

34/2020/GPW (127) November 3, 2020

This report is prepared for the Warsaw Stock Exchange SA within the framework of the Analytical Coverage Support Pilot Program. This is a translation of the Polish analytical report.

Analyst: Sylwia Jaśkiewicz, CFA

Ferro

Sector: Construction materials
Fundamental rating: Buy (→)
Market relative: Overweight (→)
Price: PLN 17.30
12M EFV: PLN 22.0 (↑)

Market Cap: US\$ 94.1 m
Bloomberg code: FRO PW
Av. daily turnover: US\$ 0.03 m
12M range: PLN 10.30-20.00
Free float: 31%

Recommended action

We maintain our ST relative Overweight rating and LT fundamental Buy recommendation. The Company's 1H20 financials was quite high and we expect good results in 3Q20 as well. In April the demand for the Company's products/goods fell due to the COVID-19 pandemic but in May and June it started to recover. Besides, the commodities market environment was favorable for the Company. We believe the Company is likely to make an acquisition in 2020 which should facilitate the Group's further development given its strong position on the existing markets and in the assortment of offered products. Otherwise, we would expect next year's dividend payment to be significantly higher.

The demand for the Company's products/goods is driven by the development of the residential market in the region (foreign markets contributed 64% of the Company's 1H20 revenues; up 13% yoy). In the installation fittings segment, the replacement demand constitutes 55% with 45% coming from new investments. In the section of batteries and accessories, 80% of demand results from renovations and 20% from new residential investments. The Company distributes its goods and products through traditional (66%) and modern (34%) channels. The Company benefits from a one-to-two year shift in demand with respect to the construction of apartments. Besides, the renovation and product life cycles are shortened and currently the replacement of accessories does not require significant expenses and is often related to interior design and depends on the current fashion. Current circumstances will undoubtedly affect the housing market, in particular the volume of new investments and we assume that the apartments under construction will be finished which in turn will trigger the demand. Moreover, Ferro' products belong to the lower-end market which seems beneficial in the downturn.

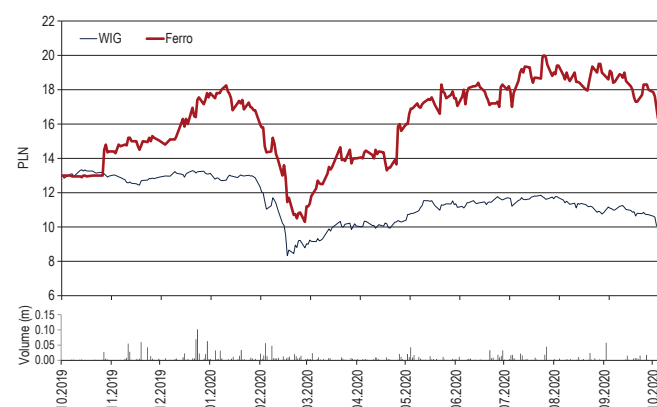
Guide to adjusted profits
Income tax.

Key data

IFRS consolidated		2019	2020E	2021E	2022E
Sales	PLN m	451.3	481.6	515.3	546.2
EBITDA	PLN m	66.9	71.2	67.1	70.6
EBIT	PLN m	60.6	63.6	58.5	61.8
Net income	PLN m	40.0	47.7	44.6	47.7
Adj net income	PLN m	42.9	47.7	44.6	47.7
Adj EPS	PLN	2.0	2.2	2.1	2.2
Adj EPS yoy chg	%	11	11	-6	7
Net debt	PLN m	75.8	60.9	65.7	58.1
P/E	x	9.2	7.7	8.2	7.7
Adj P/E	x	8.6	7.7	8.2	7.7
EV/EBITDA	x	6.6	6.0	6.5	6.0
EV/EBIT	x	7.3	6.7	7.4	6.9
DPS	PLN	1.12	0.40	1.42	1.33
Gross dividend yield	%	6.5	2.3	8.2	7.7
Number of shares (eop)	m	21.2	21.2	21.2	21.2

Source: Company, DM BOŚ SA estimates

Stock performance



Source: Bloomberg

Upcoming events

1. Release of 3Q20 consolidated financial results: November 19

Valuation

Due to our financial forecasts update and valuation horizon forward shift our 12M EFV for the Company representing a 50%-50% mix of the outcome of the

DCF FCFF and peer-relative valuations increases by 11% to PLN 22.0 from PLN 19.9 per share. The DCF/peer-relative valuation yields PLN 24.8 (from PLN 22.8, after dividend adjustment)/ 19.2 (from PLN 17.4) per share.

Fig. 1. Ferro; DCF model

	2021E	2022E	2023E	2024E	2025E
Cost of equity					
Risk free	1.5%	1.5%	1.5%	1.5%	1.5%
Equity market premium	7.5%	7.5%	7.5%	7.5%	7.5%
Unlevered beta	1.2	1.2	1.2	1.2	1.2
Leveraged beta	1.3	1.3	1.3	1.3	1.2
Required rate of return	11.4%	11.2%	11.1%	10.9%	10.7%
Cost of debt					
Pre-tax cost of debt	4.7%	4.7%	4.7%	4.7%	4.7%
Effective tax rate	19.0%	19.0%	19.0%	19.0%	19.0%
After-tax cost of debt	3.8%	3.8%	3.8%	3.8%	3.8%
WACC					
Equity share	80%	81%	81%	82%	84%
Debt share	20%	19%	19%	18%	16%
Cost of equity	11.4%	11.2%	11.1%	10.9%	10.7%
After tax cost of debt	3.8%	3.8%	3.8%	3.8%	3.8%
WACC	9.8%	9.8%	9.7%	9.6%	9.6%
Financial forecasts (PLN m)					
Sales	515.3	546.2	573.5	602.2	620.2
EBIT	58.5	61.8	65.3	71.8	74.0
NOPLAT	47.4	50.1	52.9	58.2	60.0
Depreciation	8.6	8.8	9.8	10.9	12.1
NWC change	-19.2	-10.9	-9.6	-10.1	-6.4
Capex	-9.2	-10.4	-10.6	-11.9	-13.2
FCFF	27.5	37.6	42.4	47.1	52.6

Source: DM BOŚ SA estimates

Fig. 2. Ferro; DCF Valuation (PLN m)

FCFF terminal growth	1.0%
WACC in residual period	9.6%
Residual value	620.2
PV of residual value	422.1
PV of FCFF	166.3
Enterprise value	588.4
Net debt	60.9
Dividend	0.0
Equity value	527.5
Number of shares (million)	21.2
12M EFV (PLN)	24.8

Source: DM BOŚ SA estimates

Fig. 3. Ferro; Peer-relative comparison

Company	P/E			EV/EBITDA			EV/EBIT		
	2020E	2021E	2022E	2020E	2021E	2022E	2020E	2021E	2022E
Villeroy & Boch Ag-Pref	n.m.	12.1	10.7	4.1	3.1	3.1	12.2	5.8	5.6
Fortune Brands Home & Securi	20.4	18.3	16.2	13.2	11.8	10.9	16.1	14.1	12.5
Niifisk Holding	n.m.	10.6	8.0	9.3	6.0	5.0	n.m.	13.7	10.2
Tarkett	n.m.	10.8	8.5	5.2	4.2	3.7	14.7	9.2	7.5
Nichiha	11.0	17.1	12.0	5.4	7.2	5.3	7.7	n.m.	7.6
Norcros	5.6	8.1	6.8	4.2	4.6	3.4	5.9	n.m.	6.0
Vestel Beyaz Esya Sanayi	8.1	7.3	7.1	5.6	5.2	5.6	6.9	6.7	7.5
Mercor	9.1	6.4	6.0	6.5	5.4	5.1	9.3	7.1	6.7
Lena Lighting	8.2	7.9	7.6	4.6	4.3	4.0	6.4	6.0	5.5
Median	9.7	10.6	8.5	5.6	5.4	5.1	9.3	8.8	7.5
Ferro	7.7	8.2	7.7	6.0	6.5	6.0	6.7	7.4	6.9
Implied Ferro's price based on peers (PLN)	21.8	22.3	19.1	15.9	14.0	14.2	25.0	21.1	19.1
Implied Ferro's price (PLN)	19.2								

Source: Bloomberg, DM BOŚ SA estimates

3Q20E financial results preview

It seems that similarly to two previous quarters 3Q20 was another one favorable for the Company.

We expect the Company to have cut expenses wherever possible and limited big marketing campaigns as well. We expect lower costs of travels and sales albeit we anticipate a salaries costs increase mainly due to the strategy implementation

which was already visible in 1Q and 2Q20 when those costs grew by 14% and 29%, respectively. The commodities and currency market environment was quite favorable for 3Q20 results. Thus, we forecast 3Q20 EBIT at PLN 22 million (+10% yoy).

We forecast 3Q20 financial net costs at PLN 1.8 million vs PLN 2 million a year ago and PLN 1 million in 2Q20, and expect 3Q20 net profit to reach PLN 16 million (+12% yoy).

Fig. 4. Ferro; 3Q20 forecasts

IFRS consolidated (PLN m)								yoy chg			yoy chg	Realisation of 3Q		Realisation of 1-3Q results in	
	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20E		1-3Q19	1-3Q20E		results in		1-3Q results in	
												2019	2020E	2019	2020E
Sales	109.4	105.8	122.1	113.9	124.8	112.0	134.3	10%	337.3	371.1	10%	27%	28%	75%	77%
EBITDA	18.7	14.4	21.5	12.3	21.8	17.3	23.8	11%	54.6	62.9	15%	32%	33%	82%	88%
EBITDA margin	17.1%	13.6%	17.6%	10.8%	17.5%	15.4%	17.7%	-	16.2%	17.0%	-	-	-	-	-
EBIT	17.5	12.7	19.8	10.6	20.0	15.4	21.9	10%	50.0	57.3	15%	33%	34%	82%	90%
EBIT margin	16.0%	12.0%	16.2%	9.3%	16.1%	13.8%	16.3%	-	14.8%	15.5%	-	-	-	-	-
Pre-tax profit	16.1	11.7	17.7	8.5	20.2	14.5	20.1	13%	45.6	54.7	20%	33%	34%	84%	93%
Pre-tax profit margin	14.7%	11.1%	14.5%	7.4%	16.2%	12.9%	14.9%	-	13.5%	14.8%	-	-	-	-	-
Net profit	13.0	9.5	14.5	2.9	16.5	12.3	16.3	12%	37.1	45.1	22%	36%	34%	93%	95%
Net profit margin	11.9%	9.0%	11.9%	2.6%	13.2%	11.0%	12.1%	-	11.0%	12.2%	-	-	-	-	-

Source: The Company, DM BOŚ SA

FY20E outlook

Since 2019 and 2020 were supposed to be the years of the strategy implementation, we expected a larger scale of costs accumulation while the years 2021-2023 should witness a faster growth. It seems that the strategy implementation costs were quite low in 2019 and the same proved to be true in 2020. We believe the Company approached expenses with caution given huge uncertainty about the future. The development costs would probably increase in 2021. On the back of the current circumstances we assume the financial performance to deteriorate yoy in 4Q20. It is likely, in our view, that Ferro may have to pay bonuses for exceeding sales targets. We would like to feel comfortable with ours financial forecasts as Ferro demonstrated that the Covid-19 pandemic fallout and the restrictions implemented by governments may have affected the Group's results but this impact is temporary and to date the Company has managed to contain it in a given quarter. The Group operates in a B2B model and is likely to have collected orders for the rest of this year. We forecast FY20 revenues to reach PLN 482 million (+7% yoy).

The Group's profitability is determined by (i) pricing, (ii) goods purchase prices/production costs (pricing formulas for the merchandise from China are linked

to copper and zinc quotations in Shanghai), and (iii) HR costs. Costs of commodities and goods purchase as well as transport prices are mainly denominated in US\$ (90%) and to a lesser extent in EUR (10%) while revenues are mostly generated in PLN and CZK which ties the realized margins to FX rates. Ferro has the flexibility to adjust final prices to FX rates by the fine-tuning of discounts. The FX differences booked in financial costs arise from a time delay between the order placement and payment day.

It is worth noting that at the end of September prices of aluminum/ copper/ zinc denominated in US\$ and PLN changed by 2%/ 15%/ 5% and -1%/ 11%/ 2%, respectively, while at the end of June contract prices of aluminum/copper/zinc in US\$ and PLN changed by -9%/ 1%/ -16% yoy and -5%/ 5%/ -13% yoy, respectively. We believe the current environment on the commodities and currencies markets is still favorable for the Group's operating profitability.

We forecast the Group's FY20 EBIT at PLN 64 million (+5% yoy) which is a 19% upgrade vs our previous projections. We expect the Group's FY20 NP to reach PLN 48 million (+19% yoy) which means a 19% increase vs our previous forecast. In our model we do not include any acquisition which is highly likely to materialize in 4Q20.

Fig. 6. Ferro; Changes in DM BOŚ SA forecasts

IFRS consolidated (PLN m)	2020E			2021E			2022E		
	current	previous	change	current	previous	change	current	previous	change
Sales	481.6	455.8	6%	515.3	487.7	6%	546.2	516.9	6%
EBITDA	71.2	61.0	17%	67.1	63.2	6%	70.6	68.6	3%
EBIT	63.6	53.2	19%	58.5	54.6	7%	61.8	59.6	4%
NP	47.7	40.1	19%	44.6	41.4	8%	47.7	45.9	4%
Net debt	60.9	60.1	1%	65.7	72.0	-9%	58.1	63.8	-9%

Source: DM BOŚ SA estimates

The market environment

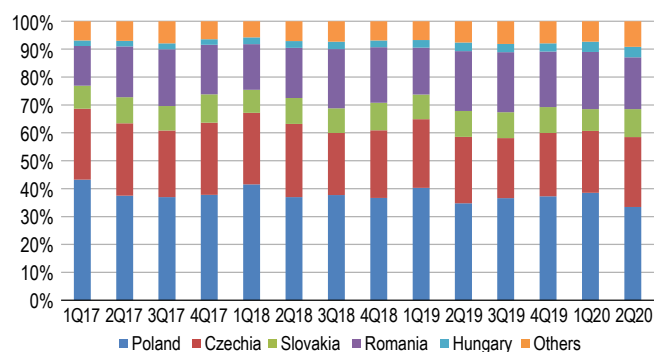
The economic situation on the markets where the Group operates was favorable in 1-3Q20.

According to CSO, in 2019 in Poland (i) 237,000 dwellings were started, up 7% yoy, (ii) 207,000 dwellings were delivered, up 12% yoy, and (iii) 268,000 building permits were issued, up 4% yoy. In 3Q20 in Poland (i) 67,000 dwellings were started, up 7% yoy, (ii) 59,000 dwellings were delivered, up 16% yoy, and (iii) 69,000 building permits were issued, down 3% yoy. In 1-3Q20 in Poland (i) 167,000 dwellings were started, down 6% yoy, (ii) 156,000 dwellings were delivered, up 7% yoy, and (iii) 192,000 building permits were issued, down 5% yoy.

According to the Czech Statistical Office, in 2019/1Q20/2Q20 in Czechia the construction of 39,000 (+17% yoy)/9,000 (-4% yoy)/10,000 dwellings (flat yoy) was commenced, and 36,000 (+8% yoy)/8,000 (-1% yoy)/7,000 dwellings (-13% yoy) were finished.

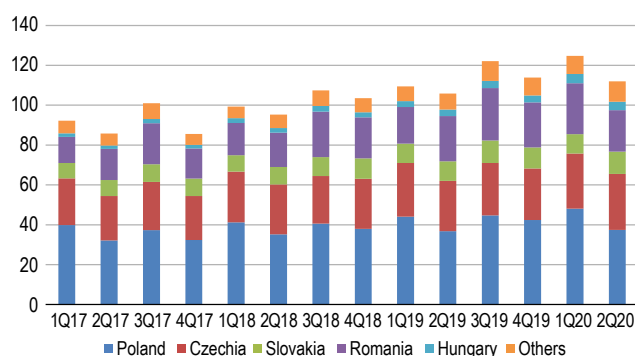
In Romania there were 30,696 building permits issued from January to September; the number of permits issued was increasing on a quarter-by-quarter basis: 8,729 in 1Q20, 9,233 in 2Q20 and 12,734 in 3Q20.

Fig. 7. Ferro; Revenues – the geographical structure



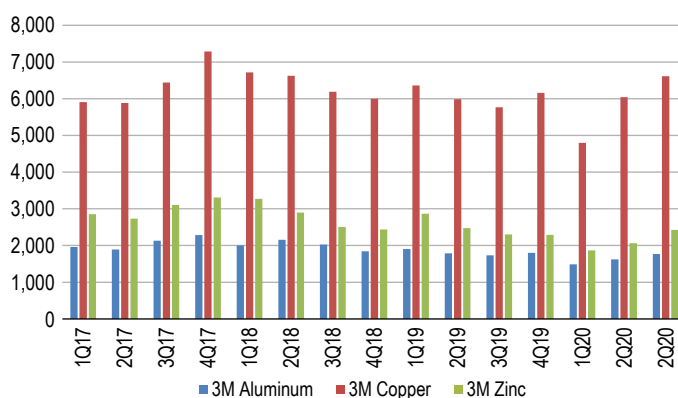
Source: Company, DM BOŚ SA

Fig. 8. Ferro; Revenues by regions (PLN million)



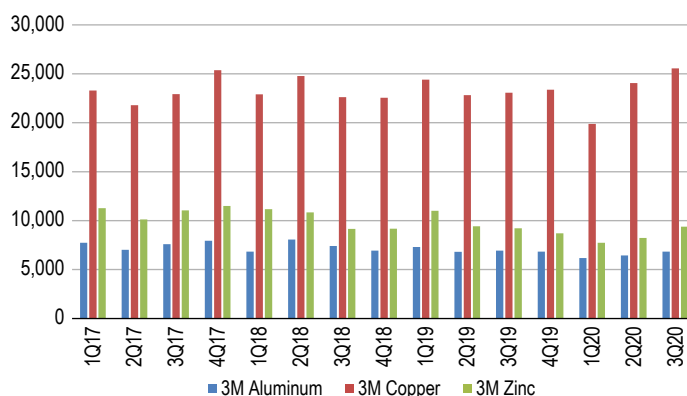
Source: Company, DM BOŚ SA

Fig. 9. Commodities prices (eop, US\$)



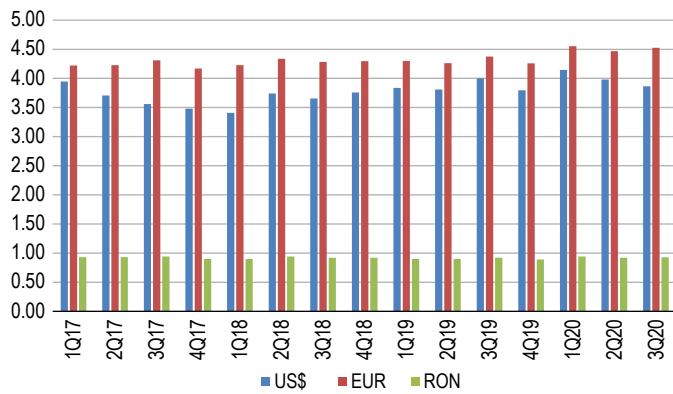
Source: Bloomberg

Fig. 10. Commodities prices (eop, PLN)



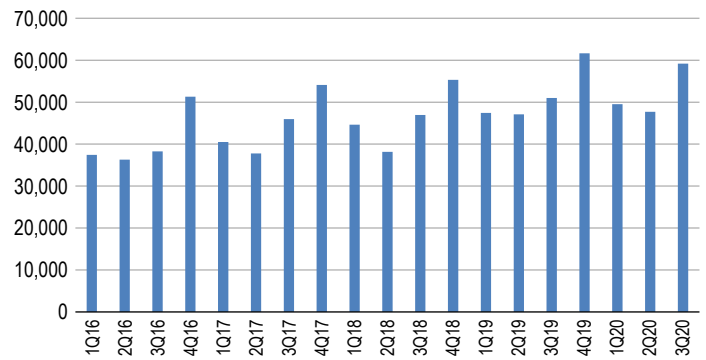
Source: Bloomberg

Fig. 13. FX rates (eop, PLN)



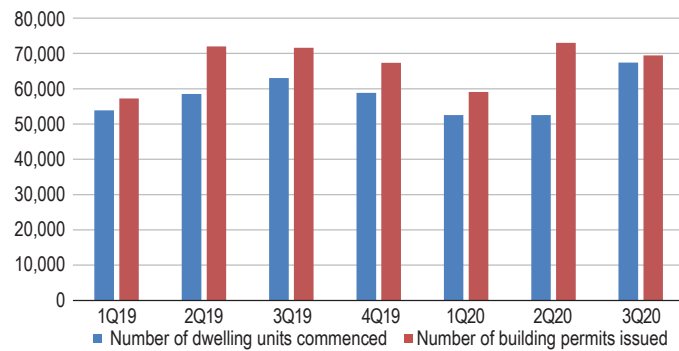
Source: Bloomberg

Fig. 11. Poland; Dwellings delivered to clients



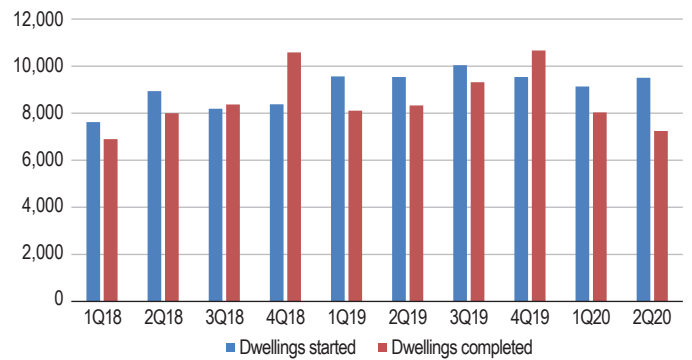
Source: GUS

Fig. 12. Poland; Housing market



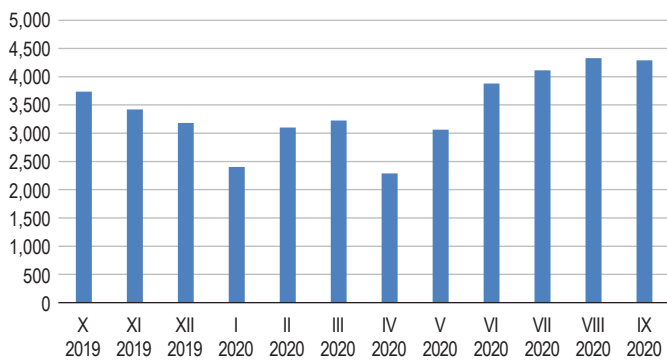
Source: GUS

Fig. 14. Czechia; Number of dwellings



Source: Czech Statistical Office

Fig. 15. Romania; Building permits issued



Source: CEICDATA

Risk factors

1. Economic slowdown in Europe
2. Falling demand for new flats (about a quarter of demand for the Company's products generated by new housing projects)
3. Lower frequency of renovations (replacement demand generates c. 75% of demand for the Company's products/goods)
4. High prices of construction materials (falling demand for finishing materials)
5. Workforce shortage (qualified staff needed due to the market expansion)
6. Wage pressure
7. High/volatile raw materials prices (of copper and zinc, in particular)
8. Unfavorable/volatile FX rates (38%/25% of revenues in PLN/CZK and 90%/10% of foreign supplies costs in US\$/EUR; currency risk when PLN and CZK weaken against US\$ and EUR)
9. Own brands developed by shopping chains (c. 33% of the Company's turnover realized in large-format chains)
10. Lack of attractive acquisition targets/ high valuations

Catalysts

1. Continuous demand for new apartment flats (time delay between the construction and fit-out works)
2. Development of the market for renovations (new design elements, increasing frequency of renovations)
3. Expansion in European markets
4. Strengthening position on the existing markets
5. New products (expanding the product offer)
6. Repositioning of the Company's brands (new upper segment brands)
7. Favorable/stable FX rates
8. Favorable/stable raw materials prices
9. Brand promotion (intensifying online activities)
10. Potential acquisitions (if beneficial from the Group's perspective)

Financial statements (IFRS consolidated)
Fig. 16. Ferro; Balance sheet

(PLN m)	2017	2018	2019	2020E	2021E	2022E
Fixed assets	186.8	196.2	203.4	203.1	203.7	205.2
Other fixed assets	1.0	1.0	1.6	1.7	1.8	1.9
Current trade assets	177.4	193.7	206.7	266.1	279.0	300.7
- inventory	106.7	119.0	125.5	147.3	165.5	175.4
- net trade receivables	51.8	57.1	60.7	63.9	68.3	72.4
Accruals	18.9	17.6	20.5	54.9	45.1	52.8
Assets	365.2	390.9	411.6	470.9	484.4	507.8
Shareholders' funds	198.3	233.2	250.3	286.9	301.5	321.0
Reserves	35.1	8.1	8.1	8.1	8.1	8.1
Liabilities	131.8	149.6	153.2	175.9	174.8	178.6
- interest bearing debt	65.6	109.1	89.2	108.8	103.8	103.8
- trading liabilities	59.7	34.7	47.2	50.3	53.7	56.9
- other	5.6	5.8	9.7	9.7	10.2	10.8
Shareholders equity and liabilities	365.2	390.9	411.6	470.9	484.4	507.8
Ratios:						
Debt/Equity	0.3	0.5	0.4	0.4	0.4	0.3
Net WC / Total assets	0.3	0.4	0.3	0.3	0.4	0.4
Current ratio	1.5	1.6	1.7	2.1	2.2	2.3
Quick ratio	0.6	0.6	0.7	0.9	0.9	0.9
Sales / Total assets	1.0	1.1	1.1	1.1	1.1	1.1
Sales / Net WC	3.5	3.4	3.2	3.2	3.0	2.9
Inventory turnover (days)*	104	102	99	103	111	114
Average receivable turnover (days)*	48	49	48	47	47	47
Average accounts payable period (days)*	49	42	33	37	37	37
Cash conversion cycle (days)	103	108	113	114	121	124
ROA	11.2%	10.2%	10.7%	10.8%	9.3%	9.6%
ROE	19.2%	17.9%	17.7%	17.8%	15.2%	15.3%

*in relation to revenues

Source: Company, DM BOŚ SA estimates

Fig. 17. Ferro; Income statement

(PLN m)	2017	2018	2019	2020E	2021E	2022E
Net sales	364.7	405.6	451.3	481.6	515.3	546.2
Costs of operating activities	319.3	353.9	392.9	419.4	458.4	486.0
EBITDA	51.6	57.3	66.9	71.2	67.1	70.6
EBIT	47.7	53.6	60.6	63.6	58.5	61.8
Financial income	2.9	0.0	0.0	0.7	0.9	0.8
Financial costs	-10.1	-6.7	-6.6	-5.4	-4.2	-3.8
Pre-tax profit	40.5	46.8	54.0	58.9	55.1	58.9
Income tax	-29.5	-9.1	-14.0	-11.2	-10.5	-11.2
NP	11.1	37.7	40.0	47.7	44.6	47.7
Adj NP	39.6	38.6	42.9	47.7	44.6	47.7
Margins:						
EBITDA	14.2%	14.1%	14.8%	14.8%	13.0%	12.9%
EBIT	13.1%	13.2%	13.4%	13.2%	11.3%	11.3%
Pre-tax profit	11.1%	11.5%	12.0%	12.2%	10.7%	10.8%
NP	3.0%	9.3%	8.9%	9.9%	8.7%	8.7%
Adj NP	10.9%	9.5%	9.5%	9.9%	8.7%	8.7%
Nominal growth:						
Sales	9.7%	11.2%	11.3%	6.7%	7.0%	6.0%
EBITDA	12.4%	11.0%	16.7%	6.5%	-5.8%	5.3%
EBIT	16.1%	12.2%	13.2%	5.0%	-8.1%	5.7%
Pre-tax profit	11.1%	15.5%	15.4%	9.0%	-6.3%	6.9%
NP	-62.0%	240.8%	6.1%	19.2%	-6.4%	6.9%
Adj NP	36.2%	-2.6%	11.2%	11.2%	-6.4%	6.9%

Source: The Company, DM BOS SA estimates

Fig. 18. Ferro; Cash flow

(PLN m)	2017	2018	2019	2020E	2021E	2022E
Operating cash flow	61.4	-25.1	54.6	35.9	37.3	49.0
Pre-tax profit	48.7	46.8	54.0	58.9	55.1	58.9
Depreciation	3.9	3.7	6.3	7.6	8.6	8.8
Change in working capital	8.2	-44.7	0.8	-22.7	-19.2	-10.9
Other	0.7	-31.0	-6.5	-7.8	-7.2	-7.8
Net funds from investing activities	-4.3	-7.1	-4.4	-7.4	-9.2	-10.4
Capital expenditures	-4.4	-7.2	-4.6	-7.4	-9.2	-10.4
Other	0.1	0.2	0.2	0.0	0.0	0.0
Net funds from financial activities	-39.6	5.3	-51.9	6.0	-37.9	-30.9
Income from shares issue	0.0	0.0	0.0	0.0	0.0	0.0
Net change in debt	-12.4	15.0	-25.2	19.6	-5.0	0.0
Dividends paid	-25.5	-7.4	-23.8	-11.1	-30.1	-28.2
Other	-1.7	-2.3	-3.0	-2.5	-2.8	-2.7
Change in cash	17.6	-26.9	-1.8	34.5	-9.8	7.7

Source: The Company, DM BOS SA estimates

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 = $\text{gross profit on sales}/\text{sales}$
EBITDA margin = $\text{EBITDA}/\text{sales}$
EBIT margin = EBIT/sales
Pre-tax margin = $\text{pre-tax profit}/\text{sales}$
Net margin = $\text{net profit}/\text{sales}$
ROE = $\text{net profit}/\text{average equity}$
ROA = $(\text{net income} + \text{interest payable})/\text{average assets}$
EV = $\text{market capitalization} + \text{interest bearing debt} - \text{cash and equivalents}$
EPS = $\text{net profit}/\text{no. of shares outstanding}$
CE = $\text{net profit} + \text{depreciation}$
Dividend yield (gross) = $\text{pre-tax DPS}/\text{stock market price}$
Cash sales = $\text{accrual sales corrected for the change in A/R}$
Cash operating expenses = $\text{accrual operating expenses corrected for the changes in inventories and A/P, depreciation, cash taxes and changes in the deferred taxes}$

DM BOŠ 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 BOŠ 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 BOŠ's current recommendations

	Buy	Hold	Sell	Suspended	Under revision
Numbers	38	34	5	9	0
Percentage	44%	40%	6%	10%	0%

Banks

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

DM BOŠ 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.

Distribution of DM BOŠ's current recommendations for the companies which DM BOŠ 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 BOŠ's current market relative recommended weightings

	Overweight	Neutral	Underweight	Suspended	Under revision
Numbers	32	31	14	9	0
Percentage	37%	36%	16%	10%	0%

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

	Overweight	Neutral	Underweight	Suspended	Under revision
Numbers	3	7	2	2	0
Percentage	21%	50%	14%	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)	
Ferro										
Sylwia Jaśkiewicz	Hold	-	21.07.2019	-	22.07.2019	04.12.2019	11%	20%	13.70	17.10 -
Sylwia Jaśkiewicz	-	→	-	30.07.2019	31.07.2019	-	-	-	13.50	17.10 →
Sylwia Jaśkiewicz	-	→	-	01.09.2019	02.09.2019	-	-	-	12.05	17.10 →
Sylwia Jaśkiewicz	-	→	-	10.09.2019	11.09.2019	-	-	-	12.10	17.10 →
Sylwia Jaśkiewicz	-	→	-	15.09.2019	16.09.2019	-	-	-	12.65	17.10 →
Sylwia Jaśkiewicz	-	→	-	13.10.2019	14.10.2019	-	-	-	13.40	17.10 →
Sylwia Jaśkiewicz	-	→	-	24.10.2019	25.10.2019	-	-	-	13.00	17.10 →
Sylwia Jaśkiewicz	-	→	-	17.11.2019	18.11.2019	-	-	-	13.00	17.10 →
Sylwia Jaśkiewicz	-	→	-	18.11.2019	19.11.2019	-	-	-	13.00	17.10 →
Sylwia Jaśkiewicz	Buy	↑	04.12.2019	-	05.12.2019	28.01.2020	17%	15%	15.20	17.80 ↑
Sylwia Jaśkiewicz	-	→	-	08.12.2019	09.12.2019	-	-	-	15.00	17.80 →
Sylwia Jaśkiewicz	-	→	-	09.01.2020	10.01.2020	-	-	-	16.30	17.80 →
Sylwia Jaśkiewicz	Hold	↓	28.01.2020	-	29.01.2020	22.07.2020	-4%	5%	17.80	18.50 ↑
Sylwia Jaśkiewicz	-	→	-	04.02.2020	05.02.2020	-	-	-	17.90	18.50 →
Sylwia Jaśkiewicz	-	→	-	06.02.2020	07.02.2020	-	-	-	17.50	18.50 →
Sylwia Jaśkiewicz	-	→	-	03.03.2020	04.03.2020	-	-	-	15.20	18.50 →
Sylwia Jaśkiewicz	-	→	-	30.03.2020	31.03.2020	-	-	-	12.25	18.50 →
Sylwia Jaśkiewicz	-	→	-	22.04.2020	23.04.2020	-	-	-	14.00	18.50 →
Sylwia Jaśkiewicz	-	→	-	23.04.2020	24.04.2020	-	-	-	14.00	18.50 →
Sylwia Jaśkiewicz	-	→	-	19.05.2020	20.05.2020	-	-	-	13.65	18.50 →
Sylwia Jaśkiewicz	-	→	-	15.06.2020	16.06.2020	-	-	-	16.60	18.50 →
Sylwia Jaśkiewicz	-	→	-	13.07.2020	14.07.2020	-	-	-	17.90	18.50 →
Sylwia Jaśkiewicz	Buy	↑	22.07.2020	-	23.07.2020	Not later than 22.07.2021	4%	15%	17.00	20.30 ↑
Sylwia Jaśkiewicz	-	→	-	01.09.2020	02.09.2020	-	-	-	18.60	20.30 →
Sylwia Jaśkiewicz	-	→	-	17.09.2020	18.09.2020	-	-	-	18.90	20.30 →
Sylwia Jaśkiewicz	-	→	-	29.09.2020	30.09.2020	-	-	-	18.70	19.90 ↓
Sylwia Jaśkiewicz	-	→	-	08.10.2020	09.10.2020	-	-	-	19.00	19.90 →
Sylwia Jaśkiewicz	-	→	-	03.11.2020	04.11.2020	-	-	-	17.30	22.00 ↑

* prices at issue/reiteration are the closing prices at the report or reiteration date

Market-relative recommendation tracker

Analyst	Relative Recommendation	Report date	Reiteration date	Distribution date	Expiry date	Price at issue/reiteration*	Relative performance
Ferro							
Sylwia Jaśkiewicz	Neutral	-	21.07.2019	-	22.07.2019	18.11.2019	13.70 -2%
Sylwia Jaśkiewicz	-	→	-	30.07.2019	31.07.2019	-	13.50 -
Sylwia Jaśkiewicz	-	→	-	01.09.2019	02.09.2019	-	12.05 -
Sylwia Jaśkiewicz	-	→	-	10.09.2019	11.09.2019	-	12.10 -
Sylwia Jaśkiewicz	-	→	-	15.09.2019	16.09.2019	-	12.65 -
Sylwia Jaśkiewicz	-	→	-	13.10.2019	14.10.2019	-	13.40 -
Sylwia Jaśkiewicz	-	→	-	24.10.2019	25.10.2019	-	13.00 -
Sylwia Jaśkiewicz	-	→	-	17.11.2019	18.11.2019	-	13.00 -
Sylwia Jaśkiewicz	Overweight	↑	18.11.2019	-	19.11.2019	28.01.2020	13.00 41%
Sylwia Jaśkiewicz	-	→	-	04.12.2019	05.12.2019	-	15.20 -
Sylwia Jaśkiewicz	-	→	-	08.12.2019	09.12.2019	-	15.00 -
Sylwia Jaśkiewicz	-	→	-	09.01.2020	10.01.2020	-	16.30 -
Sylwia Jaśkiewicz	Neutral	↓	28.01.2020	-	29.01.2020	23.04.2020	17.80 -1%
Sylwia Jaśkiewicz	-	→	-	04.02.2020	05.02.2020	-	17.90 -
Sylwia Jaśkiewicz	-	→	-	06.02.2020	07.02.2020	-	17.50 -
Sylwia Jaśkiewicz	-	→	-	03.03.2020	04.03.2020	-	15.20 -
Sylwia Jaśkiewicz	-	→	-	30.03.2020	31.03.2020	-	12.25 -
Sylwia Jaśkiewicz	-	→	-	22.04.2020	23.04.2020	-	14.00 -
Sylwia Jaśkiewicz	Overweight	↑	23.04.2020	-	24.04.2020	Not later than 23.04.2021	14.00 22%
Sylwia Jaśkiewicz	-	→	-	19.05.2020	20.05.2020	-	13.65 -
Sylwia Jaśkiewicz	-	→	-	15.06.2020	16.06.2020	-	16.60 -
Sylwia Jaśkiewicz	-	→	-	13.07.2020	14.07.2020	-	17.90 -
Sylwia Jaśkiewicz	-	→	-	22.07.2020	23.07.2020	-	17.00 -
Sylwia Jaśkiewicz	-	→	-	01.09.2020	02.09.2020	-	18.60 -
Sylwia Jaśkiewicz	-	→	-	17.09.2020	18.09.2020	-	18.90 -
Sylwia Jaśkiewicz	-	→	-	29.09.2020	30.09.2020	-	18.70 -
Sylwia Jaśkiewicz	-	→	-	08.10.2020	09.10.2020	-	19.00 -
Sylwia Jaśkiewicz	-	→	-	03.11.2020	04.11.2020	-	17.30 -

* prices at issue/reiteration are the closing prices at the report or reiteration date

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