

## BASIC DEFINITIONS

**A/R turnover** (in days) =  $365 / (\text{sales}/\text{average A/R})$   
**Inventory turnover** (in days) =  $365 / (\text{COGS}/\text{average inventory})$   
**A/P turnover** (in days) =  $365 / (\text{COGS}/\text{average A/P})$   
**Current ratio** =  $(\text{current assets} - \text{ST deferred assets})/\text{current liabilities}$   
**Quick ratio** =  $(\text{current assets} - \text{ST deferred assets} - \text{inventory})/\text{current liabilities}$   
**Interest coverage** =  $(\text{pre-tax profit before extraordinary items} + \text{interest payable})/\text{interest payable}$   
**Gross margin** = gross profit on sales/sales  
**EBITDA margin** = EBITDA/sales  
**EBIT margin** = EBIT/sales  
**Pre-tax margin** = pre-tax profit/sales  
**Net margin** = net profit/sales  
**ROE** = net profit/average equity  
**ROA** = (net income + interest payable)/average assets  
**EV** = market capitalization + interest bearing debt – cash and equivalents  
**EPS** = net profit/ no. of shares outstanding  
**CE** = net profit + depreciation  
**Dividend yield (gross)** = pre-tax DPS/stock market price  
**Cash sales** = accrual sales corrected for the change in A/R  
**Cash operating expenses** = accrual operating expenses corrected for the changes in inventories and A/P, depreciation, cash taxes and changes in the deferred taxes

DM BOŚ S.A. generally values the covered non bank companies via two methods: comparative method and DCF method (discounted cash flows). The advantage of the former is the fact that it incorporates the current market assessment of the value of the company's peers. The weakness of the comparative method is the risk that the valuation benchmark may be mispriced. The advantage of the DCF method is its independence from the current market valuation of the comparable companies. The weakness of this method is its high sensitivity to undertaken assumptions, especially those related to the residual value calculation. Please note that we also resort to other valuation techniques (e.g. NAV-, DDM- or SOTP-based), should it prove appropriate in a given case.

## KEY TO INVESTMENT RANKINGS

This is a guide to expected price performance in absolute terms over the next 12 months:

**Buy** – fundamentally undervalued (upside to 12M EFV in excess of the cost of equity) + catalysts which should close the valuation gap identified;  
**Hold** – either (i) fairly priced, or (ii) fundamentally undervalued/overvalued but lacks catalysts which could close the valuation gap;  
**Sell** – fundamentally overvalued (12M EFV < current share price + 1-year cost of equity) + catalysts which should close the valuation gap identified.

This is a guide to expected relative price performance:

**Overweight** – expected to perform better than the benchmark (WIG) over the next quarter in relative terms  
**Neutral** – expected to perform in line with the benchmark (WIG) over the next quarter in relative terms  
**Underweight** – expected to perform worse than the benchmark (WIG) over the next quarter in relative terms

The recommendation tracker presents the performance of DM BOŚ S.A.'s recommendations. A recommendation expires on the day it is altered or on the day 12 months after its issuance, whichever comes first. Relative performance compares the rate of return on a given recommended stock in the period of the recommendation's validity (i.e. from the date of issuance to the date of alteration or – in case of maintained recommendations – from the date of issuance to the current date) in a relation to the rate of return on the benchmark in this time period. The WIG index constitutes the benchmark. For recommendations that expire by an alteration or are maintained, the ending values used to calculate their absolute and relative performance are: the stock closing price on the day the recommendation expires/ is maintained and the closing value of the benchmark on that date. For recommendations that expire via a passage of time, the ending values used to calculate their absolute and relative performance are: the average of the stock closing prices for the day the recommendation elapses and four directly preceding sessions and the average of the benchmark's closing values for the day the recommendation expires and four directly preceding sessions.

*Distribution of DM BOŚ's current recommendations*

	Buy	Hold	Sell	Suspended	Under revision
Numbers	33	39	3	13	0
Percentage	38%	44%	3%	15%	0%

*Distribution of DM BOŚ's current recommendations for the companies which DM BOŚ has supplied with material investment services within the last 12 months*

	Buy	Hold	Sell	Suspended	Under revision
Numbers	2	7	0	3	0
Percentage	17%	58%	0%	25%	0%

*Distribution of DM BOŚ's current market relative recommended weightings*

	Overweight	Neutral	Underweight	Suspended	Under revision
Numbers	33	30	12	13	0
Percentage	38%	34%	14%	15%	0%

*Distribution of DM BOŚ's current market relative recommended weightings for the companies which DM BOŚ has supplied with material investment services within the last 12 months*

	Overweight	Neutral	Underweight	Suspended	Under revision
Numbers	2	5	2	3	0
Percentage	17%	42%	17%	25%	0%

## Banks

**Net Interest Margin (NIM)** = net interest income/average assets  
**Non interest income** = fees&commissions + result on financial operations (trading gains) + FX gains  
**Interest Spread** = (interest income/average interest earning assets)/(interest cost/average interest bearing liabilities)  
**Cost/Income** = (general costs + depreciation)/(profit on banking activity + other net operating income)  
**ROE** = net profit/average equity  
**ROA** = net income/average assets  
**Non performing loans (NPL)** = loans in 'basket 3' category  
**NPL coverage ratio** = loan loss provisions/NPL  
**Net provision charge** = provisions created – provisions released

DM BOŚ S.A. generally values the covered banks via two methods: comparative method and fundamental target fair P/E and target fair P/BV multiples method. The advantage of the former is the fact that it incorporates the current market assessment of the value of the company's peers. The weakness of the comparative method is the risk that the valuation benchmark may be mispriced. The advantage of the fundamental target fair P/E and target fair P/BV multiples method is its independence of the current market valuation of the comparable companies. The weakness of this method is its high sensitivity to undertaken assumptions, especially those related to the residual value calculation. Assumptions used in valuation can change, influencing thereby the level of the valuation. Among the most important assumptions are: GDP growth, forecasted level of inflation, changes in interest rates and currency prices, employment level and change in wages, demand on the analysed company products, raw material prices, competition standing of the main customers and suppliers, legislation changes, etc. Changes in the environment of the analysed company are monitored by analysts involved in the preparation of the recommendation, estimated, incorporated in valuation and published in the recommendation whenever needed.





**LT fundamental recommendation tracker (continued)**

Analyst	Recommendation	Report date	Reiteration date	Distribution date	Expiry date	Performance	Relative performance	Price at issue/reiteration*	EFV (12 months)	
Sobiesław Pajak	- →	-	17.05.2018	18.05.2018	-	-	-	38.00	43.90 ↓	
Sobiesław Pajak	- →	-	29.05.2018	30.05.2018	-	-	-	41.04	43.90 →	
Sobiesław Pajak	- →	-	16.07.2018	17.07.2018	-	-	-	44.00	43.90 →	
Sobiesław Pajak	- →	-	02.08.2018	03.08.2018	-	-	-	45.94	43.90 →	
Sobiesław Pajak	- →	-	30.08.2018	31.08.2018	-	-	-	46.30	43.90 →	
Sobiesław Pajak	- →	-	08.10.2018	09.10.2018	-	-	-	45.06	50.10 ↑	
Sobiesław Pajak	- →	-	11.10.2018	12.10.2018	-	-	-	45.56	50.10 →	
Sobiesław Pajak	- →	-	23.10.2018	24.10.2018	-	-	-	45.86	50.10 →	
Sobiesław Pajak	- →	-	14.11.2018	15.11.2018	-	-	-	45.20	50.10 →	
Sobiesław Pajak	- →	-	09.12.2018	10.12.2018	-	-	-	47.06	49.50 ↓	
Sobiesław Pajak	Hold	→	10.01.2019	-	11.01.2019	08.12.2019	27%	34%	47.96	49.50 →
Sobiesław Pajak	- →	-	04.02.2019	05.02.2019	-	-	-	48.14	49.50 →	
Sobiesław Pajak	- →	-	26.02.2019	27.02.2019	-	-	-	55.60	49.50 →	
Sobiesław Pajak	- →	-	26.03.2019	27.03.2019	-	-	-	52.10	49.50 →	
Sobiesław Pajak	- →	-	22.04.2019	23.04.2019	-	-	-	54.40	57.20 ↑	
Sobiesław Pajak	- →	-	24.04.2019	25.04.2019	-	-	-	55.10	57.20 →	
Sobiesław Pajak	- →	-	16.05.2019	17.05.2019	-	-	-	48.48	54.10 ↓	
Sobiesław Pajak	- →	-	30.05.2019	31.05.2019	-	-	-	52.20	54.10 →	
Sobiesław Pajak	- →	-	10.07.2019	11.07.2019	-	-	-	52.25	59.30 ↑	
Sobiesław Pajak	- →	-	17.07.2019	18.07.2019	-	-	-	56.40	59.30 →	
Sobiesław Pajak	- →	-	30.07.2019	31.07.2019	-	-	-	55.70	59.30 →	
Sobiesław Pajak	- →	-	01.09.2019	02.09.2019	-	-	-	55.95	59.30 →	
Sobiesław Pajak	- →	-	13.10.2019	14.10.2019	-	-	-	51.60	59.30 →	
Sobiesław Pajak	- →	-	24.10.2019	25.10.2019	-	-	-	52.40	59.30 →	
Sobiesław Pajak	- →	-	17.11.2019	18.11.2019	-	-	-	55.85	59.30 →	
Sobiesław Pajak	Buy	↑	08.12.2019	-	09.12.2019	13.04.2020	7%	35%	57.75	66.00 ↑
Sobiesław Pajak	- →	-	09.01.2020	10.01.2020	-	-	-	64.65	66.00 →	
Sobiesław Pajak	- →	-	04.02.2020	05.02.2020	-	-	-	65.60	66.00 →	
Sobiesław Pajak	- →	-	06.02.2020	07.02.2020	-	-	-	67.00	66.00 →	
Sobiesław Pajak	- →	-	03.03.2020	04.03.2020	-	-	-	64.20	66.00 →	
Sobiesław Pajak	- →	-	30.03.2020	31.03.2020	-	-	-	57.05	66.00 →	
Sobiesław Pajak	Hold	↓	13.04.2020	-	14.04.2020	Not later than 13.04.2021	-	-	61.90	60.90 ↓

\* prices at issue/reiteration are the closing prices at the report or reiteration date  
pre-June 2014 recommendations issued at DM IDMSA

*Market-relative recommendation tracker*

Analyst	Relative Recommendation	Report date	Reiteration date	Distribution date	Expiry date	Price at issue/reiteration*	Relative performance
Asseco Poland							
-	Overweight	—	03.02.2008	—	11.01.2009	68.00	28%
-	—	→	—	30.03.2008	—	70.00	-
-	—	→	—	21.04.2008	—	69.35	-
-	—	→	—	29.04.2008	—	64.65	-
-	—	→	—	01.06.2008	—	63.00	-
-	—	→	—	29.06.2008	—	58.15	-
-	—	→	—	11.07.2008	—	51.95	-
-	—	→	—	28.07.2008	—	57.30	-
-	—	→	—	12.08.2008	—	61.10	-
-	—	→	—	31.08.2008	—	62.00	-
-	—	→	—	28.09.2008	—	60.50	-
-	—	→	—	09.10.2008	—	61.70	-
-	—	→	—	29.10.2008	—	45.30	-
-	—	→	—	24.11.2008	—	46.40	-
-	—	→	—	30.11.2008	—	47.98	-
-	Overweight	→	11.01.2009	—	09.10.2009	48.70	-3%
-	—	→	—	14.01.2009	—	45.05	-
-	—	→	—	08.02.2009	—	43.40	-
-	—	→	—	08.03.2009	—	45.50	-
-	—	→	—	05.04.2009	—	45.30	-
-	—	→	—	15.04.2009	—	49.85	-
-	—	→	—	17.05.2009	—	52.00	-
-	—	→	—	08.06.2009	—	56.00	-
-	—	→	—	08.07.2009	—	54.65	-
-	—	→	—	08.07.2009	—	54.20	-
-	—	→	—	02.08.2009	—	59.90	-
-	—	→	—	31.08.2009	—	62.70	-
-	—	→	—	08.09.2009	—	62.50	-
-	Neutral	↓	09.10.2009	—	26.02.2010	62.20	-12%
-	—	→	—	12.10.2009	—	62.20	-
-	—	→	—	14.12.2009	—	62.50	-
-	—	→	—	07.01.2010	—	61.25	-
-	—	→	—	03.02.2010	—	59.90	-
-	Overweight	↑	26.02.2010	—	19.03.2010	55.45	-5%
-	—	→	—	01.03.2010	—	55.55	-
-	Neutral	↓	19.03.2010	—	14.06.2010	56.60	4%
-	—	→	—	29.03.2010	—	56.00	-
-	—	→	—	14.04.2010	—	58.90	-
-	—	→	—	17.05.2010	—	54.30	-
-	Overweight	↑	14.06.2010	—	01.07.2010	58.10	-2%
-	—	→	—	23.06.2010	—	57.00	-
-	Neutral	↓	01.07.2010	—	12.11.2010	53.20	-18%
-	—	→	—	19.07.2010	—	56.60	-
-	—	→	—	31.08.2010	—	55.15	-
-	—	→	—	07.10.2010	—	52.10	-
-	—	→	—	12.10.2010	—	52.95	-
-	Overweight	↑	12.11.2010	—	15.12.2010	52.95	2%
-	—	→	—	15.11.2010	—	53.50	-
-	Neutral	↓	15.12.2010	—	20.12.2010	55.00	0%
-	Underweight	↓	20.12.2010	—	11.08.2011	54.25	-13%
-	—	→	—	02.01.2011	—	53.00	-
-	—	→	—	28.01.2011	—	51.15	-
-	—	→	—	01.03.2011	—	50.35	-
-	—	→	—	24.03.2011	—	52.40	-
-	—	→	—	03.04.2011	—	53.70	-
-	—	→	—	20.04.2011	—	53.15	-
-	—	→	—	12.05.2011	—	51.65	-
-	—	→	—	16.05.2011	—	50.65	-
-	—	→	—	20.06.2011	—	51.30	-
-	—	→	—	11.07.2011	—	48.84	-
-	—	→	—	25.07.2011	—	47.90	-
-	Overweight	↑	11.08.2011	—	06.09.2011	37.15	4%
-	—	→	—	31.08.2011	—	42.50	-
-	Neutral	↓	06.09.2011	—	09.10.2011	38.91	12%
-	—	→	—	03.10.2011	—	41.46	-
-	—	→	—	05.10.2011	—	41.99	-
-	Overweight	↑	09.10.2011	—	24.10.2011	42.50	6%
-	Neutral	↓	24.10.2011	—	03.04.2012	48.67	2%
-	—	→	—	14.11.2011	—	47.75	-
-	—	→	—	11.12.2011	—	47.93	-
-	—	→	—	01.01.2012	—	48.50	-
-	—	→	—	25.01.2012	—	48.49	-
-	—	→	—	29.02.2012	—	53.70	-
-	—	→	—	20.03.2012	—	49.39	-
-	Overweight	↑	03.04.2012	—	05.10.2012	50.20	-13%
-	—	→	—	20.03.2012	—	49.39	-
-	—	→	—	15.04.2012	—	50.80	-
-	—	→	—	14.05.2012	—	45.01	-
-	—	→	—	15.05.2012	—	45.00	-
-	—	→	—	21.06.2012	—	49.70	-
-	—	→	—	11.07.2012	—	47.00	-
-	—	→	—	19.07.2012	—	46.99	-
-	—	→	—	02.09.2012	—	44.36	-



**Market-relative recommendation tracker (continued)**

Analyst	Relative Recommendation	Report date	Reiteration date	Distribution date	Expiry date	Price at issue/reiteration*	Relative performance
Sobiesław Pająk	-	→	-	22.04.2018	23.04.2018	-	45.50
Sobiesław Pająk	-	→	-	17.05.2018	18.05.2018	-	38.00
Sobiesław Pająk	-	→	-	29.05.2018	30.05.2018	-	41.04
Sobiesław Pająk	-	→	-	16.07.2018	17.07.2018	-	44.00
Sobiesław Pająk	-	→	-	02.08.2018	03.08.2018	-	45.94
Sobiesław Pająk	-	→	-	30.08.2018	31.08.2018	-	46.30
Sobiesław Pająk	-	→	-	08.10.2018	09.10.2018	-	45.06
Sobiesław Pająk	-	→	-	11.10.2018	12.10.2018	-	45.56
Sobiesław Pająk	-	→	-	23.10.2018	24.10.2018	-	45.86
Sobiesław Pająk	-	→	-	14.11.2018	15.11.2018	-	45.20
Sobiesław Pająk	-	→	-	09.12.2018	10.12.2018	-	47.06
Sobiesław Pająk	-	→	-	10.01.2019	11.01.2019	-	47.96
Sobiesław Pająk	-	→	-	04.02.2019	05.02.2019	-	48.14
Sobiesław Pająk	-	→	-	26.02.2019	27.02.2019	-	55.60
Sobiesław Pająk	Neutral	↓	26.03.2019	-	27.03.2019	08.12.2019	52.10 25%
Sobiesław Pająk	-	→	-	22.04.2019	23.04.2019	-	54.40
Sobiesław Pająk	-	→	-	24.04.2019	25.04.2019	-	55.10
Sobiesław Pająk	-	→	-	16.05.2019	17.05.2019	-	48.48
Sobiesław Pająk	-	→	-	30.05.2019	31.05.2019	-	52.20
Sobiesław Pająk	-	→	-	10.07.2019	11.07.2019	-	52.25
Sobiesław Pająk	-	→	-	17.07.2019	18.07.2019	-	56.40
Sobiesław Pająk	-	→	-	30.07.2019	31.07.2019	-	55.70
Sobiesław Pająk	-	→	-	01.09.2019	02.09.2019	-	55.95
Sobiesław Pająk	-	→	-	13.10.2019	14.10.2019	-	51.60
Sobiesław Pająk	-	→	-	24.10.2019	25.10.2019	-	52.40
Sobiesław Pająk	-	→	-	17.11.2019	18.11.2019	-	55.85
Sobiesław Pająk	Overweight	↑	08.12.2019	-	09.12.2019	Not later than 08.12.2020	57.75 35%
Sobiesław Pająk	-	→	-	09.01.2020	10.01.2020	-	64.65
Sobiesław Pająk	-	→	-	04.02.2020	05.02.2020	-	65.60
Sobiesław Pająk	-	→	-	06.02.2020	07.02.2020	-	67.00
Sobiesław Pająk	-	→	-	03.03.2020	04.03.2020	-	64.20
Sobiesław Pająk	-	→	-	30.03.2020	31.03.2020	-	57.05
Sobiesław Pająk	-	→	-	13.04.2020	14.04.2020	-	61.90

\* prices at issue/reiteration are the closing prices at the report or reiteration date  
pre-June 2014 recommendations issued at DM IDMSA

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The report is an investment research within the meaning of Commission Delegated Regulation (EU) 2017/565 of 25 April 2016 supplementing Directive 2014/65/EU of the European Parliament and of the Council as regards organisational requirements and operating conditions for investment firms and defined terms for the purposes of that Directive.

This report constitutes a recommendation within the meaning of Commission Delegated Regulation (EU) 2016/958 of 9 March 2016 supplementing Regulation (EU) No 596/2014 of the European Parliament and of the Council with regard to regulatory technical standards for the technical arrangements for objective presentation of investment recommendations or other information recommending or suggesting an investment strategy and for disclosure of particular interests or indications of conflicts of interest. This report is for information purposes only.

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