Piotr Dąbrowski
Katarzyna Jarno

TRADING RECOMMENDATIONS – A LONG-TERM ANALYSIS AND THE EVOLUTION OF LAW

Abstract

The aim of this paper is to assess the profitability of strategies based on the recommendations made by brokerage houses and to identify the so-called reco-leaders from among financial institutions publishing investment advice. The authors focus on the quality of brokerage recommendations for companies listed on the Warsaw Stock Exchange. They investigate whether there has been an improvement in the quality of recommendations over recent years and whether regulations have been evolving to provide investors with a reliable source of recommendations. The analysis covers all stock recommendations for companies listed on the Warsaw Stock Exchange released between January 2006 and the end of October 2017. The equity curve presents the results of the calculations and covers both transaction costs and capital gains tax. The analysis of the recommendations shows that their overall quality is extremely low and the problem is affected further by taxation. Despite poor recommendations, the research identifies leaders amongst the recommenders. Unfortunately, the overall weak performance of the recommendations issued does not entail any changes to regulations.

Keywords: stock market recommendation, individual investor, capital gains tax, investment, Warsaw Stock Exchange.
JEL Classification: G11, G12, G24, H21.

Piotr Dąbrowski, University of Economics in Katowice, Department of Banking and Financial Markets, 1 Maja 50, 40-287 Katowice, Poland, e-mail: piotr.dabrowski@ue.katowice.pl, ORCID: https://orcid.org/0000-0002-9151-6138.

Katarzyna Jarno, University of Economics in Katowice, Department of Public Finance, 1 Maja 50, 40-287 Katowice, Poland, e-mail: katarzyna.jarno@ue.katowice.pl, ORCID: https://orcid.org/0000-0001-5288-7684.

1. Introduction

On the financial market, trading recommendations prepared by brokerage houses and other financial institutions are common publications for individual investors. However, they arouse ambivalent feelings among traders because, on the one hand, they suggest potentially profitable market set-ups free of charge (gratuitously?) and, on the other, their historical results are rather poor and discredit the skills of analysts. Due to unfavourable opinions, recommendations should evolve towards improving their efficiency. Similarly, regulations should be changed to force better quality in recommending investments. That is why the authors focused their research on assessing the quality of recommendations for companies listed on the Warsaw Stock Exchange (WSE). They checked whether quality changed and improved over time and whether regulations evolved towards providing investors with a reliable source of recommendations. Additionally, the profitability of various recommendation-based actions carried out on the Polish stock market was assessed as well.

The authors verified the following hypothesis: The quality of recommendations is low and is not improving on the basis of historical results. They also tested two subsidiary hypotheses: (1) among recommenders are leaders who are able to achieve stable and satisfactory long-term results, and (2) legal regulations concerning recommendations have not changed despite long-term mediocre quality.

2. Brokerage Recommendation Types and Efficiency and Legal Regulation

The term "Brokerage Recommendation" was introduced in 2005 in the Regulation of the Minister of Finance. It defines the term "recommendations" as well as brokers' responsibility and all financial instruments that are subject to recommendations (Rozporządzenie… 2005). It is worth noting that despite the poor quality of recommendations as shown by research since 2008, the law has so far not changed.

According to the regulations, any report, analysis and/or information that either encourages or suggests a certain investment-related behaviour, affecting one or several financial instruments or issuers, can be called a recommendation. If an opinion about present or future costs includes a direct suggestion to take an investment-related action, it can also be called a recommendation (Rozporządzenie… 2005).

The law defines who is allowed to issue a brokerage recommendation: licensed stockbrokers, licensed financial advisors, and financial institutions authorized to publish such recommendations.

Recommendations prepared by financial analysts should be based on at least two methods of financial instrument assessment. These two methods include discounted cash flow (DCF) and comparative analysis. Discounted cash flow analysis provides an estimation of all present and future cash flows and also their present net value. Its main benefit is the fact that it includes all future financial results. However, its weakness is that it relies too much on the analyst's subjective opinion and various parameters within it. As it turns out, even the slightest fluctuation in one of the parameters (e.g. rate of risk, projected revenue growth, future price of raw materials) can result in a huge change in the share's final assessment. By comparison, comparative analysis offers an estimation of the company's shares based on how well the company fares on the market when compared to similar companies. Nonetheless, all analysts provide an estimate based on both DCF and comparative analysis as the two methods are part of the Fundamental analysis. Technical analysis is not taken into account when a recommendation is given, which might be the reason why the quality of brokerage recommendations is so poor. Behavioural finance describing an investor's actions is also not considered; in some cases these actions can be questioned and deemed irrational, for instance: overreaction (Fama 1998, Armir & Ganzach 1998, Marsden, Veeraraghavan & Ye 2008), herding behaviour (van Campenhout & Verherstraeten 2010), confirmation bias (Park *et al.* 2013), overconfidence, loss aversion, and anchoring (Singh 2012).

The main goal behind each recommendation is to identify companies whose market value significantly differs from current market values, however their type indicates that the financial instrument's cost will most likely change.

In 2013, Dąbrowski divided brokerage recommendation into three types (Dąbrowski 2013):
– Purchase recommendation: buy, accumulate, hold, overweight,
– Sale recommendation: sell, avoid, reduce, underweight,
– Dubious recommendation: estimation, above/below market, neutral.

After each published recommendation it is mandatory to familiarize oneself with every explanation located at the end of each financial report. This must be done as each brokerage provides its own interpretation of the given analysis. For instance, a buy recommendation indicates that the analyst assumes that the profit gained will be at least 15%. In the case of an

accumulate recommendation, the return is between 5% and 15%, whereas a hold recommendation indicates that it is between –5% and 5%. Sell recommendations are issued when analysts anticipate a loss of over 15%. In the case of a reduce recommendation, the loss might be between 5% and 15%. Both sale and purchase recommendations are absolute, which means that the analyst is completely sure about the price itself. Dubious (sometimes called relative) recommendations are connected to the investment portfolio and its usage, and therefore should not be the only way of taking an investment decision. After investigating historical data it is easy to see that brokerage houses use trends in their favour, i.e. if the share price is rising the brokerage house issues a buy recommendation, while a sell recommendation might appear only if the security belongs to a breaking down-trend and the brokerage house previously issued a buy recommendation (Żelazek 2014).

Recent research shows that analysts provide more purchase recommendations (Papakroni 2012, Barber *et al.* 2001, Loh & Mian 2006) than sale recommendations (Ertimur, Zhang & Muslu 2010, Papakroni 2012). This may be due to such things as not wanting to risk a business opportunity or face the legal consequences of issuing a negative recommendation. Therefore, it is easier for stockbrokers to issue positive recommendations even if the financial instrument does not act according to the analyst's predictions. As a result there will not be any conflict between the brokerage house and the company being assessed. The differences in recommendations issued by various brokers result from the way each broker estimates assets. However, in order to assess the accuracy of published recommendations, investors must take a look at the estimation model, and this includes the calculation assumptions as well.

3. Accuracy of Brokerage Recommendations in Poland

In 1933, Arthur Cowles began research on the accuracy of brokerage recommendations in the USA. The research showed that investors could achieve above-average rates of return on the basis of the recommendations issued. Furthermore, Womack (1996) noticed positive rates of return after purchase recommendations and negative ones after sale recommendations. Both negative and positive rates of return persisted for a few months straight. Barber *et al.* (2001) stated that a strategy that involved investing in companies for which the overall forecast was positive resulted in an average return of 9.4% a year. However, including transaction costs in the same investment strategy resulted in a loss of 3.1%.

Polish literature includes research on the problem of the accuracy of brokerage recommendations, but the findings of this research are not promising, unfortunately. Biedrzyński (2008) estimated that only 57% of analysts were right in their assessments, whereas Czyżycki and Klóska (2010), who used regression analysis to estimate the accuracy of issued recommendations, stated that the recommendations were not as accurate as they could have been. Dąbrowski (2013) used a statistical method to build his investment portfolio over short (3 months), medium (6 months), and long (over 6 months) periods of time in order to properly assess the recommendations issued. His findings clearly indicated that public recommendations for buying and selling shares were of poor quality and that the institutions authorized to issue them had no incentive to ensure that such recommendations were not only free of charge but also positive and likely to come to fruition. Zaremba and Konieczka (2014) used the cash asset pricing model and a market model based on short/long-term investment portfolios in order to provide assessments for all companies active on the Warsaw Stock Exchange between 2005 and 2012. According to their research, brokerage recommendations have absolutely no value for individual investors. Long--term analysis for the best-rated companies resulted in negative rates of return, and the same was true of short-term analysis for the worst-rated companies.

Despite the authors using different methods to assess the quality of brokerage recommendations, the results of their research were nearly identical. The research suggests that the accuracy of recommendations issued by specialized and authorized institutions is extremely poor. However, none of the research covered transaction costs and taxation, which are essential for individual investors.

Individuals are obliged to pay taxes for allocating funds on the capital market as long as the allocated funds enable them to make a profit. Capital gains tax was introduced in Poland on 21 November 2001 and has a flat rate of 19% (Personal Income Tax Act of 2001 – Ustawa… 2001). Unlike the lump-sum tax, this method allows income earned to be reduced by the cost of generating that income (Pogoński 2012). In the literature, this kind of method is called a tax shield (James 2012) and is the most commonly used legal tool among investors (Jarno 2017).

When estimating the accuracy of brokerage recommendations it is crucial to include both taxation and transaction costs as this allows the profitability of the investment to be revealed. A recommendation-based investment strategy may turn into a loss, even though a minimal positive

return is achieved, because taxation and transaction costs need to be taken into account too. Therefore, the authors included those parameters in their estimation when building a model to assess the accuracy of recommendations.

4. Methodology

The analysis covers all stock recommendations for companies listed on the Warsaw Stock Exchange released since 2006. Main Market and NewConnect are included, for which a total of 5645 recommendations (after validation) were published. The database was provided by Money.pl. (www.money.pl, access: 30.10.2017). However, the data had to be investigated and validated. Finally, the parameters of the recommendations had to be normalized:

– doubled or false records were deleted,

– recommendations without a target price or other important parameters were excluded,

– every type of recommendation was classified as a buying or selling recommendation on the basis of the target price and closing price on the day of publication ("buy" for targets higher than current price, and "sell" for targets lower than current price),

– short-positions for selling recommendations were allowed,

– the price on the day of the recommendation was always the closing price of the session,

– all the recommendations were short-term, which is why the time--horizon was set to 50 sessions,

– splits, dividends, and other stock operations were included and recalculated.

The quality assessment process involved statistical analysis and equity curve analysis. The authors focused especially on the following parameters:

– number of recommendations,

– general accuracy and target accuracy,

– normalized expected value,

– visual assessment of the equity curve compared with the WIG stock index.

The recommendations are divided into two groups depending on the regularity of publications. The first and main group comprises recommendations from financial institutions that publish regularly, that is, at least 6 times a year (on average) and consecutively in every year of their

activity. The second group, statistically less important, consists of occasional and sporadic recommendations.

The general accuracy is the number of positive recommendation divided by the total number of recommendation issued by every financial institution. A positive recommendation means that the target price was hit or the closing price after 50 sessions is better than the starting price on the day of publication. The target accuracy only checks whether the target price was hit, which has to happen within a 50-session period.

The expected value is normalized by using the *P/L* ratio instead of the separated average profit and average loss of the transaction based on the recommendation. The calculation is as follows:

$$Ex = PLr \cdot Acc - (1 - Acc),$$

where:

Ex – expected value,
PLr – Profit/Loss Ratio (*PLr = avgProfit/avgLoss*),
Acc – accuracy (general accuracy).

The equity curve is made on the basis of the simulated portfolio. The authors assume that every recommendation is traded and for every trade 1000 PLN is engaged. Fractional volume is allowed in order to provide precise comparability among different stocks whose price level is strongly diffused. The final results of every recommendation depend on hitting the target or (if the target is not hit) the closing price of the 50th session after starting day. Profits and losses include a commission of 0.39% for both buying and selling orders, which is the standard fee for individual investors trading on the WSE in Poland.

Moreover, the results of all recommendations (as a portfolio) are tested in respect of taxation. In Poland, capital gains tax is settled annually on the basis of closed orders only. Losses may be deducted from profits and the tax rate is 19%. Taxation is included in the equity curve calculation, which means that periodically (after the previous tax-year closes) the value of the portfolio diminishes.

5. Results of Empirical Research

Since 2006, financial institutions have published more than 5,500 recommendations for companies listed on the Warsaw Stock Exchange. There were 55 recommenders, of which 31 encouraged their readers to trade very regularly and intensively and 24 advised trading sporadically

Table 1. Recommenders' Performance (Regular)

Recommender	#recos	Accuracy (%)	P/L ratio	Ex	Target (%)
Noble Securities	82	59.8	1.21	0.32	32.9
BGŻ BM	67	61.2	1.12	0.30	34.3
BOŚ DM	256	63.3	1.05	0.30	36.7
Haitong Bank	96	63.5	0.91	0.22	49.0
BPS DM	93	61.3	0.93	0.19	35.5
Ipopema	101	64.4	0.77	0.14	44.6
Trigon DM	132	59.1	0.92	0.13	36.4
PKO BP DM	344	62.5	0.81	0.13	46.8
BZ WBK DM	353	59.2	0.90	0.13	35.7
Millennium DM	416	63.2	0.75	0.11	46.6
KBC Securities	268	60.1	0.74	0.05	45.1
Goldman Sachs	79	65.8	0.59	0.05	34.2
Investors DI	62	54.8	0.89	0.03	25.8
IDMSA DM	537	59.2	0.73	0.02	42.3
Erste Securities DI	263	62.0	0.64	0.01	49.0
BDM	230	57.4	0.76	0.01	41.3
DM mBank	610	60.5	0.65	0.00	47.5
Citigroup	83	63.9	0.53	−0.03	33.7
Wood Company	155	57.4	0.67	−0.04	39.4
DB Securities DM	119	57.1	0.61	−0.08	42.9
Raiffeisen	159	58.5	0.55	−0.09	46.5
DM Vestor	65	53.8	0.63	−0.12	35.4
AmerBrokers DM	56	50.0	0.71	−0.14	39.3
Societe Generale	63	54.0	0.58	−0.15	46.0
BESI	162	50.6	0.68	−0.15	34.6
UniCredit CA IB	198	53.0	0.60	−0.15	35.9
ING Securities	141	45.4	0.79	−0.19	31.9
UBS	78	57.7	0.36	−0.22	41.0
JP Morgan	58	46.6	0.67	−0.22	32.8
ING Wholesale Bank	27	48.1	0.47	−0.29	25.9
Credit Suisse	65	49.2	0.40	−0.31	35.4
Average	175	59.0	0.73	0.02	41.4

Source: authors' own calculations.

(non-regular recommenders are not fully taken into consideration in the ranking).

Only half of the recommenders generate profits (with positive expected value), which is very disappointing if one considers that all the recommenders are so-called professionals who should have the knowledge and skills to achieve long-term profits. However, even among gainers, only 10 of them can be seen as successful recommenders with a normalized expected value exceeding 0.1. Analysing the other statistics, such as accuracy or *P/L* ratio, it is apparent that many financial institutions tend to have employees with low qualifications and poor analytical or trading skills.

The most active institution is the brokerage house of mBank (DM mBank) with 610 recommendations over 10 years. Unfortunately, its results are not satisfactory for clients due to the neutral expected value, which means no gains and no losses. The other most active recommenders perform better. It is especially worth mentioning the results of BOŚ DM, which is one of the top three Polish recommenders with an impressive expected value (*Ex*) of 0.3 and an accuracy of 63.3%, which is better than the average (59%), and one of the best *P/L* ratios (1.05) in this ranking. Similar performance to BOŚ DM is achieved by Noble Securities and BGŻ BM, although they are rather restrained recommenders and publish buying or selling incentives for investors only a few times a year. That is why BOŚ DM should be treated as a top reco-performer among the other financial institutions.

The crucial parameter for individual investors is accuracy, which informs how often the recommender gives positive trading suggestions and is simply right. It must be admitted that accuracy is generally at a pretty high level, and among gainers (positive expected value) it usually exceeds 60%. The highest accuracy is offered by Goldman Sachs. Nevertheless, this bank's overall performance is rather mediocre due to the lowest *P/L* ratio among gainers.

The *P/L* ratio turned out to be the most negatively surprising parameter in the whole research. It is commonly known that financial institutions aim at mid-term trends in their recommendations. Such an approach in investments usually causes low accuracy (below 50%) with a *P/L* ratio above 2. In the presented results, none of the recommenders even comes close to these values. Only the top 3 institutions exceed a *P/L* ratio of 1, with an overall average value of 0.73 and only 0.61 among losers. A low *P/L* ratio in trending strategies is most commonly responsible for negative results.

It is worth noticing that a poor *P/L* ratio cannot be hidden even by an impressively high accuracy. The best example of this is Citigroup – they are

right in almost 64% of cases (more often than the winners), but their profits on every trade are far too low in comparison to the losses when they are not right. Naturally, a *P/L* ratio below 1 with accuracy under 50% is bound to lead to disaster.

Besides general accuracy, the results of this research also present target accuracy. In this field, the majority of the financial institutions have nothing to be proud of. On average, only 41.4% of the proposed targets are achieved by the stock price, none of the recommenders has an accuracy above 50%, and there are even recommenders that are right in only a quarter of their publications. The target price is the weakest point of any analyst that prepares recommendations.

Non-regular recommenders should not be compared directly with financial institutions that provide trading setups on daily, weekly or even monthly basis. That is why their performance is presented separately. Nevertheless, some interesting results can be found here.

First of all, due to the low number of recommendations, all the statistics should be treated with caution, because even a single positive or negative trade can change performance dramatically when the number of investment suggestions is small. Nevertheless, there are two extremely interesting cases to analyse. The first is Barclays, which published only 13 recommendations between 2012 and 2014. Barclays was right in 76.9% of cases and targets were hit in an incredible 69.2% of trades. It is a great pity that Barclays recommends so rarely, because it could be a strong player on the WSE. The second interesting case, in the statistical aspect, is Dr Kalliwoda, which perfectly suits the trending strategy model. With 45.8% accuracy and a 1.73 *P/L* ratio, investors are encouraged to follow Dr Kalliwoda's suggestions.

Every trading strategy needs repetitions and regular trading to demonstrate true statistical value. Otherwise, a proper assessment cannot be carried out. The performance of non-regular recommenders is actually a result of good or bad luck.

In general, the quality of recommendations is really poor. This is clearly represented on the equity curve, which represents the portfolio behaviour based on trading every published recommendation.

The rate of return is 29% (23% after taxation). However, this represents only the starting and ending points of the equity. It should also be mentioned that 29% was achieved over more than 11 years, which is actually lower than the profits gained on risk-free instruments during the same period.

Table 2. Recommenders' Performance (Non-regular)

Recommender	#recos	Accuracy (%)	P/L ratio	Ex	Target (%)
Barclays	13	76.9	1.52	0.94	69.2
ABN AMRO Securities	7	85.7	1.23	0.91	14.3
East Value Research	8	62.5	1.62	0.64	37.5
BPH BM	16	68.8	1.08	0.43	56.3
Dr Kalliwoda	24	45.8	1.73	0.25	25.0
Merrill Lynch	6	66.7	0.76	0.17	33.3
CDM Pekao	48	64.6	0.75	0.13	45.8
Renaissance	10	70.0	0.51	0.06	60.0
DnB NORD BM	2	50.0	0.82	−0.09	0.0
HSBC Securities	34	50.0	0.62	−0.19	44.1
Bank of America	9	55.6	0.43	−0.21	44.4
Concorde	4	50.0	0.10	−0.45	50.0
Raiffeisen DM	10	30.0	0.55	−0.54	10.0
NWAI DM	3	33.3	0.36	−0.55	0.0
Morgan Stanley	10	30.0	0.37	−0.59	10.0
Nomura	7	28.6	0.32	−0.62	28.6
Capital Partners DM	1	100.0	nd	nd	100.0
Copernicus DM	4	100.0	nd	nd	100.0
Cyrrus	1	0.0	nd	nd	100.0
Exane	5	100.0	nd	nd	80.0
FIO	1	100.0	nd	nd	100.0
Mercurius DM	1	0.0	nd	nd	0.0
Ventus AM	1	0.0	nd	nd	0.0
WDM SA	2	0.0	nd	nd	0.0

nd – no data

Source: authors' own calculations.

Moreover, the maximum draw down is 77% (78% after taxation), which is unacceptable for the majority of investors.

The equity curve that includes the tax paid by investors makes the results even worse. Between 2015 and 2017, the capital gains are smaller because investors were forced to pay tax. Consequently, the equity tax curve is located below the equity curve. Between 2006 until 2014, the equity tax curve follows the equity curve because investors could use the tax shield

method. Individuals could deduct losses over five consecutive tax years (but no more than 50% of the loss generated in previous years) to reduce tax. These deductions reduced a taxpayer's taxable income for a given year or deferred income tax to future years.
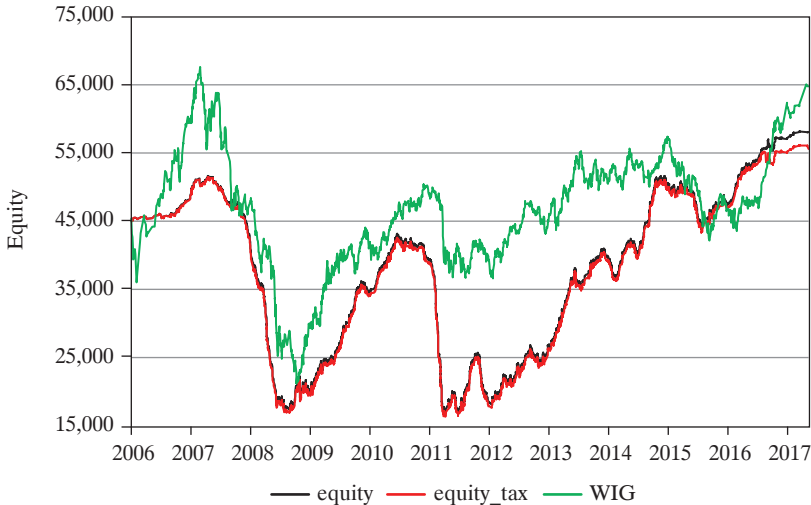

Fig. 1. Equity Curve (with and without Taxation) and the WIG

Source: authors' own calculations.

Comparing the equity curve of recommendations with the WIG index also exposes the weakness of reco-following strategy. The WIG usually performs better, especially during down-trends and, obviously, following the WIG passively does not generate additional costs and does not require any time commitment.

In the market reality, investors do not usually follow every recommendation. They have their favourite recommenders or they just use the analysis of the brokerage house which provides them with trading services. That is why some analysts are followed more often than others. And for that reason, the equity curves of the top-five recommenders are analysed.

Analysis of the equity curves shows BOŚ DM to be the leader among recommenders. Its first place in the equity comparison is due to the high number of recommendations – three times higher than the other top-five recommenders, which strongly confirms the statistical edge of BOŚ DM. Other recommenders – Noble, BGŻ, Haitong and BPS DM – do not flood

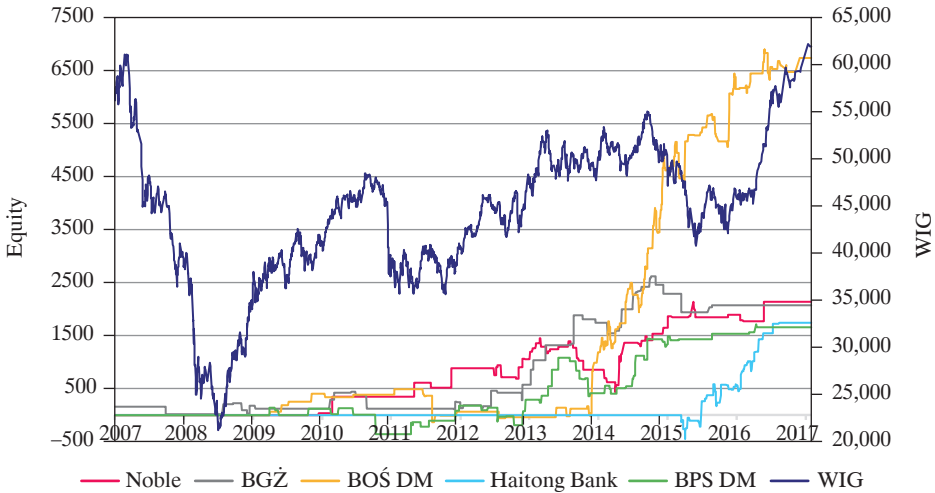the market with a large number of analyses and publish them somewhat rarely.

Fig. 2. Equity Curve of Top-five Recommenders and the WIG

Source: authors' own calculations.

One of the most important findings of the equity analysis is that the top--five recommenders are conservative during a recession. Even BOŚ DM, which was the most active, did not publish trading suggestions for the bear markets of 2007–2008 and 2011. An increase in activity is visible from 2013, which accounts for the excellent performance and dynamic growth of equity curves. Although the WIG fell in 2015 by 20%, the top-five recommenders were able to resist the unfavourable market situation.

6. Conclusions

The research positively verified the hypothesis that the overall quality of recommendations is extremely low (and, naturally, the problem is getting worse after imposition of the tax). Trading based on the suggestions published by so-called professionals (analysts of financial institutions) can lead to disaster, caused not only by the poor rate of return but particularly by the extremely high value of drawdowns. However, among the 55 recommenders there are a few whose suggestions may be taken seriously. Stable and satisfactory long-term results are delivered by five institutions:

Noble Securities, BGŻ BM, BOŚ DM, Haitong Bank, and BPS DM (and a few more, but their performance is not fully satisfactory). These reco-leaders can be followed successfully by individuals.

Unfortunately, the overall weak performance does not entail any changes to regulations. The rules for preparing and publishing recommendations have remained unchanged for many years and there are no restrictions on financial institutions which consistently underperform. Many analysts (or their superiors) do not learn from their mistakes and do not make any improvements on the basis of historical results. Perhaps in these cases the only reason to publish any kind of recommendations is simply to encourage customers to place orders and to charge them the trading commission.

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Abstract

Rekomendacje maklerskie – długoterminowa analiza opłacalności oraz ewolucja przepisów prawa

Celem artykułu jest ocena opłacalności strategii inwestycyjnych opartych na wydawanych przez domy maklerskie rekomendacjach i wyłonienie tzw. liderów rekomendacji spośród instytucji finansowych publikujących sugestie inwestycyjne. Autorzy sprawdzili również, czy w związku z pojawiającymi się nie najlepszymi wynikami badań dotyczących wydawanych rekomendacji przepisy prawa ewoluują w celu poprawy ich jakości. Analizą zostały objęte wszystkie rekomendacje akcji dla spółek notowanych na Giełdzie Papierów Wartościowych w Warszawie opublikowane w okresie od 2006 r. do końca października 2017 r. Krzywa kapitału prezentująca wyniki badań obejmuje zarówno koszty transakcji, jak i podatek od zysków kapitałowych. Przeprowadzone badania

nad jakością wydawanych przez domy maklerskie rekomendacji dowodzą, że ogólna jakość zaleceń jest bardzo niska, a uwzględnione przy kalkulacji koszty transakcyjne wraz z podatkiem od zysków kapitałowych tylko pogarszają osiągnięte wyniki. Jednakże pomimo niskiej jakości wydawanych rekomendacji można dostrzec liderów wśród domów maklerskich publikujących rekomendacje regularnie. Badania pokazują również, że mimo słabej jakości rekomendacji przepisy prawa nie uległy żadnej zmianie.

Słowa kluczowe: rekomendacje maklerskie, inwestor indywidualny, podatek od zysków kapitałowych, inwestycje, Giełda Papierów Wartościowych w Warszawie.