

Financial/ESG Sustainable Growth Theory and Practice

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Abstract

Purpose: This article applies and early tests the Financial/Environments, Social, Governance (ESG) Sustainable Growth matrix theory.

Design/methodology/approach: A case study of Morgan Stanley Capital International ESG rated airlines.

Findings: It shows how the matrix integrates financial sustainable growth, ESG, Corporate Social Responsibility, sustainable development, and stakeholder theories into a practical application that generates analysis of impact and strategic options prescriptions.

Originality: This article illustrates the maximization of the allocation of societal surplus between shareholders and other stakeholders. It also constructs a proxy for ESG-sustainable growth rate, where no metrics still exist for this.

Research limitations/implications: By the integration of the above theories, sustainable development can change from an all-encompassing umbrella concept to doable courses of actions and measurable metrics.

Practical implications: The article shows the practical usefulness of the matrix for corporate strategists.

Social implications: Industrial economists can also use the matrix to compare industries about their capacity to generate financial and ESG sustainable growth and allocate societal surplus.

Keywords: Growth, ESG, corporate social responsibility, sustainability, stakeholder theory

1. Objective, Introduction, and Research Questions

1.1 Main Objective of this Study

This article illustrates, thorough a case study of ESG rated airline companies, the application of the financial/ESG (Environmental, Social, and Governance) sustainable growth theory matrix in Bellandi (2023).

It is situated within the literature of financially sustainable growth, ESG, sustainable development, corporate social responsibility, and stakeholder theory.

It introduces the core topic, literature review, and a background to the matrix. It then reviews literature on case studies and theory application and testing. After applying the matrix, it tests its prescriptive indications against an independent review of the sampled data and draws conclusions on the scientific and practical usefulness of the theory.

1.2. Background to the Core Topic

Growth requires strategy formulation and dictates the pace of investment, working capital and finance needs to implement it. However, growth is not neutral to the society, as it may detract from, or benefit, the environment, social relationships, governance mechanisms, jobs creation and the economy. ESG is important and timing for stakeholders, for reducing greenhouse gas emissions, adapting to climate change, complying with sustainability standards, ESG investing, and green growth policies. Stakeholders' reaction may affect the external perception of a company, decision making, and eventually impair its long-term competitive position or even survival. Therefore, management should see how to achieve growth for the benefit of both shareholders and stakeholders different from shareholders.

1.3 Research Questions

This study checks how the matrix identifies strategies for a growth rate that maximizes:

- Financing by retained comprehensive income without altering other financial ratios.
- Net positive ESG benefits less burden.

and zeroes the marginal net benefits of both equity shareholders and stakeholders not acting in their capacity as shareholders.

2. Literature Review

There are two prominent models of financially sustainable growth, Zakon (1976) and Higgins (1977). Zakon uses plowback Return on Equity (ROE), i.e., not distributed through dividends, divided by beginning equity, to determine the growth rate that retained earnings could fund without additional external means or changes in economic and financing policies. Higgins seeks the maximum growth rate that would maintain a target dividend policy and financial structure. Further developments consider inflation (Johnson, 1981), operating, debt, and dividend-pay-out ratios (Chen et al., 2013; Van Horne and James, 1998), short-term cost structure (Arellano & Higgins, 2007), operating and financial leverages (Huang & Liu, 2009), internal versus external growth (Dhanapal & Ganesan, 2010), as well as comparisons of different models (Mubeen et al., 2021).

Most ESG contributions have investigated its correlation with corporate financial performance, with positive evidence (Auer, 2016; Jia et al., 2020; Statman & Glushkov, 2009), no relation (Halbritter and Dorfleitner, 2015) or a negative one (Clark et al., 2015; Friedman, 1970; Garcia & Orsato, 2020). Some scholars have addressed whether ESG affects firm value (Giese et al., 2019), cost of equity (among others, Ghoul et al., 2011), and stock return (Gregory et al., 2014). These studies have contributed to Socially Responsible Investment (SRI), which integrates ESG factors into stock investment (Aldowaih et al., 2022). Another field focuses on the relationships between ESG and external factors, such as company risk (Jia et al., 2020, Broadstock et al., 2021), or materiality factors (Khan et al., 2016).

ESG clearly links to stakeholder theory. Kölbel et al. (2017) explores ESG from stakeholders' perspective. This connection also derives from disaggregating the E, S, and G dimensions (Fu et al., 2020) and pointing to affected stakeholders. Stakeholder theory, originated from Freeman (1984), sees which internal/external subjects interlock with an organization value creation and trade. The issue of whether companies should be acting for the benefit of shareholders or various stakeholders arises. A descriptive/empirical approach to stakeholder theory looks at actual practices (Wallis, 2006), a normative approach search for an ethically sound justification (Reed, 1999), and a functional stream conceives involvement of stakeholders as instrumental to the traditional profit goal of a company (Jones et al., 2018). Some have then studied key parameters to manage the relationship with stakeholders, such as allocation among stakeholders (Bacq & Aguilera, 2021), values of different stakeholders (Lange et al. 2022), interdependency (NG et al., 2023), and balance between legitimacy and claims of shareholders and management versus other stakeholders (Martin et al., 2016).

At this point, a question arises as to what means an organization can use to direct ESG policies for the benefits of all stakeholders. Corporate Social Responsibility (CSR) first tries to establish the basis on which a company should consider social issues. A direct link with stakeholder theory elaborates from Freeman (1984) to claim that a company should promote ethical values and stakeholders' rights. The corporate citizenship stream investigates a corporation as a good citizen in its public community (Fatma et al., 2022; Logsdon and Wood, 2002). The moral agency and corporate social performance doctrines claim that companies must assess the social consequences of their business models (Wood, 1991). At the opposite end of the spectrum, others stick with the fiduciary capitalism thesis that a business upholding profit-making goal in compliance with laws delivers its social responsibility mission (Friedman, 1970). Some contributions study corporate motivations for CSR, whether functional, transactional, ethical (Garcia & Orsato, 2017), or urged by legitimacy in a social context (Matten & Moon, 2020), DEO power and financial slack (Danso et al., 2022), or the gap between companies and the public (Atif et al., 2023). Within a societal move from business-centric to society-centric focus (Wickert, 2021), the boundary between ESG and CSR becomes blurred (Garcia & Orsato, 2017).

In the urgency of the UN. Sustainable Development Goals and climate change and social equity (Zhai and Chang, 2019), the umbrella of sustainable development captures the different streams of the ESG conversation, as a dynamic equilibrium between current and future needs (WCED, 1987). Sustainability can mediate the conflict of interests among different stakeholders (Keitsch, 2018) and pivot on economic, social, and environmental aspects (Holme & Watts, 2000; Hörisch et al., 2014; Taylor, 2016; Wanamaker, 2018; Zhai & Chang, 2019). While upholding its financial performance goal, a company should complement it with equal distribution of income

(social) and responsible use of energy (environmental) (Steurer et al., 2005), which also help achieve the profit business case (Schaltegger et al., 2012). Policies comprise long-term quality, social and environmental solutions (Starick & Kanashiro, 2013), and sustainability metrics linked to business strategy (Székely & Knirsch, 2005) and process and culture of participation (Mensah, 2019; Nqumba & Scheepers, 2023).

All these theories see specific angles of the problem, but do not integrate each other to devise a method that can be operational for management. This is where the sustainable growth matrix stands, as explained in the following section.

3. Background to the Financial/ESG Sustainable Growth Matrix

The matrix draws on two innovative constructs: 1) growth sustainability assessed by the consistency between financial and ESG dimensions, and 2) growth impact measured by allocation of societal surplus to shareholders versus stakeholders different from shareholders. Its financial axis (actual minus financially sustainable growth) addresses the objectives of shareholders, and the ESG axis (actual less ESG sustainable growth) of those with no equity stake (here called “stakeholders different from shareholders” or “other stakeholders”) holistically, in all the E, S, and G dimensions. Sustainable growth rate on both dimensions is at the centre of the axes.

When is growth excessive? Financially, when actual growth is more than the sustainable rate. It would require extra shareholders’ equity for a lower return. ESG wise, the whole society would not be better off if a company grows faster at degraded ESG factors.

When is growth insufficient? Financially, if at actual growth rate shareholders get a lower return than they could get at sustainable rate, the company can grow faster without a need for their additional contributions. ESG-wise, if a company’s ESG profile outstands its industry, it has no compelling need to improve its ESG loads, so it can grow faster soon. The society at large will be worse off if the company does not push that higher growth.

And for the society overall? Well, this is not a Pareto equilibrium. Total surplus is not fixed. It will vary by improving the state of the art via economic and financial policies and/or through innovative technologies or better ESG policies. Allocation of societal surplus between shareholders and other stakeholders depends on the combination of the two effects.

That theory attaches certain diagnostic and prescriptive indications.

-Quadrant 1: revenue growth is faster than financially sustainable. ESG factors provide a lower capacity to grow than at industry ESG level.

Diagnosis: Actual growth faster than financially sustainable constrains shareholders’ surplus: additional equity required of shareholders would give them with a lower return. Stakeholders different from shareholders also do not benefit from more growth at tainted ESG factors.

Prescriptive indications: a) Improve ESG factors, and b) optimize profitability and financing policies to increase sustainable growth, or c) residually, decrease actual growth.

-Quadrant 2: revenue growth is slower than financially sustainable. ESG factors provide a lower capacity to grow than at industry ESG level.

Diagnosis: More growth would be beneficial to shareholders’ return. However, if the company goes for it, stakeholders different from shareholders will lose because the degraded ESG factors will detract from societal benefits (in other terms, they will subsidize shareholders).

Prescriptive indications: a) Select initiatives with a better use of ESG factors; b) improve profitability and financing policies; and c) push actual revenues with those initiatives.

-Quadrant 3: revenue growth is slower than financially sustainable. ESG factors offer a faster capacity to grow than at industry ESG level.

Diagnosis: Shareholders do not gain all the potential from financially sustainable growth. The company does not use its extra capacity to grow faster than industry (unfulfilled societal potential), which would not require any ESG improvement in the short term.

Prescriptive indications: a) ESG position is good: no action (or focused improvement, where needed); b) financially sustainable growth is good: no action; and c) push sales commercially across the board.

-Quadrant 4: revenue growth is faster than financially sustainable. ESG factors provide a faster capacity to grow than at industry ESG level.

Diagnosis: ESG is better than industry, so faster growth does not need improve ESG in the short term. However, shareholders would lose because actual growth would exceed the financially sustainable level, so they would subsidize stakeholders different from shareholders (a lost societal opportunity).

Prescriptive indications: a) ESG position is good: no action (or focused improvement where needed); b) financial re-engineer or restructure to improve financially sustainable growth that could match the already good ESG position; or c) residually, decrease actual growth selectively and temporarily in lower ESG status deliverables and increase it in better ESG status projects.

From the matrix it comes that maximizing growth is not necessarily a desirable objective in all situations. There are success and disaster sequences attached to the pattern of positioning along a multi-year period, as follows:

Success sequences:

No. 1: the company improves ESG and increases its sales growth to its financially sustainable rate (from Quadrant 2 to 3 closer to the vertical axis), or (partial success) from Quadrant 2 to closer to the vertical axis.

No. 2: a company adjusts its growth to be sustainable (from Quadrant 4 to closer to the vertical axis), or (partial success) from Quadrant 1 moving closer to sustainable rate.

Disaster sequences:

No. 3: ESG downgrades (e.g., from Quadrant 4 to 1, or from 3 to 2 or 1).

No. 4: a company reduces its financially sustainable growth to match a slower actual growth (from Quadrant 3 to 4, or from 2 to 1).

No. 5: a company remains stuck in unfulfilling its financial growth potential (remaining on the left side of the vertical axis).

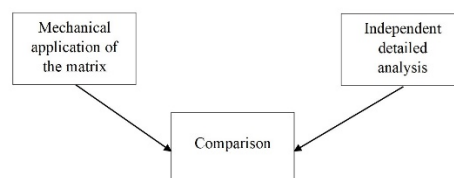
No. 6: a company reduces its growth more than needed to rebalance to its sustainable rate (from Quadrant 1 to 2, or from 4 to 3).

How should firms operationalize these prescriptions? When financially sustainable growth for shareholders is deficient (Quadrant 4), it can be actioned through financial re-engineering or restructuring to affect the variables of the ROE multiplier, i.e., improving ROI (Return on Investment), reducing cost of debt, decreasing effective tax rate, increasing leverage ratio to the extent ROI exceeds average cost of debt, and reducing dividend payout ratio. When financially sustainable growth is acceptable but actual growth is insufficient (Quadrant 3), the direction is heading for marketing and commercial push. When financially sustainable growth is good, but ESG sustainable growth is inadequate (Quadrant 2), the company should select superior ESG activities at the same existing profitable level (i.e., this is an ESG portfolio prioritization and selection problem). Finally, if the entity scores poorly on both dimensions, this is a strategic mission and planning problem. It should revise its business purpose and strategically redefine its scope of activities to rank up both ways.

4. Materials and methods

4.1 Overview

This article populates the matrix with publicly available data, compares its prescriptive indications to a detailed analysis of the same sources, to see whether the mechanical application of the matrix and the conclusions from human reflections are consistent, and discuss issues of the matrix (Figure 1).



4.2 Literature Review on Case Study for Theory Application and Testing

Cases studies are a reputable qualitative research method for by theory generation, application, and testing (Eisenhardt, 1989; Runfola et al., 2017). A description approach consists in applying the steps indicated in the original theory to a sample of companies. An early test approach reviews the validity of a theory that is still open to descriptive and explorative purposes (Løkke & Sørensen, 2014; Siggelkow, 2007), especially for new

management models as opposed to strictly testing. Case studies are appropriate for early testing (Eisenhardt, 1989; Yin, 1994), with real-world situations seen from management perspectives (Amabile et al., 2017; Gomm et al., 2000; Leonard-Barton, 1990), and organizational contexts that replicate decision-making mechanisms (Pettigrew, 1973). The matrix theory is not about cause-and-effect determinants of growth, rather normative management models. They do not necessarily need validation by verification of past situations because intended to drive courses of actions rather than decoding external events. The fact that a company may have not applied a prescriptive action that arises from a model does not per se mean that the action would not be successful if implemented. Conversely, developing hypotheses and strictly testing them better fits deterministic or stochastic situations where a vast population of data permits to verify hypotheses by applying predefined functions or algorithms. As limitations, by not occurring in a laboratory-type environment, case studies require subjective interpretation of social and organization phenomena (Eisenhardt & Graebner, 2007) more than causalities (Løkke & Sørensen, 2014).

This business case follows both such a description and early test approach, through a deductive model (Colquitt & Zapata-Phelan, 2007; Hempel, 1966; Popper, 1965). The test consists in independently reviewing diagnoses and prescriptive indications of the matrix to conclude on whether they capture the substance of facts and circumstances represented by the ESG rating and financial growth of the company analysed.

4.3 Industry Selection

Airline industry is a relevant case as to the status and prospects of ESG improvements. It is clearly subject to ESG risk, due to air pollution, noise, CO₂ emission, and labour practice (Adler et al., 2013; Chang, 2015; Forsyth, 2011; Leal Filho et al., 2023). MSCI Industry Materiality maps its key ESG issues as carbon emission (a weight of 19%), product safety and quality (16%), labour management (16%), privacy and data security (16%), and governance (33%) (MSCI, 2023). Cowper-Smith et al. (2011) find that corporate social responsibility reports published by a sample of 41 airlines strongly focus on environment, especially emission reduction projects. Employee wellbeing and engagement, diversity and social equity, and community good are the main social topics.

At the same time, airline strongly depends on financial growth to compete, both to absorb its capital-intensive costs, impact of, and return on the investment.

4.4 Company Sample

The sample consists in 100% of the MSCI ESG rated airlines. Selecting a single industry avoids cohort differences. Although small, the sample is representative of large and geographically diversified entities in the industry, in fact MSCI uses it for that industry. In addition, as the construct of the matrix is logical and not statistical in nature and can even apply to a single company, the size of the sample does not per se constraint its application. The period considered 2016-2019 excludes 2020 because of Covid-19.

4.5 Selection of Metrics for the Financial Axis

Most definitions of financially sustainable growth discussed in the literature review converge on a growth rate that maintains financial relationships fixed. Both Higgins (1977) and Zakon (1976) measures of sustainable growth boil down to a concept of profitability divided by opening equity. This article uses Zakon (1976) model as: 1) a single indicator that can be easily computed and used as an axis of a matrix; 2) popular in corporate practice and studies; 3) reconciled to ROE decomposition; and 4) consistent to the Gordon model for equity stock valuation (Brick et al., 2014).

4.6 Selection of Metrics for the ESG Axis

A plethora of ESG ratings and indices exists, their classifications (Atkins et al., 2023; Jayarathna et al., 2022). In conclusion, as this search has not found any metrics that produce a single index of sustainable growth, this article proposes a practical solution to the open question in Bellandi (2023) about missing metrics of ESG growth. It has constructed a proxy for ESG-sustainable growth rate, in terms of discrepancy between a company ESG ratings and the average of its peer industry. As MSCI ESG ratings (MSCI, 2023) are relative to the industry, we have used them in applying the matrix. We assume that an ESG laggard (B/CCC) must have a lower capacity to grow ESG compliantly than its average industry, and the opposite for an ESG leader (AAA/AA). By considering average rating (A/BBB/BB) at the level of zero in the vertical axis, we can scale rankings compared to the industry average where Laggards and Leaders rank below and above, respectively. That average is a benchmark for the purpose of building the matrix. In the vertical axis, positive ESG rating, in relative terms to industry, indicates a capacity of a company to grow faster than industry without a need to improve its ESG situation. If

this indicator is negative, it represents the portion of average industry grow rate that the company cannot exploit without deteriorating the ESG situation.

5. Application and Results

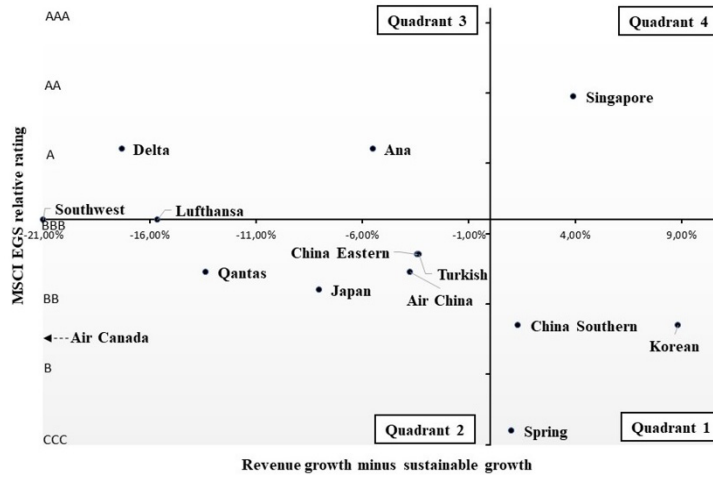


Figure 2. Financial/ESG sustainable growth matrix 2016-2019

Figure 2 illustrates the matrix compiled for the period 2016-2019. The quadrants cut-off value is zero on both axes. MSCI does not provide ratings for a multi-year period, so we have averaged the annual ratings.

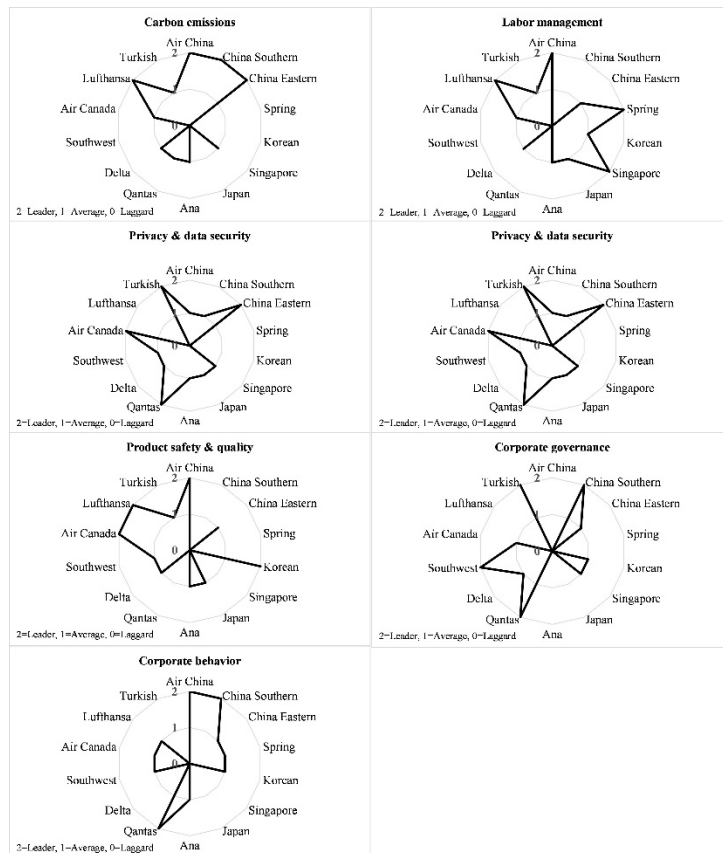


Figure 3. MSCI ESG materiality factors for the sampled companies (elaborated on MSCI, 2022)

Figure 3 illustrates the MSCI ESG materiality factors, which provide a summarized rationale underlying ESG ratings.

Growth decomposition analysis splits financial sustainable growth (retained comprehensive income/beginning net assets) as the product of retained comprehensive income/revenue (in the horizontal axis in **Figure 4**) \div net assets/revenue. (vertically, as the reciprocal for a better graphical illustration). Bubble area is proportional to each company's average sustainable growth in the period 2016-2019. The cut-off values for the creation of the quadrants in Figure 4 is the average value of the sample for each of the two axes.

6. Testing and Discussion

6.1 Prescriptive Indications Resulting from a Mechanical Application of the Matrix

A mechanical application of the matrix produces a single message per quadrant, as follows:

Quadrant	Prescriptive indications resulting from the matrix	Companies
1	Improve ESG and financially sustainable growth (for example, optimize profitability and financing on better ESG initiatives and decrease actual growth on worse ESG initiatives)	Korean China Southern Spring Air Canada China Eastern
2	Improve ESG and actual growth (for example, focus on actual growth on better ESG initiatives)	Turkish Air China Japan Qantas Delta
3	Push actual growth (commercial actions) across the board	Southwest Lufthansa Ana
4	Improve financially sustainable growth (for example, through financial re-engineering or restructuring)	Singapore

6.2 Independent Review of the Sampled Data

An independent review of data for each company follows.

Company/(Quadrant)	Analysis	Success (1-3)/ disaster (4-7) sequence	Comment and prescriptive actions
Spring(1)	Sustainable growth was stable around 12-16%. After an actual growth of 4.38% in 2016, 2017 extremely fast growth (30.07%) decreased to 12.88% in 2019 moving the position from Quadrant 1 to the centre of the axis to match sustainable growth. ESG rating was between CCC and B (laggard). Unrated in 2016.	2	a) CO2 emissions and corporate governance reported as laggard. b) Financially sustainable growth is satisfactory at 15.33% on average. c) Actual growth balanced (16.35% on average).
China Souther n(1)	Sustainable growth deteriorated from around 10% in 2016-2017 to 3-4% in 2018-2019. Conversely, actual growth increased from ca 3% in 2016 to 11-12% in 2017-2018, then dropping to 7.45% in 2019. Both effects moved the company from Quadrant 2 to Quadrant 1. ESG rating was around BB (average) and B (laggard).	4	a) Corporate behaviour reported as laggard. b) Improve financially sustainable growth, which degraded in 2018-2019.

Company/ Quadrant)	Analysis	Success (1-3)/ disaster (4-7) sequence	Comment and prescriptive actions
Korean (1)	Actual growth from 1.62% in 2016 to 3% and ca 8% in 2017 and 2018, respectively, then negative 5% in 2019. Actual over sustainable growth was due to the latter being deeply negative throughout the period, except in 2017. ESG ratings from BB (average) to B (laggard).	4	a) Overall ESG score is Laggard. b) Improve financially sustainable growth.
Air Canada (2)	In 2018-2019 sustainable growth from 3.77% to 7.70%, while actual from 11.16% to 5.90% (from Quadrant 1 to Quadrant 2 closer of the axis). It would be Quadrant 1 when excluding 2016-1017 (not significant as negative pre-2015 equity). ESG stable at BB (average).	2	a) Labor management and product safety & quality reported as laggard. b) 2018-2019 show financially sustainable growth satisfactory (over 5%).
China Eastern (2)	5% stable annual actual growth. From 5-7% unused sustainable growth in 2016/2017 (Quadrant 2) to ca 2% excess in 2018 (Quadrant 1), to a balanced position in 2019. ESG rating was stable around BBB/A (average).	4	a) Corporate behaviour reported as laggard. b) Although financial sustainable growth is on average satisfactory at 8.48%, it is decreasing; improve. c) Average actual growth of 5.08%. Push actual growth as sustainable growth improves.
Turkish (2)	Around BBB and BB (still average). Slight movement from Quadrant 4 to 2 and then 1. The gap between actual and sustainable growth was erratic. Sustainable growth from about 5% in 2016-2017 to 11-16% in 2018-2019. Actual growth from negative 6.94% in 2016 to positive 17.31% in 2018, cooling down at 2.91% in 2019.	3	a) Corporate governance and corporate behaviour reported as laggard. b) Financial sustainable growth satisfactory on average at 9.24%. c) Improve actual growth from average 5.89% as ESG improves.
Air China(2)	ESG fluctuating on BB/BBB. Sustainable growth from 14.84% in 2016 to 6.5% in 2019, actual growth from 4.62% in 2016 to 13.59% in 2018 (7.65% sustainable), moving from Quadrant 2 to 1. In 2019 back to Quadrant 2 with actual -0.46% against a sustainable 6.50%.	4	a) Product safety and quality and corporate behaviour reported as laggard. b) Average financial sustainable growth satisfactory at 10.01% but decreasing; maintain. c) Actual growth average 6.25% (affected by -0.46% in 2019); recover.
Japan(2)	Sustainable 9-11%, apart from 18.40% in 2017. Actual growth was erratic, always below sustainable growth, except in 2018. ESG between BB and A.	5	a) CO2 emissions and privacy and data security reported as laggard. b) Average financial sustainable growth satisfactory at 12.61%. c) Improve actual growth from average 4.58%.
Qantas(2)	In 2016-2018 sustainable >24%, while actual not exceeding 7%. In 2019 actual 4.89% against 2.88% sustainable. ESG rating was stable at BB (average) for 4 years.	5	a) Labor management reported as laggard. b) Financial sustainable growth is high at average 16.59%, except in 2019 (2.88%). c) Improve actual growth from average 3.24%.

Company/ Quadrant)	Analysis	Success (1-3)/ disaster (4-7) sequence	Comment and prescriptive actions
Delta(3)	High sustainable (20-31%). Actual 4-8%, 3% negative in 2016. ESG rating was stable at A (average).	5	a) Privacy and data security reported as leader, others as average. b) Financial sustainable growth high at 20.94% on average. c) Potential to improve actual growth from average 3.66%.
Southwest(3)	High sustainable (19-41%). Actual negative or low at ca 2%, except in 2017 (12.38%). ESG ratings BB and A.	5	a) CO2 emissions, privacy and data security, product safety and quality and corporate governance reported as laggard. b) Financial sustainable growth high on average at 24.13%. c) Improve actual growth from average 3.14%.
Lufthansa(3)	High sustainable (15-37%), 8% in 2019. Actual 2-4%. ESG BBB (average)	5	a) Mixed picture: leader/laggard (middle of quadrant 2 and 3). b) Financial sustainable growth high on average at 18.89%. c) Improve actual growth from average 3.25% (negative in 2016 and 2018).
Ana(3)	12-16% sustainable, (-1.19% in 2016). Actual erratic, and negative in 2017, below sustainable growth, except in 2016. ESG A (average).	5	a) Mixed picture: leader, but corporate governance as laggard. b) Financial sustainable growth satisfactory on average at 10.20%. c) Improve actual growth from average 4.69% (negative in 2017).
Singapore(4)	Actual negative in 2016, 6% and 3% in 2017 and 2018, respectively. Sustainable 1.30% in 2016 and 8.52% in 2017. Quadrant 4 because of a drop in sustainable growth in 2018 to 2.89% and sustainable growth becoming 22.83% negative versus actual growth 2.13% negative in 2019. ESG AA (A in 2019 (leader).	4	a) Mixed picture, but overall rated as a leader. b) Average financial sustainable growth negative 2.74% (affected by negative 2019). Improve to exploit the capacity to growth permitted by ESG status. c) Actual growth low on average at 1.19% (affected by negative 2016 and 2019).

Growth decomposition shows that Lufthansa and Qantas in Quadrant D each unit of additional sales generated little more than 0.20 additional net assets, but only 0.04 of additional comprehensive income. These companies appear good to manage the efficiency of their balance sheet. Conversely, Southwest in Quadrant B appears to be good to manage the income statement as it obtained 0.12 comprehensive income from each unit of additional sales. Unfortunately, it also generated a heavy load of 0.49 additional net assets. Delta in Quadrant A tried to do both, albeit more moderately. However, although Delta may show a superior capability of generating sustainable growth, actual sales growth has been consistently below that level. Quadrant C penalizes Singapore Airlines under both aspects.

For the purpose of this test, the term 'independent review' means a professional assessment based of a critical review of the detailed reading of financial growth and ESG disaggregated metrics (sources), as opposed to relying to the binary quadrant messaging resulting from the application of the matrix. Even though based on numbers, this is still a qualitative review based on expert opinion. The success/disaster sequences are identified by repeating the analysis for each year of the five-year period and holistically interpreting the trend. This is a sort of pattern matching method (Denzin and Lincoln, 2017; Eisenhardt, 1989), i.e., comparing the observed paths of actual and sustainable growth computed from published financial statements and MSCI ESG ratings against the indications of the model.

6.3 Comparison of the Prescriptive Indications from the Matrix to the Independent Review

The quadrants and the independent analysis appear consistent, subject to some methodological caveats:

- A proper period selection is key to avoid distortions. As exceptions, Air Canada would be in Quadrant 1 when excluding not significant 2016-2017 sustainable growth rate because of 2015 recovering from previous negative equity. 2019 strongly affected the period averages of Qantas and Air China.
- The matrix does not say whether horizontally right to the zero means excessive actual growth is or insufficient sustainable growth. It only pinpoints a missing equilibrium. For example, Singapore falls in Quadrant 4 not because of strong actual growth but low sustainable growth.
- While quadrants give a longer-term position, success/disaster sequences help understand management strategy.

Some companies appear to move consistently to the matrix prescriptive indications (Spring success sequence 2 for Quadrant 1; Air Canada success sequence 2 for Quadrant 2), others do not - China Southern and Korean (disaster sequence 4 for Quadrant 1); China Eastern and Air China (disaster sequence 4), Turkish (disaster sequence 3) and Japan and Qantas (disaster sequence 5) for Quadrant 2; Delta, Southwest, Lufthansa, and Ana (disaster sequence 5 for Quadrant 3); and Singapore (disaster sequence 4 for Quadrant 4). However, this does not invalidate the approach because, as note in the literature review on normative models.

The authors reserve to reinforce the conclusions of the test in a future article through a correlation of quadrant placement with subsequent performance. However, as noted in paragraph 4.2 above, the matrix theory is not about cause-and-effect determinants of growth, rather a normative management model, which per se intends to drive courses of actions rather than validate past situations by verification. A further development for subsequent testing may include theory triangulation (Denzin and Lincoln, 2017; Yin, 1994), i.e., identifying and comparing explanations given by management in the financial reports to check which theories, such as theories of growth, ESG, or Corporate Social Responsibility capture past actions.

7. Conclusions

By combining financial and ESG growth, the matrix directionally integrates sustainable financial growth, ESG, CSR, sustainable development, and stakeholder theories (Figure 5). Finance theory explains how to leverage financially sustainable growth. ESG theories explain how to leverage ESG factors. Corporate social responsibility identifies the parameters and behaviours for a company to be societal virtuous. Stakeholder theory identifies which stakeholders are winning or losing from what behaviours. By integrating those theories, the matrix generates strategic options in one quadrant, one message, and moves the last mile towards a practical application.

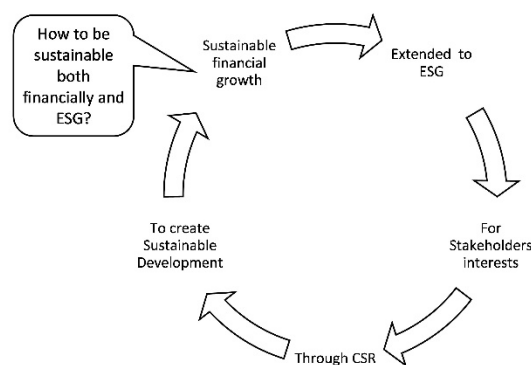


Figure 5. The wheel of sustainable development

This suggests new directions of research. The existing frameworks of financially sustainable growth maintain their validity but include the ESG impacts. ESG theories should move to analyse the dimension of ESG sustainable growth, not only studying whether there is a correlation with corporate financial performance or how to rate environmental and social weights. Corporate Social Responsibility should move from a representation of principles or qualitative and high-level indications to operating approaches to implement ESG policies. Through the transformations of such theories, sustainable development can change from an all-encompassing umbrella concept to doable courses of actions and measurable metrics.

In terms of practical usefulness, trend analysis drills down on the path that has led a company to a certain

position. The growth decomposition explains the profitability and financial efficiency root causes of financially sustainable growth, for further ROE decomposition analysis. Finally, the ESG ratings and materiality factors show whether and where the company should improve its capacity to growth at positive ESG factors. All this applies on a comparative basis with competitors.

The matrix shows the allocation of societal surplus between shareholders and other stakeholders, common lens between directors and middle management across organizational levels and functions to address the so-called sustainability paradox (Argento *et.al.*, 2022). Industrial policymakers can picture industries by their capacity to generate financial and ESG sustainable growth.

Finally, this article has shown that a proxy for ESG-sustainable growth rate is possible, addressing the claim in Bellandi (2023) that no metrics still exist to this respect. Developing better EGS growth indicators is another important indication for further research.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Canadian Center of Science and Education.

The journal and publisher adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

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Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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