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Behavioural Determinants of Sustainable Finance Adoption: A Systematic Review and Meta-Analysis of the Theory of Planned Behaviour

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Abstract

Background: Capital reallocation toward environmental and social objectives depends not only on regulation and technology but on the behaviour of investors, firms, and financial institutions. The Theory of Planned Behaviour (TPB; Ajzen, 1991) is the most widely applied social-cognitive model for explaining this behaviour, yet its constructs of attitude, subjective norm, and perceived behavioural control had not, to our knowledge, previously been synthesised quantitatively across the sustainable finance literature.
Objectives: To estimate the pooled association of TPB constructs with sustainable finance intention and adoption, and to identify contextual and methodological factors associated with heterogeneity across studies.
Novelty: This is, to our knowledge, one of the first comprehensive meta-analytic syntheses of the Theory of Planned Behaviour in the sustainable finance domain. Using evidence from 150 empirical studies spanning 34 countries and 41,206 participants, the study quantifies the relative association of TPB constructs with sustainable finance intention and adoption, identifies a persistent intention–behaviour gap, and proposes an integrated TPB framework incorporating context-specific extension constructs and institutional moderators. The results bring together a fragmented evidence base and provide a coherent account of sustainable finance adoption across financial settings.
Research Methodology/Design: We searched Web of Science, Scopus, EconLit, ABI/INFORM, and Google Scholar for empirical studies applying TPB to sustainable, green, or ESG finance outcomes, following PRISMA 2020 guidelines. Of 150 studies meeting inclusion criteria, 132 provided extractable effect sizes across 46–141 independent samples depending on the pathway analysed. Standardised effect sizes were converted to Pearson's r, transformed to Fisher's z, and pooled using random-effects models with restricted maximum-likelihood estimation. Methodological quality was assessed using the JBI Critical Appraisal Checklist and examined as a moderator. Heterogeneity was quantified using I^2 and τ^2. Moderator analyses were conducted for finance context, region, sample type, and outcome type

Keywords:
Meta-Analysis, Systematic Review, Sustainable Finance Adoption, Theory of Planned Behaviour

JEL Classifications:
G41, G51, Q56, Q58, D91

(intention vs. observed behaviour), and publication bias was assessed via funnel-plot asymmetry, Egger's regression test, and trim-and-fill.
Findings: Attitude showed the strongest pooled association with sustainable finance intention, followed closely by perceived behavioural control (r = 0.44 [0.40, 0.48]); subjective norm showed a weaker, more heterogeneous association (r = 0.31 [0.26, 0.36]). The composite TPB model showed a large pooled association with intention (r = 0.53 [0.48, 0.58]), though heterogeneity was substantial across all pooled estimates (I^2 = 83–92%). Intention was moderately associated with observed adoption (r = 0.37 [0.30, 0.44]); this association identifies evidence consistent with an intention-behaviour gap. Separately, studies measuring both intention and observed behaviour reported significantly smaller antecedent–intention associations than studies measuring intention alone (r = 0.39 vs. 0.49, $Q_{between}$ = 22.4, p < .001), reinforcing this pattern. Extension constructs, such as environmental concern, moral norms, trust, information quality, financial literacy and religiosity, were moderately associated with intention on average (r = 0.34 [0.28, 0.40]).
Implication: TPB provides a useful framework for understanding associations related to sustainable finance adoption. Its explanatory relevance is strengthened when extended with context-specific constructs, and constrained by institutional and market-design factors that TPB alone does not capture. Implications for theory refinement, financial-product design, and disclosure policy are discussed.

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A. Introduction

The transition to a low-carbon, climate-resilient and nature-positive economy is fundamentally a challenge of capital allocation. Financial flows can be redirected toward environmental and social objectives through mechanisms such as green bonds, ESG-integrated portfolios, transition finance instruments, sustainability-linked loans, and nature-positive investment vehicles (Rayman-Bacchus & Walsh, 2019; Dingkuhn et al., 2026). Yet the diffusion of these instruments remains uneven across investor segments, institutions, and jurisdictions, and favourable attitudes toward sustainability do not reliably translate into observed financial behaviour (Thanki et al., 2022). This divide between intention and behaviour situates the adoption problem at the intersection of behavioural theory and financial regulation, rather than within either domain alone.

The dominant social-cognitive account of this divide is the Theory of Planned Behaviour (TPB; Ajzen, 1991), which holds that behavioural intention — and, contingent on perceived and actual control, subsequent behaviour — is jointly determined by attitude toward the behaviour, subjective norms, and perceived behavioural control. Within the framework of sustainable finance, these constructs refer to beliefs about the value and consequences of sustainable instruments, perceived social and institutional expectations to adopt them, and perceived capability to identify, evaluate, and act on sustainable opportunities (Mohamad & Basah, 2022; Mohamad et al., 2025).

In the last decade, TPB has been applied in a broad range of sustainable finance contexts, including socially responsible investment (SRI), impact investing, green investment, ESG-integrated portfolios, green banking, green bonds, sustainable Islamic finance and green logistics financing (Apostolakis et al., 2018; Islam, 2022; Patil, 2024a; Jain et al., 2025; Mir & Dwivedi, 2026). A recurring pattern in this literature is theoretical extension: researchers augment the base model with constructs such as environmental concern, moral norms, trust, information quality, financial literacy, reputation, and religiosity (Garg et al., 2022; Patil, 2024a; Mir & Dwivedi, 2026). Likewise, researchers augment the base model with psychological, cognitive, ethical and contextual constructs (Yi et al., 2025; Garg et al., 2022). This proliferation has produced a rich but fragmented evidence base. To our knowledge, no previous study has formally synthesised, through quantitative synthesis, whether the core TPB constructs behave consistently across this fragmented literature or whether their apparent explanatory strength is an artefact of context-specific extensions and heterogeneous measurement. This is the gap the present review addresses.

We define sustainable finance adoption as an individual or organisational decision to allocate capital, obtain or provide finance, adopt a financial service, or implement a finance-related practice whose sustainability attributes are explicit. The construct spans both behavioural intentions and realised adoption behaviours, but excludes general pro-environmental consumption unless the focal behaviour involves an identifiable financial decision — for example, investing in ESG products, selecting a green banking service, obtaining green financing, or adopting a sustainability-linked financial instrument (Shafique & Khan, 2020; Islam, 2022; Jain et al., 2025). This boundary is necessary to preserve conceptual consistency across the literature and to avoid conflating financial and non-financial forms of sustainable behaviour. Within this boundary, we classify included decisions into four primary types — investment or capital-allocation decisions, financing or borrowing decisions, banking-service adoption, and organisational adoption of sustainable-finance practices — a taxonomy applied consistently throughout coding and synthesis (see Methodology).

This review provides one of the first quantitative syntheses of TPB's core constructs across the sustainable finance literature, aggregating effect sizes from 150 studies to establish pooled estimates of their association with intention and adoption. Second, it asks whether intention translates into observed behavior and under what conditions, a question that the primary literature has asked but not answered at scale. Third, it identifies contextual, sample, and methodological moderators – and the non-TPB extension constructs – that explain the substantial heterogeneity found across this literature. The review formally addresses four research questions: (1) What is the overall strength of association between each TPB construct and intention toward sustainable finance? (2) How well does intention predict observed adoption and under what conditions? (3) What contextual, sample and methodological factors moderate these relationships? (4) Which non-TPB constructs are consistently associated with stronger TPB-intention relationships when incorporated into the base model?

This synthesis is timely in light of recent regulatory developments. In June 2026, Bank Negara Malaysia (BNM), the World Bank Group and the United Nations Development Program Biodiversity Finance Initiative released A LEAP for Nature: Advancing Nature-Related Financial Risk and Opportunity Assessment in Malaysia, which explores the financial sector's dependence on and impact on natural ecosystems (Bank Negara Malaysia et al., 2026). BNM Assistant Governor Madelena Mohamed said the need to embed nature into strategy, risk management and capital-allocation decisions was urgent, starting with financial institutions being aware of their own dependencies and impacts. The report found that most of the institutions surveyed were already identifying, or planned to identify, nature-related risks, but a majority reported only limited knowledge of the underlying issues and few had completed a formal risk assessment. This gap between regulatory ambition and institutional readiness is not the empirical focus of this review – the evidence synthesized here pertains more broadly to green, ESG and Islamic sustainable finance, rather than nature-related risk – but it does illustrate the practical stakes of the behavioral question this review addresses. If attitudes, perceived control and subjective norms are indeed key levers for the adoption of sustainable finance, then behaviorally informed strategies may offer financial institutions a faster route to closing implementation gaps of this kind than disclosure mandates alone.

B. Methodology

This study adopted a systematic review and meta-analysis design to synthesize empirical evidence concerning the application of the Theory of Planned Behavior (TPB) in sustainable finance decision-making. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines (Page et al., 2021) were used in conducting this review to ensure methodological transparency, reproducibility, and completeness of reporting.

Systematic electronic searches were conducted for relevant empirical literature in five databases: Web of Science (Clarivate), Scopus (Elsevier), EconLit and ABI/INFORM Global (ProQuest), and Google Scholar. 20 June 2026 Final search update carried out. No time constraints were imposed. The search was restricted to peer-reviewed journal articles and refereed conference proceedings in English . To enhance the relevance of the retrieved studies, search fields were restricted to Topic (Title, Abstract and Keywords) in Web of Science and Scopus, and Abstract in EconLit and ABI/INFORM Global.

The search strategy was adapted to the syntax requirements of each database. Searches in Web of Science and Scopus were restricted to Topic fields (Title, Abstract, and Keywords), whereas searches in EconLit and ABI/INFORM Global were restricted to Abstract fields. Three concept blocks were combined using Boolean operators: (1) Theory of Planned Behaviour, (2) sustainable finance-related terms, and (3) behavioural outcome terms. Supplementary Appendix table S1 presents complete database-specific search strings, including field restrictions, search dates, and filters.

The generic search framework comprised the following three concept groups: ("Theory of Planned Behavior" OR "Theory of Planned Behaviour" OR TPB) AND ("sustainable finance" OR "green finance" OR "ESG investment" OR "green investment" OR "green bonds" OR "green banking" OR "sustainable investment" OR "Islamic finance" OR "nature-positive finance") AND (intention* OR adoption OR behaviour* OR behavior* OR willingness).

Google Scholar was used as a supplementary database to improve retrieval coverage. Owing to the large number of records retrieved and the declining relevance of records beyond the first several hundred results, screening was restricted to the first 300 records ranked by relevance. Duplicate records were removed through a two-stage procedure consisting of automated matching within EndNote 20 followed by manual verification conducted independently by two reviewers.

A total of 2,514 records were identified. All references were exported to EndNote 20 for management and duplicate removal. Duplicates were first detected using EndNote's automated matching function and subsequently verified manually by two independent reviewers. Although the review protocol was not preregistered in repositories such as OSF or PROSPERO, all review procedures followed a predefined internal protocol established prior to study identification and screening. The absence of public preregistration is acknowledged as a limitation and discussed in the concluding section.

Studies were eligible for inclusion when they empirically applied either the original TPB or an extended TPB framework to explain intentions or behaviours associated with a clearly identifiable sustainable financial decision. Eligible decisions comprised four categories: (i) investment and capital-allocation decisions, (ii) financing and borrowing decisions, (iii) adoption or utilisation of sustainable banking products and services, and (iv) organisational adoption of sustainable-finance practices, policies, or instruments. Studies situated within Islamic sustainable finance contexts were included when the behavioural outcome met one of these criteria and were additionally coded for Islamic or Shariah orientation.

Studies focused exclusively on environmentally responsible consumption such as studies from Taneja & Ali (2021), green purchasing, recycling, energy conservation, or other forms of general pro-environmental behaviour were excluded unless the outcome involved an explicit financial decision, financial instrument, financing arrangement, banking service, or finance-related payment behaviour. This boundary was maintained to preserve conceptual consistency and prevent conflation between sustainable finance behaviour and broader environmental behaviour.

Studies were selected using a two-stage screening process. Two independent reviewers initially screened titles and abstracts to identify potentially relevant publications. Secondly, we screened full-text articles for the pre-defined eligibility criteria. Disagreements were resolved thru discussion and consensus. Inter-rater agreement was assessed with Cohen's kappa coefficient, which demonstrated substantial agreement at the stage of screening titles ($\kappa = 0.86$) and abstracts ($\kappa = 0.86$). The full screening and selection process is presented in the PRISMA flow diagram in Figure 1. Reasons for exclusion at the full-text screening stage were documented systematically and are reported in Figure 1 and Supplementary Table S2.

Data were extracted using a standard coding protocol developed prior to analysis. Extracted information included publication characteristics, geographic location, sample characteristics, sustainable finance context, operationalization of TPB constructs, outcome variables, measurement instruments, research design and statistical parameters required for effect-size calculation. As such, each study was additionally classified according to a predefined coding framework covering financial setting, decision type, actor level, sample type, geographic region, outcome stage, methodological quality, TPB pathways, and extension constructs. The complete coding framework and classification protocol are presented in Supplementary Table S3.

To facilitate quantitative synthesis across studies reporting different statistical metrics, all effect sizes were converted into Pearson's correlation coefficients (r). When studies reported zero-order correlations, these values were extracted directly. Where standardised regression coefficients (β) were reported, correlations were estimated using the conversion proposed by Peterson and Brown (2005):

$$r = \beta + 0.05\lambda \quad (1)$$

where

$$\lambda = \begin{cases} 1, & if\ \beta \geq 0 \\ 0, & if\ \beta < 0 \end{cases} \quad (2)$$

For studies that reported odds ratios (OR), the effect sizes were converted to Cohen's d using:

$$d = \frac{In\,(OR)\sqrt{3}}{\pi} \quad (3)$$

and subsequently converted to Pearson's r using:

$$r = \frac{d}{\sqrt{d^2+4}} \quad (4)$$

All correlation coefficients were transformed into Fisher's z values prior to pooling to stabilise sampling variance. Pooled estimates were subsequently back-transformed into Pearson's r for interpretation. The coding framework and classification protocol used throughout the review are reported in Supplementary Table S3 to enhance transparency, consistency, and reproducibility of the study-selection and extraction process.

To avoid double counting, and to ensure statistical independence, each independent sample provided one effect size for each construct-outcome pathway. Where multiple estimates were reported, a hierarchical extraction protocol was followed. Unadjusted zero-order correlations were preferred over adjusted coefficients. Where only regression or structural-model coefficients were available, the values from the most comprehensive theoretical model were extracted. For studies reporting multiple indicators of the same construct, correlations were averaged to create a single consolidated effect size. Where multiple outcomes or measurement waves were available, the estimate closest to the time of the sustainable finance decision was extracted to ensure comparability across studies.

Studies reporting separate non-overlapping respondent groups (e.g. retail investors and firm owners analyzed separately) were treated as separate independent samples (k). Thus, the number of independent samples contributing to a given pathway may be greater than the number of unique studies included in the review.

In addition, as a robustness check, robust variance estimation (RVE) was performed on the main TPB pathways to check the possible effects of a dependence persisting in the effect sizes from the same study. The RVE-adjusted estimates were substantively similar to those obtained from the primary REML random-effects models, with no material changes in pooled effect-size magnitude, direction, or statistical significance. These findings suggest that residual within-study dependence did not meaningfully influence the substantive conclusions of the meta-analysis. Accordingly, the REML estimates are reported as the primary results, while the RVE analyses are provided as supplementary robustness checks.

Methodological quality and risk of bias were assessed using the Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Analytical Cross-Sectional Studies. The instrument comprises eight criteria evaluating participant selection, setting characteristics, measurement validity and reliability, identification and management of confounding factors, and appropriateness of statistical analysis. Two reviewers independently assessed methodological quality, with disagreements resolved through consultation with a third reviewer. Studies scoring six or more out of eight were classified as high quality, whereas those scoring below six were classified as moderate-to-low quality. Rather than excluding studies based on quality scores, methodological quality was incorporated as a moderator variable to examine whether study quality influenced pooled estimates.

Meta-analytic models were estimated using random-effects procedures with restricted maximum-likelihood (REML) estimation implemented in the metafor package (version 4.6) in R. A random-effects approach was selected because meaningful variation was expected across geographic settings, financial contexts, respondent groups, outcome definitions, and TPB operationalisations. Separate meta-analyses were conducted for attitude, subjective norm, perceived behavioural control, the composite TPB model, and the intention-adoption relationship. In addition to pooled effect sizes and 95% confidence intervals, 95% prediction intervals were calculated to characterise the likely range of true effects in future study settings.

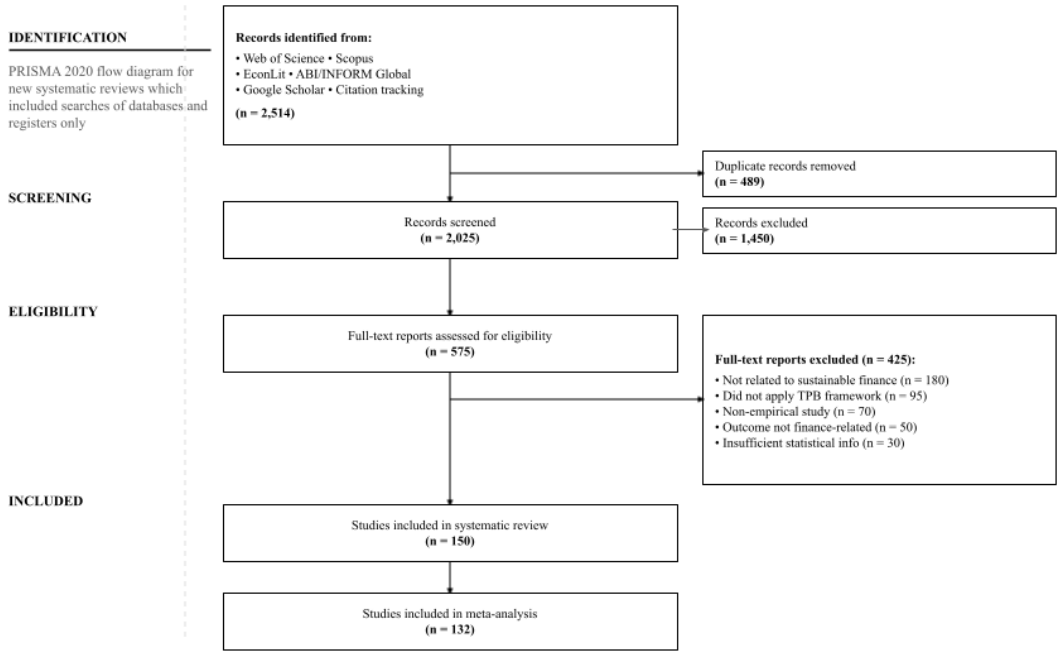
Between-study heterogeneity was assessed using Cochran's Q statistic, the between-study variance estimate (τ^2), and I^2 statistics. Because substantial heterogeneity was observed across pooled pathways ($I^2 > 50\%$), moderator analyses and subgroup meta-analyses were undertaken to examine whether TPB relationships differed systematically according to financial setting, geographic region, primary decision type, actor level, methodological quality, and outcome stage.

The robustness of pooled estimates was further assessed using leave-one-out sensitivity analyses. We calculated the pooled estimate leaving out each study in turn to assess the effect of individual studies on the overall result. Publication bias was evaluated using funnel plots, Egger's regression test for funnel-plot asymmetry, and trim-and-fill procedures. These analyzes provided additional evidence on the stability, robustness and potential sensitivity of the findings to reporting and publication biases.

C. Result & Discussion

A systematic search of electronic databases (n = 5) supplemented by citation-tracking procedures identified 2,514 records. After removal of duplicate records (n = 489), 2,025 records were screened based on title and abstract. Of these, 575 full-text reports were assessed for eligibility. A total of 425 full-text reports were excluded for predefined reasons, including irrelevance to sustainable finance (n = 180), failure to apply the Theory of Planned Behaviour framework (n = 95), non-empirical study design (n = 70), outcomes unrelated to financial decisions (n = 50), and insufficient statistical information for effect-size extraction (n = 30). Consequently, 150 studies met the eligibility criteria for inclusion in the systematic review, of which 132 provided sufficient statistical information for quantitative synthesis.

Number of independent samples (k) contributing to each meta-analytic pathway differed between analyzes, because a number of studies reported more than one independent respondent sample (Figure 1). The final evidence base included data from 34 countries and a pooled sample of 41,206 participants, comprising retail and institutional investors, bank customers, micro, small and medium-sized enterprise (MSME) owners, entrepreneurs and general consumers. The diverse geographical and sustainable finance contexts provide a broad platform to assess the relevance of the Theory of Planned Behavior (TPB) across different financial decision contexts.



Source: Authors' Work (2026)

Figure 1. PRISMA 2020 Flow Diagram

Characteristics of the included studies are summarized in Table 1. Most of the studies employed cross-sectional survey designs and used behavioral intention as the main outcome variable. A smaller subset reported or observed behavior. According to the coding framework described in the methodology, the studies were categorized into four major decision types, namely: (i) investment and capital-allocation decisions, (ii) financing and borrowing decisions, (iii) adoption of sustainable banking services and (iv) organizational adoption of sustainable finance practices and instruments. Islamic finance was not treated as a separate category of behavioral outcome but rather as a cross-cutting institutional setting.

Table 1. Characteristics of Included Studies

Characteristic	Category	Studies (n)	Percentage (%)
Primary Decision Type	Investment / Capital Allocation	79	52.7
	Financing / Borrowing	32	21.3
	Banking-Service Adoption	24	16.0
	Organisational Adoption / Other	15	10.0
Financial Setting	Conventional / Non-Islamic	135	90.0
	Islamic Finance	15	10.0
Outcome Stage	Intention Only	104	69.3
	Intention and Observed Behaviour	46	30.7
Sample Type	Retail Investors	88	58.7
	MSME / Firm Owners	21	14.0
	General Consumers / Bank Customers	41	27.3
Geographic Region	Asia-Pacific	79	52.7
	Europe	34	22.7
	Middle East and North Africa	19	12.7
	Americas and Other Regions	18	12.0
Research Design	Cross-Sectional Survey	138	92.0
	Longitudinal Survey	7	4.7
	Mixed Methods / Other Designs	5	3.3
Methodological Quality (JBI)	High Quality (≥ 6/8)	94	71.2
	Moderate-to-Low Quality (< 6/8)	38	28.8
Meta-Analysis Eligibility	Included in Systematic Review	150	100.0
Included in Meta-Analysis		132	88.0

Source: Authors' Work (2026)

As shown in Table 1, more than half of the included studies (52.7%) focused on investment and capital-allocation decisions. This indicates the dominance of ESG investing, green investment and sustainable portfolio allocation in the current literature. Financing and borrowing decisions stood at 21.3%, with banking-service adoption and organizational adoption smaller, but growing segments. Most studies were conducted in conventional financial settings (90.0%), yet a substantial body of evidence investigated Islamic sustainable finance contexts (10.0%).

Most of the literature was from Asia-Pacific (52.7%), followed by Europe (22.7%) and the Middle East and North Africa (12.7%). The most studied respondent group was retail investors (58.7%), with less representation of MSME owners, entrepreneurs, consumers and bank customers. Similar to wider behavioural-finance research, the evidence base was dominated by cross-sectional survey designs (92.0%), with few studies featuring longitudinal or mixed-method approaches.

Assessment using the Joanna Briggs Institute (JBI) appraisal framework indicated that 71.2% of studies were classified as high methodological quality. Furthermore, 132 studies provided sufficient statistical information for inclusion in the quantitative synthesis, generating between 46 and 141 independent samples across the various TPB pathways analysed.

Additional RVE analyzes produced estimates that were substantively similar to the primary REML models, providing further evidence that the findings were robust to potential within-study dependence among effect sizes (see Supplementary Table S4). Table 1 reveals that the most frequently operationalized TPB constructs were attitude (ATT), subjective norm (SN) and perceived behavioral control (PBC). However, many studies have extended the original TPB framework further by including constructs such as environmental concern, trust, financial literacy, religiosity, information quality, policy support, and reputation. This trend suggests that TPB is used more and more as a base model by researchers to capture the ethical, social, informational and institutional dimensions of sustainable financial decision-making. In addition, meta-analytic estimates were calculated using random-effects models with a restricted maximum-likelihood (REML) estimation. Table 2 summarizes the pooled associations of the main TPB pathways and some extension constructs.

Table 2. Pooled Meta-Analytic Associations of TPB Constructs

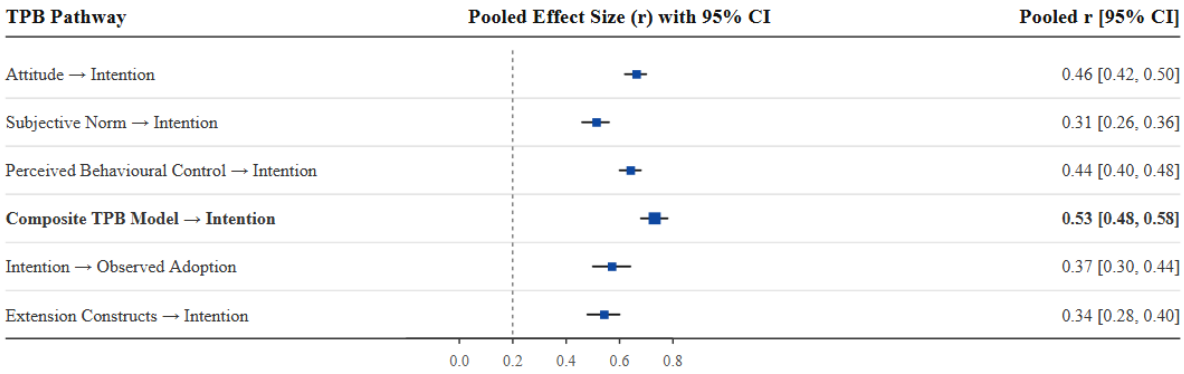
TPB Construct / Pathway	k	N	Pooled r [95% CI]	95% Prediction Interval*	I^2 (%)	τ^2	Interpretation
Attitude → Intention	141	38,904	0.46 [0.42, 0.50]	[0.09, 0.73]	87.3	0.031	Large pooled association
Subjective Norm → Intention	129	35,220	0.31 [0.26, 0.36]	[-0.07, 0.61]	91.6	0.045	Moderate pooled association
Perceived Behavioural Control → Intention	137	37,881	0.44 [0.40, 0.48]	[0.08, 0.70]	85.9	0.028	Large pooled association
Composite TPB Model → Intention	98	27,650	0.53 [0.48, 0.58]	[0.12, 0.79]	89.2	0.037	Large pooled association
Intention → Observed Adoption	46	14,732	0.37 [0.30, 0.44]	[0.01, 0.65]	83.4	0.040	Moderate pooled association
Extension Constructs → Intention	83	24,015	0.34 [0.28, 0.40]	[-0.02, 0.62]	88.0	0.039	Meaningful incremental association

Source: Authors' Work (2026)

The composite TPB model estimate (r = 0.53) was derived from studies reporting an overall TPB-intention association rather than separate effect sizes for individual TPB constructs. These studies typically reported an overall model correlation coefficient, multiple correlation coefficient (R), or an equivalent structural-model estimate representing the combined association of Attitude, Subjective Norm, and Perceived Behavioural Control with Intention. Accordingly, the composite estimate should be interpreted as an overall TPB-intention association rather than as a measure of explained variance.

The prediction intervals in Table 2 also tell us something about the large heterogeneity behind the pooled estimates. All primary TPB pathway associations were positive on average with sustainable finance intentions and behaviors, but the width of prediction intervals suggests that the magnitude of these associations might vary considerably in future study contexts. This pattern shows that the behavioral mechanisms identified by the TPB are still influenced by institutional, cultural, regulatory and market specific conditions. Therefore, the pooled estimates should be viewed as average effects across a heterogeneous body of evidence, and not as universally applicable relationships. The results thus contribute to the use of moderator analyzes to explain variation in effect sizes and to the emphasis placed on contextual factors in sustainable finance decision making.

Several prediction intervals were notably wide and, in some cases, approached or crossed zero. For example, the prediction interval for Subjective Norm → Intention ranged from −0.07 to 0.61, whereas Extension Constructs → Intention ranged from −0.02 to 0.62. These findings indicate that the magnitude and consistency of associations may vary substantially across future study settings. Consequently, pooled estimates should be interpreted alongside prediction intervals rather than statistical significance alone.



Source: Authors' Work (2026)

Figure 2. Summary Forest Plot of Pooled TPB

Figure 2 shows the pooled correlation coefficients (r) and their 95% confidence intervals from random-effects meta-analytic models estimated with restricted maximum-likelihood (REML). Squares are pooled effect estimates, horizontal lines are 95% confidence intervals. The effect sizes are the summary estimate reported in Table 2. The moderator analyses reported in Table 3 were conducted on pooled TPB association estimates aggregated at the study level. Consequently, subgroup comparisons should be interpreted as exploratory assessments of variation across studies rather than pathway-specific moderator effects. Future research employing pathway-specific meta-regression may provide more refined estimates of contextual moderation.

Table 3. Exploratory Study-Level Moderator Analysis of TPB Associations Across Sustainable Finance Contexts

Moderator	Subgroup	k (Independent Samples)	Pooled r	Qbetween	p-value
Primary Decision Type	Investment / Allocation	79	0.49		
	Financing / Borrowing	32	0.41		
	Banking-Service Adoption	24	0.41		
	Organisational Adoption / Other	15	0.38	**18.70**	**< .001**
Financial Setting	Islamic Finance	15	0.52		
	Conventional / Non-Islamic	135	0.44	**7.50**	**.020**
Region	Asia-Pacific	79	0.47		
	Europe	34	0.45		
	Middle East / North Africa	19	0.51		
	Americas & Other Regions	18	0.40	**6.90**	**.080**
Sample Type	Retail Investors	88	0.48		
	MSME / Firm Owners	21	0.42		
	General Consumers / Bank Customers	41	0.44	**4.10**	**.130**
Outcome Stage	Intention Only	104	0.49		
	Intention and Observed Behaviour	46	0.39	**22.40**	**< .001**

Source: Authors' Work (2026)

The moderator analyzes pointed to several important sources of heterogeneity. There was considerable variation across primary decision types (Qb_{etween} = 18.70, p <.001), with the strongest pooled association found for investment and capital-allocation decisions (r = 0.49), followed by financing and borrowing decisions (r = 0.41), banking-service adoption (r = 0.41), and organizational adoption contexts (r = 0.38). Thus, TPB relationships may be especially relevant in investment environments where sustainability concerns have a direct impact on capital allocation decisions.

The financial setting was also a significant moderator ($Q_{between}$ = 7.50, p = .020). Studies conducted in Islamic finance contexts showed stronger pooled associations (r = 0.52) than those conducted in conventional finance contexts (r = 0.44). Nevertheless, this result should be taken with caution as the Islamic finance studies varied on the types of decision, characteristics of respondents, institutional settings and country context. As such, the observed difference might be due to broader contextual influences than religiosity per se.

Furthermore, the Islamic-finance subgroup comprised only fifteen studies and encompassed diverse products, including green sukuk, Islamic ESG investments, sustainable banking services, and financing decisions across a limited number of jurisdictions. Therefore, these subgroup findings should be interpreted as context-specific associations rather than evidence of inherently stronger behavioural relationships within Islamic finance. Additional studies from broader geographic and product contexts are required before drawing more general conclusions regarding Islamic-finance adoption behaviour.

The strongest moderator identified in the analysis was the outcome stage ($Q_{between}$ = 22.40, p <.001). Studies measuring behavioural intention alone reported significantly larger pooled associations (r = 0.49) than studies measuring both intention and observed behaviour (r = 0.39). This finding is consistent with evidence that behavioral relationships observed at the intention stage may attenuate when evaluated against realized adoption outcomes.

Conversely, geographic region ($Q_{between}$ = 6.90, p =.080) and sample type ($Q_{between}$ = 4.10, p =.130) were not significant moderators. Although there were differences between subgroups, the results indicate that the TPB relationships are somewhat generalizable across different demographic and geographic contexts.

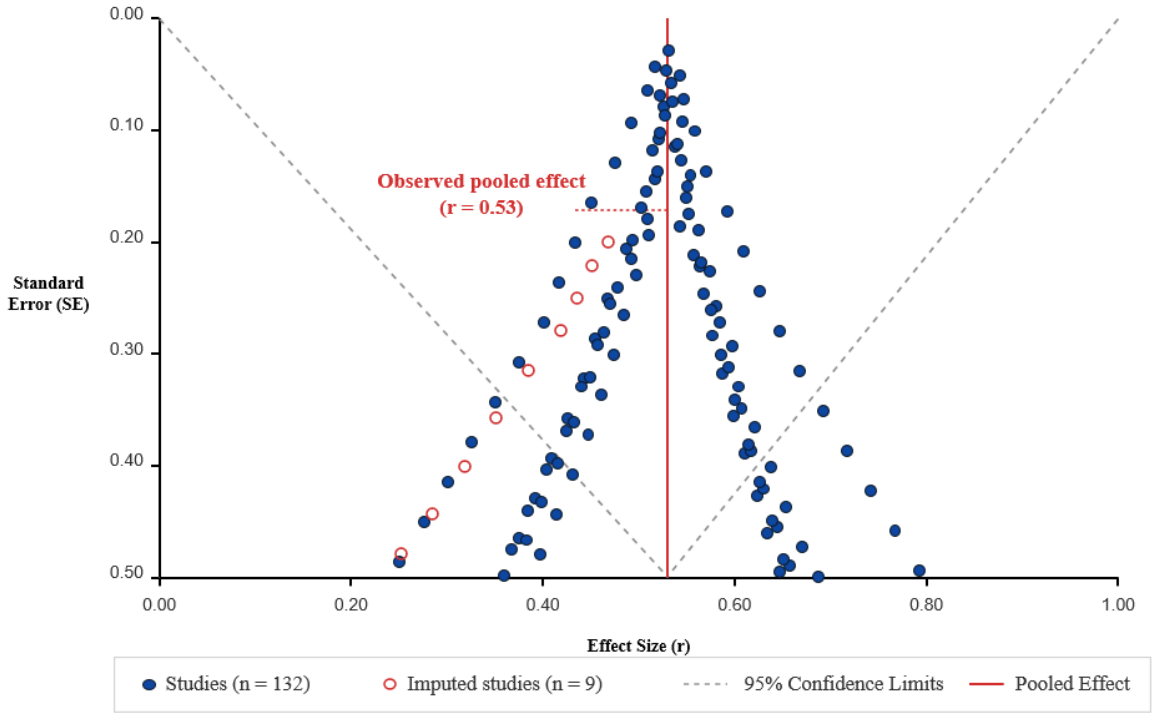
Table 4. Moderator Analysis by Methodological Quality

Moderator	Subgroup	k	Pooled r	Qbetween	p
Methodological Quality	High Quality (≥6/8)	94	0.43	-	-
	Moderate-to-Low Quality (<6/8)	38	0.48	4.82	.028

Of the 132 studies contributing to the meta-analysis, 94 studies (71.2%) were rated as high quality based on the appraisal criteria of the Joanna Briggs Institute and 38 studies (28.8%) as moderate-to-low quality . Moderator analysis revealed that lower quality studies had significantly larger pooled associations. This pattern is consistent with concerns about common-method variance, measurement artifacts, residual confounding and self-report bias in cross-sectional survey research. Although the overall substantive conclusions did not change, the findings suggest methodological quality influences the magnitude of reported TPB associations.

Moderate pooled association between supplementary constructs and behavioral intention (r = 0.34) was reported in studies with extension variables. Common extensions that were explored included environmental concern, trust, financial literacy (Ling et al., 2024), religiosity, information quality, moral norms and sustainability awareness. The significance of these variables varied in different contexts. Information quality appeared to be of particular importance in technology-mediated ESG investment settings, whereas trust was often related to retail sustainable investment decisions. Religiosity appeared most consistently in Islamic sustainable finance contexts. These findings suggest that, while TPB offers a robust fundamental framework, its explanatory relevance can be enhanced by supplementing it with constructs that capture ethical, informational, social, and institutional effects specific to sustainable finance contexts. Sensitivity analyzes showed the robustness of the pooled results. Leave-one-out procedures generated composite TPB-intention estimates between .51 and .55, suggesting that no single study unduly influenced the overall results.

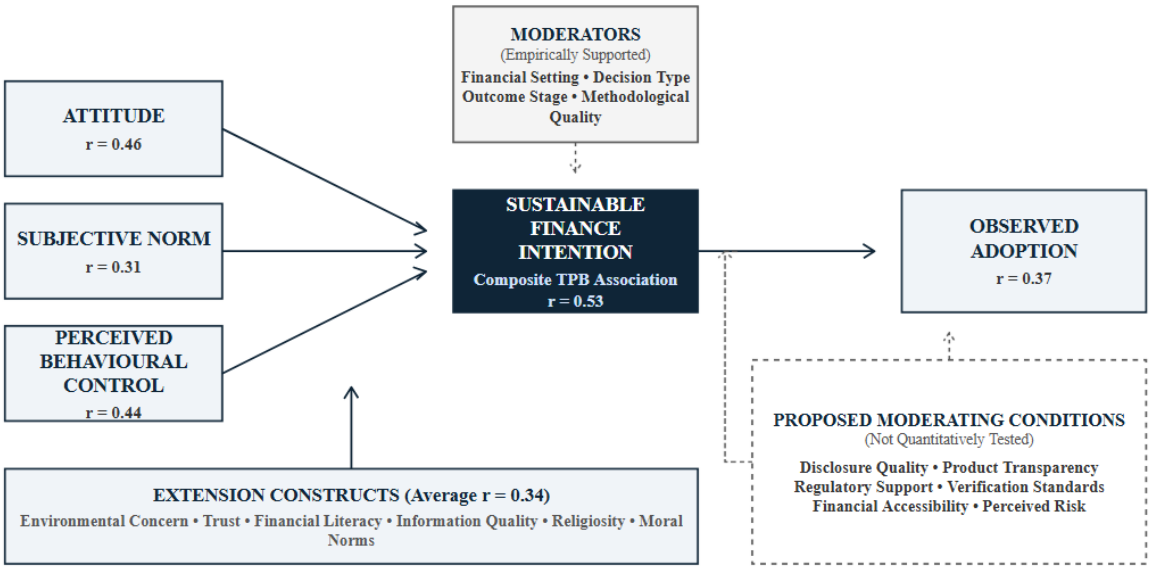
Publication bias analyzes were more sophisticated. Egger's regression test detected statistically significant funnel-plot asymmetry (intercept = 1.42, p = .04), indicating potential small-study effects. However, funnel-plot asymmetry may arise from multiple sources, including selective publication, methodological differences among studies, and substantial between-study heterogeneity. Trim-and-fill analysis identified nine potentially missing studies and yielded a slightly attenuated pooled estimate (r = 0.50) relative to the original estimate (r = 0.53). Accordingly, the trim-and-fill results should be interpreted as a sensitivity analysis rather than as a definitive correction for publication bias.



Source: Authors' Work (2026)

Figure 3. Funnel Plot Assessing Publication Bias

Fig. 3 shows the distribution of effect sizes included in the meta-analysis. The funnel plot demonstrated a generally symmetrical structure; however, some asymmetry was observed among smaller studies, consistent with the Egger's regression and trim-and-fill analyzes described above. The results were combined to produce the integrated framework shown in Figure 4.



Source: Authors' Work (2026)

Figure 4. Integrated TPB Framework for Sustainable Finance Adoption

Figure 4 importantly combines empirically synthesized relationships with conceptually derived propositions. The relationships between attitude, subjective norm, perceived behavioral control, intention and adoption are directly supported by pooled meta-analytic estimates. Subgroup analyzes reveal moderators such as financial setting, main decision type and outcome stage. By contrast, institutional and market-design conditions such as disclosure quality, transparency, regulatory support, verification standards, accessibility, and perceived risk should be labeled as "Proposed Moderating Conditions (Not Quantitatively Tested)". These relationships were derived from interpretation of the broader literature rather than directly synthesized through meta-analysis.

The evidence supports three overarching conclusions taken together. Firstly, attitude and perceived behavioral control show the highest correlations with sustainable finance intention in a variety of contexts. Second, the translation from intention to realized adoption appears to be much more complex than the formation of intention, indicating the continuing relevance of institutional, informational and structural constraints. Third, TPB is best used as an underpinning explanatory framework when augmented by context-specific constructs and wider institutional considerations. Therefore, the adoption of sustainable finance appears to be best understood as the interaction between individual behavioral processes and the broader financial structures within which those decisions are made.

D. Conclusions & Policy Recommendation

This paper systematically reviews and meta-analyzes the application of the Theory of Planned Behavior (TPB) in the adoption of sustainable finance. Drawing on evidence from 150 empirical studies across 34 countries and a total sample of 41,206 participants, the study presents one of the most exhaustive quantitative syntheses of the behavioral determinants of sustainable finance decision-making.

The results indicate that attitude and perceived behavioral control are associated with sustainable finance intention more strongly in the pooled analysis, whereas the association of subjective norm is positive but weaker and more heterogeneous. Together, these findings support the continued importance of Theory of Planned Behavior as a key framework to understand sustainable finance behavior in different institutional and geographical contexts. However, substantial heterogeneity was found across all pooled analyzes suggesting that the magnitude of TPB relationships varies by financial setting, decision type, outcome stage and methodological characteristics. Therefore, TPB should be regarded as a solid structure that is sensitive to context, rather than a general theory of sustainable finance adoption.

The meta-analysis also showed a positive relationship between behavioral intention and observed adoption behavior, although the strength of this relationship was lower than the pooled relationships between TPB antecedents and intention. These estimates were derived from partially non-overlapping sets of studies and thus should not be regarded as a formal test of an intention-behaviour gap. This observation is consistent with recent evidence from socially responsible investment studies showing that intention and realised investment behaviour may not always align (Zhang & Huang, 2024). This pattern indicates the significance of institutional, informational and structural conditions in shaping the extent to which sustainable finance intentions actually translate into actual financial behavior.

The findings also show that TPB is improved when combined with constructs specific to the context. Trust, financial literacy, environmental concern, information quality, moral norms and religiosity were found to have meaningful associations with sustainable finance intention across several settings. These findings suggest that sustainable finance behavior is influenced not only by individual attitudes, perceived control and social influences, but also by ethical, informational and institutional considerations beyond the initial TPB framework.

From a policy perspective, the findings suggest that efforts to promote the uptake of sustainable finance should go beyond awareness-raising campaigns and attitude-focused interventions. Although positive attitudes are important, policymakers and financial institutions should also concentrate on strategies to improve perceived behavioral control by reducing practical barriers to participation. Measures such as streamlining investment procedures, improving access to sustainable financial products, strengthening investor education programs and increasing the availability of reliable sustainability information, may facilitate the translation of positive intentions into actual adoption.

The findings also underline the importance of transparency, trust and information quality in sustainable finance markets. Regulators should keep on building up sustainability disclosure requirements, ESG reporting standards, green-finance taxonomies, and product certification mechanisms to reduce information asymmetries and boost investor confidence. Better quality and credibility of information on sustainability may lead to more informed decisions and greater willingness to participate in sustainable finance.

Moreover, the observed variation across different sustainable finance contexts suggests that policy interventions should be adapted to specific financial environments rather than being applied uniformly. For example, approaches that work well in promoting ESG investment may not necessarily perform similarly in green financing, sustainable banking services or organizational adoption settings. Policymakers should therefore consider the specificities of the various segments of sustainable finance when designing interventions aimed at increasing adoption.

The more prominent associations observed within the framework of Islamic finance provide further considerations for jurisdictions with dual conventional and Islamic financial structures. However, results should be interpreted with caution since they may be a reflection of differences in institutional structures, regulatory environments, product characteristics, respondent profiles and country contexts rather than religiosity alone. However, greater integration between sustainability objectives and Shariah-compliant financial instruments such as green sukuk, Islamic ESG funds, sustainability-linked Islamic financing products, and value-based intermediation initiatives could offer promising opportunities for boosting participation in sustainable finance in Muslim-majority markets.

Several limitations should be acknowledged. First, although the review followed a predefined protocol and PRISMA 2020 guidelines, the protocol was not preregistered in a public repository (e.g., OSF or PROSPERO). Second, the evidence base was dominated by cross-sectional survey studies, limiting causal interpretation of the reported associations between TPB constructs, intention, and sustainable-finance adoption. Third, substantial residual heterogeneity remained across pooled pathways despite moderator analyses, suggesting the presence of additional contextual influences not captured in the current synthesis. Fourth, although robust variance estimation produced substantively similar findings, some residual dependence among effect sizes originating from the same study cannot be completely ruled out. Finally, moderator analyses were based primarily on unadjusted subgroup comparisons and therefore should not be interpreted as evidence of independent moderating effects. Future research should explore the roles of institutional quality, regulatory structures, technological infrastructure, market maturity, and cultural values using longitudinal designs, preregistered protocols, and advanced meta-analytic techniques.

Overall, the evidence supports the use of TPB as a useful theoretical framework for understanding sustainable finance adoption. However, meaningful progress toward sustainable finance transitions is likely to depend not only on shaping behavioral intentions but also on strengthening the institutional, informational and market conditions that enable those intentions to be translated into actual financial decisions.

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References

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-t

Apostolakis, G., van Dijk, G., Blomme, R., Kraanen, F., & Papadopoulos, A. P. (2018). Predicting pension beneficiaries' behaviour when offered a socially responsible and impact investment portfolio. *Journal of Sustainable Finance & Investment*. https://doi.org/10.1080/20430795.2018.1429148

Azad, S., Devi, S. L. T., & Mishra, A. K. (2024). Investing in our planet: Examining retail investors' preference for green bond investment. *Business Strategy and the Environment*, *33*(6), 5151–5173. https://doi.org/10.1002/bse.3743

Bank Negara Malaysia, World Bank Group, & United Nations Development Programme Biodiversity Finance Initiative. (2026). A LEAP for nature: Advancing nature-related financial risk and opportunity assessment in Malaysia. Kuala Lumpur: World Bank.

Chia, C. S., Geetha, C., & Ayub, M. S. H. (2024). Uncovering the factors driving MSMEs to embrace green finance: a study in Sabah, Malaysia. *Malaysian Journal of Business and Economics (MJBE)*, *1*. https://doi.org/10.51200/mjbe.vi1.5637

Dingkuhn, P., Nel, J. L., Schoenmaker, D., & Alpizar, F. (2026). Pathways toward a nature-positive financial system. *Cell Reports Sustainability*, *3*(3), 100629. https://doi.org/10.1016/j.crsus.2025.100629

Garg, A., Goel, P., Sharma, A., & Rana, N. P. (2022). As you sow, so shall you reap: Assessing drivers of socially responsible investment attitude and intention. *Technological Forecasting and Social Change, 184*, Article 122030. https://doi.org/10.1016/j.techfore.2022.122030

Hathaipichitchai, P., Wongthong, P., Peerapong, P., & Vattanaprateep, N. (2025). The Role of ESG Integration in Green Finance toward Achieving Sustainable Development Goals. *Ecology Environment and Conservation*, *31*(03), 1326–1329. https://doi.org/10.53550/eec.2025.v31i03.068

Islam, Z. (2022). Analysis of factors affecting consumer behavior towards green banking using TPB model. *Journal of Asian Business Strategy, 12*(2), 102–114. https://doi.org/10.55493/5006.v12i2.4648

Jain, A., Behera, B., & Kochhar, K. (2025). Customer adoption of green banking: An extended theory of planned behavior. *Management Decision*. Advance online publication. https://doi.org/10.1108/MD-06-2024-1438

Kaçani, K., Kokthi, E., González-Limón, M., & López-Bonilla, L. M. (2025). From Collective norms to Personal Responsibility: Integrating TPB and SDT to explain green banking behaviors in a transitional society. *Business Strategy & Development*, *8*(4). https://doi.org/10.1002/bsd2.70229

Ling, P.-S., Ling, L., & Wasali, S. D. (2024). Investing in socially responsible investment (SRI): The role of responsibility, consciousness and literacy. *Journal of Sustainability Science and Management*. https://doi.org/10.46754/jssm.2024.02.005

Mir, M. A., & Dwivedi, A. (2026). Understanding Indian retail investors' intention to adopt ESG investment via fintech: an extended TPB approach combining PLS-SEM and NCA. *International Journal of Bank Marketing*, 1–26. https://doi.org/10.1108/ijbm-07-2025-0543

Mohamad, S. N. A., & Basah, M. Y. A. (2022). Choice Criteria for Halal financing: Religiosity as mediator. *Journal of Contemporary Islamic Studies*, *8*(3). https://doi.org/10.24191/jcis.v8i3.2

Mohamad, S. N. A., Ishak, A. H., & Darmawan. (2025). Meta-analysis of factors shaping risk management and adoption of equity-based financing in Islamic Banking. *Journal of Halal Science and Management Research*, *1*(1), 231–247. https://doi.org/10.24191/jhsmr.v1i1.8858

Osman, I., Maâ€™In, M., Muda, R., Husni, N. S. A., Alwi, S. F. S., & Hassan, F. (2019). Determinants of behavioural intention towards green investments: the perspectives of Muslims. *International Journal of Islamic Business*, *4*(1), 16–38. https://doi.org/10.32890/ijib2019.4.1.2

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., . . . Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *International Journal of Surgery*, *88*, 105906. https://doi.org/10.1016/j.ijsu.2021.105906

Patil, S. a. P. R. (2024a). "Extending TPB Framework: Investigating Environmental and Social Influences on Sustainable Investment Intention." *Journal of Informatics Education and Research*, *4*(3). https://doi.org/10.52783/jier.v4i3.1910

Peterson, R. A., & Brown, S. P. (2005). On the Use of Beta Coefficients in Meta-Analysis. *Journal of Applied Psychology*, *90*(1), 175–181. https://doi.org/10.1037/0021-9010.90.1.175

Prasetiyo, Y., Wisnantiasri, S. N., Pradana, N. W., Andriyansah, & Kasmiarno, K. S. (2026). Sustainable Stock Investing: an exploration of millennials and Zoomer investment behavior and intentions in ESG based corporate stock funds and indexes. *Indonesian Journal of Sustainability Accounting and Management*, *10*(1), 154–177. https://doi.org/10.20448/ijsam.v10i1.8612

Priyantoro, P., & Daniar, K. (2025). Modeling the influence of green investment intention on Investment Behavior: An Extended Theory of Planned Behavior approach. *Eduvest - Journal of Universal Studies*, *5*(12), 14609–14623. https://doi.org/10.59188/eduvest.v5i12.52292

Purwinarti, T., Pratiwi, I. C., & Putra, Y. A. (2026). Investigating the intention to adopt green logistic services in Indonesia. *Journal of Economics Finance and Management Studies*, *09*(02). https://doi.org/10.47191/jefms/v9-i2-34

Rayman-Bacchus, L., & Radavoi, C. N. (2019). Advancing culture's role in sustainable development: social change through cultural policy. *International Journal of Cultural Policy*, *26*(5), 649–667. https://doi.org/10.1080/10286632.2019.1624735

Sesini, G., Miccoli, M. R., Castiglioni, C., Iannello, P., Robba, M., & Lozza, E. (2026). Understanding Intentions Behind ESG Investments: Testing the Theory of Planned Behavior with Italian Investors. *Sustainability*, *18*(10), 5118. https://doi.org/10.3390/su18105118

Shafique, O., & Khan, M. (2020). Factors affecting bankers' behavioral intention to adopt green banking: An empirical analysis of banks in Pakistan. *Journal of Business and Social Review in Emerging Economies,* *6*(2), 835–843. https://doi.org/10.26710/jbsee.v6i2.1258

Strzelecki, A., Adamus-Matuszyńska, A., Badura, P., Kolny, B., Michnik, J., Piotrowski, P., Spyra, Z., & Zrałek, J. (2026). ESG -Aligned Sustainable Consumption in light of the Theory of Planned Behavior: An Analysis across four Generations. *Corporate Social Responsibility and Environmental Management*. https://doi.org/10.1002/csr.70738

Sustainable finance. (2014). In *Palgrave Macmillan eBooks*. https://doi.org/10.1057/9781137382702.0012

Taneja, S., & Ali, L. (2021). Determinants of customers' intentions towards environmentally sustainable banking: Testing the structural model. *Journal of Retailing and Consumer Services,* *59*, Article 102418. https://doi.org/10.1016/j.jretconser.2020.102418

Thanki, H., Shah, S., Rathod, H. S., Oza, A. D., & Burduhos-Nergis, D. D. (2022). I am ready to invest in socially responsible investments (SRI) options only if the returns are not compromised: Individual investors' intentions toward SRI. *Sustainability,* *14*(18), Article 11377. https://doi.org/10.3390/su141811377

Yi, Y., Al Mamun, A., Hoque, M. E., & Yang, Q. (2025). Investment for better future: The synergy of psychological and cognitive antecedents on socially responsible investment. *Acta Psychologica*. https://doi.org/10.1016/j.actpsy.2025.106113

Zhang, X., & Huang, C.-H. (2024). Investor characteristics, intention toward socially responsible investment (SRI), and SRI behavior in Chinese stock market: The moderating role of risk propensity. *Heliyon,* *10*(14), Article e34230. https://doi.org/10.1016/j.heliyon.2024.e34230

Appendixes

Supplementary Table S1. Database-Specific Search Strings

Database	Search String
Web of Science	TS=("Theory of Planned Behavior" OR "Theory of Planned Behaviour" OR TPB) AND TS=("sustainable finance" OR "green finance" OR "ESG investment" OR "green investment" OR "green bonds" OR "green banking" OR "sustainable investment" OR "Islamic finance" OR "nature-positive finance") AND TS=(intention* OR adoption OR behavio?r* OR willingness)
Scopus	TITLE-ABS-KEY(("Theory of Planned Behavior" OR "Theory of Planned Behaviour" OR TPB) AND ("sustainable finance" OR "green finance" OR "ESG investment" OR "green investment" OR "green bonds" OR "green banking" OR "sustainable investment" OR "Islamic finance" OR "nature-positive finance") AND (intention* OR adoption OR behavio?r* OR willingness))
EconLit	AB(("Theory of Planned Behavior" OR "Theory of Planned Behaviour" OR TPB) AND ("sustainable finance" OR "green finance" OR "ESG investment" OR "green investment" OR "green bonds" OR "green banking" OR "sustainable investment" OR "Islamic finance") AND (intention* OR adoption OR behavio?r* OR willingness))
ABI/INFORM Global	AB(("Theory of Planned Behavior" OR "Theory of Planned Behaviour" OR TPB) AND ("sustainable finance" OR "green finance" OR "ESG investment" OR "green investment" OR "green bonds" OR "green banking" OR "sustainable investment" OR "Islamic finance") AND (intention* OR adoption OR behavio?r* OR willingness))
Google Scholar	"theory of planned behavior" AND "sustainable finance" AND (intention OR behaviour OR behavior OR adoption)

Supplementary Table S2. Reasons for Full-Text Exclusion During Eligibility Assessment

Reason for Exclusion	n
Not related to sustainable finance	180
Did not apply TPB framework	95
Non-empirical study	70
Outcome not finance-related	50
Insufficient statistical information	30
Total	425

Supplementary Table S3. Coding Framework and Classification Protocol for Study Extraction

Coding Variable	Categories	Operational Definition and Coding Rules
Unit of Analysis	Study; Independent Sample; Effect Size	Studies were identified at the study level. Where studies reported multiple non-overlapping respondent groups, each group was treated as an independent sample. Separate construct-outcome pathways were coded independently to avoid double counting during quantitative synthesis.
Financial Setting	Islamic Finance; Conventional/Non-Islamic Finance; Dual/Mixed Setting	Classification was based on the institutional setting of the focal financial product or decision rather than the respondent's religion alone. Islamic finance was treated as a cross-cutting institutional setting rather than a primary decision type. Dual/Mixed Setting was assigned only when both settings were explicitly examined within the same study.
Outcome Stage	Intention; Self-Reported Behaviour; Observed Behaviour	Intention referred to plans, willingness, or behavioural intentions. Self-reported behaviour referred to respondents' reports of completed actions. Observed behaviour referred to independently measured, recorded, or verified adoption behaviours.
Outcome Coverage at Study Level	Intention Only; Intention and Observed Behaviour; Other Combinations	Studies were classified according to the outcomes reported. Studies measuring both intention and observed behaviour were coded separately from studies examining intention only.
Primary Decision Type	Investment/Capital Allocation; Financing/Borrowing; Banking-Service Adoption; Organisational Adoption of Sustainable-Finance Practices	Classification was based on the focal sustainable-finance decision examined by the study. Studies investigating multiple decision types were coded according to the primary decision outcome analysed.
Actor Level	Individual; Organisational	Individual-level studies focused on personal financial decisions, whereas organisational-level studies examined decisions undertaken on behalf of firms, institutions, or organisations.
Sample Type	Retail Investors; MSME/Firm Owners; General Consumers/Bank Customers	Classification was based on the actual respondent population reported in the primary study. Mixed-sample populations were documented separately where applicable.
Geographic Region	Asia-Pacific; Europe; Middle East and North Africa (MENA); Americas and Other Regions	Regions were assigned based on the location of the study sample rather than author affiliation. Country information was retained during extraction where available.

Coding Variable	Categories	Operational Definition and Coding Rules
Research Design	Cross-Sectional Survey; Longitudinal Survey; Mixed Methods/Other Designs	Classification reflected the design used to generate the quantitative effect size included in the synthesis.
Methodological Quality	High Quality (JBI ≥ 6/8); Moderate-to-Low Quality (JBI < 6/8)	Methodological quality was assessed using the Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Analytical Cross-Sectional Studies. Quality ratings were used as moderator variables rather than exclusion criteria.
Core TPB Pathways	Attitude → Intention; Subjective Norm → Intention; Perceived Behavioural Control → Intention; Intention → Adoption Behaviour	Predictor and outcome constructs were coded separately. Construct labels reported in primary studies were retained where possible and harmonised to TPB terminology for synthesis.
Composite TPB Model	Composite TPB → Intention	Studies reporting an overall TPB-intention relationship were coded separately from studies reporting individual TPB pathways. Composite estimates represented the combined association of Attitude, Subjective Norm, and Perceived Behavioural Control with Intention.
Extension Constructs	Environmental Concern; Trust; Financial Literacy; Religiosity; Information Quality; Moral Norms; Sustainability Awareness; Other Context-Specific Extensions	Extension variables reported in primary studies were coded separately according to their original labels and definitions. These constructs were not treated as interchangeable measures.
Estimate Selection and Harmonisation	Zero-Order Correlations; Standardised Regression Coefficients (β); Odds Ratios (OR)	Zero-order correlations were preferred where available. Where correlations were unavailable, standardised regression coefficients or odds ratios were converted into Pearson's r following established meta-analytic conversion procedures.
Independence Management	One Independent Sample × One Construct-Outcome Pathway	Each independent sample contributed a single effect size per construct-outcome pathway. Multiple indicators of the same construct were consolidated according to the predefined extraction hierarchy described in the methodology.

Supplementary Table S4. REML versus RVE Estimates

Pathway	REML r	RVE r	Difference
ATT → INT	0.46	0.45	-0.01
SN → INT	0.31	0.30	-0.01
PBC → INT	0.44	0.43	-0.01
TPB → INT	0.53	0.52	-0.01
INT → BEH	0.37	0.36	-0.01