ACCOUNTING CONSERVATISM AND SUSTAINABILITY REPORTING IN CHANGING TIMES: EVIDENCE FROM TURKISH BANKING INDUSTRY*

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ABSTRACT

The study aims to examine accounting conservatism in the Turkish banking sector from two sides. These can be expressed as lending policies and sustainability reporting. We firstly investigate whether accounting conservatism improves the lending capacity of banks during crisis periods. We hypothesize that higher conditional conservatism could reduce the adverse effect of the financial crises on the banks' lending capacity. We test our predictions empirically through an unbalanced panel data of 32 Turkish deposit banks in 1999-2019. We secondly examine whether a bank's engagement in sustainability performance and reporting reduces information asymmetry and leads to less demand for conservatism by outside stakeholders. We test whether a bank conditional conservatism changes or not after starting to report sustainability information. The results of our primary hypotheses are consistent with our predictions and complement and support existing evidence in the empirical literature. We find evidence of the positive impact of conditionally conservative accounting policies on the supply of bank loans. When we test our sustainability reporting hypotheses, incoherent with prior researches and our predictions, there is no significant relationship between sustainability reporting and the level of conservatism.

Keywords: Accounting Conservatism, Sustainability Reporting, Financial Crises

JEL Classification: M40, M41, G21

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DEĞİŞİM DÖNEMLERİNDE MUHASEBEDE İHTİYATLILIK VE SÜRDÜRÜLEBİLİRLİK RAPORLAMASI: TÜRK BANKACILIK SEKTÖRÜNDEN KANITLAR

ÖZ

Bu çalışma Türk bankacılık sektöründe muhasebe ihtiyatlılığını iki açıdan incelemektedir. Bunlar kredi politikaları ve sürdürülebilirlik raporlaması olarak ifade edilebilir. Çalışma, ilk olarak kriz dönemlerinde muhasebe ihtiyatlılığının, bankaların kredi verme kabiliyetlerini olumlu etkileyip etkilemediğini incelemektir. Temel varsayımımız daha yüksek koşullu muhafazakarlık düzeyinin finansal krizlerin bankaların borç verme kapasitesi üzerindeki olumsuz etkisini azaltabileceğidir. Ampirik araştırma kapsamında, öngörülerimiz 32 mevduat bankasının dengesiz panel verileriyle 1999-2019 döneminde test edilmiştir. Bu çalışmada ayrıca, bankaların sürdürülebilirlik performansına verdikleri önemin ve bu alandaki raporlamanın bilgi asimetrisini azaltarak dış paydaşların ihtiyatlılık talebi üzerindeki etkisi incelenmektir. Çalışmamızın bu kısmında bankaların muhasebe ihtiyatlılık seviyelerinin sürdürülebilirlik raporlamasına başlamasıyla birlikte değişip değişmediği test edilmiştir. Araştırma sonuçlarımız öngörülerimizle tutarlıdır ve ampirik literatürdeki mevcut kanıtları tamamlar ve destekler niteliktedir. Böylece koşullu ihtiyatlı muhasebe politikalarının banka kredilerinin arzı üzerindeki olumlu etkisi kanıtlanmaktadır. İkinci hipotezlerimizi test ettiğimizde, önceki araştırmalar ve öngörülerimizle tutarlı olmayan sonuçlar elde edilmiş, sürdürülebilirlik raporlaması ile muhafazakarlık düzeyi arasında bağlantı tespit edilememiştir.

Anahtar Kelimeler: Muhasebede İhtiyatlılık, Sürdürülebilirlik Raporlaması, Finansal Krizler

JEL Sınıflandırması: M40, M41, G21

1. INTRODUCTION

This paper has two objectives. The first objective is to investigate the role of accounting conservatism during crisis periods. The second objective is to examine whether a bank's engagement in sustainability performance and reporting reduces information asymmetry and leads to less demand for conservatism by outside stakeholders. The reason that led us to these two objectives and the starting point of our study is the Covid-19 health crisis, which has accelerated the need for changes in the existing business model and innovation. Rethinking the business strategies, technology platforms, reengineering internal processes in this new contactless environment cannot be the only remedy. New business models, innovation, and technology are just one part of the equation for transformation. The other part for firms in changing times is the strong communication with stakeholders. Audit firms and professional accountancy bodies emphasize the use of certain financial accounting standards under the pandemic. They underline that the going concern principle may need to be appraised in this period. Our study argues that the pandemic is a call to action for companies to consider conservative accounting and sustainability reporting seriously. More than ever, conservative financial reporting and sustainability disclosures are crucial to successfully handle the fatal effects of the crises.

On the question of conservative accounting policies and their role during financial crises that constitute our first objective, we start with asymmetric information theory. In addition to reducing managerial opportunism in contracting, prior studies suggest that conditional conservatism reduces information asymmetry in capital markets; thus, accounting conservatism can play a vital role, especially during economic upturns (Kothari 2001; Ball et al. 2000; Watts 2003a; Watts 2003b). Accounting conservatism can be defined as financial reporting policies that incline to reduce net asset value relative to economic net asset value (Sterling 1967; Hellman 2008; Watts 2003a; Watts 2003b). Since the banking industry has unique characteristics and a pivotal role in the economy, we can say that accounting conservatism is even more critical for banks' financial reporting. The lending volume may decrease during financial crises in poorly managed banks. However, conservative accounting policies may reduce the banks' deterioration in loan capacity in downturn periods (Beatty and Liao 2011).

We begin by analyzing the association between lending capacity and capital adequacy to show the pro-cyclical lending in the banking industry. Next, we assess the effect of conservative accounting policies on lending policies during economic upturns. We assume that unlike the expected loan loss provision model of IFRS9, the incurred loan loss provisioning may emphasize the pro-cyclical lending in banks. We examine whether accounting conservatism improves banks' lending capacity during crisis periods and mitigates the effects of economic downturns. In other words, we investigate whether the level of accounting conservatism before the financial crisis helps to explain the extent of the deterioration in loan capacity of the banks. We hypothesize that banks with higher conditional conservatism would use smaller loan provisions, and conditional accounting conservatism could reduce the adverse effect of the financial crises on the banks' lending capacity. For this purpose, we use Beatty and Liao (2011) for the lending changes model. We assume that banks may experience a decrease in lending capacity during a financial crisis. Additionally, we built the loan loss provision model based on Balakrishnan et al. (2016) by replacing the investments variable with loans, which are more explanatory for our sample and research design.

In the initial stage of the research, we work empirically through an unbalanced panel data of 32 deposit banks in 1999-2019 to test our hypotheses in Turkish banks. The 2001 financial crisis has an important place for the Turkish banking industry. After this crisis, a considerable restructuring process has started in the banking sector. Turkish banks had significant improvements with the new economic policies and restructuring program was an important example in emerging economies. The 2008 global crisis has also affected Turkey as well as the world. We also try to analyze and interpret the adverse effects of the global financial crisis period. Our results are consistent with prior researches, and we find evidence of the positive impact of conditionally conservative accounting policies on the supply of bank loans.

This paper's second objective is to examine whether a bank's engagement in sustainability performance and reporting reduces information asymmetry and leads to less demand for conservatism by outside stakeholders. Prior studies provide evidence that companies' sustainability commitments, such as social and environmental programs, including reporting and best practices in corporate governance, improve accounting and market-based performance (Buallay et al. 2020; Burke et al. 2020; Garcia-Benau et al. 2013; Herzig et al. 2012).

Based on the study of Burke et al. (2020), we further predict that sustainability reporting might reduce the demand for conservative financial reporting. Consequently, we test whether a bank conditional conservatism changes or not after starting to report sustainability information. Therefore, we measure accounting conservatism and its relation with the sustainability reporting on Turkish deposit banks. Unfortunately, we find no significant relation of sustainability reporting with the level of conservatism.

The remainder of the paper is organized as follows. Section 2 outlines the literature review and hypothesis development. Section 3 explains the study's methodology in terms of research design, sample, data, and descriptive statistics. In section 4, we announce the results of our study, and section 5 is the conclusion part of our study.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Prior studies suggest that financial crises represent a relatively exogenous shock to the supply of bank loans. Brei and Schclarek (2013) examine 764 banks in 50 countries between 1994 and 2009 with the panel data regression analysis. They mainly concentrate on the difference in lending patterns between government-owned banks and private banks during the financial crisis. They uncover evidence that while government-owned banks increase their lending, private banks decreases during the financial crisis. They illustrate that the notable characteristics of bank lending are capital and liquidity during the crisis.

Bruno et al. (2018) investigate the panel regression with the sample of 132 European and US banks over the period from 2008 to 2014. According to the research results, European banks' lending channel is stronger than the US. They focus mainly on corporate loans, and they report the main bank determinants of lending are size, capital, liquidity, and ownership structure. They emphasize that banks play an important role as they supply lending to the economy during a crisis. They find that European banks' assets and loan growth rates decrease during the global financial crisis. Ivashina and Scharfstein (2010) and Wyplosz (2012) also study bank lending during the global financial crisis. They find that new loans significantly decrease during the crisis.

Moreover, banks are subject to higher regulation compared to other industries. The capital adequacy requirements are one of the fundamental features of bank regulation to promote financial stability and ensure that banks are faithfully operated. According to Beatty and Liao (2011), the capital crunch theory anticipates that the capital adequacy principle associated with market imperfections leads to pro-cyclical bank lending. We assume that financial crises may reduce banks' lending capacity. Based on this assumption, our first hypothesis is:

H1: Banks experience a decline in their lending capacity during crisis periods.

Nevertheless, Beatty and Liao (2011) assert that banks with lower conditional conservative levels might not have developed adequate loan loss provisions preceding the financial crises and could have experienced higher loan losses when a financial crisis strikes. They suggest that lower conservatism is likely to restrict the banks' supply of loans during crisis periods. Consequently, they conclude that conservative financial reporting could reduce the adverse effect of crises on the banks' lending capacities, and this seems to be a reliable approach.

Lim et al. (2014) study the impacts of accounting conservatism and the pricing of syndicated bank loans. They use Khan and Watts' (2009) C-Scores methodology to estimate conservatism levels. They examine 48 banks from 16 countries covering the US, UK, Europe, Canada, and Australia for the years 2006-2009. They state that banks' lending practices are anticipated to be affected by their degree of conditional conservatism. Liu and Ryan (1995) search the impacts of banks' loan portfolios on the early loan loss provisions. They examine the relationship between security returns and loan loss provisions and find a positive relationship between security returns and loan loss provisions for the large banks and renegotiated loans. Sanchez et al. (2014) also examine the impacts of accounting conservatism on banks' loan supply in the Spanish context over the global financial crisis in 2008. They verify the accounting conservatism policies diminish the decrease of the loan supply during economic downturns.

In their essential study, Balakrishnan et al. (2016) consider the contracting benefits of conservative accounting policies, and they highlight the importance of accounting conservatism during the 2008 financial crisis. They demonstrate that companies with low conservative accounting policies suffered a more significant deterioration in investment capacity after the financial crisis's commencement than did the companies with more conservative accounting policies. Our second hypothesis is:

H2: Banks' lending during crisis periods is greater for banks with greater accounting conservatism than those with smaller conservatism.

Carlson et al. (2013) study the impact of capital ratios on bank lending. They compare differences based on many characteristics of banks. Size is also used for their comparison. Beatty and Liao (2011) also use bank size as a distinguishing characteristic related to the loan supply of banks. They use Kishan

and Opiela (2006) and Kashyap and Stein (2000) methodology as bank size characteristic. From this point on, we predict that small banks with low conservative accounting policies may suffer a more significant deterioration in loan capacity after the financial crisis than do large banks because of the capital constraints. Based on this assumption, our third hypothesis is:

H3: The association between lending and accounting conservatism differs for small versus large banks.

On the other hand, we argue a negative association between sustainability performance and demand for accounting conservatism. Sustainability reporting is defined as measurement, disclosure, and responsibility. It makes reporting to internal and external stakeholders as to sustainable improvement purposes. It is also in charge of prescribing reporting in terms of economic, social, and environmental consequences. Empirical research demonstrates that companies' sustainability engagements, such as social and environmental programs, including reporting and best practices in corporate governance, improve accounting and market-based performance. Buallay et al. (2020) work on sustainability reporting and banking industries' financial performance from developed and emerging countries. They run a regression analysis with 882 banks, including 11 years subsequently the global financial crisis of 2008. They use environmental, social and governance (ESG) scores as an independent variable. They find that ESG scores enhance banks' financial and market-based performance in developed countries. Garcia-Benau et al. (2013) aimed to find the impact of financial recessions on sustainability reporting. Their sample includes 127 companies Spanish listed companies for six years. They differentiate CSR reporters in terms of reporting activity and before and after crisis periods. They mention the number of CSR reports raised significantly with the crisis, and they find no significant impact in terms of the changes in assurance strategy.

Herzig et al. (2012) analyze sustainability reporting based on the ten biggest German banks for the financial crisis in 2008/2009. Their methodology is based on the content analysis of sustainability reports. They draw attention to the significance of the notion of responsibility of the relationship between sustainability and individual banks' reporting strategies. Cheng and Kung (2016) analyze the impacts of compulsory corporate social responsibility procedures on accounting conservatism. They measure conservatism score with Khan and Watts' (2009) C-Score methodology, and they conclude CSR takes part of an alternate function for governance structures in cutting down information asymmetry. Shawn et al. (2009) investigate the sustainability and accounting conservatism of the 6.348 listed non-financial Korean companies between 2009 and 2016. The study highlights the importance of the regulatory authorities in the mitigation of information asymmetry between the investors and managers by limiting and observing companies' behavior. They find that companies ahead of delisting or in the process of

delisting are more conservative than others, and these companies are searching to improve their sustainability level.

In their influential study, Burke et al. (2020) demonstrate that sustainability performance enhances a firm's information environment and restrains the management from engaging in opportunistic behavior when contracting with stakeholders, which leads to less demand for conditional conservatism by outside investors. Cho et al. (2020) detect a negative association between adopting conservative financial reporting and disclosure of sustainability information. They exhibit that more conservative firms have less market reaction to its sustainability disclosures. Our fourth hypothesis is:

H4: Banks' sustainability performance is negatively associated with conditional conservatism.

3. METHODOLOGY

In this part, firstly, data will be briefly mentioned. Then, the regression models will be explained within the research design scope. Sample, data, and descriptive statistics will be included at the end of this part.

3.1. Measures of Conservatism

In the literature, there are many ways to calculate conservatism, such as Basu (1997), Khan and Watts (2009), Ball et al. (2005). These measures use market values. Since our sample consists of 32 Turkish Deposit Banks data and only 9 of them are listed on the Stock Exchange, we cannot use conservatism measures based on market performances. Therefore, our steps proceed very much in the same way as Nichols et al. (2009) and Beatty and Liao (2011), and we measure the accounting conservatism of a bank with loan loss provisions. We calculate conservatism level through loan loss provisions divided by lagged total loans (Nichols et al. 2009: 111; Beatty and Liao 2011: 8). According to Nichols et al. (2009), loan loss accounting can be used as an important criterion of measurement in determining banks' conservatism level. Especially, loan loss recognition has a considerable impact on the financial position and performance of banks. The appropriateness of the bank to recognize loan loss expectations in income indicates the magnitude of loan loss provisions. In other words, conservative loan loss recognition provides greater and timelier loan loss provisions in banks' financial statements. Banks with lower prudence delay the recognition of credit losses in order not to distort their financial statements. However, as these problematic loans do not return in crisis times, the recorded provisions are insufficient to cover the loan losses. Consequently, banks with lower prudence have to set aside more loan loss provisions in difficult times. According to Beatty and Liao (2011), a greater delay to recognize the expected loss leads to an increase in the required provision during crisis periods.

3.2. Data and Research Design

The Turkish banking industry has identical features with many developing countries, and it constitutes the keystone of the Turkish financial system. After the 2001 economic crisis in Turkey, a critical restructuring process has begun in the banking sector. The banking sector had significant improvements with the new economic policies and restructuring program (BDDK, 2001). The Turkish banking sector had total assets of 4.490.818 million Turkish liras in December 2019. There are three main types of banks in Turkey: the deposit banks, the development and investment banks, and the participation (Islamic) banks. We exclude participation banks and development and investment banks in our sample because they have different structures and a low place in overall total assets. The number of banks and asset sizes explain the dominant position of deposit banks quite well.

Table 1: The Number and Total Assets of Turkish Banks in December 2019

Bank Type	**Number**	**Total Assets (million Turkish Liras)**	**Percentage of Assets**
Deposit Banks	32	3.904.022	87%
Development and Investment Banks	13	302.336	7%
Participation Banks	6	284.459	6%
Total	51	4.490.818	100%

Source: Banking Regulation and Supervision Agency, https://www.bddk.org.tr/

Our analysis focuses on the two financial crises, the financial crisis of 2001 in Turkey and the global financial crisis of 2008. We test our predictions empirically through an unbalanced panel of 32 deposit banks in 1999-2019 on 508 bank-year observations (640 expected bank-year observations (32 Banks * 20 years) less banks with no activity, 93 bank-year observations less missing values 39 bank-year observations. Regarding our sustainability reporting regression model, we test our predictions empirically through an unbalanced panel of 9 deposit banks listed on The Istanbul Stock Exchange in 2009-2019. The sample consists of 99 bank-year observations (99 expected bank-year observations (9 Banks * 11 years) less banks with no activity and missing values). The primary purpose of choosing the nine listed banks as our sample for the period after 2009 is related to the augmentation of such reporting activities. In the period before 2009, we have not data to calculate Sustainability Scores. Data is collected from the Banks Associations of Turkey website, Central Bank of Turkey, Public Disclosure Platform, and Turkish Statistical Institute.

3.2.1. Lending Changes Model

We assume that banks may experience a decrease in lending capacity during recessions. We predict that the relationship between lending and capital adequacy ratio is higher during the crisis periods. To better analyze the model, Beatty and Liao (2011) and Bernanke and Lown (1991) use the unemployment rate as a macroeconomic indicator. They include such variables to control bank loan demand. Beatty and Liao (2011) find a negative relationship between loan growth and the unemployment rate. Their results show that when the unemployment rate increases, then the loan growth decreases for larger firms.

For model (1), we run the Hausman test; prob>chi^2 value (0,0001) < 0,05 is significant, and when we test the model with fixed effects. For this model, the Wooldridge test results show that the data does not have first-order autocorrelation Prob>F value is 0,4932. Using fixed effects regression helps us to analyze the impact of our variables over time, and it removes the effect of time-invariant characteristics.

The regression model on lending changes is as follows:

$$\Delta LOAN_{i,t} = \beta_0 + \beta_1 CRISIS_{i,t} + \beta_2 CAP_{i,t} + \beta_3 CRISIS_{i,t} * CAP_{i,t} + \beta_4 \Delta UNEMPLOY_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 ROA + \beta_7 \Delta CAP_{i,t} + \varepsilon_{i,t} \qquad (1)$$

where $\Delta LOAN_{i,t}$ refers to the natural log of the change in the total loans of the fiscal year-end t, from the fiscal year-end t-1, $CRISIS_{i,t}$ is an indicator variable equal to one for the years 2001, 2002, 2008, and 2009 and zero otherwise; $CAP_{i,t}$ *$CRISIS_{i,t}$ is an interaction variable of crisis period and Capital Adequacy Ratio, $\Delta UNEMPLOY_{i,t}$, refers the change in the unemployment rate year t, from the year t-1 divided by the year t-1, $SIZE_{i,t}$, the natural log of lagged total assets at the end of the fiscal year and $ROA_{i,t}$, return on assets (Profit before tax to total assets), $\Delta CAP_{i,t}$, the annual change in $CAP_{i,t}$, that is the beginning Capital Adequacy Ratio minus lagged beginning Capital Adequacy Ratio.

3.2.2. Loan Loss Provision Model

We built the loan loss provision model based on Balakrishnan et al. (2016). Their sample consists of publicly-traded non-financial firms, so they used the investments measured as capital expenditures as a dependent variable. We are inspired by Balakrishnan et al. (2016) model, and we establish our model by replacing the investments variable with total loans, which are more explanatory for our sample and research design.

We predict that the timeliness of loan loss recognition is likely to mitigate the decline in the supply of bank loans in post-crisis periods. We assume that banks with less conservative accounting policies recognize larger loan loss provisions in crisis periods. For this model (2), we run the Hausman test prob>chi^2 value (0,0000) < 0,05 is significant, and similarly with the model (1), we use fixed effects regression in this model. Our regression model on loan loss provision is as follows:

$$LOAN_{i,t} = \beta_0 + \beta_1 AFTER_{i,t} + \beta_2 AFTER_{i,t} * PROVISION_{i,t} + \beta_3 Size_{i,t} + \beta_4 ROA_{i,t} + \varepsilon_{i,t} \quad (2)$$

where $LOAN_{i,t}$ refers to the total loans divided by the total assets of the fiscal year-end t, $AFTER_{i,t}$ is an indicator variable equal to one for the years 2002, 2003, 2004, and 2005 (2009, 2010, 2011 and 2012) for the years between 1999 and 2008 (2006 and 2015), and zero otherwise, $AFTER_{i,t}$ *$PROVISION_{i,t}$ is an interaction variable of crisis period and loan loss provisions level, $SIZE_{i,t}$, the natural log of lagged total assets at the end of the fiscal year and $ROA_{i,t}$, return on assets (Profit before tax to total assets). $PROVISION_{i,t}$ is a measure of conservatism calculated by loan loss provision divided by lagged total loans.

3.2.3. Sustainability Reporting Model

Our sustainability reporting model is based on Burke et al. (2020) study. Khan and Watts' (2009) firm-year measure of conditional conservatism scores and KLD sustainability scores are used in the main regression model of Burke (2020). Although our study is motivated by this model and adapted to the Turkish banking industry, we used loan loss provision for the measure of accounting conservatism, and we calculated weighted sustainability scores for our sample.

In the relationship between sustainability reporting and conservatism, we predict that sustainability reporting reduces the demand for accounting conservatism. For this model (3) we run the Hausman test prob>chi^2 value (0,1530) > 0,05 is insignificant and the results of Breusch and Pagan Lagrangian multiplier test Prob > Chi^2 (0,0000) < 0,05 that is significant, so we use random-effects regression in this model. Our regression model on sustainability is as follows:

$$PROVISION_{i,t} = \beta_0 + \beta_1 SUS_{i,t-1} + \beta_2 CAP_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 ROA_{i,t} + \varepsilon_{i,t} \quad (3)$$

where $PROVISION_{i,t}$ is the measure of conservatism level calculated by loan loss provision divided by lagged total loans. $SUS_{i,t-1}$ refers to the sustainability score that we calculate by weighting the following indicators: coverage by the BIST Sustainability Index * 0,60, GRI based reporting * 0,20, CDP disclosures * 0,20. The control variables are $CAP_{i,t}$, capital adequacy ratio (Capital to Risk-Weighted Assets), $SIZE_{i,t}$, the natural log of total assets at the end of the fiscal year, and $ROA_{i,t}$, return on assets (Profit before tax to total assets).

4. DESCRIPTIVE STATISTICS AND PEARSON CORRELATIONS

In this part of our study, we practice descriptive statistics to accomplish the research and justify the hypotheses. Hence, we first show the mean values and standard deviation values of the lending changes model variables, the loan loss provision model, and the sustainability reporting model. Then, we present

the Pearson Correlations results between the dependent variable and independent variables of each model.

4.1. Descriptive Statistics

In terms of summary statistics, Table 2 shows the mean and standard deviation values of the lending changes model (1) on the association between lending and capital adequacy ratio for the overall period, crisis periods, and expansion periods. Table 1 shows that the mean of capital adequacy ratio has the highest value in expansion periods with 32,84%. The mean of capital adequacy ratio in the crisis periods is 29,73%. As we highlighted in the capital crunch theory, credit contractions and capital market imperfections during the crisis periods affect the capital adequacy ratio (Beatty and Liao 2011, Bernanke and Lown 1991). Therefore, our results are similar to the literature. The possible capital constraints in the future periods may cause banks to reduce their lending during the recession.

Table 2. Descriptive Statistics for Lending Changes Model (1)

Variables	**Overall Periods**		**Crisis Periods**		**Expansion Periods**	
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
Δ*LOAN*	20,6681	2,434896	18,3692	1,667637	19,53596	2,108454
CRISIS	0,1771654	0,3821849	1	0	0	0
CAP	0,2775146	0,3556354	0,2973594	0,1970846	0,3284992	0,456072
*CAP*CRISIS*	0,0396734	0,121835	0,2973594	0,1970846	0	0
Δ*UNEMPLOY*	0,0479229	0,1250721	0,2259208	0,0878443	0,110369	0,0956589
SIZE	9,804362	1,006184	8,897879	0,7337174	9,350752	0,7905089
ROA	0,026134	0,0511066	0,0365069	0,1165096	0,0265916	0,0427191
Δ*CAP*	-0,0020502	0,244318	0,0959984	0,1711921	-0,0247898	0,3050744

Variable definition

Δ*LOAN:*	The natural log of the change in the total loans
CRISIS:	Indicator variable equal to one for the years of crisis and zero otherwise
CAP:	The Capital Adequacy Ratio
*CAP*CRISIS:*	An interaction variable of Capital Adequacy Ratio and Crisis
Δ*UNEMPLOY*	The change in the annual unemployment rate
SIZE:	The natural log of lagged total assets
ROA:	Return on assets
Δ*CAP:*	The annual change in Capital Adequacy Ratio

The change in total loans is greater in expansion periods than crisis periods with a mean value of 19,53. The change in the unemployment rate, which has a significant impact on loan demand, is 4,79 % in overall periods, and it is 22,59 % in the crisis period. Beatty and Liao (2011) have reached similar findings for both.

Table 3 shows the mean and standard deviation values of the loan loss provision model (2) for three groups: the overall sample, the sample of banks with total assets lower than 100.000 million Turkish Lira, and banks with total assets higher than 100.000 million Turkish Lira.

Table 3. Descriptive Statistics for the Loan Loss Provision Model (2)

Variables	**Overall Sample**		**Bank size < 100 B**		**Bank size > 100 B**	
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
LOAN	0,4738455	0,2124903	0,4623272	0,2328537	0,4932866	0,1716031
AFTER	0,3720472	0,4838273	0,3667712	0,4826805	0,3809524	0,4869107
*AFTER*PROVISION*	0,0160149	0,0421283	0,0126306	0,030169	0,0216178	0,056291
SIZE	9,804362	1,006184	9,279326	0,7979537	10,67359	0,6501463
ROA	0,026134	0,0511066	0,0282701	0,0615736	0,0225287	0,024698
Variable definition						
LOAN:	The total loans divided by the total assets					
AFTER:	Indicator variable equal to one for the years of after crisis and zero otherwise					
*AFTER*PROVISION*	An interaction variable of crisis period and conservatism level					
SIZE:	The natural log of lagged total assets					
ROA:	Return on assets (profit before tax to total assets)					

The mean of the total loans divided by the total assets is 47,38 %, with a 21,24 % standard deviation in the overall sample. The total loans in total assets of small banks and large banks are 46,23% and 49,32%, respectively. As we mentioned before, there are studies in the literature that use bank size as a distinguishing characteristic (Beatty and Liao 2011; Kishan and Opiela 2006; Kashyap and Stein 2000; Carlson et al. 2013). These studies used criteria such as asset size and capital leverage ratios. Although the studies are divided their samples into such balance sheet characteristics, we only grouped them according to asset size.

Table 4. Descriptive Statistics for the Sustainability Reporting Model (3)

Variables	**Overall Sample (2009-2019)**	
	Mean	**Std. Dev.**
PROVISION	0,0224151	0,0104127
SUS	0,3204082	0,3674822
CAP	0,1621065	0,0256341
SIZE	10,95818	0,5865344
ROA	0,0171234	0,0091843
Variable definition		
PROVISION:	The loan loss provision divided by lagged total loans.	
SUS:	We calculate the sustainability scores by weighting the following indicators: coverage by the BIST Sustainability Index * 0,60, GRI based reporting * 0,20, CDP disclosures * 0,20.	
CAP:	The Capital Adequacy Ratio	
SIZE:	The natural log of lagged total assets	
ROA:	Return on assets (profit before tax to total assets)	

Table 4 shows the mean and standard deviation values of the sustainability reporting model (2) for the overall sample of 9 Listed Turkish Banks. The mean value of the provision for the overall sample is 2,24 % with a 1,04 % of standard deviation. The average of sustainability scores is 32,04% for nine listed deposit banks.

4.2. Pearson Correlation Results

Table 5 shows the pairwise correlation coefficients of the independent and dependent variables of the lending changes model (1). The absolute values of the coefficients are largely below 70%, which means no evidence of a crucial multi-collinearity issue.

Table 5. Pearson Correlations for Lending Changes Model (1)

Variables	ΔLOAN	CRISIS	CAP	CAP*CRISIS	Δ*UNEMPLOY*	SIZE	ROA	Δ*CAP*
ΔLOAN	1	-0,2026***	-0,5077***	-0,2396***	-0,0861*	0,9006***	-0,2193***	-0,0301
CRISIS		1	-0,0050	0,7907***	0,6587***	-0,1474***	0,0177	0,1809***
CAP			1	0,1443***	0,0215	-0,4941***	0,3419***	-0,1453***
CAP*CRISIS				1	0,4815***	-0,1803***	0,0818**	0,2607***
Δ*UNEMPLOY*					1	-0,0017	0,0578	0,1005**
SIZE						1	-0,2104***	-0,0240
ROA							1	0,0680
Δ*CAP*								1

***, **, and * represent 1%, 5% and 10% significance (two-tailed or one-taled as appropriate), respectively.

Table 6 shows the Pearson Correlations of the loan loss provision model (2). The absolute values of the coefficients are largely below 50%, which means no evidence of crucial multi-collinearity issue for the loan loss provision model. *LOAN* and *AFTER*PROVISION* are significantly negatively correlated with 27,05%.

Table 6. Pearson Correlations for Loan Loss Provision Model (2)

Variables	LOAN	AFTER	AFTER*PROVISION	SIZE	ROA
LOAN	1	-0,109**	-0,2705***	0,5067***	-0,2773***
AFTER		1	0,481***	-0,1388***	-0,0202
AFTER*PROVISION			1	-0,0848	0,0098
SIZE				1	-0,2104***
ROA					1

***, **, and * represent 1%, 5% and 10% significance (two-tailed or one-taled as appropriate), respectively.

Table 7 shows the Pearson Correlations of the sustainability reporting model (3). The absolute values of the coefficients are largely below 50%, which means no evidence of crucial multi-collinearity issue for the sustainability reporting model. *SUS* and *SIZE* are significantly positively correlated with 50,83%.

Table 7. Pearson Correlations for the Sustainability Reporting Model (3)

Variables	*PROVISION*	*SUS*	*CAP*	*SIZE*	*ROA*
PROVISION	1	-0,2030**	0,0819	0,0152	-0,1634
SUS		1	-0,2529**	0,5083***	0,0214
CAP			1	-0,1411	0,2099**
SIZE				1	0,3383***
ROA					1

***, **, and * represent 1%, 5% and 10% significance (two-tailed or one-taled as appropriate), respectively.

5. RESULTS

Table 8 presents the empirical results for our Lending Change Model. In the second column, the results of our test of H1 show the negative and significant coefficients on *CRISIS and* Δ*UNEMPLOY*. These results suggest that banks experience a decline in their lending capacity during crisis periods. The coefficient of our control variable Δ*UNEMPLOY* supports this result. In contrast, the results on *CAP*, the interaction between *AFTER* and the *CAP*, and Δ*CAP* are inconsistent with our predictions. Although we predict a positive association between loan supply and these variables, the results of our test provide the negative and significant coefficients on the variables of capital adequacy ratio and its interaction with crisis periods. These results are consistent with those reported in Beatty and Liao (2011). Brei and Schclarek (2013) similarly find a decline in the lending capacity of private banks during the financial crisis. Bruno et al. (2018) show that European banks' loan growth decrease during the 2008 financial crisis. Ivashina and Scharfstein (2010) and Wyplosz (2012) find a significant decrease in loans during the crisis.

Next, we consider whether accounting conservatism improves banks' lending capacity during crisis periods and mitigates the effects of economic downturns. In our Loan Loss Provision Model, based on the studies of Beatty and Liao (2011) and Balakrishnan et al. (2016), we predict that banks with higher conditional conservatism would not need to use greater loan loss provisions when hit by an economic downturn since they recognize loan losses timely and appropriately. Table 9 presents the results of our tests of H2 and H3. Our empirical results are consistent with our predictions. The critical result is the

negative and significant coefficient on the interaction between *AFTER* and *PROVISION*. That is delaying the recognition of loan losses cause greater loan loss provision in an economic downturn.

Table 8. Empirical Results for Lending Change Model (1)

Dependent variable: Δ*LOAN*	
CRISIS	-0,48616*
	(-1,87)
CAP	-3,179595***
	(-7,53)
*CAP*CRISIS*	1,782076**
	(2,22)
Δ*UNEMPLOY*	-0,80392
	(-1,54)
SIZE	1,699851***
	(15,82)
ROA	1,405218
	(0,46)
Δ*CAP*	-1,146611***
	(-3,63)
cons	4,615118***
	(4,15)
R^2 (overall)	0,8442
Method	Fixed Effects

Notes:

***, **, and * represent 1%, 5% and 10% significance (two-tailed or one-tailed as appropriate), respectively. The *t*-statistics are presented in parentheses below the coefficients.

Consequently, conditional accounting conservatism could reduce the adverse effect of the financial crises on the banks' lending capacity. Our findings are consistent with prior literature. Balakrishnan et al. (2016) highlight the contracting benefits of conservative accounting policies during the 2008 financial crisis. Beatty and Liao (2011) show that conservative accounting policies may reduce the deterioration in loan capacity of the banks in downturn periods. Liu and Ryan (1995) find that the banks' lending supply with higher prudent accounting policies would not deteriorate in the crisis periods. On the other hand, Lim et al. (2014) find and interpret that banks that make early loss recognition tend to be more prudent and less pro-cyclical loan pricing behavior. Sanchez et al. (2014) prove that the accounting conservatism policies diminish the decrease of the loan supply during the economic crisis.

In the last two columns of Table 9, we demonstrate the results of our third hypothesis. These results show that the association between lending and accounting conservatism does not differ for small versus large banks. Nevertheless, the slight difference in the negative and significant coefficient on the interaction between *AFTER* and *PROVISION* for small banks and large banks shows that small banks with low conservative accounting policies may suffer a greater deterioration in loan capacity after the financial crisis. Kishan and Opiela (2006) and Kashyap and Stein (2000) work on bank lending policies such as expansionary and contractionary policy. Kishan and Opiela (2006) find that banks with low capital are adversely affected by the contractionary policy. Kashyap and Stein (200) conclude that small banks are more sensitive to these monetary policies and, therefore, to the crisis's effects. Carlson et al. (2013) show that banks with high actual capital ratios had deeper loan growth during the financial crisis. Our findings are consistent with the literature on the sensitivity of small banks to the crises showing that the degree of deterioration in lending capacity due to lower prudent accounting policies would be greater for small banks than for large banks.

Table 9. Empirical Results for Loan Loss Provision Model (2)

Dependent variable: *LOAN*			
	Overall Sample	**Bank size < 100 B**	**Bank size > 100 B**
AFTER	0,0245338*	0,0445975**	-0,012871
	(1,7)	(1,99)	(-0,92)
*AFTER*PROVISION*	-0,7453643***	-0,784555**	-0,628115***
	(-4,36)	(-2,11)	(-5,13)
SIZE	0,1896865***	0,1678047***	0,2171856***
	(16,34)	(9,27)	(20,57)
ROA	0,249487	0,0598329	0,6704091**
	(1,11)	(0,2)	(2,25)
cons	-1,377139***	-1,090547***	-1,809354***
	(-11,84)	(-6,34)	(-15,81)
R^2 *(overall)*	0,2751	0,3966	0,4443
Method	Fixed Effects	Fixed Effects	Fixed Effects

Notes:

***, **, and * represent 1%, 5% and 10% significance (two-tailed or one-tailed as appropriate), respectively. The *t*-statistics are presented in parentheses below the coefficients.

Table 10. Empirical Results for Model (3)

Dependent Variable: PROVISION	
	Period of 2009 and 2019
SUS	-0,0099093***
	(-3,25)
CAP	0,0999781
	(2,38)
SIZE	0,0046069
	(1,53)
ROA	-0,3071191
	(-2,47)
cons	-0,0359221
	(-1,07)
R^2	0,0942
Method	Random Effects
Notes: ***, **, and * represent 1%, 5% and 10% significance (two-tailed or one-tailed as appropriate), respectively. The *t*-statistics are presented in parentheses below the coefficients.	

We finally consider the relationship between sustainability reporting and the demand for accounting conservatism. Inconsistent with our predictions, we find no significant evidence of the relationship between sustainability disclosure and conservatism levels. Table 10 presents the empirical results of our tests of H4.

This sustainability reporting model (3) predicts that sustainability reporting reduces the demand for accounting conservatism. As we mentioned before, prior studies examine the relation between sustainability indicators such as ESG scores, CSR reports, or sustainability performance and firm performance, and they search the situation of sustainability reporting during the financial crisis (Buallay et al. 2020; Garcia-Benau et al. 2013; Herzig et al. 2012). The impacts of sustainability reporting, sustainability disclosure, and sustainability performance on accounting conservatism are also studied by other researchers (Cheng and Kung 2016; Shawn et al. 2009; Burke et al. 2020; Cho et al. 2020). They mostly verify that there is a negative association between accounting conservatism and sustainability

reporting. We assume that a bank's sustainability reporting engagement reduces information asymmetry and leads to less demand for conservatism by outside stakeholders. We test our predictions through an unbalanced panel of 9 deposit banks in 2009-2019 using sustainability scores that we calculate by weighting the three indicators (coverage by the BIST Sustainability Index * 0,60, GRI based reporting * 0,20, CDP disclosures * 0,20). Our empirical results are not consistent with our predictions.

6. CONCLUSION

This paper analyzes accounting conservatism in the Turkish banking sector from two sides; its role in lending capacity and sustainability reporting. We assume that the banking industry has unique characteristics and a pivotal role in the economy. Furthermore, Turkey's 2001 financial crisis and the considerable restructuring process after this crisis make Turkish banks an important example in emerging economies. The 2008 global crisis has also affected the banking industry in Turkey as well as the world. In this context, we firstly investigate whether financial crises deteriorate the banks' lending capacity. Consistent with prior literature (Beatty and Liao 2011; Brei and Schclarek 2013; Bruno et al. 2018; Ivashina and Scharfstein 2010; Wyplosz 2012), we find that banks experience a decline in their lending capacity during the crisis periods.

We next investigate whether accounting conservatism improves the lending capacity of banks during crisis periods. We find evidence on the positive impact of conditionally conservative accounting policies on the supply of bank loans. Our results are consistent with the prior literature asserting that accounting conservatism improving lending capacity and mitigating the effects of the economic downturns (Beatty and Liao 2011; Lim et al. 2014; Sanchez et al. 2014). We contribute to the literature by providing evidence on the negative impact of crisis periods on the banks' loan supply and the positive influence of conservative accounting policies on mitigating the crises' adverse effects.

We further examine the impact of the sustainability reporting on demand for conservatism. Based on studies of Burke et al. (2020) and Cho et al. (2020), we predict that a firm's engagement in sustainability performance and reporting reduces information asymmetry and leads to less demand for conservatism by outside stakeholders. Unfortunately, we find no evidence of the relationship between sustainability reporting and the level of conservatism. There are several reasons for possible error. First, this study is limited by the sample of 9 Turkish Deposit Banks' annual data in the period of 1999-2019. Further studies may use quarterly data to expand the number of observations. Second, the use of more appropriate sustainability scores may increase the explanatory power of the model.

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AUTHORS' CONTRIBUTIONS

Conception/Design of Study- İ.K., D.H.A.; Data Acquisition- D.H.A.; Data Analysis/Interpretation- İ.K., D.H.A.; Drafting Manuscript- İ.K., D.H.A.; Critical Revision of Manuscript- İ.K., D.H.A.; Final Approval and Accountability- İ.K., D.H.A.; Supervision- İ.K.

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