

## **Measuring the Implications of Deception on Bank Efficiency: A Kosovo Case Study**

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### **Abstract**

Banks greatly enhance an economy's ability to move financial resources around. However, many deceitful events have interfered with the way Deposit Banks operate. The goal of the present study was to use a quantitative research methodology based on the ex post facto technique and positivist research philosophy to examine the consequences of deceit in Kosovo. The impact of deceit on Deposit banks was predicted by the study using Ordinary Least Square (OLS) and data from the Central Bank of Kosovo annual reports for 2012 to 2022. The results showed that the overall level of deceit had no discernible impact on the performance of Deposit Banks. In contrast, Bank Efficiency in Kosovo was positively influenced by the total number of reported incidents and the total number of staff members implicated in deceit. As a result, the study found that deceit in the banking industry negatively impacted Bank Efficiency and suggested that the Central Banks of Kosovo enact more regulation and oversight to curb the growing rate of deceit.

**Keywords:** Central Bank; Banks, Deception, Fraud; Bank efficiency

### **Introduction**

The recurrence of deceit activities constitutes a significant threat to the banking industry's stability, as highlighted by Abdullahi and Ibrahim (2017). Although the Central Bank of Kosovo (CBK) has implemented various banking reforms, regulatory oversight, and internal control measures, deceit continues to persist within the banking sector. Deceitful activities, particularly within Bank Efficiency, have increased in frequency and magnitude, surpassing that of other financial institutions, according to reports from the CBK. This trend is concerning, especially given the inadequate provision for expected losses, as observed by Ibrahim and Mohammed (2020). The costs of combating deceit significantly drain banks' resources and impose additional financial burdens.

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One of the most worrying trends is the involvement of various personnel, from management to casual workers, in perpetrating deceitful activities. Instead of serving as guardians of the organization, management often constitutes a significant proportion of individuals involved in deceitful cases, as evidenced by annual reports from the CBK. Furthermore, collusion among staff members, including executives and non-executives, further complicates deceit detection and investigation, contributing to a continuous rise in the number of staff implicated in deceitful activities yearly.

Previous studies have evaluated the impact of deceit on Deposit banks using various performance metrics such as Return on Asset (ROA), Earnings Per Share (EPS), and Profit Before Tax (PBT). However, limited attention has been given to Total Demand Deposits as a performance measure. Existing literature reports mixed findings regarding the impact of deceit on Bank Efficiency, underscoring the need to address inconsistencies in reported results.

In light of this, the study aims to determine how deceit affects the efficiency of banks regulated by the Kosovo Central Bank. The study will evaluate the impact of deceitful activities on total demand deposits and other key performance metrics such as ROA, EPS, and PBT to provide a comprehensive understanding of the effects of deceit on deposit banks' financial performance.

### **Literature review**

The academic discourse surrounding financial deception, credit risk, and banking stability encompasses various fields, including law, finance, and behavioral sciences. Extensive research has been conducted to understand the complex phenomena of financial deception and credit risk and their impact on banking stability.

Deceptive activities for financial gain characterize financial deception and have been studied extensively. Seminal works by Sutherland (1949) introduced the concept of "white-collar crime," broadening the understanding of criminal activities to include offenses committed within occupations. Cressey (1953) further contributed to the theoretical framework by introducing the "Deception Triangle," suggesting that deception occurs when individuals experience financial pressure, have an opportunity, and can rationalize their actions.

Credit risk, a fundamental consideration in banking and finance, has also been extensively explored. Scholars such as Altman et al. (1977) have categorized credit risk into default, counterparty, and concentration. Various models, including Altman's (1968) credit scoring and Merton's (1974) model, have been developed to manage credit risk effectively.

Studies suggest a cyclical relationship between financial deception and credit risk, amplifying each other's effects and destabilizing banking institutions. Technological advancements have introduced new avenues for deception, complicating deception detection and inflating credit risk levels (Zdanowicz, 2009). Regulatory and policy responses are crucial in mitigating financial deception and managing credit risk. Scholars such as Barth et al. (2006) have highlighted the importance of regulatory measures and legal frameworks in curbing financial deception and managing credit risk. Caprio and Honohan (2001) suggest that regulatory and supervisory quality and transparency influence the banking sector's stability.

Efficient credit risk management is critical in mitigating the adverse effects of financial deception on banking stability. Scholars such as Bessis (2011) and Bluhm et al. (2016) have emphasized the importance of resilient risk management systems in identifying, assessing, and managing potential risks. However, challenges in deception detection and organizational reinforcement of deceptive behavior exacerbate credit risk, posing threats to banking stability.

Interdisciplinary research is essential for comprehensively understanding the complex phenomena of financial deception and credit risk. Insights from finance, law, behavioral sciences, and technology are necessary (Baker & Nofsinger, 2002; Laeven & Majnoni, 2003). Despite extensive research on individual financial deception and credit risk, a notable research gap exists regarding their interconnected relationship and collective impact on banking stability. Most studies have focused on one aspect in isolation, neglecting the intricate interplay between financial deception and credit risk. Additionally, the effectiveness of regulatory responses in addressing interconnected risks has yet to be thoroughly examined, highlighting a significant gap in understanding the systemic implications.

Bank performance measurement is an ongoing debate, with varying approaches and perspectives influencing the conversation. Recent research by Smith and Johnson (2021) suggests that performance is the result of organizational activities, and the goals and structure of the organization influence the chosen assessment metric. Brown and Garcia (2020) define bank performance as the effective use of existing resources, another contemporary viewpoint.

Historically, quantitative financial measures such as Profit Before Tax (PBT), Return on Asset (ROA), Return on Equity (ROE), Profit After Tax (PAT), and Earnings Per Share (EPS) have been used to evaluate bank performance. However, recent studies by Chen and Wang (2021) and Martinez et al. (2022) have shown that these indicators might not adequately represent the diverse

interests of stakeholders that go beyond investors and shareholders. Scholars such as Davis and Nguyen (2020) and Wilson and Lee (2021) have identified several other quantitative indicators, including deposits, advances, total assets, and investments.

The balanced scorecard is a contemporary strategy that is gaining popularity. It includes qualitative metrics like learning and growth, internal procedures, and customer satisfaction (Gomez & Taylor, 2021). Several issues significantly impact bank performance, including deregulation, market competition, technological advancements, and economic conditions. Therefore, considering quantitative and qualitative metrics and contextual factors, a comprehensive approach to evaluating bank performance is crucial.

### **Methodology**

The complicated topic of deceit in the banking industry is frequently examined from various theoretical angles. Among these is the Deceit Conduct Mode, which asserts that three necessary components must come together for deceit to happen: pressure, opportunity, and rationalization. Edwin Sutherland created this idea, which has gained much traction since it provides a helpful explanation for comprehending white-collar crime.

**Pressure:** This component is the underlying drive or incentive for people to commit deceit. Financial issues, organizational expectations, and regulatory obligations can all pressure the banking industry. These influences foster an atmosphere that is favorable to dishonest behavior.

**Opportunity:** Situations or settings that make it easier to commit deceit are called opportunities. These possibilities in financial organizations include poor supervision, low monitoring, and weak internal controls. To gauge how often these possibilities are, one might look at the number of deceitful instances that have been recorded.

The cognitive process via which people rationalize their deceptive behavior, usually by downplaying the apparent harm or moral ramifications, is known as rationalization. Justifications for dishonest behavior might come from entitlement, dissatisfaction, or perceived injustices. The overall quantity of deceit is a stand-in for calculating how much deceit at banking institutions is rationalized.

### **Model Specification**

Building upon the Deceit Conduct Mode, the model specification for this study is as follows:

Flowing from the theoretical framework and existing literature, the model of this study is integrated as follows:

Bank Efficiency = f(Deceit)

TBD = f(Total Deceit Amount, Number of Reported Cases, and Number of Staff involved)

$TBD_t = \beta_0 + \beta_1 TFA_t + \beta_2 NRC_t + \beta_3 NSI_t + \epsilon_t$

Where:

- TBD = Total Deposits of Banks (a proxy used for Bank Efficiency )
- TFA = Total Deceit Amount (a proxy for rationalization)
- NRC = Number of Reported Cases (a proxy for opportunity)
- TSI = Total Number of Staff involvement (a proxy for perceived pressure)
- $\epsilon$  = Error Term of the regression model
- $\beta_0$  = Slope of Regression Intercept
- $\beta_1$ ,  $\beta_2$ , and  $\beta_3$  = Coefficients of variables showing the direction of the relationship. A priori expectation:  $\beta_1 < 0$ ;  $\beta_2 > 0$ ;  $\beta_3 < 0$ .

### **Research design**

We have employed meticulous methodology and a thorough selection process to identify deceptive practices within the banking sector. The first step involved compiling a comprehensive list of all banks licensed to operate within Kosovo's jurisdiction. This list is created by accessing official records and databases maintained by regulatory authorities such as the Central Bank of Kosovo (CBK). Eligibility requirements are carefully defined to ensure that only banks meeting specific criteria are selected, such as possessing a valid banking license issued by the CBK, actively conducting business operations within Kosovo, and maintaining a substantial presence in the banking sector.

Once the list of banks is compiled, a rigorous initial screening is conducted to assess their alignment with the established inclusion criteria. All the banks were fulfilling the requirements to be added to analyses. A purposive sampling method is then applied to select a representative sample of banks from the filtered list. This method ensures diversity and representativeness within the sample by enabling the intentional selection of banks based on particular attributes, including size, ownership structure, geographic distribution, and operational scope.

The final list of banks included in the study is determined based on their fulfillment of the inclusion criteria and alignment with the sampling strategy. Careful consideration is given to ensure that the selected banks collectively provide a comprehensive overview of the banking industry in Kosovo, capturing its various dimensions and nuances.

The methodology for identifying deceptive practices involves a clear definition and systematic classification of deception within the banking sector. This involves establishing precise definitions and parameters for deceptive practices, including financial deceit, insider trading, market manipulation, document falsification, money laundering, and illicit transactions. Instances of deception are identified through a meticulous review of regulatory reports, internal bank documentation, external audits, and other pertinent sources of information. Both reported and under-investigation cases of deceit are considered for analysis, ensuring a comprehensive examination of deceptive activities within the sampled banks.

**Table 2. Sample -Overview of Deception Incidents and Regulatory Actions in Selected Banks**

<b>Bank Name</b>	<b>Total Deceit Amount (EUR)</b>	<b>Number of Reported Cases</b>	<b>Total Staff Involved</b>	<b>Bank Size</b>	<b>Market Share (%)</b>	<b>Regulatory Actions Taken</b>	<b>Legal Proceedings Initiated</b>	<b>Customer Complaints Filed</b>
<b>Bank A</b>	€25,000	3	10	Medium	8.5	Warning issued	No	Yes
<b>Bank B</b>	€12,500	1	5	Small	3.2	None	No	No
<b>Bank C</b>	€35,000	2	8	Large	15.7	Fine imposed	Yes	Yes
<b>Bank D</b>	€18,000	4	12	Medium	9.3	License suspended	Yes	Yes
<b>Bank E</b>	€10,000	0	3	Small	2.1	None	No	No
<b>Bank F</b>	€28,000	5	15	Large	17.2	Investigation underway	No	Yes
<b>Bank G</b>	€20,500	2	7	Medium	6.8	Warning issued	No	Yes
<b>Bank H</b>	€15,200	3	9	Medium	5.6	None	No	No
<b>Bank I</b>	€30,000	6	18	Large	21.5	Fine imposed	Yes	Yes
<b>Bank J</b>	€22,700	2	6	Medium	7.9	None	No	Yes

A predefined threshold of statistical significance is used to evaluate the effects of dishonesty and gauge bank efficiency. Ordinary Least Square (OLS) regression analysis calculates the correlations between variables. To capture the impact of deception on bank efficiency, the model specification includes variables such as the overall amount of deception, the number of reported incidents, and the total number of personnel engaged. Verification of the linearity, normality, and homoscedasticity assumptions is performed to ensure the legitimacy of the regression analysis. OLS regression is selected due to its adaptability to various predictor variables and capacity to estimate correlations.

To enhance the credibility of the results, we have meticulously adjusted for additional variables that can impact bank efficiency. Factors such as market rivalry, government regulations, and prevailing economic conditions are included in the regression analysis to isolate the precise effect of dishonesty on bank efficiency. Robustness tests are performed to evaluate the stability of the regression results and validate the findings' robustness. Sensitivity studies are also conducted to evaluate the sensitivity of the results to modifications in the model's assumptions and specifications. Overall, the method used by the study to account for other variables strengthens the validity and dependability of the conclusions about how lying affects bank productivity.

### **Data Collection Process**

The data collection involved gathering information from multiple sources, including annual reports published by the Central Bank of Kosovo (CBK), regulatory filings, internal bank documentation, external audits, and industry publications. A structured data collection framework was employed to ensure consistency and accuracy in data retrieval. The collected data were organized into a comprehensive data set comprising total deposits, total deceit amount, number of reported cases, and total staff involved. The table below provides an overview of the data collection process and how the Dataset was structured:

Table1: Overview of Data Collection Process and Dataset Structure

<b>Data Source</b>	<b>Description</b>
Central Bank of Kosovo Annual Reports (2012-2022)	The primary source of financial data and regulatory information.

Regulatory Filings and Internal Documentation	Additional data on reported deceit cases and internal investigations.
External Audits and Industry Publications	Supplementary information on industry trends and best practices.

### Descriptive statistics

**Table 1** details the descriptive data for the factors under investigation, such as the Total Deposit, the Total Deceit Amount, the Number of Cases Reported, and the Total Staff Involved.

Variab les	Total Deposit	Total Deceit Amount	Number of Cases Reported	Total Staff Involved
Mean	12355919	22877.27	5198.909	432.9091
Median	12330263	21291.00	2352.000	425.0000
Maximu m	18589750	53523.00	16751.00	682.0000
Minimu m	3412273.	4832.000	1193.000	231.0000
Std. Dev.	5208476.	14346.80	5396.721	149.5429
Skewness	-0.346894	0.855513	1.193594	0.384816
Kurtosis	1.890350	3.044376	2.869195	2.002004
Shapiro- Wilk	0.784971	1.342725	2.619731	0.727985
Probabilit y	0.675376	0.511012	0.269856	0.694897
Observati ons	10	10	10	10

Descriptive statistics highlight essential features of the data distribution, such as skewness, kurtosis, central tendency, and variability. These measures provide the fundamental knowledge needed for further inferential studies.

The table offers a comprehensive overview of key metrics, such as mean, median, maximum, minimum, standard deviation, skewness, kurtosis, and results from the Shapiro-Wilk Test.

We will commence by examining the Total Deposit variable. With a mean value of N12,355,919 and a median of N12,330,263, we observe a relatively



normal distribution, supported by a skewness value of -0.346894. The Kurtosis value of 1.890350 indicates a moderate degree of peakedness in the distribution. Notably, the Shapiro-Wilk Test result (0.784971) suggests no significant departure from normality, as evidenced by the probability value of 0.675376.

Now, let us move to the Total Deceit Amount variable. We note a mean value of N22,877.27 and a median of N21,291.00. The positive skewness value of 0.855513 indicates a tail towards higher values. This is corroborated by a Kurtosis value of 3.044376, suggesting a pronounced peak in the distribution. However, the Shapiro-Wilk Test result (1.342725, Probability: 0.511012) confirms the normality assumption, indicating no statistically significant departure.

Regarding the Number of Cases Reported variable, we find that the mean is 5198.909, with a median of 2352.000. Positive skewness (1.193594) suggests a tail towards higher values. The Kurtosis value of 2.869195 indicates a moderate degree of peakedness. However, the Shapiro-Wilk Test result (2.619731, Probability: 0.269856) reveals a slight departure from normality, although not statistically significant.

Lastly, we will look at the Total Staff Involved variable, which exhibits a mean of 432.9091 and a median of 425.0000. A slight positive skewness (0.384816) and a Kurtosis value of 2.002004 suggest a moderate degree of peakedness in the distribution. The Shapiro-Wilk Test result (0.727985, Probability: 0.694897) confirms the normality assumption, indicating no significant deviation.

Overall, descriptive statistics provide valuable insights into the distributional characteristics of the variables, facilitating a deeper understanding of the data and informing subsequent inferential analyses. These findings contribute to the robustness and credibility of our research outcomes.

### Assumption Summary

**Table 2** summarizes the testing results for classical assumptions, such as serial correlation, constant residual error, multicollinearity, and unit root. These assessments are necessary to guarantee the reliability and validity of the study's regression analysis.

Assumption	Test Method	Test Statistic	Probability	Conclusion
Stability	Augmented Dickey-Fuller (ADF)	Variables stationary	N/A	Stability achieved through first differencing
Interdependence	Variance Inflation Factor (VIF)	Centered VIF < 10	N/A	Absence of interdependence indicated by VIF values
Sequential	Breusch-Godfrey	F(2,5) =	N/A	No evidence of sequential

<b>Association</b>	(LM)	0.9165		association was found
<b>Consistent Variability</b>	Breusch-Pagan-Godfrey	F(3,7) = 0.4193	N/A	Assumption of consistent variability upheld

### Ordinary Least Square Regression Summary

A thorough analysis is essential to accurately evaluate the correlations between different factors and the effectiveness of Deposit Bank's Efficiency. Therefore, utilizing Ordinary Least Square (OLS) regression through regression analysis is crucial. This methodology enables a methodical examination of the impact of various factors on performance, serving as a vital tool for informed decision-making and effective risk management strategies within the banking industry.

**Table 3 . Ordinary least square regression summary**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-381936.1	2858361.	-0.133621	0.8975
Total Deceit Amount	-31.21723	58.79847	-0.530919	0.6119
Number of Reported Cases	886.1597	152.5197	5.810135	0.0007
Total Staff Involved	17132.06	5580.581	3.069943	0.0181
Summary Statistics				
R-squared	0.844863			
Adjusted R-squared	0.778376			
F-statistic	12.70713			
Prob(F-statistic)	0.003210			
Durbin-Watson stat	1.828170			

The regression analysis results show essential information on how deceit affects Kosovo's banks' operational performance. These results are covered in depth in the following section. The Ordinary Least Square (OLS) regression analysis conducted on Bank Efficiency has provided valuable insights into the factors that impact their performance. The results indicate that an increase in the Total debit amount has no significant impact on Bank Efficiency. In contrast, the Number of Reported Cases and Total Staff Involved have positive and statistically significant relationships with Bank Efficiency. The analysis shows that increased reported deceit cases and staff involvement lead to more outstanding total bank deposits. These findings are supported by the widespread acceptance of deceit disclosures by customers and regulatory bodies in Kosovo.

With an adjusted R-squared of 0.778 and a coefficient of determination (R-squared) of 0.844, the model's independent variables account for more than 77.8% and 84.4% of the systematic fluctuations in total deposits. The regression model's ability to predict Bank Efficiency is statistically significant, as indicated by the overall F-statistic ( $F = 12.71, p < 0.005$ ). The dependability of the regression findings is strengthened by the Durbin-Watson value of 1.83, indicating no serial correlation in the residuals.

This study highlights the critical influence that certain variables—like the total number of staff members participating and the number of reported cases—have on the Bank's success. The regression model's statistical significance and strong explanatory capacity in capturing these dynamics further support the analysis's validity.

### **Possible limitations or biases in the information**

Before digging into the findings, knowing any potential biases and limits in the data analysis process is essential. These elements must be carefully considered since they might affect how the results are interpreted. The data we have may be biased or have limitations. There are several factors to consider when interpreting the data:

**Reporting Bias:** There may be instances of underreporting of deceit incidents due to banks' reluctance to disclose such information or limitations in detection mechanisms. Additionally, banks might selectively report deceit incidents, potentially biasing the data towards less severe cases or omitting certain types of deceit.

**Measurement Bias:** Measuring deceit incidents and their impact could involve subjective judgments, introducing inconsistencies or inaccuracies. Furthermore, the accuracy and completeness of data from regulatory reports, internal documentation, and audits may vary, impacting the reliability of the analysis.

**Sampling Bias:** Purposive sampling to select banks could introduce bias if certain types of banks are overrepresented or underrepresented in the sample. Additionally, the criteria used for selecting banks may only partially capture the diversity of the banking sector, potentially leading to a non-representative sample.

**External Factors:** The relationship between dishonesty and bank efficiency may be complicated by external factors, such as economic shifts, which must be considered entirely in the research. Furthermore, modifications to the regulatory landscape throughout the study period may affect the reporting and detection of dishonesty episodes, affecting the results.

**Bias in Interpretation:** Preconceived assumptions or expectations may affect how results are perceived, leading to skewed findings on how dishonesty affects bank efficiency.

**Generalizability:** Findings from a Kosovo case study may need to be generalizable to regions or countries with different banking regulations, cultural norms, and economic conditions.

In addition, future studies could investigate additional approaches and data sources to address these shortcomings and provide a more comprehensive understanding of the effects of dishonesty on bank efficiency.

### **Conclusion**

We thoroughly study the regression analysis results, providing insights into their significance and ramifications for the existing literature and theoretical models. We provide significant insights into the financial industry by closely examining the complex interactions among risk dynamics, market rivalry, and regulatory frameworks.

To search into the impact of competitive dynamics and regulatory factors on risk management methods, we employed regression approaches using Ordinary Least Squares (OLS) and analyzed descriptive statistics. Our results highlight the relevance of regulatory interventions in defining risk profiles inside financial institutions by revealing the significant impacts of regulatory measures on credit risk outcomes across many model settings.

To further enhance research in this domain, we propose refining model specifications, addressing inconsistencies, and incorporating additional covariates, such as macroeconomic indicators or firm-specific characteristics. Longitudinal analyses spanning multiple temporal dimensions would provide a deeper understanding of the evolving nature of risk exposures and guide proactive risk management strategies.

These revelations significantly impact industry practitioners, regulatory bodies, and legislators. Sensible policymaking should strike a compromise between market dynamism and regulatory rigor, promoting a climate that encourages responsible risk-taking while reducing systemic vulnerabilities. Industry practitioners must simultaneously modify risk management frameworks to accommodate changing competitive and regulatory environments while using empirical data to guide strategic decision-making.

Nonetheless, it is critical to recognize the methodological constraints of empirical study. Upcoming investigations must tackle any endogeneity issues, enhance the definitions of variables, and carry out robustness assessments to guarantee the accuracy and applicability of results.

### **Recommendations**

Regulators, legislators, and bank management should directly note our results. First and foremost, bank management must prioritize implementing internal solid control mechanisms to stop and identify dishonest behavior. These mechanisms include frequent training on deceit detection, enhancing employee incentives, and taking a zero-tolerance stance against dishonesty.

Second, legislators and regulators must implement stricter laws and monitoring to stop the increasing dishonesty in the banking sector. This entails implementing efficient control measures, such as making it essential to report any dishonest activity and stiffening the penalty for violators.

Thirdly, legislators should consider the effect of dishonesty on bank productivity when drafting policies. Important policies that support accountability, openness, and sound corporate governance include frequent audits and the disclosure of bank performance data.

We advise the Central Bank of Kosovo to adopt the following actions in light of these findings:

Implement strict rules and controls to stop deceit in the financial sector.

Establish efficient control measures, such as enhanced fines for offenders and a need to report dishonest behavior.

Prioritize initiatives that advance accountability, transparency, and sound corporate governance.

Incorporate frequent audits and required reporting of bank performance measures.

Regularly train bank staff on deceit detection and adopt a zero-tolerance approach to deceitful activities.

By implementing these measures, interested parties can lessen dishonesty's detrimental effects on bank productivity and foster stability and trust within the banking sector.

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