**CHARLES UNIVERSITY IN PRAGUE**

FACULTY OF SOCIAL SCIENCES

Institute of Economic Studies


*Master's Thesis*

# Ethics as a Way to Sustainability in Banking?


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## Declaration of Authorship

The author hereby declares that he compiled this thesis independently, using only the listed resources and literature, and the thesis has not been used to obtain a different or the same degree.

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Prague, May 15, 2015 _____

Signature

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**Abstract**

This thesis proposes a theoretical framework for application of ethics in banking and analyses effects of such application on financial performance of banks. A sentiments-adjusted economic motivation enables employment of ethical concepts, such as universality and humanity, in economics as well as banking. Then, using Bankscope data of more than 80,000 bank-year observations for the years 2003-2013, it is shown that banks applying ethics have higher exposure to real economy and less volatile Return on Equity. A consequent analysis revealed that in comparison with their closest peers those banks have lower profitability caused by higher relative costs that conversely result in lower loan losses.

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**Abstrakt**

Tato práce navrhuje teoretický rámec pro využití etiky v bankovnictví a analyzuje účinky tohoto využití na finanční výkonnost bank. Ekonomická motivace obohacená o lidské cítění umožnuje použití etických konceptů, jako je např. universalita či lidskost, v ekonomii stejně jako v bankovnictví. Poté, na základě dat z Bankscope o více než 80 000 pozorováních pro roky 2003-2013, práce ukazuje, že banky, které používají etiku, se více podílí na reálné ekonomice a jsou méně volatilní v rentabilitě vlastního kapitálu. Následná analýza odhalila, že tyto banky mají v porovnání s jejich nejbližšími konkurenty nižší ziskovost, jež je způsobena vyššími náklady, které však na druhou stranu způsobují, že úvěrové ztráty jsou u těchto bank minimální.

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|---|---|
| **JEL Klasifikace** | A13, B12, B16, G21, Q56 |
| **Klíčová slova** | bankovnictví, etika, ekonomická motivace, Smith, vlastní zájem, cítění, Kant, udržitelnost, Bankscope, bankovní business modely, within-between model, ziskovost, volatilita, etické, udržitelné, sociální |
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# TABLE OF CONTENTS


1 Introduction ..... 1
2 Theoretical Background ..... 2
2.1 Engineering vs Ethics ..... 2
2.2 Economic Motivation ..... 3
2.2.1 Original Concept of Economic Motivation ..... 4
2.2.2 Self-interest and Engineering Approach ..... 5
2.2.3 Sentiments ..... 5
2.2.4 Modelling Economic Motivation Bias ..... 6
2.2.5 Cooperation of Prisoners as an Indirect Evidence of the Bias ..... 8
2.2.6 Case Study: Social Collateral in Grameen Bank ..... 10
2.2.7 From Theory to Practice ..... 11
2.3 Ethics as an Economic Tool ..... 11
2.3.1 A Kantian Benchmark ..... 12
2.3.2 Applying Ethics in Economics ..... 13
2.4 Ethics-Related Concepts in Practice ..... 14
2.4.1 Stakeholder Approach ..... 14
2.4.2 Corporate Social Responsibility ..... 15
2.4.3 Sustainability ..... 16
2.5 Ethics in Banking ..... 17
2.5.1 Principles ..... 17
2.5.2 Evidence ..... 19
3 Empirical Research ..... 22
3.1 Data ..... 23
3.1.1 The Sample ..... 23
3.1.2 Dataset & Data Cleaning ..... 25
3.2 Hypothesis 1 ..... 26
3.2.1 Methodology ..... 26
3.2.2 Analysis ..... 27
3.2.3 Discussion of results ..... 35
3.3 Hypothesis 2 ..... 36
3.3.1 Methodology ..... 36
3.3.2 Analysis ..... 38
3.3.3 Discussion of results ..... 41
3.4 Hypothesis 3 ..... 41
3.4.1 Methodology ..... 41
3.4.2 Analysis ..... 43
3.4.3 Discussion of results ..... 46
3.5 Summary of results ..... 47
3.6 Further research opportunities ..... 48
4 Conclusions ..... 50
Bibliography ..... 51
Appendix ..... 56

# List of Tables

Table 1: Economic Motivation models (Author, based on various sources) ..... 8
Table 2: Principles of Sustainable Banking (Global Alliance for Banking on Values, 2013) ..... 18
Table 3: Structure of Sustainability Banking Scorecard (Author, based on internal materials of GABV) ..... 20
Table 4: Evidence from Qualitative Elements (Author, based on internal research done by GABV) ..... 20
Table 5: Sample affiliations (Author) ..... 24
Table 6: Sample description - Countries (Author, based on Bankscope) ..... 25
Table 7: Sample description - Asset size an observation (Author, based on Bankscope) ..... 25
Table 8: Dataset short description (Author, based on Bankscope) ..... 25
Table 9: Financial profile variables (Author, based on Bankscope) ..... 26
Table 10: Profitability and Volatility variables (Author, based on Bankscope) ..... 27
Table 11: Sum of Total Assets by asset size clustering (Author, based on Bankscope) ..... 28
Table 12: Financial profile by size (Author, based on Bankscope) ..... 29
Table 13: Profitability and volatility by size (Author, based on Bankscope) ..... 29
Table 14: Advanced Economies dataset description (Author, based on Bankscope) ..... 31
Table 15: Financial profile by geography (Author, based on Bankscope) ..... 31
Table 16: Profitability and volatility by geography (Author, based on Bankscope) ..... 32
Table 17: Dataset distribution by geography and specialisation (Author, based on Bankscope) ..... 33
Table 18: Financial profile by geography and specialisation (Author, based on Bankscope) ..... 34
Table 19: Profitability and volatility by geography and specialisation (Author, based on Bankscope) ..... 35
Table 20: Overview of random effects models (Author, based on Schunck (2013)) ..... 37
Table 21: Within-between effects estimations (Author, based on Bankscope) ..... 39
Table 22: Hypothesis 3 variables (Author, based on Bankscope) ..... 43
Table 23: Summary of results ..... 47
Table 24: Comparison of results ..... 48
Table 25: Financial profile by size, 2006 (Author, based on Bankscope) ..... 56
Table 26: Within-Between estimation tests (Author, based on Bankscope) ..... 56
Table 27: Demeaned and mean explanatory variables (Author, based on Bankscope) ..... 57
Table 28: Estimates without geography-specialisation dummies (Author, based on Bankscope) ..... 57
Table 29: Peer comparison in numbers (Author, based on Bankscope) ..... 58

# List of Figures

Figure 1: Payoff Matrix for a Prisoner's Dilemma game (Frank, Gilovich, & Regan, 1993) ..... 9
Figure 2: Return on Assets by size ..... 30
Figure 3: Return on Equity by size ..... 30
Figure 4: Return on Assets by geography (Author, based on Bankscope) ..... 32
Figure 5: Peer comparison - Return on Assets ..... 44
Figure 6: Peer comparison - Return on Equity ..... 44
Figure 7: Peer comparison - Net Interest Income ..... 44
Figure 8: Peer comparison - Net Fees and Commissions ..... 44
Figure 9: Peer comparison – Net Trading Income ..... 45
Figure 10: Peer comparison - Net Interest Margin ..... 45
Figure 11: Peer comparison - Loan losses ..... 45
Figure 12: Peer comparison - Cost to Income ..... 46
Figure 13: Peer comparison – Revenue Margin ..... 46

# Master Thesis Proposal

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Defense planned in June 2015.

**Proposed Topic:**

## Ethics as a Way to Sustainability in Banking?

**Topic Characteristics**

Although there have been many discussions about ethics in banking (see Jeucken, 2001; Koslowski, 2011), events of the recent financial crisis made the topic more urgent than any time before. Intentional misbehaviour of financiers ceased to be redeemed by high profit for investors what, in consequence, pushed them to query the unethical practice rarely questioned before. Post-crisis discussions have been seeking more sustainable ways of banking in order to prevent the world from another crisis. One of possible solutions could be ethical banking.

Ethical banking has been itself a vague term with rather philosophical than purely financial sense. Despite that, its former untold definition is being established by its first written principles. The principles are usually set by self-proclaimed ethical banks or their association and go far beyond corporate social responsibility means (Harvey, 1995; Global Alliance for Banking on Values, 2013); the banks take it as their modus operandi. The principles of ethical banking usually encompass financing focused on real economy, close relationship with clients or transparent governance. In financial terms, it has been shown that ethical banks perform better in the time of financial crisis than Global Systematically Important Financial Institutions. (Global Alliance for Banking on Values, 2012) It is particularly due to their loan portfolio which has much lower volatility during bad times.

This thesis will broaden the scope of inquiry set by the mentioned report for other ethical banks and, moreover, it will attempt to find a better benchmark for comparison. Also further financial measures (see Kohler, 2013) will be applied to assess interconnection between the ethical principles employed by banks and their financial performance; or in other words, to what extent can ethical banking be profitable for banks as well as for society.

### Methodology

Sample of ethical banks will be extended based on research in the area of banking. There are two potential ways: [1] through analysis of member organisaitons (e.g. European Federation of Ethical and Alternative Banks) or [2] identification of individual banks according to principles by ethical banks (Global Alliance for Banking on Values, 2013), principles of corporate social responsibility (United Nations, 2013a) or responsible investment (United Nations, 2013b). Among main variables will be exposure to real economy or ethical position of a bank, both represented by proxies as share of loans or deposits to total assets.

Profitability and its volatility across both time and bank groups will be of a main focus. The time span will contain pre-crisis, crisis and post-crisis periods and the groups will be created based on banking business models. BankScope database and annual reports will serve as main data sources. With regards to the studied phenomena and data characteristics, panel data regressions will be used in a way similar to Wu & Shen (2013).

### Hypotheses

1. A financial profile of ethical banks differ from other banks.
2. Profitability does not significantly vary between ethical and other banks.
3. Ethical banks have less volatile profitability than other banks.

### Outline


1 Introduction
2 Theoretical Background
  2.1 Ethics and Economics
  2.2 Ethical Concepts in Banking
3 Empirical Research
  3.1 Data and Variables
  3.2 Methodology
  3.3 Analysis of Hypothesis 1
  3.4 Analysis of Hypothesis 2
  3.5 Analysis of Hypothesis 3
  3.6 Summary of Results
4 Conclusion

**Core Bibliography**


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# 1 INTRODUCTION

Events in banking of the past decade have raised questions about ethics of the banking industry and sustainability of the current banking system. A response has mostly materialised in amoral measures, such as increased financial regulation, and other possible solutions have been given marginal space. As opposed to the amoral approach, this thesis attempts to shed light on banks applying ethics throughout their business models. Theoretical Background extends existing assumptions so that ethics in banking can be explained in economic terms while Empirical Research study economic effects of applying ethics on financial performance.

It is argued here that understanding application of ethics in banking is conditioned by suitability of economic theory. A framework which would allow employment of ethics in economics needs to be devised first. In Theoretical Background we build on the work of Adam Smith who, contrary to common perception, established his economic theory on the basis of moral philosophy. That leads us to adjust an assumption of economic motivation so that it includes self-interest as well as sentiments. As a consequence it enables us to apply Ethics as an Economic Tool wherever economic matters overlap to other, non-economic, areas. Some ethical concepts can then be applied also in banking. For instance, a concept of "humanity […] as an end and not merely as means" (Kant, 1785, p. 429) allows us to think of meeting customer and societal needs as a goal superior to profitability. It is important that the theoretical arguments for including Ethics in Banking are underpinned by examples from practice. At the end of a theoretical part of the thesis we introduce Principles as well as Evidence.

After the theoretical review into the use of ethics in banking we move forward to Empirical Research which aims to reveal peculiarities of banking institutions that apply ethics. Research in this area has not been frequent to date so we formulate up to three hypotheses that provide a comprehensive insight to financial performance of banks applying ethics. Each hypothesis gets us a step deeper to the topic of study. Hypothesis 1 (*A financial profile of banking institutions applying ethics differ from conventional banking institutions.*) starts with a look at balance sheet and discovers patterns between banks across data clustered by geography and specialisation. Hypothesis 2 (*Application of ethics results in lower profitability and lower volatility for banking institutions.*) partially develops on the previous hypothesis and study effects of ethics on profitability and volatility. Last, Hypothesis 3 (*Application of ethics results in higher costs or less revenue for banking institutions.*) complements Hypothesis 2 in study of profitability and researches effects of its individual components comparing again banks applying ethics to their closest peers. The very end belongs to Summary of results including comparison with other studies on similar topics and outline of Further research opportunities in this research area which have remained unstudied to date.

# 2 THEORETICAL BACKGROUND

This Chapter deals with application and use of ethics[1] in banking, or, more precisely, with application of ethics in otherwise economic decisions within the scope of banking. Since banks in our focus often make decisions that conceptually oppose standard economic theory an adjusted framework is introduced. It is argued that an ordinary economic framework with an underlying assumption of economic motivation derived solely from self-interest is insufficient if non-economic factors are included. Economic motivation, then, may not be only insufficient but also biased and therefore we propose an adjustment for *sentiments*.[2] Such an adjustment enables ethics to become a useful economic tool. Under the proposed assumption, economics and ethics are able to utilise rationality within the same decision-making framework. Right after necessary theoretical conditions are set we proceed to more practical concepts, present some particular forms of ethics in banking and provide evidence of their actual application.

## 2.1 ENGINEERING VS ETHICS

Although economic thought was born a sibling to ethics they have grown apart. A gap has developed between them as a result of industrialisation and increasing emphasis of modern economics on an *engineering* approach (Sen, 2000). As the name suggests, the engineering approach to economics provides valuable problem solving tools utilising available information under a certain set of assumptions. Such tools are then able to generate the most efficient outcome to various economic relations. The economic tools have substantially improved by processing higher amount of data and ongoing mechanical calibration. It is due to the engineering applied to quantified economic phenomena that models explaining consumer choices on a micro level or economic policy on a macro level has developed at such pace in the past.

The engineering approach has its limitations, however. Those limitations lie in assumptions to economic models which sometimes have to oversimplify reality in order to fit the method used. Economics is a social science and as such it deals with reality full of complex and often hidden human characteristics and relations. For that reason, it is very important that not only engineering methods are calibrated but also assumptions are subject to a feedback loop. Otherwise, it could lead to a problem of "disembeddedness", i.e. that economic actions are treated as separated from other human

[1] Ethics "a set of principles that people use to decide what is right and what is wrong." (Macmillan Publishers Limited, 2013)

[2] Sentiments in a sense used by Adam Smith; information see Section 2.2.3.

activity (Polanyi, 2001). A balanced approach is needed since the other extreme, over-socialisation, could lead to the inability of modelling any economic activity (Granovetter, 1985).

Another problem which may arise if underlying assumptions are not challenged is inability of economic models to account for new information. Paradoxically, economics is about allocation of scarce resources but new information about effects of using natural resources is rarely included in models. By assumption, those effects remain treated as externalities although their impacts are known and measurable. However, exceptions can already be found which show that internalisation of externalities is possible (Lovins, et al., 1999).

An ethics-related approach to economics is needed to complement the engineering (Sen, 2000). It can provide vital questioning of assumptions and basic concepts, and keep them up-to-date if a new set of information appears. Therefore, engineering and ethics-related approaches are equally important for development of economics, notwithstanding finance. A framework enabling both approaches to be accounted for while challenging a basic assumption of economic motivation is defined in the following Section.

## 2.2 ECONOMIC MOTIVATION

A crucial assumption of economic motivation needs to be challenged and adjusted for if economics and ethics should work together. Every basic economics textbook teaches us that *self-interest* is what motivates any economic action. Accordingly, a fundamental economic premise then says that, out of their self-interest, rational economic actors maximize their utility under conditions of cost-efficiency and individual economic constraints. Of course, it would be oversimplification to say that this is the one and only magic 'formula' upon which whole economies run but, on the other hand, it represents the building principles of economics and, as we will see later, it also has normative power not only on economic actors but also on real actors.

It is, however, argued here that limiting economic motivation only to self-interest provides deficient approximation to reality and gives a sense of false information sufficiency. Self-interest implies there is no need for ethical assessment and suggest that all economic activity is amoral[3]. On contrary, economic decisions are often not so detached from other reality as not to consider anything but economic factors and implications. A suggested solution is to include *sentiments* as another part

[3] As opposed to *immoral* which means "morally wrong", *amoral* is someone or something that "does not care whether or not their behavior is morally right." (Macmillan Publishers Limited, 2013) It could also read as *non-moral*, e.g. decisions and analysis without any moral consideration.

of economic motivation. The sentiments are not a new concept in economics, they actually stood at the very beginning of modern economic thought established by Adam Smith. Including sentiments into decision patterns implies we calculate not only with economic inputs and outputs but also their overlaps to other areas. The adjustment would let us consider further information such as human values and feelings potentially explaining unexpected decisions, or, in the end, enable to conduct ethical assessment.

### 2.2.1 Original Concept of Economic Motivation

It is well rooted in economic thought that self-interest is perceived as the main motivation for economic action. It is self-interest that is assumed to empower a rational actor to maximize her utility with regards to her preferences. Self-interest, to greater extent first popularized by Hobbes (1651), has been a leading concept impacting various fields of social sciences. Its usefulness has been proved in numerous theories describing societal or economic relations. Economics might serve as a prime example of the use of self-interest but, arguably, also as a major example of its misuse.

Tracing back in time the concept of economic motivation we find that Adam Smith, considered a pioneer in using self-interest as an only base for economic action, developed the concept in its very complexity. His thoughts have been taken out of context and simplified and the original sense has mostly disappeared in the course of time (Coase, 1976; Miller, 1999). For proper introduction to Smith's ideas on a main driver of human actions one needs to build the notion on both his seminal pieces *The Theory of Moral Sentiments* (1759) and *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776). That Smith's original economic motivation was meant to enable employing both the approaches to economics equally is without any doubt due to his former book dealing with humans' sentiments. It is hard to imagine he had in mind two sorts of people when writing those book; one driven by sentiments and the other by self-interest.

As Smith claimed, every human being has inherent power of empathy and is able to sympathize with the others. It in consequence causes her, in her own self-interest, to care about wellbeing of both herself and that of others. Although the sentiment is decreasing as relations become more remote it denies that pushing one's own interest above those of other's is the only and unambiguous motivation (Smith, 1759). Coase used rather an extreme example to broaden understanding of the Smith's economic motivation: "[H]ad [one] chosen to retain his little finger by letting a hundred million die, he would not have been able to live with himself. We have to appear worthy in our own eyes. It is […] love for the dignity and superiority of his own character which, if he had to face such a choice, would lead the man of humanity to sacrifice his little finger." (1976, pp. 531-532) It is both self-interest and sentiments that pushed him to make ethical assessments and provided a basis for his decisions.

### 2.2.2 Self-interest and Engineering Approach

Modern prevalence of self-interest as the only factor of economic motivation overlaps with deviation of engineering approach to economics from the ethics-related. Thanks to development of advanced mathematical methods it became possible to better analyse quantified economic phenomena and build sophisticated economic models. The possibility of applying mathematics to describe and analyse economic relations launched calling for increased quantification of economics. Two branches of quantitative methods could have been distinguished since then in economics; first, statistical methods providing analysis of data and second, arithmetic methods used for creation of models describing interrelations underlying the economic reality (Spengler, 1961). Development of many useful economic models, e.g. those of Cournot, Walras or Marshall, proves that quantification was successfully implemented to economic realms.

Quantitative models imply need of a certain set of assumptions and quantifiable variables that would allow to fit real world phenomena into mathematical methods. It is not difficult to understand that the complex concept of economic motivation including sentiments is not very convenient to be employed in economic engineering and self-interest has gradually become the only underlying assumption for economic motivation. Its convenience for quantitative models has not been the only reason for the widespread use. As Miller (1999) pointed out, self-interest has a powerful feature of being contagious and self-fulfilling. Institutions are being built to reflect the belief in people's inherent self-interest and the institutions then make people to behave as initially presupposed, in their self-interest. This feedback loop has helped to establish a social norm that "induces people to act publicly in ways that maximize their material interests, whether or not they are so inclined privately." (Miller, 1999, p. 1056) Economic actors delegate their moral judgements to legal and regulatory systems so that they themselves can act in the presumed self-interested manner.

However has self-interest enabled development of economics through an engineering approach, as an incomplete version of the original economic motivation it could have led to rather divergent outcomes than if the complete assumption was applied. Imagine an outcome from the example by Coase if we assumed pure self-interest instead of the original economic motivation; most likely the little finger would survive, unlike the one-hundred million.

### 2.2.3 Sentiments

We have used the term *sentiments* quite often but there has not been given any definition. We have just gotten the intuition from the Coase's example which does not relate too much to economic reality. Neither does Adam Smith help to give a precise definition. Although too vague for a

definition, an opening paragraph of The Theory of Moral Sentiments (Smith, 1759, p. 4) is usually cited for explanation instead:

> "How selfish soever man may be supposed, there are evidently some principles in his nature, which interest him in the fortune of others, and render their happiness necessary to him, though he derives nothing from it except the pleasure of seeing it. Of this kind is pity or compassion, the emotion we feel for the misery of others, when we either see it, or are made to conceive it in a very lively manner. That we often derive sorrow from the sorrow of others, is a matter of fact too obvious to require any instances to prove it; for this sentiment, like all the other original passions of human nature, is by no means confined to the virtuous and humane, though they perhaps may feel it with the most exquisite sensibility. The greatest ruffian, the most hardened violator of the laws of society, is not altogether without it." [4]

In order to get more concrete sense of sentiments, let us introduce some examples that might well relate to our further focus. The sentiments as they are presented here can be found in both two-sided, mutual interrelations of actors but also in one-sided, inner perception or belief. First to mention and likely the most important for economics, from those further enlisted, is *trust.* Trust plays a crucial rule in trade and undoubtedly in banking. Then we could continue with *sympathy, expectations formed by social norms*, *self-respect*, *satisfaction*, *admiration*, *envy* (Parsons, 1940), *or compassion and pity* from the quote above. Those sentiments have various strengths in particular situations and some can scale from positive to negative values, i.e. we may have strong/weak/zero trust and also weak/strong distrust. In line with description of sentiments as relevant economic motivation, there has been described a set of so-called "relational goods" which derive their value for an economic actor only from interaction with other actor (Uhlaner, 1989).

### 2.2.4 Modelling Economic Motivation Bias

Although a qualitative concept, economic motivation can be theoretically modelled. That can help us to illustrate what has been said so far and discover some possible implications of using self-interest as an only explanatory variable for economic motivation. Let us consider two simple models where *Economic Motivation* is a dependent variable, $Self\text{-}interest$ and $Sentiments$[5] are independent variables, $\alpha_0$ and $\alpha_1$ are regression coefficients, and $u$ is an error term[6]. The first represent the assumption using only self-interest as defining economic motivation:

---

[4] Definition of sentiments as presented in a dictionary is: "an attitude, thought, or judgment colored or prompted by feeling or emotion." (Merriam-Webster, Incorporated, 2014)

[5] In general, the $Sentiments$ term is rather a vector of independent variables.

[6] We do not elaborate on the error term in detail but it would account for random deviations in economic motivation caused by current mood and other unexpected factors.

$$Economic\ Motivation = \alpha_0 + \alpha_1 * Self\text{-}interest + u, \quad (1)$$

and the second represent the assumption using both self-interest and sentiments:

$$Economic\ Motivation = \beta_0 + \beta_1 * Self\text{-}interest + \beta_2 * Sentiments + u. \quad (2)$$

What we look at is a potential endogeneity problem in model (1) which would cause violation of a Zero Conditional Mean condition.[7] There are two statistical conditions that need to be met in order to conclude that the concerns about endogeneity are irrelevant. First, it is simply when $\beta_2 = 0$ which would mean that there is no correlation between $Economic\ Motivation$, and $Sentiments$ and model (2) would be over-specified. And second, if $\beta_2 \neq 0$ then $Self\text{-}interest$ would need to be uncorrelated with $Sentiments$ in order for $\beta_1$ not to be biased (Wooldridge, 2009, p. 91).

Violation of the first condition stands at the beginning of the whole argument about misspecification of economic motivation. It would not be acceptable to claim that the condition is violated by assumption and therefore the next section provides evidence in support. For its theoretical nature it is difficult to underpin violation of the second condition with evidence. Nonetheless, if we take a situation where trust is an only relevant proxy for $Sentiments$, common sense tells us that people tend to be less selfish when there is trust between them, in other words there is a negative correlation between $Self\text{-}interest$ and $Sentiments$.

It is certain that the described situation does not happen all the time, in some situations for some economic actors the endogeneity problem might not appear. In favour of model (2) plays a fact that over-specification is not such a sin as under-specification which can result in bias of regression coefficients. Were there a bias in model (1) one could estimate its sign according to the equation:

$$Bias(\alpha_1) = E(\alpha_1) - \beta_1 = \beta_2 \delta_1$$

where $\delta_1$ is covariance between $Self\text{-}interest$ and $Sentiments$. If both the coefficients were either positive or negative it would cause bias with positive sign. Thus, omitting the $Sentiments$ variable

[7] Wooldridge defines the condition of Zero Conditional Mean as follows: "The error *u* has an expected value of zero given any values of the independent variables. In other words, $E(u|x_1, x_2, \ldots, x_k) = 0$." (2009, p. 87)

would put even more weight to the $Self\text{-}interest$ variable than it would otherwise deserve. If, on the other hand, they had opposite signs, the bias would diminish the power of the $Self\text{-}interest.$

Reason for the modelling is to point out that misspecification of the underlying assumption of economic motivation *may* cause bias in economic models and theory. Those two models could be approximated to Kahneman's (2011) System 1 and System 2 which are used by human mind to various everyday stimuli; System 1 is a faster, less accurate but time-efficient system solving easy and ordinary tasks while System 2 is a slower, less time-efficient but thorough system that we use when we really need to think and focus on certain rather difficult task. System 1 is always active, System 2 is started only in cases we realize that System 1 is insufficient. However, when System 2 is overloaded System 1 takes back supervision over less important tasks. When a situation like that happens a person is more prone to behave in her self-interest and be more superficial than in cases System 2 is in control. System 1 also uses simplifying heuristics which causes several errors in decision-making under uncertainty, e.g. anchoring or representativeness bias. System 2 can also make mistakes in judgement but it should be able to produce the best answer under a given information set. Those flaws caused by our imperfect human nature are captured by an error term. Anyway, it seems that the assumption of economic motivation of model (1) which we challenge here is stuck in faster but less accurate System 1. There are many ways how to think about it; Table 1 summarises how all the so far mentioned concepts relate to the two presented models.

TABLE 1: ECONOMIC MOTIVATION MODELS (AUTHOR, BASED ON VARIOUS SOURCES)

| | **Economic Motivation** | |
|---|---|---|
| | (1) | (2) |
| **(Smith, 1759; Smith, 1776)** | Self-interest | Self-interest + Sentiments |
| **(Sen, 2000)** | Engineering approach | Engineering + Ethics-related approach |
| **(Kahneman, 2011)** | System 1 | System 2 |

### 2.2.5 COOPERATION OF PRISONERS AS AN INDIRECT EVIDENCE OF THE BIAS

Introducing the sentiments into a commonly used model requires provision of supporting evidence. The Coase's little finger story shows that changing slightly the underlying assumption may have quite significant impact on outcomes. Even though the sentiments-adjusted model of economic motivation seems relevant in the extreme thought experiment we should be able to find support in less extravagant situations.

Prisoner's Dilemma, the most popular[8] scheme in game theory[9], serves as a model of behaviour that favours self-interest (Frank, et al., 1993; Doebeli & Hauert, 2005). In theory, an original setting of its payoff matrix allows for only one dominant strategy under self-interest assumption in a one-shot game, i.e. a game with no repetition (Axelrod & Hamilton, 1981). The strategy expects defects of both players and getting to the worst aggregate outcome.

Let us shortly review the narrative behind the scheme. Two prisoners with symmetric payoffs face decision-making between commitment to a colleague and length of each one's punishment. If both cooperate, they get sentenced for one year each; if they both defect they stay in prison for two years each; but if one cooperates and one defects they get three years and three months in prison, respectively. Thus, they could benefit from the cooperation or get even better-off by exploiting the good will to cooperate of the other.

**FIGURE 1: PAYOFF MATRIX FOR A PRISONER'S DILEMMA GAME (FRANK, ET AL., 1993)**

| | **Prisoner's Dilemma** | |
|---|---|---|
| | **P2: Cooperation** | **P2: Defect** |
| **P1: Cooperation** | 2,2 | 0,3 |
| **P1: Defect** | 3,0 | 1,1 |

Although the game contains strong incentive to behave in one's self-interest, experiments do not provide unambiguous support for the claim. In the study of Frank, Gilovich, & Regan (1993), the authors run an experiment on a sample of students divided into subsamples of economists and other majors. Settings differ from the original one and students are given a monetary payoff according to the matrix in Figure 1 instead of prison sentence but the logics behind the game remains the same. Theory suggests rational actors to defect in order to get higher personal outcome. Results, however, show that less than 40 per cents of non-economists decided to defect in the one-shot game. Majority of the subsample, therefore, chose to cooperate, play for higher aggregate outcome, and express their benevolent sentiments (White, 2010). For economists, the share of defects here is a lot higher, amounting to 60 per cent of defects, but still there is a substantial percent in the subsample that decide

[8] In order to support the saying, the author validated his words using the Google Scholar search for "prisoner's dilemma" (34,300 results on 12/27/2013) in comparison with "snowdrift game" (1,190), "chicken game" (3,110), and "hawk-dove game" (2,100). The numbers of results found shows strong support for the claim.

[9] The game theory, largely used in microeconomics, attempts to model decision-making of rational actors under a situations represented by a payoff matrices. Payoffs and their settings embody also the assumptions of a game while solution to the games remains always mathematically neutral.

against the strategy preferred by the self-interest assumption. Moreover, the different number for economists is in line with claims of the earlier mentioned self-fulfilling effect of self-interest (Miller, 1999).

The experiment provides indirect evidence for sentiments on a model that is most advantageous for the self-interested behaviour. Such a one-shot game does not contain any inherent incentive to act in a cooperative manner. That makes the results easier to interpret as opposed to iterated Prisoner's Dilemma with finite repetitions where cooperation increases in relation to the one-shot game (Kümmerli, et al., 2007) and, thus, it would be more difficult to distinguish whether the cooperation is driven by sentiments or self-interested calculus.

### 2.2.6 Case Study: Social Collateral in Grameen Bank

Following on the previous section we present here an example of where sentiments play a role in reality; and actually where they are utterly needed to supplement self-interest. Muhammad Yunus, a Nobel Peace Prize winner, built a model of the well-known Grameen Bank on the assumption of economic action including sentiments.

For Grameen focuses on poor people made it impossible to rely on assets as collateral for loans. Instead, a solution tailored to conditions of the poor was found in the use of social collateral which should ensure motivation for repayment (Besley & Coate, 1995). The bank did not lend to individuals but to homogenous groups which meet well defined requirements. Those groups consist of five members who live in the same village but not in the same household, have similar economic power and with trust between each other member. At the beginning only two members of a group receive credit, after successful repayment next two members gets funding and at the end an initially chosen leader of the group receives a loan (Khandker, et al., 1995).

Motivation to loan repayment is then delivered through peer pressure from within the group but also from without as the group is closely linked to the society it comes from. It is fear from losing a social status that is decisive in repayment efforts. That means it is sentiments rather than self-interest what influence economic motivation. Of course, it can be argued that there is a certain similarity with iterated games where incentives for cooperation are derived from benefits provided in the future. But considering results from the experiment with highly educated students it is very unlikely that poor, and often undereducated, people would be better in applying a game theory framework to their everyday situation. Another intriguing finding in context of Grameen Bank and game theory suggest that economic motivation is not indeed defined by self-interest. The system of Grameen Bank is almost wholly based on lending to women who, over time, have proven to be more reliable than men. A recent

study supports the practical findings showing that women choose more cooperative strategies than men in playing an iterated Prisoner's Dilemma game (Kümmerli, et al., 2007).

### 2.2.7 From Theory to Practice

This Section introduced the essential assumption of economic motivation adjusted for sentiments. It was argued and evidenced that self-interest is likely not the only motivation and economics could produce biased outcomes due to an omitted variable problem. Such an adjustment enables to study also non-economic phenomena and apply ethics as a complement tool in economics. That does not mean that self-interest would be left behind, it stays firmly in the core of economic motivation.

Although initially unintended, the Sections on economic motivation to an extent overlaps with the field of behavioural economics. While behavioural economics choose rather a descriptive approach and take sentiments as exogenous, our approach is, for the characteristics of ethics, normative and we attempt to introduce sentiments to the system as endogenous. Behavioural economics, however, should be able to provide further evidence that Grameen Bank is not the only case where sentiments play a role. Sentiments, however, are not always active. It is not difficult to imagine how sentiments fade out with distance and its impersonality. The Coase's little finger story works only with a presumption that we personalise the ones who would be harmed by our action. Similarly, quantification is necessary in banking but working with numbers instead of people is far more impersonal, lacks sentiments and, therefore, also decreases probability of moral judgement. It might happen already between a front-end and back-end of a bank but the probability increases with distance. We can go as far as to higher-stage instruments such as, for instance, $CDO^2$ – a collateralised debt obligation constructed of other collateralised debt obligations. The distance there is arguably so large that it does not allow for any personalisation and amoral economics based on self-interest prevails.

## 2.3 ETHICS AS AN ECONOMIC TOOL

Economic motivation adjusted for sentiments, as developed in the previous section, enables to include non-economic phenomena into economic decision-making and opens economics for a great new set of information, a novel dimension. That also means that economics ceases to be completely amoral and needs tools to deal with it. As we argue here, ethics is a suitable economic tool that can complement economic problem solving methods. A concept where ethics and economics meet each other is rationality.

In both fields a successful application of rationality depends on information available. Economics under an assumption of self-interest consider only the information set which is necessary for sufficient assessment of effects on a particular economic actor. On contrary, extending the previous for a sentiments assumption and ethics provokes into thinking out in a larger picture and, notably, concepts of universality and humanity as presented in the next section invites questioning. Nonetheless, it is yet impossible to gather complete information and so we should take into consideration limitations of bounded rationality.

The following section should help us to find out how to actually implement the ethics into our research framework. Realising complexity of mentioned thoughts from moral philosophy we touch on several basic concepts with a serious attempt not to oversimplify. For the purpose of the thesis we stick with the classic work of a probably most influential thinker on ethics, Immanuel Kant.

### 2.3.1 A Kantian Benchmark

Kant introduces two types of an imperative; a hypothetical imperative for actions that are done as means for achieving something else and a categorical imperative which we deal with further on. The reason for behaving morally right for a categorical imperative comes from a good will which takes form of duty. It is not a good will of a naïve person, as some might argue, but of a rational actor that can fully foresees consequences of her actions. The duty does not have any side motives for action such as fear, self-love and alike; it must be a motive in itself. Built on those assumptions stand two moral laws; the *Formula of Universal Law*:

> "act only in accordance with that maxim through which you at the same time can will that it become a universal law" (Kant, 1785, p. 421)[10,11]

and the *Formula of the End in Itself*:

> "act so that you use humanity, as much in your own person as in the person of every other, always at the same time as end and never merely as means" (1785, p. 429).

The two formulas can be used as kind of a test or guideline when making a decision. The first formula asks whether one would still further her original interest if the planned action was to be universalized so that every human would act in the same way. Take, for instance, an intended lie for gaining personal advantage. Once universalized the lie would not be trusted anymore which would

[10] Maxim may be explained as a plan of action (White, 2010).
[11] All citations to Kant's work use the Academy edition pagination.

make pursuing the initial end of gaining advantage impossible (White, 2010). The previous case would also violate the second formula, one would use a person that is deceived as a means rather than an end, but let us introduce another simple example where the first formula is not violated, and only the second is. Imagine all people act indifferently to suffering of each other, highly resembling an atomised concept of self-interest. Since there would for sure come a day when someone needed help and no help would come, the latter formula would be violated and so the behaviour cannot be perceived as ethical. No rational being would will such a scheme, it would certainly contradict humanity, the claimed end-in-itself (White, 2010). That shows how superior a position humanity has in Kant's system.

### 2.3.2 Applying Ethics in Economics

Although the Kant's system was built on the assumption of *a priori* knowledge[12] and overall is rather an ideal type, we draw and derive some concepts that can be used in practice as well as in this thesis. First, however, we have to address underlying assumptions. Once again we use the convenience of sentiments and build a bridge between two opposite assumptions for motivation, economic self-interest and Kantian duty. Whereas we adjusted economic motivation for sentiments earlier the assumption of duty is for our purposes relaxed as contained in sentiments. Therefore duty can take part in economic motivation and as such Kantian ethics and the formulas, in particular, can be applied in economics.

*Formula of Universal Law* is relatively easy to be applied in economics and there are some well-known concepts which use the same logics, e.g. a free-rider problem, tragedy of commons etc. Simply formulated, an action cannot contradict its maxim when universalized so that consequences are universally compatible with intentions. All the mentioned economic examples describe negative effects of violating the formula. Criticism of too-big-to-fail follows very similar logics, it is like a free-rider problem augmented for the fact that too-big-to-fail banks abuse their importance to take others as hostages in pursuing high profits careless of risk; if we imagined all banks did the same there would certainly be no possibility of a universal bailout, trust would disappear from the financial system and the maxim of making high profits would fail. This way one could get far away from reality but application of the universal law to economics does not need to only judge what is morally right and what is wrong, it can much rather serve as a very valuable benchmark instead.

[12] Kant created an independent ethical system based on *a priori* knowledge and therefore accessible with only reason.

As opposed to the universal law, *Formula of the End in Itself* does not provide us with a framework as such but rather a restriction that humanity must always be an end-in-itself. It is a well-established universal principle that should not end in application of human rights but take part in economic decision-making. In banking, a violation of the humanity restriction could be seen in case of predatory loans. Providing a loan to someone who is unlikely to be able of repayment can lead to deterioration of her wellbeing, humanity is here in position of means than end-in-itself.

Both the laws are usually utilised unconcerned with time, once we combine the universality and humanity so that they are both satisfied and project them in time we get a very convenient link to a concept of *sustainability*. A sustainable action could then be easily defined through the ethical system as one which, being universalised across population and time, does not directly or indirectly harm humanity. Needless to say, an indirect harm can be done through environmental pollution, e.g. overproduction of greenhouse gasses etc.

Ethics as an economic tool does not aspire to change character of economic actors but provide them with an adjusted framework for making informed economic decisions that consider also non-economic factors. Such a framework does not see price and quantity as the only indicator of value, or utility, and it is able to assess trade-offs between economic and non-economic effects.

## 2.4 ETHICS-RELATED CONCEPTS IN PRACTICE

This Section offers a brief overview of some ethics-related concepts used in practice. They are employed across industries but as far as possible we present them as related to banking. All concepts presented here have some relation to the few basic ethical notions developed in the previous Sections. However, we aim to show why a part is further utilised in identification of banking institutions using ethics and a part left out for controversies with its application.

### 2.4.1 STAKEHOLDER APPROACH

There are generally two approaches to corporate governance, a shareholder and a stakeholder approach. Although in 1984 Freeman wrote: “Gone are the ‘good old days’ of worrying only about taking products and services to market, and gone is the usefulness of management theories which concentrate on efficiency and effectiveness within this product-market framework,” (Freeman, 2010, p. 4) both remain relevant until today. As Freeman suggests, it is true that a shareholder approach centred on a shareholders’ interest is not as dominant as it used to be.

As opposed to a shareholder approach, a stakeholder approach takes consideration of a broad range of interests. In particular for banks, we could account for equity interests, economic interests,

or influence interests which would contain shareholders as well as employees, customers, supervisory and regulatory body, or society as such. Those groups do not need to have formal rights within a company but can use their economic (in case of customers or providers of deposit guarantee systems) or political power (in case of government or trading associations) to steer direction of a company (Freeman & Reed, 1983). A stakeholder approach serves as a precondition for humanity to be an end.

### 2.4.2 Corporate Social Responsibility

Although Corporate Social Responsibility (CSR) is a widely known concept used in present-day business, it does not have a unique definition (Carroll, 1999; Dahlsrud, 2008). Votaw summarises: "[t]he term is a brilliant one; it means something, but not always the same thing, to everybody. To some it conveys the idea of legal responsibility or liability; to others it means socially responsible behavior in an ethical sense; to still others, the meaning transmitted is that of "responsible for", in a causal mode; many simply equate it with a charitable contribution." (1973, p. 11) From the multiple meanings of CSR, we would consider only the second one as being an ethical concept. Other cases where CSR serves as a good kind of promotion or a means to buy redemption for otherwise unethical business are certainly not ethical. Although Milton Friedman (1970) presented an aptly named article *The Social Responsibility of Business is to Increase Its Profits* on how CSR can be utilized for shareholders there is only ambiguous correlation between CSR and financial performance; studies both support (Cochran & Wood, 1984; Wu & Shen, 2013) and deny (Aupperle, et al., 1985; McWilliams & Siegel, 2000) significance of the relationship.

There are many controversies in the CSR domain, be it for the redemption or financial profit: Does any CSR of tobacco manufacturers make them better? (Hirschhorn, 2004) Or in case of financial institutions, would donations to charity make an institution that lends under predatory conditions better? From a legal point of view the situations described above do not seem controversial, moreover, any additional value given to society may be considered as good. However, from an ethical point of view, none of the controversial situations would satisfy conditions defined earlier.

### 2.4.3 SUSTAINABILITY

The concept of sustainability was first developed by environmentalists and it namely adds up the environmental dimension alongside the economic and social ones so far.[13] There is also no unique definition of sustainability but a most commonly used definition was created by the Brundtland Commission formed by the United Nations:

> "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (World Commission on Environment and Development, 1987)

First nations and then also corporations implemented the sustainability concept in their operational processes. For both, the very milestone was the United Nations Conference on Environment and Development, or simply the Earth Summit, which took place in 1992 in Rio de Janeiro. World Business Council for Sustainable Development stood as a pioneer to corporate efforts of inclusion sustainability in business plans (World Business Council for Sustainable Development, 2014)[14]. What is more, it seems it is private not public sector that recently drives the idea forwards (Dyllick & Hockerts, 2002). Having roots in the definition of sustainable development:

> "corporate sustainability can accordingly be defined as meeting the needs of a firm's direct and indirect stakeholders (such as shareholders, employees, clients, pressure groups, communities etc.), without compromising its ability to meet the needs of future stakeholders as well." (Dyllick & Hockerts, 2002, p. 131)

In order to measure and assess sustainability, there are two mostly used frameworks. The first one is Triple Bottom Line concerned about People, Planet, and Profit. It should serve as a measure of corporate performance along social, environmental and financial dimensions, and only such a company that takes account of all three is able to measure full cost of doing business (The Economist, 2009). The second is Environmental, Social and Corporate Governance (ESG) which is a concept utilized especially in responsible investment. For it usually works as a supplement to other financial measures, it misses the Profit part of Triple Bottom Line but adds up corporate governance.

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[13] There are many theories about relationship between CSR and corporate sustainability. We intentionally avoid any further discussion here but logic of the previous Sections inclines to the idea of CSR being a subset or a premature stage of the corporate sustainability (Wempe & Kaptein, 2002).

[14] Most of WBCSD's members are industrial companies, Banking & Finance sector has only 2% share in the member representation (World Business Council for Sustainable Development, 2014).

## 2.5 ETHICS IN BANKING

After we have adjusted assumptions and enabled, therefore, the use of ethical concepts in economics, we finally arrived to its concrete application in banking institutions. Theoretical concepts of universality or humanity are about to materialise in practice. We do not invent new forms but rather underpin the existing. There are a number of banks[15] that do not perceive ethics as an obstacle to their performance and incorporate it throughout their business models. Several member organisations have been established to connect likely-minded leaders and promote the other way of banking. The organisations are usually based on certain principles that distinguish their member banks from others.

### 2.5.1 PRINCIPLES

Banks which use ethics in their everyday operations come from various background. There are banks which derived their ethics from anthroposophy or from commitment to communities they serve, there are green banks as well as banks serving needs of unbanked through micro-financing in emerging economies. Despite the variety, they can be characterised by a set of principles. For the purpose of this thesis we mainly build on the Principles of Sustainable Banking as synthesised by Global Alliance for Banking on Values (GABV).[16] The six principles as presented in Table 2 clearly summarise what connects all 25 GABV member banks with various business models from around the world.[17] Taking the Principles as a guideline, we can do a further grouping as related to sustainability frameworks, from Triple Bottom Line we identify financial (F), social (S), and environmental (E) dimensions and Environmental, Social and Corporate Governance adds up a governance dimension (G).

Since we often relate to sustainability before starting with individual dimension we should repeat why sustainability is considered an ethical concept. A sustainable action was earlier defined as one that does not directly or indirectly harm humanity if being universalised across population and in time. Banks using ethics do not have profitability as their primary goal. They rather aim to serve human needs, with respect to environment, and financial profitability is a necessary condition for achieving it.

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[15] This type of banking is called by various actors as ethical (European Federation of Ethical and Alternative Banks, 2012), social (Institute of Social Banking, 2011), sustainable or values-based (Global Alliance for Banking on Values, 2014).

[16] "The Global Alliance for Banking on Values is an independent network of banks using finance to deliver sustainable development for unserved people, communities and the environment." (Global Alliance for Banking on Values, 2009)

[17] Another organization, European Federation of Ethical and Alternative Banks (FEBEA), that ensures experience sharing between its members and provides them with financial tools supporting their development, released a very comprehensive definition of an ethical bank and how it differentiates from a traditional bank (European Federation of Ethical and Alternative Banks, 2012). Similarly, Institute for Social Banking, that concentrates its activities on education and research, published a definition of a social bank (Institute of Social Banking, 2011).

Profitability and volatility remain important measures of financial sustainability for those banks but do not rank first. Sustainability of profit does not mean its maximisation, and long-term resiliency is always preferred over short-term performance results. Ethics brings along measures of financial performance which to a certain extent overlap with a social dimension. Loan loss ratios or share of assets exposed to real economy are among those measures that attract a similar attention as the ordinary profitability measures.

TABLE 2: PRINCIPLES OF SUSTAINABLE BANKING (GLOBAL ALLIANCE FOR BANKING ON VALUES, 2013)

| | Principles of Sustainable Banking | Dimensions |
|---|---|---|
| **Principle 1** | Triple bottom line approach at the heart of the business model | F,S,E |
| **Principle 2** | Grounded in communities, serving the real economy and enabling new business models to meet the needs of both | F,S |
| **Principle 3** | Long-term relationships with clients and a direct understanding of their economic activities and the risks involved | F,S |
| **Principle 4** | Long-term, self-sustaining, and resilient to outside disruptions | F |
| **Principle 5** | Transparent and inclusive governance | G |
| **Principle 6** | All of these principles embedded in the culture of the bank | S, G |

Both an assumption of sentiments-adjusted economic motivation and the ethical framework were established in order to enable explanation of how credit decisions are regularly made in the described banks. The decisions do not encompass only financial factors but very often consider also non-economic data. Mostly loans provided by the banks have a certain purpose and the banks decide whether the purpose satisfy their ethical requirements or not. For simpler cases the banks have developed positive and negative criteria[18], when a decision is more difficult pros and cons are discussed. In many cases social or environmental dimension can outweigh the financial, for instance, financing leveraged buyout would likely be ruled out as it usually brings only financial but not social gains.

Banking as an industry is probably the least polluting in the world relative to their own direct activities. Banks just do not contribute to the environmental footprint. On the other hand, banks as financial intermediaries have a major stake in environmental impact through projects they finance

[18] Negative criteria work simply as a blacklist of areas which are not financed under any condition and positive criteria is a set of guidelines about which areas are preferable.

(Bouma, et al., 2001). The banks using ethics take account of environmental effects in deciding about financing, through ethics they are able to internalise externalities.

Corporate governance takes care of effective implementation of sustainability within an organizational structure and that it is well embedded in the culture of a bank. Good governance of a bank using ethics also takes into consideration how the commitment to the mission can be maintained and extended. Market conditions and profit-oriented shareholders can adversely affect bank's operations. On the other hand, doing business responsibly has positive effects on satisfaction of customers and, in addition, is able to shape the culture of community it resides in (Dyllick & Hockerts, 2002). There are also studies that the described way of doing business improves retention of talent while making life of employees more satisfactory (Bhattacharya, et al., 2008).

It was mentioned earlier that information is crucial for proper application of economics or ethics, and an amount of information provided often depends on transparency of reporting. Information enables to assess, monitor, control and make informed decisions, it also helps to build trust between the institution and its stakeholders. As opposed to previous paragraph dealing with the asset side, reporting is mostly used on the liability side in communication towards depositors and shareholders. It is crucial for a bank using ethics to be differentiated from others, especially since every bank nowadays promotes itself as the most responsible and client-focused one. Without sufficient information it is almost impossible to distinguish who tells the truth and who just tells a story. Logics of a signalling game would suggest that banks which are not transparent, or report so complex that it is hardly comprehensible, try to hide something. On the contrary, the banks we consider as using ethics go with transparency as far as to reporting individual loans; besides that they usually report in a way that is understandable to a lay person and provide as much evidence as possible about the way how they operate.

### 2.5.2 Evidence

In order to support the previous claims this Section should provide some evidence. Once again we use a structure synthesised by GABV. This time it is a Sustainability Banking Scorecard that is being developed to enhance reporting on the measures to differentiate ordinary banks from the ones applying ethics, or in words of the Scorecard sustainable banks. The Scorecard consists of three parts – Basic Requirements, Quantitative Factors and Qualitative Elements (Table 3Table 3).

Since Basic Requirements is not the main differentiator[19] and we deal with quantitative analysis in the Chapter 3 of the thesis, we discuss only the other two parts here. The Scorecard is based on Principles of Sustainable Banking and, therefore, there is no need to further analyse connection between the Scorecard and our theoretical framework. Evidence from Qualitative Elements as presented in Table 4 is based on yet unpublished data for the Scorecard and the banks are anonymised here[20] – bank's names are substituted with [BANK] and if there are any other names used which could reveal identity of a bank they are substituted with [NAME]. All the remaining stays unchanged. It provides one example for each Qualitative Element and help to colour the picture drawn in the previous section.

TABLE 3: STRUCTURE OF SUSTAINABILITY BANKING SCORECARD (AUTHOR, BASED ON INTERNAL MATERIALS OF GABV)

| | **Sustainability Banking Scorecard** | | |
|---|---|---|---|
| | **Basic Requirements** | | |
| **BR1** | Regulated Banking Institution | | |
| **BR2** | Mission Statement | | |
| **BR3** | Reporting Transparency | | |
| | **Quantitative Factors** | | **Qualitative Elements** |
| **QF1** | Return on Assets (3-year average) | **QE1** | Leadership |
| **QF2** | Equity to Total Assets | **QE2** | Organisational Structure |
| **QF3** | Asset Quality Ratio | **QE3** | Products & Services |
| **QF4** | Client Funding to Total Assets | **QE4** | Management Systems |
| **QF5** | Real Economy Assets to Total Assets | **QE5** | Human Resource Tools |
| **QF6** | Real Economy Revenues to Total Revenues | **QE6** | Performance Reporting |
| **QF7** | Triple Bottom Line Assets to Total Assets | | |

TABLE 4: EVIDENCE FROM QUALITATIVE ELEMENTS (AUTHOR, BASED ON INTERNAL RESEARCH DONE BY GABV)

| | **Qualitative Elements** |
|---|---|
| **QE1** | "The Statutes of [BANK] (art.31) prescribes that the members of the Board must be a Shareholder of the Bank and must have requirements related to the specific nature of the bank, i.e. knowledge and expertise in: 1. Third Sector; 2. Social Economy; 3. International cooperation; 4. Alternative banking; 5. Environment and Renewable Energy." |

[19] The Basic Requirements are closer described as follows: BR1: "Statement regarding regulatory framework and status, and evidence of client deposit and lending relationships"; BR2: "Institution's mission statement has elements related to at least one of the Principles of Sustainable Banking"; BR3: "Evidence of transparency of reporting to all stakeholders, especially relative to sustainability commitments". (Based on internal materials of GABV)

[20] As one of the first GABV member banks, Triodos Bank published the Scorecard on their website (http://www.annual-report-triodos.com/en/2014/impact/our-impact-in-a-global-context/the-gabv-scorecard) and GABV itself is working on creating more public access to Scorecards of other member banks.

| | Qualitative Elements |
|---|---|
| **QE2** | “In order to strengthen the bank's knowledge and expertise on target industries and sectors such as renewable energies, organic farming, cooperative housing or sustainable business loan officers have been assigned specific client segments for which they should develop expertise and networks.” |
| **QE3** | “[BANK] has developed its own tool to assess the environmental and social aspects of buildings financed ([BANK]-Rating). Depending on the rating (none, 1,2,3) discounts on the mortgage interest apply ([BANK] mortgage).” |
| **QE4** | "Loan Policy includes negative and positive criteria about sector that can or cannot be financed and it prescribes that the clients (organizations) must be assed also from a social and environmental criteria. The social evaluation is made by shareholders, who are specifically trained for this task. They are volunteers.<br>The field of analysis are the following: 1. mission of the organization; 2. democratic governance; 3. respect of labour rights and diversity management; 4. supply chain; 5. networking; 6. environmental behaviour; 7. social inclusion (where appropriate).<br>The social analyst visits directly the organization and produce a report for the financial analyst, who must integrate produce an integrated judgment (ESG and financial)." |
| **QE5** | "[BANK] operates a maximum 5:1 salary structure, whereby the salary of the highest-paid full time member of staff cannot exceed five times that of the lowest paid full time member of staff.<br>All staff participate in development of the [BANK]’s vision, values and key working principles, and are expected to reflect these in their working practices. This is measured and managed through the [BANK]’s staff objectives system.<br>Staff receive regular training on sustainability issues and a monthly briefing on environmental developments." |
| **QE6** | “The core element of external reporting is the list of loans – [NAME]. Each given loan is reported in our print and online magazine [NAME].<br>[BANK]’s website illustrates the detailed breakdown of the bank´s own investments in bonds and shares (please refer “reporting transparency” above).<br>The annual financial statement is published as a print and online version. A yearly sustainability report according GRI (A+) is published online (please refer “reporting transparency” above).<br>The yearly annual meeting for shareholders is open for each shareholder." |

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# 3 EMPIRICAL RESEARCH

After we have introduced what is meant by the use of ethics thoroughly in banks, Empirical Research has a goal to uncover what it means in terms of financial numbers and what implications there arise. There has not been done too much research in the topic to the date and there is, basically, only one yearly-updated report published by a member organisation associating so-called sustainability-focused banks (Global Alliance for Banking on Values, 2014) on a similar topic. Therefore, we draw from the report in formulating our Hypothesis 1. There is an interdependence of a financial profile and a strategic choice of a banking business model. Analysis of financial profiles should, therefore, reveal whether there is a universal ethical business model or it is more about an approach applied in operation behind financial numbers.

Although Hypothesis 2 may sound as articulation of concerns often expressed by representatives of a conventional approach to banking, there is a direct connection to Hypothesis 1. It is expected that, despite some potential similarities in financial profile, there is no universally recognisable ethical business model. Therefore, while controlling for financial profile variables, Hypothesis 2 tests effects of the ethical approach or, in other words, of applying ethics throughout a bank, on profitability and volatility. Hypothesis 3 extends from and complements both Hypotheses 1 and 2 in search for particularities in performance of banking with ethics. It zooms one step further and benchmark those banks against their closest peers. The hypotheses read:

- **Hypothesis 1**

*A financial profile of banking institutions applying ethics differ from conventional banking institutions.*

- **Hypothesis 2**

*Application of ethics results in lower profitability and lower volatility for banking institutions.*

- **Hypothesis 3**

*Application of ethics results in higher costs or less revenue for banking institutions.*

In line with the theory described before, it should be repeated that this thesis studies only effects in financial dimension and does not encompass social or environmental effects of concerned banking operations. Such limitation is undesirable but the fact remains that there is not enough comparable statistics about the non-financial effects.

Empirical Research is divided in four interconnected parts – Data, Methodology, Analysis and Discussion of results. The first describes how the studied Sample is defined and how dataset was built around it. Methodology, Analysis and Discussion of results are then separate for each of the three hypotheses. As they differ to a good extent, methodology as well as results are to be dealt with separately for all three. Last we summarise results and compare them with other research.

## 3.1 DATA

For the thesis discusses solely banking phenomena, the data used here comes exclusively from the Bankscope database[21]. The database gives us an extensive range well comparable data but there are also some limitations. Since our focus is mostly on smaller local banking institutions there is a number of banks which would fit our criteria for being included in the Sample but do not have a database entry. Besides that, there are limitations such as duplicate entries or missing variables; while we are able to control and fix the former, the latter can be only accepted and taken into account.

### 3.1.1 THE SAMPLE

The limitations described above are not the most critical ones. As an ambition of the thesis is to find out whether the use of ethics influence financial performance of banks, it would be best to be able to actually measure the use of ethics within individual banks. However, most of information needed for an appropriate assessment whether a bank applies ethical tools in its processes and throughout its business model is not publicly available.

One might point out that there is a growing number of sustainability or corporate social responsibility reports across the banking industry which claim to provide the required information. It is undeniably a step forward, nonetheless, it might but does not necessarily have to provide bullet-proof evidence that ethics or any sustainability measures are applied throughout organisation. One example among many, BNP Paribas presents itself as a "responsible bank" in its corporate social responsibility report (BNP Paribas, 2013) while, on the other hand, it makes unlawful transactions with countries under US sanctions (The Economist, 2014).

For definition of our Sample, therefore, we will rely on third party assessments that should be able to see through the nice façade and assess holistic use of ethics. The chosen third parties are membership organisations, sustainable or ethical investment companies, a certification company, and banking networks. They can benefit from access to internal information about their members and investments and so their analysis can go much deeper than anyone based on publicly available information.

[21] Bankscope, update number 287.1, software version 61.02, last data update 03/06/2014 (n° 1798).

The set of parties chosen for proxy assessment is based on author's research into a so-called sustainable, ethical, or social banking sector with commitment to the use of ethics.[22] It is not an exhaustive list of organisations and those entities do not encompass every single banking institution that could be included in the Sample. More transparent and structured information about inner banking process could improve the list in Table 5. An estimate is that there are approximately 2,000 banks "focused on meeting human needs in the real economy." (SFRE Fund, 2015)

TABLE 5: SAMPLE AFFILIATIONS (AUTHOR)

| Organisation | Abbreviation | Website |
|---|---|---|
| Global Alliance for Banking on Values | GABV | www.gabv.org |
| European Federation of Ethical and Alternative Banks | FEBEA | www.febea.org |
| International Association of Investors in the Social Economy | INAISE | www.inaise.org |
| Women's World Banking | WWB | www.womensworldbanking.org |
| Triodos Investment Management | TIM | www.triodos.com/en/investment-management |
| responsAbility | resp | www.responsability.com |
| Aga Khan Fund for Economic Development | AKFED | www.akdn.org/akfed |
| B Corporation | B Corp | www.bcorporation.net |
| Accion | Accion | www.accion.org |
| Access Microfinance Holding | Access | www.accessholding.com |
| FINCA | FINCA | www.finca.org |

Being [1] affiliated to the organisations enumerated above is only a first assumption for a banking institution to be included in the Sample. An institution is included in the Sample only if it has acquired [2] a banking licence[23], it is [3] not a government-owned entity [4] nor a holding company[24], it had [5] assets over USD 50 million in 2012[25,26] and, as mentioned earlier, [6] has an entry in the Bankscope database. Under these assumptions there have been identified 69 banking institutions around the world (Table 6) with various size (Table 7) and different specialisations.

[22] Although naming differs, according to the theory from Chapter 2 we call it ethical banking, and ethical banks (EBs), from now on. *Ethical* here does not mean to be "morally right" but to apply ethics as an economic tool.

[23] Even though, there are a few "Micro-Financing Institutions", as defined by Bankscope, in the Sample, all of them has a banking licence, i.e. are allowed to take deposits and provide loans, in the country of operation.

[24] It can be wholly or partially owned by a holding company but a holding company as such is not included in the Sample. Similarly, one central bank of small rural and community banks was excluded from the Sample.

[25] 2012 is decided to be a base year. In the used version of Bankscope database, there are still some data missing for 2013 and 2012, therefore, provides the most complete information. All descriptive statistics in Tables contain data for 2012 in USD unless noted otherwise.

[26] A minimum requirement for membership in GABV (Global Alliance for Banking on Values, 2013).

TABLE 6: SAMPLE DESCRIPTION - COUNTRIES (AUTHOR, BASED ON BANKSCOPE)

| **Countries** | AL | CA[2] | DO[2] | HN | KH | NO | SV |
|---|---|---|---|---|---|---|---|
| | AM | CD | EC[3] | HU | KV | PA | TJ |
| | AZ[2] | CH | ES | ID | MD | PE | TZ[3] |
| | BA | CO[2] | FR | IN | MK | PK | UA |
| | BD | CR | GB[2] | IT[2] | MN | RO | UG |
| | BG | DE[2] | GE | KE[3] | NI | RS | US[4] |
| | BO[3] | DK | GT | KG[2] | NL | RU[2] | VE |

*Upper index notes No of banks where there is more than one bank per country.

TABLE 7: SAMPLE DESCRIPTION - ASSET SIZE AN OBSERVATION (AUTHOR, BASED ON BANKSCOPE)

| **In USD billion** | **Ethical Banks (EBs)** | |
|---|---|---|
| | **2012** | **2003-2013** |
| Average asset size | 1.94 | 1.26 |
| Minimum asset size | 0.05 | 0.01 |
| Maximum asset size | 19.69 | 22.43 |
| Total assets | 133.73 | 674.79 |
| No of observations | 69 | 537 |

### 3.1.2 DATASET & DATA CLEANING

In order to conduct a valid analysis and comparison of Ethical Banks (EBs) to a benchmark the process of building the dataset has been adjusted accordingly. Although inspired by the GABV report (Global Alliance for Banking on Values, 2014) in formulating hypotheses and many other, this thesis attempts to differentiate itself in dataset and a benchmark set of banks. As opposed to the GABV report that takes Global Systematically Important Financial Institutions (G-SIFIs; Financial Stability Board, 2012) for comparison with its members, one of the aims of this thesis is to find the most suitable benchmark and conduct more robust research into specifics of banks using ethics. Time range of our data goes from 2003 to 2013.

The dataset is, therefore, tailored according to the Sample in a few steps. First, only data for banks from countries that are represented in the Sample are extracted from Banskscope database for our base dataset. Second, only Specialisations, as defined by Bankscope, represented in the Sample are kept so that corresponding business models appear in the final dataset.

TABLE 8: DATASET SHORT DESCRIPTION (AUTHOR, BASED ON BANKSCOPE)

| ***In USD billion*** | **The Dataset** | | | | | |
|---|---|---|---|---|---|---|
| | **Avg** | **Max** | **Min** | **sd** | **N** | **Sum** |
| Total Assets | 7.52 | 2,668.26 | 0.05 | 83.61 | 10,495 | 78,880.97 |

Although extensiveness of the Bankscope database is its big advantage, it brings along some data problems and one needs to be careful so that the data is handled appropriately. One of such problems is duplicates, i.e. several observations for bank-year couples, and there are some others (Duprey & Lé, 2015). All known data problems which might have arisen were controlled for, for instance in the mentioned case of duplicates, only entries with time span of 12 months are included and remaining duplicates were treated individually in order to attain high data quality. An important dataset adjustment was dealing with outliers. Regarding to the research topic that is interested in a standard range of studied variables several outliers were dropped as they could not bring much improvement to our analysis and rather cause bias to results. A very brief description of the final dataset can be found below in Table 8, for more information is presented throughout following Sections.

## 3.2 Hypothesis 1

*A financial profile of banking institutions applying ethics differs from conventional banking institutions.*

### 3.2.1 Methodology

Testing Hypothesis 1 should reveal whether there is a particular ethical business model in banking or if it is rather about application of ethics in operations with no major effect on financial profile. Dataset is to be decomposed into clusters by criteria of size, geography and specialisation and resulting financial profiles analysed for similarities within ethical and conventional banking as well as for differences between them.

Table 9: Financial profile variables (Author, based on Bankscope)

| Variables | Description (Bankscope names) |
|---|---|
| Loans | Gross loans / Total assets |
| Trading book | Trading Securities and at FV through income book / Total assets |
| Interbank lending | (Loans and advances to banks + Reverse repos and cash collateral) / Total assets |
| Interbank borrowing | (Deposits from banks + Repos and cash collateral) / Total assets |
| Wholesale debt | (Other deposits + Short-term borrowing + Long-term funding) / Total assets |
| Stable funding | (Consumer deposits + Long-term funding) / Total assets |
| Deposits | Consumer deposits / Total assets |
| Equity | Total equity / Total assets |
| Common Equity | Common equity / Total assets |
| Tier 1 Capital Ratio | Tier 1 capital ratio |

Following on a paper by Roengpitya, Tarashev, & Tsatsaronis (2014, p. 59; see also Ayadi & De Groen, 2014) we create a basic set of observed variables for Hypothesis 1. Conveniently, authors of

the paper were using Bankscope database but for ambiguity in definition of their Trade variable we omit that variable from our analysis and keep only Trading book to represent a trading part of balance sheet. On the other hand, we add three capital measures – Equity, Common Equity and Tier 1 Capital Ratio to variables from the discussed paper. A final list of variables is then described in Table 9.

TABLE 10: PROFITABILITY AND VOLATILITY VARIABLES (AUTHOR, BASED ON BANKSCOPE)

| Variables | Description (Bankscope names) |
|---|---|
| Return on Assets | Net Income / 2-yearend average of Total assets |
| Return on Equity | Net Income / 2-yearend average of Total equity |
| Sd(Return on Assets) | 5-year standard deviation of Return on Assets |
| Sd(Return on Equity) | 5-year standard deviation of Return on Equity |

As we will touch upon profitability and volatility measures for them being addition characteristics of studied financial profiles, it is appropriate to also introduce variables to be used. All four variables are calculated as described in Table 10. Volatility is equal to a five-year standard deviation in a particular Profitability measure; it is calculated on a rolling basis so that the volatility for each year goes four more years backwards.

Having a diverse dataset built around not less diverse Sample, banks need to be sorted out before being able to answer to the hypothesis. There are three successive steps of clustering – by size, by geography, and by specialisation – being made in order to ensure the desired comparability. As well as in case of the dataset, the clustering is led by the Sample distribution and subsets containing no Ethical Bank are to be left out along the sorting. For instance, in terms of size, as all banks in the Sample are smaller we deal with big banks only in the first step and then move on only with comparable Benchmark small banks. The analysis is done based on average values of financial profile variables from Table 9.

### 3.2.2 ANALYSIS

A first step of clustering is based on asset size for two reasons. One, it is noticeable from the Sample description in Table 6 that Ethical Banks are rather small. With an average size of USD 1.94 billion in 2012 and a maximum asset size of USD 22.4 billion over the studied time period it is simply understood that search for subsets of comparable banks should begin here. Two, results of comparison between a subsample and G-SIFIs are already known and separation by asset size would enable us to test results of the GABV report (Global Alliance for Banking on Values, 2014) against a larger dataset.

Thresholds for the asset size clustering were set arbitrarily but they provide a very good approximation to a “Systematically important financial institutions” framework. The highest threshold

is at USD 1,000 billion in total assets and the cluster almost exactly[27] matches the list of G-SIFIs (Financial Stability Board, 2012) for our dataset; for simplicity we refer to this group of banks as "G-SIFIs" throughout the thesis. The second threshold lies at USD 100 billion in total assets and banks belonging here are labelled "R-SIFIs" as for Regional Systemically Important Financial Institutions. This cluster does not resemble any group by definition but it establishes a convenient middle step between the "G-SIFIs" and banks below USD 100 billion in total assets. Convenience of such a division is illustrated in Table 11, despite the very unbalanced number of banks it splits the whole dataset approximately in thirds by total asset size. For further analysis we will focus only on the "Non-SIFIs", i.e. banks with total assets of less than USD 100 billion, so let us devote a few paragraphs to analysis of differences in financial profiles by asset size.

TABLE 11: SUM OF TOTAL ASSETS BY ASSET SIZE CLUSTERING (AUTHOR, BASED ON BANKSCOPE)

| ***In USD billion*** | **"Non-SIFIs"**<br>**As < 100 billion** | **"R-SIFIs"**<br>**100 billion < As < 1,000 billion** | **"G-SIFIs"**<br>**1,000 billion < As** |
|---|---|---|---|
| Sum of Total Assets | 20,646.28 | 26,322.26 | 31,131.98 |
| Avg of Total Assets | 1.98 | 360.58 | 1,729.55 |
| No of banks | 10,402 | 73 | 18 |

Table 12 exposes very interesting figures following the first clustering step. Values of studied ratios suggest that financial profile of an average bank differs quite substantially across clusters. Even more intriguing is how figures for individual variables either gradually increase or gradually decrease from one side of the spectrum to the other, with an exception of Wholesale debt. If we took a simplistic assumption of financial economy as being wrong and real economy being right, "Non-SIFIs" would champion the two other clusters with no exception.

Exposure to real economy through Loans on the asset side and through Deposits on the liability side is more than 20% and 30%, respectively, higher for "Non-SIFIs" than "G-SIFIs". Those values are counter-proven by Trading book indicating exposure to financial economy which is 10 and 20 times as big for "R-SIFIs" and "G-SIFIs", respectively, as for "Non-SIFIs". Interbank lending and borrowing do not create such great gaps, however, they are both higher for "R-SIFIs" and "G-SIFIs" than for smaller "Non-SIFIs".

[27] All banks in the cluster of banks with more than USD 1,000 billion in total assets were included in the list of G-SIFIs (Global-Systematically Important Financial Institutions) for 2012 except for Lloyds Bank which was, nonetheless, included in the 2011 list (Financial Stability Board, 2011).

TABLE 12: FINANCIAL PROFILE BY SIZE[28] (AUTHOR, BASED ON BANKSCOPE)

| *In percent to Total Assets* | "Non-SIFIs" As < 100 billion | | | "R-SIFIs" 100 billion < As < 1 trillion | | | "G-SIFIs" 1 trillion < As | | |
|---|---|---|---|---|---|---|---|---|---|
| | **Avg** | **Sd** | **N** | **Avg** | **Sd** | **N** | **Avg** | **Sd** | **N** |
| Loans | **61.04** | (17.19) | 10402 | **54.79** | (21.03) | 73 | **40.40** | (15.27) | 18 |
| Trading book | **0.57** | (3.35) | 8308 | **5.73** | (6.13) | 66 | **10.00** | (5.89) | 18 |
| Interbank lending | **11.71** | (13.54) | 385 | **14.35** | (12.38) | 39 | **14.09** | (9.04) | 11 |
| Interbank borrowing | **14.54** | (11.82) | 539 | **16.70** | (12.16) | 38 | **16.48** | (7.80) | 11 |
| Wholesale debt | **7.76** | (14.82) | 8663 | **21.32** | (20.91) | 53 | **11.85** | (6.94) | 16 |
| Stable funding | **78.67** | (15.64) | 9734 | **60.62** | (17.81) | 71 | **50.28** | (17.47) | 18 |
| Deposits | **73.55** | (20.65) | 10402 | **48.39** | (23.86) | 73 | **41.83** | (20.01) | 18 |
| Equity | **11.08** | (6.79) | 10402 | **6.38** | (3.99) | 73 | **5.64** | (2.96) | 18 |
| Common Equity | **10.74** | (6.71) | 10402 | **6.20** | (3.89) | 73 | **5.43** | (3.04) | 18 |
| Tier 1 Capital Ratio | **17.36** | (19.76) | 8226 | **12.73** | (2.65) | 64 | **13.07** | (2.60) | 18 |

Last but not least, capital ratios show very similar story. Equity to Total Assets and Common Equity to Total Assets for "R-SIFIs" and "G-SIFIs" are around half of those ratios for "Non-SIFIs". However, if we look at Tier 1 Capital Ratio the picture becomes much less dramatic. The ambiguity suggests that larger banks are able to take advantage from risk modelling. It can be better evidenced if we divide the ratio for Equity by Tier 1 Capital Ratio. This easy operation gives us a simple comparison tool between those two measures. While for "Non-SIFIs" Tier 1 Capital Ratio accounts for 1.57 times Equity to Total Assets, it goes to 2.00 for "R-SIFIs" and up to 2.32 for "G-SIFIs".

Financial profile from Table 12 has to be complemented with profitability and volatility measures in Table 13 if we want to observe a fuller picture. Not so surprisingly the clustering has implications also in terms of profitability and volatility. Table 13 presents figures that follow similar patterns as in Table 12; "Non-SIFIs" are more profitable in terms of both Return on Assets and Return on Equity and even less volatile for the latter measure. The only row where "Non-SIFIs" lose their sovereignty is in volatility of Return on Equity. Anyhow, Table 13 describes only one point in time and time-series projection is likely to be more revealing.

TABLE 13: PROFITABILITY AND VOLATILITY BY SIZE (AUTHOR, BASED ON BANKSCOPE)

| *In percent* | "Non-SIFIs" As < 100 billion | | | "R-SIFIs" 100 billion < As < 1 trillion | | | "G-SIFIs" 1 trillion < As | | |
|---|---|---|---|---|---|---|---|---|---|
| | ***Avg*** | ***Sd*** | ***N*** | ***Avg*** | ***Sd*** | ***N*** | ***Avg*** | ***Sd*** | ***N*** |
| Return on Assets | **0.78** | 2.50 | 10199 | **0.41** | 0.68 | 72 | **0.24** | 0.47 | 18 |
| Return on Equity | **6.44** | 22.57 | 10199 | **5.46** | 12.19 | 72 | **2.48** | 6.96 | 18 |
| Sd(Return on Assets) | **0.57** | 1.32 | 10036 | **0.34** | 0.38 | 72 | **0.25** | 0.16 | 18 |
| Sd(Return on Equity) | **5.93** | 39.25 | 10036 | **6.97** | 9.98 | 72 | **7.04** | 8.06 | 18 |

[28] Figures for "R-SIFIs" are corrected for Bankia, S.A., a Spanish bank which had substantial problems in 2012 and its case negatively affected figures the whole cluster.

Figure 2 and Figure 3 give us a picture how Return on Assets and Return on Equity were developing in time. On average, and the reader should be reminded that "Non-SIFIs" yet range from middle-sized European cooperative banks to small-sized microfinance banks operating in emerging countries, Return on Assets was dominated by "Non-SIFIs" over the whole studied period. Return on Assets for "Non-SIFIs" was around 1.0% before the crisis year 2008, going down to 0.4% and coming back close to pre-crisis levels in 2013. "R-SIFIs" and "G-SIFIs" were all the time below "Non-SIFIs" slumping down to 0.1% in 2009. There was a partial recovery for those two groups of banks but their Return on Assets is still far from the pre-crisis values.

Return on Equity is a different story. This measure, which interests shareholders the most, was at much higher levels before the 2008 financial crisis and as banking experts say it will likely not come back anytime soon (Oliver Wyman, 2015). However, a closer look uncovers that this is true only for "R-SIFIs" and "G-SIFIs". Those returns around 20.0% has never been the case of "Non-SIFIs", and neither "R-SIFIs" which might be one of arguments against the successful recovery of "Non-SIFIs" – getting back at the pre-crisis levels was not that difficult as for the "G-SIFIs". There is, however, an ongoing discussion whether the mentioned high returns were not merely a result of accounting and leverage, and whether they are even achievable given the current regulatory requirements.

The reason for such dissimilarity in Return on Assets and Return on Equity for post-crisis years lies partially in capital ratios. Whereas the level of Equity to Total Assets was around 4.49% in 2006 for "G-SIFIs" (see Table 25 in Appendix) it was at 5.64% in 2012; that might seem as a minor change in absolute numbers but it is an increase of 25%. For comparison, those values for "Non-SIFIs" in respective years were 11.26% and 11.08%, therefore, more or less on the same level with values in 2012.

**FIGURE 2: RETURN ON ASSETS BY SIZE (AUTHOR, BASED ON BANKSCOPE)**

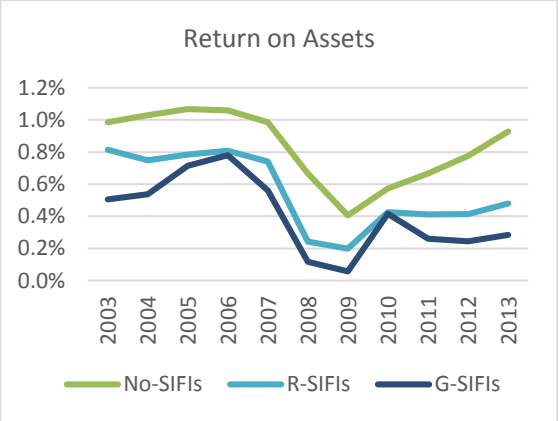
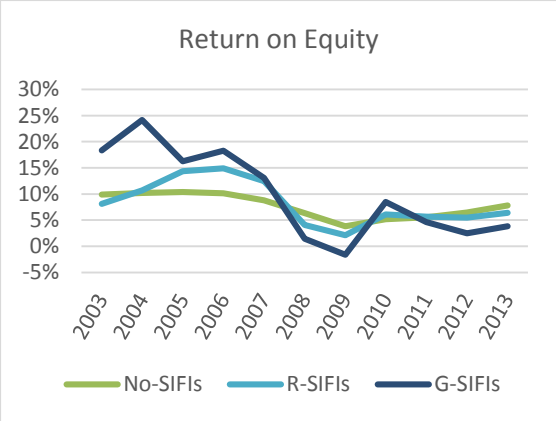



**FIGURE 3: RETURN ON EQUITY BY SIZE (AUTHOR, BASED ON BANKSCOPE)**



Leaving behind both "G-SIFIs" and "R-SIFIs" and moving on with dataset decomposition, next step is to look whether financial profiles differ by geography. Of course, almost every country has different policies, regulations, economic situation or history that may affect banks' financial profiles as well as well as their profitability. Despite and because of that we will look for a higher-level classification. A first thought would likely be about a split into developed and developing countries. For our purposes, we take a list of Advanced Economies as classified by the International Monetary Fund (International Monetary Fund, 2012).

The subset of Advanced Economies is highly unbalanced towards the US as described in Table 14. Although Germany (DE) and Italy (IT) have a fair share, too, we separate US to create their own subsample. Besides the fact that the US has an extensive banking sector, specific regulation, and the most complete data for banks, the separation could be partly supported by the fact there is also the highest number of Ethical Banks per country from our Sample. Dataset countries that are not included in the list of Advanced Economies are for the purpose of the thesis marked as Emerging Economies.

TABLE 14: ADVANCED ECONOMIES DATASET DESCRIPTION (AUTHOR, BASED ON BANKSCOPE)

| ***No of banks*** | | | **Advanced Economies** | | | |
|---|---|---|---|---|---|---|
| *Countries* | CA[2] | 50 | ES | 86 | NL | 23 |
| | CH | 286 | FR | 192 | NO | 116 |
| | DE[2] | 1,566 | GB[2] | 125 | | |
| | DK | 65 | IT[2] | 505 | US[4] | 5,981 |

*No of banks in upper index if more than one bank per country.

TABLE 15: FINANCIAL PROFILE BY GEOGRAPHY (AUTHOR, BASED ON BANKSCOPE)

| ***In percent to Total Assets*** | **Emerging Economies** | | | **Advanced Economies** | | | **US** | | |
|---|---|---|---|---|---|---|---|---|---|
| | ***Avg*** | ***Sd*** | ***N*** | ***Avg*** | ***Sd*** | ***N*** | ***Avg*** | ***Sd*** | ***N*** |
| Loans | **59.50** | (17.55) | 1407 | **62.86** | (18.69) | 3014 | **60.49** | (16.22) | 5981 |
| Trading book | **3.37** | (6.50) | 529 | **1.52** | (5.84) | 1819 | **0.03** | (0.45) | 5960 |
| Interbank lending | **10.46** | (9.49) | 193 | **15.88** | (19.30) | 125 | **7.57** | (7.01) | 67 |
| Interbank borrowing | **11.55** | (11.72) | 181 | **16.16** | (11.59) | 355 | **3.05** | (0.56) | 3 |
| Wholesale debt | **34.04** | (27.65) | 877 | **9.52** | (12.51) | 1821 | **3.36** | (6.10) | 5965 |
| Stable funding | **59.54** | (22.33) | 1174 | **71.91** | (14.71) | 2591 | **85.37** | (8.39) | 5969 |
| Deposits | **48.69** | (29.11) | 1407 | **65.75** | (18.56) | 3014 | **83.33** | (9.84) | 5981 |
| Equity | **14.59** | (9.58) | 1407 | **8.91** | (5.77) | 3014 | **11.34** | (6.04) | 5981 |
| Common Equity | **13.58** | (9.52) | 1407 | **8.84** | (5.74) | 3014 | **11.03** | (6.05) | 5981 |
| Tier 1 Capital Ratio | **15.50** | (8.05) | 376 | **14.38** | (6.84) | 1914 | **18.44** | (22.75) | 5936 |

Evidence in favour of the decision about separating the US can be found in Table 15. Standard deviations for most US ratios decrease and there is a substantial difference on the liabilities side distinguishing the US subsample from other Advanced Economies. Stable funding, along with Deposits, account for highest values (85.37% and 83.33%, resp.) within the current dataset of banks under USD

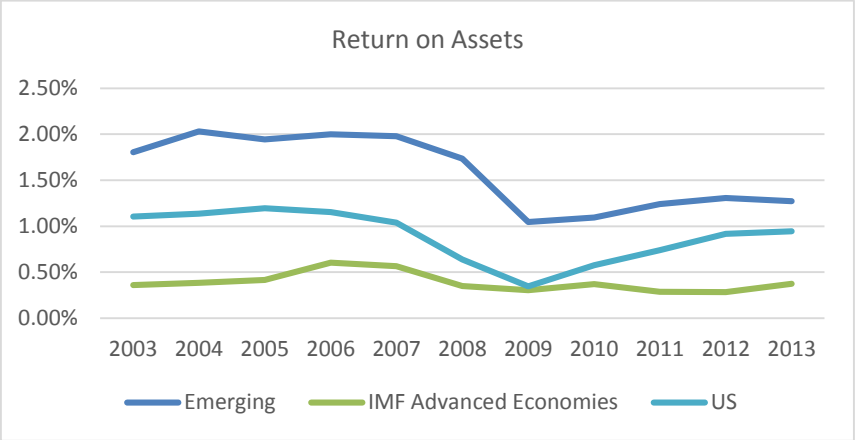
100 billion in total assets. Following from that, US "Non-SIFIs" do not have much need for Interbank borrowing (3.05%) or Wholesale debt (3.36%). That is what makes them different from the other banks in Advanced Economies where a gap in Deposits (only 65.75% as opposed to 85.37% in US) is counterbalanced by higher values of Interbank borrowing (16.16%) and Wholesale Debt (9.52%). On the other hand, indicators for the asset side of a balance sheet do not vary that much, for instance Loans moved only a little from the aggregate 61.04% to 62.86% for Advanced Economies and 60.49% for US. A visible divergence is also in capital ratios where Advanced Economies display on average 2.43% lower capital base than US banks, however, still higher by 2.53% and 3.27% than "R-SIFIs" and "G-SIFIs", respectively.

As well as in case of two mentioned groups, banks from the Emerging Economies deviate from aggregate numbers for "Non-SIFIs" in the liabilities side while the asset side remains rather unchanged. Especially the high ratio for Wholesale debt (34.04%) corresponding with low ratio of Deposits (48.69%) gives us a hint about a situation in Emerging banking markets. Low Deposits levels may have several reasons, among others we can mention lower individual saving rates usually conditioned by lower access to financial services in developing countries (The Economist, 2014), or a high share of banks that had only lately developed from Micro-Financing Institutions that only provided loans and investments but did not take deposits.

TABLE 16: PROFITABILITY AND VOLATILITY BY GEOGRAPHY (AUTHOR, BASED ON BANKSCOPE)

| ***In percent*** | **Emerging Economies** | | | **Advanced Economies** | | | **US** | | |
|---|---|---|---|---|---|---|---|---|---|
| | ***Avg*** | ***Sd*** | ***N*** | ***Avg*** | ***Sd*** | ***N*** | ***Avg*** | ***Sd*** | ***N*** |
| Return on Assets | **1.31** | (2.34) | 1251 | **0.28** | (0.96) | 2999 | **0.92** | (2.98) | 5949 |
| Return on Equity | **10.39** | (24.50) | 1251 | **2.44** | (33.26) | 2999 | **7.62** | (13.30) | 5949 |
| Sd(Return on Assets) | **1.11** | (1.89) | 1186 | **0.28** | (1.60) | 2908 | **0.60** | (0.95) | 5942 |
| Sd(Return on Equity) | **11.40** | (103.27) | 1186 | **3.55** | (21.92) | 2908 | **6.00** | (15.18) | 5942 |

FIGURE 4: RETURN ON ASSETS BY GEOGRAPHY (AUTHOR, BASED ON BANKSCOPE)



In line with low Deposits we see high levels of capital that help to balance out the liabilities side. That could be also explained by attractive returns which might interest a good number of investors. Table 16 shows that Return on Equity stays in Emerging Economies high even in post-crisis years, anyhow, there is a downside of much higher volatility than in other two geographies. A champion in volatility is the Advanced Economies group (0.28% for Return on Assets), nonetheless, it lags behind in terms of profitability (0.28% in Return on Assets and 2.44% in Return on Equity). US "Non-SIFIs" come out of this comparison as an interesting combination of relatively high profitability (Return on Assets of 0.92%) and low volatility (0.60% for Return on Assets). Last argument for the division by geography can be found in Figure 4 where we see that the varying figures pointed out in Table 16 does not represent only a one-year cut but rather a difference stable over time.

A final dataset split is according to specialisation as defined in the Bankscope database. Since only Specialisations of Ethical Banks were kept in the dataset after data cleaning, distribution of remaining banks by geography and by specialisation is presented in Table 17. Although the Specialisation criteria is not precise in some cases it provides us with a reasonable way how to further narrow down our dataset. It was not the case in clustering by geography but going on in analysis we keep only groups with representatives of Ethical Banks. A decision was made to drop such clusters where Sample population is less than three banks, i.e. we leave out Savings Banks and Real Estate & Mortgage Banks.

TABLE 17: DATASET DISTRIBUTION BY GEOGRAPHY AND SPECIALISATION (AUTHOR, BASED ON BANKSCOPE)

| ***No of banks*** | **Emerging Economies** | | **Advanced Economies** | | **US** | |
|---|---|---|---|---|---|---|
| ***Specialisation*** | ***EBs*** | ***Benchmark*** | ***EBs*** | ***Benchmark*** | ***EBs*** | ***Benchmark*** |
| Commercial Banks | 26 | 1,271 | 5 | 581 | 4 | 5,414 |
| Cooperative Banks | . | 38 | 6 | 1,487 | . | 7 |
| Savings Banks | . | 18 | 2 | 892 | . | 561 |
| Real Estate & Mortgage Banks | . | 14 | 1 | 109 | . | 3 |
| Micro-Financing Institutions | 25 | 19 | . | 1 | . | 1 |

Table 18 is a final output for Hypothesis 1. At the very first glance, there is no universal financial profile for banks applying ethics throughout their operation. That can be very well understood as there is no universal financial profile for conventional banks either. However, splitting the dataset by geography and specialisation shows us some interesting patterns in data.

Let us begin on top of Table 18 with Loans. Levels of Loans to Total Assets vary substantially across geographies and specialisations and range from 56.03% for Commercial Banks in IMF Advanced Economies up to 72.18% for Micro-Financing Institutions in Emerging markets. With a closer look, there is a certain pattern for EBs to outperform the Benchmark within clusters. Except for Emerging

Micro-Financing Institutions and US Commercial Banks, EBs on average provide more Loans than the Sample. The difference is most substantial for Commercial Banks in Advanced Economies where the gap amounts to 14.33%.

Finding a similar relation is a bit more difficult for the other two listed asset side ratios. It could be partially explained by a higher amount of missing data points than in case of Loans. If there was not such a strong value (16.45%) for Cooperative Banks in Advanced Economies[29] it could be said that EBs, on average, have less trading securities on their balance sheet. The same holds for Interbank lending, however, the statement loses to an extent on robustness because of many missing values for this ratio.

TABLE 18: FINANCIAL PROFILE BY GEOGRAPHY AND SPECIALISATION (AUTHOR, BASED ON BANKSCOPE)

| *In percent to Total Assets* | Emerging Economies | | | | Advanced Economies | | | | US | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *Commercial Banks* | | *Micro-Financing Institutions* | | *Commercial Banks* | | *Cooperative Banks* | | *Commercial Banks* | |
| | *EBs* | *Ben.* | *EBs* | *Ben.* | *EBs* | *Ben.* | *EBs* | *Ben.* | *EBs* | *Ben.* |
| Loans | **67.51** | **58.75** | **71.37** | **72.18** | **70.36** | **56.03** | **67.38** | **61.09** | **61.05** | **60.16** |
| N | 26 | 1,268 | 25 | 19 | 5 | 529 | 6 | 1,475 | 4 | 5,311 |
| Trading book | **2.25** | **3.50** | **0.39** | **0.11** | **4.21** | **5.23** | **16.45** | **0.30** | **0.00** | **0.02** |
| N | 11 | 467 | 7 | 6 | 3 | 248 | 2 | 1,047 | 4 | 5,298 |
| Interbank lending | **5.72** | **10.87** | **9.71** | **10.22** | **.** | **19.47** | **4.93** | **9.63** | **.** | **6.88** |
| N | 4 | 173 | 3 | 2 | 0 | 83 | 1 | 18 | 0 | 55 |
| Interbank borrowing | **14.64** | **11.94** | **3.59** | **18.70** | **.** | **20.79** | **12.75** | **14.45** | **.** | **3.05** |
| N | 5 | 153 | 4 | 2 | 0 | 76 | 3 | 235 | 0 | 3 |
| Wholesale debt | **15.66** | **35.52** | **22.29** | **21.88** | **16.38** | **15.46** | **7.81** | **8.42** | **0.76** | **2.98** |
| N | 17 | 799 | 11 | 10 | 1 | 166 | 2 | 1,101 | 4 | 5,302 |
| Stable funding | **71.33** | **58.76** | **72.34** | **61.52** | **88.37** | **65.73** | **78.55** | **71.20** | **87.57** | **85.66** |
| N | 24 | 1,062 | 21 | 14 | 3 | 357 | 5 | 1,367 | 4 | 5,305 |
| Deposits | **57.53** | **47.81** | **61.67** | **45.14** | **80.11** | **57.92** | **69.27** | **66.09** | **87.02** | **83.91** |
| N | 26 | 1,268 | 25 | 19 | 5 | 529 | 6 | 1,475 | 4 | 5,311 |
| Equity | **14.36** | **14.57** | **12.52** | **15.94** | **7.29** | **11.67** | **7.60** | **8.91** | **10.29** | **11.15** |
| N | 26 | 1,268 | 25 | 19 | 5 | 529 | 6 | 1,475 | 4 | 5,311 |
| Common Equity | **13.91** | **13.50** | **12.28** | **15.37** | **7.09** | **11.60** | **7.23** | **8.81** | **10.18** | **10.82** |
| N | 26 | 1,268 | 25 | 19 | 5 | 529 | 6 | 1,475 | 4 | 5,311 |
| Tier 1 Capital Ratio | **18.75** | **15.35** | **14.42** | **17.26** | **11.38** | **16.70** | **13.75** | **13.78** | **14.86** | **17.69** |
| N | 13 | 326 | 13 | 5 | 2 | 232 | 3 | 1,111 | 4 | 5,283 |

Stable Funding and Deposits exhibit even a stronger effect in favour of EBs than we have seen in case of Loans. The lowest variance between EBs and benchmark is in US where it does not account for more than 1.91% for Stable Funding and 3.11% for Deposits. On the other hand, the largest difference (22.64% for Stable funding) appears in Commercial Banks of Advanced Economies. Neither Interbank borrowing nor Wholesale debt demonstrate a stronger relation.

[29] Due to a small number of observations the number is deviated by a bank having 32.36% of Total Assets in bonds at fair value, the other bank in this cell has Trading book amounting to 0.53% of Total Assets.

Whereas higher levels of Loans and Deposits for EBs would be expected, levels of capital ratios stumble behind the benchmark (difference of -4.38% for Advanced Commercial Banks). Anyway, except for Sample representatives from Advanced Economies capital ratios remain over 10.00% of total assets which is still well capitalised and even for Ethical Banks, Tier 1 Capital Ratio stays over a threshold of 10.00% identified by Sveriges Riksbank (2011) as a reasonable capital level. In comparison with the "G-SIFIs" from earlier, the group with lowest figures seems to be still relatively well-off.

In addition to the financial profile figures, Table 19 displays profitability and volatility across the clusters. As opposed to some balance sheet indicators, Table 19 presents rather ambiguous numbers and almost no patterns can be found there, except for seemingly lower volatility for EBs in Return on Equity. It provides us with an interesting starting point for further research into profitability and volatility measures in Hypothesis 2.

TABLE 19: PROFITABILITY AND VOLATILITY BY GEOGRAPHY AND SPECIALISATION (AUTHOR, BASED ON BANKSCOPE)

| ***In percent to Total Assets*** | **Emerging Economies** | | | | **Advanced Economies** | | | | **US** | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ***Commercial Banks*** | | ***Micro-Financing Institutions*** | | ***Commercial Banks*** | | ***Cooperative Banks*** | | ***Commercial Banks*** | |
| | ***EBs*** | ***Ben.*** | ***EBs*** | ***Ben.*** | ***EBs*** | ***Ben.*** | ***EBs*** | ***Ben.*** | ***EBs*** | ***Ben.*** |
| Return on Assets | **1.53** | **1.26** | **2.12** | **2.82** | **0.31** | **0.27** | **0.23** | **0.34** | **0.97** | **0.95** |
| N | 24 | 1116 | 25 | 19 | 5 | 522 | 6 | 1471 | 4 | 5282 |
| Return on Equity | **11.03** | **9.57** | **16.75** | **22.03** | **5.37** | **1.65** | **3.54** | **3.93** | **11.51** | **7.96** |
| N | 24 | 1116 | 25 | 19 | 5 | 522 | 6 | 1,471 | 4 | 5282 |
| sd(Return on Assets) | **1.47** | **1.11** | **1.12** | **1.42** | **0.36** | **0.82** | **0.14** | **0.19** | **0.52** | **0.60** |
| N | 21 | 1059 | 25 | 18 | 5 | 477 | 6 | 1459 | 4 | 5275 |
| sd(Return on Equity) | **5.90** | **11.58** | **10.03** | **10.45** | **3.12** | **7.87** | **1.58** | **2.11** | **5.66** | **5.91** |
| N | 21 | 1059 | 25 | 18 | 5 | 477 | 6 | 1459 | 4 | 5275 |

### 3.2.3 DISCUSSION OF RESULTS

Studying Hypothesis 1 brought us interesting and important results. It was shown that there is no universal and unique ethical business model for banking with a different financial profile. As for other banking institutions financial profile for Ethical Banks vary by geography and specialisation. On the other hand, significant patterns were identified across geography-specialisation clusters. In general, Ethical Banks are more exposed to real economy as measured by ratios of Loans and Deposits. This finding very well supports the narrative of organisations by which we chose our Sample about their focus on real economy (Global Alliance for Banking on Values, 2014). The real economy focus overrules also capital measures where Ethical Banks lag behind their benchmarks.

Besides the geography-specialisation clustering, also sorting by asset size gave us intriguing insights. Based on average figures for "G-SIFIs", "R-SIFIs", the often-mentioned report comparing GABV

member banks with G-SIFIs (Global Alliance for Banking on Values, 2014) could be replicated for a random set of "Non-SIFI" banks with very similar results. The conclusions are actually drawn from underperformance of G-SIFIs than distinctive performance of sustainability-focused banks.

Decomposition of the dataset proved to be helpful in finding suitable subsets for comparison that combine sufficient similarity and still a good amount of variance for further statistical analysis. Hypothesis 2 will follow from the decomposition and look in more detail whether and how the application of ethics affect banks' profitability and volatility despite their business model.

## 3.3 Hypothesis 2

*Application of ethics results in lower profitability and lower volatility for banking institutions.*

### 3.3.1 Methodology

Testing Hypothesis 2 builds on the analysis made for Hypothesis 1. In order to achieve valid results we will use the division by geography and by specialisation. The aim of this section is to research whether application of ethics plays a certain role in profitability of a bank. Dependent variables are, accordingly, those presented in Table 10: Return on Assets, Return on Equity and their standard deviations over time. Although it might seem unnecessary to some, we study both profitability measures as each of them provides information from a different angle – as the names suggest themselves, Return on Assets tells us a story from the bank's perspective and reflects operational performance of a bank while Return on Equity provides us rather with a shareholders' point of view and, notwithstanding, might be impacted by capital strategy of a bank.

A variable under scrutiny is a dummy variable which distinguishes Ethical Banks from others. Through our Sample selection, the dummy represents the use of ethics as an exogenous factor, a decision independent of any other financial figures. The studied *Ethics* variable will be in our model supplemented by a set of control variables known from the Hypothesis 1: *Loans*, *Deposits* and *Equity*. Those variables were chosen based on their importance in the previous analysis, and also the fact they exhibit least missing values. They are used to filter out effects caused by particularity of a financial profile and leave *Ethics* to capture only an effect of an applied ethical approach throughout organisation. Although we have found some patterns between *Ethics* and control variables for financial profile there is no statistical collinearity between the mentioned explanatory variables (see Table 26 in Appendix for all test statistics). The same can be said about a ratio of Net Interest Income to Total Revenue which represent an income statement structure among the balance sheet ratios.

Given characteristics of the dataset and studied variable, panel data regressions using random effects were deemed to be the most suitable estimation method. A Breusch-Pagan test confirmed panel data but Hausman test suggests us to use a within estimation as there is suspicion for correlation between an individual effect and explanatory variables. For the studied variable is by definition time-invariant, we adopt an approach suggested by Bell & Jones (2015) combining within and between estimation instead.

The Within-between random effects estimation builds on work of Mundlak (1978) whose approach is used in current studies as "Correlated Random Effects" (Wooldridge, 2010). The name itself suggests that the approach relaxes the assumption of no correlation between an individual effect $c_i$ and explanatory variables, $E(c_i|x_{it}) = 0$. The Within-between random effects go a step further to also control for a heterogeneity bias caused by the correlation but it in addition enables to model it and interpret separately within and between effects (Bell & Jones, 2015). Table 20 provides the reader with a short overview how equations and error terms of the individual models differ, for more details on algebraic expressions and interrelation of the models see Schunck (2013).

TABLE 20: OVERVIEW OF RANDOM EFFECTS MODELS (AUTHOR, BASED ON SCHUNCK (2013)) [30]

| | ***Model*** | ***Error term*** |
|---|---|---|
| Random Effects | $y_{it} = \beta_0 + \beta_1 x_{it} + \beta_2 z_i + c_i + e_{it}$ | $c_i + e_{it}$ |
| Correlated Random Effects | $y_{it} = \beta_0 + \beta_1 x_{it} + \beta_2 z_i + \pi \bar{x}_i + c_i + e_{it}$ | $\pi \bar{x}_i + c_i + e_{it}$ |
| Within-between | $y_{it} = \beta_0 + \beta_1 (x_{it} - \bar{x}_i) + \beta_2 z_i + \beta_3 \bar{x}_i + c_i + e_{it}$ | $c_i + e_{it}$ |

A structure of the Within-between model enables us to duplicate a Hausman test whether the chosen specification is actually appropriate. This way has even an advantage that it accounts for specifics of a chosen model unlike basic Hausman test most available in statistical software. Generally, the Hausman actually tests whether the within- and between-estimates are the same as that is the characteristics of a regular Random Effects model (Gould, 2001). An identical test can, therefore, be conducted by testing $\beta_1 = \beta_3$ from the Within-between model as described in Table 20. Results of the estimation advocate that the chosen specification is the right one. The re-specification of the initially planned model requires another check for collinearity including both demeaned and mean explanatory variables. Even including additional controls as discussed in the following paragraph does not point to any collinearity problem.

[30] For $i = 1, \dots, N$ being individuals (banks in our case) and $t = 1, .., T$ being time variable, $y_{it}$ is a dependent variable, $x_{it}$ is a vector of time varying explanatory variables, $\bar{x}_i$ is a vector of time-invariant means, $z_i$ is a vector of time-invariant explanatory variables, $c_i$ is an individual effect and $e_{it}$ is an idiosyncratic error.

Utilising possibilities of the chosen approach, we will also control for geography-specialisation specific effects as discussed in the previous Section. Suitable dummy variables will help us to rule out the effects of those categories that could otherwise cause a heterogeneity bias. Besides the control variables, remaining errors are clustered by country to provide robust standard errors, which are at the same time robust to a potential serial correlation bias (Hoechle, 2007).

Hypothesis 2 as currently formulated represents an alternative hypothesis that still needs to be translated into a testable null hypothesis. The null would then read such as: *The use of ethics cause higher profitability or higher volatility for banking institutions.* The null hypothesis for both profitability and volatility will be tested in post-estimation such as $H_0: \beta_{Ethics} \geq 0$. If a p-value is lower than a significance level, the null hypothesis is rejected which would confirm the initial (alternative) hypothesis.

### 3.3.2 Analysis

Estimations as presented in Table 21 offer many interesting results for all four dependent variables under study. As described earlier the Within-Between method is characterised by a double set of time varying variables. For the thesis purposes, demeaned variables, i.e. $(x_{it} - \bar{x}_i)$, are marked with *d* in front of the variable's name and mean variables, i.e. $\bar{x}_i$, have *m* in front. Interpreting the results then has to account for their double nature as *d* variables represent the Within part and *m* variables the Between part of the overall effects.

Applying the same model across all the profitability and volatility measures could have been troublesome but estimation statistics in Table 21 show a good fit for all columns. Nonetheless, as values of $\chi^2$, $\sigma_u^2$ or $\sigma_e^2$ indicate, Return on Assets models show relatively better specification than the latter one for Return on Equity.

Although the method allows for modelling a number of elements that would otherwise fall into an unobservable term the focus stays on *Ethics*. The studied variable has shown to be insignificant in profitability and volatility when measured in Return on Assets, however, while it remains insignificant what concerns profitability in terms of Return on Equity there is a negative effect of the use of ethics when modelling volatility of Return on Equity. This negative effect actually says that application of ethics throughout bank's operations reduces volatility over time by approximately 4.37%. The result falls into a 10% significance level with a standard two-side z-test. If we do a one-sided test with $H_0: \beta_{Ethics} \leq 0$ we are able to reject the null hypothesis at a 5% significance level. In

other words, it says that banks applying ethics are less volatile than others in terms of Return on Equity.[31]

**TABLE 21: WITHIN-BETWEEN EFFECTS ESTIMATIONS (AUTHOR, BASED ON BANKSCOPE)**

| $\beta$ ($Std.Err.$) | *RoA* (1) | *Sd(RoA)* (2) | *RoE* (3) | *Sd(RoE)* (4) |
|---|---|---|---|---|
| Ethics | -0.00222 | 0.00196 | -0.00819 | -0.04374 * |
| | (0.00301) | (0.00176) | (0.01562) | (0.02521) |
| *d Size* | 0.00014 | -0.00055 | -0.00236 | -0.05370 |
| | (0.00054) | (0.00042) | (0.00436) | (0.06604) |
| *d Loans* | 0.00882 *** | -0.00627 *** | 0.06910 | -0.09438 |
| | (0.00300) | (0.00120) | (0.05650) | (0.12776) |
| *d Deposits* | 0.00085 | 0.00065 | -0.06477 ** | 0.04659 |
| | (0.00255) | (0.00216) | (0.02971) | (0.07651) |
| *d Equity* | 0.03013 *** | -0.00481 | -0.00056 | -0.43931 |
| | (0.00952) | (0.00567) | (0.08177) | (0.33594) |
| *d Net Interest Income* | -0.00784 | -0.00203 | -0.02701 | -0.06885 |
| | (0.00983) | (0.00155) | (0.08847) | (0.04216) |
| *m Size* | 0.00097 *** | 0.00007 | 0.00598 *** | 0.00417 |
| | (0.00025) | (0.00031) | (0.00179) | (0.00529) |
| *m Loans* | -0.00628 *** | 0.00169 | -0.03356 *** | -0.00607 |
| | (0.00187) | (0.00268) | (0.01133) | (0.03010) |
| *m Deposits* | -0.00035 | 0.00439 | 0.02213 | 0.05101 |
| | (0.00261) | (0.00308) | (0.01591) | (0.06791) |
| *m Equity* | 0.06695 *** | 0.06622 *** | -0.04391 * | -0.15691 |
| | (0.00750) | (0.00582) | (0.02390) | (0.12324) |
| *m Net Interest Income* | -0.01188 | -0.01155 *** | -0.05445 | -0.06524 * |
| | (0.00795) | (0.00275) | (0.03926) | (0.03343) |
| Advanced Economies Cooperative Banks | -0.00493 *** | -0.00200 *** | -0.04200 *** | -0.03104 *** |
| | (0.00065) | (0.00040) | (0.00402) | (0.01192) |
| Advanced Economies Commercial Banks | -0.00848 *** | 0.00018 | -0.04466 *** | 0.01284 |
| | (0.00223) | (0.00120) | (0.01157) | (0.01715) |
| Emerging Economies Micro-Financing Inst. | 0.01298 *** | 0.00598 * | 0.09132 *** | 0.09939 ** |
| | (0.00374) | (0.00305) | (0.02433) | (0.04098) |
| Emerging Economies Commercial Banks | -0.00301 | 0.00153 | 0.00374 | 0.10465 ** |
| | (0.00326) | (0.00143) | (0.01445) | (0.05296) |
| *Intercept* | -0.00304 | 0.00157 | 0.02105 | 0.00228 |
| | (0.01229) | (0.00911) | (0.06445) | (0.17171) |
| | | | Significance levels: * 10%; ** 5%; *** 1%. | |
| No of groups | 8809 | 8579 | 8809 | 8579 |
| No of observations | 81415 | 78557 | 81415 | 78557 |
| $\chi^2$ | 3505.019 | 3843.801 | 724.335 | 331.730 |
| $P > \chi^2$ | 0.000 | 0.000 | 0.000 | 0.000 |
| $\sigma_u^2$ | 0.018 | 0.010 | 0.088 | 0.391 |
| $\sigma_e^2$ | 0.016 | 0.009 | 0.202 | 0.533 |
| $\rho$ | 0.549 | 0.551 | 0.160 | 0.350 |
| $H_0: \beta_{Ethics} \geq 0$ | | | | |
| $(P > \chi^2)$ | 0.23 | 0.867 | 0.300 | 0.041 |

[31] Technically, Hypothesis 2 as a whole could not be rejected but we take the partial result as highly relevant for our thesis.

The rest of the models reveal some more information about the control variables. *Equity* estimates in the RoA model are both positive suggesting that banks with higher capital ratio perform better than other (the Between effect of 0.067) and increase of *Equity* in a particular bank is also correlated with higher Return on Assets (the Within effect of 0.301). Similarly for *Size*, larger banks in general tend to have higher profitability. Interestingly, *Loans* have a negative Between effect on Return on Assets while their Within effect is positive. This seemingly ambiguity is not exceptional and can be interpreted.[32] In this case it means that an increase in *Loans* within a bank increases Return on Assets while, in general, banks with higher *Loans* tend to have lower Return on Assets. Inputting average values from Table 27 in Appendix to the equation shows the overall effect of *Loans* is more likely to be negative.

The RoE estimation suggests larger banks (an effect of *m Size)* have higher profitability in terms of Return on Equity while, on the other hand, banks with higher levels of *Loans* and, quite understandably, with higher levels of *Equity* incline to exhibit lower Return on Equity. The Within estimator for *Deposits* show a negative sign, however, with minimal economic significance after inputting values from Table 27 in Appendix.

Volatility measures are to a good extent correlated with share of *Net Interest Income* to Total Revenue. As well as it is statistically significant it has also a reasonable economic effect. On average it decreases volatility of Return on Assets by 0.00882 and 0.04984 for Return on Equity. Volatility of Return on Assets decreases if there is an increase of *Loans* within a bank but maybe surprisingly is higher for banks with more *Equity*.

Geography-specialisation categories as identified in the previous Section have confirmed to be a suitable distinction of various kinds of banking institutions in our dataset. If we omitted the geography-specialisation dummies we would likely face an omitted variable bias. A result would be untrue estimates of *Ethics* mostly at the expense of an Emerging Micro-Financing Institutions dummy, see Table 28 in Appendix. Here, in Table 21 we present only results including the geography-specialisation dummies where US Commercial Banks serve as a baseline for the other categories.

Estimates for the categories have expected and understandable effects. They go in line with Table 16 and Figure 4, at least in what concerns geographic differences. Both types of banks from Advanced Economies are suspected to be less profitable than US Commercial Banks as measured with

[32] Explaining the opposite signs of Within and Between estimates is easier for dummy variables. Take an example of study of what effect has living in urban areas on wage. If the Within estimator has a negative sign and the Between estimator has a positive sign then it can be interpreted as: "moving to an urban area has a negative effect on income, individuals who generally live in the city tend to earn more". (Bell & Jones, 2015)

either Return on Assets or Return on Equity; more economically significant negative effects are for Commercial Banks (RoA lower by 0.85% and RoE by 4.47%) than for Cooperative Banks (RoA lower by 0.49% and RoE by 4.20%). In similar fashion, Cooperative Banks from Advanced Economies perform better than Commercial Banks in terms of volatility; coefficients suggest that their Volatility is by 0.20% and 3.10% lower for Return on Assets and Return on Equity, respectively. Emerging Micro-Financing Institutions, on the other hand, exhibit higher Profitability than benchmark accompanied, however, with higher Volatility; 9.13% higher Return on Assets would likely be compensated with 9.93%.[33]

### 3.3.3 Discussion of results

Modelling chosen profitability and volatility measures on *Ethics* and other control variables partially confirmed a hypothesis that banks applying ethics have lower volatility in profits than other banks. It was, indeed, confirmed only partially because we found significance of the studied variable solely in a model of Return on Equity. The *Ethics* dummy remained statistically insignificant for all the other dependent variables Return on Equity and Return on Assets with its volatility. Arguably, also the insignificance gives us some information about the effects if ethics is applied; it basically says that hypothesis that the use of ethics makes a bank more profitable cannot be rejected.

Once again the dataset decomposition was very useful and the panel data regressions further proved its robustness. Effects of the geography-specialisation dummies suggest that there remain significant differences in profitability and volatility between the clusters. We can only recommend such a concept to be applied to any further studies on the topic. Contrarily, it is difficult to draw generalizable conclusions from the financial profile control variables as they were more of a statistical tool here.

## 3.4 Hypothesis 3

*Application of ethics results in higher costs or less revenue for banking institutions.*

### 3.4.1 Methodology

Hypothesis 3 continues where Hypothesis 2 ended and makes a step further, closer to individual Ethical Banks. Although any relation between *Ethics* and profitability could not be found on

[33] The reader should be aware that comparison across models, i.e. the mentioned compensation between Profitability and Volatility, is used only for illustration as the two are parts of separate models.

a macro level using panel data regressions on a large dataset we go micro with our inquiry into effects of using ethics in banking. Profitability measures are not avoided once more but pattern in costs, revenue and performance efficiency as stated in the hypothesis formulation stay in focus here.

A method used for analysis of Hypothesis 3 builds mainly on a smart choice of data that allows us to apply a less sophisticated statistical method and still be able to obtain interesting and valid results. Again we utilise dataset decomposition by specialisation and country plus we add year as another split unit. In those subsets we rank banks by their size in total assets and each Ethical Bank from the Sample is then compared to its two closest peers by ranking. Analysis is done for a set of variables listed later in a way that compares Ethical Banks' values with averages for the two closest peers.

In other words, if we have a set of $n = 1, \dots, N, n \in \aleph, N > 2$ banks $B_n^{c,s,y}$ with total assets $a_n^{c,s,y}$ and other variables with $x_{n,j}^{c,s,y}, j = 1, \dots, J$, from the same country $c$, year $y$ and with the same specialisation $s$, then we uniquely rank[34] and order the banks by Total Assets such that:

$$B_1^{c,s,y}, \dots, B_{n-1}^{c,s,y}, B_n^{c,s,y}, B_{n+1}^{c,s,y}, \dots., B_N^{c,s,y} \quad AND \quad a_1^{c,s,y} > \dots > a_{n-1}^{c,s,y} > a_n^{c,s,y} > a_{n+1}^{c,s,y} > \dots > a_N^{c,s,y},$$

and accordingly we get an ordered set of other variables

$$x_{1,j}^{c,s,y}, \dots, x_{n-1,j}^{c,s,y}, x_{n,j}^{c,s,y}, x_{n+1,j}^{c,s,y}, \dots, x_{N,j}^{c,s,y}.$$

Then for a bank $B_n$ we take an average of a chosen variable $j$ for the two closest peers $B_{n+1}$ and $B_{n-1}$ and create their average, $y_{n,j}^{c,s,y}$:

$$y_{n,j}^{c,s,y} = \frac{x_{n-1,j}^{c,s,y} + x_{n+1,j}^{c,s,y}}{2}$$

If $n = 1$ or $n = N$, the closest peers of $B_n$ are $B_{n+1}$ and $B_{n+2}$, and $B_{n-1}$ and $B_{n-2}$, respectively, and the resulting metrics are

$$y_{1,j}^{c,s,y} = \frac{x_{2,j}^{c,s,y} + x_{3+1,j}^{c,s,y}}{2} \qquad \text{and} \qquad y_{N,j}^{c,s,y} = \frac{x_{N-1,j}^{c,s,y} + x_{N-2,j}^{c,s,y}}{2}.$$

For the purpose of our analysis we understandably take only values where $B_n$ belongs to the Sample. This purely technical approach is developed to compare a bank with its closest peers within a particular country, specialisation and year. While country and specialisation do not change, year $y$ does change meaning that closest peers for a bank may vary over years. For simplicity, however, there

[34] No two banks have the same ranking.

are no controls either for such a change in peers over time or any other specific conditions or context. It is assumed that the closeness of banks in the metrics provides for very similar conditions itself and as such ensures validity of the comparison. Output from the method is as well as its input in form of time-series data and year averages are reported further on.

Variables for the Hypothesis 3 (see Table 22) contain profitability measures as well as variables that should help us to reveal most important sources of profit. Those variables could be distinguished in two categories; *Net Interest Income*, *Net Fees and Commissions* and *Net Trading Income* show distribution of bank's revenues base across those categories while *Net Interest Margin, Loan Losses, Cost to Income*, and *Total Revenue* tell us about operational and risk management efficiency.

TABLE 22: HYPOTHESIS 3 VARIABLES (AUTHOR, BASED ON BANKSCOPE)

| Variables | Description (Bankscope names) |
|---|---|
| Return on Assets | Net Income / 2-yearend average of Total assets |
| Return on Equity | Net Income / 2-yearend average of Total equity |
| Net Interest Income | Net Interest Income to Total Revenue[35] |
| Net Fees and Commissions | Net Fees and Commissions to Total Revenue[35] |
| Net Trading Income | Net Trading Income[36] to Total Revenue[35] |
| Net Interest Margin | Net Interest Income to Average Earning Assets |
| Loan Losses | Total Impaired Loans to Gross Loans |
| Cost to Income | Total Non-Interest Expenses to Total Revenue[35] |
| Revenue Margin | Total Revenue[35] / Total assets |

### 3.4.2 ANALYSIS

Although Hypothesis 2 concluded that the use of ethics does not have a significant effect on profitability, there is no reason for abstaining to compare our Ethical Banks with the new benchmark, this time with a set of closest Peers. Hypothesis 1 showed that Ethical Banks share similarities in their financial profile and common patters may be found in profitability, revenue, and costs as well. For easier understanding all time-series data are plotted comparing Ethical Banks with Peers, see Table 29 in Appendix for figures behind the charts.

As opposed to the conclusions in Hypothesis 2, Figure 5 exhibits quite a substantial gap between Ethical Banks and Peers for Return on Assets. Ethical Banks got below zero in post-crisis 2009 while Peers kept floating above 1% line. For last two years Ethical Banks began to catch up and successfully narrowed the gap. Return on Equity in Figure 6 is not that dramatic. Although Peers kept

[35] Total Revenue is a sum of Net Interest Income, Net Fees and Commissions, Other Operating Income, Net Gains (Losses) on Trading and Derivatives, Net Gains (Losses) on Other Securities, Net Gains (Losses) on Assets at FV through Income Statement, Net Insurance Income.

[36] Net Trading Income is a sum of Net Gains (Losses) on Trading and Derivatives, Net Gains (Losses) on Other Securities, Net Gains (Losses) on Assets at FV through Income Statement.

higher profitability over the whole period last three years account both the groups for same profitability.

FIGURE 5: PEER COMPARISON - RETURN ON ASSETS (AUTHOR, BASED ON BANKSCOPE)

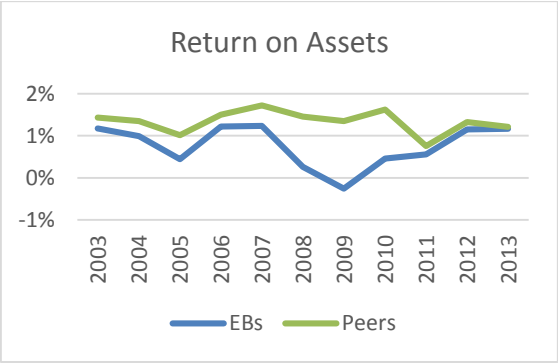
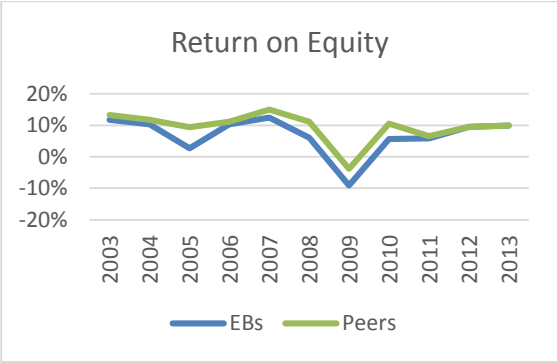



FIGURE 6: PEER COMPARISON - RETURN ON EQUITY (AUTHOR, BASED ON BANKSCOPE)




Before we move to efficiency ratios, it might be interesting to see distribution of income elements. We take into account three parts – Net Interest Income (Figure 7) Net Fees and Commissions (Figure 8) and Net Trading Income (Figure 9). Net Interest Income is the main component of the revenue structure for both the Sample and Peers. The Sample has the share higher over the whole period, only in 2008 the Peers catch up, however, this deviation can be easily explained by the sharp decrease in Net Trading Income for Peers in 2008; the opposite causality is rather unlikely. It is remarkable that there cannot be found any deviation caused by the financial crisis of late 2000's for Ethical Banks, all studied indicators smoothly passed through the crisis with no substantial correction needed.

FIGURE 7: PEER COMPARISON - NET INTEREST INCOME (AUTHOR, BASED ON BANKSCOPE)

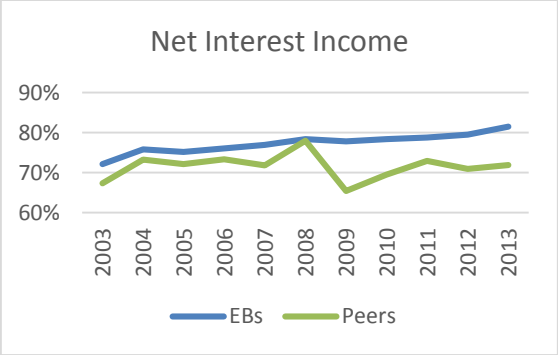



FIGURE 8: PEER COMPARISON - NET FEES AND COMMISSIONS (AUTHOR, BASED ON BANKSCOPE)

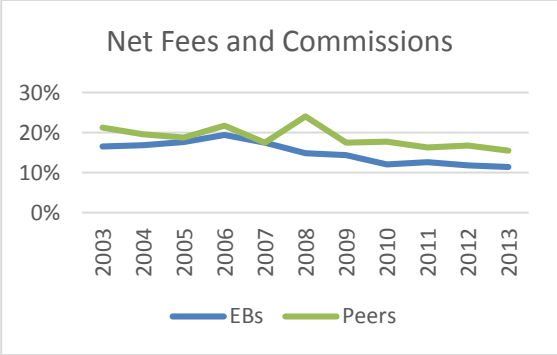
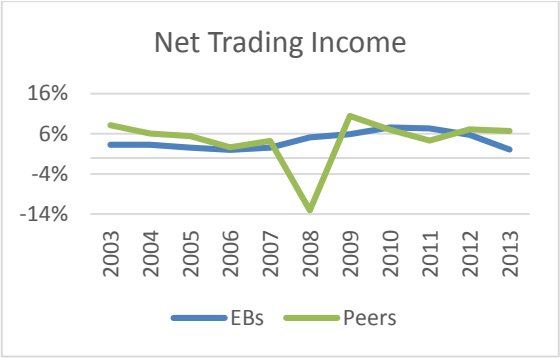


FIGURE 9: PEER COMPARISON – NET TRADING INCOME (AUTHOR, BASED ON BANKSCOPE)




Following from the crucial role of the Net Interest Income in income statements of the Ethical Banks we review their performance in terms of Net Interest Margin (Figure 10) and Loan Losses (Figure 11). In years preceding 2007, Ethical Banks had higher Net Interest Margin than Peers, convergence indicated in 2007 was interrupted by the financial crisis. The cut in Net Interest Margin likely corresponds with the peak for Loan Losses in 2009. Those events are understandable and to an extend also expected, more surprising is then the shape of Loan Losses line for the Ethical Banks which encountered only a slight increase in 2008.

FIGURE 10: PEER COMPARISON - NET INTEREST MARGIN (AUTHOR, BASED ON BANKSCOPE)

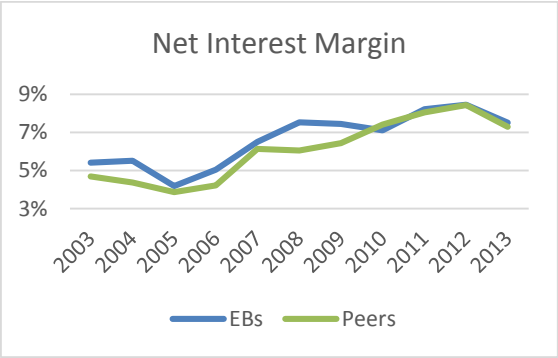
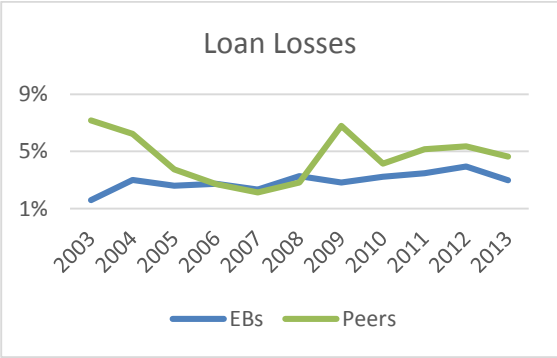



FIGURE 11: PEER COMPARISON - LOAN LOSSES (AUTHOR, BASED ON BANKSCOPE)




So far we have not found any major hints regarding why Ethical Banks underperform in terms of Profitability when compared to their peers. They rely more on Net Interest Income as a source of revenue but their Net Interest Margin is strong and Loan Losses are substantially lower and less volatile than for Peers. That the cause likely lies somewhere else is clearly seen from Figure 12.

FIGURE 12: PEER COMPARISON - COST TO INCOME

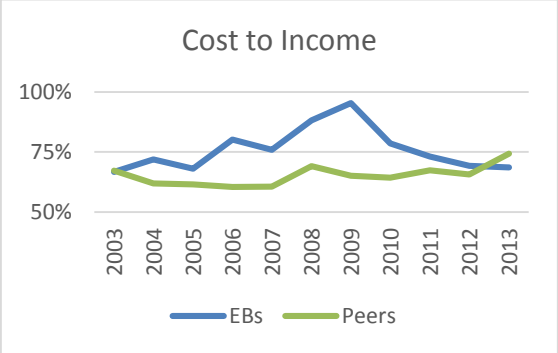
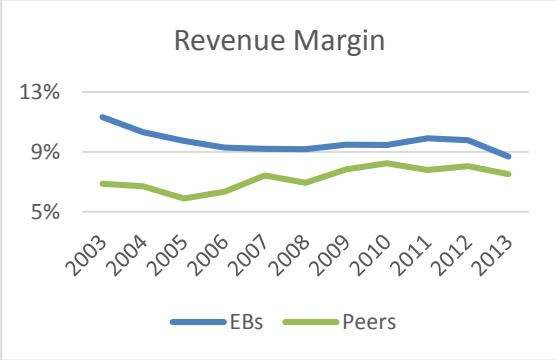



FIGURE 13: PEER COMPARISON – REVENUE MARGIN




The Cost to Income graph shows a considerable gap between the Sample and Peers. At its peak the value for Ethical Banks reached 95.41%, on average. It is a very high number. In search for observations that caused such a value it was found out that there are a few newly established banks from the Sample that pull the Cost to Income ratio up. However, it is usual that an Ethical Bank records values around 80% and also surrounding years do not report much lower values. The fact, thus, remains that Ethical Banks are much less cost efficient than Peers.

Hypothesis 3 as it was formulated also suggests that banks applying ethics generate less revenue than their peers. In order to support the claims from the two previous paragraphs, Figure 13 additionally presents rather an unusual ratio of Revenue Margin. If we visually subtracted Cost to Income from Total Revenue to Assets we would get very similar picture to the one in Figure 5 where we were comparing Return on Assets.

### 3.4.3 DISCUSSION OF RESULTS

Last two charts sums up the most important for Hypothesis 3. The simple answers are that it is true, as hypothesises, that the use of ethics brings along higher costs but it is false that Ethical Banks generate less revenue. Although the Revenue Margin of Ethical Banks is relatively higher than for Peers, Cost to Income overrules an effect of the former which in consequence lead to lower profitability.

Steady growth in Net Interest Income again reassures how serious Ethical Banks are in terms of financing real economy. That is not at all surprising as we know they champion in a Loans ratio, these income statement figures are an understandable consequence. Moreover, having relatively higher Net Interest Margin over time leads to the values Revenue Margin presented. A last piece of puzzle is a low and stable level of Loan Loses. Neither the financial crisis made the numbers to increase.

## 3.5 SUMMARY OF RESULTS

In Empirical Research we studied three hypotheses that concerned application of ethics in banking and, especially, what effects such application have on financial performance. Although some studied variables did not show to have significant effect, overall results provide us with valuable insight to functioning of banking institutions applying ethics. A summary is outlined in Table 23, the author would highlight H1B, H2B, H3B and H3C as the most important and intriguing results.

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TABLE 23: SUMMARY OF RESULTS

| | |
|---|---|
| **Hypothesis 1** | **A financial profile of banking institutions applying ethics differs from conventional banking institutions.** |
| H1A | A financial profile differs by asset size and geography-specialisation. Including profitability and volatility. |
| H1B | There is no universal ethical banking financial profile. But Ethical Banks exhibit higher exposure to real economy than benchmark. |
| **Hypothesis 2** | **Application of ethics results in lower profitability and lower volatility for banking institutions.** |
| H2A | The combined hypothesis cannot be confirmed for either Return on Assets or Return on Equity. |
| H2B | Application of ethics significantly decreases volatility of Return on Equity. |
| **Hypothesis 3** | **Application of ethics results in higher costs or less revenue for banking institutions.** |
| H3A | Application of ethics results in higher costs and higher revenue. |
| H3B | Higher costs outweigh higher revenue which adds up to lower profitability in comparison with closest peers. |
| H3C | Banks applying ethics have substantially lower loan losses. |

For particularity of the research topic it is difficult to find studies with similar hypotheses. We are only able to productively do a crosscheck for Hypothesis 1; Table 24 presents only a basic comparison. Thesis results are in line with the GABV report (Global Alliance for Banking on Values, 2014) which conclude that GABV member banks, a subset of our Sample, perform better than G-SIFIs. Empirical Research then goes further and relates Ethical Banks to a better comparable benchmark. A comparison with other studies concerning banking business models (Roengpitya, et al., 2014; Ayadi & De Groen, 2014) highlight an added value of the thesis. If we only approximated banking institutions applying ethics with closest clusters by a financial profile from the mentioned studies, i.e. retail-funded (Roengpitya, et al., 2014) or focused retail (Ayadi & De Groen, 2014) in Table 24Table 24, the nuances between those clusters and Ethical Banks would remain sealed.

There has been found only one similar research for Hypothesis 2 and Hypothesis 3. It is a study about effects of Corporate Social Responsibility (CSR) on financial profitability (Wu & Shen, 2013) which distinguishes three types of banks to strategic, altruistic and greenwashing by their use of CSR. Although we might disagree with the label, our Sample would likely belong to the altruistic cluster for which it is concluded: “Although altruistic banks are not interested in utilizing these advantages, their

products are different from the perspectives of clients, thus resulting in an increase in NII and NonII. However, engaging in the altruistic CSR also increases cost; hence, the net effect on profit (ROA and ROE) is uncertain." (Wu & Shen, 2013, p. 3544) That very well confirms our results for both Hypothesis 2 and Hypothesis 3.

TABLE 24: COMPARISON OF RESULTS[37]

| | GABV[2013] | Thesis[2012] | GABV[2013] | Thesis[2012] | Thesis[2012] |
|---|---|---|---|---|---|
| | G-SIFIs | "G-SIFIs" | SFBs | "Non-SIFIs" | EBs |
| Loans | 40.5 | 40.4 | 76.2 | 61.0 | 68.9 |
| Deposits | 48.8 | 41.8 | 80.4 | 73.6 | 64.7 |
| Return on Assets | 0.46 | 0.24 | 0.66 | 0.78 | 1.15 |
| Return on Equity | 7.6 | 2.48 | 8.6 | 6.44 | 9.49 |
| Cost to Income | NA | 69.9 | NA | NA | 69.2 |

| | BIS[2013] | Thesis[2012] | CEPS[2006-2013] | Thesis[2003-2013] |
|---|---|---|---|---|
| | Retail-funded | EBs | Focused retail | EBs |
| Loans | 62.2 | 68.9 | 60.8 | 67.6 |
| Deposits | 66.7 | 64.7 | 62.8 | 62.2 |
| Return on Assets | 1.16 | 1.15 | 0.41 | 1.28 |
| Return on Equity | 12.49 | 9.49 | 6.74 | 10.95 |
| Cost to Income | 62.0 | 69.2 | 60.1 | 75.6 |

## 3.6 FURTHER RESEARCH OPPORTUNITIES

Since there has not been much research done on application of ethical concepts in banking, further research opportunities are numerous. First an area that definitely deserve further research is the Sample of Ethical Banks. Identification of banks applying ethics throughout their business models outside of the member organisations is still weak. There is a potential for Sustainable Banking Scorecard and similar measures to establish a general definition for banks with such an approach. The dataset could then be extended accordingly for further countries.

The thesis attempted to apply more sophisticated methods to analysis of the topic but there is still room for improvement. Combination of methods from Hypothesis 2 and Hypothesis 3 might show the way. But a limited Sample narrowed for Hypothesis 3 requires cautiousness in finding a suitable model that would avoid robustness problems.

The largest group of further research opportunities lies in studied variables. Although profitability and volatility are a golden rule in researching financial performance, there are many other

[37] BIS stands for a study by Roengpitya, Tarashev, & Tsatsaronis (2014), CEPS for Ayadi & De Groen (2014), and GABV for a report by Global Alliance for Banking on Values (2014).

measures which could give new insights on application of ethics in banking. A hint may be results for loan losses and cost to income ratios but also capital structure or riskiness of portfolio would be an interesting opportunity. A whole new world awaits in non-financial measures. In line with theory it would be greatly important to develop means how to measure social and environmental impact. Only when we are able to measure impact as a whole then we can evidence and conclude which approach is more sustainable.

# 4 CONCLUSION

The thesis aimed to outline a framework that would enable to sufficiently explain application of ethics in banking and study effects of such application on financial performance. The former was achieved mainly through adjustment of an assumption of economic motivation for sentiments. The adjustment proved not to be only a theoretical construct, we provided readers with supporting evidence from an experiment as well as from practice. Consequent introduction of ethical concepts such as universality and humanity helped to understand popular ethical concepts such as corporate social responsibility or sustainability and their link to the application of Ethics in Banking. Last, examples from the banks that actually apply ethics throughout their operations were presented.

Based on the Theoretical Background, we analysed what effects have the application of ethics on financial performance. All three hypotheses returned valuable insights as could be seen in Summary of results. Banking with ethics has turned out to be a relevant alternative to conventional banking that shows lower profitability which is outweighed by less volatile Return on Equity, higher exposure to real economy, and lower loan losses as compared to peers.

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# APPENDIX

**TABLE 25: FINANCIAL PROFILE BY SIZE, 2006 (AUTHOR, BASED ON BANKSCOPE)**

| *In percent to Total Assets* | "Non-SIFIs" As < 100 billion | | | "R-SIFIs" 100 billion < As < 1 trillion | | | "G-SIFIs" 1 < As | | |
|---|---|---|---|---|---|---|---|---|---|
| | *Avg* | *Sd* | *N* | *Avg* | *Sd* | *N* | *Avg* | *Sd* | *N* |
| Loans | **64.40** | (17.34) | 9065 | **54.43** | (20.58) | 46 | **37.63** | (16.96) | 15 |
| Trading book | **1.01** | (4.58) | 5950 | **11.65** | (9.94) | 40 | **24.57** | (11.25) | 15 |
| Interbank lending | **9.45** | (7.13) | 11 | **29.70** | . | 1 | **10.29** | . | 1 |
| Interbank borrowing | **2.79** | (3.29) | 8 | **35.32** | . | 1 | **18.97** | . | 1 |
| Wholesale debt | **8.63** | (12.48) | 6975 | **30.64** | (25.97) | 19 | **17.26** | (8.13) | 10 |
| Stable funding | **79.84** | (15.34) | 8609 | **63.15** | (19.71) | 46 | **51.81** | (13.37) | 15 |
| Deposits | **73.26** | (18.82) | 9065 | **38.86** | (24.82) | 46 | **39.00** | (14.55) | 15 |
| Equity | **11.26** | (8.50) | 9065 | **5.30** | (3.20) | 46 | **4.49** | (2.27) | 15 |
| Common Equity | **11.18** | (8.47) | 9061 | **4.95** | (3.16) | 46 | **4.08** | (2.36) | 15 |
| Tier 1 Capital Ratio | **19.32** | (29.80) | 6462 | **8.57** | (1.78) | 35 | **8.41** | (1.46) | 14 |

**TABLE 26: WITHIN-BETWEEN ESTIMATION TESTS (AUTHOR, BASED ON BANKSCOPE)**

**[1] Initial model:** Ethics, Loans, Deposits, Equity, Net Interest Income to Total Returns

| | *Return on Assets* | *Sd(Return on Assets)* | *Return on Equity* | *Sd(Return on Equity)* |
|---|---|---|---|---|
| Breusch-Pagan test | | | | |
| $\overline{\chi^2}$ | 1.3E+05 | 90263.67 | 7909.44 | 44014.74 |
| $P > \overline{\chi^2}$ | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Hausman test | | | | |
| $\chi^2$ | 249.07 | 1127.08 | 106.72 | 74.15 |
| $P > \chi^2$ | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Serial Correlation test | | | | |
| $F$ | 6.418 | 110.626 | 6.698 | 217543.866 |
| $P > F$ | 0.0113 | 0.0000 | 0.0097 | 0.0000 |
| Collinearity test | | | | |
| $Max(VIF)$ | 1.76 | 1.76 | 1.76 | 1.76 |

**[2] Final model:** Ethics, demeaned(Loans, Deposits, Equity, Net Interest Income to Total Returns), mean(Loans, Deposits, Equity, Net Interest Income to Total Returns), geography*specialisation dummies

| | *Return on Assets* | *Sd(Return on Assets)* | *Return on Equity* | *Sd(Return on Equity)* |
|---|---|---|---|---|
| Breusch-Pagan test | | | | |
| $\overline{\chi^2}$ | 1.3E+05 | 93512.96 | 7609.28 | 43789.60 |
| $P > \overline{\chi^2}$ | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Hausman test* | | | | |
| $\overline{\chi^2}$ | 57.03 | 178.35 | 33.48 | 8.68 |
| $P > \overline{\chi^2}$ | 0.0000 | 0.0000 | 0.0000 | 0.1225 |
| Serial Correlation test | | | | |
| $F$ | 6.385 | 109.690 | 6.614 | 208723.902 |
| $P > F$ | 0.0115 | 0.0000 | 0.0101 | 0.0000 |
| Collinearity test | | | | |
| $Max(VIF)$ | 4.46 | 4.46 | 4.46 | 4.46 |

| **Hypotheses** | | **Stata command** |
|---|---|---|
| Breusch-Pagan test | $H_0$: Var($u_i$) = 0 | xttest0 |
| Hausman test | $H_0$: difference in coefficients not systematic | hausman |
| Hausman test* | $H_0$: $\beta_1 = \beta_3$ | test |
| Serial Correlation test | $H_0$: no first order autocorrelation | xtserial |
| Collinearity test | If $Max(VIF) > 10$ then collinearity | collin |

TABLE 27: DEMEANED AND MEAN EXPLANATORY VARIABLES (AUTHOR, BASED ON BANKSCOPE)

| | $(x_{it} - \bar{x}_i)$ | $\bar{x}_i$ |
|---|---|---|
| *Size* | 0.227 | 19.597 |
| *Loans* | -0.021 | 0.632 |
| *Deposits* | 0.012 | 0.726 |
| *Equity* | 0.000 | 0.110 |
| *Net Interest Income* | -0.011 | 0.764 |

TABLE 28: ESTIMATES WITHOUT GEOGRAPHY-SPECIALISATION DUMMIES (AUTHOR, BASED ON BANKSCOPE)

| $\beta$ $(Std.Err.)$ | ***RoA*** (1) | ***Sd(RoA)*** (2) | ***RoE*** (3) | ***Sd(RoE)*** (4) |
|---|---|---|---|---|
| Ethics | 0.00286 | 0.00490 *** | 0.03613 ** | 0.01893 * |
| | (0.00275) | (0.00157) | (0.01559) | (0.01023) |
| *d Size* | 0.00014 | -0.00055 | -0.00241 | -0.05313 |
| | (0.00054) | (0.00041) | (0.00436) | (0.06568) |
| *d Loans* | 0.00882 *** | -0.00626 *** | 0.06913 | -0.09367 |
| | (0.00300) | (0.00121) | (0.05652) | (0.12766) |
| *d Deposits* | 0.00084 | 0.00066 | -0.06489 ** | 0.04704 |
| | (0.00255) | (0.00216) | (0.02974) | (0.07641) |
| *d Equity* | 0.03012 *** | -0.00479 | -0.00082 | -0.43876 |
| | (0.00952) | (0.00567) | (0.08175) | (0.33531) |
| *d Net Interest Income* | -0.00784 | -0.00205 | -0.02712 | -0.07022 * |
| | (0.00983) | (0.00156) | (0.08845) | (0.04233) |
| *m Size* | 0.00047 *** | -0.00001 | 0.00280 | 0.00259 |
| | (0.00017) | (0.00030) | (0.00232) | (0.00515) |
| *m Loans* | -0.00427 * | 0.00213 | -0.01862 | 0.00187 |
| | (0.00247) | (0.00260) | (0.01975) | (0.03352) |
| *m Deposits* | 0.00477 * | 0.00452 ** | 0.04915 * | 0.00903 |
| | (0.00281) | (0.00188) | (0.02756) | (0.04446) |
| *m Equity* | 0.07634 *** | 0.07012 *** | 0.04294 | -0.08944 |
| | (0.00944) | (0.00330) | (0.06605) | (0.10465) |
| *m NII* | -0.00990 *** | -0.01272 *** | -0.05788 * | -0.13002 *** |
| | (0.00645) | (0.00216) | (0.03152) | (0.04947) |
| Advanced Economies Cooperative Banks | | | | |
| Advanced Economies Commercial Banks | | | | |
| Emerging Micro-Financing Inst. | | | | |
| Emerging Commercial Banks | | | | |
| *Intercept* | -0.00267 | 0.00296 | 0.03769 | 0.10915 |
| | (0.00571) | (0.00743) | (0.06686) | (0.13399) |
| | | | Significance levels: * 10%; ** 5%; *** 1%. | |
| No of groups | 8809 | 8579 | 8809 | 8579 |
| No of observations | 81415 | 78557 | 81415 | 78557 |
| $\chi^2$ | 676.152 | 1369.175 | 284.691 | 313.859 |
| $P > \chi^2$ | 0.000 | 0.000 | 0.000 | 0.000 |
| $\sigma_u^2$ | 0.018 | 0.010 | 0.090 | 0.393 |
| $\sigma_e^2$ | 0.016 | 0.009 | 0.202 | 0.533 |
| $\rho$ | 0.553 | 0.553 | 0.165 | 0.352 |

TABLE 29: PEER COMPARISON IN NUMBERS (AUTHOR, BASED ON BANKSCOPE)

| | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | EBs | Peers | EBs | Peers | EBs | Peers | EBs | Peers | EBs | Peers | EBs | Peers |
| Return on Assets | 1.17% | 1.43% | 0.99% | 1.35% | 0.44% | 1.01% | 1.22% | 1.50% | 1.24% | 1.72% | 0.26% | 1.46% |
| Return on Equity | 11.74% | 13.26% | 10.27% | 11.69% | 2.69% | 9.43% | 10.28% | 11.17% | 12.45% | 14.99% | 6.06% | 11.16% |
| Net Interest Income | 72.16% | 67.32% | 75.81% | 73.27% | 75.17% | 72.13% | 76.03% | 73.30% | 76.94% | 71.82% | 78.34% | 77.98% |
| Net Fees and Commissions | 16.56% | 21.24% | 16.85% | 19.60% | 17.62% | 18.77% | 19.45% | 21.73% | 17.50% | 17.48% | 14.83% | 24.04% |
| Net Gains and Losses | 3.25% | 8.14% | 3.27% | 6.06% | 2.57% | 5.42% | 2.01% | 2.61% | 2.53% | 4.24% | 5.12% | -13.04% |
| Net Interest Margin | 5.42% | 4.69% | 5.51% | 4.37% | 4.18% | 3.86% | 5.04% | 4.22% | 6.50% | 6.13% | 7.53% | 6.06% |
| Loan Losses | 1.59% | 7.17% | 3.00% | 6.23% | 2.60% | 3.74% | 2.74% | 2.71% | 2.33% | 2.12% | 3.28% | 2.82% |
| Cost to Income | 66.76% | 67.28% | 71.93% | 61.95% | 68.01% | 61.56% | 80.15% | 60.49% | 75.96% | 60.59% | 88.16% | 69.19% |
| Revenue Margin | 11.32% | 6.89% | 10.33% | 6.70% | 9.73% | 5.89% | 9.30% | 6.35% | 9.21% | 7.42% | 9.19% | 6.94% |

| | 2009 | | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | EBs | Peers | EBs | Peers | EBs | Peers | EBs | Peers | EBs | Peers |
| Return on Assets | -0.26% | 1.35% | 0.46% | 1.63% | 0.56% | 0.75% | 1.15% | 1.33% | 1.16% | 1.22% |
| Return on Equity | -9.09% | -3.81% | 5.59% | 10.55% | 5.80% | 6.54% | 9.49% | 9.46% | 9.92% | 9.86% |
| Net Interest Income | 77.84% | 65.38% | 78.36% | 69.50% | 78.77% | 72.93% | 79.49% | 70.96% | 81.53% | 71.89% |
| Net Fees and Commissions | 14.40% | 17.49% | 12.08% | 17.74% | 12.58% | 16.29% | 11.81% | 16.74% | 11.38% | 15.47% |
| Net Gains and Losses | 5.89% | 10.40% | 7.60% | 7.04% | 7.32% | 4.28% | 5.75% | 7.12% | 2.08% | 6.66% |
| Net Interest Margin | 7.45% | 6.44% | 7.12% | 7.41% | 8.22% | 8.04% | 8.45% | 8.44% | 7.51% | 7.30% |
| Loan Losses | 2.83% | 6.79% | 3.23% | 4.14% | 3.48% | 5.15% | 3.95% | 5.35% | 2.98% | 4.64% |
| Cost to Income | 95.41% | 65.20% | 78.64% | 64.29% | 73.17% | 67.42% | 69.21% | 65.65% | 68.67% | 74.32% |
| Total Revenue to Total Assets | 9.48% | 7.85% | 9.47% | 8.25% | 9.91% | 7.81% | 9.78% | 8.05% | 8.70% | 7.51% |