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ANALISIS INVESTASI DAN INSTRUMEN PEMBIAYAAN ALTERNATIF UNTUK MENINGKATKAN MINAT INVESTOR PADA SEKTOR JALAN TOL DI INDONESIA
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INTISARI

Pembangunan jalan tol membutuhkan pembiayaan besar dan berjangka panjang, sementara kapasitas fiskal pemerintah, ekuitas badan usaha, dan pinjaman perbankan memiliki keterbatasan dalam memenuhi kebutuhan investasi yang terus meningkat. Kondisi tersebut mendorong kebutuhan diversifikasi sumber pembiayaan melalui instrumen yang mampu memobilisasi modal swasta, mengelola risiko, dan memperluas basis investor. Penelitian ini bertujuan untuk menentukan prioritas instrumen pembiayaan alternatif bagi sektor jalan tol Indonesia, mengidentifikasi faktor yang memengaruhi minat investor, serta merumuskan rekomendasi kebijakan bagi pengembangan dan implementasi instrumen tersebut.

Penelitian menggunakan pendekatan metode campuran dengan desain *sequential explanatory*. Tahap kuantitatif menggunakan Analytical Hierarchy Process (AHP) berdasarkan penilaian tujuh ahli dari lingkungan Kementerian Pekerjaan Umum. Struktur AHP terdiri atas empat kriteria, dua belas subkriteria, dan tiga alternatif, yaitu Infrastructure Investment Trust (InvIT), *Digital Green Bond*, dan *Toll Revenue Bond*. Penilaian ahli digabungkan menggunakan geometric mean dan diolah dengan Super Decisions. Seluruh matriks memenuhi persyaratan konsistensi dengan *Consistency Ratio* di bawah 0,10. Tahap kualitatif dilakukan melalui wawancara semi-terstruktur menggunakan kerangka *Context, Input, Process,* dan *Product* (CIPP) untuk menjelaskan hasil AHP dan menilai kesiapan implementasi instrumen.

Hasil penelitian menempatkan InvIT sebagai alternatif dengan prioritas tertinggi sebesar 0,48647, diikuti *Toll Revenue Bond* sebesar 0,25883 dan *Digital Green Bond* sebesar 0,25470. Dua kriteria paling dominan adalah *Institutional Feasibility* sebesar 0,37327 dan *Risk–Return Allocation* sebesar 0,37319, yang secara bersama-sama mencakup sekitar 74,65 persen bobot keputusan. Subkriteria utama mencakup *Regulatory Readiness, Cash Flow Stability, Fairness of Risk Sharing*, dan kemampuan menarik segmen investor baru. Triangulasi menunjukkan bahwa InvIT paling menarik secara konseptual karena mendukung monetisasi aset, *asset recycling*, stabilitas arus kas, dan perluasan basis investor, tetapi implementasinya masih memerlukan penguatan regulasi, tata kelola, dan pasar. *Toll Revenue Bond* relatif lebih siap sebagai instrumen transisional, sedangkan *Digital Green Bond* lebih sesuai dikembangkan secara selektif untuk komponen jalan tol yang memenuhi kriteria lingkungan. Penelitian merekomendasikan pengembangan bertahap melalui harmonisasi regulasi, peningkatan kualitas data dan proyek, penguatan manajemen risiko, proyek percontohan, perluasan investor institusional, serta koordinasi lintas lembaga.

Kata kunci: pembiayaan infrastruktur; jalan tol; instrumen pembiayaan alternatif; *Infrastructure Investment Trust; Toll Revenue Bond; Digital Green Bond;* minat investor*; Analytical Hierarchy Process.*

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ABSTRACT

Toll road development requires substantial long-term financing, while government fiscal capacity, corporate equity, and bank lending remain insufficient to meet the growing investment demand. This condition creates a need to diversify financing sources through instruments capable of mobilising private capital, managing investment risks, and broadening the investor base. This study aims to prioritise alternative financing instruments for Indonesia's toll road sector, identify the factors influencing investor interest, and formulate policy recommendations for the development and implementation of the selected instruments.

The study employed a mixed-methods approach with a sequential explanatory design. The quantitative phase used the Analytical Hierarchy Process (AHP), drawing on assessments from seven experts within the Ministry of Public Works. The AHP hierarchy comprised four criteria, twelve subcriteria, and three alternatives: Infrastructure Investment Trust (InvIT), Digital Green Bond, and Toll Revenue Bond. Expert assessments were aggregated using the geometric mean and processed with Super Decisions. All comparison matrices met the consistency requirement, with Consistency Ratio values below 0.10. The qualitative phase involved semi-structured interviews based on the Context, Input, Process, and Product (CIPP) framework to explain the AHP results and assess the implementation readiness of each instrument.

The results rank InvIT as the highest-priority alternative, with a global weight of 0.48647, followed by Toll Revenue Bond at 0.25883 and Digital Green Bond at 0.25470. The two dominant criteria are Institutional Feasibility, with a weight of 0.37327, and Risk–Return Allocation, with a weight of 0.37319; together, they account for approximately 74.65 per cent of the total decision weight. The leading subcriteria include Regulatory Readiness, Cash Flow Stability, Fairness of Risk Sharing, and the ability to attract new investor segments. The triangulation results indicate that InvIT is conceptually the most attractive instrument because it supports asset monetisation, asset recycling, stable cash flows, and investor-base expansion. However, its implementation requires stronger regulatory, governance, and market arrangements. Toll Revenue Bond is relatively more suitable as a transitional instrument, while Digital Green Bond should be developed selectively for toll road components that meet environmental eligibility requirements. The study recommends a phased policy approach involving regulatory harmonisation, improved project and revenue data, stronger risk management, pilot projects, broader institutional investor participation, and cross-agency coordination.

Keywords: infrastructure financing; toll roads; alternative financing instruments; Infrastructure Investment Trust; Toll Revenue Bond; Digital Green Bond; investor interest; Analytical Hierarchy Process.