

Fiscal Incentives and Green Investment Decisions among Medium-Sized Enterprises

Raden Roro Fatma Sari, SE., MSI (1) and Ir. Nida Garnida Fitrianti, MSI (2)

(1) Universitas Sangga Buana YPKP | (2) Yayasan Kreatif Indonesia Emas

sarie801@yahoo.com ; NidaFitrianti@gmail.com

Abstract

This integrative review examines the following Indonesia-focused question: Which fiscal incentives are most likely to influence green investment decisions by medium-sized enterprises, and what complementary conditions determine whether those incentives lead to actual projects? The analysis treats fiscal incentives as a conditional economic mechanism rather than a stand-alone headline indicator and evaluates how it interacts with green investment. For fiscal incentives, peer-reviewed research is read together with current official statistical and policy material, with Indonesia-specific evidence given priority and international studies used to clarify mechanisms. Across the reviewed material, the effect of fiscal incentives varies with exposure, timing, market structure, institutional arrangements, and the capacity of decision makers to adjust. The article therefore develops a mechanism-based interpretation that distinguishes first-round transmission, behavioral response, and boundary conditions for green investment. No primary survey, interview, firm observation, or regression estimate is manufactured for this fiscal incentives conceptual review; empirical claims remain attributed to their original sources. The resulting fiscal incentives framework supports differentiated measurement and identifies an Indonesia-specific research agenda for testing the proposed channels with more granular data.

Keywords: fiscal incentives, green investment, medium enterprises, SME sustainability, tax incentives, Indonesia

1. Introduction

Medium-sized firms occupy an important space between micro enterprises and large corporations: they can undertake meaningful energy, process, and equipment upgrades, yet often lack the specialist teams that large firms use to navigate tax incentives, green finance, and technical standards. A fiscal incentive has value only when a firm can identify an eligible project, finance the upfront cost, and document compliance.

Green-investment policy is frequently evaluated by the generosity of tax benefits or public finance commitments. For medium enterprises, transaction costs, eligibility thresholds, information, technical capability, and financing can be equally decisive. The missing link is the conversion from nominal incentive to bankable investment.

The central research question is: Which fiscal incentives are most likely to influence green investment decisions by medium-sized enterprises, and what complementary conditions determine whether those incentives lead to actual projects? Framing the problem around fiscal incentives and green investment is important because national averages can mask economically relevant differences in exposure and adjustment across Indonesian firms, households, sectors, and regions.

The review separates tax incentives, accelerated depreciation, guarantees, concessional finance, grants, and non-financial support, then evaluates how certainty, simplicity, payback period, and complementary capabilities shape investment decisions.

The analytical scope is deliberately mechanism based. For fiscal incentives, the review asks which conditions amplify, weaken, delay, or redirect the observed relationship with green investment; this makes composition, selection, contract structure, and timing part of the explanation rather than residual noise.

The paper develops four topic-specific literature themes, documents a transparent evidence-screening approach, synthesizes six substantive findings, and translates those findings into a measurement

framework and practical implications for fiscal incentives. Indonesia-focused studies on fiscal incentives carry the empirical weight, while international evidence is used only when it clarifies a channel that remains underidentified in the domestic literature.

2. Literature Review

Investment hurdle and incentive value

A tax benefit changes project economics only if the firm has taxable income, understands eligibility, and can wait for the benefit to be realized. Grants or interest subsidies affect cash flow differently because they reduce upfront or financing costs.

Medium firms often use shorter payback thresholds than large corporations due to liquidity constraints and owner risk preferences.

Policy comparison should therefore convert each incentive into a project-level cash-flow effect rather than compare statutory percentages.

Information and administrative burden

Complex applications, technical audits, pre-approval, documentation, and post-investment verification create fixed compliance costs. These costs are proportionally larger for medium firms than for large corporations.

An incentive can be generous on paper but have low take-up when firms cannot confidently determine eligibility or assign staff to the process.

Simplicity, standard documentation, and credible guidance are part of the economic value of an incentive.

Finance and risk sharing

Many green investments require high initial capital but produce savings over several years. Credit tenor and collateral can determine feasibility even when lifetime returns are attractive.

Guarantees, blended finance, leasing, and energy-service contracts can address financing constraints more directly than tax deductions.

The best instrument depends on whether the binding barrier is project return, liquidity, credit risk, or information.

Capability and measurement

Firms need to identify energy losses, select technology, estimate savings, procure reliable equipment, and measure results. Weak capability increases perceived risk and can lead managers to postpone projects.

Technical assistance and standardized measurement protocols reduce uncertainty for both firms and lenders.

Green-investment support should be evaluated by verified performance and additional investment, not only by approvals.

3. Research Method

This manuscript is a conceptual narrative draft revised through a chronological source filter. Bibliography entries dated after 31 December 2023 and sentences explicitly invoking those years have been excluded. Original pre-cutoff references have been retained, with a limited historical source context added separately. This revision does not constitute a new systematic search, a meta-analysis, or a reproducible coding exercise. The historical source cutoff is stated here so that the scope of the discussion is explicit.

The remaining discussion proposes mechanisms and research questions. It does not supply new observations, estimated coefficients, or verified causal effects. Earlier reference entries retained from the source draft require

bibliographic and claim-level checking by the authors before submission. Sources added during this revision support only the historical context described in the dedicated source-context section.

4. Results and Discussion

4.1 Incentive certainty is more important than headline generosity for many medium firms

The first substantive result concerns incentive certainty is more important than headline generosity for many medium firms. In the context of fiscal incentives, the operative mechanism is that managers discount benefits that depend on unclear eligibility, changing regulations, or lengthy approval because uncertain incentives cannot be relied upon in investment appraisal; this means an aggregate correlation with green investment can misstate what individual units actually experience.

Evidence for the incentive certainty is more important than headline generosity for many medium firms channel is triangulated rather than reduced to one coefficient: OECD investment reviews repeatedly emphasize policy predictability and implementation quality. For fiscal incentives, the strongest inference is therefore about when the mechanism should intensify or weaken, not about a universal numerical elasticity.

The incentive certainty is more important than headline generosity for many medium firms interpretation remains bounded because some strategic projects will proceed without incentives when energy savings or customer requirements are already compelling. Future empirical work on green investment should measure that conditioning factor directly, while current practice can respond by ensuring that programs should publish stable rules, worked examples, service standards, and transition arrangements when rules change.

4.2 Cash-flow timing determines which instrument is effective

A second channel is cash-flow timing determines which instrument is effective, which is analytically distinct from the headline movement in fiscal incentives. Here, grants, accelerated depreciation, tax

credits, interest subsidies, and guarantees affect different points of the project cash-flow profile; that sequence helps explain why units exposed to the same aggregate signal can record different outcomes for green investment.

The literature relevant to cash-flow timing determines which instrument is effective provides complementary support: SME sustainability finance literature shows why upfront constraints can dominate lifetime returns. For cash-flow timing determines which instrument is effective, differences in period and method prevent numerical equivalence, but the sources converge on a mechanism that can be tested directly in the Indonesian setting.

For cash-flow timing determines which instrument is effective, a key qualification is that tax-based instruments may be less valuable to firms with volatile profits or limited tax liability. Decision rules for fiscal incentives should therefore avoid a single threshold and instead operationalize the implication that policy portfolios should match instruments to project size, payback profile, and firm financial position.

4.3 Administrative fixed costs can exclude smaller eligible firms

The third finding emphasizes administrative fixed costs can exclude smaller eligible firms. Aggregate summaries of fiscal incentives often conceal the following economic logic: application and verification requirements consume specialist time and may require consultants, audits, or technical documentation. Once that channel is made explicit, variation in green investment across regions, firms, or households becomes an expected feature of the system.

For administrative fixed costs can exclude smaller eligible firms, no one source establishes every link, yet together the evidence yields a proposition that can be subjected to direct Indonesia-specific testing.

The proposition on administrative fixed costs can exclude smaller eligible firms should not be generalized beyond its conditions, since simplification must still preserve integrity and prevent greenwashing. A more disciplined application of fiscal incentives is to observe the mechanism first and then act so that digital applications, standard baselines, accredited assessors, and proportional reporting can reduce burden without removing accountability.

4.4 Financing and incentives are complements, not substitutes

The fourth result identifies financing and incentives are complements, not substitutes as a source of nonlinearity between fiscal incentives and green investment. Specifically, a positive-net-present-value green project can remain uninvestable when the firm cannot obtain suitable tenor, collateral terms, or working capital; proportional changes in the initial driver therefore need not generate proportional changes in the outcome.

For financing and incentives are complements, not substitutes, the reviewed sources observe different stages of adjustment, so they are most informative when read as sequential evidence rather than interchangeable estimates.

The nonlinearity associated with financing and incentives are complements, not substitutes is conditional because subsidized credit without sound project assessment can misallocate capital. Managers and policymakers should keep the institutional setting visible and, where the condition is met, implement the response that green credit lines should combine finance with technical screening and post-investment

performance checks.

4.5 Non-financial support can increase the value of fiscal incentives

The fifth finding, non-financial support can increase the value of fiscal incentives, helps reconcile apparently conflicting claims about fiscal incentives. Once the unit of exposure is specified, energy audits, supplier lists, engineering advice, and measurement protocols reduce uncertainty and help managers identify projects with credible savings; averages can consequently hide subgroup responses that matter for green investment.

For non-financial support can increase the value of fiscal incentives, Indonesian structural differences make this channel particularly relevant because they alter both the magnitude and the timing of adjustment.

Any inference from non-financial support can increase the value of fiscal incentives must still recognize that generic training has limited effect when it is not connected to a real investment pipeline. The appropriate response is differentiated measurement rather than blanket intervention, including the practical step that support should move from awareness to diagnosis, project preparation, financing, procurement, and verification.

4.6 Additionality should be the core evaluation standard

The sixth result focuses on additionality should be the core evaluation standard and reveals a sequencing issue in the transmission of fiscal incentives. Before green investment can fully respond, public support creates value when it accelerates, enlarges, or improves investments that would otherwise not occur in the same form; if that prerequisite is absent, an aggregate signal may be visible while the local decision remains weak.

The sequence underlying additionality should be the core evaluation standard is supported because climate-finance frameworks emphasize mobilization of private capital rather than counting subsidized projects alone. For additionality should be the core evaluation standard, process indicators are therefore valuable alongside final outcomes, especially where adjustment is slow or observed only at low frequency.

For additionality should be the core evaluation standard, the remaining caution is that additionality is difficult to estimate because firms know their counterfactual plans better than program administrators. Monitoring of fiscal incentives should cover both prerequisite and outcome, and implementation should be designed so that evaluations should compare supported firms with credible non-supported benchmarks and track verified energy, emissions, productivity, and financing outcomes.

4.7 Integrated interpretation

Across the six findings, fiscal incentives is best understood as a conditional process rather than a mechanical predictor of green investment. The core question - Which fiscal incentives are most likely to influence green investment decisions by medium-sized enterprises, and what complementary conditions determine whether those incentives lead to actual projects? - requires information about exposure, adjustment capacity, timing, and market structure before an aggregate movement can be translated into a decision.

This mechanism-based reading of fiscal incentives also explains why credible studies can point in different directions. Research centered on green investment may observe a different stage of adjustment from research centered on the initial shock, so disagreement should first be checked for unit, horizon, and institutional

differences before being treated as contradictory evidence.

4.8 Measurement framework for future empirical work

Exposure

A exposure indicator for fiscal incentives should measure the unit-specific degree to which the proposed channel can operate. The finding on incentive certainty is more important than headline generosity for many medium firms implies recording the mechanism - managers discount benefits that depend on unclear eligibility, changing regulations, or lengthy approval because uncertain incentives cannot be relied upon in investment appraisal - together with the limiting condition - some strategic projects will proceed without incentives when energy savings or customer requirements are already compelling. Linking those fields to green investment would make subsequent empirical testing more informative than reliance on a single aggregate rate.

Timing

A timing indicator for fiscal incentives should separate immediate transmission from medium-term behavioral adjustment. The finding on cash-flow timing determines which instrument is effective implies recording the mechanism - grants, accelerated depreciation, tax credits, interest subsidies, and guarantees affect different points of the project cash-flow profile - together with the limiting condition - tax-based instruments may be less valuable to firms with volatile profits or limited tax liability. Linking those fields to green investment would make subsequent empirical testing more informative than reliance on a single aggregate rate.

Heterogeneity

A heterogeneity indicator for fiscal incentives should report results for economically meaningful firm, household, sector, or regional groups. The finding on administrative fixed costs can exclude smaller eligible firms implies recording the mechanism - application and verification requirements consume specialist time and may require consultants, audits, or technical documentation - together with the limiting condition - simplification must still preserve integrity and prevent greenwashing. Linking those fields to green investment would make subsequent empirical testing more informative than reliance on a single aggregate rate.

Process

A process indicator for fiscal incentives should observe intermediate mechanisms together with final outcomes. The finding on financing and incentives are complements, not substitutes implies recording the mechanism - a positive-net-present-value green project can remain uninvestable when the firm cannot obtain suitable tenor, collateral terms, or working capital - together with the limiting condition - subsidized credit without sound project assessment can misallocate capital. Linking those fields to green investment would make subsequent empirical testing more informative than reliance on a single aggregate rate.

Counterfactual

A counterfactual indicator for fiscal incentives should state the plausible outcome in the absence of the shock or intervention. The finding on non-financial support can increase the value of fiscal incentives implies recording the mechanism - energy audits, supplier lists, engineering advice, and measurement protocols reduce uncertainty and help managers identify projects with credible savings - together with the limiting condition - generic training has limited effect when it is not connected to a real investment pipeline. Linking those fields to green investment would make subsequent empirical testing more informative than reliance on a single aggregate rate.

Data quality

A data quality indicator for fiscal incentives should document definitions, missingness, revisions, and coverage for reproducibility. The finding on additionality should be the core evaluation standard implies recording the mechanism - public support creates value when it accelerates, enlarges, or improves investments that would otherwise not occur in the same form - together with the limiting condition - additionality is difficult to estimate because firms know their counterfactual plans better than program administrators. Linking those fields to green investment would make subsequent empirical testing more informative than reliance on a single aggregate rate.

5. Policy and Managerial Implications

Instrument design

Offer a menu of cash-flow instruments rather than one tax benefit, with transparent eligibility and proportional compliance requirements for medium firms. For fiscal incentives, this action is decision-relevant because it addresses the mechanism identified in incentive certainty is more important than headline generosity for many medium firms rather than assuming that every unit responds alike. Its implementation should begin with a baseline measure of green investment and a stated criterion for evaluating whether exposure or adjustment capacity actually changes.

One-stop project pipeline

Integrate technical audits, incentive screening, lender referrals, and measurement templates so firms do not navigate fragmented programs separately. For fiscal incentives, this action is decision-relevant because it addresses the mechanism identified in cash-flow timing determines which instrument is effective rather than assuming that every unit responds alike. Its implementation should begin with a baseline measure of green investment and a stated criterion for evaluating whether exposure or adjustment capacity actually changes.

Financial-sector linkage

Encourage lenders and leasing firms to recognize verified energy savings and equipment value in underwriting while maintaining prudent risk standards. For fiscal incentives, this action is decision-relevant because it addresses the mechanism identified in administrative fixed costs can exclude smaller eligible firms rather than assuming that every unit responds alike. Its implementation should begin with a baseline measure of green investment and a stated criterion for evaluating whether exposure or adjustment capacity actually changes.

Research agenda

Build firm-level datasets on applications, approvals, investment timing, financing terms, and realized savings to estimate which incentives produce additional green investment. For fiscal incentives, this action is decision-relevant because it addresses the mechanism identified in financing and incentives are complements, not substitutes rather than assuming that every unit responds alike. Its implementation should begin with a baseline measure of green investment and a stated criterion for evaluating whether exposure or adjustment capacity actually changes.

6. Limitations and Future Research

The principal limitation of this article is methodological: it is an integrative review of fiscal incentives, not a new causal estimation. The synthesis can organize propositions about green investment and identify boundary conditions, but unresolved identification problems in the underlying studies remain unresolved here. Any later empirical extension on fiscal incentives should be presented as a separate design with its own data and assumptions.

The second limitation concerns comparability. Evidence on green investment varies by geography, frequency, population, definition, and study period, while the measurement of fiscal incentives is not uniform across sources. Those differences are informative for mechanism discovery but preclude mechanical numerical comparison. Future work on fiscal incentives should expose those choices through metadata, sensitivity checks, and subgroup reporting.

A third limitation for fiscal incentives is the speed mismatch between policy information and peer review. Official releases can describe the current environment for fiscal incentives quickly, but contemporaneous description does not by itself establish an effect on green investment. For fiscal incentives, the research agenda below prioritizes linked microdata, explicit identification, and transparent robustness analysis.

6.1 Indonesia-specific research agenda

A first priority is to build a data architecture that can observe fiscal incentives at the same decision level where green investment is determined. The review's finding on incentive certainty is more important than headline generosity for many medium firms indicates that future datasets should capture managers discount benefits that depend on unclear eligibility, changing regulations, or lengthy approval because uncertain incentives cannot be relied upon in investment appraisal. In practical terms, Build firm-level datasets on applications, approvals, investment timing, financing terms, and realized savings to estimate which incentives produce additional green investment. For future fiscal incentives research, the objective is not simply to increase sample size, but to align the unit of observation with the mechanism that the theory actually describes.

A second priority is identification. For the cash-flow timing determines which instrument is effective channel, researchers should exploit timing, institutional thresholds, policy discontinuities, or plausibly exogenous shocks when available, while reporting pre-trends and alternative specifications. Because tax-based instruments may be less valuable to firms with volatile profits or limited tax liability, a credible design should show that changes in green investment are not merely the product of simultaneous composition shifts or reverse causality. In studies of green investment, where experimental or quasi-experimental designs are impossible, transparent longitudinal diagnostics are preferable to strong

causal language based on one cross-section.

Third, heterogeneity in fiscal incentives should be pre-specified rather than discovered after estimation. The mechanism associated with administrative fixed costs can exclude smaller eligible firms suggests grouping observations by exposure, market structure, income or firm size, geography, and relevant institutional constraints before drawing policy conclusions about fiscal incentives. This is especially important because simplification must still preserve integrity and prevent greenwashing. Reporting distributions and subgroup estimates can reveal whether an apparently small average effect on green investment conceals large gains and losses for distinct populations.

Finally, research on fiscal incentives should be reproducible enough for cumulative learning. The qualification attached to financing and incentives are complements, not substitutes - subsidized credit without sound project assessment can misallocate capital - makes sensitivity analysis essential. Future fiscal incentives studies should publish variable definitions, source dates, transformation rules, missing-data treatment, and code where permissions allow; they should also distinguish preregistered hypotheses from exploratory analysis. These practices would make subsequent evidence on green investment easier to compare without pretending that different settings are statistically identical.

7. Conclusion

This review asked: Which fiscal incentives are most likely to influence green investment decisions by medium-sized enterprises, and what complementary conditions determine whether those incentives lead to actual projects? The accumulated evidence supports a conditional answer: the effect associated with fiscal incentives changes with the economic unit's exposure, institutional setting, market structure, time horizon, and capacity to adjust, and those differences shape the observed outcome for green investment.

The six synthesized mechanisms move the analysis of fiscal incentives from aggregate description toward operational diagnosis. A useful decision process identifies the active channel, measures the relevant subgroup exposure, records the binding constraint, and evaluates whether the proposed response changes that constraint before inferring improvement in green investment.

For future Indonesia research, the priority is therefore not a larger collection of undifferentiated averages, but more granular and reproducible evidence on fiscal incentives linked to the decision level at which green investment changes. For this fiscal incentives manuscript, and the journal editor should

verify the interpretations and bibliography, confirm authorship, and assign the final issue metadata before OJS publication.

Editorial Note

This is a conceptual review prepared with editorial assistance. It reports no newly collected empirical observations or causal estimates. Historical source context is separated from the analytical propositions developed in the discussion.

Historical source context and interpretation

Historical macroeconomic context is drawn from Indonesia's 2023 Article IV consultation (International Monetary Fund, 2023). The report provides a pre-cutoff policy context for interpreting monetary, fiscal

and external conditions. It does not establish the firm-level or regional causal relationships proposed in this review; those relationships require separate empirical testing.

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