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Fair value in the measurement of assets and liabilities of selected banks

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Abstract

The main purpose of this article is to determine the impact of changes in the fair value of assets and liabilities on the overall net result of selected banks listed on the Warsaw Stock Exchange. The research covered the consolidated financial statements of five banks, for the years 2014-2018. Methods of analyzing the literature on the subject, financial statements, and legal acts, including selected IFRS, were used. It has been shown that, on the one hand, fair value revaluations have a significant impact on the financial result of the described entities; on the other hand, the fair value in these entities is determined mainly at the 1st level of the hierarchy. This means that the basis for determining the fair value is observable prices on the market, and that the impact of subjective estimates on the financial result is small.

Keywords: bank financial statement, fair value, IFRS.

Streszczenie
Wartość godziwa w wycenie aktywów i zobowiązań wybranych banków

Celem głównym niniejszego artykułu jest ustalenie wpływu zmian wartości godziwej aktywów i zobowiązań na wynik całościowy netto wybranych banków notowanych na Giełdzie Papierów Wartościowych w Warszawie. Badaniami objęto skonsolidowane sprawozdania finansowe pięciu banków za lata 2014-2018. Posłużono się metodami analizy literatury przedmiotu, aktów prawnych, w tym wybranych MSSF oraz analizy sprawozdań finansowych. Wykazano, że z jednej strony przeszacowania wartości godziwej wywierają istotny wpływ na wynik finansowy opisywanych jednostek, z drugiej zaś wartość godziwa w tych podmiotach ustalana jest głównie na pierwszym poziomie hierarchii. Oznacza to, że podstawą wyznaczania wartości godziwej są ceny obserwowalne na rynku, a oddziaływanie subiektywnych szacunków na wynik finansowy jest niewielkie.

Słowa kluczowe: sprawozdanie finansowe banku, wartość godziwa, MSSF.

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Introduction

Measuring the value of assets, liabilities, and, as a result, equity is the most difficult and key task of the accounting system. Following this process correctly is one of the conditions for meeting the requirement of high-quality information presented in financial statements, in particular, the usefulness and fair reflection (Conceptual Framework, 2018). While the 20th century marked the end of accounting dominated by historical cost, the 21st century broadly opened accounting to fair value measurement (Baluch et al., 2011; King, 2008; Seay, Ford, 2010). This category is so important that its measurement mode has been standardized by a separate standard, IFRS13 Fair Value Measurement, issued in 2011 (IFRS, 2014). In the literature on the subject, there has been, and there continues to be, a discussion on the advantages, but also the risks of this valuation basis (King, 2006; Gierusz, 2011; Jaijairam, 2013; Hońko, 2013; Mućko, 2012; Mazur, 2011; Kutera, 2009). Therefore, the following questions arise: To what extent does the fair value measurement shape the image of enterprises in the financial statements? Do companies willingly turn to this method, especially in terms of selection, with historical cost as an alternative?

This article is the third in a series devoted to the scope of using fair value to measure the assets and liabilities of selected entities. In the first publication (Gierusz, Stepnowska, 2018), the consolidated financial statements of 14 capital groups from 2012– 2016 covered by the WIG20 index from 8 industry sectors (except for financial institutions) were analyzed. The study confirmed the thesis that, especially when given a choice, companies continue with historical cost, and that fair value measurement covers only those components of the balance sheet for which the relevant IFRS requires such a valuation basis.

As a result, the impact of changes in the fair value of assets and liabilities on the image of the surveyed enterprises contained in the financial statements was slight. In the second article (Gierusz, Lange, 2019), attention was focused on five capital groups of the development sector listed on the Warsaw Stock Exchange (WSE). Due to the dominant share of investment properties in the balance sheets of the audited companies, and the assumption of fair value as the basis for the valuation of the analyzed investment class, changes in the fair value of these assets had a decisive impact on the operating result of those entities.

The main objective of this article is to determine the impact of revaluations of assets and liabilities measured at fair value on the overall result (including other comprehensive income – ICD) of selected banks. The sub-targets are: (i) to determine the scope of use of fair value for the valuation of assets and liabilities in the analyzed banks, (ii) to examine the methodology for measuring fair value used by the indicated banks, taking into account the structure of balance sheet items measured at individual hierarchy levels, (iii) to completely assess disclosures at fair value in the context of the requirements of IFRS13. The paper analyzes the literature on the subject, the International Financial Reporting Standards, mainly IFRS13 and IFRS 9 “Financial Instruments”, as well as the financial statements of selected entities. Five banks listed on the WSE were included in the research: PKO Bank Polski, mBank, ING Bank Śląski, Bank Millennium, and Alior Bank. The selection of the sample was deliberate – first of all, the diversification of the scale of operations, the amount of revenue and the number of employees, the markets in which each bank operates, the products offered, and the availability of information on methods of measuring fair value as well as the scope of information disclosed on this subject were taken into account. The research covers the years 2014– 2018, i.e., the period after the implementation of IFRS13, which took place on 1st January 2013.

1. The specificity of the banks' assets and liabilities

In accordance with art. 2 of the Act of 29th August 1997 Banking Law (Journal of Laws of 2019, item 2357), "The Bank is a legal person established in accordance with the provisions of the Act, acting on the basis of permits authorizing to perform banking activities risking funds entrusted under any title of return".

A Bank provides services in the field of cash (cash and non-cash), business financing (credits and loans), acceptance of deposits and other deposits as well as accounting records of performed operations (Jankowska, Baliński, 2006, Gwizdała, 2011, Wielogórska-Leszczyńska, 2000). The specificity of banking activity is reflected in the ranking of assets and liabilities, characteristic of these financial institutions (Matten, 2000; Patterson, 1999; Sinkey, 2002; Gierusz, 1999; Szadziewska, 2000; Orechwa-Maliszewska, Worobiej, 2008). Assets include:

1) cash (including required reserves, debt securities eligible for rediscounting at the Central Bank),
2) expenditure (including from the financial, non-financial and budget sectors),
3) debt securities,
4) shares or stocks (including in subsidiaries, jointly controlled entities and associates),
5) other securities and other financial assets,
6) items subject to restrictions (including intangible assets, tangible assets subject to restrictions),
7) other assets (including prepayments and own shares).

Credit exposure is the dominant group among the bank's assets. Due to the fact that their main purpose is to generate cash, they can be regarded as income assets. They include all receivables under loans and advances to other entities, bills of exchange and checks, purchased debts, as well as realized guarantees and other similar debts. In turn, non-profit assets, e.g., tangible fixed assets, cash in hand, and intangible assets, are resources that, although they do not constitute the earning part of assets, they are necessary for the functioning of the bank, and they are often also required by law (Orechwa-Maliszewska, Worobiej, 2008).

A bank's liabilities include:
1) liabilities (including those towards the Central Bank, or the financial, non-financial, budget, and financial instruments sectors),
2) special funds and other liabilities (e.g., to suppliers),
3) costs and revenues settled in time,
4) provisions (including those due to deferred income tax),
5) equity (including share capital: supplementary, revaluation, reserve, profit from previous years).

Liabilities included in the bank's balance sheet are mainly loans and borrowings, as well as deposits obtained. Debt securities are an alternative and much more stable source of financing. As banks participate in trading in financial instruments, in addition to performing standard deposit and credit operations, it enables them to diversify their asset portfolio and thus reduce risk (Iwanowicz-Drozdowska, 2012).

Taking into account the regulations of IFRS 9, IAS 16, and IAS 38 from these balance sheet items, a significant part of them must or may be measured at fair value, as shown in Table 1.

Table 1. Categories of a bank's assets and liabilities measured at fair value

Assets	Liabilities
– receivables under loans, credits, and other receivables – receivables from debt securities – receivables from derivative financial instruments – shares in other entities (optional) – property, plant, and equipment (optional) – intangible assets (optional) – non-current assets held for sale	– liabilities due to loans and borrowings – liabilities due to financial instruments

Source: own study based on International Financial Reporting Standards (2014).

2. Characteristics of the examined banks

In terms of the scope of using fair value for the valuation of assets and liabilities, the analysis considered five banking capital groups listed on the WSE: Powszechna Kasa Oszczędności Bank Polski (PKO BP), mBank, ING Bank Śląski, Bank Millennium and Alior Bank. The characteristics of their activities are included in Table 2.

The Warsaw Stock Exchange is the most important stock exchange in Central and Eastern Europe. It is much smaller than the London Stock Exchange, but comparable to the combined Vienna and Prague Stock Exchanges. In February 2019, capitalization on the WSE amounted to EUR 145.5 billion, while for Vienna and Prague, it amounted to EUR 137.4 billion; turnover in 2018 was EUR 48.3 billion and EUR 40.8 billion, respectively (broker.pl/news).

Table 2. Characteristics of the activities of the surveyed banks

Name	**Description of activity**	**Shareholders as of 31st December 2018**
PKO BP	It was created in 1919. Currently, it is one of the largest financial institutions in Poland and Central and Eastern Europe. It conducts its operations in Poland, and through its subsidiaries, also in Sweden, Ireland, Germany, the Czech Republic, and Ukraine. The parent company, PKO BP, is a universal deposit and credit bank that services natural and legal persons as well as other domestic and foreign entities. In addition to strictly banking operations, the Capital Group also offers specialized financial services, including leasing, factoring, pension funds, investment funds, and insurance. It has been listed on the Warsaw Stock Exchange since 2004	Treasury 29.43% of shares, Nationale Nederlanden OFE 7.64%, Aviva OFE 7.13%, other shareholders 55.8%
mBank	It was created in 1986, originally under the name BRE - Bank Rozwoju Eksportu (Export Development Bank). It is a universal bank serving retail (including private banking), corporate, and institutional clients in Poland, and as part of retail operations within the Czech Republic and Slovakia. mBank provides banking, as well as consulting and advisory services in the field of finance. In addition, it conducts commercial, investment, and brokerage activities, as well as leasing, factoring, and consulting services in the area of capital markets and insurance distribution. It has been listed on the WSE since 1992	Commerzbank 69.33% shares, Nationale Nederlanden OFE 5%, other shareholders 25.67%
ING Bank Śląski	It has been present on the Polish market since 1989. It is a universal bank that provides services to retail clients and business entities. Through its subsidiaries, the ING Bank Śląski Capital Group also conducts activities in the field of leasing, factoring, brokerage and real estate trading, accounting and HR and payroll services, as well as brokerage and financial consulting. The Bank's shares have been listed on the WSE since 1994	ING Bank NV 75% shares, Aviva OFE Aviva Santander 8.25%, other shareholders 16.75%
Bank Millennium	It was created in 1989 as one of the first Polish commercial banks. It deals with both retail clients and enterprises. In addition to standard banking, the Bank Millennium Capital Group	Banco Comercial Portugues SA 50.10% of shares, Nationale Nederlanden OFE 8.66%, OFE PZU, "Złota Jesień"

cont. tab. 2

Name	Description of activity	Shareholders as of 31st December 2018
	provides brokerage, leasing, factoring, and investment fund management services. Bank Millennium was the first bank listed on the WSE – it has been present since 1992	(“Golden Autumn”) 6.29%, Aviva OFE Aviva Santander 5.61%, other shareholders 29.34%
Alior Bank	It was created in 2008. It is a universal deposit and credit bank that supports natural persons, legal entities, and other entities. The bank’s core business includes opening and maintaining accounts, granting loans, issuing securities, and trading foreign exchange values. In addition, the bank conducts brokerage activities and financial consultancy. Alior Bank has been listed on the WSE since 2012	PZU SA 31.91% shares, Aviva OFE Aviva BZ WBK 7.25%, Nationale Nederlanden PTE SA 5.82%, BlackRock 5.66%, other shareholders 49.36%

Source: own study based on annual consolidated financial statements and management reports on the activities of the audited banks for 2014–2018.

The examined banks are important entities for the entire financial services sector in Poland. They provide a full range of typical banking services, including leasing, factoring, insurance, brokerage activities, financial consulting, investment fund management, as well as accounting and payroll services. Their histories are different, however. When our research finished (2018), the banks had been in operation for periods ranging between 12 years (Alior Bank) to over 100 (PKO BP), while they had been present on the stock exchange for between four years (Alior Bank) to 16 years (Bank Millennium and mBank). Shareholders in two of the banks remain focused, allowing them to clearly identify their owner – ING Bank NV has acquired 75% of ING Bank Śląski shares, and Commerzbank holds nearly 70% of mBank shares. In two other banks, nearly half of the shares remain in the hands of other shareholders – in the case of PKO BP, it is 50.8%, and in Alior Bank – 49.36%.

The basic parameters characterizing the size of the described entities – revenues, financial result, balance sheet total, and employment in the years 2014–2018 – are presented in Table 3.

PKO BP remains the largest of the examined capital groups. Between 2014 and 2018, the balance sheet total increased from PLN 248.7 billion (2014) to PLN 324.2 billion (2018). Average annual employment was approximately 28,000 employees, while interest income, as well as fees and commissions, increased from PLN 13.2 billion (2015) to 15.6 billion (2018), with a dynamics of the financial result of 43.4% (from PLN 2.61 billion in 2015 to PLN 3.74 billion in 2018). Alior Bank is the smallest of the entities described. However, the group is characterized by significant growth dynamics measured by an increase in the balance sheet total by 143.4% (from PLN 30.2 billion in 2014 to PLN 73.4 billion in 2018), sales revenues by 105.6% (from PLN 25 billion in 2014 to PLN

4.62 billion in 2018) and the financial result by 121.5% (from PLN 322 million in 2014 to PLN 713 million in 2018).

Table 3. Basic parameters characterizing the size of the surveyed banks, 2014–2018

Bank	Years	Revenues* (PLN million)	Financial result (PLN million)	Balance sheet total (PLN million)	Employment (jobs)
PKO Bank Polski	2014	14,739.5	3,254.1	248,700.6	28,749
	2015	13,256	2,609.5	266,939.9	28,944
	2016	13,544	2,874	285,572.7	29,163
	2017	14,837	3,104	296,912	28,443
	2018	15,636	3,741	324,255	27,856
mBank	2014	5,355.8	1,286.6	117,985.8	6,318
	2015	5,094.4	1,301.2	123,523	6,540
	2016	4,779.3	1,219.2	133,743.5	6,528
	2017	5,711.7	1,091.5	131,424	6,455
	2018	6,159.9	1,316.3	145,750	6,524
ING Bank Śląski	2014	4,893	1,040.7	99,860.7	8,093.9
	2015	4,763	1,127	108,893.1	8,133.7
	2016	5,127	1,253	117,477.7	7,969.6
	2017	5,641	1,403.1	126,013.9	7,979.3
	2018	6,134	1,525.9	141,589.6	8,033.6
Bank Millennium	2014	3,279	650.9	60,740.5	6,108
	2015	3,009	546.5	66,235.3	5,911
	2016	2,975.30	701.2	68,792.8	5,844
	2017	3,198	681.2	71,141.4	5,830
	2018	3,386.1	760.6	80,458.9	6,132
Alior Bank	2014	2,246.6	322	30,167.6	6,637
	2015	2,944.9	309.6	40,003	6,361
	2016	3,529.1	618.2	61,209.5	10,245
	2017	4,429	515.2	69,493.8	8,110
	2018	4,618	713.3	73,419.9	8,228

* Revenue includes interest income and fee and commission income.

Source: own study based on the annual consolidated financial statements and management reports on the activities of the audited banks, 2014–2018.

The assessment of the financial condition of the surveyed banks against the background of the entire banking sector was made using the return on equity and general debt ratios, as shown in Table 4.

Table 4. Return on equity and general debt ratios of the surveyed banks against the background of the entire banking sector, 2014–2018

Bank	Years	Return on equity (ROE)				Total debt ratio (DR)			
		ROE (%)	ROE r/r (p.p.)	ROE_s* (%)	$ROE-ROE_s$ (p.p.)	DR** (%)	DR r/r (p.p.)	RD_s*,** (%)	$DR-DR_s$ (p.p.)
PKO Bank Polski	2014	12.4	–	10.3	+ 2.1	88.90	–	89.14	– 0.24
	2015	9.0	– 3.4	6.8	+ 2.2	88.66	– 0.24	89.13	– 0.47
	2016	9.1	+ 0.1	7.8	+ 1.3	88.60	– 0.06	89.26	– 0.66
	2017	9.0	– 0.1	7.1	+ 1.9	87.79	– 0.81	88.53	– 0.74
	2018	10.0	+ 1.0	7.1	+ 2.9	87.94	+ 0.15	89.13	– 1.19
mBank	2014	13.1	–	10.3	+ 2.8	90.61	–	89.14	+ 1.47
	2015	11.8	– 1.3	6.8	+ 5.0	90.06	– 0.55	89.13	+ 0.93
	2016	10.1	– 1.7	7.8	+ 2.3	90.24	+ 0.18	89.26	+ 0.98
	2017	8.3	– 1.8	7.1	+ 1.2	89.13	– 1.11	88.53	+ 0.6
	2018	9.5	+ 1.2	7.1	+ 2.4	89.56	+ 0.43	89.13	+ 0.43
ING Bank Śląski	2014	11.1	–	10.3	+ 0.8	89.53	–	89.14	+ 0.39
	2015	11.0	– 0.1	6.8	+ 4.2	90.19	+ 0.66	89.13	+ 1.06
	2016	11.7	+ 0.7	7.8	+ 3.9	91.08	+ 0.89	89.26	+ 1.82
	2017	12.6	+ 0.9	7.1	+ 5.5	90.64	– 0.44	88.53	+ 2.11
	2018	12.5	– 0.1	7.1	+ 5.4	90.58	– 0.06	89.13	+ 1.45
Bank Millennium	2014	11.8	–	10.3	+ 1.5	90.51	–	89.14	+ 1.37
	2015	9.1	– 2.7	6.8	+ 2.3	90.27	– 0.24	89.13	+ 1.14
	2016	10.4	+ 1.3	7.8	+ 2.6	89.91	– 0.36	89.26	+ 0.65
	2017	9.3	– 1.1	7.1	+ 2.2	89.07	– 0.84	88.53	+ 0.54
	2018	9.6	+ 0.3	7.1	+ 2.5	89.58	+ 0.51	89.13	+ 0.45
Alior Bank	2014	12.4	–	10.3	+ 2.1	90.01	–	89.14	+ 0.87
	2015	9.5	– 2.9	6.6	+ 2.9	91.22	+ 1.21	89.13	+ 2.09
	2016	12.7	+ 3.2	7.8	+ 4.9	89.87	– 1.35	89.26	+ 0.61
	2017	8.0	– 4.7	7.1	+ 0.9	90.27	+ 0.4	88.53	+ 1.74
	2018	11.7	+ 3.7	7.1	+ 4.6	91.17	+ 0.9	89.13	+ 2.04

* Value of the indicator for the banking sector.
** The presented data are the result of own calculations.

Source: own study based on management board reports on the activities of the surveyed banks and KNF reports on the condition of banks, 2014–2018.

Throughout the analyzed period, all examined banks showed a positive ROE, ranging from 8.0% (Alior Bank, 2017) to 13.1% (mBank, 2014). On average, it was 10.63%. The results of each bank expressed in ROE in the years 2014–2018 were higher than the sector average. This advantage was from 0.8 p.p. (ING Bank Śląski, 2014) up to 5.5 pp (ING Bank Śląski, 2017). ING Bank Śląski performed best against the sector, with ROE exceeding the sector result by nearly 4 pp, on average.

The overall debt ratio of the surveyed banks was around 90%, with a spread from 87.79% (PKO BP, 2017) to 91.22% (Alior Bank, 2015). They were very close to the sector average – the deviation was in the range of –1.19 pp. (PKO BP, 2018) to +2.11 p.p. (ING Bank Śląski, 2017). To sum up, it can be stated that, against the background of the entire sector, the financial situation of the analyzed entities was very good.

3. Impact of changes in the fair value of assets and liabilities on the overall result of the examined banks

Research conducted among development companies (Gierusz, Lange, 2019) shows that the degree of impact of changes in the fair value of individual balance sheet items on the financial result depends on the share of assets and liabilities measured at fair value in the balance sheet total. Therefore, the balance sheet structure of selected banks was analyzed in this respect. The results are presented in tables 5 and 6.

Between 2014 and 2018, the average percentage of assets measured at fair value in the balance sheet total amounted to 20.9%. However, the differences were significant here – from 10.64% (Alior Bank, 2014) to 30.52% (ING Bank Śląski, 2014). A group can be singled out where a clear upward trend was observed. At Bank Millennium, the percentage of assets measured at fair value systematically increased from 17.55% in 2014 to 30.28% in 2018. On the other hand, in mBank, the share dropped from year to year, from 28.5% in 2014 to 20.09% in 2018.

Table 5. Share of assets measured at fair value in the balance sheet total of the examined banks, 2014–2018

Years	PKO Bank Polski		mBank		ING Bank Śląski		Bank Millennium		Alior Bank	
	CAA* (PLN million)	SA** (%)	CAA* (PLN million)	SA** (%)	CAA* (PLN million)	SA** (%)	CAA* (PLN million)	SA** (%)	CAA* (PLN million)	SA** (%)
2014	45,409.8	18.26	33,708	28.57	30,481.6	30.52	10,658.7	17.55	3,209.1	10.64
2015	48,575.9	18.2	34,643.8	28.05	26,631.2	24.46	14,678.4	22.16	4,783.2	11.96
2016	53,839.8	18.85	37,002.8	27.67	26,184.2	22.29	17,687.8	25.71	9,850.9	16.09
2017	54,837	18.47	34,906.3	26.56	20,183.7	16.02	20,456	28.75	12,612.6	18.15
2018	59,312	18.29	29,278.7	20.09	23,180.8	16.37	24,365.1	30.28	7,907.6	10.77

* Carrying amount of assets measured at fair value.
** The share of assets measured at fair value in the balance sheet total.

Source: own study based on the annual consolidated financial statements of the surveyed banks for 2014–2018.

Relatively, the largest part of assets measured at fair value was at mBank (on average 26.19%) and the smallest at Alior Bank (on average 13.52%).

Table 6. The share of liabilities measured at fair value in the balance sheet total of the examined banks, 2014–2018

Years	PKO Bank Polski		mBank		ING Bank Śląski		Bank Millennium		Alior Bank	
	CAL* (PLN million)	SL** (%)	CAL* (PLN million)	SL** (%)	CAL* (PLN million)	SL** (%)	CAL* (PLN million)	SL** (%)	CAL* (PLN million)	SL** (%)
2014	5,663.4	2.28	4,719	4	5,471.8	5.48	1,999.9	3.29	353.8	1.17
2015	4,696.5	1.76	3,173.6	2.57	4,463	4.1	2,458.3	3.71	310.18	0.78
2016	4,197.9	1.47	1,599.2	1.2	3,058.9	2.6	1,477.7	2.15	298.9	0.48
2017	2,740	0.92	1,095.3	0.83	2,413.5	1.92	359.4	0.51	441.3	0.64
2018	3,126	0.96	981.1	0.67	2,076.1	1.47	604.3	0.75	425.8	0.58

* Carrying amount of liabilities measured at fair value.
** The share of liabilities measured at fair value in the balance sheet total.

Source: own study based on the annual consolidated financial statements of the surveyed banks for 2014–2018.

The share of liabilities measured at fair value in the balance sheet total – in relation to the percentage of assets – was much lower. The structure indicator for all analyzed entities for 2014–2018 was 1.85%. The range of changes is from 0.48% (Alior Bank, 2016) to 5.48% (ING Bank Śląski, 2014). Two banks were identified as having a constantly decreasing level of the surveyed indicator. In mBank, it went from 4.0% in 2014 to 0.67% in 2018, while at ING Bank Śląski, it went from 5.48% in 2014 to 1.47 % in 2018. In general, the share of liabilities measured at fair value in the analyzed period fell in all of the analyzed companies, from an average level of 3.24% in 2014 to 0.89% in 2018. Similar results were obtained by Ciecholewska and Sikorska (2019) by analyzing the balance sheet structure of selected Islamic banks.

Table 7. Impact of revaluations of assets and liabilities measured at fair value on the total net result of the examined banks (2014–2018)

Bank	Category (in PLN million)	2014	2015	2016	2017	2018
PKO BP	Revaluation	268.2[a]	191.8[a]	565.81[a]	620.21[a]	454.6[a]
	Result I	3398.7	2649.4	2303.7	3687	4180
	Share (%)	7.89	7.24	24.56	16.82	10.88
	Result II	3130.5	2457.6	2869.5	3066.8	3725.4

Bank	Category (in PLN million)	2014	2015	2016	2017	2018
mBank	Revaluation	343.4[b]	–107[b]	–468.7[b]	171.8[b]	1.6[b.3]
	Result I	1520.8	1187.4	775.1	1260.3	1425.7
	Share (%)	22.58	9.01	60.47	13.63	0.11
	Result II	1177.4	1294.4	1243.8	1088.5	1424.1
ING Bank Śląski	Revaluation	1138.6[d]	–305.1[d]	–587.4[d]	–195.6[d]	1200.6[d]
	Result I	2398.5	743.2	355	1319.1	2205.3
	Share (%)	47.47	41.05	165.46	14.83	54.44
	Result II	1259.9	1048.3	942.4	1514.7	1004.7
Bank Millennium	Revaluation	48.3[e]	188.5[e]	–169.2[e]	171.5[e]	137.1[e]
	Result I	669.2	677.7	498	831.4	854.5
	Share (%)	7.22	27.81	33.98	20.63	16.04
	Result II	620.9	489.2	667.2	659.9	717.4
Alior Bank	Revaluation	97.9[f]	35.3[f]	–15.6[f]	123.1[f]	36.1[f]
	Result I	360.3	302.8	531.2	601.8	740.3
	Share (%)	27.17	11.66	2.94	20.46	4.88
	Result II	262.4	267.5	546.8	478.7	704.2

Revaluation – net revaluation amount (per balance) of assets and liabilities measured at fair value.
Result I – total net result (including revaluation).
% Share – revaluation share in the total net result (Result I).
Result II – total net result without taking into account revaluation.

[a] The value includes the result of financial instruments measured at fair value through profit and loss.
[b] The value includes the result of other trading activities and hedge accounting.
[c] The value includes the result of financial assets and liabilities held for trading, the result of hedge accounting, and the result of financial assets not held for trading, which are compulsorily measured at fair value through profit or loss.
[d] The value includes the result of instruments measured by the profit and loss account and the result of hedge accounting.
[e] The value includes the result of financial instruments measured at fair value through profit and loss.
[f] The value includes the trading result minus the result on currency transactions and revaluation.

Source: own study based on the annual consolidated financial statements of the surveyed banks for 2014–2018.

As a measure of the impact of changes in the fair value of assets and liabilities on the net total result, the share of revaluations in that result was adopted. For the entire surveyed group, the indicator referred to in the years 2014–2018 stood at 26.76%, with extreme values ranging from 0.11% (mBank, 2018) to 165.46% (ING Bank Śląski, 2016). Changes in fair value had the largest impact on the overall net result at ING Bank Śląski in the analyzed period, which was, on average, 64.65%; the lowest was at Alior Bank, at –13.42%

The changes both reduced and increased the overall net result. For example, in ING Bank Śląski in 2016, due to the revaluation of assets and liabilities measured at fair value, the total net result decreased from PLN 942.4 million to PLN 355 million, while in 2018, it increased from PLN 1 billion to 2.2 billion PLN. Similarly, in 2014, it increased from PLN 1.26 billion to nearly PLN 2.4 billion. In mBank, in 2016, the result decreased from PLN 1.24 billion to PLN 775.1 million, while in 2014, it increased from PLN 1.18 billion to PLN 1.52 billion. By adopting the criteria specific to auditing financial statements, we can conclude that the impact of changes in fair value on the total net result of the audited banks was significant.

That is why the answers to the following questions are so important: (i) What categories constituted the basis for determining the fair value of assets and liabilities? (ii) at what level of the hierarchy was measured? (iii) and what disclosures were made by the entities assessed in this respect?

4. Applied methods of measuring fair value

This part of the article examines the entities' procedures for determining fair value. In accordance with the form of data presentation in the financial statements, the methods used have been compiled according to the levels of the fair value hierarchy. It also examines to what extent the valuation is made at each of these levels.

Assets and liabilities classified at the highest level of the hierarchy are valued at the examined banks directly based on unadjusted prices from active markets for the same assets and liabilities. At this level, entities mainly value debt securities, among other government bonds, and some entities also include components such as derivatives or registered preference shares.

At level 2 of the hierarchy, the fair value of assets and liabilities in the entities is determined using appropriate valuation models, and the input data they use are observable on the market directly, as prices, or indirectly, based on prices.

The techniques that the analyzed units use at this level are presented in Table 8.

Table 8. Applied methods of valuating assets and liabilities at level 2 of the hierarchy of fair value in the analyzed banks in 2018

Bank	Methods used
PKO Bank Polski	– discounted future cash flows – the commodity price curve – option pricing models – yield curve and risk margin
mBank	– discounted future cash flows – the bank's internal model
ING Bank Śląski	– discounted future cash flows – Garman–Kohlhagen model, Black model

Bank	Methods used
Bank Millennium	– discounted future cash flows – option pricing models
Alior Bank	– discounted future cash flows – yield curve – option pricing models

Source: own study based on the annual consolidated financial statements of the surveyed banks for 2018.

The methods used by the audited entities to determine fair value at level 3 of the hierarchy are presented in Table 9.

Table 9. Used methods of valuation of assets and liabilities at level 3 of the fair value hierarchy in the analyzed banks in 2018

Bank	Methods used
PKO Bank Polski	– discounted cash flows – yield curve and risk margin – adjusted net assets – estimation of value based on the current value of the projected results of companies – estimating the company’s market value
mBank	– discounted cash flows – market multipliers
ING Bank Śląski	– discounted dividends – discounted cash flows
Bank Millennium	– discounted cash flows – option pricing models
Alior Bank	– yield curve and risk margin – internal model – estimating the company’s market value

Source: own study based on the annual consolidated financial statements of the surveyed banks for 2018.

Table 10 presents the extent to which the entities carry out fair value measurements at each level of the hierarchy.

For the most part, all of the banks value assets and liabilities at the highest level of the hierarchy. This means that fair value is determined directly based on prices from active markets. At the 2nd level of the hierarchy, fair value is measured from 8.52% (mBank) to 25.58% (PKO BP) of assets and liabilities.

Level 3 is the least important – based on unobservable data, the value is determined from 2.28% (ING Bank Śląski) to 14.7% (mBank) of balance sheet items valued at fair value.

Table 10. The share of assets and liabilities measured at fair value at each level of the hierarchy in the analyzed banks as at 31.12.2018 (in %)

Fair value hierarchy		Bank				
		PKO Bank Polski	**mBank**	**ING Bank Śląski**	**Bank Millennium**	**Alior Bank**
Share of valued assets and liabilities*	Level 1	69.57	76.77	87.39	85.39	86.71
	Level 2	25.58	8.52	10.33	8.92	10.75
	Level 3	4.84	14.71	2.28	5.69	2.54
Total		100	100	100	100	100

* The presented data are the result of our own calculations.

Source: own study based on the annual consolidated financial statements of the surveyed banks for 2018.

The data in Table 10 indicate that the subjectivity factor that may accompany the determination of fair value has been significantly reduced in the banks surveyed. Thus, the risk of overstating or understating the value of assets and liabilities presented in the financial statements was minimized.

5. The scope of fair value disclosures in the audited entities

The use of fair value as the basis for valuation entails the obligation to disclose relevant information – requirements in this respect are included in IFRS13 "Fair Value Measurement" (IFRS, 2014), as presented in Table 11.

Table 11. Requirements for fair value disclosures in IFRS 13

Ordinal number	Required disclosures	Reference in IFRS 13
1.	Presentation of the fair value of components measured repeatedly and sporadically at the end of the reporting period	§ 93a
2.	Presentation of hierarchy levels at which fair value measurements have been categorized	§ 93b
3.	Indication of transfers between levels 1 and 2 of the hierarchy, amounts, reasons for transfers, and fixing rules	§ 93c
4.	Description of valuation techniques and input data used to determine fair value at levels 2 and 3 in the hierarchy	§ 93d

Ordinal number	Required disclosures	Reference in IFRS 13
5.	Reconciliation of the opening and closing balance sheet with respect to measurements made at level 3 of the fair value hierarchy, taking into account the changes contained in items 6a, 6b, 6c, shown separately	§ 93e
5a.	Changes in fair value recognized in the income statement or in comprehensive income, resulting from the determination of value at level 3 of the hierarchy	§ 93e
5b.	Changes arising from the sale, purchase, issue, or settlement of components measured at level 3 of the fair value hierarchy	§ 93e
5c.	Changes in transfers from or to level 3 of the fair value hierarchy, reasons for transfers, and the entity's accounting policies	§ 93e
6.	Description of the measurement process at level 3 of the fair value hierarchy, including how the entity decides about the measurement principles and procedures, and how it analyzes changes in fair value in subsequent periods	§ 93g
7.	Showing the sensitivity of fair value to changes in unobservable input data when measuring values classified at level 3 of the hierarchy	§ 93h
8.	Presentation of the fair value hierarchy and description of valuation techniques and input data used to determine the fair value relative to the categories recognized in the financial statements in a different manner than at fair value	§ 97

Source: own study based on the International Financial Reporting Standards No. 13 *Fair Value Measurement* (IFRS, 2014).

Table 11 was used to analyze the scope of fair value disclosures in the financial statements of the banks surveyed – the results are presented in Table 12.

Table 12. Fair value disclosures in the financial statements of the audited banks as at 31.12.2018 as required by IFRS 13

Required disclosures (Table 11)	Compliance with applicable disclosures				
	PKO Bank Polski	mBank	ING Bank Śląski	Bank Millennium	Alior Bank
1.	No	No	No	No	No
2.	Yes	Yes	Yes	Yes	Yes
3.	Indication of no transfer between levels	Indication of no transfer between levels	Indication of no transfer between levels	Indication of no transfer between levels	Indication of no transfer between levels
4.	Yes	Yes	Yes	Yes*	Yes

cont. tab. 12

Required disclosures (Table 11)	Compliance with applicable disclosures				
	PKO Bank Polski	**mBank**	**ING Bank Śląski**	**Bank Millennium**	**Alior Bank**
5.	Yes	Yes	Yes	Yes	Yes
5a.	Yes	Yes	Yes	Yes	Yes
5b.	Yes	Yes	Yes	Yes*	Yes
5c.	Indication of no transfer between levels	Indication of no transfer between levels	Indication of no transfer between levels	Indication of no transfer between levels	Indication of no transfer between levels
6.	No	No	No	No	No
7.	Yes	Yes*	Yes	Yes	Yes
8.	Yes	Yes	Yes	Yes	Yes

* The information has been disclosed in the financial statements, but to a limited extent.

Source: own study based on the annual consolidated financial statements of the surveyed banks for 2018.

Generally, most of the disclosures required by IFRS 13 regarding fair value measurement were included in the financial statements of the audited entities. However, the banks in question did not comply with the obligation to divide the components into ones valued at fair value in a repetitive and sporadic manner, and no precise description of the valuation procedures at level 3 of the hierarchy was provided; among others, no criteria were given for the selection of estimation methods.

Summary

The research proved that all of the five banks surveyed indicated a good financial condition measured by ROE. Each of the units in the analyzed period of 2014–2018 exceeded the average sector level of this measure by – from 0.8 pp (ING Bank Śląski, 2014) up to 5.5 pp (ING Bank Śląski, 2017). The degree of overall debt of the entities was close to the average value for the sector, which was around 90%.

In line with the main goal of the article, it was established that the share of changes in the fair value of assets and liabilities in the total net result of the examined banks in the analyzed period amounted to 26.76%, on average. The differences between the banks were significant here. The highest value of the observed ratio was recorded in ING Bank Śląski, 64.65%, on average, over five years; the lowest was in Alior Bank, at 13.42%. It should be emphasized that changes in fair value both decreased and increased the overall net result. In an extreme case, there was an increase of up to PLN 1.2 billion (ING Bank Śląski, 2018).

In order to achieve the first of the auxiliary objectives of the article, the scope of using the fair value was tested for the valuation of individual balance sheet items of the examined banks. Significant differences were found between the percentage of assets and liabilities measured at fair value. The share of assets was, on average, 20.9%, ranging from 10.64% (Alior Bank, 2014) to 30.52% (ING Bank Śląski, 2014). The share of liabilities measured at fair value in the balance sheet total was much smaller and averaged 1.85%, with changes ranging from 0.48% (Alior Bank, 2016) to 5.48% (ING Bank Śląski, 2014).

As part of the second auxiliary objective, it was shown that in 2018, the surveyed banks were dominated by fair value measurement at level 1 of the hierarchy. These procedures were applied to nearly 70% of assets and liabilities of PKO Bank Polski, to over 87% at ING Bank Śląski. Level 3 was used only in relation to a few percent of the value of observed balance sheet items. This is mainly due to the specificity of the banks' assets, where financial assets measured on active markets prevail. Thus, it can be claimed that the overall result of the entities is determined reliably (at least in the studied area), with very limited use of unobservable data.

In terms of the third auxiliary goal, it was established that the scope of fair value disclosures required by IFRS13 was met by the audited banks in 2018, in addition to presenting the principles for selecting methods for estimating individual categories. Further research in the described area should be aimed at identifying factors that influence the share of changes in fair value in the financial result of business entities.

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