Integrating Sustainability Issues into Investment Decision Evaluation

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Abstract: The paper investigates the issues of integrating ESG factors into investment decision-making process. Based on the available investor surveys, academic research, the analysis of the Russian companies` non-financial reports, Bloomberg ESG data, Corporate Sustainability and Responsibility indexes and their sectoral aspects, as well as Russian ecological-stock index ERAX and stock exchange index MICEX dynamics the paper concluded that ESG factors have a material impact on corporate financial performance. At the same time there are barriers to the full ESG integration in the investment process primarily connected with the lack of standardized data, information comparability, reliability, completeness and timeliness; limited knowledge and guidance for ESG risk and opportunity measures and appropriate analytical tools as well as lack of dialogue between the investment community and the reporting companies. To contribute to the problem development this paper presents an approach of integrating ESG factors at different stages of investment analysis and business valuation.

Keywords: Sustainability, investment decision process, ESG integration, ESG risks and opportunities, valuation models.

1. INTRODUCTION

In recent decades the sustainable development issues and their integration into investment decision process are going to become more and more relevant and often discussed. Numerous scientific studies, academic publications examine various aspects of integrating sustainability aspects in the mechanism for making strategic decisions (Amel-Zadeh & Serafeim 2017; Barton & Wiseman 2014; Cappucci 2017).

Investors interest in ESG data grew rapidly. According to a CFA Institute ESG Survey (CFA 2017) nearly 73% of investment professionals worldwide take environmental, social and corporate governance (ESG) factors into consideration in the investment process. 1,588 members of CFA Institute who are portfolio managers and research analysts responded to the survey. The survey investigated the growth in the use of ESG information in comparison with the results of a similar survey conducted in May 2015. According to the survey 65% of respondents answered that they considered ESG information in the investment decision making process to manage investment risks, 45% supposed that their clients/investors demand it, and 41 % said ESG performance is a proxy for management quality. The right ESG strategy can provide a positive impact on long-term investment performance because of possibility to mitigate ESG risks and capitalize on ESG opportunities (Bonini and Goerner 2011; Cappucci 2017). Similar results reflecting the growing interest of the investment community in the integration of ESG information in the decision-making process are presented in other studies of recent years (Clark, Feiner and Viehs 2015).

Rather than absolute ESG performance, a better indicator of future investment gains is positive ESG momentum, the company`s ESG scores can be average but improving. The study (NN Investment Partners 2017) had found that companies with average ESG scores that have positive momentum made the biggest contribution to Sharpe ratios. Firms with high ESG scores did not experience improved financial performance, likely because these factors were already reflected in the firm's financial performance. However, rising ESG scores improved risk-adjusted returns across the board (Cappucci 2017).

More than 100 rating agencies submit ESG ratings, rankings and indexes, including large data providers such as GMI Rating, Thomson Reuters, Bloomberg Professional, Morgan Stanley Capital International (MSCI) and others[1]. This information gives the analysts first view on a company scores on a variety of ESG factors, including governance, environmental impact, human rights issues, fraud and others and helps to form an opinion on the estimated investment decision.

The process of legislative regulation and non-financial reporting standardization is developing

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[1]http://ratesustainability.org/core/hub/

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actively; new guidelines are emerging and expanding. The EU Directive on non-financial reporting 2014/95, that emphasized importance of ESG information disclosure, has been introduced into the national legislation of many EU countries. There is a growing number of stock exchanges that implement formal guidance on disclosure of information related to social and environmental aspects of activities, as well as corporate governance of listed companies.[2]

Throughout the world including Russia, there is a growing trend of companies that generate non-financial reporting such as Sustainable Development Reports, Integrated Reports and some other formats and provide interested users with relevant ESG information. According to the surveys that rating agencies and consulting companies conduct regularly the quality of these reports is growing up.

Recent studies have concluded that ESG information is able to provide different positive or negative effects that can be significant for investment decisions. Specifically, ESG disclosures impact company`s reputational risks, cost of capital (Khan *et al*. 2015, Chen *et al*. 2011), stock price movements (Clark *et al.* 2015).

Amel-Zadeh of Said Business School, University of Oxford and Serafeim of Harvard Business School collected and interpreted data from a survey of senior investment professionals and asset managers. The respondents were asked whether they believed various ESG strategies improve or reduce financial return relative to a market benchmark. The survey reveals that most respondents believe ESG information to be financially material because it affects a company's reputation and brand. Nearly 97% of investors agree or strongly agree with the reputational role of ESG data on financial value (Amel-Zadeh and Serafeim 2017). According to the Survey significant part of the respondents suppose that stocks with good ESG performance have lower systematic risk, attract a positive risk premium. Most respondents used the ESG information through screening process when the most common is negative screening approach that excludes companies with the lowest ESG performance. Positive screening methods are still rarer. Considering the future, respondents expect that positive screening and full integration in stock valuation will become more significant.

The paper (Eccles and Kastrapeli 2017) conducted parallel global surveys of institutional and retail investors and concluded that "only full ESG integration has the potential to deliver on the goal of sustainable value creation for all investors." As part of their findings, they consider ESG factors becoming increasingly recognized by institutional investors as important "signaling tools for volatility and risk."

Analysis of the main barriers in ESG data integration had shown that the biggest issues of using ESG information relate to the lack of non-financial reports comparability, their timeliness and reliability (Amel-Zadeh and Serafeim 2017; CFA 2017) as well as to cost of gathering and assurance (KPMG 2017). Due to these barriers, ESG analysis in most cases has the form of a qualitative input that is used alongside traditional investment quantitative models.

2. LITERATURE REVIEW

The subject of the most active discussion is such aspects as evidence of the correlation between ESG factors and financial performance (Barnett and Salomon 2006; Cheng *et al.* 2014), the character of this links (Barnett and Salomon 2006), the ability to identify, asses and take advantage from the benefits of the ESG integration to maximize investment portfolio value (Eccles and Kastrapeli 2017), the financial materiality of different ESG issues varying across sectors (Eccles & Serafeim 2014), the quality of ESG information needed for investment analysis and valuation(Bauer and Hann, 2010; CFA 2017), the non-financial reporting standards` development (KPMG 2017; PwC 2014; Ernst & Young 2014) and some others.

Integration of ESG aspects in the process of financial and investment analysis is not a new phenomenon. The idea that investment assessment will be deeper and more reliable if it based on the stakeholder requirements to identify key risks and opportunities arising from the impact of sustainability factors on the company's business model and value chain is adopted by most authors (Clark, *et al.* 2015). The need of ESG integration is supported by numerous studies, among which the most recent is the research of CFA Institute(CFA 2017) according to which 51% of the surveyed respondents confirmed that they considered ESG issues within their investment analysis systematically and 45% of respondents used the information on case by case basis. Similar results were obtained in the study (Amel-Zadeh and Serafeim 2017).

[2]http://www.sseinitiative.org/.

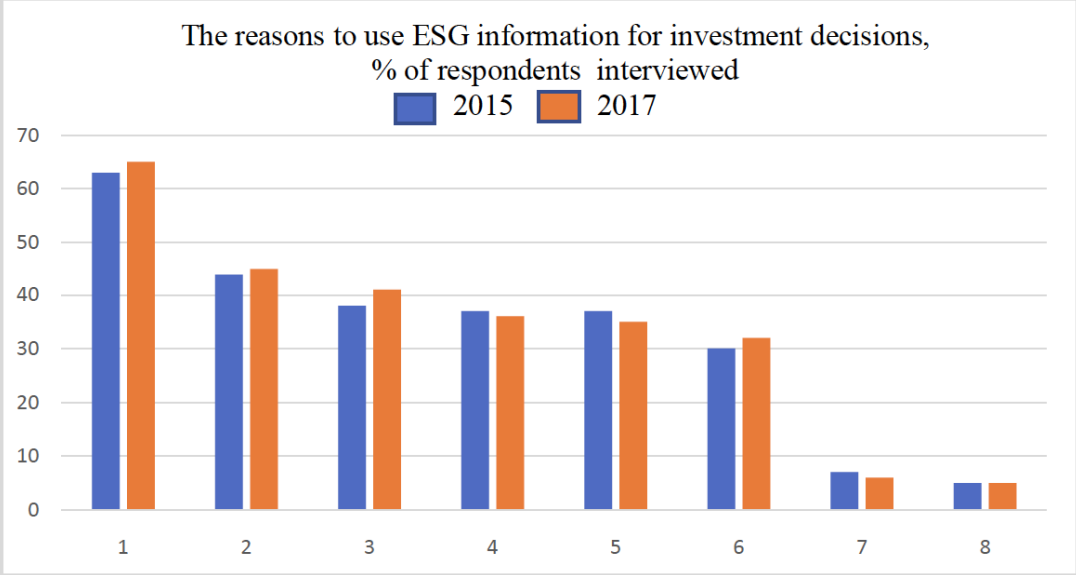

Figure 1: Investor opinions on the reasons for using ESG information.

Where

1. to help manage investment risks
2. clients or investors demand it
3. ESG performance is proxy for management quality
4. due to fiduciary duty
5. to identify the investment opportunities
6. to get reputational benefit
7. legislation requirements
8. other.

Figure **1** presents the information that explains investor motivation to examine ESG data. According to the study (CFA 2017) a reasonably significant 59% of the respondents confirmed that they integrated ESG factors into the whole investment analysis and decision-making process. Among the key reasons investors emphasized the investment risk and opportunities analysis (66% of respondents in 2017 and 63% in 2015), clients demand (44% and 43%) and management quality (41% and 38% respectively).

There are different ways to define ESG integration. The study by OECD (OECD 2017) defines ESG integration as the recognition in the institutional investor's investment policy or principles that ESG factors may impact portfolio performance and so affect the investor's ability to meet its obligations; and using analysis of those impacts to inform asset allocation decisions and securities valuation models (or employing third parties to do so).

The Principles for Responsible Investment, PRI (PRI 2017) defines ESG integration as "the systematic and explicit inclusion of material ESG factors into investment analysis and investment decisions".

The study (Eccles&Kastrapeli 2017) used the following definition of full ESG integration: «Investing with a systematic and explicit inclusion of ESG risks and opportunities in investment analysis». Key to this approach is the commitment to identifying and considering both ESG risks and opportunities. The Committee of Sponsoring Organizations of the Treadway Commission (COSO) and World Business Council for Sustainable Development (WBCSD) support the same approach as it follows from their joint study (COSO & WBCSD 2018).

There is growing understanding that ESG factors have a material impact on corporate performance as well as financial market. Numerous researches suggest that financial markets reward good ESG performance, while a low ESG score can lead to a drop stock price (especially in situation of negative information) or increasing required rate of return as compensation for high risk (Bauer and Hann 2010; Credit Suisse 2015).

The academic literature has specifically investigated the effects of high ESG score on cost of debt, and the concluded that good corporate governance can reduce borrowing costs i.e. credit spreads (Bauer and Hann 2010; Goss and Roberts 2011).

Some studies investigated the correlation between ESG level and cost of equity (Clark *et al.* 2015) and their findings had shown that good corporate governance also reduces the firm's cost of equity because of lower risk and company`s transparency (Dhaliwal *et al.* 2011). In turn, it seems reasonable to assume that if the statement about reducing the credit spread through fully ESG integrating is fair, relying on traditional opinion that decreasing the borrowed capital risk will lead to diminution in risks for owners it is possible to assume that the cost of equity is also to be cutting down on this basis.

Not all academic research points to such positive relationships between ESG factors and long-term returns. So (Barnett & Salomon 2006) concluded that the relationship between ESG integration and investment performance is curvilinear so far as ESG positive impacts are long-term while the related ESG costs are immediate. This conclusion can be interpreted in terms of leading and lagging indicators. Financial performance indicators are lagging while ESG indicators are leading ones which should be taken into account in particular when developing regression models to find out the dependence of financial indicators on sustainability indicators.

Among the various significant sustainability issues, one of the most material is the aspect of climate change impact. Many national guidelines provide the requirement to disclose this ESG aspect in corporate reporting. The well-known CDP Project[3] runs the global disclosure system to manage environmental impacts. The Canadian Securities Administrators (CSA) conducted one of the most comprehensive studies in this area and published the report on the findings of the project to review the disclosure of risks and financial impacts associated with the climate change by reporting issuers (CSA 2018). According to the Project aims CSA provided the research of the current or proposed climate change-related regulatory disclosure requirements, a targeted review of current public disclosure practices of selected large Canadian issuers in a number of industries, focused consultations with issuers, users and other stakeholders and some other findings (CSA 2018).

If the idea of ESG integration is supported by both investment and academic communities, the methods of incorporation vary widely. So (Van Durren et al. 2016) found that the average self-reported ESG integration score was 2.33 on a scale from one (no integration) to four (full integration), with a standard deviation of 0.77. Most of the asset managers preferred to incorporate ESG factors through modified research inputs such as ratings (45%) and company analysis (81%), provided by thirty parties, as opposed to unmodified company`s data (30%). The study of CFA Institute (CFA 2017) leads to a similar conclusion suggesting that ESG factors are not truly integrated in fundamental analysis. The integration process most of the time is discretionary and unsystematic, without equal emphasis on identifying ESG risks and seizing ESG-related opportunities.

There are some material reasons that can explain existing barriers to full ESG integration. In their study (Eccles & Kastrapeli 2015) showed that the greatest barriers to ESG integration are the lack of standards for measuring ESG performance (60%) and the lack of ESG performance data reported by companies (53%). Other obstacles included concerns about underperformance (47%) and cost (34%).

The survey (Amel-Zadeh and Serafeim, 2015) found similar results. When they asked their respondents to identify key difficulties of ESG integration, lack of comparability across firms (44.8%) was the most frequently identified impediment, followed by lack of reporting standards (43.2%), cost (40.5%), data usefulness (39.4%), lack of quantifiability (37.8%), and lack of comparability over time (34.8%). Mentioned above ESG survey (CFA 2017) had identified the most important factors that limit ability to use nonfinancial information in investment process. They are a lack of appropriate quantitative ESG information (55%), a lack of comparability across firms (50%) and questionable data quality (45%).

According to the joint study (COSO & WBCSD 2018) 72% of the respondents suppose that corporate reports do not disclose the sustainable development risks properly while the same respondents consider these risks as the most significant strategical risks and believe that they should be included in enterprise risk management and the decision-making mechanism.

[3]https://www.cdp.net/en

Thus, despite of some differences in the quantitative estimates obtained in individual studies, the following barriers can be identified as major for the obstacle to the wide use of ESG information in investment decisions: lack of reporting standards; data usefulness, lack of comparability and quantifiability. To be fair, this list of reasons should be supplemented by a lack of experience and successful integration examples and case-studies.

To summarize, the main difficulties on the way of full ESG integration can be divided into the information problems, including aspects of standardization, comparability, reliability, completeness and timeliness; limited knowledge and guidance for integration of qualitative data into the quantitative investment assessment, as well as lack of dialogue between the investment community and the reporting companies.

It seems reasonable to assume that one of the root causes of the mentioned information issues is the existence of different platforms, standards and guidelines for ESG reporting preparation. We will highlight the best-known: the GRI[4] (Global Reporting Initiative) standards, the Integrating Reporting[5] (IR) standards, and the SASB[6] (Sustainability Accounting Standards Board) standards that regulate and develop sustainability accounting standards for 79 industries in 11 sectors. At the same time, it should note some other international and national corporate reporting standards, including ISO 26000 2010 Guidance on social responsibility[7], Management Discussion and Analysis national guidelines, national standards of Sustainable Development Reporting, for example Guidance Documents by RSPP (Russia) and others.

The reporting standards for sustainable development, GRI are historically the best known. A growing number of companies (corporations) in the world are reporting according with GRI requirements. These standards are focused on disclosing the organization interactions with a wide range of stakeholders to which it has economic, social or environmental impacts. The standards aim to ensure global comparability and quality of information on these impacts, which contributes to greater transparency in reporting and makes it possible to perform a comparative analysis of its indicators.

Depending upon its chosen level of disclosure, a reporting company can state that it is 'In Accordance' with either the "Core" or "Comprehensive" criteria. The "Core" criteria option requires companies to disclose the essential aspects of a sustainability; whereas the "Comprehensive" criteria option requires a greater volume of disclosure including general and specific issues. Reporting prepared in accordance with GRI standards can be combined with other corporate reporting systems. Thus, companies use the GRI standards in combination with the international standards ISO 26000: 2010, the "Guide to Social Responsibility", AA1000[8] standards applied for the disclosure of stakeholder engagement processes, Climate Disclosure Standards Board (CDP).

The standards of integrated reporting (IR) focus on the value creation process. The key audience of this reporting are providers of financial capital (debtors and investors). Resources (capitals), business model and value creation process are key aspects for disclosure in Integrated Reporting. However, unlike the GRI standards, this corporate reporting platform is based on a principles-oriented approach and does not contain specific recommendations on the key performance indicator selection to disclosure the value creation process. Companies determine material for disclosure indicators in the process of discussions and other interactions with stakeholders. On the one hand, this approach contributes to the flexibility and adaptability of the integrated report, which allows to reflect the value creation features, but, on the other hand, it produces a significant challenge for reporting companies to select meaningful indicators. It is no coincidence that in practice, companies combine IR standards with using of Guidelines for Sustainable Development (GRI), which allows them to select and report on indicators that characterize various types of company`s capital: financial, social, human, intellectual, productional, natural.

In turn, as its mission, SASB refers to the development of sustainability reporting standards that will help companies listed on stock exchanges to disclose significant information about sustainable development factors in accordance with the requirements of the Securities and Exchange Commission. SASB standards differ the certainty of approaches to information disclosure (the standards define significant topics for disclosure); a high degree

[4]https://www.globalreporting.org/Pages/default.aspx
[5]https://integratedreporting.org/
[6]https://www.sasb.org/
[7]https://www.iso.org/standard/42546.html
[8]http://www.accountability.org/standards/

of comparability by minimizing the choice for companies; branch aspect; initial integration into the existing financial reporting mechanism for companies whose shares are listed on the US stock exchange (Form 10-K). According to the concept of this standards, they focus on the approach that primarily supports the interests of investors and financial analysts.

Thus, it can be concluded that the non-financial reporting standards have some differences concerning the target audience, the structure and content requirements, recommendations for disclosing key performance indicators and criteria for their evaluation, industry features and other important aspects (KPMG 2017; Ernst & Young 2014), which allows to say about various analytical possibilities of these reporting for the purposes of ESG integration into investment decision process.

3. METHODOLOGY

3.1. Data and Sample

The most complete information about Russian companies that prepare non-financial reports are contained in the National Register of Corporate Non-Financial Reports and the Library of Corporate Non-Financial Reports of the Russian Union of Industrialists and Entrepreneurs (RSPP)[9]. As of June 8, 2018, there were 168 Russian companies and organizations that were included in the National Register of Corporate Non-Financial Reports of the Russian Union of Industrialists and Entrepreneurs (RSPP), which in the period from 2000 to 2018 issued 842 non-financial reports. Among them we have identified: 76 environmental, 338 social, 282 reports on sustainable development and 148 integrated reports[10]. In addition to these non-financial reporting formats, it is worth mentioning company`s annual reports that usually include the most significant social and environmental indicators.

The composition of the Russian companies that publish non-financial reports according with international standards (GRI, IR, ISO 26 000) is in line with international trends. Mainly companies operating at the international level and presenting in the financial markets prepare these reports. These public corporations are related to industries that form the main share of GDP in Russia: oil and gas, metals and mining, chemical, power generation and banking sector.

It is important to notice that on March 21, 2014 the Central Bank of the Russian Federation approved The Corporate Governance Code that was addressed primarily to public companies and large corporations with state participation in the capital. The Code sets out the principles for the risk management system organization, internal control and internal audit functions compatible with international standards. In general, these recommendations correspond to ESG disclosure according to GRI G4. The Code contains direct recommendations to disclose the information in the field of social and environmental responsibility.

The paper explores the various features of non-financial reports registered in the National Register of Corporate Non-Financial Reports (Russia) as one of available sustainability data sources. The analysis goals were to assess the quality of reporting disclosure completeness, sectoral structure, standards used, companies` sustainability performance. For this aims 168 corporate reports (all reports that were available and registered in the National Register of Corporate Reports) for the last three years (2015-2017) were analyzed.

The statistics analysis allows to see an obvious trend towards the growth of companies that have prepared this kind of reporting. So, for the last 3 years the number of prepared and registered reports has increased from 561 to 842 or 50%. At the same time, it seems more important to emphasize that the reporting quality and completeness are growing up constantly. In order to analyze the reporting quality changes 70 material ESG indicators were selected and several levels of disclosure quality were identified. These disclosure levels were defined as "Lack of information", "Mention", "Declaration", "Full disclosure". For the selected 70 indicators the percentage of full disclosure has increased from 63 to 69% for the last 3 years[11]. Accordingly, the share of disclosures in the form of a general mention has decreased.

Starting in 2014 the Russian Union of Industrialists and Entrepreneurs (RSPP) compiles the Indices of Corporate Sustainability and Responsibility. The

[9] http://www.rspp.ru/simplepage/475
[10] http://www.rspp.ru/simplepage/475
[11] http://media.rspp.ru/document/1/b/2/b24091d44c9660fcf3a9fdad6551b88f.pdf

methodology of index compilation was based on international approaches and evaluation criteria for ESG-factors (environmental, social and management aspects and results). RSPP Sustainable Development Index currently is the only Russian index included in the International Database on Sustainable Development Ratings (GISR)[12]. The methodology for compiling the Corporate Sustainability, Responsibility and Openness Indexes of the RSPP is a public document and is available on the website.[13]

The analysis of the non-financial reports prepared by the large Russian companies showed similar problems to international ones. Despite the fact that the majority of the companies use GRI standards, in practice, information is disclosed in such a way that users have to spend significant time searching for the comparative data. Another problem is related to the availability and timeliness of obtaining ESG reports by interested users. Even if the companies publish the sustainability reports annually, the timing of their submission may differ significantly from the financial reporting publication. This does not allow to integrate information of both reports in a timely manner, which reduces their analytical value for investors. Another significant issue of the sustainability reports is related to their completeness and reliability.

To find out the industrial specific features and their impact on operational, technological and environmental performance indicators we analyzed the ratios provided by the Russian Environmental and Energy Rating agency Interfax-Era[14]. In order to analyze the share price dynamics for the Russian Companies that were recognized as the leaders of non-financial information disclosure, we used Russian stock exchange (MICEX)[15] online data.

To perform the global view of ESG disclosure by international companies, as well as assess the dynamics of their financial multipliers, such as EV/EBITDA, Price/Earnings and some others in context their corporate responsibility we used ESG company dashboard provided by Bloomberg Professional.

Finally, we explored the available experience and case-studies (PRI 2017) on integrating ESG issues into the investment decision-making process.

[12]http://ratesustainability.org/hub/index.php/search
[13]https://interfax-era.ru/reitingi/2017/otraslevye
[14]https://www.moex.com/

3.2. Approach

The proposed approach was based on the following statements.

ESG issues influence on corporate financial performance: costs, revenues, operating profit, profitability, cash flows (Eccles *et al.* 2013). Some of them have direct impact, for example, environmental costs or penalties for non-compliance with environmental laws and require no justification. The influence of other ESG aspects, such as company's investments into human or social capital on financial performance, is not so obvious (Eccles and Serafeim 2013) and requires regression analysis to identify links and direction of the impact (positive, negative, neutral).

Separate industries have different ESG issues that are material for financial performance (Khan *et al.* 2015). Preliminary identification of material sustainability factors in view of industry and other features determines the representativeness of regression analysis results. Key point when integrating ESG factors into investment analysis is to focus on materiality, i.e., factors that are likely to have a material impact on the company's business model and its share price movements. The methodology for identifying material and nonmaterial ESG factors and evaluating their impact on financial performance is detailed in some research (Khan *et al.* 2015).

Evaluating ESG impact need understanding of the time aspect (Barnett & Salomon, 2006). Current expenses and investments related to various aspects of the company's sustainable development strategy will most likely have a negative impact on the financial results and cash flows of the current period. At the same time, these aspects have a long-term effect, considering a business model sustainability, management quality, sustainable growth, ESG risks and opportunities and other issues which can be material for different investment strategies (ERM 2017; COSO & WBCSD 2018).

There are different approaches that can be applied to integrate ESG aspects into investment decisions, that in practice include qualitative analysis ESG data to get understanding about material sustainability issues, screening (both negative and positive alignment), financial modeling or /and relative valuation techniques (Amel-Zadeh and Serafeim 2017).

The following approach can be used and seems to be more reliable for ESG integration purpose (see Figure **2**).

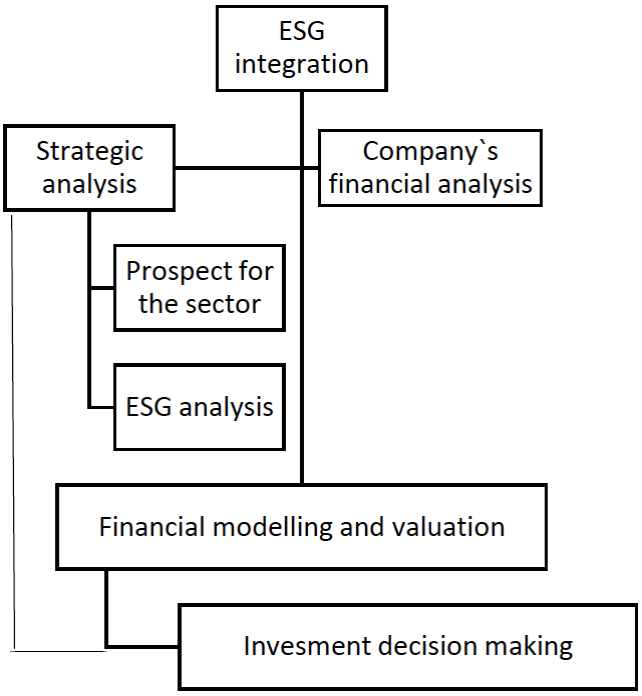

Figure 2: The model for the underlying analysis.

The Figure **2** presents the possible ways that can be used to integrate significant ESG issues into investment decision process. As it can be seen the ESG data gives the investors a starting point to further company's business analysis and helps to form an opinion that should be incorporated both in valuation models and recommendation.

The most common approach as it follows from different investor study analysis (Amel-Zadeh and Serafeim 2017; CFA 2017) is screening. Negative ESG background or low ESG score leads to not-to-buy decisions. In some cases, non-financial issues can be implemented in the form of the limitation system (technical, social, environmental and other). In the presence of several alternative decisions, priority is given to the one that provides the maximum value while observing the limiting conditions. The examples of such restrictive conditions can be the requirements for compliance with emission or for the level of the environment pressure not higher than established by legislation etc.

The strategic analysis includes assessment of the macroeconomic situation; the sector structure and value drivers; the corporate strategy, governance and related risks; all other material information that affects future company`s cash flows. At this stage analysts use such well-known strategic analysis tools as SWOT, PEST, Porter's five forces analysis, Value chain analysis and some others traditional techniques. Among the most important threats and opportunities of any business are ESG-related risks and opportunities that should be realized and assessed to adjust financial forecasts and/or valuation models appropriately.

According to the World Economic Forum's Global Risks Report 2018 (World Economic Forum 2018) four of the top five Strategic risks are societal or environmental. Table **1** shows how these megatrends can be translated to ESG-related risks and opportunities.

Presented in Table **1** classification of company`s sustainability issues allows to identify the ESG-related strengths, weaknesses, opportunities and threats that need to be incorporated into fundamental SWOT-analysis. At the same time, it gives understanding that good ESG performance can be translated into different benefits from improved business performance that important for modelling and valuation process (COSO & WBCSD 2018).

The aim of investment analysis at this stage is to collect relevant information from multiple sources and identify material factors affecting the company`s business-model and its future cash flows. The results of this analysis are relevant for the quality of valuation and investment recommendations because it is entirely dependent on the data using in the financial model.

The next level of investment evaluation is based on quantitative analysis that includes financial forecasting and modeling (company valuation or portfolio construction). Long-term investors usually make decisions by preparing valuation models to assess a company's intrinsic value and compare it with the current share price to determine companies they suppose are overvalued and undervalued by the market. These assumptions are based on the result of the strategic analysis of economic and industry trends, the competitive environment and identified ESG risks and opportunities. In addition, fundamental investors and analysts use the relative valuation approach, where they compare the company`s financial ratios or multiples such as price-to-earnings (P/E), enterprise value–to-EBITDA (EV/EBITDA), return on invested capital (ROIC) and other variables and its peers to assess if the company is relatively fair valued, undervalued or overvalued.

Analysts can adjust forecasted financial variables such as revenue, operating costs and profit, invested capital value, capital expenditure and the discounted

Table 1: Related ESG Risks and Opportunities Impacting Investment Decisions

Social		Environmental		Governance	
Risks	**Opportunities**	**Risks**	**Opportunities**	**Risks**	**Opportunities**
Labor protection and safety risks, social tension risks, Loss of valuable employees, Unethical and illegal employee actions, Supplier power, Buyer power, Loss of key customers, Loss of key suppliers, Reputational risks	Greater loyalty and employee inclusiveness, Personnel development and sales growth, Customer satisfaction and revenue stability, Well managed customer credit, Well managed supplier credit, Supplier chain, Brand awareness	Man-made disasters, Damage from natural disasters, risks of Climate change risks, Environmental damage, Failure of climate-change mitigation and adaptation	Product and marketing innovation, Reducing greenhouse gas emissions and energy costs, Energy and other resources effectiveness	Regulatory influences and government policy changes, Changes in uncertainty and business risk, Accountability and disclosure risks, Cyberattacks	Management and board competence and motivation, Innovation power, Effective risk-management, Stakeholder engagement, Appropriate mix of resources (people, energy, water, money) available, Appropriate financial and management accounting systems

rate basing on the expected impact of material ESG issues (PRI 2017). The process of identifying the sustainable development determinants for analyzing organization should consist of the following steps:

- Analysis of non-financial information disclosed by the company and its competitors in reports on sustainable development or integrated reports;
- Determination of key topics (issues) identified by the top management of the organization (this is mandatory for corporate disclosure according to G4 and GRI 2016 standards);
- Qualitative assessment of material ESG issues` impact the company`s business model and future cash flows; assumptions development and justification.

There are different methods and models that can be used for company or equity valuation. In this paper we will consider ESG data integration aspects for development of McKinsey DCF model and ratio-based valuation.

Financial modeling using the DCF method is based on the calculation of the future free cash flows (FCF). Consider that ESG factors affect the interests of all capital providers, both owners and creditors, for the purposes of further discussion we will dwell on free cash flow of the firm indicator (FCFF).

$$FCF(FCFF) = NOPAT + Depreciation - CAPEX - Net\ ch.in\ WC$$

where NOPAT – net operating profit or operating profit after tax deduction. In turn operating profit or EBIT is the difference between revenues and operating costs, CAPEX – capital expenditure, Net ch.in WC – changes in net working capital for the period.

Thereby, the key drivers of the DCF financial model are: depreciation, net working capital changes, capital expenditure and since the DCF approach is considered, another key variable is the discount rate or required rate of return (in many cases for this purpose analysts use weighted average cost of capital - WACC). Further analysis of these financial variables should be supplemented by considering the expected ESG impact on them.

So, to forecast revenues, investors typically take a view on how fast the industry is growing and if the specific company will gain or lose market share. ESG factors can be integrated into these forecasts through rectification of company's revenue growth rate (PRI, 2017). Analysts can make such assumption based on the client capital analysis including such operational variables as customer satisfaction assessment, brand recognition, revenue per customer attributed to a certain class of clients, innovation and others. There are evidence of different companies and case studies for example by RobecoSam (PRI 2017) that testify this practice.

ESG factors have a direct impact on operating costs, which is related to the effectiveness of using resources. Such information allows to adjust the initial data on the expected operating expenses of the organization. Investors can make assumptions about the influence of ESG factors on future operating costs

and either adjust them directly or adjust the operating profit.

Corporate reports based on GRI standards should reflect the company's efforts in the field of energy efficiency, material consumption, waste recycling and other usage of certain resources. Operating cost related to the company`s environmental activities usually include expenses on maintenance of the fixed assets associated with environmental activities and their repair, on the provision of the personnel serving these objects, on current measures to preserve and restore the quality of the environment; the payment for negative impact on the environment; other current measures to reduce the harmful effects on the environment and mitigate climate change. All these costs have a direct impact on the future cash flows.

An analyst may suppose that ESG factors will lead a company to change their future capital expenditure. Analysts can reconsider capital expenditure forecasts by adjusting the formula linking Capex to sales revenue or by applying ready information about company`s investments in fixed assets, including investments for protection and effective use of water resources, land and the environment from the harmful effects of industrial waste and other consumption that must be disclosure in corporate reports.

Assessment of future investments into net working capital should also be verified on the basic of the expected ESG impacts. A recent study by PricewaterhouseCoopers claims (PwC, 2013) confirming the positive impact of the supply chain on the inventory level and the effectiveness of their usage (the growth of turnover ratio, increasing of gross profit margin and others). It allows to reasonably minimize inventory volume that means additional cash inflow in terms of cash flows.

The strategic analysis of social risks, such as dependence on key suppliers and buyers, as well as related opportunities, for example, well managed customer and supplier credit policy, brand awareness and customer satisfaction help to clarify the assessment of accounts receivable and accounts payable movements that is necessary in forecasting net working capital required. The changes in operational value drivers, that traditionally used to evaluate expected investing into inventories, accounts receivable and accounts payable can be material factor of ESG impact on future cash flows from operating activity.

Consider the fact that the largest and most financially effective organizations pay more attention to sustainable development than other firms in the same sector, it is likely that there is negative correlation between ESG score of these companies and the cost of borrowed capital (Goss & Roberts 2011). The conclusion that firms with good sustainability standards enjoy significantly lower cost of capital was made in some empirical and academic studies (Clark *et al.* 2015; Credit Suisse 2015). The comprehensive research (Clark *et al.* 2015) summarized 29 empirical studies on sustainability and its effects on firm`s cost of capital and concluded that in total, 26 from the 29 or about 90% of provided studies had found a relationship which points to a reducing effect of better sustainability practices on the cost of capital.

Some analysts adjust the beta or discount rate used in company valuation models to reflect ESG factors (Clark 2015). There are practical evidences when the beta of analyzing company was reduced or increased because of positive (in same cases poor) working environment and strong (weak) corporate culture. As result the lower beta increased the target price of company and opposite the higher – decreased.

A similar approach can be implemented if the financial model development is based on the using EVA techniques. Economic value added for a year period is expressed as:

$$EVA = IC * (ROIC - WACC) \quad \text{or}$$

$$EVA = IC * (ROIC - WACC) = IC * \frac{NOPLAT}{IC} - IC * WACC = \\ = NOPLAT - IC * WACC$$

$$\text{Or} \quad EVA = Sales - Operating\ costs - Capital\ costs$$

where IC -Invested Capital, ROIC – return on invested capital, WACC – weighted average cost of capital, capital costs – costs of using the financial recourses (both borrowed and owned).

The information from the sustainability analysis can be incorporated into the economic value added (EVA) model by estimating the material sustainability issues' financial impact on such value drivers as growth, profitability and risk (Clark 2015). Operational efficiency gains from social and environmental initiatives as well as high quality governance impact on sales growth, operating margin and ROIC that in turn has positive effect on company`s EVA (Cheng *et al.* 2014).

The multiple-based valuation usually supplements the DCF analysis results to assess the reliability of the

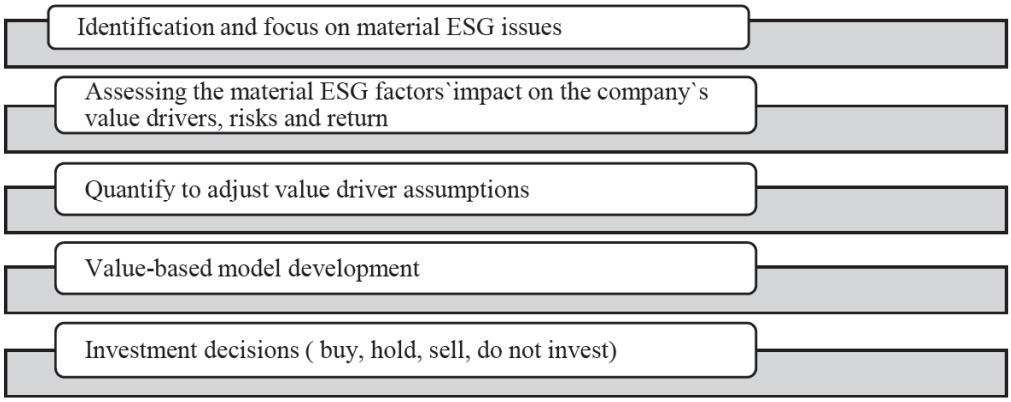

Figure 3: Multiple-based valuation model and ESG integration.

assumptions made. There are two different approaches to multiple calculation and two different types of multiples: relative and fundamental. Relative multiples are the most commonly used and based on comparison the relationship between company`s value and certain variable, for example EBITDA, Book value and others. By contrast fundamental multiples are based on company`s fundamental factors like growth, return cost of capital and some others.

Analysts perform the following types of comparisons in the process of company valuation:

- comparison of certain multiples for analyzing company with the same multiples for comparable firms or industry average to assess business value or to determine what drivers the market do or does not respect;
- comparison of current and historic multiples to evaluate the dynamic and progress;
- comparison of current relative and fundamental multiples to determine undervalued or overvalued stocks.

ESG analysis can complement all these procedures since it can provide valuable information for explaining the magnitude of existing multiples and their differences from comparable companies and industry average.

Among large number of multiples EV/EBITDA are one of the most commonly used. Differences of EV/EBITDA multiple for companies of one industry can be explain on base of additional information connected with the growth rate, risk-return view that in turn can be interpreted in terms of ESG analysis.

The formula for the fundamental EBITDA multiple can be presented as:

$$\frac{EV}{EBITDA} = \frac{(ROIC - g) * (1 - T)(1 - DA)}{ROIC * (WACC - g)}$$

where ROIC is return on invested capital, g is growth, WACC is weighted average cost of capital, T is the tax rate, DA – is depreciation charges in per cent of EBITDA.

As can be seen from the formula, the EBITDA multiple is affected by, for example, growth, return and capital invested (if the company is able to generate growth more effectively then its peers and/ or spend less capital, this multiple will be higher) as well as cost of capital, that means that the risker the business or the capital structure, the higher the cost of capital. Even if the company has the low leverage but high operating risks, it will lead to relatively lower multiple. As discussed earlier, these variables (growth, profitability, cost of capital) are directly influenced by the ESG factors.

The results of numerous interviews with investors show that one of the most significant challenge of ESG integration is the lack of non-financial information about key non-financial risks and the organization's capabilities prepared in an investor-friendly form suitable for comparative analysis. In this situation, many investors use information obtained mainly from third parties, including rating agencies (CFA, 2015). If a company has a poor ESG score investors consider it as high level of risk and apply a discount to the target multiple for this company. The largest agencies such as Bloomberg Professional and Thomson Reuters are developing complex ESG indexes, which can be used to adjust target multipliers. The base of sustainable development indices including national ones is presented on the GISR website[16].

[16] http://ratesustainability.org/

Table 2: Fundamental Efficiency Indicators of the Largest Russian Metallurgical Companies

Company name	Efficiency (average for the economy = 100%)			Dynamics of efficiency (+/-% per year), %	Transparency (% of the disclosed indicators)
	Energy-resource efficiency (energy, resources, waste, emissions per unit of output), percentage	Technological efficiency (resources, waste, emissions per unit of energy consumed), percentage	Ecosystem effectiveness (resources, waste, emissions, effluents per 1 hectare of sustainable ecosystems), percentage		
Novolipetsk Steel, NLMK	59,9	119,2	25,0	+3,91	61,7
Magnitogorskiy Metallurgchsky Kmbnt, MMK	42,0	169,3	16,2	+1,64	89,0
Metalloinvest	66,9	151,0	21,4	+2,3	54,9
Evraz	35,9	111,1	36,7	+0,6	57,2
GMK Noril'skiy nikel	26,7	15,2	51,7	+3,14	77,2
Severstal'	34,0	67,4	23,8	-0,5	82,7
Average for the steel industry	154,1	117,3	71,9	0.01	46,4

The scheme of integrating ESG factors into multiple-based valuation model and investment decision-making is presented in Figure **3**.

As it follows from Figure **3**, a preliminary analysis of the ESG impact on company`s value drivers help the investor to assess how much better or worse the firm performs versus its peers due to its ESG strengths or weaknesses.

Although the method of ESG integration into the financial modelling process is being used frequently, it does have some difficulties. The first challenge is related to determination of the adjustment magnitude. The lack of necessary statistics leads to using expert assessments that carry a certain portion of subjectivity. The second issue is related with limitation of practical using such traditional modelling technique like extrapolation from historical data, which may be less reasonable for forecasting future ESG-related impacts. For example, forecasting a company's future carbon footprint unlikely can be provided on the historical base. It seems more relevant to use the information about company`s strategy for reducing its carbon intensity that should be incorporated into the developing financial model.

The third problem is the risk of double counting. If a company has relatively poor ESG score and this risk is already widely known in the market, it can be already reflected in analyst`s assessments. Adjusting the discount rate or the target multiple again can lead to unrealistically low fair value for the company. We can assume that using of fundamental multiples and their adjustment according to the identified ESG factors seems more reasonable.

To some extent, the problem can be solved by using sectoral indicators and rankings, reflecting both industry-specific and company-specific risks of value creation in future. Comparative analysis of these indicators provided for the same sector companies could help to find out their weaknesses and strengths. Table **2** gives an example of performance indicators calculated for the largest Russian steal and metal companies. The complete information for 5500 Russian public enterprises classified by sectors and regions is available on the website of the Russian Environmental and Energy Rating Agency InterfaxEra[17].

This table demonstrates the measures of the same sector companies` operating and ecological effectiveness that can be used for comparative analysis of their investment attractiveness. Energy efficiency indicator for each company was calculated due to the ratio of energy consumption to revenue. On the basis

[17]https://interfax-era.ru/reitingi/2017/znacheniya-effektivnosti-po-otraslyam-i-vidam-deyatelnosti

of these evaluation the average indicator was defined for all enterprises included in ranking (5500 large Russian companies of different sectors) as a whole and it was taken as a norm equal to 100 percent. Energy efficiency level is represented due to the ratio of the individual enterprise indicator to the average one. For example, if the enterprise has the individual indicator two times more than the average then such enterprise is evaluated as 200 percent value and correspondingly if the enterprise has the individual indicator two times less than the average then such enterprise is evaluated as 50 percent value. The same approach was used to define technological efficiency and ecosystem effectiveness indicators.

The indicators are broken down by separate industries that allows to perform benchmarking useful for valuation purposes. Market awareness of this information would contribute to more objective assessment of the target value multiples so far as it provides a deeper insight into company`s key risks and opportunities.

Based on the company`s fundamental effectiveness ratings the Russian Environmental and Energy Rating Agency InterfaxEra forms stock index ERAX, which allow to monitor how the environmental component of companies` activities is involved in assessing their share price in the Russian stock market. The stock index ERAX reflects the capitalization of the most environmentally and energy efficient companies, which can be compared with the general dynamics of the market. Since October 2012, the portfolio of ERAX includes shares of only those companies that have taken the top positions in the rating (Top-75). The share price analysis provided for the environmental rating company-leaders and other public company-participants of the screening demonstrates a stable excess and value growth of the first ones[18].

To summarize ESG analysis complements financial valuation and can be considered as a component of fundamental analysis, whereby investors carry out modeling the value drivers of company's financial performance.

IV. CONCLUSION

We investigated the issues of integrating ESG factors into investment decision-making process, based on the available investor surveys, academic research, analysis of non-financial reports prepared by Russian companies (all available 168 reports for 2015-2017 periods), Bloomberg ESG data, Corporate Sustainability and Responsibility of the Russian Union of Industrialists and Entrepreneurs (RSPP) indexes, fundamental efficiency indicators and indexes of the Russian Environmental and Energy Rating Agency (InterfaxEra), taking into account the sectoral aspects, as well as Russian ecological-stock index ERAX and stock index MICEX dynamics.

Our findings suggest that ESG factors may have a material financial impact and are relevant to institutional investors. If so, institutional investors need to determine the ways to integrate ESG factors into valuation models. The conducting analysis allowed to identify the main barriers to the full ESG integration in the investment process. To sum up we can emphasize a lack of standardized data as well as ESG risk and opportunity metrics and analytical tools.

To contribute to the problem development, we considered the possibilities of integrating ESG factors at different stages of investment analysis and business valuation to find out the further directions of improvement.

[18]https://interfax-era.ru/agentstvo/proekty/erax

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