



## Constraint Amplification in Shariah-Compliant Investing:

Reframing ESG and Humanities through Ethical Optimization

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## Abstract

Shariah-compliant investing is inherently constrained by exclusionary screening and financial ratio thresholds derived from established jurisprudential frameworks, including those of AAOIFI and the Securities Commission Malaysia. These constraints, while essential for ensuring compliance with Islamic legal principles, result in a structurally reduced investable universe relative to conventional benchmarks (MSCI, 2023; FTSE Russell, 2022).

In parallel, the growing integration of Environmental, Social, and Governance (ESG) criteria, alongside humanities-informed ethical considerations, has been advanced as a complementary extension of Shariah objectives, particularly in alignment with maqasid al-Shariah. However, this paper argues that the prevailing application of ESG and humanities as additional exclusionary layers produces a compounding “constraint amplification” effect. This effect manifests in a non-linear reduction of eligible assets, increased portfolio concentration, diminished diversification, and constrained access to sectoral and cyclical opportunities (IFSB, 2023; World Bank, 2022).

Furthermore, humanities-based overlays while normatively valuable are frequently applied through qualitative and non-standardized frameworks, introducing interpretive variability and limiting auditability across jurisdictions and institutional contexts. This creates friction with core investment portfolio management institutional requirements, including scalability, transparency, and benchmark alignment.

This paper proposes a reframing of ESG and humanities inputs from binary exclusion mechanisms to structured, quantifiable variables within a constraint-aware optimization framework. Under this model, ethical considerations are incorporated as weighted portfolio inputs rather than hard filters, preserving Shariah compliance while mitigating the adverse effects of constraint stacking. HalalCheck is presented as an applied implementation of this approach.



## 1. Introduction

Shariah-compliant investing has grown significantly over the past two decades, supported by increasing demand for Islamic financial products and expanding global capital markets. Despite this growth, the investable universe for Shariah-compliant portfolios remains structurally constrained due to strict adherence to religious principles governing permissible economic activity.

At the same time, institutional investors are increasingly integrating ESG considerations and broader ethical frameworks into portfolio construction. While these developments are aligned in principle with Islamic finance, their combined application introduces new challenges.

This paper examines how the layering of Shariah, ESG, and humanities-based constraints affects portfolio construction and proposes a framework to address resulting inefficiencies.

## 2. Shariah Screening Frameworks

### 2.1 Core Shariah Screening Framework

Shariah screening frameworks do not merely function as compliance filters; they fundamentally underpin core investability decisions at the asset level, determining eligibility for inclusion within Islamic portfolios. These frameworks define the permissible investment universe through two primary components: qualitative (activity-based) screening and quantitative (financial ratio) screening.

- The **qualitative component** assesses the nature of a company's core business activities, excluding firms engaged in non-permissible sectors such as conventional financial services (interest-based lending), gambling, alcohol, tobacco, and other prohibited industries. This assessment extends beyond headline classification to consider structural dependency on non-permissible activities, ensuring that compliance reflects the substance of the business rather than its form.
- The **quantitative component** evaluates a firm's financial structure through a series of ratio-based thresholds designed to limit exposure to non-compliant elements. These typically include:
  - **Interest-bearing debt ratios**, commonly capped at approximately 30% of total assets or market capitalization
  - **Liquidity or cash-based ratios**, ensuring that interest-derived cash and receivables do not dominate the balance sheet
  - **Non-permissible income thresholds**, generally limited to 5% of total revenue, above which the company is deemed non-compliant

Where non-permissible income remains within acceptable tolerance thresholds, it is typically subject to purification, requiring investors to calculate and donate the impermissible portion of income to charitable causes. This mechanism allows for practical participation in diversified markets while maintaining adherence to Shariah principles.

While specific thresholds vary across standards, these benchmarks are widely adopted across major screening methodologies and serve to ensure that any residual non-compliant exposure remains within tightly controlled tolerances.

Together, these qualitative and quantitative filters act as a deterministic gatekeeping mechanism, systematically defining which assets are investable.



## 2.2 ESG Integration

Environmental, Social, and Governance (ESG) investing introduces an additional layer of screening criteria that extends beyond traditional financial and compliance metrics.

These criteria are typically structured across three core dimensions:

- **Environmental:** assessing a company's impact on natural systems, including carbon emissions, resource usage, climate risk exposure, and alignment with sustainability objectives
- **Social:** evaluating relationships with stakeholders, including labor practices, human rights, customer responsibility, and broader societal impact
- **Governance:** examining corporate governance structures, including board composition, executive remuneration, shareholder rights, transparency, and ethical conduct

In many institutional implementations, ESG is operationalized as a binary filter excluding companies involved in specified controversies or sectors. When applied in this manner, ESG effectively mirrors the exclusionary nature of Shariah screening, transforming from a continuous scoring system into a discrete constraint layer.

## 2.3 Humanities and Ethical Interpretation

Humanities-informed approaches introduce an additional layer of qualitative assessment that extends beyond formal compliance frameworks, incorporating broader ethical and contextual considerations into investment decision-making.

These typically include:

- **Ethical** intent and social impact: evaluating whether a company's activities contribute positively to society or generate broader harm beyond strictly defined prohibited sectors
- **Cultural** and regional context: recognizing that interpretations of ethical acceptability may vary across jurisdictions, societal norms, and market structures

These dimensions are closely aligned with the higher objectives of Islamic law, or maqasid al-Shariah, particularly in promoting justice, welfare, and societal benefit. However, unlike Shariah screening which is codified into deterministic rules or ESG frameworks which are expressed through structured scoring systems humanities-informed overlays are inherently qualitative, interpretive, and non-standardized.

As a result, their application often introduces a third layer of constraint, characterized by subjective judgement rather than consistent, rules-based evaluation. In practice, this may manifest as additional exclusions based on perceived ethical concerns, reputational risk, or contextual interpretations that are not uniformly defined across institutions or scholars.

When applied conservatively particularly in institutional settings seeking to minimize reputational or compliance risk these qualitative overlays can lead to a further reduction in the investable universe, typically in the range of an additional 10–20% of remaining eligible assets, depending on the strictness of interpretation and governance approach. This impact is often concentrated in borderline sectors or companies with mixed revenue streams, where interpretation plays a significant role.

### 3. Constraint Amplification in Portfolio Construction

Constraint Amplification refers to the compounding reduction of investable assets resulting from sequential ESG and Humanitarian compliance filtering.

At this foundational stage, the application of Shariah screening criteria results in a material reduction of the global investable universe, with empirical evidence from Islamic index methodologies indicating that approximately 40–60% of listed equities are excluded depending on jurisdiction and screening standard (MSCI, 2023; FTSE Russell, 2022). This initial contraction establishes a structurally constrained baseline from which all subsequent portfolio construction decisions must operate.

The application of Binary ESG screening results in a further compression of the investable universe, by a further 20–40%. This is particularly evident in industries such as energy, materials, and emerging markets, where ESG risks are more prevalent.

Humanities-informed overlays, while conceptually aligned with the ethical foundations of Islamic finance, contribute to the broader phenomenon of constraint amplification when applied as independent exclusionary layers to an additional 10-20%.

Stage	Remaining Investable Universe
<b>Global Equity Universe</b>	100%
<b>Post-Shariah Screening</b>	~60%
<b>Post-ESG Filtering</b>	~40%
<b>Post-Humanities Overlay</b>	~30%

Reduced asset availability leads to:

- Overexposure to specific sectors (e.g., technology)
- Increased dependency on a narrow set of large-cap firms

### 4. Reframing the Problem

Portfolio constraint is not the application of ESG or humanities themselves, but how they are applied in practice.

These dimensions are often implemented as:

- Binary exclusion mechanisms, where assets are removed entirely rather than assessed on a spectrum
- Non-quantified inputs, limiting consistency and comparability across portfolios
- Non-integrated decision layers, applied sequentially rather than within a unified framework

This approach introduces inefficiency. Binary exclusions remove assets that may present only marginal or manageable risks, unnecessarily reducing the investable universe and limiting diversification. The absence of quantification creates inconsistency in decision-making, while the lack of integration prevents effective portfolio-level optimisation.

The issue is therefore not the frameworks themselves, but their treatment as external filters rather than structured inputs into portfolio construction.

## 5. Constraint-Aware Ethical Optimisation Framework

### 5.1 Conceptual Model

The proposed framework introduces a structured approach to integrating ethical considerations within Shariah-compliant portfolio construction. At its core, the model preserves deterministic Shariah compliance as a non-negotiable foundation, ensuring that all assets meet established qualitative and quantitative screening requirements.

Beyond this baseline, ESG and humanities considerations are incorporated as scored and quantifiable inputs, rather than binary exclusion criteria. This enables ethical dimensions to be evaluated on a continuous scale, allowing for differentiation between assets based on relative alignment rather than outright removal.

These inputs are then embedded within a portfolio optimisation process, where ethical scores are incorporated alongside traditional financial metrics. This allows for dynamic weighting and trade-off management, ensuring that ethical objectives are balanced with diversification, risk, and performance considerations.

### 5.2 Functional Components

The framework is operationalised through three integrated layers, each performing a distinct but complementary role within the portfolio construction process.

#### 5.2.1 Certification Layer

The Certification Layer applies rule-based Shariah screening, ensuring full compliance with recognised standards such as those issued by AAOIFI and the Securities Commission Malaysia.

This layer is fully deterministic and auditable, providing clear inclusion or exclusion outcomes based on established qualitative and quantitative criteria. It serves as the foundational gatekeeper of investability, ensuring that all assets entering the portfolio meet strict compliance requirements.

#### 5.2.2 Ethical Scoring Layer

The Ethical Scoring Layer introduces a structured mechanism for evaluating ESG and humanities-informed considerations. ESG factors are incorporated through measurable indicators relating to environmental impact, social responsibility, and governance quality, while humanities inputs capture broader contextual and ethical dimensions, including social impact and interpretive judgement.

By converting these elements into quantifiable signals, this layer enables consistent comparison across assets and reduces the subjectivity typically associated with qualitative assessments.

#### 5.2.3 Optimisation Layer

The Optimisation Layer integrates outputs from both the Certification and Ethical Scoring layers into a unified portfolio construction process. Rather than applying additional exclusions, this layer enables portfolio weighting adjustments, allowing assets with varying ethical profiles to be incorporated in a controlled and transparent manner.

This approach supports risk management and concentration balancing, ensuring that ethical constraints do not disproportionately reduce diversification or distort portfolio structure. Importantly, it enables trade-offs to be managed at the portfolio level, rather than enforced at the individual asset level.

### 5.3 Outcomes

The implementation of a constraint-aware ethical optimisation framework delivers several key outcomes.

**First**, it ensures the preservation of Shariah compliance integrity, maintaining adherence to established standards without compromise.

**Second**, by replacing binary exclusions with structured inputs, it supports improved diversification and a broader investable universe. This, in turn, contributes to reduced concentration risk, enabling more balanced exposure across sectors and geographies.

**Finally**, the framework enhances institutional usability, providing a scalable, auditable, and transparent approach to integrating ethical considerations within portfolio construction. This aligns Shariah-compliant investing with the operational and governance requirements of global institutional investors.<sup>8</sup> Applied Implementation: HalalCheck

## 6. Applied Implementation: HalalCheck

HalalCheck operationalises the constraint-aware ethical optimisation framework through a production-grade, institutional system that translates theoretical constructs into real-world portfolio workflows. Rather than redefining the framework, HalalCheck embeds it within a data-driven, auditable execution environment designed for scale.

In practice, HalalCheck connects structured financial data, screening rules, and ethical signals into a unified decision pipeline. Asset-level data is continuously ingested and processed against Shariah standards, while ESG and humanities factors are normalised into comparable metrics. These inputs are not applied sequentially as independent filters, but are evaluated simultaneously within a single decision context, enabling consistent and transparent outcomes.

A key differentiator lies in how decisions are constructed and exposed. Every asset assessment within HalalCheck is accompanied by:

- explicit rule evaluations (pass/fail at the Shariah level)
- quantified ethical scores (ESG and humanities signals)
- traceable calculations and source data

This ensures that portfolio construction is not only compliant, but fully explainable and auditable at each decision point.

At the portfolio level, HalalCheck enables investors to move beyond exclusion-based construction by applying constraint-aware allocation logic. Instead of removing assets with marginal ethical deviations, the system supports controlled exposure through weighting, scoring thresholds, and scenario-based adjustments, allowing portfolios to maintain compliance while improving diversification and efficiency.

### 6.1 Investor Outcomes

For institutional investors, HalalCheck delivers measurable improvements in both governance and portfolio construction:

- **Enhanced investability:** By reducing unnecessary exclusions, investors retain access to a broader opportunity set within Shariah constraints
- **Improved diversification:** Portfolio construction is no longer restricted by layered binary filters, reducing concentration risk
- **Full auditability and governance alignment:** every decision is traceable, supporting Shariah boards, regulators, and internal risk frameworks



- Operational scalability: standardized and automated processes enable consistent application across large and multi-portfolio environments

## 6.2 Investment Universe Impact

Before vs After: Constraint-Based vs Optimised Approach		
Stage	Traditional (Constraint Stacking)	Constraint-Aware Optimisation (HalalCheck)
Global Equity Universe	100%	100%
Post-Shariah Screening	~60%	~60% ( <i>unchanged – deterministic requirement</i> )
Post-ESG Application	~40% ( <i>binary exclusions applied</i> )	~55–60% ( <i>ESG applied as scoring, not exclusion</i> )
Post-Humanities Overlay	~30% ( <i>further exclusions</i> )	~50–60% ( <i>integrated as weighted input</i> )
Effective Investable Universe	~30%	~50–60%
Diversification	Reduced	Preserved / Improved
Concentration Risk	Increased	Reduced
Decision Model	Sequential filtering	Integrated optimisation
Transparency	Variable	Fully auditable & explainable

## 7. Conclusion

Shariah-compliant investing is inherently defined by a structured set of qualitative and quantitative constraints that ensure adherence to Islamic financial principles. While these frameworks provide clarity, consistency, and auditability, they also establish a materially reduced investable universe. The subsequent layering of ESG and humanities-based considerations particularly when applied as binary, non-integrated filters further amplifies these constraints, leading to reduced diversification, increased concentration risk, and diminished portfolio efficiency.

This paper has demonstrated that the limitation does not lie in the ethical frameworks themselves, but in their **mode of application**. When treated as independent exclusionary layers, ESG and humanities considerations act as additional constraints rather than value-enhancing inputs.

The proposed constraint-aware ethical optimisation framework addresses this challenge by preserving deterministic Shariah compliance while transforming ESG and humanities dimensions into structured,

quantifiable inputs within portfolio construction. This enables ethical considerations to be incorporated without unnecessarily reducing investability.

HalalCheck operationalises this approach by embedding certification, scoring, and optimisation within a unified, auditable system, enabling institutional investors to construct portfolios that are both compliant and efficient.

Ultimately, this represents a shift from **exclusion-based compliance to integrated ethical intelligence**, aligning Shariah investing with the requirements of modern institutional portfolio management.



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