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The Impact of the COVID-19 Pandemic on the Value Relevance of Accounting Information: The Case of Polish Listed Banks

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ABSTRACT

Objective: So far, the research focusing on the assessment of the impact of economic crises on value relevance in banks mainly concerned the global financial crisis, while other crises such as the pandemic were not comprehensively analysed in this regard. The aim of the article was to analyse the impact of COVID-19 pandemic, considered an economic crisis, on the value relevance of banks. The value relevance of earnings, book values, and cash flows was taken into consideration in the research.

Research Design & Methods: Value relevance models with share price as an endogenous variable and accounting variables as exogenous ones were estimated. The impact of the COVID-19 pandemic was captured by using variables' interactions. Panel data models with fixed effects were employed. The sample consisted of Polish listed banks. The analysis period was 2017–2024, semi-annual data were used.

Findings: Generally, positive value relevance was found for earnings and deposits, but not for other book values (equity and loans). The impact of COVID-19 pandemic on the value relevance of book values was significantly negative, while it was not significant for earnings. Such results were partially consistent with the hypotheses developed. Value relevance of operating cash flows was not considered due to the multicollinearity issue.

Implications/Recommendations: The paper provides insight into the drivers of banks' market values and their changes during economic crises from the investor's perspective. Such knowledge could be valuable from the perspective of both investors and bank management.

Contribution: The impact of COVID-19 pandemic on the value relevance of earnings and book values in banks has not been analysed yet. Moreover, the semi-annual data was used, while previous research on value relevance in banks was mostly based on annual or quarterly data.

Article type: original article.

Keywords: value relevance, COVID-19, bank, earnings, book values, cash flow.

JEL Classification: G10, G20, M41.

1. Introduction

It is commonly accepted that values included in the financial statements should be reflected in the share prices of listed companies – e.g., such a relationship is the assumption of fundamental analysis. Referring to Ohlson (1995), assuming a clean surplus relation (that occurs when changes in equity are equal to earnings less dividends), not only dividends, capturing the direct cash flows to shareholders, but also both book values (derived from the balance sheet) and earnings are significant drivers of market valuation. However, whether all values from financial statements are significant or only part of them (major/minor), taking into account i.a. that earnings can be decomposed to operating cash flows and accruals (Burke & Wieland, 2017)? This is the general question addressed in value relevance (VR) research.

There are many factors or events that could noticeably affect the relationship between accounting and market values (i.e., value relevance). One might wonder, whether recent economic crises or shocks are among them. Such an issue seems to be significant, as the crisis outbreak noticeably affects financial markets – it often results in a decline in share prices associated with greater market volatility (Izzeldin *et al.*, 2023). Taking it into account, the VR of accounting information seems to be significantly affected by the economic crises. Despite the fact that such crises are often perceived as financial ones, they also result from other macroeconomic shocks, such as the pandemic. It is also worth noting that among entities mostly affected by economic crises, there are especially financial institutions.

So far, several studies regarding the impact of the COVID-19 pandemic on VR have already been developed as well as some research concerning the influence of economic crises on VR in banks. However, to the author's best knowledge, there are no studies focused on the impact of the COVID-19 pandemic on VR (of earnings and book values) in banks. Therefore, the purpose of the article was to verify whether the COVID-19 pandemic, considered the most recent economic crisis, significantly affected the value relevance in banks. Such research seems to

be purposeful as it can provide some insight into whether the accounting factors significantly affecting the market value of banks are still valid during economic crisis periods.

The research hypotheses concerned especially earnings and book values in terms of the impact of the COVID-19 pandemic on their VR. To verify them, panel data models were employed. The sample selected for this purpose consisted of Polish listed banks. The period 2017–2024 (using semi-annual data) was taken into account in the research.

Based on the results obtained, a significant negative impact of the COVID-19 pandemic on VR of book values was found, however, such an influence was not significant in the case of earnings. Hence, it seems that investors perceive banks' earnings value relevant even during economic crises, which is not true for book values.

2. Literature Review

2.1. General Remarks

According to the classical view of the company's activity purpose, it is crucial to generate profits. Relating this to the market valuation of companies it could be stated that the better a company performs in terms of earnings, the more expensive are its shares. However, as pointed out within the neoclassical theory, the company should aim to maximise the value for shareholders, i.e. market value of a company itself (Czekaj & Dresler, 2006, p. 14). Hence, still considering earnings a significant driver of a company's value, other market value drivers could also have a noticeable impact on stock prices. According to Ohlson (1995), they are not only dividends (reflecting cash flows to shareholders), but also i.a. book values.

In relation to the stock valuation, value relevance focuses on the relationship between accounting values and market ones. Since accounting values – financial performance measures such as earnings as well as book values capturing equity – are drivers of market equity valuation, the value of a given company might be considered their function. Therefore, the general form of VR models is as follows (Beisland, 2009):

$$MV = f(AV) + \varepsilon, \quad (1)$$

where MV – market value, f – function, AV – accounting values, ε – residuals.

As market values, share prices or returns are usually considered. Among accounting variables, there are categories derived from balance sheet, income statement, and, increasingly, cash flow statement taken into account. According to Beisland (2009), the main areas of VR research concerned: (1) VR of earnings and cash flows, (2) the VR of book values (referring them to the balance sheet), (3) VR and

changes over time and different factors, (4) VR and changes due to the accounting regulations. This work refers to the (3) area, as changes in the VR caused by the occurrence of the COVID-19 pandemic are analysed, but concerning also (1) and (2), as separate VR of earnings, book values, and cash flows were taken into account in the research.

2.2. Value Relevance of Earnings, Book Values and Cash Flows in Banks

It is worth noting that most of the VR research concerns non-financial companies to ensure data comparability (due to the different layout of financial statements of banks and insurance companies in comparison to trade or manufacturing entities). Hence, separate analyses of VR of earnings, book values, and cash flows are made based on the sample of banks only. In Table 1, an extract from some research referring to this subject, included in the Scopus database, is presented.

Table 1. Empirical Research on Value Relevance in Banks

Source	Analysed Countries	Analysed Period	E	BV	CF
Khurana & Kim (2003)	United States of America	1995–1998	x	+	x
Abuzayed, Molyneux & Al-Fayoumi (2009)	Jordan	1993–2004	+	i	x
Dimitropoulos, Asteriou & Koumanakos (2010)	Greece	1995–2004	+	x	+
Agostino, Drago & Silipo (2011)	15 European countries	2000–2006	+	i	x
Anandarajan <i>et al.</i> (2011)	38 countries	1993–2004	+	+	x
Carnevale, Mazzuca & Venturini (2012)	12 eurozone countries	2002–2008	+	+	x
Wang, Yu & Ye (2012)	Taiwan	2002–2010	i	+	x
Beltratti, Spear & Szabo (2013)	Several North American and European countries	2007–2009	+	x	x
Drago, Mazzuca & Trinca Colonel (2013)	12 european countries	2005–2008	i	+	x
Siregar, Anandarajan & Hasan (2013)	United States of America	1999–2008	+	+	x
Carnevale & Mazzuca (2014)	14 European countries	2002–2011	+	+	x
Du, Li & Xu (2014)	United States of America	2008–2009	+	x	x
Elnahass, Izzeldin & Abdelsalam (2014)	Middle East and African countries	2006–2011	+	+	x
Jung (2014)	United States of America	2001–2010	+	+	x
Lu & Mande (2014)	United States of America	2009–2010	+	+	x
Mechelli, Cimini & Mazzocchetti (2015)	27 countries	2009–2012	+	+	x
Chiqueto <i>et al.</i> (2015)	Brasil	2007–2010	x	+	x
Akeem Adetunji (2016)	Nigeria	2004–2012	i	x	x

Table 1 cnt'd

Source	Analysed Countries	Analysed Period	E	BV	CF
Manganaris, Spathis & Dasilas (2016)	15 European countries	1998–2011	+	+	x
Morris, Kang & Jie (2016)	United States of America	2006–2010	+	x	x
Uwuigbe <i>et al.</i> (2016)	Nigeria	2010–2014	+	–	x
Burke & Wieland (2017)	North American countries	2004–2014	x	x	+
Fiechter & Novotny-Farkas (2017)	International bank holding companies	2006–2009	+	+	x
Ahmadi & Bouri (2018)	Tunisia	2010–2015	+	+	x
Ragab & El-Charani (2018)	Egypt, Liban	2013–2016	+	i	i
Ben Rejeb Attia, Lassoued & Sassi (2019)	12 Middle East and African countries	1999–2014	i	x	x
Gao, Li & O'Hanlon (2019)	United States of America	2004–2016	+	+	i
Kim & Yoon (2019)	South Korea	2011–2015	+	+	x
Arraiano (2020)	France, Germany, Italy, the Netherlands, Norway, Spain, the United Kingdom	2001–2013	i	+	x
Bose, Saha & Abeysekera (2020)	Bangladesh	2007–2014	x	+	x
Giner, Allini & Zampella (2020)	France, Germany, Italy, Spain, the United Kingdom	2007–2014	+	+	x
Agbodjo, Toumi & Hussainey (2021)	14 Asian and African countries	2010–2018	+	+	x
Bolibok (2021)	Poland	2009–2020	+	+	x
Hameedi <i>et al.</i> (2021)	Iraq	2011–2018	+	+	x
Pacheco-Ortiz, Rendón-García & Villada-Medina (2021)	Colombia	2001–2018	+	+	x
Marques, Dalmacio & Rezende (2022)	Brasil	2010–2018	+	+	x
Mgammal & Al-Matari (2022)	Saudi Arabia	2014–2018	+	+	x
Abou-el-Sood (2025)	Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates	2018–2021	x	+	i
Mohammad Jadallah, Salim Haddad & Hussein Al Tarawneh (2023)	Jordan	2010–2018	i	i	i
Menezes da Costa Neto <i>et al.</i> (2023)	Brasil	2017–2019	i	i	x
Toumi & Hamrouni (2025)	12 Islamic countries	2012–2019	+	+	x

Notes: E – earnings; BV – book values; CF – cash flows; +/–/i – the positive/negative/insignificant relationship between market values and E, BV, or CF; x – an impact not directly analysed in a given research.

Source: own study, based on literature on the subject.

VR research in banks concerns usually earnings and book values. Referring to Table 1, there seems to be strong evidence that earnings are generally value relevant, similarly in the case of book values. It indicates that investors base their decisions to a significant extent on the accounting data.

The higher the earnings are, the greater is market value of a given bank on average. Such results prove that accruals are properly reflecting the bank's financial situation in the investors' view, and accounting procedures (write-offs etc.) are positively perceived by the market participants. The positive VR of earnings was identified in countries from several continents (Europe, the Americas, Africa, and Asia), moreover, it was found in financial markets at different stages of development (according to the MSCI classification):

- developed markets – United States of America (Du, Li & Xu, 2014; Morris, Kang & Jie, 2016), France, Germany, Italy, Spain, the United Kingdom (Carnevale & Mazzuca, 2014; Giner, Allini & Zampella, 2020),

- emerging markets – Brasil (Marques, Dalmacio & Rezende, 2022), Poland (Bolibok, 2021), South Korea (Kim & Yoon, 2019), Saudi Arabia (Mgammal & Al-Matari, 2022),

- frontier markets – Bangladesh, Pakistan (Toumi & Hamrouni, 2025); Jordan (Abuzayed, Molyneux & Al-Fayoumi, 2009), Tunisia (Ahmadi & Bouri, 2018).

Regarding book values, they seem to be particularly significant in banks due to the relatively low level of equity in financial institutions, in comparison to non-financial entities. VR was empirically confirmed for the book value of equity (e.g., Bose, Saha & Abeysekera, 2020; Pacheco-Ortiz, Rendón-García & Villada-Medina, 2021), as well as loans and deposits (e.g., Khurana & Kim, 2003; Drago, Mazzuca & Trinca Colonel, 2013). In the view of Mechelli, Cimini and Mazzocchetti (2015), regulatory capital is more value relevant than equity – its applicability is not limited to stability maintenance only, but it has also an informative value for investors. Uwuigbe *et al.* (2016) found a significant negative relationship between share prices and book values – this was a unique result in comparison to other research analysed and presented in Table 1. It seems that such an outcome could be at least partially attributed to the market analysed – it was the Nigerian one, which is considered non-developed regarding accessibility, liquidity, and size (MSCI, 2024). This could be referred to Anandarajan *et al.* (2011), who stated that VR was higher for banks operating in: (1) countries with greater requirements regarding financial disclosures, (2) areas, in which the legal environment is more favourable to the banks' owners (shareholders), (3) British-American countries as their regulators require a relatively high level of transparency.

VR of cash flows was analysed recently in significantly less cases compared to the VR earnings and book values. The results regarding cash flows were also mixed

– the positive significant VR of cash flows was identified by Dimitropoulos, Asteriou and Koumanakos (2010) and Burke and Wieland (2017), but inconclusive results were found in other research analysed. Similarly, different results were obtained regarding the comparison of VR between cash flows and earnings. According to Dimitropoulos, Asteriou and Koumanakos (2010), earnings outperformed cash flows in this regard. On the opposite, Ragab and El-Chaarani (2018) found that cash flows were more value relevant than earnings. Such results could indicate that investors do not necessarily focus on banks' cash flows in determining their investment decisions and it is driven i.a. by the differences between individual countries. Moreover, the VR of cash flows varies between banks with different levels of profitability, capital adequacy, and credit risk (Burke & Wieland, 2017). However, more unified results concerned the VR of operating and other cash flows – in the view of Gao, Li and O'Hanlon (2019) and Abou-el-Sood (2025), there were no significant differences between the VR of operating and non-operating cash flows. Hence, it could be assumed that investors take into account only the total cash generated by a bank without valuing the difference between cash flows generated from core business activity from cash generated otherwise. Regarding cash flows, it is worth noting that they could be expressed as earnings less accruals (Burke & Wieland, 2017), which is the approach adopted in this paper.

2.3. The Impact of Crises on Value Relevance

Focusing on the impact of the economic crisis on the VR in banks, the emphasis was put on the global financial crisis, as it was a matter of interest in most of the previous research. The influence of the global financial crisis on the market value of banks was significantly negative according to Chiqueto *et al.* (2015). Similarly, Jung (2014) found a negative impact of the global financial crisis on the VR of earnings and book values. However, a positive impact of the crisis on the VR of unrealised gains/losses on non-agency asset-backed securities was also reported, while insignificant results concerned unrealised gains/losses on other investment securities. On the other hand, Arraiano (2020) found that the VR of book values (equity) increased as a result of the global financial crisis. Moreover, also earnings became more value relevant. However, after the crisis, their impact on market value was negative, while it was insignificant in the pre-crisis period. According to Gao, Li and O'Hanlon (2019), no crucial changes in the VR of earnings and book values were reported, as they were positive and significant in the pre-crisis, crisis, and post-crisis periods. The above-mentioned research proved that there were no unambiguous results regarding the impact of the global financial crisis on the VR in banks. Therefore, it could be supposed that such an impact strongly depends on a given country's specificity, which is supported i.a. by Anandarajan *et al.* (2011).

The next global economic crisis after the financial one was related to the COVID-19 pandemic. Regarding to the banks, it caused i.a.:

- a significant reduction in the performance and stability (Shabir *et al.*, 2023),
- an increased banks' contribution to systemic risk (Yan, Jeon & Wu, 2023),
- contagion effects in financial markets (Iwanicz-Drozdowska *et al.*, 2021),
- increase in expected credit losses and decline in profitability (Hladika, 2021).

Part of the above-mentioned pandemic's effects concerned also entities other than financial institutions. However, the research focused on the COVID-19 pandemic in non-financial entities led to different conclusions regarding VR – there was found both negative (Aljawaheri *et al.*, 2021; Belesis, Kampouris & Karagiorgos, 2022; Liu & Sun, 2022) and positive (Răpan, 2021; Hamid *et al.*, 2022; Sahlian *et al.*, 2024) impact of COVID-19 pandemic on the value relevance. Regarding the impact of the COVID-19 pandemic on VR in banks, only the analysis by Abou-el-Sood (2025) was identified in the literature on the subject. The influence of COVID-19 pandemic on the VR of cash flows was positive in the author's view, which is the opposite of the results for earnings (according to the research on non-financial entities). The possible explanation for such results is that the investors, during uncertain times, rely on cash flows as they are considered reflecting the businesses' ability to maintain liquidity in the short term. As it is especially crucial for banks, taking into account often liquidity issues and potential "run on banks" during the crisis, it could be more purposeful to focus on cash flows instead of accrual-based earnings (which could be a better predictor of a bank's financial standing in the long term).

3. Research Methodology and Sample

3.1. Research Aim and Hypotheses

Taking into consideration the literature review conducted, the aim of the research was to verify whether the COVID-19 pandemic, considered an economic crisis, significantly affected the value relevance of Polish banks. To examine such impact, research hypotheses were developed. Firstly, basic ones were put to determine whether there is an expected relationship between market value and earnings, book values, and cash flows. They are as follows:

H1: There is a significant, positive value relevance of earnings.

H2: There is a significant, positive value relevance of book values.

H3: There is a significant, positive value relevance of cash flows.

In previous research in the field, similar hypotheses have been confirmed so far i.a. by Carnevale and Mazzuca (2014), Kim and Yoon (2019), Giner, Allini and Zampella (2020) or Bolibok (2021) regarding earnings (H1); Anandarajan *et al.* (2011), Drago, Mazzuca and Trinca Colonel (2013) and Pacheco-Ortiz, Rendón-García and Villada-Medina (2021) regarding book values (H2); Dimitropoulos,

Asteriou and Koumanakos (2010), Burke and Wieland (2017) and Ragab and El-Chaarani (2018) in relation to cash flows (H3).

Further, to verify the specific impact of the COVID-19 pandemic on VR, the following hypotheses were developed:

H4: There was a significant, negative impact of the COVID-19 pandemic on the value relevance of earnings.

H5: There was a significant, negative impact of the COVID-19 pandemic on the value relevance of book values.

H6: There was a significant, positive impact of the COVID-19 pandemic on the value relevance of cash flows.

So far, Belesis, Kampouris and Karagiorgos (2022) and Liu and Sun (2022) confirmed H4, Aljawaheri *et al.* (2021) and Belesis, Kampouris and Karagiorgos (2022) – H5, and Abou-el-Sood (2025) – H6. However, such research focused mainly on non-financial entities.

3.2. Research Sample and Models

The previous empirical research was based on either annual (e.g., Wang, Yu & Ye, 2012; Siregar, Anandarajan & Hasan, 2013; Bolibok, 2021; Menezes da Costa Neto *et al.*, 2023) or interim data (e.g., Du, Li & Xu, 2014; Chiqueto *et al.*, 2015; Morris, Kang & Jie, 2016). In this research, it was decided to use interim data to ensure a larger number of observations. Semi-annual data was selected, as it could be considered quite reliable due to the semi-annual reviews of interim financial statements by the auditors, which applies i.a. to all Polish listed banks. The analysis period covers the first half of 2017 (1h2017) to the first half of 2024 (1h2024) – accounting information from 1h2017–2h2023 was taken into account, while market data from 2h2017 to 1h2024 were included (shifted one period forward). The COVID-19 pandemic period was defined as 1h2020–2h2021.¹ The sample period was chosen due to data availability, as it was taken from the Orbis BvD Info database.

The sample consisted of accounting and market data of several Polish banks listed on the Warsaw Stock Exchange (WSE) – PKO BP SA, Pekao SA, Santander Bank Polska SA, mBank SA, ING Bank Śląski SA, BNP Paribas SA, Millennium Bank SA, Bank Ochrony Środowiska SA, Alior Bank SA and Citi Handlowy SA. Such entities represent the vast majority of banks listed on the WSE.²

¹ Since 1h2020, COVID-19 had spread across Europe and individual governments carried out the first activities to prevent its expansion. In 1h2022, the World Health Organization announced the end of the pandemic – it occurred after several weeks of lower number of COVID-19 cases.

² For instance, as of 20 December 2024, they represented ca. 99.7% (in terms of market value) of WIG-banki index capturing all banks listed on the WSE.

Variables used in the analysis, selected based on the indicators used in the previous research on VR, are presented in Table 2.

Table 2. Description of Variables Used in the Research

Variable	Formula	Sources	Expected Sign
Endogenous variable			
Price	$P_t =$ Share price at the end of a given period	Siregar, Anandarajan & Hasan (2013), Arraiano (2020), Marques, Dalmacio & Rezende (2022)	n/a
Exogenous variables			
Earnings per share	$EPS_t = \frac{\text{Net income}_t}{N_t}$	Abuzayed, Molyneux & Al-Fayoumi (2009), Anandarajan <i>et al.</i> (2011), Bolibok (2021)	+
Operating cash flows per share	$CFOPS_t = \frac{\text{Operating cash flows}_t}{N_t}$	Dimitropoulos, Asteriou & Koumanakos (2010), Burke & Wieland (2017), Gao, Li & O'Hanlon (2019)	+
Accruals per share	$ACCPS_t = EPS_t - CFOPS_t$	Burke & Wieland (2017), Ragab & El-Chaarani (2018)	+
Book value per share	$BVPS_t = \frac{\text{Equity}_t}{N_t}$	Chiqueto <i>et al.</i> (2015), Mechelli, Cimini & Mazzocchetti (2015), Pacheco-Ortiz, Rendón-García & Villada-Medina (2021)	+
Loans per share	$LPS_t = \frac{\text{Total loans}_t}{N_t}$	Khurana & Kim (2003)	+
Deposits per share	$DEPS_t = \frac{\text{Total deposits}_t}{N_t}$	Khurana & Kim (2003)	-
Binary variable regarding COVID-19 occurrence	$COV = \begin{cases} 1 & \text{for pandemic period} \\ 0 & \text{otherwise} \end{cases}$	Abou-el-Sood (2025)	-

Notes: N – number of shares, n/a – not applicable.

Source: own study, based on literature on the subject.

As total earnings could be divided into operating cash flows and accruals (Burke & Wieland, 2017), EPS, ACCPS, and CFOPS were treated as earning-related variables. Book value-related indicators concerned BVPS, LPS, and DEPS.

From the VR-related perspective, it is essential to focus on the relationships between accounting variables and market values. Hence, a correlation matrix was prepared to provide some initial insight into the relationship between share prices and exogenous variables as well as the correlation between accounting indicators themselves, which is presented in Table 3.

Table 3. Correlation Matrix

Variable	EPS	BVPS	LPS	DEPS	CFOPS	ACCPS	COV	P _{t+1}
EPS	1.000							
BVPS	0.385	1.000						
LPS	0.273	0.941	1.000					
DEPS	0.206	0.911	0.984	1.000				
CFOPS	0.082	0.244	0.239	0.313	1.000			
ACCPS	0.037	-0.198	-0.207	-0.289	-0.993	1.000		
COV	-0.251	0.032	0.024	0.040	0.107	-0.138	1.000	
P _{t+1}	0.351	0.810	0.745	0.762	0.352	-0.310	-0.103	1.000

Notes: Bold values are significant at $p < 0.05$.

Source: own study.

All variables considered exogenous (apart from COV) were significantly (at $p < 0.05$) correlated with future share prices, which is a positive sign regarding their selection for VR models. The strongest linear relationship between share prices and exogenous variables concerned BVPS, LPS, and DEPS, which could potentially indicate the significant positive VR of book values. The correlation between variables concerning earnings and future share prices was noticeably weaker, but still statistically significant. It is worth noting that a very strong linear relationship concerned CFOPS and ACCPS. As it was negative, it might indicate that – in the long term – negative operating cash flows are compensated by positive accruals and inversely, from the total earnings perspective. Despite such a high correlation, it was decided to include both CFOPS and ACCPS in the same model, as the potential multicollinearity issue was verified in the case of each model developed in the empirical research. Taking the above into account, to verify the hypotheses developed based on the literature review, models (balanced panel data with fixed effects) were employed. Their general forms are presented in Table 4.

The use of panel data models was justified by the structure of the data (firm-year observations) and as it is commonly accepted method within the area of VR research (e.g., Carnevale, Mazzuca & Venturini, 2012; Burke & Wieland, 2017; Ben Rejeb Attia, Lassoued & Sassi, 2019; Agbodjo, Toumi & Hussainey, 2021; Toumi & Hamrouni, 2025).

Table 4. General Forms of the Models Estimated

Model	Formula
[1]	$P_{i,t+1} = \beta_0 + \sum \beta_i \cdot E_{i_t} + \sum \beta_j \cdot BV_{j_t} + \varepsilon_{i_t}$
[2]	$P_{i,t+1} = \beta_0 + \sum \beta_i \cdot E_{i_t} + \sum \beta_j \cdot BV_{j_t} + COV_t + \varepsilon_{i_t}$
[3]	$P_{i,t+1} = \beta_0 + \sum \beta_i \cdot E_{i_t} + \sum \beta_j \cdot BV_{j_t} + \sum \beta_i \cdot E_{i_t} \cdot COV_t + \sum \beta_j \cdot BV_{j_t} \cdot COV_t + \varepsilon_{i_t}$

Notes: E – earnings-related variables, BV – book value-related variables.

Source: own study, based on Ohlson (1995) and Burke & Wieland (2017).

Firstly, models [1] with variables regarding earnings (EPS, ACC, and CFOPS) and book values (BVPS, LPS, DEPS) were built. In the next step [2], a binary variable regarding COVID-19 pandemic was added to the models previously chosen. Finally, interactions between COV and other exogenous variables were included in the models [3].

4. Assessment of the COVID-19 Impact on Value Relevance in Banks – the Results of the Study

Given the specificity of the research proposed, the structure of the variables used is worth knowing. Therefore, descriptive statistics for exogenous variables were estimated. They are presented in Table 5.

Table 5. Descriptive Statistics

Statistic	EPS	CFOPS	ACCPS	BVPS	LPS	DEPS
Mean	1.16	3.96	-2.80	31.12	207.90	256.27
Standard deviation	2.02	16.92	16.88	28.54	197.49	247.06
Variance coefficient	n/a	n/a	n/a	0.92	0.95	0.96
1st quartile	0.17	-1.46	-5.72	8.43	41.35	61.74
Median	0.72	1.67	-1.04	21.23	140.06	170.92
3rd quartile	1.90	6.48	2.17	49.82	357.53	401.65
Minimum	-9.49	-44.23	-107.78	1.03	10.52	12.68
Maximum	8.87	110.43	37.52	104.72	711.41	1,105.65

Notes: n/a – not applicable.

Source: own study.

Variance coefficients for variables based on the balance sheet values (BVPS, LPS, and DEPS) were below one. For earning-related variables (EPS, CFOPS, and

ACCPS), standard deviations were quite high compared to means. However, such a situation is not unexpected as earnings are more volatile than balance sheet values. Over a quarter of CFOPS and a half of ACCPS values were negative, but it was not true for EPS – it seems that negative CFOPS or ACCPS are to some extent compensated, as it was previously supposed based on the correlations between earnings-related variables, which has no direct impact on total earnings. It is also worth noting that means for all exogenous variables were higher than medians (in absolute values), which indicates the existence of significantly higher values of given variables. As during the analysis of descriptive statistics no disturbing results were found, the models [1]–[3] were further developed. The results of their estimation are presented in Table 6.

Table 6. Estimated Models

Variable/Statistic	Model [1.1]	Model [1.2]	Model [1.3]
EPS	11.70 (0.0001)	10.8166 (0.0000)	13.4449 (0.0000)
BVPS	-0.7245 (0.4433)	–	–
LPS	–	0.1986 (0.2949)	–
DEPS	–	–	0.3459 (0.0000)
LSDV R ²	0.8550	0.8556	0.8777
Within R ²	0.1200	0.1235	0.2576
Variable/Statistic	Model [1.4]	Model [1.5]	Model [1.6]
CFOPS	12.0954 (0.0000)	11.1084 (0.0000)	13.3237 (0.0000)
ACCPS	11.3234 (0.0001)	10.3648 (0.0000)	13.0563 (0.0000)
BVPS	-0.7219 (0.4326)	–	–
LPS	–	0.0894 (0.6319)	–
DEPS	–	–	0.3139 (0.0000)
LSDV R ²	0.8637	0.8633	0.8786
Within R ²	0.1725	0.1700	0.2628

Table 6 cont'd

Variable/Statistic	Model [2.1]	Model [2.2]	Model [2.3]
EPS	9.2526 (0.0047)	9.1274 (0.0008)	11.6734 (0.0000)
BVPS	-0.0779 (0.9381)	–	–
LPS	–	0.2730 (0.1460)	–
DEPS	–	–	0.3647 (0.0000)
COV	-19.7867 (0.0757)	-22.9565 (0.0292)	-25.1613 (0.0082)
LSDV R ²	0.8586	0.8609	0.8843
Within R ²	0.1416	0.1558	0.2976
Variable/Statistic	Model [3.1]	Model [3.2]	Model [3.3]
EPS	0.5726 (0.8919)	4.9409 (0.1257)	8.7250 (0.0027)
BVPS	1.9645 (0.0803)	–	–
LPS	–	0.5021 (0.0098)	–
DEPS	–	–	0.4209 (0.0000)
EPS × COV	7.1271 (0.1784)	3.9835 (0.4257)	0.8337 (0.8507)
BVPS × COV	-1.2406 (0.0000)	–	–
LPS × COV	–	-0.1589 (0.0000)	–
DEPS × COV	–	–	-0.1272 (0.0000)
LSDV R ²	0.8717	0.8726	0.8983
Within R ²	0.2211	0.2265	0.3829

Notes: In parentheses, p -values are presented. *, **, *** means respectively: significant at $p < 0.10$, 0.05, 0.01.

Source: own study, using GRETLL.

Referring to models [1.1]–[1.3], earnings were value relevant and positively related to the future share prices of banks. However, their breakdown to operating cash flows and accruals (in models [1.4]–[1.6]) did not lead to any valid conclusions due to the econometric issues – a positive sign of ACCPS variable was noted, which

was not in line with the correlation analysis (where a significant, negative relationship was found between accruals and future share prices). Moreover, the potential multicollinearity issue was supported by the result of the Belsley-Kuh-Welsch test that pointed out a moderately strong interdependence of explanatory variables. Hence, in models [2.1]–[3.3], the focus was on total earnings instead of their breakdown into operating cash flows and accruals. Thus, the hypotheses regarding the VR of operating cash flows could not be credibly verified. Among book value-related variables, only deposits out of BVPS, LPS, and DEPS noted a significant VR, which was positive.

The total impact of the COVID-19 pandemic on VR was found to be negative, as indicated in models [2.1]–[2.3], which was in line with the expected results. Following the pandemic situation, investors might not focus on values from past financial statements. Instead, they made investment decisions based on other non-quantified factors. The influence of the COVID-19 pandemic on VR of earnings and book values was, however, differentiated. Some evidence supporting the hypothesis regarding the noticeable impact of the COVID-19 pandemic on VR of book values was identified (equity, loans and deposits), which was not the case for earnings. These results could indicate that during COVID-19 pandemic, entities investing in Polish listed banks focused to a minor extent on main balance sheet categories, while still taking into account banks' earnings.

Summing up, based on the research on the example of Polish listed banks the following conclusions can be drawn:

- earnings are value relevant and positively related to the future share prices (H1 confirmed),
 - book values are partially value relevant (deposits are value relevant while equity and loans – not) and positively related to the future share prices (H2 partially confirmed),
 - the impact of COVID-19 pandemic on VR of earnings was not significant (H4 rejected),
 - the impact of COVID-19 pandemic on VR of book values was significant and negative (H5 confirmed).
- H3 and H6 were not verified due to the multicollinearity issue concerning operating cash flows and accruals.

The results regarding the level of VR of earnings and book values are generally in line with the findings of Agostino, Drago and Silipo (2011), Uwuigbe *et al.* (2016), Ragab and El-Chaarani (2018), or Ben Rejeb Attia, Lassoued and Sassi (2019). However, they are not fully consistent with the results obtained by Khurana and Kim (2003) – regarding VR of deposits, Abuzayed, Molyneux and Al-Fayoumi (2009) – regarding VR of equity, or Mohammad Jadallah, Salim Haddad and Hussein Al Tarawneh (2023) – regarding VR of earnings. The conclusions based on

the assessment of the impact of the COVID-19 pandemic, considered an economic crisis, on VR coincide with the findings of Chiqueto *et al.* (2015), are partially consistent with those of Jung (2014), Aljawaheri *et al.* (2021) and Belesis, Kampouris and Karagiorgos (2022), but contrary to the results reported by Sahlian *et al.* (2024).

5. Summary and Conclusions

Value relevance research focuses on the relationship between accounting and market values. Due to the specificity of financial statements, separate analyses in this regard are made for non-financial entities, insurance companies, banks, etc. So far, regarding banks, the VR of earnings and book values was generally confirmed, but inconsistent results concerning cash flows were identified. However, as economic crises such as the pandemic significantly affect the financial situation of banks, this research focused on the assessment of the impact of COVID-19 pandemic on VR on the example of such entities.

Based on the sample consisting of Polish listed banks, total earnings were found to be value relevant, similarly as in the previous research on the subject. However, mixed results concerned book values – a significant, positive relationship between deposits per share and future share prices was identified, however, it was not true for equity and loans. Such results indicate that investors rely mainly on earnings and deposits when making investment decisions regarding Polish listed banks. It is worth noting that the VR of earnings was not broken down into VR of operating cash flows and accruals due to econometric issues connected with the models developed.

Referring to the empirical results regarding the COVID-19 pandemic's impact on VR, it was not unambiguous. The pandemic only partially significantly affected VR – while a significant negative influence of the pandemic on VR of book values was identified, no statistically significant changes in the VR of earnings were found. Based on these results, it could be stated that, after the crisis outbreak, investors did not rely on book values as much as they had before the crisis periods. However, they consider earnings reflecting the actual business standing even in uncertain times, referring to the stable VR of this category.

The implications resulting from the study could be perceived from the perspective of both investors and bank management, who might be interested in factors that are crucial in the market valuation of a given bank during the economic crises. Based on the results obtained, as earnings remained value relevant even during crisis periods, it could be for instance expected that share prices of banks maintaining relevant levels of profitability will decline to a lower extent compared to other financial entities.

Among the limitations of the study, a relatively small sample could be mentioned. What is more, the research was based on semi-annual data, which might

significantly affect the results obtained. Regarding future research, it seems that it could be worthwhile to analyse the impact of the outbreak of the war in Ukraine on the VR of earnings or book values. Moreover, focusing on more frequent data (i.e., quarters) might be appropriate as well.

Conflict of Interest

The author declares no conflict of interest.

References

- Abou-el-Sood, H. (2025). The Impact of COVID-19 Pandemic on the Value Relevance of Cash Flows: Evidence from Banks. *International Journal of Emerging Markets*, 20(1), 299–315. <https://doi.org/10.1108/IJOEM-06-2022-0902>
- Abuzayed, B., Molyneux, P., & Al-Fayoumi, N. (2009). Market Value, Book Value and Earnings: Is Bank Efficiency a Missing Link? *Managerial Finance*, 35(2), 156–179. <https://doi.org/10.1108/03074350910923491>
- Agbodjo, S., Toumi, K., & Hussainey, K. (2021). Accounting Standards and Value Relevance of Accounting Information: A Comparative Analysis between Islamic, Conventional and Hybrid Banks. *Journal of Applied Accounting Research*, 22(1), 168–193. <https://doi.org/10.1108/JAAR-05-2020-0090>
- Agostino, M., Drago, D., & Silipo, D. B. (2011). The Value Relevance of IFRS in the European Banking Industry. *Review of Quantitative Finance and Accounting*, 36(3), 437–457. <https://doi.org/10.1007/s11156-010-0184-1>
- Ahmadi, A., & Bouri, A. (2018). The Accounting Value Relevance of Earnings and Book Value: Tunisian Banks and Financial Institutions. *International Journal of Law and Management*, 60(2), 342–354. <https://doi.org/10.1108/IJLMA-11-2016-0131>
- Akeem Adetunji, S. (2016). The Value Relevance of Earnings in the Return–Earnings Relation in the Nigerian Deposit Money Banks. *Cogent Business and Management*, 3(1), 1210276. <https://doi.org/10.1080/23311975.2016.1210276>
- Aljawaheri, B. A. W., Ojah, H. K., Machi, A. H., & Almagtome, A. H. (2021). COVID-19 Lockdown, Earnings Manipulation and Stock Market Sensitivity: An Empirical Study in Iraq. *Journal of Asian Finance, Economics and Business*, 8(5), 707–715. <https://doi.org/10.13106/jafeb.2021.vol8.no5.0707>
- Anandarajan, A., Francis, B., Hasan, I., & John, K. (2011). Value Relevance of Banks: Global Evidence. *Review of Quantitative Finance and Accounting*, 36(1), 33–55. <https://doi.org/10.1007/s11156-010-0170-7>
- Arraiano, I. G. (2020). Is There Value Creation in the Banks Listed in the Dow Jones Sustainability Index Europe? In: B. Díaz Díaz, N. Capaldi, S. O. Idowu, R. Schmidpeter (Eds), *Responsible Business in a Changing World. New Management Approaches for Sustainable Development* (pp. 53–68). Springer. https://doi.org/10.1007/978-3-030-36970-5_4

- Beisland, L. A. (2009). A Review of the Value Relevance Literature. *The Open Business Journal*, 2, 7–27. <https://doi.org/10.2174/1874915100902010007>
- Belesis, N. D., Kampouris, C. G., & Karagiorgos, A. T. (2022). The Effect of COVID-19 on the Value Relevance of European Firms' Financial Statements. *International Journal of Applied Economics, Finance and Accounting*, 14(1), 91–99. <https://doi.org/10.33094/ijaefa.v14i1.661>
- Beltratti, A., Spear, N., & Szabo, M. D. (2013). The Value Relevance and Timeliness of Write-downs during the Financial Crisis of 2007–2009. *International Journal of Accounting*, 48(4), 467–494. <https://doi.org/10.1016/j.intacc.2013.10.008>
- Ben Rejeb Attia, M., Lassoued, N., & Sassi, H. (2019). Financial Reporting Timeliness and the Value Relevance of Earnings: Evidence from Banks in the MENA Countries. *International Trade Journal*, 33(3), 277–301. <https://doi.org/10.1080/08853908.2018.1459212>
- Bolibok, P. (2021). The Impact of Social Responsibility Performance on the Value Relevance of Financial Data in the Banking Sector: Evidence from Poland. *Sustainability*, 13(21), 12006. <https://doi.org/10.3390/su132112006>
- Bose, S., Saha, A., & Abeysekera, I. (2020). The Value Relevance of Corporate Social Responsibility Expenditure: Evidence from Regulatory Decisions. *Abacus*, 56(4), 455–494. <https://doi.org/10.1111/abac.12207>
- Burke, Q. L., & Wieland, M. M. (2017). Value Relevance of Banks' Cash Flows from Operations. *Advances in Accounting*, 39, 60–78. <https://doi.org/10.1016/j.adiac.2017.08.002>
- Carnevale, C., & Mazzuca, M. (2014). Sustainability Report and Bank Valuation: Evidence from European Stock Markets. *Business Ethics*, 23(1), 69–90. <https://doi.org/10.1111/beer.12038>
- Carnevale, C., Mazzuca, M., & Venturini, S. (2012). Corporate Social Reporting in European Banks: The Effects on a Firm's Market Value. *Corporate Social Responsibility and Environmental Management*, 19(3), 159–177. <https://doi.org/10.1002/csr.262>
- Chiqueto, F., Silva, R. L. M., Colossal, G., & Carvalho, L. N. G. (2015). Relevance of Fair Value of Brazilian Banks Securities in the Financial Crisis. *International Journal of Emerging Markets*, 10(4), 684–696. <https://doi.org/10.1108/IJoEM-11-2012-0150>
- Czekaj, J., & Dresler, Z. (2006). *Zarządzanie finansami przedsiębiorstw. Podstawy teorii*. Wydawnictwo Naukowe PWN.
- Dimitropoulos, P. E., Asteriou, D., & Koumanakos, E. (2010). The Relevance of Earnings and Cash Flows in a Heavily Regulated Industry: Evidence from the Greek Banking Sector. *Advances in Accounting*, 26(2), 290–303. <https://doi.org/10.1016/j.adiac.2010.08.005>
- Drago, D., Mazzuca, M., & Trinca Colonel, R. (2013). Do Loans Fair Value Affect Market Value? Evidence from European Banks. *Journal of Financial Regulation and Compliance*, 21(2), 108–120. <https://doi.org/10.1108/13581981311315532>
- Du, H., Li, S. F., & Xu, R. Z. (2014). Adjustment of Valuation Inputs and Its Effect on Value Relevance of Fair Value Measurement. *Research in Accounting Regulation*, 26(1), 54–66. <https://doi.org/10.1016/j.racreg.2014.02.005>

- Elnahass, M., Izzeldin, M., & Abdelsalam, O. (2014). Loan Loss Provisions, Bank Valuations and Discretion: A Comparative Study between Conventional and Islamic Banks. *Journal of Economic Behavior and Organization*, 103, 160–173. <https://doi.org/10.1016/j.jebo.2013.08.018>
- Fiechter, P., & Novotny-Farkas, Z. (2017). The Impact of the Institutional Environment on the Value Relevance of Fair Values. *Review of Accounting Studies*, 22(1), 392–429. <https://doi.org/10.1007/s11142-016-9378-7>
- Gao, Z., Li, W., & O’Hanlon, J. (2019). The Informativeness of U.S. Banks’ Statements of Cash Flows. *Journal of Accounting Literature*, 43(1), 1–18. <https://doi.org/10.1016/j.acclit.2019.03.001>
- Giner, B., Allini, A., & Zampella, A. (2020). The Value Relevance of Risk Disclosure: An Analysis of the Banking Sector. *Accounting in Europe*, 17(2), 129–157. <https://doi.org/10.1080/17449480.2020.1730921>
- Hameedi, K. S., Al-Fatlawi, Q. A., Ali, M. N., & Almagtome, A. H. (2021). Financial Performance Reporting, IFRS Implementation, and Accounting Information: Evidence from Iraqi Banking Sector. *Journal of Asian Finance, Economics and Business*, 8(3), 1083–1094. <https://doi.org/10.13106/jafeb.2021.vol8.no3.1083>
- Hamid, A., Angel Lorita, V., Ria Panggabean, R., & Rusgowanto, F. H. (2022). The Relevancy of Earnings on Post XBRL Adoption for Indonesia Firm Value with Environmental, Social and Governance (ESG) as Moderating Variable. In: *Proceedings of DSDE ‘22: 2022 the 5th International Conference on Data Storage and Data Engineering* (pp. 97–101). Association for Computing Machinery. <https://doi.org/10.1145/3528114.3528130>
- Hladika, M. (2021). Impact of COVID-19 Pandemic on the Loans Quality, Provisions and Profitability of the Banking Sector. In: J. Janjusevic, T. Taheri, M. Kozina (Eds), *Proceedings of the 69th International Scientific Conference on Economic and Social Development – Sustainability and Post COVID World* (pp. 138–149).
- Iwanicz-Drozdowska, M., Rogowicz, K., Kurowski, Ł., & Smaga, P. (2021). Two Decades of Contagion Effect on Stock Markets: Which Events Are More Contagious? *Journal of Financial Stability*, 55, 100907. <https://doi.org/10.1016/j.jfs.2021.100907>
- Izzeldin, M., Muradoğlu, Y. G., Pappas, V., Petropoulou, A., & Sivaprasad, S. (2023). The Impact of the Russian-Ukrainian War on Global Financial Markets. *International Review of Financial Analysis*, 87, 102598. <https://doi.org/10.1016/j.irfa.2023.102598>
- Jung, S. (2014). Value Relevance of Unrealised Gains and Losses on Non-agency Securities. *International Journal of Banking, Accounting and Finance*, 5(4), 418–434. <https://doi.org/10.1504/IJBAAF.2014.067024>
- Khurana, I. K., & Kim, M.-S. (2003). Relative Value Relevance of Historical Cost vs. Fair Value: Evidence from Bank Holding Companies. *Journal of Accounting and Public Policy*, 22(1), 19–42. [https://doi.org/10.1016/S0278-4254\(02\)00084-4](https://doi.org/10.1016/S0278-4254(02)00084-4)
- Kim, H. J., & Yoon, S. S. (2019). Value-relevance of the Regulatory Non-GAAP Adjustments in the Korean Banking Industry. *Asia-Pacific Journal of Accounting and Economics*, 26(1–2), 160–171. <https://doi.org/10.1080/16081625.2019.1546974>

- Liu, G., & Sun, J. (2022). The Impact of COVID-19 Pandemic on Earnings Management and the Value Relevance of Earnings: US Evidence. *Managerial Auditing Journal*, 37(7), 850–868. <https://doi.org/10.1108/MAJ-05-2021-3149>
- Lu, H.-Y., & Mande, V. (2014). Factors Influencing Non-compliance with ASU 2010-06 in the Banking Industry. *Managerial Auditing Journal*, 29(6), 548–574. <https://doi.org/10.1108/MAJ-08-2013-0928>
- Manganaris, P., Spathis, C., & Dasilas, A. (2016). How Institutional Factors and IFRS Affect the Value Relevance of Conservative and Non-conservative Banks. *Journal of Applied Accounting Research*, 17(2), 211–236. <https://doi.org/10.1108/JAAR-09-2014-0094>
- Marques, M. T., Dalmacio, F. Z., & Rezende, A. J. (2022). IFRS vs Bacen Gaap: Accounting Information's Value Relevance of the Brazilian Financial Institutions. *Brazilian Business Review*, 19(1). <https://doi.org/10.15728/bbr.2022.19.1.1>
- Mechelli, A., Cimini, R., & Mazzocchetti, F. (2015). Is Regulatory Capital More Value Relevant Than Book Value of Equity? A Cross-country Analysis. *Applied Economics Letters*, 22(11), 900–903. <https://doi.org/10.1080/13504851.2014.985368>
- Menezes da Costa Neto, A., de Oliveira, A. F., da Silva, A. M. C., & Barbosa, A. (2023). Value Relevance of Financial Risk Disclosures. *Journal of Capital Markets Studies*, 7(1), 22–37. <https://doi.org/10.1108/JCMS-06-2022-0024>
- Mgammal, M. H., & Al-Matari, E. M. (2022). Sustainability Report Disclosure Moderating Effect on Investment Decision, Financial Accounting Variables and Share Price Relationship: A Case of Saudi Arabia. *Contaduría y Administración*, 67(3), 210–237. <https://doi.org/10.22201/fca.24488410e.2022.3075>
- Mohammad Jadallah, O., Salim Haddad, F., & Hussein Al Tarawneh, A. (2023). The Value Relevance of Accounting and Financial Information in Stock Returns: The Case of Jordanian Commercial Banks. *Jordan Journal of Business Administration*, 19(4), 461–472. <https://doi.org/10.35516/jjba.v19i4.1427>
- Morris, R. D., Kang, H., & Jie, J. (2016). The Determinants and Value Relevance of Banks' Discretionary Loan Loss Provisions during the Financial Crisis. *Journal of Contemporary Accounting and Economics*, 12(2), 176–190. <https://doi.org/10.1016/j.jcae.2016.07.001>
- MSCI. (2024). *MSCI Market Classification*. Retrieved from: <https://www.msci.com/our-solutions/indexes/market-classification> (accessed: 27.01.2025).
- Ohlson, J. A. (1995). Earnings, Book Values, and Dividends in Equity Valuation. *Contemporary Accounting Research*, 11(2), 661–687. <https://doi.org/10.1111/j.1911-3846.1995.tb00461.x>
- Pacheco-Ortiz, D. M., Rendón-García, J. F., & Villada-Medina, H. D. (2021). The Effect of IFRS Adoption on the Value Relevance of Accounting Information: The Case of Colombian Banks. *Recta*, 22(2), 77–90. <https://doi.org/10.24309/RECTA.2021.22.2.03>
- Ragab, N. S., & El-Chaarani, H. (2018). The Value-relevance of Operating Cash Flow: Comparative Study of Banks' Listed on the Egyptian and Beirut Stock Exchanges. *Academy of Accounting and Financial Studies Journal*, 22(3), 1–12.

- Răpan, C. M. (2021). Value Relevance of Comprehensive Income and Other Comprehensive Income during Pandemic Outbreak COVID-19: Empirical Evidence from Frankfurt Stock Exchange. In: *Proceedings of the 16th International Conference Accounting and Management Information Systems AMIS 2021* (pp. 101–113). Bucharest University of Economic Studies, Faculty of Accounting and Management Information Systems.
- Sahlian, D. N., Popa, A. F., Banța, V. C., Răpan, C. M., & Chiriac, S. C. V. (2024). The Value Relevance of Financial Performance and ESG Scores during Tumultuous Economic Periods. *Eastern European Economics*, 62(4), 528–546. <https://doi.org/10.1080/00128775.2023.2225500>
- Shabir, M., Jiang, P., Wang, W., & Işık, Ö. (2023). COVID-19 Pandemic Impact on Banking Sector: A Cross-country Analysis. *Journal of Multinational Financial Management*, 67, 100784. <https://doi.org/10.1016/j.mulfin.2023.100784>
- Siregar, D., Anandarajan, A., & Hasan, I. (2013). Commercial Banks and Value Relevance of Derivative Disclosures after SFAS 133: Evidence from the USA. *Review of Pacific Basin Financial Markets and Policies*, 16(1), 1350004. <https://doi.org/10.1142/S0219091513500045>
- Toumi, K., & Hamrouni, A. (2025). Islamic Corporate Governance Quality and Value Relevance of Accounting Information in Islamic Banks. *Journal of Financial Reporting and Accounting*, 23(6), 2296–2322. <https://doi.org/10.1108/JFRA-04-2023-0183>
- Uwuigbe, O. R., Uwuigbe, U., Jafaru, J., Igbino, E. E., & Oladipo, O. A. (2016). Value Relevance of Financial Statements & Share Price: A Study of Listed Banks in Nigeria. *Banks and Bank Systems*, 11(4), 135–143. [https://doi.org/10.21511/bbs.11\(4-1\).2016.04](https://doi.org/10.21511/bbs.11(4-1).2016.04)
- Wang, D. H. M., Yu, T. H. K., & Ye, F. R. (2012). The Value Relevance of Brand Equity in the Financial Services Industry: An Empirical Analysis Using Quantile Regression. *Service Business*, 6(4), 459–471. <https://doi.org/10.1007/s11628-012-0156-8>
- Yan, Y., Jeon, B. N., & Wu, J. (2023). The Impact of the COVID-19 Pandemic on Bank Systemic Risk: Some Cross-country Evidence. *China Finance Review International*, 13(3), 388–409. <https://doi.org/10.1108/CFRI-08-2022-0158>