are always an aggregated bundle of underlying indicators. This paper used overall indices as predictors for profitability. Single indicators or even dimensions of the indices might show different results. An analysis in such detail is out of the scope of this paper but might be conducted in subsequent studies. Further, as bank-specific indicators often show non-linear relationships to profitability, a linear approach might not be suitable to analyse the impact of democratic quality on profitability. Even though the visual analysis did not suggest a non-linear relationship between democratic quality and profitability, this is a point to be considered in case of subsequent studies. Another important remark, which does not hold only for democratic quality as a predictor, but for all the other predictors included in the multivariate regression models equally, is brought up by Backhaus et al.: "The terms 'dependent' and 'independent' variable should not obscure the fact that the causal relationship assumed in a regression analysis is often only a hypothesis."[146]

[146] Backhaus, Klaus et al.: Multivariate Analysemethoden. Eine anwendungsorientierte Einführung, 14th Edition, Berlin, 2015, p. 65.

As the world changes, so does the environment for credit institutions' profitability. Even though there seems to be no perfect agreement on what qualitative democracy is exactly, geopolitical tensions and political mindshifts renew the discussion about democracy as the right form of government. Over the last years, the world observed a constant decline in democratic regimes. This paper shows that it is not democratic quality which impacts credit institutions' profitability. At least not directly. Nevertheless, democracy impacts bank-specific and macroeconomic determinants of bank's profitability and those determinants proved to remain decisive factors for credit institutions' profitability. Thus, in order to explore possible consequences of the decrease in democratic regimes, further research regarding the impact of democratic quality on bank-specific and macroeconomic determinants is a subject of interest.

Additionally, there are other aspects of geopolitical conflicts, influencing credit institutions' profitability, on the one hand. Examples for that could be economic instability and increasing government debt, causing a further strengthening of the sovereign-banking nexus. Regarding those aspects, literature, as well as theoretical models, exist on past developments. Nevertheless, it would be interesting to check if the previously assumed relationships still hold in current times. Political mindshifts, on the other hand, might offset a trend of further deglobalisation, causing a decline in international trade, an increase in transaction costs, and a reduction in diversification opportunities. An exploration of possible consequences would shed further light on how the environment for the banking sector changes under the current global developments.

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Appendix

Annex 1: Labelling of variables

		Label	Name	Definition
Dependent variable		RoA	Return on Assets	Ratio of commercial banks' pre-tax income as percentage to yearly averaged total assets.
		RoE	Return on Equity	Ratio of commercial banks' pre-tax income as percentage to yearly averaged equity.
Explanatory variables	Indices for democratic quality	DEMO_1	Freedom in World Index	Index published by the Freedom House Organisation, quantifying democratic quality in countries.
		DEMO_2	EIU Democracy Index	Index published by the Economist Intelligence Unit, quantifying democratic quality in countries.
		DEMO_3	Democracy Barometer	Index developed as a joint project between WZB and ZDA, quantifying democratic quality in countries.
		DEMO_4	Democracy Matrix	Index developed as project of the Julius-Maximilian University in Würzburg, quantifying democratic quality in countries.
	Bank-specific predictors	NPLs	Non-Performing Loans	Ratio of commercial banks' gross amount of non-performing loans as percentage to total gross loans.
		LtD	Loans to Deposits	Ratio of domestic commercial banks' loans to the private sector as percentage to the banks' total deposits.

		CPTL	Capitalization	Ratio of commercial banks' capital, reserves and provisions as percentage to total assets.
	Macroeconomic predictors	OPCSTS	Operating Costs	Ratio of commercial banks' operating expenses as percentage to total assets.
		GDPG	Growth in GDP	Annual percentage growth rate of GDP at market prices.
		CPI	Consumer Price Index	Percentage of annual change of prices in statistical basket of goods.
		INT	Interest Rates	Annual interest rates on a 10 year government bond.
	Structural predictors	CONC	5-Bank Concentration	Ratio of assets of 5 largest commercial banks as percentage to total domestic banks' assets.
		STOCK	Stock Market Capitalization	Ratio of total value of all listed shares in a stock market as percentage to GDP.

Table 8: Labelling of variables.

Annex 2: List of included countries

Continent	Countries included		
Africa	Algeria	Gabon	Namibia
	Angola	Gambia, The	Niger
	Benin	Ghana	Nigeria
	Botswana	Guinea	Rwanda
	Burkina Faso	Kenya	Senegal
	Burundi	Lesotho	Seychelles
	Cabo Verde	Liberia	Sierre Leone
	Cameroon	Lybia	South Africa
	Chad	Madagascar	Sudan
	Congo, Dem. Rep.	Malawi	Tanzania
	Cote d'Ivore	Mali	Togo
	Djibouti	Mauritania	Tunisia
	Egypt	Mauritius	Uganda
	Eswatini	Morocco	Zambia
	Ethiopia	Mozambique	Zimbabwe
Asia	Afghanistan	Kazakhstan	Qatar
	Armenia	South Korea	Russian Federation
	Azerbaijan	Kuwait	Saudi Arabia
	Bahrain	Kyrgyz Republic	Singapore
	Bangladesh	Lao	Sri Lanka
	Buthan	Lebanon	Syrian Arab Republic
	Cambodia	Malaysia	Taiwan
	China	Maldives	Tajukistan
	Georgia	Mongolia	Thailand
	India	Myanmar	Turkmenistan
	Indonesia	Nepal	United Arab Emirates
	Iraq	Oman	Uzbekistan

	Israel	Pakistan	Vietnam
	Japan	Philippines	Yemen, Rep.
	Jordan		
Europe	Albania	Greece	Norway
	Andorra	Hungary	Poland
	Austria	Iceland	Portugal
	Belarus	Ireland	Romania
	Belgium	Italy	San Marino
	Bosnia and Herzigovina	Latvia	Serbia
	Bulgaria	Lithuania	Slovak Republic
	Croatia	Luxembourg	Slovenia
	Cyprus	Malta	Spain
	Czech Republic	Moldova	Sweden
	Denmark	Monaco	Switzerland
	Estonia	Montenegro	Turkey
	Finland	Netherlands	Ukraine
	France	North Macedonia	United Kingdom
	Germany		
North America	Antigua and Barbuda	Dominican Republic	Mexico
	Bahamas	El Salvador	Nicaragua
	Barbados	Guatemala	Panama
	Belize	Haiti	St Lucia
	Canada	Honduras	Trinidad and Tobago
	Costa Rica	Jamaica	United States
	Cuba		
Oceania	Australia	Fiji	New Zealand
South America	Argentinia	Colombia	Peru
	Bolivia	Ecuador	Suriname
	Brazil	Guyana	Uruguay

	Chile	Paraguay	Venezuela

Table 9: List of included countries, categorized in continents.

Annex 3: Thresholds for income categories

Year	Low Income	Lower-Middle Income	Upper-Middle Income	High Income
1997	<=785	786-3,125	3,126-9,655	>9,655
1998	<=760	761-3,030	3,031-9,360	>9,360
1999	<=755	756-2,995	2,996-9,265	>9,265
2000	<=755	756-2,995	2,996-9,265	>9,265
2001	<=745	746-2,975	2,976-9,205	>9,205
2002	<=735	736-2,935	2,936-9,075	>9,075
2003	<=765	766-3,035	3,036-9,385	>9,385
2004	<=825	826-3,255	3,256-10,065	>10,065
2005	<=875	876-3,465	3,466-10,725	>10,725
2006	<=905	906-3,595	3,596-11,115	>11,115
2007	<=935	936-3,705	3,706-11,455	>11,455
2008	<=975	976-3,855	3,856-11,905	>11,905
2009	<=995	996-3,945	3,946-12,195	>12,195
2010	<=1,005	1,006-3,975	3,976-12,275	>12,275
2011	<=1,025	1,026-4,035	4,036-12,475	>12,475
2012	<=1,035	1,036-4,085	4,086-12,615	>12,615
2013	<=1,045	1,046-4,125	4,126-12,745	>12,745
2014	<=1,045	1046-4,125	4,126-12,735	>12,735
2015	<=1,025	1,026-4,035	4,036-12,475	>12,475
2016	<=1,005	1,006-3,955	3,956-12,235	>12,235
2017	<=995	996-3,895	3,896-12,055	>12,055
2018	<=1,025	1,026-3,995	3,996-12,375	>12,375
2019	<=1,035	1,036-4,045	4,046-12,535	>12,535
2020	<=1,045	1,046-4,095	4,096-12,695	>12,695
2021	<=1,085	1,086-4,255	4,256-13,205	>13,205
2022	<=1,135	1,136-4,465	4,466-13,845	>13,845

Table 10: Thresholds for income categories between 1997 and 2022, based on classification of World Bank: World Bank Country and Lending Groups, https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups, consulted on 09/10/2023.
Note: GNI displayed in USD.

Annex 4: Time series of DEMO_3

Figure 10: Development of DEMO_3 on global level, (own representation, based on data of Democracy Barometer: https://democracybarometer.org/data-and-documentation/, consulted on 06/10/2023).

Annex 5: Descriptive analysis of data on continent level

African subsample	Mean	Max.	Min.	Std. dev.	Obs.	Time available
RoA	2.57 %	18.75 %	-27.63 %	2.27 %	811	2000-2021
RoE	24.55 %	137.84 %	-15.45 %	16.87 %	801	2000-2021
DEMO_1	47.3757	92	3	22.4294	945	2002-2022
DEMO_2	4.4612	8.28	1.13	1.6708	660	2006-2022
DEMO_3	3.5348	3.7742	3.3535	0.1067	21	1997-2017
DEMO_4	0.5206	0.8864	0.0401	0.223	1,053	1997-2020
CPTL	9.47 %	17.96 %	1.49 %	2.97 %	346	2005-2022
NPLs	8.06 %	37.25 %	0.83 %	5.71 %	355	2000-2022
LtD	71.21 %	143.95 %	13.38 %	16.95 %	1,065	1997-2021
GDPG	4.05 %	86.83 %	-50.34 %	5.67 %	1,104	1998-2022
CPI	10.44 %	557.2 %	-16.86 %	34.7 %	1,048	1998-2022

Table 11: Descriptive analysis of data of the African subsample, (own calculations, based on data of the World Bank database, https://databank.worldbank.org/metadataglossary/all/series, consulted on 06/10/2023).

Asian subsample	Mean	Max.	Min.	Std. dev.	Obs.	Time available
RoA	1.65 %	21.93 %	-55.41 %	2.64 %	821	2000-2021
RoE	15.5 %	257.59 %	-103.64 %	13.87 %	820	2000-2021
DEMO_1	38.9712	96	-1	24.7396	903	2002-2022
DEMO_2	4.3793	8.99	0.74	1.9837	630	2006-2022
DEMO_3	3.5964	3.7149	3.4772	0.0683	25	1997-2017
DEMO_4	0.4161	0.9265	0.0261	0.2712	1,012	1997-2020
CPTL	10.79 %	27.38 %	4.74 %	4.13 %	398	2001-2022
NPLs	5.07 %	47.6 %	0.23 %	5.28 %	389	2003-2022
LtD	110.81 %	898.05 %	9.22 %	100.72 %	927	1997-2021
GDPG	4.86 %	53.38 %	-36.66 %	5.68 %	1,037	1998-2022
CPI	6.12 %	154.76 %	-10.07 %	10.2 %	940	1998-2022

Table 12: Descriptive analysis of data of the Asian subsample, (own calculations, based on data of the World Bank database, https://databank.worldbank.org/metadataglossary/all/series, consulted on 06/10/2023).

European/ Oceanian subsample	Mean	Max.	Min.	Std. dev.	Obs.	Time available
RoA	0.92 %	38.88 %	-23.8 %	2.18 %	924	2000-2021
RoE	9.57 %	45.27 %	-112.19 %	13.49 %	903	2000-2021
DEMO_1	85.4573	101	8	17.7119	960	2002-2022
DEMO_2	7.5344	9.93	1.99	1.4739	645	2006-2022
DEMO_3	3.9043	4.6305	2.987	0.3205	655	1997-2017
DEMO_4	0.8341	0.9812	0.0699	0.1683	1,011	1997-2020
CPTL	8.78 %	244.91 %	-1.26 %	10.27 %	641	2000-2022
NPLs	7.81 %	61.11 %	0.09 %	10.19 %	646	2000-2022
LtD	120.77 %	2,861.11 %	8.61 %	136.76 %	996	1997-2021
GDPG	2.65 %	24.37 %	-29.1 %	4.18 %	1,148	1998-2022
CPI	4.93 %	293.68 %	-4.48 %	13.33 %	1,073	1998-2022

Table 13: Descriptive analysis of data of the European/ Oceanian subsample, (own calculations, based on data of the World Bank database, https://databank.worldbank.org/metadataglossary/all/series, consulted on 06/10/2023).

North-/ South American subsample	Mean	Max.	Min.	Std. dev.	Obs.	Time available
RoA	1.78 %	5.82 %	-17.59 %	1.64 %	592	2000-2021
RoE	17.79 %	58.3 %	-82.72 %	11.4 %	592	2000-2021
DEMO_1	72.6452	99	7	20.4431	651	2002-2022
DEMO_2	6.4227	9.24	2.11	1.4035	390	2006-2022
DEMO_3	3.9367	4.3282	3.6177	0.1816	61	1997-2017
DEMO_4	0.7037	0.9619	0.0789	0.191	646	1997-2020
CPTL	10.38 %	69.27 %	2.32 %	8.95 %	343	2001-2022
NPLs	2.89 %	18.2 %	0.34 %	2.08 %	348	2000-2022
LtD	93.69 %	237.35 %	25.86 %	35.53 %	720	1997-2021
GDPG	2.87 %	57.8 %	-24.37 %	5.1 %	766	1998-2022
CPI	6.58 %	254.95 %	-7.11 %	13.63 %	697	1998-2022

Table 14: Descriptive analysis of data of the North-/ South American subsample, (own calculations, based on data of the World Bank database, https://databank.worldbank.org/metadataglossary/all/series, consulted on 06/10/2023).

Annex 6: Descriptive analysis of data in different income categories

Low income subsample	Mean	Max.	Min.	Std. dev.	Obs.	Time available
RoA	2.74 %	18.75 %	-14.2 %	2.28 %	614	2000-2021
RoE	25.17 %	237.84 %	-103.64 %	18.36 %	608	2000-2021
DEMO_1	41.1191	84	-1	20.4542	672	2002-2022
DEMO_2	3.854	7.68	1.13	1.3874	406	2006-2022
DEMO_3	No data available					
DEMO_4	0.4471	0.8363	0.027	0.225	886	1997-2020
CPTL	11.29 %	27.38 %	1.64 %	3.95 %	181	2001-2022
NPLs	8.31 %	36.51 %	0.71 %	6.43 %	179	2005-2022
LtD	84.62 %	2861.01 %	10.34 %	116.33 %	830	1997-2021
GDPG	4.85 %	33.63 %	-30.15 %	4.39 %	880	1998-2022
CPI	11.91 %	513.91 %	-9.62 %	33.56 %	791	1998-2022

Table 15: Descriptive analysis of data of the low income subsample, (own calculations, based on data of the World Bank database, https://databank.worldbank.org/metadataglossary/all/series, consulted on 06/10/2023).

Lower-middle income sub-sample	Mean	Max.	Min.	Std. dev.	Obs.	Time avail-able
RoA	1.86 %	10.46 %	-27.63 %	2.12 %	777	2000-2021
RoE	17.72 %	68.61 %	-66.47 %	11.38 %	770	2000-2021
DEMO_1	47.6644	92	-1	23.0186	873	2002-2022
DEMO_2	4.7498	7.94	0.74	1.6281	602	2006-2022
DEMO_3	3.5068	3.7267	3.1701	0.1488	30	1997-2017
DEMO_4	0.5243	0.94	0.0261	0.2283	966	1997-2020
CPTL	9.99 %	56.77 %	1.49 %	4.41 %	397	2000-2022
NPLs	7.63 %	59.76 %	0.71 %	8.86 %	409	2000-2022
LtD	98.53 %	2,861.11 %	8.61 %	124.44 %	963	1997-2021
GDPG	4.21 %	53.38 %	-36.66 %	5.42 %	1,022	1998-2022
CPI	9.06 %	557.2 %	-16.86 %	24.62 %	982	1998-2022

Table 16: Descriptive analysis of data of the lower-middle income subsample, (own calculations, based on data of the World Bank database, https://databank.worldbank.org/metadataglossary/all/series, consulted on 06/10/2023).

Upper-middle income sub-sample	Mean	Max.	Min.	Std. dev.	Obs.	Time avail-able
RoA	1.6 %	21.93 %	-55.41 %	2.76 %	776	2000-2021
RoE	16.27 %	257.59 %	-82.72 %	15.78 %	767	2000-2021
DEMO_1	60.2132	99	2	25.964	849	2002-2022
DEMO_2	5.5747	8.29	1.66	1.7284	605	2006-2022
DEMO_3	3.5897	4.0071	2.987	0.205	149	1997-2017
DEMO_4	0.6325	0.9518	0.043	1.2535	862	1997-2020
CPTL	10.68 %	69.27 %	2.32 %	7.5 %	500	2001-2022
NPLs	5.63 %	22.29 %	0.51 %	4.78 %	509	2001-2022
LtD	96.62 %	366 %	14.72 %	44.53 %	917	1997-2021
GDPG	3.23 %	86.83 %	-50.34 %	6.35 %	963	1998-2022
CPI	5.98 %	254.95 %	-9.8 %	12.63 %	879	1998-2022

Table 17: Descriptive analysis of data of the upper-middle income subsample, (own calculations, based on data of the World Bank database, https://databank.worldbank.org/metadataglossary/all/series, consulted on 06/10/2023).

High income subsample	Mean	Max.	Min.	Std. dev.	Obs.	Time available
RoA	0.99 %	38.88 %	-17.66 %	1.82 %	971	2000-2021
RoE	10.52 %	58.3 %	-112.19 %	12.22 %	961	2000-2021
DEMO_1	83.7205	101	7	23.5335	1,059	2002-2022
DEMO_2	7.4246	9.93	1.71	1.9564	709	2006-2022
DEMO_3	3.9819	4.6305	3.384	0.2775	585	1997-2017
DEMO_4	0.8163	0.9802	0.0546	0.2413	991	1997-2020
CPTL	8.32 %	244.91 %	-1.26 %	10.02 %	650	2002-2022
NPLs	5.32 %	61.11 %	0.09 %	8.36 %	641	2005-2022
LtD	111.91 %	370.9 %	17.76 %	51.68 %	985	1997-2021
GDPG	2.57 %	57.8 %	-23.51 %	4.43 %	1,172	1998-2022
CPI	2.48 %	62.17 %	-4.86 %	3.13 %	1,098	1998-2022

Table 18: Descriptive analysis of data of the high income subsample, (own calculations, based on data of the World Bank database, https://databank.worldbank.org/metadataglossary/all/series, consulted on 06/10/2023).

Annex 7: Multivariate regression analysis in different continents

Dependent variable: RoA		Africa	Asia	Europe/ Oceania	North-/ South America
Democratic predictor	DEMO_2	0.0939*	0.0302	-0.0242	-0.2497***
Bank-specific predictors	CPTL	0.0862***	0.1069***	0.1394***	0.0061
	LtD	-0.0075*	-0.001	-0.0025	0.0016
	NPL	-0.012	-0.0621**	-0.0654***	-0.1467***
Macroeconomic predictors	CPI	0.0372**	0.037	-0.006	0.0752***
	GDPG	0.1012***	0.0545*	0.0979***	0.0295***
R^2		16.85 %	6.4 4%	12.66 %	27.18 %
Prob(F-statistic)		0.00 %	0.32 %	0.00 %	0.00 %
Obs.		250	300	463	225

Table 19: Results of multivariate regression model in different continents, estimating RoA.
*Note: Level of significance is depicted with * for p<0.1, ** for p<0.05, and *** for p<0.01.*

Dependent variable: RoE		Africa	Asia	Europe/ Oceania	North-/ South America
Democratic predictor	DEMO_4	-2.1415	2.4004	-9.7236**	-13.9797***
Bank-specific predictors	CPTL	-0.7644***	-0.1762	0.2239*	0.031
	LtD	-0.1248***	-0.0037	-0.0285**	0.0061
	NPL	-0.2857**	0.2967	-0.3828***	-1.3739***
Macroeconomic predictors	CPI	0.1743	0.3253	0.0688	0.5402***
	GDPG	0.7517***	0.5717***	1.018***	0.6801***
R^2		15.15 %	4.32 %	17.82 %	37.65 %
Prob(F-statistic)		0.00 %	3.52 %	0.00 %	0.00 %
Obs.		264	312	464	246

Table 20: Results of multivariate regression model in different continents, estimating RoE.
*Note: Level of significance is depicted with * for p<0.1, ** for p<0.05, and *** for p<0.01.*

Annex 8: Multivariate regression analysis in different income categories

Dependent variable: RoA		Low income	Lower-middle income	Upper-middle income	High income
Democratic predictor	DEMO_2	0.3873***	0.0657	-0.1386***	0.0908
Bank-specific predictors	CPTL	0.0125	0.0454	0.0098	0.1979***
	LtD	-0.0042**	-0.0026**	-0.0032**	0.0000
	NPL	0.0103	-0.0624***	-0.0775***	-0.0929***
Macroeconomic predictors	CPI	0.0515**	0.0102	0.009	0.0368
	GDPG	0.0061	0.0859**	0.0529***	0.0802***
R^2		26.34 %	9.95 %	11.09 %	17.61 %
Prob(F-statistic)		0.00 %	0.00 %	0.00 %	0.00 %
Obs.		116	312	367	443

Table 21: Results of multivariate regression model in different income categories, estimating RoA.
*Note: Level of significance is depicted with * for p<0.1, ** for p<0.05, and *** for p<0.01.*

Dependent variable: RoE		Low income	Lower-middle income	Upper-middle income	High income
Democratic predictor	DEMO_4	4.1024	-0.1829	-3.8178	-3.0147
Bank-specific predictors	CPTL	-1.5128***	-0.484***	0.0715	0.447***
	LtD	-0.0582***	-0.0189***	-0.0234	-0.0232*
	NPL	-0.4512*	-0.1866***	-0.4957***	-0.7646***
Macroeconomic predictors	CPI	0.3334*	-0.039	0.0991	0.8094***
	GDPG	-0.3095	0.8835***	0.628***	0.8919***
R^2		26.36 %	18.96 %	6.74 %	25.68 %
Prob(F-statistic)		0.00 %	0.00 %	0.02 %	0.00 %
Obs.		127	321	385	453

Table 22: Results of multivariate regression model in different income categories, estimating RoE.
*Note: Level of significance is depicted with * for p<0.1, ** for p<0.05, and *** for p<0.01.*