



Integrating the Fama French Five Factor Model, Board Diversity, and Sustainability in Generation Z Investment Decisions

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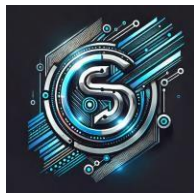
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Abstract: The increasing participation of Generation Z in financial markets has created a need to understand investment decisions through an integrated perspective that combines conventional financial characteristics with sustainability and corporate governance information. This conceptual study examines how the Fama–French Five-Factor Model (FF5), board diversity, and sustainability can be integrated to explain investment decisions among Generation Z investors. The study employs a conceptual theory-building approach based on a structured synthesis of recent empirical and theoretical literature concerning asset pricing, sustainable finance, corporate governance, board diversity, and Generation Z investment behaviour. The analysis conceptualizes FF5 through market, size, value, profitability, and investment characteristics as the financial foundation of investment evaluation, while sustainability represents environmental, social, and governance information relevant to corporate quality, risk, resilience, and long-term performance. Board diversity is positioned as a governance mechanism that can influence sustainability practices, disclosure quality, monitoring, and the credibility of corporate information. The resulting Five-Factor–Diversity–Sustainability Investment Decision (FF5-DSID) framework proposes that Generation Z investors integrate financial attractiveness, sustainability information, and governance characteristics through a multidimensional decision-making process influenced by financial knowledge, sustainability literacy, risk perception, investment preferences, and information accessibility. The framework contributes to sustainable finance and investment literature by connecting established asset-pricing theory with corporate governance and generational investment behaviour while providing an empirically testable foundation for future research.

Keywords: Fama French Five Factor Model, Generation Z, Sustainability, Board Diversity, Investment Decisions

INTRODUCTION

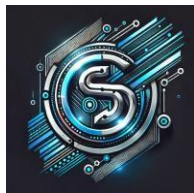
The contemporary investment environment has experienced substantial transformation as investors increasingly encounter financial information alongside environmental, social, and governance considerations when evaluating companies, securities, portfolio opportunities, and the longer-term implications of corporate performance. Traditional investment analysis has historically emphasized financial indicators such as profitability, firm size, valuation, investment expenditure, and expected returns, while sustainability-oriented investment has expanded the information set toward environmental performance, social responsibility, governance quality, and corporate resilience. This transformation has created an increasingly complex decision



environment because investors may consider conventional financial characteristics and sustainability-related information simultaneously rather than treating them as completely independent dimensions. The development of sustainable finance has consequently encouraged researchers to examine whether ESG information contains financially relevant information that can complement established asset-pricing frameworks (Friede et al., 2015; Gillan et al., 2021).

Generation Z represents an increasingly important population within this changing investment environment because younger investors have entered financial markets during a period characterized by digital financial services, expanding access to investment platforms, increasing public awareness of sustainability, and greater availability of corporate ESG information. Research concerning younger investors suggests that sustainability considerations can become relevant to investment attitudes and preferences, particularly when environmental and social issues are perceived as connected with long-term corporate performance and personal values. At the same time, financial return, risk, and wealth accumulation remain important considerations because sustainable investment decisions still occur within markets where investors expect financial compensation for bearing risk. This combination creates an important research context for examining whether younger investors evaluate investment opportunities through an integrated financial and sustainability perspective rather than relying exclusively on either conventional financial indicators or non-financial values.

The continuing importance of conventional financial characteristics provides a strong theoretical foundation for applying the Fama–French Five-Factor Model to contemporary investment analysis because the model offers a structured explanation of systematic differences in expected stock returns across securities and portfolios. The original Fama–French three-factor framework incorporated market, size, and value dimensions, while the subsequent Five-Factor Model incorporated profitability and investment factors to provide a broader representation of return-related characteristics (Fama & French, 1993, 2015). The resulting framework consists of market excess return, size, value, profitability, and investment characteristics, thereby providing a comprehensive financial foundation for analysing cross-sectional variation in stock returns. Although the model has considerable explanatory importance within asset pricing, its original

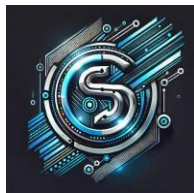


specification does not explicitly incorporate environmental performance, social responsibility, governance quality, or other sustainability-related characteristics.

The absence of sustainability characteristics from traditional multifactor asset-pricing frameworks has generated considerable academic debate concerning whether ESG information should be treated as an additional financial factor or as information that operates through existing financial characteristics. Friede et al. (2015), through a comprehensive review of empirical evidence, report that the relationship between ESG considerations and corporate financial performance is generally non-negative across the large body of studies they examined, although the strength and direction of individual relationships vary according to research design, measurement, and context. Gillan et al. (2021) similarly demonstrate that ESG-related considerations have become increasingly connected with corporate finance and investment research, encompassing areas such as firm value, risk, ownership, disclosure, and institutional investment. These findings establish a theoretical basis for examining sustainability within investment analysis while recognizing that ESG should not automatically be regarded as equivalent to an established asset-pricing factor.

Recent empirical evidence provides a more specific basis for examining the relationship between ESG and the Fama–French framework because researchers have directly tested whether sustainability characteristics improve the explanatory performance of traditional asset-pricing models. Nsibande and Sebastian (2023), using data from major firms listed on the Johannesburg Stock Exchange, examined whether incorporating ESG scores into the Fama–French Five-Factor Model improves its predictive capability. Their findings indicate that the inclusion of ESG scores produces only marginal improvement in the predictive performance of the model, suggesting that ESG information may contain relevant corporate information without necessarily operating as a powerful independent factor explaining equity returns. Such evidence is important because it demonstrates that sustainability information and conventional financial factors can be analytically connected without assuming that ESG automatically represents a new universal factor within the FF5 framework.

Evidence from the Indian market provides another perspective concerning the potential pricing relevance of sustainability characteristics because Mohanasundaram and Kasilingam



(2024) explicitly extended the Fama–French Five-Factor Model by incorporating a sustainability factor derived from ESG scores. Their analysis of firms included in the NIFTY 500 indicates that ESG risk can be priced within some portfolios, while the sustainability factor does not demonstrate significant effects across all examined portfolios. The findings therefore indicate that sustainability may contain economically relevant information in particular market settings while its pricing effects remain heterogeneous across portfolios. Evidence from European markets concerning ESG-rating disagreement similarly indicates that differences among ESG ratings can influence apparent portfolio-return relationships, although such effects can diminish after controlling for conventional firm characteristics such as market capitalization and book-to-market ratios (Khaled et al., 2024). These findings reinforce the importance of treating ESG information cautiously because measurement heterogeneity and conventional financial characteristics can influence observed relationships.

Board diversity provides an additional governance dimension that can strengthen the conceptual integration between sustainability and investment decision-making because corporate boards influence strategic priorities, risk oversight, managerial monitoring, resource allocation, disclosure practices, and corporate sustainability policies. Board gender diversity has received particular attention within corporate governance research because differences in board composition may influence monitoring quality, stakeholder orientation, strategic decision-making, and corporate responsibility. The broader literature on board diversity indicates that demographic and professional characteristics can influence governance processes, although the direction and magnitude of these effects remain dependent on institutional and organizational contexts (Adams, 2016; Terjesen et al., 2016). Within sustainability research, board characteristics are consequently relevant because governance structures may affect how environmental and social objectives are incorporated into corporate strategy and communicated to investors.

The conceptual gap addressed by this study therefore concerns the limited integration of three information dimensions that increasingly coexist within contemporary investment environments, namely financial characteristics represented by the Fama–French Five-Factor Model, sustainability information represented through ESG performance, and governance characteristics represented through board diversity. Existing literature provides substantial



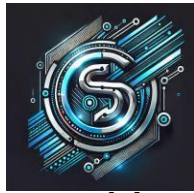
evidence concerning each domain individually, yet relatively limited conceptual attention has been devoted to understanding how these dimensions can jointly inform investment decisions among younger retail investors. The central question emerging from this gap is therefore how conventional financial characteristics, sustainability information, and board governance can be integrated into a coherent framework for understanding Generation Z investment decisions.

This study consequently proposes the **Five-Factor–Diversity–Sustainability Investment Decision Framework (FF5-DSID)** as a conceptual model for examining the interaction between financial characteristics, sustainability performance, and board diversity in Generation Z investment decision-making. The framework retains the original financial logic of the Fama–French Five-Factor Model while positioning sustainability as broader corporate-performance information and board diversity as a governance characteristic that may influence the credibility, implementation, and interpretation of sustainability-related information. The framework does not assume that sustainability automatically constitutes a sixth asset-pricing factor, because existing evidence demonstrates heterogeneous relationships between ESG characteristics and conventional financial factors (Nsibande & Sebastian, 2023; Mohanasundaram & Kasilingam, 2024). Instead, it proposes that Gen Z investment decisions can be understood through the interaction of financial attractiveness, sustainability information, and governance characteristics within an increasingly complex investment information environment.

METHOD

Research Design

The present study adopts a conceptual theory-building design because the primary objective is to integrate established theoretical perspectives and empirical findings into a new explanatory framework rather than to estimate causal relationships from newly collected primary data. Conceptual research is appropriate when a study seeks to synthesize existing theories, connect previously separated streams of knowledge, and develop a model capable of guiding subsequent empirical investigation (Jaakkola, 2020). This methodological orientation is consistent with the purpose of the present article, which integrates the Fama–French Five-Factor Model,



sustainability, board diversity, and Generation Z investment decisions into the proposed Five-Factor–Diversity–Sustainability Investment Decision Framework (FF5-DSID).

Literature Identification and Selection

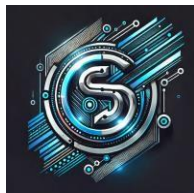
The literature synthesis focused on peer-reviewed scholarly publications addressing four interconnected domains, namely Fama–French asset pricing, sustainability and ESG investment, board diversity and corporate governance, and Generation Z or younger retail-investor decision-making. Literature was identified through searches of academic databases and scholarly search platforms using combinations of keywords including *Fama–French five-factor model*, *asset pricing*, *ESG*, *sustainability factor*, *board diversity*, *corporate governance*, *Generation Z*, *young investors*, and *investment decision*. Following the methodological principles proposed by Snyder (2019), the literature-selection process emphasized relevance to the research question, conceptual contribution, methodological transparency, and direct connection with the constructs incorporated into the proposed framework.

Analytical Procedure

The analytical procedure employed an integrative synthesis in which relevant findings were extracted, compared, categorized, and interpreted according to their theoretical relationships rather than statistically aggregated into a meta-analysis. Such an approach is appropriate when the literature contains heterogeneous theoretical perspectives, empirical contexts, constructs, and research designs that cannot reasonably be reduced to a single quantitative effect estimate (Snyder, 2019). The synthesis consequently organized evidence into three principal analytical domains: financial characteristics represented by the FF5 model, sustainability characteristics represented through ESG information, and governance characteristics represented primarily by board diversity.

Conceptual Framework Development

The development of the FF5-DSID framework followed a conceptual framework-building logic in which concepts originating from different bodies of knowledge were identified, defined, connected, and organized into a coherent explanatory structure. Jabareen (2009) describes conceptual framework analysis as a process for constructing interconnected concepts that provide a comprehensive understanding of complex phenomena, while Jaakkola (2020) emphasizes that conceptual articles should clearly explain the role of theories and justify how they are integrated



within the proposed model. Based on this logic, FF5 was positioned as the financial evaluation architecture, sustainability as broader corporate-performance information, and board diversity as a governance characteristic that may influence the interpretation and credibility of sustainability information.

The final stage involved translating the integrated relationships into conceptual propositions concerning Generation Z investment decisions, while deliberately avoiding claims of empirical causality because the present study does not collect or analyze primary observations. The resulting framework is therefore intended to provide a theoretically grounded structure for future empirical testing through survey research, experiments, portfolio analysis, or market-based approaches.

RESULTS AND DISCUSSION

Integrating Financial, Sustainability, and Governance Information in Generation Z Investment Decisions

The conceptual synthesis developed in this study demonstrates that Generation Z investment decisions can be understood more comprehensively when financial characteristics, sustainability information, and governance attributes are treated as interconnected but analytically distinct dimensions of investment evaluation. The central research question asks how the Fama–French Five-Factor Model, board diversity, and sustainability can be conceptually integrated to explain investment decisions among Generation Z investors, and the synthesis indicates that integration is more theoretically appropriate than replacing conventional financial factors with sustainability variables. This interpretation follows the conceptual architecture established in the source manuscript, where FF5 represents financial-return characteristics, sustainability represents broader corporate performance information, and board diversity represents a governance characteristic that can shape how sustainability information is interpreted.

The financial dimension remains the foundation of the proposed integration because investment decisions ultimately involve expectations concerning return, risk, valuation, profitability, and corporate investment behaviour. The Fama–French framework provides a structured representation of these characteristics through market, size, value, profitability, and investment dimensions, allowing investors to evaluate securities through observable financial

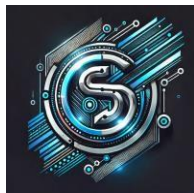


attributes before incorporating additional corporate information. The conceptual significance of this financial foundation is that sustainability should not be interpreted as a substitute for financial attractiveness, particularly when Generation Z investors are required to make actual security-selection or portfolio-allocation decisions under conditions of uncertainty.

The sustainability dimension enters the investment process as an additional information layer that can modify investors' perceptions of corporate quality, long-term resilience, risk exposure, stakeholder relationships, and strategic positioning. Evidence from the Indian market provides particularly useful support for this interpretation because Mohanasundaram and Kasilingam (2024) identify sustainability risk as positively priced and report that firms without ESG strategies may face higher costs of equity, while inadequate ESG transparency can affect investor trust. These findings indicate that sustainability can have financial relevance without requiring the conceptual framework to assume that ESG is identical to any particular Fama–French factor.

The governance dimension represented by board diversity completes the proposed integration because corporate sustainability performance does not emerge independently from organizational decision-making structures, monitoring systems, resource allocation processes, and strategic oversight. Evidence concerning ESG committees shows that specialized board-level governance arrangements are associated with stronger corporate ESG performance, partly through greater environmental investment and investor attention (Huang et al., 2024). This finding provides a useful conceptual bridge between board governance and sustainability because it demonstrates how governance structures can affect the organizational processes through which sustainability objectives are translated into observable corporate practices.

The three dimensions consequently operate through different informational functions rather than through interchangeable constructs, with FF5 addressing financial attractiveness, sustainability addressing broader corporate responsibility and long-term performance information, and board diversity addressing governance credibility and organizational decision-making capacity. Such differentiation is essential because combining the variables into a single undifferentiated sustainability score could obscure the distinct mechanisms through which investors interpret financial, environmental, social, and governance information. The FF5-DSID framework therefore conceptualizes investment decision-making as a multidimensional evaluation



process in which the three domains can reinforce, complement, or occasionally conflict with one another.

Financial Attractiveness Remains Central to Sustainable Investment Evaluation

The conceptual findings indicate that sustainability-oriented investment decisions cannot be adequately understood without retaining financial attractiveness as a central component because investors continue to evaluate whether securities offer acceptable return prospects relative to perceived risk and alternative investment opportunities. The importance of financial information is particularly relevant for Generation Z because sustainable investment preferences may coexist with concerns about capital preservation, portfolio growth, liquidity, and future financial security. Consequently, sustainability-oriented investment should not be conceptualized as a process in which investors abandon conventional financial criteria.

Empirical evidence concerning sustainable finance literacy strengthens this interpretation because Filippini et al. (2024) find that Swiss households demonstrate relatively low levels of sustainable finance literacy despite generally high financial literacy, while knowledge concerning sustainable financial products is significantly associated with reported ownership of sustainable products. The finding indicates that the ability to recognize and assess sustainability-related characteristics represents a distinct informational capability that interacts with conventional financial knowledge rather than replacing it.

The distinction between financial literacy and sustainable finance literacy has important implications for Generation Z because young investors may possess extensive access to financial information without necessarily possessing the knowledge required to distinguish substantive sustainability characteristics from simplified ESG labels or marketing claims. A digitally accessible investment environment can increase exposure to sustainability information while simultaneously increasing the need for interpretive competence. Within the FF5-DSID framework, financial characteristics therefore provide the basic investment-evaluation structure, while sustainable finance literacy influences an investor's ability to interpret the additional information supplied by sustainability indicators.

The relationship between sustainability information and financial characteristics can also vary according to the quality of corporate disclosure because investors require credible information



to connect sustainability performance with future financial consequences. Mohanasundaram and Kasilingam (2024) identify the lack of transparency in ESG disclosure as a factor capable of affecting trust in sustainability performance, which reinforces the proposition that sustainability information cannot be evaluated independently of its credibility. This finding supports a framework in which financial attractiveness and sustainability attractiveness are evaluated jointly rather than through separate decision processes.

The conceptual implication for Generation Z is that sustainable investment decisions may emerge when investors perceive that sustainability characteristics are compatible with financial viability, long-term resilience, or acceptable risk rather than merely because a company possesses a high ESG rating. This interpretation allows the framework to explain why two firms with similar sustainability profiles can receive different investment evaluations when their profitability, valuation, investment intensity, market exposure, or perceived future growth prospects differ. Financial factors consequently remain fundamental even when sustainability information becomes increasingly salient.

Sustainability as a Decision-Relevant Dimension Rather Than an Automatic Sixth Factor

The results of the conceptual synthesis indicate that sustainability should be incorporated into investment decision-making as a decision-relevant information dimension rather than automatically designated as an additional asset-pricing factor equivalent to the established Fama–French variables. The source manuscript explicitly distinguishes these two analytical questions because an individual investor can use ESG information when evaluating a company even when ESG does not demonstrate the statistical characteristics required to operate as an independent systematic pricing factor.

Evidence from Mohanasundaram and Kasilingam (2024) illustrates why this distinction is important because their Indian-market analysis identifies sustainability risk as positively priced while also emphasizing the role of ESG strategies and disclosure transparency. Such findings indicate that sustainability-related characteristics may have financial consequences in particular markets and institutional settings, while they do not establish that sustainability should universally be inserted into every version of the Fama–French framework.



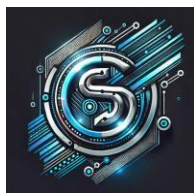
The context-dependent character of sustainability pricing is particularly important for a conceptual model focused on Generation Z because investment decisions occur at the level of individual evaluation rather than exclusively at the level of statistical explanation of average stock returns. A young investor may judge a company to be attractive because its sustainability strategy signals resilience, innovation, regulatory preparedness, or responsible resource management even when an econometric model does not identify ESG as an independent return factor. The FF5-DSID framework therefore preserves the financial meaning of FF5 while expanding the information environment available for understanding individual investment decisions.

The informational role of sustainability becomes even more important when the quality and consistency of ESG disclosure are considered because investors may encounter multiple ratings, sustainability reports, corporate announcements, media interpretations, and digital investment summaries concerning the same company. Ruan et al. (2024) demonstrate that ESG disclosure can influence stock-price synchronicity within China's capital market, suggesting that sustainability disclosure has implications for information efficiency and the way firm-specific information enters market prices. This evidence supports the interpretation of sustainability information as part of the broader information environment surrounding investment decisions.

The conceptual integration therefore requires a distinction between the **pricing function** of financial factors and the **informational function** of sustainability characteristics because these functions may overlap without being identical. FF5 provides an established structure for evaluating return-related characteristics, while sustainability provides additional information concerning corporate conduct, environmental exposure, social performance, and governance quality. Generation Z investment decisions can consequently be understood as occurring at the intersection of these two informational systems rather than within a purely financial or purely sustainability-based decision model.

Board Diversity as a Governance Mechanism Connecting Sustainability and Investment Evaluation

The findings indicate that board diversity should be positioned within the FF5-DSID framework as a governance mechanism capable of influencing sustainability practices, disclosure quality, strategic oversight, and the credibility of corporate sustainability information rather than



being treated automatically as another financial factor. This interpretation is consistent with evidence demonstrating that board characteristics can affect the environmental and sustainability-related decisions of corporations through monitoring, resource allocation, and strategic decision-making mechanisms.

Evidence from Barroso et al. (2024) provides particularly strong support for the environmental dimension of this relationship because their cross-country analysis shows that increases in female board representation following gender-diversity reforms are associated with reductions in corporate carbon emissions. Their evidence indicates that board composition can influence substantive environmental outcomes, which strengthens the conceptual argument that governance characteristics may affect the sustainability information subsequently observed by investors.

The relationship between governance and sustainability also appears through the institutional mechanisms surrounding corporate ESG decision-making because Schoonjans (2024) finds that board gender quotas generate positive environmental and social spillover effects, with mechanisms involving ESG committees, innovation, resource use, and human-rights considerations. Such findings are theoretically relevant to FF5-DSID because they demonstrate that governance structures can influence sustainability through organizational channels rather than merely through symbolic representation.

The role of governance in sustainability disclosure provides another mechanism through which board characteristics can become relevant to investors because Li et al. (2024) find that board centrality is positively associated with environmental disclosure among Chinese firms operating in heavily polluting industries. Their analysis attributes this relationship partly to board monitoring, resource distribution, and incentives for information transparency. This evidence suggests that governance characteristics can influence not only sustainability outcomes but also the visibility of sustainability information available to investors.

The connection between board diversity and market information becomes even clearer through evidence concerning stock liquidity because Li and Walsh (2024) report a positive relationship between board gender diversity and stock liquidity among U.S. listed firms, with information disclosure playing a substantial mediating role. This finding supports the conceptual



proposition that board diversity can influence investment conditions indirectly by reducing information asymmetry and improving the information environment rather than by functioning as a direct investment-return factor.

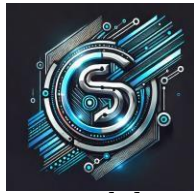
Governance Credibility and the Interpretation of Sustainability Information

The conceptual synthesis suggests that board diversity can strengthen the interpretation of sustainability information because investors may assess not only what companies report concerning ESG performance but also the governance structures responsible for overseeing those practices. This perspective is particularly relevant when sustainability claims involve long-term environmental commitments, stakeholder responsibilities, resource allocation, and corporate transformation because credible implementation requires organizational oversight rather than disclosure alone.

The empirical evidence concerning ESG committees provides a useful illustration because Huang et al. (2024) find that firms establishing ESG committees demonstrate stronger ESG performance and that the relationship operates partly through environmental investment and investor attention. Such evidence indicates that governance arrangements can transform sustainability from a reporting objective into a structured organizational responsibility with identifiable decision-making authority.

Schoonjans (2024) further demonstrates that changes in board composition can generate environmental and social spillovers through mechanisms involving ESG committees and organizational innovation. The implication for the FF5-DSID framework is that board diversity can provide contextual information concerning the organizational capacity behind sustainability performance, although the framework does not assume that investors will always explicitly inspect board composition before making investment decisions.

The information-quality pathway is particularly important for Generation Z because younger investors frequently encounter corporate sustainability information through digital environments where complex governance arrangements can be simplified into short ratings, indicators, or labels. Such simplification can obscure the distinction between substantive governance structures and symbolic sustainability communication. The conceptual framework therefore positions board diversity as a contextual governance signal that can potentially increase the interpretive depth of



sustainability information without claiming that every form of board diversity automatically improves investment outcomes.

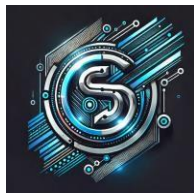
Generation Z as an Integrative Investor Population

The conceptual findings indicate that Generation Z should be understood as an integrative investor population because younger investors can encounter financial, sustainability, and governance information simultaneously through increasingly digitalized capital-market environments. The source manuscript explicitly describes Generation Z as entering financial markets under conditions involving mobile brokerage applications, social media, digital financial education, real-time market information, sustainability ratings, and corporate disclosures, thereby creating a broader information environment than conventional investment settings.

The role of sustainable finance literacy becomes particularly relevant within this environment because Filippini et al. (2024) demonstrate that knowledge about sustainable financial products is associated with ownership of sustainable products even though sustainable finance literacy remains relatively low among surveyed households. This finding provides a conceptual basis for treating information-processing capability as an important condition within the FF5-DSID framework, because the availability of sustainability information does not guarantee that investors possess the knowledge required to evaluate it accurately.

Generation Z investment decisions can consequently involve an interaction between financial evaluation and sustainability interpretation because young investors may simultaneously ask whether a company offers attractive financial characteristics and whether its sustainability profile is credible and strategically meaningful. The decision process may therefore involve evaluating profitability, growth, risk, and valuation alongside environmental performance, social responsibility, governance quality, and board composition. This multidimensional interpretation directly addresses the research question by demonstrating how FF5, sustainability, and board diversity can be integrated without assuming that one domain eliminates the relevance of the others.

The potential divergence between sustainability preference and investment behaviour also becomes theoretically important because investors can support sustainability principles while making decisions based primarily on financial outcomes when actual capital allocation is required.



The FF5-DSID framework accommodates this possibility by conceptualizing investment decision as a process involving selection, purchase, holding, selling, and portfolio allocation rather than simply an attitude toward sustainable finance. This distinction strengthens the framework's conceptual precision because it separates normative support for sustainability from observable investment behaviour.

The Integrated FF5-DSID Relationship

The principal conceptual result of this study is that the Fama–French Five-Factor Model, sustainability, and board diversity can be integrated through a layered information architecture in which financial characteristics establish investment attractiveness, sustainability provides broader corporate-performance information, and board diversity contributes governance context for interpreting the credibility and implementation of sustainability practices. This architecture directly responds to the central research question because it explains integration without collapsing the theoretical identity of the three domains.

The FF5 component establishes the economic foundation of the decision because investors require information about market exposure, firm size, valuation, profitability, and corporate investment behaviour when evaluating securities. The sustainability component expands that evaluation by introducing information about environmental and social consequences, governance practices, long-term transition risks, stakeholder relationships, and corporate sustainability strategies. The board-diversity component adds organizational context by indicating characteristics of the corporate decision-making body that may affect monitoring, disclosure, resource allocation, sustainability oversight, and governance credibility.

The interaction among these components can be understood as a sequentially interconnected but non-deterministic process in which financial characteristics influence the initial assessment of attractiveness, sustainability information modifies perceptions of long-term corporate quality and risk, and board characteristics provide contextual information concerning the governance capacity behind sustainability outcomes. Evidence concerning board centrality, ESG committees, gender-diversity reforms, and environmental disclosure supports the existence of organizational pathways connecting governance structures with sustainability information.



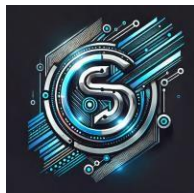
The relationship does not imply that every Generation Z investor applies all three dimensions with equal intensity because investor knowledge, financial circumstances, investment horizon, personal values, information access, and perceived risk can influence the relative importance assigned to each category. The conceptual contribution therefore lies in establishing a common analytical space in which differences among investors can subsequently be empirically examined rather than assuming a universal weighting scheme. This approach is consistent with the source manuscript's proposition that financial attractiveness remains fundamental while sustainability and governance considerations supplement the evaluation process.

Explaining the Research Question Through the FF5-DSID Framework

The central research question can therefore be answered conceptually by recognizing that FF5, sustainability, and board diversity perform different but complementary functions within Generation Z investment decision-making, with their integration occurring at the level of information evaluation rather than through the creation of a single composite factor. FF5 provides the financial architecture for evaluating expected return characteristics, sustainability provides information about broader corporate performance and long-term risks, and board diversity provides governance context that can affect sustainability practices and the credibility of corporate information.

The empirical evidence concerning sustainability pricing demonstrates why this integrated structure is preferable to a purely financial model because Mohanasundaram and Kasilingam (2024) identify sustainability risk as financially priced in the Indian market. At the same time, the evidence concerning sustainable finance literacy demonstrates why sustainability cannot be interpreted as automatically understood by all investors because Filippini et al. (2024) find substantial limitations in sustainable finance knowledge among households. These findings collectively indicate that sustainability can be financially relevant while requiring specific informational capabilities for investors to interpret effectively.

The governance evidence further strengthens the answer because board structures can influence environmental outcomes, sustainability disclosure, investor attention, and information transparency through identifiable organizational mechanisms. Barroso et al. (2024) demonstrate links between increased female board representation and lower corporate carbon emissions, while



Li et al. (2024) demonstrate a positive association between board centrality and environmental disclosure. Governance therefore provides a mechanism through which sustainability characteristics become observable and potentially credible within the investment information environment.

The resulting FF5-DSID framework positions Generation Z investors as multidimensional information processors whose investment decisions can emerge from the interaction between financial attractiveness, sustainability attractiveness, and governance credibility. The framework does not predict that sustainability will dominate financial factors, nor does it assume that financial considerations will eliminate sustainability preferences; instead, it provides a theoretical structure for examining how investors reconcile potentially complementary or conflicting information when selecting and allocating capital.

Theoretical Contribution of the Integrated Framework

The principal theoretical contribution of the framework lies in separating the concept of asset pricing from the broader concept of investment decision-making because individual investors process information that may not necessarily appear as an independent systematic factor in return models. This distinction allows sustainability to remain theoretically relevant even when its incremental explanatory contribution to conventional factor models varies across markets, measurement systems, and institutional environments.

The governance contribution emerges from positioning board diversity as both an organizational characteristic and a potential information mechanism connecting sustainability performance with investor interpretation. Evidence concerning gender-diversity reforms, ESG committees, environmental disclosure, and stock liquidity indicates that governance structures can influence sustainability practices and market information through multiple pathways. The FF5-DSID framework consequently extends board-diversity research beyond corporate outcomes toward its potential relevance within investor information processing.

The generational contribution emerges from positioning Generation Z within the financial architecture of contemporary capital markets rather than treating younger investors exclusively as a behavioural or demographic category. Generation Z encounters financial characteristics, sustainability indicators, governance information, and digital communication within the same



investment environment, creating conditions under which investment decisions can involve simultaneous evaluation of financial and non-financial information. This interpretation responds directly to the research question by locating Generation Z at the intersection of asset pricing, sustainability, governance, and individual investment decision-making.

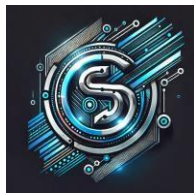
Discussion and Implications for Future Empirical Testing

The conceptual results indicate that future empirical research should test whether financial attractiveness, sustainability attractiveness, and governance credibility independently and jointly influence Generation Z investment decisions rather than assuming that one dimension universally dominates investment evaluation. Such empirical testing could measure FF5-related firm characteristics using market and accounting information, sustainability using ESG scores or standardized disclosures, board diversity through measurable board-composition indicators, and investment decisions through security selection, portfolio allocation, purchase intentions, holding behaviour, or buy–sell decisions.

The empirical framework should also distinguish between investors' ability to access information and their ability to interpret information because sustainable finance literacy may determine whether sustainability information becomes meaningful in actual investment choices. Filippini et al. (2024) demonstrate that sustainable finance knowledge is associated with sustainable-product ownership, suggesting that future Generation Z research should consider sustainability literacy as an important contextual condition rather than treating ESG information exposure as sufficient.

The Indonesian capital market represents a particularly relevant setting for such testing because the source manuscript identifies growing participation by younger investors alongside expanding sustainability disclosure and ESG-oriented investment practices. The FF5-DSID framework could therefore be examined using Indonesian Gen Z investors to determine whether conventional financial characteristics remain dominant, whether sustainability information adds explanatory value, and whether governance characteristics such as board diversity influence the credibility or interpretation of corporate sustainability information.

The final conceptual implication is that contemporary investment decision-making should be examined as an integrated information process in which financial, sustainability, and

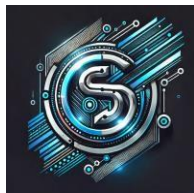


governance characteristics coexist rather than as isolated analytical domains. The FF5-DSID framework provides such an architecture by retaining the financial logic of Fama–French while expanding the investment-decision environment to include sustainability and board diversity, thereby offering a theoretically coherent answer to the research question and a structured foundation for subsequent empirical validation.

CONCLUSION

The conceptual findings demonstrate that Generation Z investment decisions are more appropriately understood through an integrated framework that connects conventional financial characteristics with sustainability and corporate governance information. The Fama–French Five-Factor Model provides the financial foundation through market, size, value, profitability, and investment characteristics, while sustainability extends the information environment by incorporating environmental, social, and governance dimensions associated with corporate responsibility, resilience, risk, and long-term performance. Board diversity occupies a complementary governance position because board composition can influence corporate monitoring, sustainability strategies, disclosure practices, resource allocation, and the credibility of information available to investors. The analysis therefore indicates that sustainability should not automatically be treated as an additional financial factor equivalent to the established FF5 dimensions, but as decision-relevant information that can interact with conventional financial characteristics within individual investment evaluation.

The proposed Five-Factor–Diversity–Sustainability Investment Decision (FF5-DSID) framework integrates these dimensions through a multidimensional investment-decision architecture. Financial attractiveness establishes the economic basis for security evaluation, sustainability provides information concerning broader corporate performance and long-term risks, while board diversity provides governance context for interpreting the credibility and implementation of sustainability practices. Generation Z investors are positioned within this architecture as information-processing actors who may simultaneously consider expected returns, perceived risk, corporate valuation, sustainability performance, governance quality, financial knowledge, sustainability literacy, investment preferences, and information accessibility. The



framework does not assume that any single dimension universally dominates the decision process because the relative importance of financial, sustainability, and governance information can vary according to investor characteristics and investment circumstances.

The theoretical contribution of this study lies in connecting three research domains that are frequently examined separately: asset pricing, sustainable corporate governance, and generational investment behaviour. The FF5-DSID framework provides a structured basis for future empirical research examining whether and how financial characteristics, sustainability information, and board diversity influence actual or intended investment decisions among Generation Z. Future studies can operationalize the framework through quantitative, experimental, or mixed-method approaches by measuring FF5 characteristics, ESG performance, board-composition indicators, sustainability literacy, financial literacy, risk tolerance, and investment behaviour. Such empirical validation is particularly relevant in emerging capital markets where Generation Z participation and sustainability-oriented investment practices continue to develop. The framework consequently offers a theoretically coherent foundation for examining contemporary investment decisions without abandoning established financial theory.

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