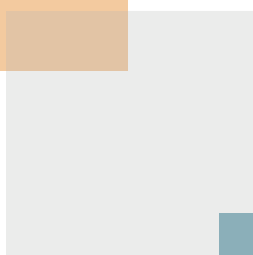
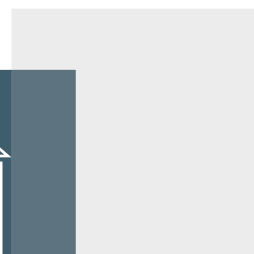
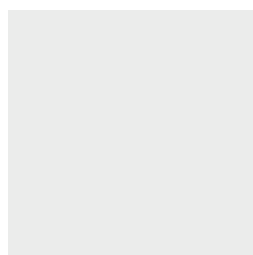
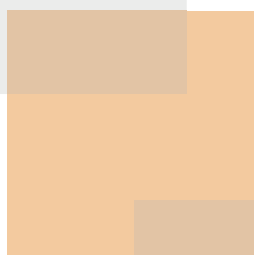


# THE SOVEREIGN TRANSITION TO SUSTAINABILITY

## UNDERSTANDING THE DEPENDENCE OF SOVEREIGN BONDS ON NATURE

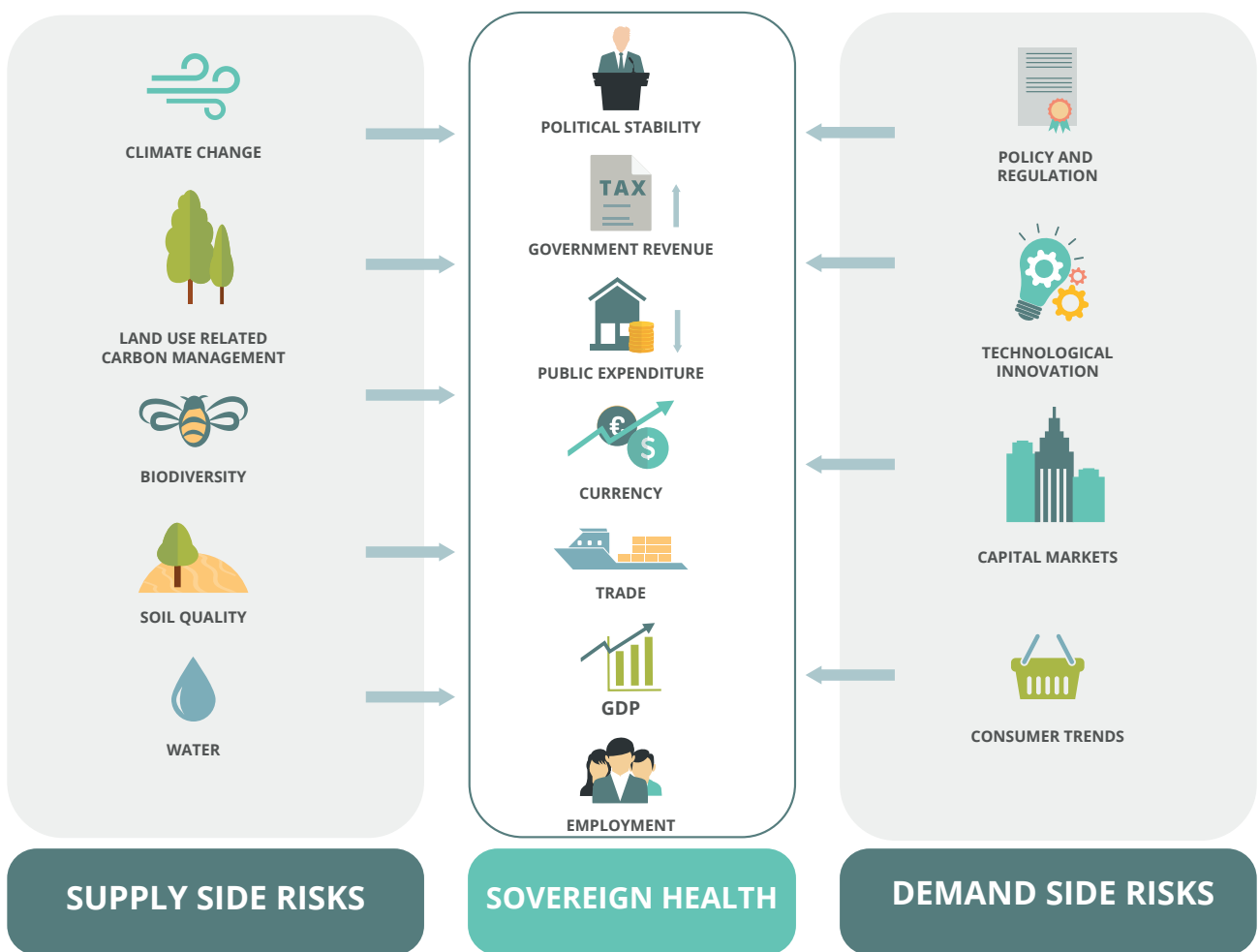
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New York Roundtable – Context Paper  
September 2019



Planet Tracker

# NATURAL CAPITAL SUPPLY AND DEMAND CONSTRAINTS FOR SOVEREIGN HEALTH





# ABOUT PLANET TRACKER

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Planet Tracker is a non-profit financial think tank aligning capital markets with planetary limits. It was launched in 2018 by the Investor Watch Group whose founders, Mark Campanale and Nick Robins, created the Carbon Tracker Initiative.

Planet Tracker was created to investigate market failure related to ecological limits. This investigation is for the investor community where, in contrast to climate change, other ecological limits are poorly understood and even more poorly communicated, and not aligned with investor capital.

## Sovereign Bonds Programme

Planet Tracker is launching a new programme of thought leadership that explores the relationship between sovereign bonds, natural capital and environmental risks, and the macroeconomics – sovereign health – of a country and its key soft commodities.

Our first focus is on key Latin American countries, specifically Brazil and Argentina, where we will explain how natural capital intersects with sovereign bond risk.

Over time, we will expand the programme to analyse sovereign health applying similar quantitative and qualitative models in additional countries in Latin America as well as globally.

Our research focuses on how changes in environmental health, such as soil degradation, deforestation and variability in extreme weather impact the underlying public treasury balances of these countries and their subsequent ability to service sovereign bond liabilities.

## Acknowledgments

Planet Tracker would like to thank Nick Robins, Professor in Practice – Sustainable Finance, Grantham Research Institute, London School of Economics, for his expert contributions to this report.

# G20 COMPARATIVE ANALYSIS

## Nature is the Foundation of Business Prosperity

Planet Tracker has found that capital markets are increasingly recognising the importance of healthy and stable natural capital in order to provide energy, food and fresh water to meet the requirements of a global population expected to reach 9.8 billion by 2050.<sup>1</sup>

In 2019 the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and Intergovernmental Panel on Climate Change (IPCC) published separate reports, in part assessing how economies and industrial sectors have used natural capital to generate economic value, whilst at the same time highlighting environmental costs and externalities arising from this value creation.

IPBES estimates the annual economic value of the world's terrestrial ecosystem services to be approximately equivalent to global annual Gross Domestic Product.<sup>2</sup>

Factored into this calculation both IPBES and the IPCC closely examine agriculture, with more than a third of the world's land surface and nearly 75% of freshwater resources devoted to crop or livestock production. Agriculture generates considerable economic and social value globally:

- By 2018, the \$2.6 trillion annual economic value of agricultural crop production was threefold greater than in 1970.
- Soft commodities, such as coffee, cocoa, wheat, sugar, soybean and livestock are fundamental for feeding society, employing 28% of the global workforce and creating the macroeconomic backbone for many economies.<sup>3</sup>

Agriculture is however simultaneously the major driver of global natural capital depletion as:<sup>4</sup>

- Global food crop production has increased 300% since 1970
- 50% of global agricultural expansion has occurred at the expense of forests contributing towards 60% loss of terrestrial biodiversity.<sup>5</sup>
- Soil erosion from agricultural fields is estimated to be currently 10 to 20 times (no tillage) to more than 100 times (conventional tillage) higher than the soil formation rate.<sup>6</sup>
- 33% of degraded soils result from agriculture production, which also discharges up to 30% of GHG emissions.<sup>7</sup>
- Land degradation has reduced productivity in 23% of the global terrestrial area, and between \$235 billion and \$577 billion in annual global crop output is at risk as a result of pollinator loss.<sup>8</sup>

As natural capital declines, Planet Tracker is working with capital markets to measure the extent to which macroeconomic health, also referred to as sovereign health, depends on the sustainable management of natural capital.

Through the lens of agriculture, Planet Tracker is assessing how declines in natural capital create increased credit risks for sovereign investors. In agriculture-based economies, declines in natural capital can decrease production, impacting industry revenue, tax contributions, employment and soft commodity exports, resulting in falling treasury receipts including of foreign currency.



## The Sovereign Transition to Sustainability – Understanding the Dependence of Sovereign Bonds on Nature

It is incumbent on sovereign states and their investors to ensure that sustainable management of natural capital is a government and investor priority. Capital markets place a high value on governance strength in their economic assessments.

In extension, sovereign investors have a fiduciary duty and responsibility to prioritise governance and stewardship in equal measure to financial management and analysis.

Strong governance commitment and demonstrated ability to deliver on climate and nature sustainability is a crucial starting point in determining a country's exposure, sensitivity and resilience to natural capital volatility.

Sovereign bonds are one of the largest asset classes in the financial system and there is growing focus on how environmental, social and governance (ESG) factors influence both risks and returns and on how sovereign bonds can raise capital for sustainable development.

The relationship between climate change and sovereign debt performance is a priority issue and analysis to date has centred around the transmission channels between physical climate change and sovereign credit risk profiles.<sup>9</sup> There has, however, been limited analysis of the relationship between not just climate change, but also the wider contribution of natural capital – notably the conservation of biological diversity - and sovereign debt.

Meanwhile, other research considers the effect of ESG performance on sovereign bonds, such as the VeriskMaplecroft and BlueBay Asset Management 2019 report 'The Role of ESG Factors in Sovereign Debt Investing' and the S&P Global ESG Risk Atlas. In 2019, WWF and Investec Asset Management jointly measured environmental risk in sovereign debt portfolios based on geo-spatial data and satellite imagery tracking land-use and environmental changes including deforestation and water stress.<sup>10</sup>

### Nature is Embedded in Macroeconomic Indicators

Sovereign health is in part measured by capital markets including Credit Rating Agency (CRA) by macroeconomic indicators including, but not limited to, GDP, trade balance of payments (BoP), exports, public finances and expenditure, currency deposits and employment.

Going forward CRAs are showing positive signs of directly incorporating natural capital measures into their core analytics for assessing sovereign credit ratings – for example via Moody's 'external vulnerability' assessments.

As a result, Planet Tracker's research hypothesises that a 'chain of impact' exists between natural capital and sovereign health at the intersection between ecological boundaries and macroeconomic indicators.

The relationship between soft commodity production, which is reliant on natural capital, and BoP as a macroeconomic indicator offers an illustration of this chain of impact.

Capital markets use BoP volatility as one measure to gauge sovereign bond investments and macroeconomic health. BoP record economic transactions including the net trade of goods between a country and the rest of the world.



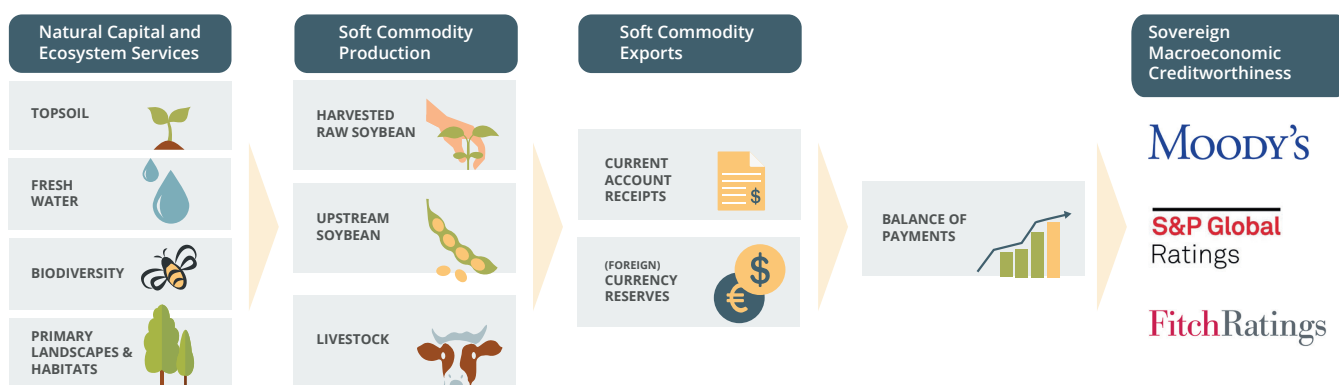
Many export and import trade products used in calculating BoP rely on ‘dead’ natural capital (fossil fuels and non-renewable hard commodities) and ‘living’ natural capital (renewable soft commodities including agriculture based goods) in their production. These are ‘nature dependent’ imports or exports.

Soft commodities that rely on living natural capital in their production are nature dependent soft commodity exports.

In many G20 regions, as highlighted below, nature dependent soft commodity exports are increasingly threatened by diminishing production yields and volumes due to climate and nature-based constraints. These include factors such as drought, flood or deforestation resulting in deteriorating ecosystem services such as soil water retention and erosion prevention, and declining topsoil quality.

Countries and regions will feel these effects differently and will have varying governance and economic capacities to cope.

In turn, natural capital shocks may reduce the macroeconomic performance of major agricultural powerhouses and hence their ability to pay their sovereign debt – See Figure 1.



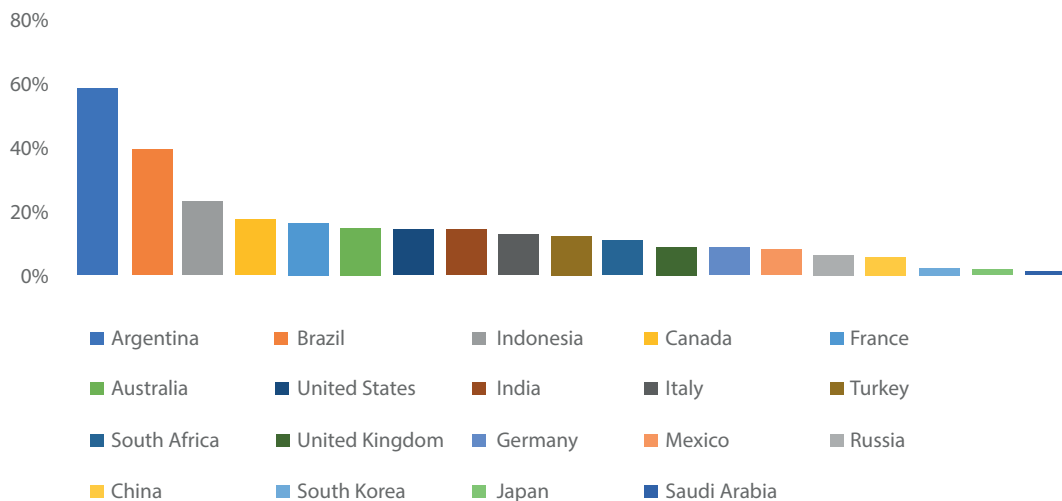
**Figure 1: Chain of Impact Nature Dependent Soft Commodity Production to Macroeconomic Balance of Payment Contributions**

## G20 Nature Dependent Soft Commodity Exports and Balance of Payments

Across the G20, nature dependent soft commodity exports generated an estimated \$10.4 trillion of balance of payment (BoP) receipts and formed 10.3% of total G20 exports 2008–17.<sup>11</sup>

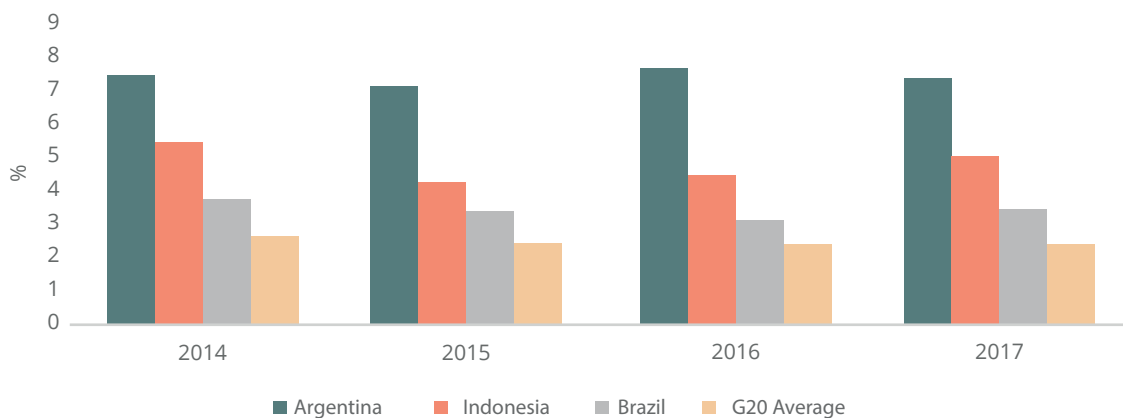
Of all the countries in the G20, Argentina’s and Brazil’s exports are the most dependent on natural capital – see Figure 2.

Nature dependent soft commodity exports from 2008–17 were nearly 60% of Argentina’s and 40% of Brazil’s total exports generating \$400 billion and \$897 billion respectively - in relative terms, 60% and 40% or 6-times and 4-times higher than the G20 average of 10%.



**Figure 2: G20 Nature Dependent Soft Commodity Exports, 2008–17<sup>12</sup>**

In 2017, nature dependent soft commodity exports represented approximately 7.6% and 3.6% of GDP in Argentina and Brazil respectively versus a G20 average of 2.5% in the same year – see Figure 3.



**Figure 3: Top 3 G20 Nature Dependent Soft Commodity Exports Countries as a % of GDP, 2014–18.<sup>13</sup>**

Nature dependent soft commodity exports alone do not accurately reflect the ‘chain of impact’ between natural capital and sovereign health. Other macroeconomic indicators must be factored.

For example, in 2018 Brazil’s total external debt to GDP was 84% and its currency reserves as a percent of GDP were 81%. In contrast, in 2018 Argentina’s total external debt to GDP was 52% and its currency reserves as a percent of GDP were only 14%.

Thus, Argentina displays a higher degree of exposure to natural capital related supply and demand side constraints because, with currency reserves of only 14% and external debt of 52% of GDP, the economy requires surplus USD trade receipts generated from soft commodity exports to service USD denominated external debt.



## New York Roundtable Discussion

In an era of greater capital market engagement on climate and nature, for example the Task Force on Climate-related Financial Disclosures (TCFD), sovereign credit issuers should also have a duty to disclose, at the least, climate- and nature-related aspects of land use change.

To support such disclosures, this project aims to fill the gap in understanding the mechanisms through which natural capital can affect the ability of a country to pay its sovereign debt.

In parallel we will consider the role of sovereign governance in managing regulatory commitments aimed at maintaining and protecting natural capital. This assessment will include commentary on the Inevitable Policy Response led by the UN PRI.

Planet Tracker's first report examines the linkages between natural capital and the health of sovereign bonds across the G20 countries.

It will examine the exposure of G20 sovereign debt to natural capital through the lens of export dependence, using indicators such as balance of payment current account receipts and foreign reserves.

The research will highlight countries whose exports are most reliant on natural capital, whose sovereign health is more susceptible to declines in this capital, and whose governance of this capital is aligned with the policies and expectations of investors.

During the New York roundtable discussion, Planet Tracker will present findings to date using Argentina and Brazil as case studies.

The purpose of the roundtable is to test the validity and value of this analysis for sovereign bond investors and analysts.

There are three distinct areas where this project aims to have an impact:

- **Sovereign investor decision-making:**

If not already doing so, investors should include natural capital when assessing long-term investments in sovereign debt. Our current thinking is that there could be three reasons for investors not including nature as part of their long-term decision making.

First, some investors lack a clear understanding of the link between natural capital and macroeconomic performance, which affects countries' ability to pay their debt.

Second, there have been attempts to point at this relationship between nature and the economy, but results have not been solid enough for investors so far.

Finally, sovereign bond markets frequently have high degrees of liquidity meaning institutional investors can often sell out of exposed positions particularly to local asset managers owning long dated capital from, for example, pension funds.





- **Interconnected relationships:**

Some investors may agree that the relationship between nature and economic performance exists, but they are uncertain about the materiality of nature for their investments.

The impact of the report will centre on the above elements: describing clearly the relationship between nature and economic performance and pointing towards materiality for long and short term investors in sovereign debt.

Routes to impact include uptake of the report by investors/asset owners directly; but also by credit rating agencies providing assessments on the creditworthiness of sovereign debt.

- **Sovereign issuer decision-making:**

We would also like this report to inform the decisions made by governments in terms of policy frameworks for sustainable finance and their sovereign debt issuance.

To date, limited evidence points towards policymakers recognising and acting to address linkages between natural capital, macro-economic performance and their sovereign debt.

We see the sovereign debt channel as a potentially powerful lever to encourage governments to put in place the policy frameworks that regenerate and sustain their natural capital stocks.

Ideally, this report will contribute to government policy-making and risk mitigation strategies at the intersection between natural capital, the macro-economy and sovereign debt.

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