Itaú Asset Management

ESG Integration into fixed income research

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Presentation

This White Paper aims to share the Responsible Investment practices of Itaú Asset Management, with a focus on integrating Environmental, Social and Governance (ESG) issues into fixed income research. It follows the publication of our first White Paper on Listed Equities[1].

We start by reviewing the concept and evolution of Responsible Investment (section 1) and a brief discussion of its potential advantages in terms of risk-return metrics over traditional investment approaches (section 2).

In section 3, we explain the building blocks of Itaú Asset Management's ESG Integration Method. In short, the method aims to price the impact of ESG issues into fundamental credit research, coherently with Itaú Asset Management's investment philosophy.

To conclude (section 4), we reflect on lessons learned from developing and implementing our ESG integration method, and the path ahead to continue being a major player for Responsible Investment in Brazil and Latin America.

[1] ESG integration into fundamental equity valuation, Itaú Asset Management, Sept 2013

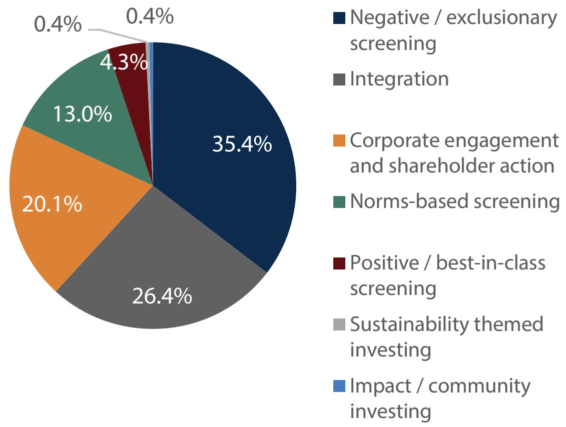
1. Responsible Investment

Broadly speaking, Responsible Investment is an investment philosophy that takes Environmental, Social and Governance (ESG) issues into account in its security selection and ownership practices. Most Responsible Investment practitioners integrate ESG issues into investment processes in order to achieve better risk-adjusted returns. Also known by the acronym SRI (Sustainable & Responsible Investment), it has been practiced for decades in various ways, but has gained wider acceptance since 2006, with the launch of the United Nations-supported Principles for Responsible Investment (PRI)[2]. A global network of institutional investors, the PRI promotes the adoption of six investment principles and supports its signatories in implementing them.

Itaú Asset Management was the first large investment manager in Brazil to become a PRI signatory[3], in 2008. Since then, it has worked to promote these principles in the Brazilian market. Globally, the PRI has more than 1,250 signatories who are responsible for approximately 45 trillion dollars of investment assets (July 2014). Brazil has 64 PRI signatories, 33 being asset managers.

A survey conducted by the Global Sustainable Investment Alliance[4] found that at least 13.6 trillion dollars under professional management globally[5] followed Responsible Investment criteria to some extent, representing roughly 22% of professionally managed assets in 2012. The trend points to growth in all markets and higher adoption of Integration approaches.

Figure 1: Responsible Investment AuM by Method



Source: Global Sustainable Investment Review 2012

Itaú Asset Management experience in Responsible Investment is prior to joining the PRI in 2008. In 2004, Itaú Asset Management launched the Itaú Excelência Social Ações - Fundo de Investimento - FIES[6] (Itaú Social Excellence Equity Fund), marking the beginning of its SRI journey.

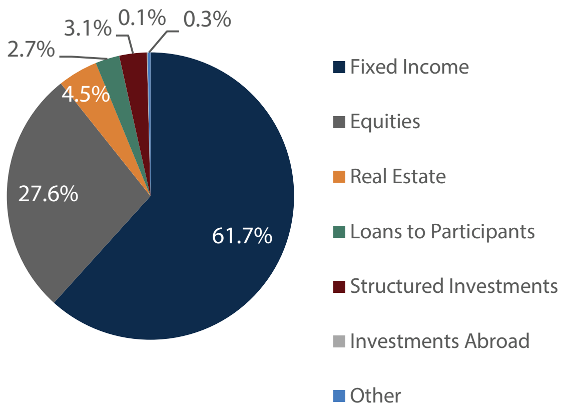
At its launch, FIES conducted industry-based negative screening and norms-based exclusion for specific stocks. This approach evolved over time to turn FIES into an incubator for ESG integration techniques developed by Itaú Asset Management. Since 2010, FIES has applied the ESG integration model to the remaining investment universe after the screening process. As of 2011, ESG integration has been rolled out to all actively-managed listed equities funds.

In 2014, the method was adapted to serve the needs of the Fixed Income desk, with a focus on corporate and financial issuers of debt securities. This represents

[2] Additional information at www.unpri.org
[3] Additional information available at www.unpri.org/signatories
[4] Global Sustainable Investment Review 2012
[5] USA, Canada, Europe, Africa, Asia, Japan, Australia
[6] Before investing, read the Prospectus and Bylaw of the fund. Shares redemption requests are converted on the 1º business day and paid on the 4º business day subsequent to the request. This Fund uses strategies that may result in significant losses to its investors. Advertisement Material of the Fund. This Fund has prospectus and fact sheet with essential information, which may be consulted in www.itau.com.br. The fund is off ered to Brazilian investors in Brazilian territory only. Investors with no residence in Brazil are generally not eligible to purchase or to otherwise participate in any off ering of fund's shares. Fund's shares and any other securities mentioned herein have not been and will not be registered under the Securities Act of the United States of America or with any other regulatory authority of any state other than the Brazilian Securities and Exchange Commission (Comissão de Valores Mobiliários – CVM). The information about the Fund is provided for informational purposes only and does not constitute or should not be construed as an off er to buy or sell or solicitation of an off er to buy or sell any Fund's shares, luding but not limited to the United States of America ("U.S.").

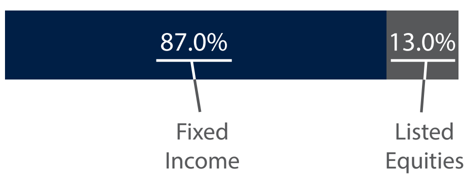
a major extension of our Responsible Investment coverage and influence, since the Brazilian market and our clients' portfolios have significantly greater allocation to fixed income in comparison to listed equities.

Figure 2: Brazilian Closed Pension Funds' Portfolios by Asset Class



Source: ABRAPP - Brazilian Association of Pension Funds, March, 2014

Figure 3: Assets - Fixed Income vs. Equities in Brazil



Source: ANBIMA - Brazilian Financial and Capital Markets Association, July, 2014

At Itaú Asset Management, we believe ESG integration is a journey. In our recent experience with this approach, we achieved higher accuracy in the analysis of Brazilian securities. Because our models have incorporated governance issues for a longer period of time, this paper will further focus on Environmental and Social issues within ESG integration. We believe this is the ultimate frontier in Responsible Investment not just in Brazil, but globally.

2. ESG integration in fixed income

ESG integration is gaining traction with mainstream investors based on the belief that it can generate higher risk-adjusted returns. The transmission mechanism is based on the assumption that ESG performance impacts the economic performance of issuers. Hundreds of studies attempted to test this hypothesis, with most of them confirming the positive correlation according to meta-studies conducted by Margolis, Elfenbein & Walsh (2009), Beurden & Gossling (2008) and Endrikat, Guenther & Hoppe (2014).

Conversely, a growing body of academic and practitioner research studies corroborates the materiality of ESG issues to fixed income securities, particularly on corporate and financial issuers. An uncomprehensive selection of such studies can be found below:

- Corporate Environmental Management and Credit Risk (Bauer and Hann, 2011);
- Employee Relations and Credit Risk (Bauer et al, 2010);
- Environmental Externalities and Cost of Capital (Chava, 2011);
- The impact of CSR on the cost of bank loans (Goss and Roberts, 2009);
- Environmental liabilities, bond ratings and bond yields (Graham and Maher, 2006);
- The effect of bad news on credit risk: a media based view of the pricing of CSR (Kolbel and Busch, 2013);
- The impact of environmental risk on the UK banking industry (McKenzie and Wolfe, 2004);
- Lender liability and value of collateral (Weber, Fenchel and Scholz, 2008).

An underlying assumption of Responsible Investment is that risks and returns often materialize in the longer run, since the adoption of sustainable practices cause structural changes to companies' business models. This does not impede ESG issues to impact corporate results in the near term, but does suggest that the positive effects of ESG integration may take time to materialize in portfolios. Indeed, Oikonomou and Pavelin (2014) have found that ESG performance is better correlated with higher credit ratings (and lower rates) when bond maturities are longer.

"**ESG issues** tend to be a good explanation for the **decoupling of rates and risk perception on debt securities**." (Derwall and Koedijk, 2009)

The effects of ESG performance also seem to positively impact other characteristics of fixed income securities, such as size of issuances, maturities and covenants, according to Nandy e Lodh (2012). Others such as Arjaliès (2013) argue that fixed income securities are chosen based on a combination of rates, collateral and downside risk, being the later the key variable impacted by ESG. This seems to be even more important where secondary markets are illiquid and bonds are usually held to maturity (PRI, 2013).

Academic studies focused on the Brazilian market are still scarce, given the shorter track record of ESG integration in the country, and have typically focused on equities. However, there is strong evidence from the domestic banking industry that environmental and social risks matter for granting credit[7]:

- 6 banks (including the 5 largest) are signatories to the Equator Principles, a global framework for assessing ESG risk in project-related finance;
- 9 out of 10 largest commercial banks (~85% of total assets) have ESG risk management for lending to corporate and SME clients;
- 19% of small and medium size banks have ESG risk management systems for credit;
- Brazilian credit bureaus offer ESG assessment of thousands of companies, both large corporates and SMEs;
- Losing environmental permits or cases of forced-labor (including by suppliers) oblige banks to freeze credit lines of clients;
- Public attorneys and interest groups increasingly litigate to make banks co-responsible for pollution or environmental crimes committed by their clients;
- A Brazilian Central Bank resolution (2014)[8] obliges all financial institutions to develop and publish ESG management systems commensurate with portfolio risks.

Because they are under researched, ESG issues tend to be a good explanation for the decoupling of rates and risk perception on debt securities (Derwall and Koedijk, 2009). Due to investors' tendency to reach yield through these assets, in practice they have noticed that companies that ignore some Responsible Investment aspects have issued corporate bonds without required return premium. Therefore, there is a significant opportunity for performance differentiation for those asset managers who understand ESG risks and opportunities across industries and develop capabilities to anticipate companies' value creation and/or destruction.

[7] Based on research by SITAWI, Uniethos and Deloitte, 2013
[8] Resolution number 4.327, of 25 April 2014 - Central Bank of Brazil

We consider ESG issues to the extent that they **can materially affect the value of assets** where we invest.

3. Our Approach

As managers of our clients' assets, we have a duty to base our investments on a comprehensive understanding of all risks and opportunities that result from our decisions.

We consider ESG issues to the extent that they can materially affect the value of assets where we invest. Our approach to Responsible Investment helps us achieve our fiduciary duties, creating value for our customers by providing returns better adjusted to their risk profiles.

The ESG Integration Method of Itaú Asset Management incorporates these variables into our fundamental fixed income research model, by analyzing ESG impacts on cash flow and solvency indicators. The objective is to adjust the rating of issuers and to stress test the events that may result in challenges for servicing their debt. This approach provides flexibility to our portfolio managers, who use the ESG research inputs to varying degrees, according to their specific strategies and mandates. It is also important to consider whether the issuer is a financial institution or a corporate entity.

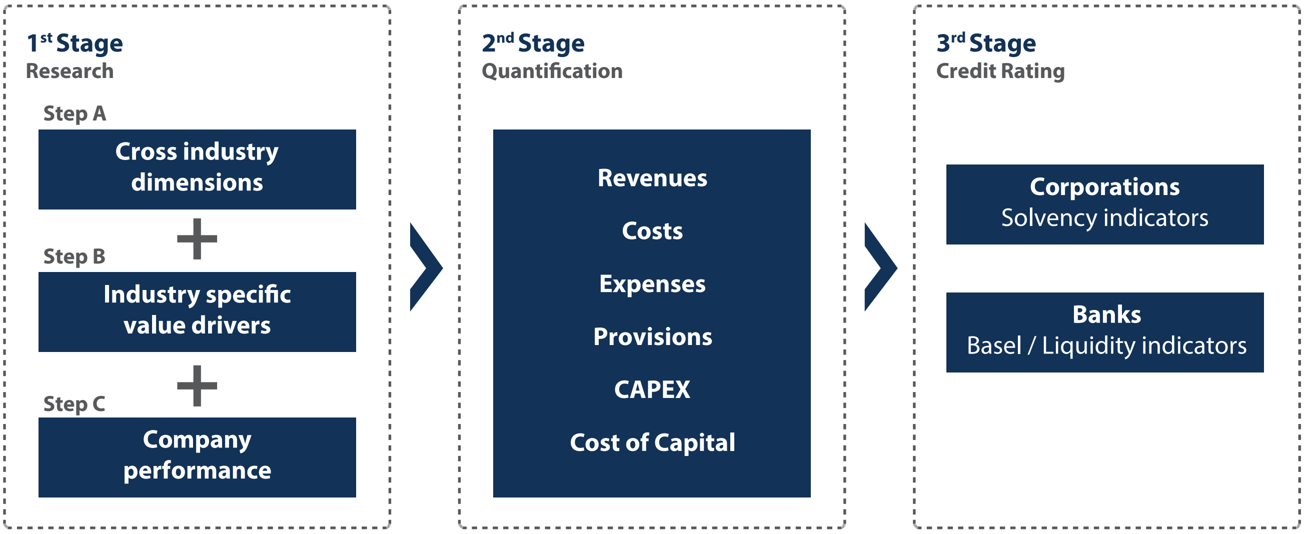
Itaú Asset Management has defined different indicators for measuring the ESG impact on financial Institutions and corporations. Corporate entities are impacted on their ability to generate free cash flow, while financial institutions tend to be materially impacted on their need to build capital reserves.

The sovereign bonds space presents a different challenge. Brazilian investors tend to be concentrated on local assets and used to high interest rates; hence most sovereign bonds held by Itaú Asset Management are issued by the Brazilian Federal Government. Having only one issuer significantly diminishes the possibility of integrating ESG in the analysis.

Itaú Asset Management believes in the potential for better risk-adjusted returns and therefore has continued to develop its proprietary ESG integration method. Because the broader market has considered Corporate Governance (G) for a longer time, we present here the method and process used to analyze Environmental (E) and Social (S) issues to debt securities issued by financial and non-financial companies.

The method does not use negative screening to exclude industries or companies and so reduce the investment universe. Nevertheless, such exclusions may be added as an additional filter for clients with exclusive funds or managed portfolios, who wish to use them.

Figure 4: Itaú Asset Management's ESG Integration Method
Method Overview: ESG research, quantification and rating



3.1. 1st Stage - Research

In the Research stage, our analysts collect ESG data and information related to the differerent industries and companies covered. The Research is structured in 3 steps, as follows.

Step A - Cross Industry Dimensions: While developing Itaú Asset Management's ESG Integration method, we identified and clustered ESG issues in eight cross industry dimensions. These are ranked according to their relevance for specific industries.

These eight dimensions act as a radar to capture industry and company specific ESG information: however, the focus is given to the most material issues for each industry. It is important to mention this materiality assessment is specifically geared to the Brazilian market and its political, economic, legal and cultural context.

Figure 5: Cross Industry Dimensions
Associated risks and opportunities

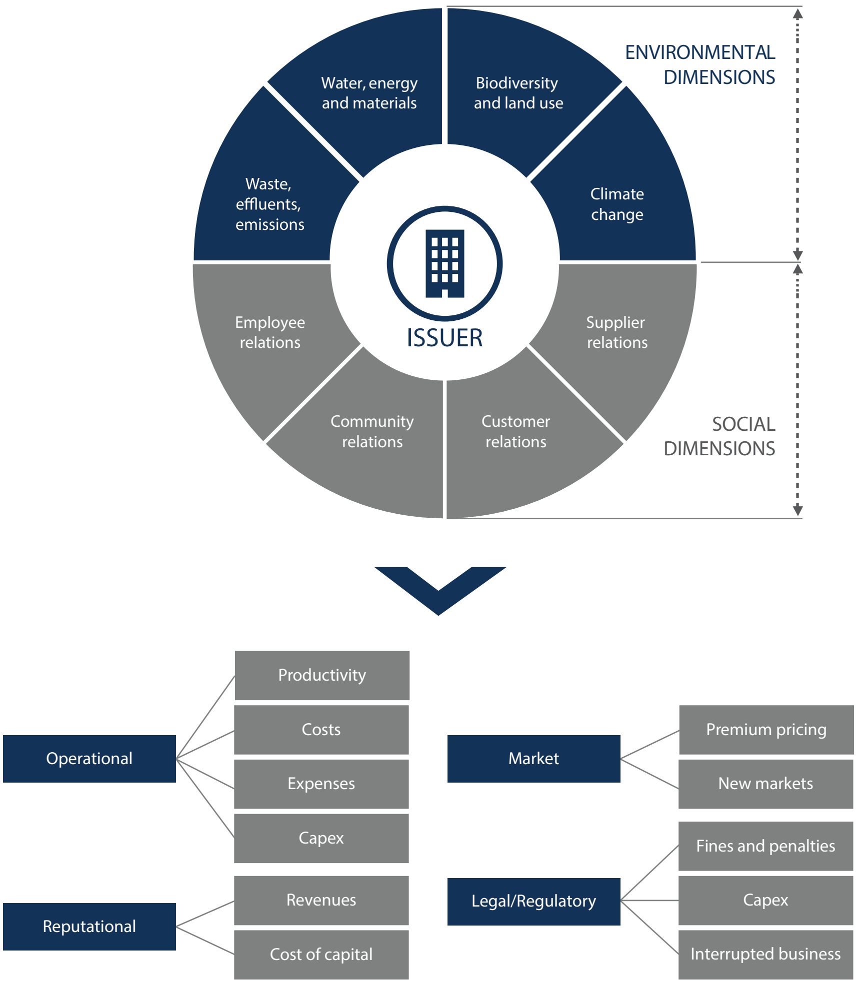


Figure 6: Cross Industry Dimensions
Example of materiality in 3 diferent industries

Dimension	Banking	Home Builders	Mining and Steel
Climate change	Low	Moderate	High
Biodiversity and land use	Moderate	Moderate	Low
Water, energy and materials	Low	Moderate	High
Waste, effluents, emissions	Moderate	High	High
Customer relations	High	High	Low
Community relations	Moderate	High	High
Supplier relations	Low	Moderate	Low
Employee relations	Moderate	High	Moderate

Source: analysis from Itaú Asset Management

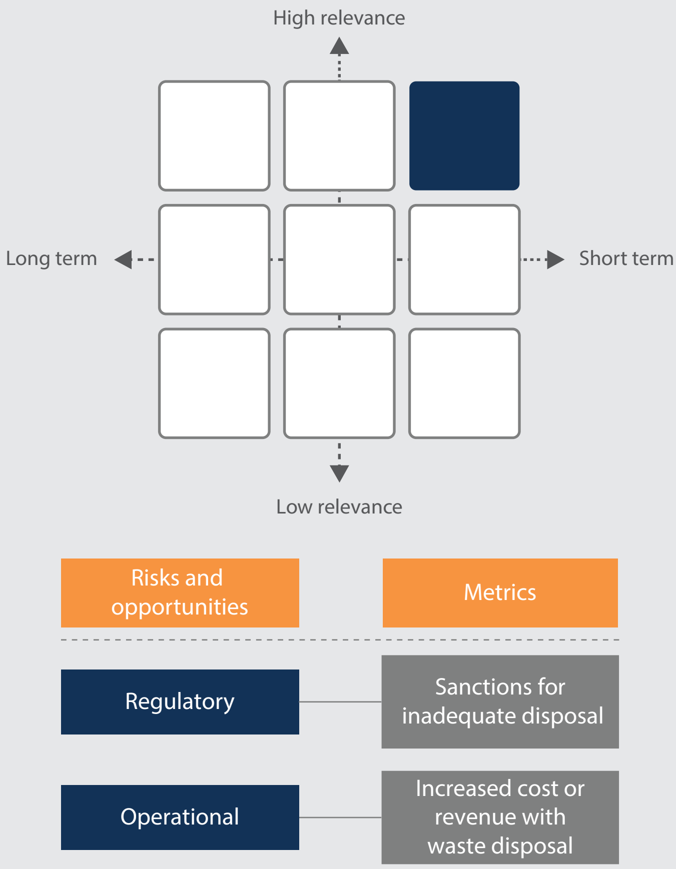
Step B - Industry specific value drivers
In this stage, our analysts adjust cross industry dimensions to the specific value drivers for each industry, which includes identifying types of risks and opportunities, deriving metrics and understanding time horizons where events could materialize. This is particularly important for fixed income, given that securities usually have a pre-determined maturity. Therefore, the analytical effort is placed on ESG issues with potential impact whithin the investment horizon.

Figure 7: Example - Dimension: Waste, Effluents and Emissions
Definition of risks and opportunities, time horizon, and metrics for Home Builders

Home Builders are highly exposed to Brazil's new National Policy on Waste Management[9], which creates the reverse logistics system and generates the following issues:

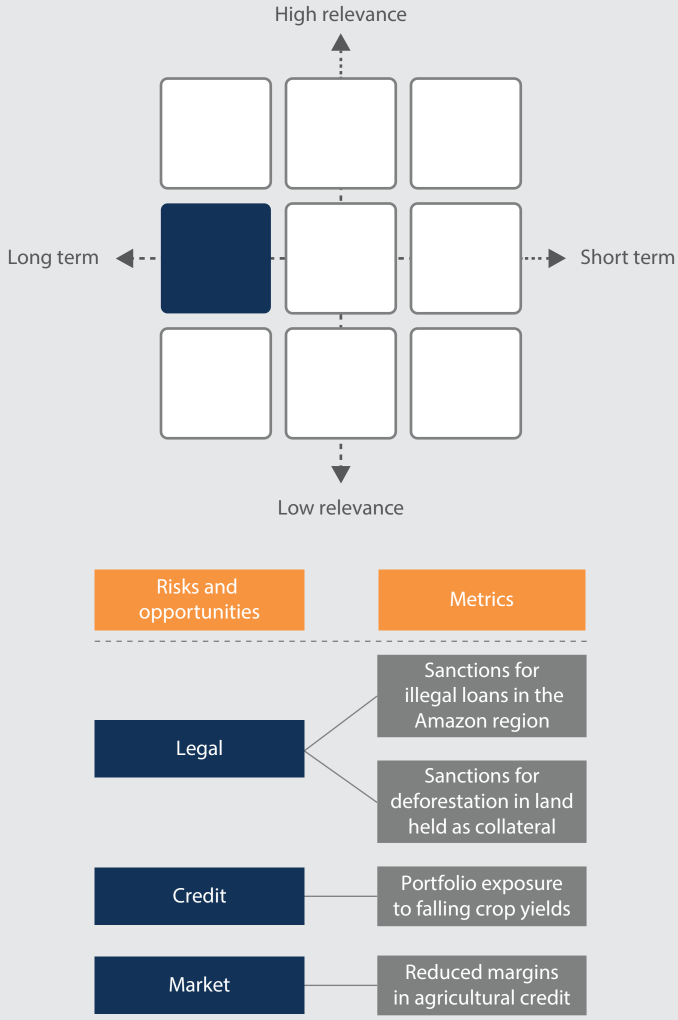
- **Operational**, related to higher costs for adequate disposal of construction waste or, in some cases, additional revenue for sale of recyclable materials given higher demand;
- **Regulatory**, related to sanctions for inadequate disposal of solid waste and pollution of water streams.

Brazilian homebuilders differ strongly in their construction methods and waste management practices, with leaders clearly outperforming laggards. Sanctions could eventually lead to a halt in construction, severaly delaying projects and their respective cash flows.



[9] Established by Federal Law nº 12,305 from August, 2nd, 2010.

Figure 8: Example - Biodiversity and Land Use
Definition of risks and opportunities, time horizon, and metrics for the Banking industry



Banks that finance the agriculture industry are indirectly exposed to risks related to biodiversity and land use, especially with the enforcement of Brazil's new Forest Code[10].

- **Legal**: sanctions related to illegal loans in the Amazon region and deforestation of land held as collateral;
- **Credit**: reduced crop yields due to biodiversity loss may impact overall agriculture portfolio risk;
- **Market**: elevation of minimum disbursements for rural credit, where margins are lower.

At the moment, in Brazil, many banks are developing their ESG risk management systems to comply with the Brazilian Central Bank regulation. Large banks are significantly ahead of small and medium banks.

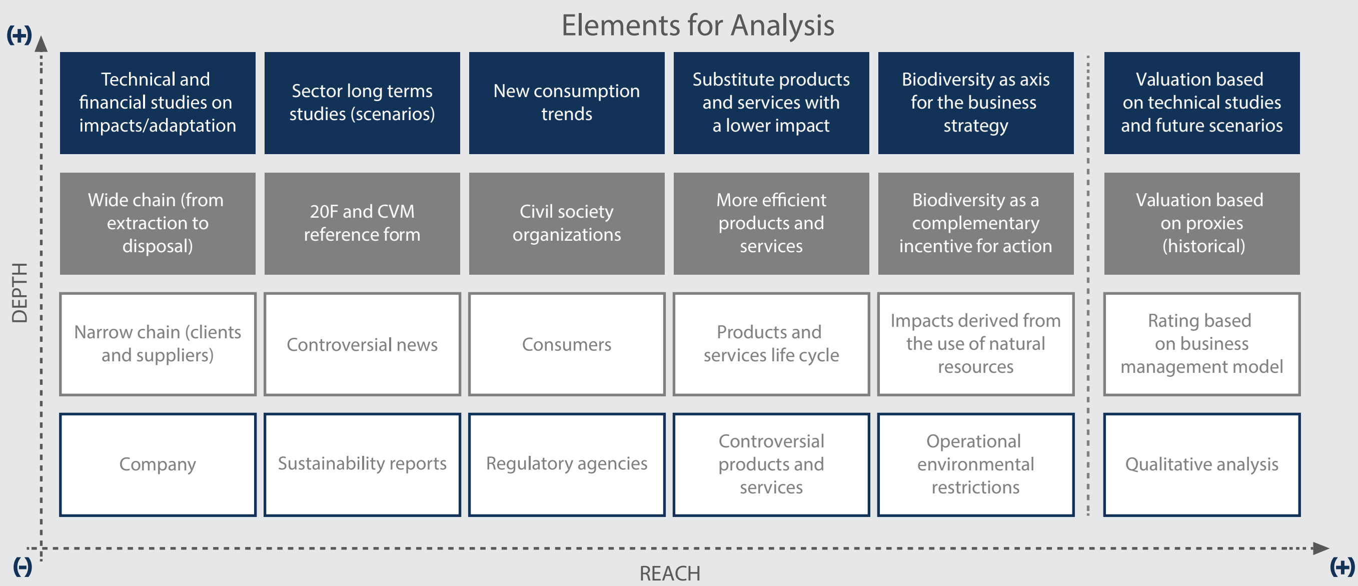
Step C - Company exposure and performance

In this stage, we analyze the exposure of each company to its material ESG dimensions and how the company performs and manages these issues. To obtain relevant information, our analysts scan a variety of industry and thematic research, annual and sustainability reports, regulatory filings and other official company communications, as well as (un) structured databases and news flow.

In addition to secondary data, company visits and stakeholder consultations are of fundamental importance to reduce information asymmetries and enhance objectivity. The relatively narrow investment universe in Brazil means Itaú Asset Management can be very thorough in the analysis, while our size relative to the domestic market means we have unrivaled access to senior management teams.

[10] Established by Federal Law 12,561 from May, 25th, 2012.

Figure 9: Example - Information sources used in 1st stage – Research



3.2. 2nd stage - Quantification

The second stage involves the transformation of research inputs, which are mostly physical or qualitative, into quantitive material for cash flow projections. To do so, the analysts perform the following activities:

- Identification of adequate indicators or metrics to quantify environmental and social impacts;
- Segregation of recurrent vs. episodic events, spotting those already embedded in other metrics;
- Determination of cash flow lines best suited to reflect the impacts;
- Estimation of probabilities for materialization of events, categorized in "high" (> 50%), "moderate" (25% to 50%) and "low" (< 25%), to be used in performance simulations;
- Estimation of time horizon for the impacts, categorized in "long term" (> 5 years), "mid term" (1 to 5 years) and "short term" (< 1 year).

To calibrate the impacts and project them appropriately on future cash flows and quality of collateral, we undertake an additional analytical step to identify:

- ESG variables which are manageable vs. those that are inherent to the given industry or business model;
- Relevant company initiatives to set itself apart from its industry peers;
- Implementation stage for those initiatives (plan, pilot project, roll out, implemented);
- Whether initiatives represent effective change to business model or company behavior, and are implemented through core business or support functions.

After the quantification process, the analyst will have the necessary variables to include ESG issues in projected cash flows and quality of collaterals, as well as conducting stress tests and sensitivity analysis.

Itaú Asset ESG Integration Method objective is to adjust the rating of issuers and to stress test the **events that may result in challenges for servicing their debt**.

3.3. 3rd stage - Rating

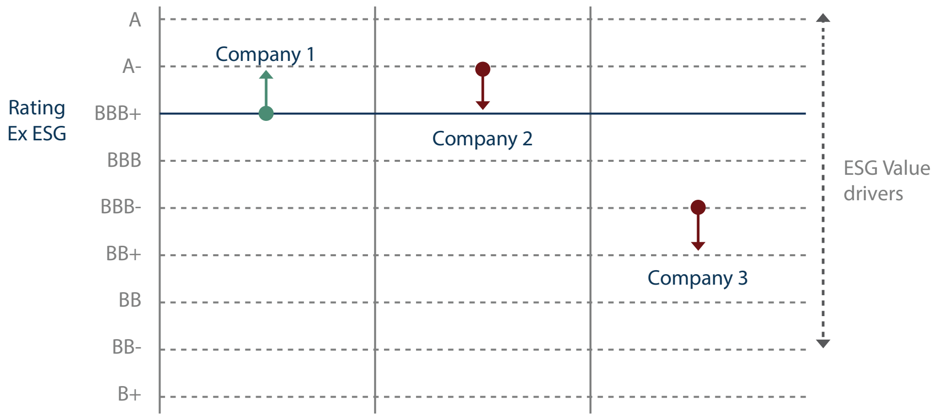
This stage involves integrating quantified ESG issues into our proprietary rating models. By doing so, it is possible to find the ESG delta of issuers and adjust our portfolios accordingly.

Although we take the quantification exercise very thoroughly, the final rating is subject to a qualitative review and approval of the credit committee. Our dedicated ESG team has a seat in this committee to defend its view together with the credit analyst. Based on the final rating assigned, the credit committee approves the conditions for the acquisition of debt securities.

For corporations, in the case of a public issuance, the rating will determine Itaú Asset Management's appetite during the book building process. If it is a private placement, there is room for negotiation in terms of collateral, rates and maturity.

For financial issuers, given their constant issuance and shorter maturities, the rating determines the maximum exposure of Itaú Asset Management.

Figure 10: Example - Adjusted Credit Rating
Impact of ESG issues to companies of same industry



4. Lessons Learned

Environmental and social issues are relevant for businesses and have the potential to impact the credit rating and cost of debt of issuers. The ability to integrate these issues into credit analysis and portfolio construction is pivotal to provide clients with better risk-adjusted returns. This capability is acquired through a disciplined research and quantification method, adequate training plus incentives for credit analysts and portfolio managers.

Itaú Asset Management's ESG integration method is innovative as it incorporates these issues direcly into our fundamental fixed income research by projecting impacts on cash flow and credit

ESG integration helps to **fine tune the distribution of purchased securities** across our funds, **delivering better risk adjusted returns to our clients**, be they individuals, private clients or institutional investors.

ratings. The monitoring of eight cross industry dimensions and the execution of a rigorous research and quantification process allow our team to anticipate risks and opportunities before they materialize.

We've learned that the materiality of ESG risks vary significantly with the size of financial issuers in Brazil: large banks had minimum impacts on capital needs, while small and mid-sized banks showed higher variance. For corporate issuers, size matters the least: industry exposure and company specific ESG management were the key drivers for adjusting ratings.

Being a large fixed income manager with a multitude of strategies for varied audiences demands smart allocation. ESG integration helps improve the distribution of purchased securities across our funds, delivering better risk adjusted returns to our individual, private bank, and institutional clients. In addition to integration, we are able to exclude industries or companies from the investment universe upon request by clients of exclusive funds or managed portfolios.

To conclude, it is important to emphasize that credit analysis is not hard science: the inclusion of extra-financial issues, such as ESG, requires additional skills and constant learning. We believe that practicing and reviewing our methods continuously will make us better stewards of our clients' assets.

[11] Source ANBIMA - Brazilian Financial and Capital Markets Association - July, 2014

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