

- We upgrade PKO (to Accumulate from Neutral), ING (to Accumulate from Neutral) and GNB (to Buy from Reduce)...
- ... maintain our rating for PEO (Buy), SPL (Accumulate), MBK (Neutral), MIL (Neutral) and ALR (Buy)...
- ... and downgrade BHW (to Neutral from Buy),

2019E: EPS growth weaker, but still decent

In 2018 YTD WIG Banks index lost 10%. While banks will likely succeed in delivering decent EPS growth this year (we assume 18% YoY), share prices have been negatively affected by global sentiment coupled with fears of deteriorating macro, weak capital markets and rising provisions. In our view though, share price drops made valuations of Polish banks more appealing – at 1YF P/E WIG Banks index is trading with 9/13% discount to 1/5Y average and EPS outlook remains solid. In 2019E we expect 13% YoY aggregate earnings growth driven by better NII only partly offset by higher costs and provisions. GDP growth, although decelerating, is still relatively strong, unemployment rate remains at historical lows, dividend outlook is improving and CHF risk has declined. We upgrade our ratings for PKO (to Accumulate from Neutral), ING (to Accumulate from Neutral) and GNB (to a Buy from Reduce), maintain our ratings for PEO (Buy), SPL (Accumulate), MBK (Neutral), MIL (Neutral) and ALR (Buy) and downgrade our rating for BHW (to Neutral from a Buy).

2019E EPS growth weaker, but still decent. In 2019E we forecast aggregate adjusted net profit of 9 banks in our coverage to increase by 13% YoY (vs. 18% YoY in 2018E). We expect the growth to be driven by rising net interest income (10% YoY vs. 8% in 2018E) coupled with higher net fees (5% YoY vs. 3% in 2018E) and financial and other income (+5% YoY vs. 4% in 2018E). We expect better revenues to be partly offset by rising costs (+6% YoY vs. 4% in 2018E) and provisions (+8% YoY vs. -5% in 2018E). We assume 6% YoY growth of net loans and 5% YoY growth of deposits.

Valuations more appealing. At 1YF P/E of 12.2x WIG-Banks index is currently trading with 9/13/11% discount to 1/5/10Y average and at 1Y P/BV of 1.20x, with 7/15/22% discount, respectively. Given improvement in ROE (we assume 10.1% in 2019E vs. 9.3% in 2018E), decent EPS growth and improving dividend outlook, the valuations sound appealing, we believe.

Pekao our top pick. Out of 9 banks in our coverage PEO (Buy) remains our top pick. On valuation grounds we rate also a Buy ALR and GNB (high risk). We recommend Accumulate PKO, SPL and ING and rate Neutral MIL, BHW and MBK.

Key risks to our forecasts. Deeper than expected slowdown in macro environment coupled with rising unemployment and continuously weak capital markets appear to be key risk factors to our forecasts. In this note we analyze impact of deterioration in construction segment in Poland on banks' provisions and earnings.

Figure 1. Polish Banks – Changes in ratings and valuations

Bank	Rating	12M TP	Current price	Upside/downside	Previous rating	Previous 12M TP
PKO BP	Accumulate ↑	45.0	40.6	11%	Neutral	42.0
Pekao	Buy ▬	139.0	108.6	28%	Buy	148.0
Santander	Accumulate ▬	395.0	353.0	12%	Accumulate	410.0
mBank	Neutral ▬	440.0	429.0	3%	Neutral	441.0
ING BSK	Accumulate ↑	197.0	180.0	9%	Neutral	222.0
Handlowy	Neutral ↓	75.6	70.0	8%	Buy	81.0
Millennium	Neutral ▬	9.7	9.1	7%	Neutral	9.3
Alior	Buy ▬	70.0	55.2	27%	Buy	85.0
Getin Noble Bank	Buy ↑	0.76	0.31	145%	Reduce	1.55

Source: Vestor DM

WIG Banks vs. WIG – relative price performance 12M



Source: Bloomberg, Vestor DM

Bank	Rating	12M TP (PLN)
PKO BP	Accumulate	45.0
Pekao	Buy	139
Santander	Accumulate	395
mBank	Neutral	440
ING BSK	Accumulate	197
Handlowy	Neutral	75.6
Millennium	Neutral	9.7
Alior Bank	Buy	70.0
Getin Noble	Buy	0.76

Source: Vestor DM

Michał Fidelus

Head of Research

(+48) 22 378 9212

Michal.Fidelus@vestor.pl

DISCLAIMER

This report has been prepared by Vestor Dom Maklerski S.A. ("Vestor"), with its registered office in Warsaw, al. Jana Pawła II 22, 00-133 Warsaw, registered by the District Court for the capital city Warsaw, XII Commercial Division of the National Court Register under the number KRS 0000277384, Taxpayer Identification No. 1080003081, with share capital amounting to PLN 2 009 570 fully paid up, entity that is subject to the regulations of the Act on Trading in Financial Instruments dated July 29th 2005 (Journal of Laws of 2017, item 1768 - consolidated text, further amended), Act on Public Offering, Conditions Governing the Introduction of Financial Instruments to Organised Trading, and Public Companies dated July 29th 2005 (Journal of Laws of 2016, item 1639 consolidated text, further amended), Act on Capital Market Supervision dated July 29th 2005 (Journal of Laws of 2016 item 1289 consolidated text, further amended).

Vestor is subject to the supervision of the Polish Financial Supervisory Authority ("PFSA") and this document has been prepared within the legal scope of the activity of Vestor.

This document is an investment research within the meaning of article 36.1 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 document is a recommendation within the meaning of the "Delegated Commission Regulation (EU) No 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 regarding technical means for objective purposes presentation of investment recommendations or other information recommending or suggesting an investment strategy and disclosure of particular interests or indications of conflicts of interest".

Please note that this research was originally prepared and issued by Vestor for distribution to their market professional and institutional investors as defined under the above indicated regulations and to other qualified customers of Vestor entitled to gain recommendations based on the brokerage services agreements. Recipients who are not market professional or institutional investor customers of Vestor should seek the advice of their independent financial advisor prior to taking any investment decision based on this report or for any necessary explanation of its contents.

Vestor may not have taken any steps to ensure that the financial instruments referred to in this report are suitable for any particular investor, therefore in the preparation of this document Vestor not take into account individual needs and situation of the investor. Vestor will not treat recipients of this report as its customers by virtue of their receiving this report. The investments and services contained or referred to in this report may not be suitable for you and it is recommended that you consult an independent investment advisor if you are in doubt about such investments or investment services. Recipients must make their own determination of the appropriateness of an investment in any instruments referred to herein based on the merits and risks involved, their own investment strategy and their legal, fiscal and financial position.

Recipients of this report must make their own determination of the appropriateness of an investment in any instruments referred to herein based on the merits and risks involved, their own investment strategy and their legal and financial position.

Nothing in this report constitutes investment, legal, accounting or tax advice, or a representation that any investment or strategy is suitable or appropriate to your individual circumstances, or otherwise constitutes a personal recommendation to you. Vestor does not advise on the tax consequences of investments and you are advised to contact an independent tax adviser. Please note in particular that the bases and levels of taxation may change.

This report is for information purposes only and (i) does not constitute or form part of any offer for sale or subscription of or solicitation of any offer to buy or subscribe for any financial instruments, (ii) is neither intended as such an offer for sale or subscription of or solicitation of an offer to buy or subscribe for any financial instruments (iii) as an advertisement thereof.

This document has been prepared with due diligence, reliability and objectivity principles and based on publicly available information including information published by the Issuer. Our recommendations, information and opinions contained herein have been compiled or gathered by Vestor from public sources believed to be reliable, however Vestor and its affiliates shall have no responsibility or liability whatsoever in respect of any inaccuracy in or omission from this document prepared by Vestor or sent by Vestor to any person. This document expresses the knowledge and opinions of the authors as at the date of preparation. Any such person shall be responsible for conducting his own investigation and analysis of the information contained or referred to in this document and of evaluating the merits and risks involved in the financial instruments forming the subject matter of this document.

This report may provide the addresses of, or contain hyperlinks to, websites. Except to the extent to which the report refers to website of Vestor, Vestor has not reviewed any such site and takes no responsibility for the content contained therein. Such address or hyperlink (including addresses or hyperlinks to Vestor's own website material) is provided solely for your convenience and information and the content of any such website does not in any way form part of this document.

This report may contain recommendations, information and opinions that are not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or jurisdiction where such distribution, publication, availability or use would be contrary to law or applicable regulations or which would be subject for Vestor or its affiliates to any registration or licensing requirement within such jurisdiction, in particular in jurisdictions where Vestor is not already registered or licensed to trade in financial instruments.

This material may relate to investments or financial instruments of an entity located outside territory of the Republic of Poland, which are not regulated by the Polish Financial Supervision Authority or other relevant authority. Any further details as to where this may be the case is available upon request.

THIS DOCUMENT NOR ANY COPY HEREOF SHALL NOT BE DISTRIBUTED DIRECTLY OR INDIRECTLY IN THE UNITED STATES, CANADA, AUSTRALIA OR JAPAN OR TO ANY CITIZEN OR RESIDENT OF COUNTRIES WHERE ITS DISTRIBUTION MAY BE RESTRICTED BY LAW. IN SUCH CASES PERSONS WHO DISTRIBUTE THIS DOCUMENT SHALL MAKE THEMSELVES AWARE OF AND ADHERE TO ANY SUCH RESTRICTIONS.

VESTOR INFORMS THAT INVESTING ASSETS IN FINANCIAL INSTRUMENTS IMPLIES THE RISK OF LOSING PART OR ALL THE INVESTED ASSETS.

VESTOR INDICATES THAT THE PRICE OF THE FINANCIAL INSTRUMENTS IS INFLUENCED BY LOTS OF DIFFERENT FACTORS, WHICH ARE OR CANNOT BE DEPENDENT FROM ISSUER AND ITS BUSINESS RESULTS. THESE ARE FACTORS SUCH AS CHANGING ECONOMICAL, LAW, POLITICAL OR TAX CONDITIONS.

THE DECISION TO PURCHASE ANY OF THE FINANCIAL INSTRUMENTS SHOULD BE MADE ONLY ON THE BASIS OF THE PROSPECTUS, OFFERING CIRCULAR OR OTHER DOCUMENTS AND MATERIALS WHICH ARE PUBLISHED ON GENERAL RELEASE ON THE BASIS OF POLISH LAW.

Past performance should not be taken as an indication or guarantee of future performance, and no representation or warranty, express or implied, is made regarding future performance. The price, value of and income from any of the securities or financial instruments mentioned in this report can fall as well as rise. The value of securities and financial instruments is subject to exchange rate fluctuation that may have a positive or adverse effect on the price or income of such securities or financial instruments.

Some investments discussed in this report may have a high level of volatility. High volatility investments may experience sudden and large falls in their value causing losses when that investment is realised. Those losses may equal your original investment. Indeed, in the case of some investments the potential losses may exceed the amount of initial investment and, in such circumstances, you may be required to pay more money to support those losses. Some investments may not be readily realisable and it may be difficult to sell or realise those investments, similarly it may prove difficult for you to obtain reliable information about the value, or risks, to which such an investment is exposed.

THIS REPORT HAS NOT BEEN PREPARED BY OR IN CONJUNCTION WITH ISSUER.

INFORMATION IN THIS DOCUMENT MUST NOT BE RELIED UPON AS HAVING BEEN AUTHORISED OR APPROVED BY ISSUER THE OPINIONS EXPRESSED HEREIN ARE SOLELY THOSE OF VESTOR.

During the last 12 months Vestor has not been a party to agreements relating to the offering of financial instruments issued by Issuer and connected with the price of financial instruments issued by Issuer.

During the last 12 months Vestor was not a member of syndicate for financial instruments issued by Issuer.

Vestor did not buy or sell any financial instruments issued by the Issuer on its own account, in order to realize investment subissue or service agreements.

Vestor does not act as a market maker and as issuer's market maker, on principles specified in the Regulations of the Warsaw Stock Exchange, for the shares of Issuer.

During the last 12 months Vestor has not received remuneration for providing services for the Issuer.

Vestor does not hold shares of the Issuer or any financial instruments of the Issuer being the subject of this document, in the amount reaching at least 5% of the share capital. Analyst who participated in the preparation of this document do not own and not owned in the past shares issued by the Issuer.

Vestor does not, directly or indirectly, hold financial instruments issued by the Issuer or financial instruments whose value significantly depends on the value of financial instruments issued by the Issuer. However, it cannot be ruled out that, in the period of the next twelve months or the period in which this recommendation is in force, Vestor or its affiliates will submit an offer to provide services for the Issuer or will purchase or dispose of financial instruments issued by the Issuer or whose value depends on the value of financial instruments issued by the Issuer.

Vestor or its affiliates may, to the extent permitted by law, participate or invest in financing transactions with the Issuer, provide services for, solicit business services for the Issuer, have the possibility or execute transactions in financial instruments issued by the Issuer.

Vestor may, to the extent permitted by Polish law and other applicable law or regulations, provide investment banking services and manage the portfolio of financial instruments or encourage the use of such services of the company/companies referred to in this report.

Except for brokerage agreements with clients under which Vestor sells and buys the shares of the Issuer at the order of its clients, Vestor is not party to any agreement which would depend on the valuation of the financial instruments discussed in this document.

Remuneration received by the persons who prepare this document may be dependent, in an indirect way, from financial results gained from investment banking transactions, related to financial instruments issued by the Issuer, made by Vestor or its affiliates.

The members of Vestor governing bodies and its employees may, in the scope not disclosed above and permitted by law, hold long or short positions or have a commitment to investments (including derivative instruments) to which this report refers to more than 0.5% of all issued shares by the Issuer. Analysts preparing this report are employed by Vestor on the basis of an employment contract signed.

Analysts of Vestor have acted with due diligence in the preparation of this report. This analysis of the relevant companies and securities is based on the personal opinions of the analysts about mentioned companies and securities.

All estimates and opinions included in the report represent the independent judgment of the analysts as of the date of the issue.

Neither Vestor nor any of their respective directors, officers or employees nor any other person accepts any liability whatsoever (in negligence or otherwise) for any loss howsoever arising from any use of this document or its contents or otherwise arising in connection therewith.

Vestor is not obliged to take any actions which could cause financial instruments that are the subject of the valuation contained in this document to be valued by the market in accordance with the valuation contained in this document.

Vestor reserves the right to modify the views expressed herein at any time without notice. Moreover, we reserve the right not to update this information or to discontinue it altogether without notice.

Vestor may have issued, and may in the future issue, other reports that are inconsistent with, and reach different conclusions from, the information presented in this report. Those reports reflect the different assumptions, views and analytical methods of the analysts who prepared them and Vestor is under no obligation to ensure that such other reports are brought to the attention of any recipient of this report.

The date on the first page of this report is the date of preparation and publication of the document.

The recommendation issued by Vestor is valid for 12 months from the date of its publication or until the expected exchange rate is reached, unless the recommendation is updated within that period. In the next 12 months Vestor intends to spend at least an update of this report. In the case where recommendation refers to several companies, the name "Issuer" will apply to all of them.

Over the last three months, excluding recommendation contained in this report, Vestor issued 8 Buy recommendations, 1 Accumulate recommendations, 2 Neutral recommendations, 0 Reduce recommendations and 0 Sell recommendations. In addition to the above, Vestor DM issued 6 recommendations without pointing the investment direction or target price, including 6 acting within the Equity Research Partner commercial publications within the meaning of art. 36 par. 2 of Commission Delegated Regulation (EU) 2017/565 of 25 April 2016 supplementing Directive 2014/65 / EU of the European Parliament and of the Council with regard to organizational requirements and operating conditions of investment firms and concepts defined for the purposes of this directive, which do not indicated the investment direction. The proportion of issuers number corresponding to each of the above directions of recommendation, for which Vestor has rendered investment banking services within last 12 months is 23%.

THE LAST RECOMMENDATION ISSUED TO THE COMPANY PKO BP S.A. WAS PUBLISHED ON THE 25TH OF MAY 2018 AND INCLUDED A NEUTRAL RECOMMENDATION.

THE LAST RECOMMENDATION ISSUED TO THE COMPANY PEKAO S.A. WAS PUBLISHED ON THE 16TH OF MAY 2018 AND INCLUDED A BUY RECOMMENDATION.

THE LAST RECOMMENDATION ISSUED TO THE COMPANY SANTANDER BANK POLSKA S.A. WAS PUBLISHED ON THE 2ND OF AUGUST 2018 AND INCLUDED A ACCUMULATE RECOMMENDATION.

THE LAST RECOMMENDATION ISSUED TO THE COMPANY MBANK S.A. WAS PUBLISHED ON THE 19TH OF MAY 2018 AND INCLUDED A NEUTRAL RECOMMENDATION.

THE LAST RECOMMENDATION ISSUED TO THE COMPANY ING ISK S.A. WAS PUBLISHED ON THE 8TH OF JANUARY 2018 AND INCLUDED A NEUTRAL RECOMMENDATION.

THE LAST RECOMMENDATION ISSUED TO THE COMPANY CITI BANK HANDLOWY S.A. WAS PUBLISHED ON THE 20TH OF JUNE 2018 AND INCLUDED A BUY RECOMMENDATION.

THE LAST RECOMMENDATION ISSUED TO THE COMPANY MILLENIUM BANK S.A. WAS PUBLISHED ON THE 30TH OF JULY 2018 AND INCLUDED A NEUTRAL RECOMMENDATION.

THE LAST RECOMMENDATION ISSUED TO THE COMPANY ALIOR BANK S.A. WAS PUBLISHED ON THE 5TH OF SEPTEMBER 2018 AND INCLUDED A BUY RECOMMENDATION.

THE LAST RECOMMENDATION ISSUED TO THE COMPANY GETIN NOBLE BANK S.A. WAS PUBLISHED ON THE 8TH OF JANUARY 2018 AND INCLUDED A REDUCE RECOMMENDATION.

THIS DOCUMENT IS FURNISHED AND PRESENTED TO YOU SOLELY FOR YOUR INFORMATION AND SHALL NOT BE REPRODUCED OR REDISTRIBUTED TO ANY OTHER PERSON.

Additional information is available on request.

If this report is being distributed by a financial institution other than Vestor, or its affiliates, that financial institution is solely responsible for distribution. Clients of that institution should contact that institution to effect a transaction in the securities mentioned in this report or require further information. This report does not constitute investment advice by Vestor to the clients of the distributing financial institution, and neither Vestor, its affiliates, and their respective officers, directors and employees accept any liability whatsoever for any direct or consequential loss arising from their use of this report or its content.

All trademarks and logos used in this report are trademarks or logos of Vestor or its affiliates. Vestor is an author of this document. All material presented in this report, unless specifically indicated otherwise, is under copyright to Vestor. None of the material, nor its content, nor any copy of it, may be altered in any way, transmitted to, copied or distributed to any other party, without the prior express written permission of Vestor.

Vestor DM is the author of this document.

Copyright © 2018 Vestor Dom Maklerski S.A. and/or its affiliates. All rights reserved.

A description of the organization mechanisms of Chinese walls aimed to prevent the conflicts of interest:

Vestor has adopted "Procedure of managing conflicts of interest in Vestor Dom Maklerski SA", which defines the procedure for the prevention and effective management of conflicts of interest by eliminating the risk of the possible damage relating to interest of the customer, as well as specify the means and procedures for managing such conflicts of interest. Responsibilities in the matter of prevention, management and monitoring in the event of a conflict of interest are performed by designated organizational entity whose employees have the following tools that ensure proper execution of these tasks: (i) access to all documents of both the Company and the subsidiary company, (ii) the right to request provide explanations for all employees, (iii) the ability to analyze own transactions concluded by the Related persons.

Vestor applies the following mechanisms to prevent conflicts of interest, and in the case of such a conflict - to manage and monitor them in order to prevent potential negative effects on the interests of customers:

a) Independence of managing: to ensure operational independence of each organizational unit Vestor, which means in particular that (i) there is no possibility of negative affecting by third parties on the exercise of employee actions related to the conduct of the Vestor activity, (ii) the scope of tasks the organizational unit is assigned to the organizational unit, and as a rule does not intersect with the scope of other organizational units;

b) Independence of remuneration: Vestor prevents a direct relationship between the amount of salaries of employees performing specific activities in the field of brokerage activity, with remuneration or profits achieved by persons performing another kind that constitute or may constitute a source of conflict of interest;

c) Effective supervision: providing supervision of employees performing as part of its core brokerages activities tasks for and on behalf of clients in the field of activities Vestor, activities which cause or may result in a conflict of interest between clients, or the interests of the client and Vestor in including:

i. the internal reporting system is to provide immediate information to the persons responsible for overseeing compliance with the principles set out in the Regulations for the event of a conflict of interest or risk of its origin;

ii. supervising their own transactions made by individuals, periodic inspection and assessment of the effectiveness of implemented by Vestor control systems and procedures; conducting the legally required registers and records, primarily registry conflicts of interest associated with a significant risk of damage to client interests;

d) Refusal of action: the right to refuse the Vestor activity to the client, if given the commitment to specific activity on behalf of another client Vestor cannot effectively manage potential conflicts of interest, or prevent this regulatory restrictions or internal regulations;

e) The division of functions: the organization of employees' tasks are aimed at eliminating cases simultaneously or one after the other following the exercise of the employee's duties within the various services provided by the Vestor, if that could have a negative impact on the proper management of conflicts of interest;

f) Chinese walls: Vestor take any action to prevent the flow of information between related persons performing as part of the activities carried out by Vestor which cause or may cause a conflict of interest, if such exchanges of information may harm the interests of the client or clients, or provide oversight of the information flow when the flow of such is required.

Note on what the evaluation of equities is based:

Buy/Accumulate/Neutral/Reduce/Sell – means that, according to the authors of this document, the stock price may perform materially better/better/neutrally/worse/materially worse than the cost of equity of the respective stock.

The recommendation system of Vestor is based on determination of target prices and their relations to current prices of financial instruments; in addition, when recommendations are addressed to a wide range of recipients, two methods of valuation are required.

In preparing this document Vestor applied at least two of the following valuation methods:

- 1) Discounted cash flows (DCF),
- 2) Comparative valuation (including ROE-p/BV model),
- 3) Target multiple,
- 4) Scenario analysis,
- 5) Dividend discount model (DDM),
- 6) net asset value (NAV),
- 7) Sum of the parts,
- 8) Discounted residual income model (DRIM),
- 9) Risk-adjusted net present value (rNPV).

The discounted cash flows valuation method (DCF) is based on discounted expected future cash flows. The method includes all cash flows the issuer is expected to generate in a given period and the cost of money over time. However, the DCF valuation method requires a number of assumptions and is very sensitive to changes in parameters used in the model. Small changes in assumptions may result in material changes in the valuation.

The comparative valuation method is based on the rule of "one price". The advantages of the method include 1) a small number of parameters to be estimated, 2) the fact that there is a relatively large number of indicators for companies being compared, 3) The method is well-known among investors, 4) valuation is based on current market conditions. On the other hand, a comparative valuation is strongly sensitive to the valuation of the companies classified as peers and may lead to a simplified picture of the company valued.

The target multiple valuation approach is based on the assumption that the value of the company should be equal to pre-specified values of selected price multiples. The advantage of this method is its simplicity and applicability to almost all of the companies. The target multiple approach is a highly subjective method, though.

The scenario analysis approach is based on the probability weighted valuation for three sets of assumptions: Bear case, base case and bull case with a different probability assigned. The base case is based on the assumptions included in financial forecasts and DCF valuation. The bear/bull case scenarios present a sensitivity towards negative/positive changes in various assumptions including market size, market shares, profitability, growth, capex, valuation multiples etc. The advantage of this method is presentation of various scenarios and valuation sensitivity. A complexity and sensitivity to probability weights assumption may be found as disadvantages.

The dividend discount model (DDM) valuation is based on discounted future dividends that are expected to be paid out by the company over a period of time. The DDM model includes real cash streams that are expected to be received by shareholders and may be applied to companies with long-term dividend payout history. However, the DDM valuation method requires a number of assumptions.

The net asset value (NAV) approach considers the underlying value of the company's individual assets net of its liabilities. Among the advantages of the NAV approach are its applicability to asset holding companies and the fact that data required are usually easy to reach. On the other hand the NAV approach does not take into account future changes in revenues or income and can underestimate the value of intangible assets.

The sum of the parts approach values a company on the back of valuations of its separate divisions. The method is applicable to companies with very different business profiles, but requires identification of peers for business divisions comparison, what may be difficult to achieve.

The discounted residual income model includes equity at the end of a given financial year, excess equity (return on equity over cost of equity) the company is expected to generate in the estimation period and a discounted residual value post-estimation period. On one hand, the method includes profitability of the company compared to a cost of equity, but on the other hand it is strongly dependent on a number of parameters and assumptions.

The risk-adjusted net present value (rNPV) is a method used to forecast future cash flows in high-risk projects. In biotechnology, rNPV method involves forecasting future cash flows and applying probability rates of different phases of drug development. The main advantage of this method is the fact that it takes into account probability of success. The disadvantage of this method is the large number of assumptions and the high level of computational complexity.

Terminology used in the recommendation:

P/E – price-earnings ratio

PEG - P/E to growth ratio

EPS - earnings per share

P/BV – price-book value

BV – book value

EV/EBITDA – enterprise value to EBITDA

EV – enterprise value (market capitalization plus net debt)

EBITDA – earnings before interest, taxes, depreciation, and amortization

EBIT – earnings before interest and tax

NOPAT – net operational profit after taxation

FCF - free cash flows

ROE – return on equity

WACC - weighted average cost of capital

CAGR – cumulative average annual growth

CPI – consumer price index

COE – cost of equity

L-F-L – like for like

Recommendation definitions:

Buy - indicates a stock's total return to exceed more than 1.5x respective cost of equity over the next twelve months.

Accumulate - indicates a stock's total return to exceed more than respective cost of equity over the next twelve months.

Neutral - indicates a stock's total return to be in range of 0% to respective cost of equity over the next twelve months.

Reduce - indicates a stock's total return to be in range of minus respective cost of equity to 0% over the next twelve months.

Sell - indicates a stock's total return to be less than minus respective cost of equity over the next twelve months.

ANY PERSON WHO ACCEPTS THIS DOCUMENT AGREES TO BE BOUND BY THE FOREGOING DISCLAIMER AND LIMITATIONS.

List of all recommendations issued by Vestor in the last 12 months:

List of all recommendations issued by Vestor in the last 12 months:

No.	Company	Recommendation Date	Analyst	TP	Current price at the time of publication of the recommendation	Recommendation	Time horizon
78/2017	KGHM	2017-11-23	Marcin Stebakow	134	114.25	Buy	12M
79/2017	JSW	2017-11-29	Marcin Stebakow	86.8	90.2	Reduce	12M
80/2017	Vigo System	2017-12-05	Beata Szparaga-Waśniewska	455	305	Not rated	12M
81/2017	LW Bogdanka	2017-12-07	Marcin Stebakow	75	95	Accumulate	12M
82/2017	Śnieżka	2017-12-08	Aleksandra Jakubowska	63	69	Not rated	12M
83/2017	Dom Development	2017-12-14	Marek Szymański	90	83.4	Accumulate	12M
84/2017	Atal	2017-12-14	Marek Szymański	43	41.0	Neutral	12M
85/2017	LC Corp	2017-12-14	Marek Szymański	3.3	2.7	Buy	12M
86/2017	Robyg	2017-12-14	Marek Szymański	4.1	3.5	Accumulate	12M
87/2017	Lokum Deweloper	2017-12-14	Marek Szymański	23	16.55	Buy	12M
88/2017	Archicom	2017-12-14	Marek Szymański	23	15.39	Not rated	12M
1/2018	PKO BP	2018-01-08	Michał Fidelus	45	44.3	Neutral	12M
2/2018	Pekao	2018-01-08	Michał Fidelus	152	134.3	Buy	12M
3/2018	BZ WBK	2018-01-08	Michał Fidelus	442	408.4	Accumulate	12M
4/2018	mBank	2018-01-08	Michał Fidelus	443	496	Sell	12M
5/2018	ING BSK	2018-01-08	Michał Fidelus	222	215	Neutral	12M
6/2018	Handlowy	2018-01-08	Michał Fidelus	86	83	Neutral	12M
7/2018	Millennium	2018-01-08	Michał Fidelus	8.9	9.4	Reduce	12M
8/2018	Alior	2018-01-08	Michał Fidelus	87	78	Accumulate	12M
9/2018	Getin Noble Bank	2018-01-08	Michał Fidelus	1.55	1.71	Reduce	12M
10/2018	PKN	2018-01-09	Beata Szparaga-Waśniewska	117	106.7	Neutral	12M
11/2018	Lotos	2018-01-09	Beata Szparaga-Waśniewska	54	57.4	Reduce	12M
12/2018	PKP Cargo	2018-02-14	Marcin Stebakow	68	58.8	Buy	12M
13/2018	BZ WBK	2018-02-21	Michał Fidelus	436	385.8	Buy	12M
14/2018	Wielton	2018-02-23	Marcin Górnik	15.3	12.36	Buy	12M
15/2018	Selvita	2018-03-20	Beata Szparaga-Waśniewska	85	59	Not rated	12M
16/2018	JSW	2018-03-22	Marcin Stebakow	99	95.3	Neutral	12M
17/2018	Marvipol Development	2018-03-26	Marek Szymański	8.9	8.7	Not rated	12M
18/2018	Kruk	2018-03-28	Michał Fidelus	286	208	Buy	12M
19/2018	British Automotive Holding	2018-03-28	Marek Szymański	10.5	8.3	Not rated	12M
20/2018	Aplisens	2018-04-04	Michał Wojciechowski	15.1	12.9	Buy	12M
21/2018	Wielton	2018-04-05	Marcin Górnik	16.0	13.7	Buy	12M
22/2018	KGHM	2018-04-16	Marcin Stebakow	110.0	92.0	Buy	12M
23/2018	LPP	2018-04-18	Marek Szymański	9000	8965	Neutral	12M
24/2018	CCC	2018-04-18	Marek Szymański	310	272	Buy	12M
25/2018	mBank	2018-04-19	Michał Fidelus	441	439	Neutral	12M
26/2018	AC	2018-04-23	Marcin Górnik	38.5	40.8	Reduce	12M
27/2018	MZN Property	2018-05-08	Aleksandra Jakubowska	2.2	1.9	Not Rated	12M
28/2018	Pekao	2018-05-16	Michał Fidelus	148	118.7	Buy	12M
29/2018	Archicom	2018-05-24	Marek Szymański	23.0	15.9	Not Rated	12M
30/2018	PKO BP	2018-05-25	Michał Fidelus	42.0	38.9	Neutral	12M
31/2018	Warimpex	2018-05-28	Marek Szymański	8.3	6.0	Brak	12M
32/2018	Handlowy	2018-06-20	Michał Fidelus	81.0	67.0	Buy	12M
33/2018	Dom Development	2018-06-25	Marek Szymański	90.0	86.0	Neutral	12M
34/2018	Atal	2018-06-25	Marek Szymański	43.0	37.0	Accumulate	12M
35/2018	LC Corp	2018-06-25	Marek Szymański	3.0	2.4	Buy	12M
36/2018	Lokum Deweloper	2018-06-25	Marek Szymański	25.0	18.8	Buy	12M
37/2018	CCC	2018-07-16	Marek Szymański	280.0	204.0	Buy	12M
38/2018	LPP	2018-07-16	Marek Szymański	9200.0	9105.0	Neutral	12M
39/2018	PKN	2018-07-19	Beata Szparaga-Waśniewska	104.0	81.06	Buy	12M
40/2018	CD Projekt	2018-07-25	Maciej Hebda	231.0	208.00	Accumulate	12M
41/2018	11 bit studios	2018-07-25	Michał Wojciechowski	511.0	426.0	Buy	12M
42/2018	PlayWay	2018-07-25	Maciej Hebda	195.0	149.0	Buy	12M
43/2018	Millennium	2018-07-30	Michał Fidelus	9.3	8.9	Neutral	12M
44/2018	BZ WBK	2018-08-02	Michał Fidelus	410.0	378.2	Accumulate	12M
45/2018	Synektik	2018-08-07	Beata Szparaga-Waśniewska	20.0	14.9	Buy	12M
46/2018	ML System	2018-08-28	Maciej Hebda	38.6	33.3	Not rated	12M
47/2018	CD Projekt	2018-08-29	Maciej Hebda	228.0	219.2	Neutral	12M
48/2018	11 bit studios	2018-09-03	Michał Wojciechowski	386.0	380.0	Neutral	12M
49/2018	Alior	2018-09-05	Michał Fidelus	85.0	66.9	Buy	12M
50/2018	British Automotive Holding	2018-09-05	Marek Szymański	2.2	1.9	Not rated	12M
51/2018	Wielton	2018-09-12	Marcin Górnik	15.5	9.7	Buy	12M
52/2018	Atal	2018-09-13	Marek Szymański	41.0	31.5	Buy	12M
53/2018	PKN	2018-09-14	Beata Szparaga-Waśniewska	109.0	99.4	Neutral	12M
54/2018	Ten Square Games	2018-09-20	Maciej Hebda	116.0	96.5	Buy	12M
55/2018	Archicom	2018-09-21	Marek Szymański	20.5	13.2	Not rated	12M
56/2018	Marvipol	2018-09-21	Marek Szymański	8.0	3.5	Not rated	12M
57/2018	PlayWay	2018-09-25	Maciej Hebda	177	151	Buy	12M
58/2018	JSW	2018-10-01	Marcin Górnik	72.7	66.2	Neutral	12M
59/2018	Bogdanka	2018-10-01	Marcin Górnik	69.2	60.0	Accumulate	12M
60/2018	4fun Media	2018-10-29	Michał Wojciechowski	20.5	13.0	Not rated	12M
61/2018	Elemental Holding	2018-11-14	Marcin Górnik	1.8	1.1	Not rated	12M
62/2018	CD Projekt	2018-11-15	Maciej Hebda	202	146.5	Buy	12M
63/2018	Lokum Deweloper	2018-11-15	Marek Szymański	26.0	17.4	Buy	12M
64/2018	CCC	2018-11-16	Marek Szymański	260	182	Buy	12M
65/2018	11 bit studios	2018-11-19	Michał Wojciechowski	270	247	Neutral	12M
66/2018	LC Corp	2018-11-22	Marek Szymański	3.2	2.5	Buy	12M
67/2018	ML System	2018-11-22	Maciej Hebda	35.3	27.1	Not rated	12M
68/2018	LPP	2018-11-26	Marek Szymański	8600	7850	Accumulate	12M
69/2018	PlayWay	2018-11-27	Maciej Hebda	172	140	Buy	12M
70/2018	Atal	2018-12-07	Marek Szymański	38.0	29.7	Buy	12M
71/2018	Dom Development	2018-12-07	Marek Szymański	75.0	65.60	Accumulate	12M
72/2018	Archicom	2018-12-07	Marek Szymański	19.0	11.9	Not rated	12M