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Streszczenia

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VALUE RELEVANCE OF IMPAIRMENT PROVISIONS IN THE POLISH BANKING SECTOR

ZNACZENIE ODPISÓW AKTUALIZUJĄCYCH Z TYTUŁU UTRATY WARTOŚCI I REZERW DLA WARTOŚCI RYNKOWEJ W POLSKIM SEKTORZE BANKOWYM

Summary: The paper aims at empirical evaluation of the value relevance of impairment provisions reported by commercial banks listed on the Warsaw Stock Exchange over the period 1998–2013. The examined sample covered 18 domestically-based banks and included 206 bank-year observations for the data from separate financial statements and 190 bank-year observations for consolidated ones. The key research method employed is a cross-sectional price-deflated linear regression with ordinary least squares estimation. The results of the analysis indicate that impairment provisions reported by the listed banks in Poland are value relevant, and that increases in those provisions are on average priced negatively by equity investors. Moreover, banks' net earnings decomposed into impairment provisions and the residual component reveal incremental explanatory power over the aggregate numbers; however, this effect fades when book value of equity is included as an additional regressor in valuation models.

Keywords: value relevance, banks, impairment provisions, financial reporting.

Streszczenie: Celem artykułu jest weryfikacja empiryczna znaczenia dla wartości rynkowej odpisów aktualizujących z tytułu utraty wartości i rezerw raportowanych przez banki komercyjne z siedzibą w Polsce notowane na Giełdzie Papierów Wartościowych w Warszawie w okresie 1998–2013. Rezultaty przekrojowej, deflowanej ceną, regresji liniowej estymowanej klasyczną metodą najmniejszych kwadratów wskazują, że odpisy aktualizujące z tytułu utraty wartości i rezerwy mają znaczenie dla wartości rynkowej oraz, że wzrosty tych odpisów i rezerw są zwykle wyceniane negatywnie przez inwestorów giełdowych.

Słowa kluczowe: znaczenie dla wartości rynkowej, banki, odpisy aktualizujące z tytułu utraty wartości i rezerwy, sprawozdawczość finansowa.

*You cannot swim for new horizons until you have courage
to lose sight of the shore.*

William Faulkner

1. Introduction

Timely, consistent and reliable accounting information is essential for corporate governance, as it enables proper monitoring of companies' business activities by management, investors and regulators, supporting their decisions. Informational transparency is particularly important in the case of banking industry for it plays a fundamental role in promoting market discipline introduced as the third pillar of the Basel II Framework [Bushman, Williams 2012, p. 2]. Disclosure requirements inherent in market discipline are aimed at allowing market participants to independently monitor and assess the capital adequacy of banks, thus preventing them from excessive risk-taking.

Among many useful pieces of information reported by banks in their financial statements, a key role is played by impairment provisions that primarily reflect the risk characteristics of banks' loan portfolios. The importance of impairment provisions for assessment of banks' financial position and valuation purposes results from the fact that they exert a direct influence not only on the reported values of loans, which usually constitute the largest class of banks' assets, but also on their earnings, equity and regulatory capital.

The aim of this paper is to investigate the impact of reported impairment provisions on the market value of commercial banks in the Polish banking sector. Given the mixed results of international research and an apparent lack of related studies in the context of domestic market, the study attempts to contribute to the existing literature by providing an empirical evidence of the value relevance of banks' impairment provisions from an emerging capital market of Poland.

The remainder of the paper is composed of four sections. Section 2 presents a review of the existing literature on the value relevance of impairment provisions with a particular focus on their impact on banks financial reporting and capital adequacy. Section 3 provides details on the methodological issues of the research, including its design and data selection procedures. Section 4 discusses the obtained empirical results. The paper is closed with a brief recapitulation in Section 5 presenting the key findings of the study and some suggestions for the directions of future research.

2. Literature review

In general, impairment provisions are recognized in banks' accounting ledgers if the estimated present value of expected cash flows from a given contract (e.g. a loan) and its collateral is lower than the current book value of this contract (asset). The

difference is accrued as a loan loss allowance (a contra-asset) that decreases the reported book value of assets and correspondingly diminishes bank's earnings. Currently most accounting principles require that provisions should be based on "objective factors" triggering the impairment, as in the case of the incurred loss model of IAS 39 [Gebhardt, Novotny-Farkas 2010, p. 8]. A more forward-looking approach is the expected loss model introduced in IFRS 9, which implicitly requires recognition of expected credit losses over the following year or, in the case of a significant deterioration of loan's credit quality over its whole lifetime [Knott et al. 2014, p. 10].

Intuitively, as impairment provisions represent losses anticipated from individually impaired assets, they should be valued negatively by bank's equity investors. The results of early studies on the association between impairment provisions and banks' market value in the relevant literature are, however, quite surprising, as they report a positive association between loan loss provisions and bank stock prices [see e.g. Elliot et al. 1991 or Griffin, Wallach 1991].

One of the possible explanations of the above findings might be the fact that the aforementioned studies were based on the data from the periods preceding implementation of the first Basel Accord in the US. Under the regulations at that time, loan loss provisions increased bank's primary capital and adequacy ratios [Ahmed et al. 1999, p. 5]. This in turn might explain a positive reaction of equity investors to rising provisions.

Under the Basel I regulatory framework allowances for loan losses were eliminated from Tier I capital; however, general loan-loss reserves were allowed to count as Tier II capital up to 1.25% of gross risk-weighted assets [Basle Committee on Banking Supervision 1988, Annex 1, D.(c)], which significantly limited possibilities of using the provisions to improve banks' capital adequacy. Further restrictions were established by the Basel II framework, under which general loan-loss reserves might be included in Tier 2 capital (up to the same limit) only by banks using standardized approach to credit risk, while those using internal ratings-based approach could include there only the excess of total eligible provisions over the total expected loss amount, and up to a maximum of 0.6% of credit risk-weighted assets [Basle Committee on Banking Supervision 2006, par. 43].

Another explanation of a positive association between impairment provisions and banks' market value is proposed by Wahlen [1994], who decomposed the provisions reported by the US banks into discretionary (DLLP) and non-discretionary (NLLP) components. While the discretionary component is subject to bank managers' manipulation and dependent on their motivation, the non-discretionary one results from objective events related to default risk, lying beyond management's control. According to Wahlen [1994], bank managers tend to increase DLLP when the future cash flow prospects are improving, which in turn makes equity investors interpret those components as positive information regardless of the fact that provisions reduce banks' current earnings. Therefore, bank managers might use DLLP to convey positive signals regarding future cash flows.

The subsequent studies in the US capital market provided some additional evidence supporting the signaling hypothesis of DLLP. According to Liu and Ryan [1995], loan loss provisions reflect both negative and positive information; however, the negative information is on average pre-empted by other sources of accounting data regarding loan default risk. Moreover, they find a positive market reaction to increased loan loss provisions only for banks with relatively larger and more frequently renegotiated loans. Similarly, Beaver and Engel [1996] document a positive incremental pricing coefficient of discretionary component of allowances for loan impairment and find non-discretionary component to be priced negatively by the capital market.

The results of a study by Liu et al. [1997] indicate, however, that the positive impact of loan impairment provisions on market value and future cash flows is limited only to banks with low regulatory capital that are strongly exposed to loan default risk and occurs only in the last fiscal quarter (when the financial statements are audited).

The findings of Ahmed et al. [1999] further undermine the foundations of the signaling theory indicating that loan loss provisions are negatively related to both future earnings changes and contemporaneous stock returns.

Kanagaretnam et al. [2004] report that bank managers' propensity to signal information through DLLP is greater when their banks are undervalued. Moreover, this propensity is dependent on the degree of informational asymmetry between bank managers and equity investors, as it is associated negatively with bank size and positively with earnings variability, future investment, and degree of income smoothing [Kanagaretnam et al. 2005]. In another study, however, Kanagaretnam et al. [2009] document a higher value relevance of loan loss provision for banks audited by leading audit firms, in particular those with expertise in banking industry, which should mitigate the level of information asymmetry.

Furthermore, the recent study by Lim et al. [2013] provides empirical evidence that the capital market misprices DLLP, as investors are able to make abnormal profits from selling portfolios with the highest DLLP and buying those with the lowest DLLP.

The review of related literature indicates that a vast majority of research on the value relevance of impairment provisions in the banking industry was focused on the US capital market. The evidence in other settings, in particular the emerging capital markets, remains quite scarce [see e.g. Elnahass et al. 2014]. It also appears that to date no study has attempted to address this problem in the context of the Polish banking sector. The above issues were the primary motivation for the present research.

3. Research design

Given broad international evidence indicating that impairment provisions reported by commercial banks are value-relevant for equity investors, the present study at-

tempts to investigate this issue in the context of the Polish capital market. Therefore, bearing in mind a relatively high quality of listed banks' financial reporting and the fact that impairment provisions might serve as a direct proxy of the efficiency of banks' risk management processes, the following hypothesis was formulated:

H1: Impairment provisions provide value-relevant information for equity investors in the Polish banking sector.

A basic intuition is that increases in the amounts of impairment provisions reported by banks are expected to have a negative impact on their market value, as provisions should primarily reflect deterioration in the quality of loan portfolios. Hence, the second hypothesis tested in the present study is:

H2: Increases in banks' impairment provisions are valued negatively by the equity investors.

To capture the impact of impairment provisions on the market value of listed banks and test both aforementioned hypotheses a standard approach based on cross-sectional linear regression analysis with ordinary least squares estimation was employed. To control for the effects of scale that might result in potential estimation problems, like coefficient bias, R^2 bias, and heteroscedasticity [Lo 2005, pp. 5–7], all regressed variables were deflated by the stock price at the beginning of each period.

In the first step of the analysis two simple valuation models were designed to serve as benchmarks:

$$\text{Model 1.: } \frac{P_{it}}{P_{it-1}} = \alpha_0 + \alpha_1 \cdot \frac{EPS_{it}}{P_{it-1}} + \varepsilon_{it},$$

$$\text{Model 2.: } \frac{P_{it}}{P_{it-1}} = \alpha_0 + \alpha_1 \cdot \frac{BVPS_{it}}{P_{it-1}} + \alpha_2 \cdot \frac{EPS_{it}}{P_{it-1}} + \varepsilon_{it},$$

where:
- P_{it} – closing price for bank i at the end of period t;
- α_0 – intercept;
- α_1, α_2 – structural parameters;
- $BVPS_{it}$ – book value per share for bank i at the end of period t,
- EPS_{it} – net earnings per share for bank i in the period $(t-1; t)$,
- ε_{it} – error term.

Next, net earnings in the benchmark models were decomposed, under the assumption of clean surplus accounting, into two broad components: one representing the risk resulting from estimated expected losses (impairment provisions) and the other representing the overall residual profitability of remaining operations. This procedure yielded the following regressions:

$$\text{Model 1A.: } \frac{P_{it}}{P_{it-1}} = \alpha_0 + \alpha_1 \cdot \frac{EBIPPS_{it}}{P_{it-1}} + \alpha_2 \cdot \frac{IPPS_{it}}{P_{it-1}} + \varepsilon_{it},$$

$$\text{Model 2A.: } \frac{P_{it}}{P_{it-1}} = \alpha_0 + \alpha_1 \cdot \frac{BVPS_{it}}{P_{it-1}} + \alpha_2 \cdot \frac{EBIPPS_{it}}{P_{it-1}} + \alpha_3 \cdot \frac{IPPS_{it}}{P_{it-1}} + \varepsilon_{it},$$

where:
- P_{it} – closing price for bank i at the end of period t;
- α_0 – intercept;
- α_1, α_2, α_3 – structural parameters;
- $BVPS_{it}$ – book value per share for bank i at the end of period t,
- $EBIPPS_{it}$ – net earnings before impairment provisions per share for bank i in the period $(t-1; t)$,
- $IPPS_{it}$ – impairment provisions per share for bank i in the period $(t-1; t)$,
- ε_{it} – error term.

Statistically significant estimations of parameters α_2 in Model 1A as well as α_3 in Model 2A would indicate that impairment provisions are value relevant, thus supporting *H1*. Conversely, significant negative values of those estimates would support *H2*. The presence of error terms served for capturing the influence of factors not included in the models.

Finally, incremental explanatory power of decomposed earnings over its aggregate counterpart was assessed through a comparison of adjusted coefficients of determination of Model 1A vs. Model 1 and Model 2A vs. Model 2. Significantly higher values of adjusted coefficients of determination for models with decomposed earnings would provide additional evidence supporting *H1*.

The data used in the analysis covered all the domestically-based commercial banks listed on the Warsaw Stock Exchange over the period 1998–2013. Taking into account the results of mergers and acquisitions, the examined sample comprised of 18 banks. The data from banks' annual financial statements were collected from the Notoria Serwis SA database provided by EMIS Intelligence website [EMIS Intelligence 2014], while the historical stock prices were taken from the database of the Brokerage House of Bank Ochrony Srodowiska SA [BOSSA.PL 2015]. The combined accounting and stock market data yielded final pooled samples of 206 bank-year observations for separate financial statements and 190 for consolidated ones.

4. Results

Table 1 summarizes the regression results of Models 1 and 1A. for separate and consolidated accounting data in the pooled sample.

All performed regressions turned out to be statically significant. Additionally, the values of variance inflation factors did not indicate any serious problems with collinearity. Consistent with expectations, estimated values of parameter α_2 in Model 1A were negative for separate as well as for consolidated accounting data. On avera-

Table 1. Regression results of Models 1 and 1A.

Parameter/ statistic	Accounting data							
	Separate				Consolidated			
	Estimate/ value	Std. error	*p*-value	VIF	Estimate/ value	Std. error	*p*-value	VIF
Model 1.: $\frac{P_{it}}{P_{it-1}} = \alpha_0 + \alpha_1 \cdot \frac{EPS_{it}}{P_{it-1}} + \varepsilon_{it}$								
α_0	1.041	0.037	0.000		1.038	0.041	0.000	
α_1	1.606	0.391	0.000	1.000	1.770	0.455	0.000	1.000
R^2	7.64%				7.45%			
Adj. R^2	7.19%				6.97%			
F-statistic	16.882		0.000		15.155		0.000	
N	206				190			
Model 1A.: $\frac{P_{it}}{P_{it-1}} = \alpha_0 + \alpha_1 \cdot \frac{EBIPPS_{it}}{P_{it-1}} + \alpha_2 \cdot \frac{IPPS_{it}}{P_{it-1}} + \varepsilon_{it}$								
α_0	0.963	0.051	0.000		0.963	0.053	0.000	
α_1	2.041	0.434	0.000	1.288	2.088	0.473	0.000	1.497
α_2	−1.008	0.472	0.034	1.288	−1.026	0.563	0.070	1.497
R^2	9.82%				9.79%			
Adj. R^2	8.93%				8.82%			
F-statistic	11.055		0.000		10.144		0.000	
N	206				190			

Source: own study.

ge, a one-percent increase in impairment provisions resulted in a decrease of annual rate of return on banks' stock by slightly more than one percent. The estimate of parameter α_2 obtained for separate financial statements is statistically significant at the 5% level of significance while the one for consolidated data is significant at 10% (*p*-value of 0.07). The above findings suggest that impairment provisions reported by the listed banks are value relevant and their increases are priced negatively by the equity investors in the Polish capital market, which supports both hypotheses (*H1* and *H2*) formulated in the present study.

Decomposition of net earnings into impairment provisions and the residual component improved the descriptive power of the model, as the adjusted coefficients of determination were higher for Model 1A in the case of both separate and consolidated financial data by 1.74 p.p. and 1.85 p.p., respectively. This in turn might suggest that decomposed earnings are more value-relevant than the aggregate measures.

Next, analogous estimations were carried out for Models 2 and 2A (see Table 2).

Table 2. Regression results of Models 2 and 2A

Parameter/ statistic	Accounting data							
	Separate				Consolidated			
	Estimate/ value	Std. error	p-value	VIF	Estimate/ value	Std. error	p-value	VIF
Model 2.: $\frac{P_{it}}{P_{it-1}} = \alpha_0 + \alpha_1 \cdot \frac{BVPS_{it}}{P_{it-1}} + \alpha_2 \cdot \frac{EPS_{it}}{P_{it-1}} + \varepsilon_{it}$								
α_0	0.797	0.067	0.000		0.793	0.074	0.000	
α_1	0.375	0.087	0.000	1.062	0.377	0.096	0.000	1.028
α_2	1.202	0.387	0.002	1.062	1.481	0.444	0.001	1.028
R^2	15.42%				14.53%			
Adj. R^2	14.59%				13.62%			
F-statistic	18.510		0.000		15.896		0.000	
N	206				190			
Model 2A.: $\frac{P_{it}}{P_{it-1}} = \alpha_0 + \alpha_1 \cdot \frac{BVPS_{it}}{P_{it-1}} + \alpha_2 \cdot \frac{EBIPPS_{it}}{P_{it-1}} + \alpha_3 \cdot \frac{IPPS_{it}}{P_{it-1}} + \varepsilon_{it}$								
α_0	0.786	0.068	0.000		0.772	0.076	0.000	
α_1	0.349	0.093	0.000	1.230	0.343	0.099	0.001	1.106
α_2	1.382	0.456	0.003	1.514	1.690	0.474	0.000	1.590
α_3	−1.020	0.458	0.027	1.288	−1.076	0.548	0.051	1.498
R^2	15.65%				15.25%			
Adj. R^2	14.40%				13.89%			
F-statistic	12.497		0.000		11.160		0.000	
N	206				190			

Source: own study.

In general, introduction of price-deflated book value of equity per share as an explanatory variable improved the descriptive power of each model. Once more all estimated regressions were found to be statistically significant without any problems with collinearity of the regressors. Consistently with *H2*, the estimates of parameter α_3 in Model 2A were negative for both separate and consolidated accounting data. Moreover, in the extended version of the model price-deflated impairment provisions became even more value relevant, as indicated by higher absolute values of regression coefficients and their lower *p*-values compared to the ones for Model 1A.

However, a comparison of adjusted coefficients of determination for Models 2 and 2A reveals that after introduction of price-deflated book value of equity per share as an explanatory variable, incremental explanatory power of decomposed earnings meaningfully diminished. While the adjusted R^2 of Model 2A based on consolidated data was only 0.29 p.p. higher than the one of Model 2, in the case of data from separate financial statements adjusted R^2 was slightly higher for Model 2 (by 0.19 p.p.). These results suggest that book value of equity pre-empties some part of the value-relevant information resultant from the decomposition of earnings.

5. Conclusion

The results of the research indicate that impairment provisions reported by the commercial banks listed on the Warsaw Stock Exchange are value relevant. Consistent with expectations, increases in aggregate impairment provisions reported by examined banks are on average priced negatively by equity investors. This implies that the perception of these accruals by the capital market and financial reporting is generally coherent. The findings also indicate that net earnings decomposed into impairment provisions and the residual component are slightly more value relevant than aggregate numbers; however, this effect fades when deflated book value of equity is included as an additional regressor.

The initial evidence provided by the present study does not suggest that impairment provisions reported by the banks listed on the Polish capital market are used for signaling purposes. However, a thorough analysis of this issue would require further investigation aimed at assessment of the value relevance of both discretionary and non-discretionary components of these provisions. Another interesting research question is whether the mandatory adoption of IFRS in Poland improved the value relevance of impairment provisions. These issues set out some directions of the future research.

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