BASIC DEFINITIONS
A/R turnover (in days) = 365/(sales/average A/R))
Inventory turnover (in days) = 365/(COGS/average inventory))
A/P turnover (in days) = 365/(COGS/average A/P))
Current ratio = ((current assets – ST deferred assets)/current liabilities)
Quick ratio = ((current assets – ST deferred assets – inventory)/current liabilities)
Interest coverage = (pre-tax profit before extraordinary items + interest payable/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.

Banks
Net Interest Margin (NIM) = net interest income/average assets
NIM Adjusted = (net interest income adjusted for SWAPs)/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 + other operating costs)/ (profit on banking activity + other operating income)
ROE = net profit/average equity
ROA = net income/average assets
Non performing loans (NPL) = loans in 'substandard', 'doubtful' and 'lost' categories
NPL coverrage 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.

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	34	37	6	9	0
Percentage	40%	43%	7%	10%	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	4	8	0	2	0
Percentage	29%	57%	0%	14%	0%

Distribution of DM BOŚ's current market relative recommended weightings

	Overweight	Neutral	Underweight	Suspended	Under revision
Numbers	29	36	12	9	0
Percentage	34%	42%	14%	10%	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	3	8	1	2	0
Percentage	21%	57%	7%	14%	0%

LT fundamental recommendation tracker

Analyst	Recommendation		Report date	Reiteration date	Distribution date	Expiry date	Performance	Relative performance	Price at issue/ reiteration*	EFV (12 months)	
Comarch											
-	Hold	–	17.02.2008	-	-	25.05.2008	-27%	-23%	124.60	133.90	–
-	-	→	-	06.03.2008	-	-	-	-	116.60	126.80	↓
-	-	→	-	30.03.2008	-	-	-	-	118.80	127.20	↑
-	-	→	-	16.04.2008	-	-	-	-	106.60	127.70	↑
-	Buy	↑	25.05.2008	-	-	13.10.2008	-30%	4%	90.90	122.20	↓
-	-	→	-	01.06.2008	-	-	-	-	93.80	122.20	→
-	-	→	-	29.06.2008	-	-	-	-	79.05	120.00	↓
-	-	→	-	14.07.2008	-	-	-	-	68.00	117.00	↓
-	-	→	-	28.07.2008	-	-	-	-	70.00	117.00	→
-	-	→	-	17.08.2008	-	-	-	-	80.00	107.90	↓
-	-	→	-	31.08.2008	-	-	-	-	74.00	107.90	→
-	-	→	-	28.09.2008	-	-	-	-	74.50	107.90	→
-	Hold	↓	13.10.2008	-	-	16.11.2008	0%	16%	64.00	86.00	↓
-	-	→	-	29.10.2008	-	-	-	-	60.00	86.00	→
-	Underrevision	–	16.11.2008	-	-	20.11.2008	-27%	-20%	64.00	-	–
-	Hold	–	20.11.2008	-	-	01.03.2009	-12%	0%	47.00	70.60	–
-	-	→	-	30.11.2008	-	-	-	-	52.50	70.60	→
-	-	→	-	11.01.2009	-	-	-	-	60.50	70.60	→
-	-	→	-	03.02.2009	-	-	-	-	49.00	59.80	↓
-	-	→	-	08.02.2009	-	-	-	-	48.35	59.80	→
-	Buy	↑	01.03.2009	-	-	05.04.2009	50%	25%	41.15	56.60	↓
-	-	→	-	08.03.2009	-	-	-	-	50.00	56.60	→
-	Hold	↓	05.04.2009	-	-	28.04.2009	2%	-2%	61.85	56.60	→
-	Sell	↓	28.04.2009	-	-	26.04.2010	61%	1%	63.35	56.60	→
-	-	→	-	17.05.2009	-	-	-	-	70.05	56.60	→
-	-	→	-	08.06.2009	-	-	-	-	66.00	56.60	→
-	-	→	-	08.07.2009	-	-	-	-	56.10	56.60	→
-	-	→	-	15.07.2009	-	-	-	-	58.15	52.50	↓
-	-	→	-	02.08.2009	-	-	-	-	62.85	52.50	→
-	-	→	-	31.08.2009	-	-	-	-	78.00	52.50	→
-	-	→	-	12.10.2009	-	-	-	-	70.00	52.50	→
-	-	→	-	02.11.2009	-	-	-	-	71.60	61.80	↑
-	-	→	-	22.11.2009	-	-	-	-	88.50	79.90	↑
-	-	→	-	14.12.2009	-	-	-	-	91.95	79.90	→
-	-	→	-	07.01.2010	-	-	-	-	98.80	85.70	↑
-	-	→	-	03.02.2010	-	-	-	-	105.00	85.70	→
-	-	→	-	01.03.2010	-	-	-	-	101.50	85.70	→
-	-	→	-	29.03.2010	-	-	-	-	104.00	85.70	→
-	Sell	→	26.04.2010	-	-	29.07.2010	-17%	-15%	102.30	97.40	↑
-	-	→	-	17.05.2010	-	-	-	-	91.50	97.40	→
-	-	→	-	14.06.2010	-	-	-	-	88.00	97.40	→
-	-	→	-	19.07.2010	-	-	-	-	83.00	97.40	→
-	Hold	↑	29.07.2010	-	-	02.01.2011	-1%	-11%	85.00	86.60	↓
-	-	→	-	31.08.2010	-	-	-	-	75.00	86.60	→
-	-	→	-	12.10.2010	-	-	-	-	74.80	86.60	→
-	-	→	-	25.10.2010	-	-	-	-	80.15	86.60	→
-	-	→	-	12.11.2010	-	-	-	-	80.80	86.60	→
-	-	→	-	15.11.2010	-	-	-	-	84.60	86.60	→
-	-	→	-	15.12.2010	-	-	-	-	85.20	86.60	→
-	Buy	↑	02.01.2011	-	-	01.03.2011	10%	11%	84.00	95.10	↑
-	-	→	-	28.01.2011	-	-	-	-	90.00	95.10	→
-	Hold	↓	01.03.2011	-	-	13.03.2011	-2%	-3%	92.60	95.10	→
-	Buy	↑	13.03.2011	-	-	16.05.2011	1%	-2%	90.55	103.80	↑
-	-	→	-	24.03.2011	-	-	-	-	91.80	103.80	→
-	-	→	-	20.04.2011	-	-	-	-	93.25	103.80	→
-	Hold	↓	16.05.2011	-	-	15.05.2012	-36%	-18%	91.50	103.80	→
-	-	→	-	20.06.2011	-	-	-	-	74.35	103.80	→
-	-	→	-	25.07.2011	-	-	-	-	67.15	103.80	→
-	-	→	-	02.08.2011	-	-	-	-	64.75	86.10	↓
-	-	→	-	31.08.2011	-	-	-	-	56.30	66.40	↓
-	-	→	-	05.09.2011	-	-	-	-	51.70	48.90	↓
-	-	→	-	03.10.2011	-	-	-	-	50.40	48.90	→
-	-	→	-	24.10.2011	-	-	-	-	47.05	48.90	→
-	-	→	-	14.11.2011	-	-	-	-	50.00	48.90	→
-	-	→	-	11.12.2011	-	-	-	-	52.15	48.90	→
-	-	→	-	01.01.2012	-	-	-	-	55.65	60.10	↑
-	-	→	-	25.01.2012	-	-	-	-	60.80	60.10	→
-	-	→	-	29.02.2012	-	-	-	-	58.50	60.10	→
-	-	→	-	20.03.2012	-	-	-	-	68.00	69.40	↑
-	-	→	-	15.04.2012	-	-	-	-	65.00	69.40	→
-	Hold	→	15.05.2012	-	-	21.06.2012	1%	-5%	58.30	69.40	→
-	Buy	↑	21.06.2012	-	-	02.09.2012	16%	12%	58.60	69.40	→
-	-	→	-	19.07.2012	-	-	-	-	68.00	69.40	→
-	-	→	-	26.07.2012	-	-	-	-	65.00	67.90	↓
-	Hold	↓	02.09.2012	-	-	10.10.2012	18%	11%	66.50	67.90	→
-	Sell	↓	10.10.2012	-	-	13.12.2012	-5%	-10%	78.65	67.90	→
-	-	→	-	14.11.2012	-	-	-	-	70.00	67.90	→
-	Buy	↑	13.12.2012	-	-	15.05.2013	16%	17%	74.35	82.00	↑
-	-	→	-	23.01.2013	-	-	-	-	88.20	82.00	→
-	-	→	-	18.02.2013	-	-	-	-	90.80	82.00	→
-	-	→	-	21.03.2013	-	-	-	-	84.00	82.00	→
-	-	→	-	10.04.2013	-	-	-	-	81.70	92.60	↑
-	-	→	-	17.04.2013	-	-	-	-	82.98	92.60	→

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)	
-	Hold	↓	15.05.2013	-	-	18.07.2013	-1%	-1%	86.00	92.60	→
-	-	→	-	17.06.2013	-	-	-	-	87.50	92.60	→
-	Sell	↓	18.07.2013	-	-	01.09.2013	-2%	-7%	85.20	76.30	↓
-	-	→	-	25.07.2013	-	-	-	-	86.10	76.30	→
-	-	→	-	29.07.2013	-	-	-	-	81.66	74.80	↓
-	Hold	↑	01.09.2013	-	-	14.10.2013	6%	-2%	82.22	74.80	→
-	Buy	↑	14.10.2013	-	-	14.11.2013	16%	15%	87.00	98.70	↑
-	-	→	-	20.10.2013	-	-	-	-	95.72	98.70	→
-	Hold	↓	14.11.2013	-	-	12.12.2013	-7%	-5%	101.00	98.70	→
-	Sell	↓	12.12.2013	-	-	21.01.2014	-10%	-9%	94.25	93.00	↓
-	Hold	↑	21.01.2014	-	-	14.12.2014	29%	27%	84.99	93.00	→
-	-	→	-	22.01.2014	-	-	-	-	84.00	93.00	→
-	-	→	-	17.02.2014	-	-	-	-	83.50	93.00	→
-	-	→	-	23.03.2014	-	-	-	-	85.99	93.00	→
-	-	→	-	13.04.2014	-	-	-	-	85.50	93.00	→
-	-	→	-	15.05.2014	-	-	-	-	79.00	93.00	→
-	-	→	-	16.06.2014	-	-	-	-	85.15	93.00	→
-	-	→	-	20.07.2014	-	-	-	-	83.50	93.00	→
-	-	→	-	28.07.2014	-	-	-	-	78.80	91.50	↓
-	-	→	-	01.09.2014	-	-	-	-	82.00	91.50	→
-	-	→	-	14.10.2014	-	-	-	-	96.00	91.50	→
-	-	→	-	16.11.2014	-	-	-	-	95.22	91.50	→
-	Hold	→	14.12.2014	-	-	09.04.2015	14%	8%	108.00	126.30	↑
-	-	→	-	15.01.2015	-	-	-	-	111.70	126.30	→
-	-	→	-	18.01.2015	-	-	-	-	111.70	126.30	→
-	-	→	-	10.02.2015	-	-	-	-	116.90	126.30	→
-	-	→	-	02.03.2015	-	-	-	-	117.50	126.30	→
-	-	→	-	23.03.2015	-	-	-	-	121.50	126.30	→
Sobiesław Pająk	Buy	↑	09.04.2015	-	10.04.2015	31.08.2015	4%	12%	123.00	146.20	↑
Sobiesław Pająk	-	→	-	19.04.2015	20.04.2015	-	-	-	125.95	146.20	→
Sobiesław Pająk	-	→	-	17.05.2015	18.05.2015	-	-	-	131.50	146.20	→
Sobiesław Pająk	-	→	-	21.06.2015	22.06.2015	-	-	-	136.05	146.20	→
Sobiesław Pająk	-	→	-	16.07.2015	17.07.2015	-	-	-	131.95	146.20	→
Sobiesław Pająk	Hold	↓	31.08.2015	-	01.09.2015	31.08.2016	39%	49%	128.50	146.20	→
Sobiesław Pająk	-	→	-	15.10.2015	16.10.2015	-	-	-	121.30	146.20	→
Sobiesław Pająk	-	→	-	16.11.2015	17.11.2015	-	-	-	128.00	146.20	→
Sobiesław Pająk	-	→	-	13.12.2015	14.12.2015	-	-	-	113.05	126.50	↓
Sobiesław Pająk	-	→	-	17.01.2016	18.01.2016	-	-	-	109.05	126.50	→
Sobiesław Pająk	-	→	-	26.01.2016	27.01.2016	-	-	-	108.00	126.50	→
Sobiesław Pająk	-	→	-	15.02.2016	16.02.2016	-	-	-	116.85	126.50	→
Sobiesław Pająk	-	→	-	29.02.2016	01.03.2016	-	-	-	116.00	126.50	→
Sobiesław Pająk	-	→	-	21.03.2016	22.03.2016	-	-	-	131.50	126.50	→
Sobiesław Pająk	-	→	-	13.04.2016	14.04.2016	-	-	-	141.15	126.50	→
Sobiesław Pająk	-	→	-	16.05.2016	17.05.2016	-	-	-	141.00	126.50	→
Sobiesław Pająk	-	→	-	27.06.2016	28.06.2016	-	-	-	140.50	126.50	→
Sobiesław Pająk	-	→	-	24.07.2016	25.07.2016	-	-	-	148.80	126.50	→
Sobiesław Pająk	Hold	→	31.08.2016	-	01.09.2016	27.07.2017	12%	-13%	179.10	126.50	→
Sobiesław Pająk	-	→	-	12.10.2016	13.10.2016	-	-	-	185.00	126.50	→
Sobiesław Pająk	-	→	-	02.11.2016	03.11.2016	-	-	-	165.00	126.50	→
Sobiesław Pająk	-	→	-	04.12.2016	05.12.2016	-	-	-	172.95	174.00	↑
Sobiesław Pająk	-	→	-	12.01.2017	13.01.2017	-	-	-	171.00	174.00	→
Sobiesław Pająk	-	→	-	08.02.2017	09.02.2017	-	-	-	184.85	174.00	→
Sobiesław Pająk	-	→	-	05.03.2017	06.03.2017	-	-	-	229.00	256.60	↑
Sobiesław Pająk	-	→	-	07.03.2017	08.03.2017	-	-	-	227.50	256.60	→
Sobiesław Pająk	-	→	-	11.04.2017	12.04.2017	-	-	-	223.95	256.60	→
Sobiesław Pająk	-	→	-	22.05.2017	23.05.2017	-	-	-	220.00	256.60	→
Sobiesław Pająk	-	→	-	30.05.2017	31.05.2017	-	-	-	224.40	256.60	→
Sobiesław Pająk	-	→	-	12.07.2017	13.07.2017	-	-	-	209.30	256.60	→
Sobiesław Pająk	-	→	-	26.07.2017	27.07.2017	-	-	-	204.55	206.50	↓
Sobiesław Pająk	Hold	→	27.07.2017	-	28.07.2017	04.09.2017	-11%	-14%	199.50	205.00	↓
Sobiesław Pająk	-	→	-	03.09.2017	04.09.2017	-	-	-	180.00	205.00	→
Sobiesław Pająk	Sell	↓	04.09.2017	-	05.09.2017	15.11.2017	-9%	-5%	178.45	163.40	↓
Sobiesław Pająk	-	→	-	15.10.2017	16.10.2017	-	-	-	175.00	163.40	→
Sobiesław Pająk	Hold	↑	15.11.2017	-	16.11.2017	14.11.2018	-1%	7%	163.00	163.40	→
Sobiesław Pająk	-	→	-	10.12.2017	11.12.2017	-	-	-	181.00	184.50	↑
Sobiesław Pająk	-	→	-	10.01.2018	11.01.2018	-	-	-	190.50	184.50	→
Sobiesław Pająk	-	→	-	13.02.2018	14.02.2018	-	-	-	172.50	184.50	→
Sobiesław Pająk	-	→	-	01.03.2018	02.03.2018	-	-	-	172.50	184.50	→
Sobiesław Pająk	-	→	-	12.03.2018	13.03.2018	-	-	-	146.00	184.50	→
Sobiesław Pająk	-	→	-	20.03.2018	21.03.2018	-	-	-	143.50	148.00	↓
Sobiesław Pająk	-	→	-	16.04.2018	17.04.2018	-	-	-	136.00	148.00	→
Sobiesław Pająk	-	→	-	29.05.2018	30.05.2018	-	-	-	150.00	148.00	→
Sobiesław Pająk	-	→	-	16.07.2018	17.07.2018	-	-	-	158.00	148.00	→
Sobiesław Pająk	-	→	-	24.07.2018	25.07.2018	-	-	-	163.50	168.90	↑
Sobiesław Pająk	-	→	-	02.08.2018	03.08.2018	-	-	-	173.00	168.90	→
Sobiesław Pająk	-	→	-	09.08.2018	10.08.2018	-	-	-	167.50	167.40	↓
Sobiesław Pająk	-	→	-	30.08.2018	31.08.2018	-	-	-	157.00	167.40	→
Sobiesław Pająk	-	→	-	01.10.2018	02.10.2018	-	-	-	168.50	172.20	↑
Sobiesław Pająk	-	→	-	11.10.2018	12.10.2018	-	-	-	169.50	172.20	→
Sobiesław Pająk	-	→	-	23.10.2018	24.10.2018	-	-	-	169.00	172.20	→
Sobiesław Pająk	Hold	→	14.11.2018	-	15.11.2018	26.03.2019	5%	-1%	168.50	172.20	→
Sobiesław Pająk	-	→	-	09.12.2018	10.12.2018	-	-	-	160.50	175.00	↑
Sobiesław Pająk	-	→	-	10.01.2019	11.01.2019	-	-	-	150.00	175.00	→
Sobiesław Pająk	-	→	-	24.01.2019	25.01.2019	-	-	-	155.00	175.00	→

Analyst	Recommendation		Report date	Reiteration date	Distribution date	Expiry date	Performance	Relative performance	Price at issue/ reiteration*	EFV (12 months)	
Sobiesław Pająk	-	→	-	04.02.2019	05.02.2019	-	-	-	160.00	175.00	→
Sobiesław Pająk	-	→	-	26.02.2019	27.02.2019	-	-	-	153.50	175.00	→
Sobiesław Pająk	Buy	↑	26.03.2019	-	27.03.2019	04.02.2020	18%	23%	176.50	224.70	↑
Sobiesław Pająk	-	→	-	22.04.2019	23.04.2019	-	-	-	186.00	224.70	→
Sobiesław Pająk	-	→	-	24.04.2019	25.04.2019	-	-	-	189.00	224.70	→
Sobiesław Pająk	-	→	-	30.05.2019	31.05.2019	-	-	-	194.00	224.70	→
Sobiesław Pająk	-	→	-	03.07.2019	04.07.2019	-	-	-	186.50	223.20	↓
Sobiesław Pająk	-	→	-	17.07.2019	18.07.2019	-	-	-	176.00	223.20	→
Sobiesław Pająk	-	→	-	30.07.2019	31.07.2019	-	-	-	174.00	223.20	→
Sobiesław Pająk	-	→	-	01.09.2019	02.09.2019	-	-	-	179.00	223.20	→
Sobiesław Pająk	-	→	-	13.10.2019	14.10.2019	-	-	-	174.00	223.20	→
Sobiesław Pająk	-	→	-	24.10.2019	25.10.2019	-	-	-	176.00	223.20	→
Sobiesław Pająk	-	→	-	17.11.2019	18.11.2019	-	-	-	173.50	223.20	→
Sobiesław Pająk	-	→	-	08.12.2019	09.12.2019	-	-	-	191.00	215.00	↓
Sobiesław Pająk	-	→	-	09.01.2020	10.01.2020	-	-	-	205.00	215.00	→
Sobiesław Pająk	Hold	↓	04.02.2020	-	05.02.2020	Not later than 04.02.2021	4%	21%	207.00	215.00	→
Sobiesław Pająk	-	→	-	06.02.2020	07.02.2020	-	-	-	206.00	215.00	→
Sobiesław Pająk	-	→	-	01.03.2020	02.03.2020	-	-	-	188.00	215.00	→
Sobiesław Pająk	-	→	-	03.03.2020	04.03.2020	-	-	-	189.50	215.00	→
Sobiesław Pająk	-	→	-	30.03.2020	31.03.2020	-	-	-	173.00	215.00	→
Sobiesław Pająk	-	→	-	22.04.2020	23.04.2020	-	-	-	203.00	215.00	→
Sobiesław Pająk	-	→	-	17.05.2020	18.05.2020	-	-	-	202.00	215.00	→
Sobiesław Pająk	-	→	-	19.05.2020	20.05.2020	-	-	-	203.00	215.00	→
Sobiesław Pająk	-	→	-	15.06.2020	16.06.2020	-	-	-	198.50	215.00	→
Sobiesław Pająk	-	→	-	01.07.2020	02.07.2020	-	-	-	215.50	213.50	↓
Sobiesław Pająk	-	→	-	13.07.2020	14.07.2020	-	-	-	206.00	213.50	→
Sobiesław Pająk	-	→	-	01.09.2020	02.09.2020	-	-	-	214.00	213.50	→
Sobiesław Pająk	-	→	-	30.09.2020	30.09.2020	-	-	-	214.00	228.80	↑

** 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
Comarch								
-	Neutral	–	17.02.2008	-	-	31.08.2008	124.60	-28%
-	-	→	-	06.03.2008	-	-	116.60	-
-	-	→	-	30.03.2008	-	-	118.80	-
-	-	→	-	16.04.2008	-	-	106.60	-
-	-	→	-	25.05.2008	-	-	90.90	-
-	-	→	-	01.06.2008	-	-	93.80	-
-	-	→	-	29.06.2008	-	-	79.05	-
-	-	→	-	14.07.2008	-	-	68.00	-
-	-	→	-	28.07.2008	-	-	70.00	-
-	-	→	-	17.08.2008	-	-	80.00	-
-	Overweight	↑	31.08.2008	-	-	13.10.2008	74.00	11%
-	-	→	-	28.09.2008	-	-	74.50	-
-	Neutral	↓	13.10.2008	-	-	16.11.2008	64.00	16%
-	-	→	-	29.10.2008	-	-	60.00	-
-	Underrevision	–	16.11.2008	-	-	20.11.2008	64.00	-20%
-	Neutral	–	20.11.2008	-	-	01.03.2009	47.00	0%
-	-	→	-	30.11.2008	-	-	52.50	-
-	-	→	-	11.01.2009	-	-	60.50	-
-	-	→	-	03.02.2009	-	-	49.00	-
-	-	→	-	08.02.2009	-	-	48.35	-
-	Overweight	↑	01.03.2009	-	-	28.04.2009	41.15	25%
-	-	→	-	08.03.2009	-	-	50.00	-
-	-	→	-	05.04.2009	-	-	61.85	-
-	Neutral	↓	28.04.2009	-	-	08.07.2009	63.35	-19%
-	-	→	-	17.05.2009	-	-	70.05	-
-	-	→	-	08.06.2009	-	-	66.00	-
-	Underweight	↓	08.07.2009	-	-	02.11.2009	56.10	-1%
-	-	→	-	15.07.2009	-	-	58.15	-
-	-	→	-	02.08.2009	-	-	62.85	-
-	-	→	-	31.08.2009	-	-	78.00	-
-	-	→	-	12.10.2009	-	-	70.00	-
-	Neutral	↑	02.11.2009	-	-	29.07.2010	71.60	7%
-	-	→	-	22.11.2009	-	-	88.50	-
-	-	→	-	14.12.2009	-	-	91.95	-
-	-	→	-	07.01.2010	-	-	98.80	-
-	-	→	-	03.02.2010	-	-	105.00	-
-	-	→	-	01.03.2010	-	-	101.50	-
-	-	→	-	29.03.2010	-	-	104.00	-
-	-	→	-	26.04.2010	-	-	102.30	-
-	-	→	-	17.05.2010	-	-	91.50	-
-	-	→	-	14.06.2010	-	-	88.00	-
-	-	→	-	19.07.2010	-	-	83.00	-
-	Underweight	↓	29.07.2010	-	-	31.08.2010	85.00	-16%
-	Neutral	↑	31.08.2010	-	-	25.10.2010	75.00	4%
-	-	→	-	12.10.2010	-	-	74.80	-
-	Underweight	↓	25.10.2010	-	-	12.11.2010	80.15	-3%
-	Neutral	↑	12.11.2010	-	-	16.05.2011	80.80	10%
-	-	→	-	15.11.2010	-	-	84.60	-
-	-	→	-	15.12.2010	-	-	85.20	-
-	-	→	-	02.01.2011	-	-	84.00	-
-	-	→	-	28.01.2011	-	-	90.00	-
-	-	→	-	01.03.2011	-	-	92.60	-
-	-	→	-	13.03.2011	-	-	90.55	-
-	-	→	-	24.03.2011	-	-	91.80	-
-	-	→	-	20.04.2011	-	-	93.25	-
-	Underweight	↓	16.05.2011	-	-	20.06.2011	91.50	-19%
-	Neutral	↑	20.06.2011	-	-	31.08.2011	74.35	-12%
-	-	→	-	25.07.2011	-	-	67.15	-
-	-	→	-	02.08.2011	-	-	64.75	-
-	Underweight	↓	31.08.2011	-	-	14.11.2011	56.30	-7%
-	-	→	-	05.09.2011	-	-	51.70	-
-	-	→	-	03.10.2011	-	-	50.40	-
-	-	→	-	24.10.2011	-	-	47.05	-
-	Neutral	↑	14.11.2011	-	-	11.12.2011	50.00	8%
-	Overweight	↑	11.12.2011	-	-	20.03.2012	52.15	21%
-	-	→	-	01.01.2012	-	-	55.65	-
-	-	→	-	25.01.2012	-	-	60.80	-
-	-	→	-	29.02.2012	-	-	58.50	-
-	Neutral	↓	20.03.2012	-	-	21.06.2012	68.00	-11%
-	-	→	-	15.04.2012	-	-	65.00	-
-	-	→	-	15.05.2012	-	-	58.30	-
-	Overweight	↑	21.06.2012	-	-	02.09.2012	58.60	12%
-	-	→	-	19.07.2012	-	-	68.00	-
-	-	→	-	26.07.2012	-	-	65.00	-
-	Neutral	↓	02.09.2012	-	-	10.10.2012	66.50	11%
-	Underweight	↓	10.10.2012	-	-	13.12.2012	78.65	-10%
-	-	→	-	14.11.2012	-	-	70.00	-
-	Overweight	↑	13.12.2012	-	-	15.05.2013	74.35	17%
-	-	→	-	23.01.2013	-	-	88.20	-
-	-	→	-	18.02.2013	-	-	90.80	-
-	-	→	-	21.03.2013	-	-	84.00	-
-	-	→	-	10.04.2013	-	-	81.70	-
-	-	→	-	17.04.2013	-	-	82.98	-

Market-relative recommendation tracker (continued)

Analyst	Relative Recommendation		Report date	Reiteration date	Distribution date	Expiry date	Price at issue/ reiteration*	Relative performance
-	Neutral	↓	15.05.2013	-	-	18.07.2013	86.00	-1%
-	-	→	-	17.06.2013	-	-	87.50	-
-	Underweight	↓	18.07.2013	-	-	01.09.2013	85.20	-7%
-	-	→	-	25.07.2013	-	-	86.10	-
-	-	→	-	29.07.2013	-	-	81.66	-
-	Neutral	↑	01.09.2013	-	-	14.10.2013	82.22	-2%
-	Overweight	↑	14.10.2013	-	-	14.11.2013	87.00	15%
-	-	→	-	20.10.2013	-	-	95.72	-
-	Neutral	↓	14.11.2013	-	-	22.01.2014	101.00	-15%
-	-	→	-	12.12.2013	-	-	94.25	-
-	-	→	-	21.01.2014	-	-	84.99	-
-	Underweight	↓	22.01.2014	-	-	23.03.2014	84.00	1%
-	-	→	-	17.02.2014	-	-	83.50	-
-	Neutral	↑	23.03.2014	-	-	15.05.2014	85.99	-5%
-	-	→	-	13.04.2014	-	-	85.50	-
-	Overweight	→	15.05.2014	-	-	15.01.2015	79.00	44%
-	-	→	-	16.06.2014	-	-	85.15	-
-	-	→	-	20.07.2014	-	-	83.50	-
-	-	→	-	28.07.2014	-	-	78.80	-
-	-	→	-	01.09.2014	-	-	82.00	-
-	-	→	-	14.10.2014	-	-	96.00	-
-	-	→	-	16.11.2014	-	-	95.22	-
-	-	→	-	14.12.2014	-	-	108.00	-
-	Neutral	↓	15.01.2015	-	-	02.03.2015	111.70	0%
-	-	→	-	18.01.2015	-	-	111.70	-
-	-	→	-	10.02.2015	-	-	116.90	-
-	Overweight	↑	02.03.2015	-	-	21.06.2015	117.50	16%
-	-	→	-	23.03.2015	-	-	121.50	-
Sobiesław Pająk	-	→	-	09.04.2015	10.04.2015	-	123.00	-
Sobiesław Pająk	-	→	-	19.04.2015	20.04.2015	-	125.95	-
Sobiesław Pająk	-	→	-	17.05.2015	18.05.2015	-	131.50	-
Sobiesław Pająk	Neutral	↓	21.06.2015	-	22.06.2015	16.11.2015	136.05	3%
Sobiesław Pająk	-	→	-	16.07.2015	17.07.2015	-	131.95	-
Sobiesław Pająk	-	→	-	31.08.2015	01.09.2015	-	128.50	-
Sobiesław Pająk	-	→	-	15.10.2015	16.10.2015	-	121.30	-
Sobiesław Pająk	Underweight	↓	16.11.2015	-	17.11.2015	26.01.2016	128.00	-5%
Sobiesław Pająk	-	→	-	13.12.2015	14.12.2015	-	113.05	-
Sobiesław Pająk	-	→	-	17.01.2016	18.01.2016	-	109.05	-
Sobiesław Pająk	Neutral	↑	26.01.2016	-	27.01.2016	29.02.2016	108.00	1%
Sobiesław Pająk	-	→	-	15.02.2016	16.02.2016	-	116.85	-
Sobiesław Pająk	Overweight	↑	29.02.2016	-	01.03.2016	21.03.2016	116.00	7%
Sobiesław Pająk	Neutral	↓	21.03.2016	-	22.03.2016	08.02.2017	131.50	21%
Sobiesław Pająk	-	→	-	13.04.2016	14.04.2016	-	141.15	-
Sobiesław Pająk	-	→	-	16.05.2016	17.05.2016	-	141.00	-
Sobiesław Pająk	-	→	-	27.06.2016	28.06.2016	-	140.50	-
Sobiesław Pająk	-	→	-	24.07.2016	25.07.2016	-	148.80	-
Sobiesław Pająk	-	→	-	31.08.2016	01.09.2016	-	179.10	-
Sobiesław Pająk	-	→	-	12.10.2016	13.10.2016	-	185.00	-
Sobiesław Pająk	-	→	-	02.11.2016	03.11.2016	-	165.00	-
Sobiesław Pająk	-	→	-	04.12.2016	05.12.2016	-	172.95	-
Sobiesław Pająk	-	→	-	12.01.2017	13.01.2017	-	171.00	-
Sobiesław Pająk	Overweight	↑	08.02.2017	-	09.02.2017	11.04.2017	184.85	15%
Sobiesław Pająk	-	→	-	05.03.2017	06.03.2017	-	229.00	-
Sobiesław Pająk	-	→	-	07.03.2017	08.03.2017	-	227.50	-
Sobiesław Pająk	Neutral	↓	11.04.2017	-	12.04.2017	22.05.2017	223.95	-6%
Sobiesław Pająk	Underweight	↓	22.05.2017	-	23.05.2017	30.05.2017	220.00	3%
Sobiesław Pająk	Neutral	↑	30.05.2017	-	31.05.2017	26.07.2017	224.40	-12%
Sobiesław Pająk	-	→	-	12.07.2017	13.07.2017	-	209.30	-
Sobiesław Pająk	Underweight	↓	26.07.2017	-	27.07.2017	15.11.2017	204.55	-20%
Sobiesław Pająk	-	→	-	27.07.2017	28.07.2017	-	199.50	-
Sobiesław Pająk	-	→	-	03.09.2017	04.09.2017	-	180.00	-
Sobiesław Pająk	-	→	-	04.09.2017	05.09.2017	-	178.45	-
Sobiesław Pająk	-	→	-	15.10.2017	16.10.2017	-	175.00	-
Sobiesław Pająk	Neutral	↑	15.11.2017	-	16.11.2017	01.03.2018	163.00	8%
Sobiesław Pająk	-	→	-	10.12.2017	11.12.2017	-	181.00	-
Sobiesław Pająk	-	→	-	10.01.2018	11.01.2018	-	190.50	-
Sobiesław Pająk	-	→	-	13.02.2018	14.02.2018	-	172.50	-
Sobiesław Pająk	Underweight	↓	01.03.2018	-	02.03.2018	20.03.2018	172.50	-15%
Sobiesław Pająk	-	→	-	12.03.2018	13.03.2018	-	146.00	-
Sobiesław Pająk	Neutral	↑	20.03.2018	-	21.03.2018	01.10.2018	143.50	20%
Sobiesław Pająk	-	→	-	16.04.2018	17.04.2018	-	136.00	-
Sobiesław Pająk	-	→	-	29.05.2018	30.05.2018	-	150.00	-
Sobiesław Pająk	-	→	-	16.07.2018	17.07.2018	-	158.00	-
Sobiesław Pająk	-	→	-	24.07.2018	25.07.2018	-	163.50	-
Sobiesław Pająk	-	→	-	02.08.2018	03.08.2018	-	173.00	-
Sobiesław Pająk	-	→	-	09.08.2018	10.08.2018	-	167.50	-
Sobiesław Pająk	-	→	-	30.08.2018	31.08.2018	-	157.00	-
Sobiesław Pająk	Overweight	↑	01.10.2018	-	02.10.2018	24.01.2019	168.50	-11%
Sobiesław Pająk	-	→	-	11.10.2018	12.10.2018	-	169.50	-
Sobiesław Pająk	-	→	-	23.10.2018	24.10.2018	-	169.00	-
Sobiesław Pająk	-	→	-	14.11.2018	15.11.2018	-	168.50	-
Sobiesław Pająk	-	→	-	09.12.2018	10.12.2018	-	160.50	-
Sobiesław Pająk	-	→	-	10.01.2019	11.01.2019	-	150.00	-
Sobiesław Pająk	Neutral	↓	24.01.2019	-	25.01.2019	26.03.2019	155.00	15%

Market-relative recommendation tracker (continued)

Analyst	Relative Recommendation		Report date	Reiteration date	Distribution date	Expiry date	Price at issue/ reiteration*	Relative performance
Sobiesław Pająk	-	→	-	04.02.2019	05.02.2019	-	160.00	-
Sobiesław Pająk	-	→	-	26.02.2019	27.02.2019	-	153.50	-
Sobiesław Pająk	Overweight	↑	26.03.2019	-	27.03.2019	01.03.2020	176.50	31%
Sobiesław Pająk	-	→	-	22.04.2019	23.04.2019	-	186.00	-
Sobiesław Pająk	-	→	-	24.04.2019	25.04.2019	-	189.00	-
Sobiesław Pająk	-	→	-	30.05.2019	31.05.2019	-	194.00	-
Sobiesław Pająk	-	→	-	03.07.2019	04.07.2019	-	186.50	-
Sobiesław Pająk	-	→	-	17.07.2019	18.07.2019	-	176.00	-
Sobiesław Pająk	-	→	-	30.07.2019	31.07.2019	-	174.00	-
Sobiesław Pająk	-	→	-	01.09.2019	02.09.2019	-	179.00	-
Sobiesław Pająk	-	→	-	13.10.2019	14.10.2019	-	174.00	-
Sobiesław Pająk	-	→	-	24.10.2019	25.10.2019	-	176.00	-
Sobiesław Pająk	-	→	-	17.11.2019	18.11.2019	-	173.50	-
Sobiesław Pająk	-	→	-	08.12.2019	09.12.2019	-	191.00	-
Sobiesław Pająk	-	→	-	09.01.2020	10.01.2020	-	205.00	-
Sobiesław Pająk	-	→	-	04.02.2020	05.02.2020	-	207.00	-
Sobiesław Pająk	-	→	-	06.02.2020	07.02.2020	-	206.00	-
Sobiesław Pająk	Underweight	↓	01.03.2020	-	02.03.2020	17.05.2020	188.00	19%
Sobiesław Pająk	-	→	-	03.03.2020	04.03.2020	-	189.50	-
Sobiesław Pająk	-	→	-	30.03.2020	31.03.2020	-	173.00	-
Sobiesław Pająk	-	→	-	22.04.2020	23.04.2020	-	203.00	-
Sobiesław Pająk	Neutral	↑	17.05.2020	-	18.05.2020	Not later than 17.05.2021	202.00	-4%
Sobiesław Pająk	-	→	-	19.05.2020	20.05.2020	-	203.00	-
Sobiesław Pająk	-	→	-	15.06.2020	16.06.2020	-	198.50	-
Sobiesław Pająk	-	→	-	01.07.2020	02.07.2020	-	215.50	-
Sobiesław Pająk	-	→	-	13.07.2020	14.07.2020	-	206.00	-
Sobiesław Pająk	-	→	-	01.09.2020	02.09.2020	-	214.00	-
Sobiesław Pająk	-	→	-	30.09.2020	30.09.2020	-	214.00	-

** 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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Institutional sales

Bartosz Janczy
tel.: +48 (22) 504 32 46
b.janczy@bossa.pl

Tomasz Grabowski
tel.: +48 (22) 504 32 47
t.grabowski@bossa.pl

Grzegorz Kołodziejczyk
tel.: +48 (22) 504 33 34
g.kolodziejczyk@bossa.pl

Michał Zawada
tel.: +48 (22) 504 33 36
m.zawada@bossa.pl

Maciej Bąk
tel.: +48 (22) 504 33 78
m.bak@bossa.pl

Bartosz Zieliński
tel.: +48 (22) 504 33 35
b.zielinski@bossa.pl

Marcin Kozerski
tel.: +48 (22) 504 33 35
m.kozerski@bossa.pl

Marcin Stosio
tel.: +48 (22) 504 33 37
m.stosio@bossa.pl

Research

Sobiesław Pająk, CFA
(Equity strategy, TMT)
tel.: +48 (22) 504 32 72
s.pajak@bossa.pl

Sylwia Jaśkiewicz, CFA
(Construction materials, Consumer staples & discretionary, Health care)
tel.: +48 (22) 504 33 75
s.jaskiewicz@bossa.pl

Maciej Wewiórski
(Residential construction, Construction, Real estate)
tel.: +48 (22) 504 33 07
m.wewiorski@bossa.pl

Michał Sobolewski, CFA, FRM
(Financials)
tel.: +48 (22) 504 33 06
m.sobolewski@bossa.pl

Jakub Viscardi
(Telco, Consumer staples & discretionary, IT – hardware distribution, Utilities)
tel.: +48 (22) 504 32 58
j.viscardi@bossa.pl

Łukasz Prokopiuk, CFA
(Chemicals, Mining, Mining – machinery, Oil & gas)
tel.: +48 (22) 504 32 59
l.prokopiuk@bossa.pl

Tomasz Rodak, CFA
(Consumer discretionary, Video games)
tel.: +48 22 504 33 23
t.rodak@bossa.pl

Dom Maklerski Banku Ochrony Środowiska Spółka Akcyjna
ul. Marszałkowska 78/80
00-517 Warszawa
www.bossa.pl
Information: (+48) 0 801 104 104