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Financial Evaluation of Investment Projects for Bank Financing: A Case Study of Real Estate and Vehicle Assets in the Blue Nile Region

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Abstract - This study examines the critical role of financial evaluation and feasibility analysis as strategic tools for investment decision-making in emerging markets. Focusing on the Blue Nile region, the research employs a mixed-methods approach combining electronic survey data from 35 industry professionals with detailed financial modeling using Microsoft Excel. The study presents comprehensive financial valuations of two collateral assets—a commercial hotel property and a vehicle—demonstrating the practical application of discounted cash flow (DCF) analysis, Net Present Value (NPV), Internal Rate of Return (IRR), and Payback Period methodologies.

The findings reveal significant insights regarding evaluation practices in developing economies: 45.7% of practitioners prefer NPV as the primary evaluation metric, while economic instability and currency volatility represent the most pressing challenges (45.7% of respondents). The case study analysis of the Workers' Union Hotel demonstrates that despite a remarkably short payback period of 0.5 years and an exceptional IRR of 210.1%, the project exhibits a negative NPV of -86,783,796.76 Sudanese Pounds at a 15% discount rate, highlighting the critical importance of discount rate selection in high-inflation environments. The Profitability Index (PI) of 0.52 further indicates marginal viability, suggesting that traditional evaluation metrics may yield conflicting signals in volatile economic conditions.

Keywords: Financial Evaluation, Real Estate Valuation, Investment Appraisal, NPV, IRR, Bank Financing, Feasibility Study, Blue Nile Region

INTRODUCTION

Project evaluation has emerged as a cornerstone of economic development across global markets, serving as the fundamental mechanism for rationalizing investment and financing decisions (Ji, 2008). The establishment of investment projects generates impacts extending far beyond individual investors to encompass national economic systems as a whole (Marhaj, 2018). Given the relative scarcity of economic resources and their alternative uses, the discipline of feasibility study has evolved to provide scientific methodologies for investment decision-making under conditions of uncertainty and risk.

The intrinsic relationship between investment and financing decisions necessitates that lending institutions require comprehensive feasibility studies to demonstrate project profitability and creditworthiness before loan approval. These studies represent a form of prospective planning and estimation that defines project dimensions from conception through realization of expected returns.

Project evaluation and feasibility analysis serve critical functions across diverse domains, whether for establishing new ventures or assessing existing operations. When facing decisions regarding fixed asset replacement, corporate acquisitions, new company formation, or investment opportunity implementation, systematic feasibility studies from multiple perspectives become essential (Marhaj, 2018).

Post-implementation evaluation, referred to as ex-post or post-investment assessment, utilizes technical approaches similar to pre-implementation analysis (Al-Kuwaz, 2005). Project management, defined as the art of directing and coordinating human and material resources throughout project lifecycles using modern techniques to achieve specified objectives, provides the operational framework for these evaluations (Al-Muhaimid, 2017).

Theoretical Framework

2.1 Conceptual Foundations of Project Evaluation

Project evaluation represents a systematic process for establishing criteria that enable selection of appropriate projects capable of achieving defined objectives based on operational foundations (Hussein, 2016; Al-Jami'a, 2017). Evaluation constitutes a methodical and objective study of

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the importance, effectiveness, efficiency, and impact of activities relative to specific goals. The core concept involves error detection to prevent recurrence while reinforcing successful mechanisms for current and future projects (Al-Jami'a, 2017).

The significance of project evaluation derives from two fundamental factors (Al-Jami'a, 2017):

Resource Scarcity: Economic resources, particularly capital, are scarce relative to multiple potential applications across various sectors and activities.

Technological Advancement: Scientific and technological progress has generated numerous alternatives, compounded by rapid information transfer through communications and information technology revolutions.

2.2 Objectives of Project Evaluation

- Achieving optimal utilization of available resources (Al-Jami'a, 2017)
- Assessing the risk level of invested capital.
- Directing investment capital toward sectors ensuring achievement of defined objectives (IVSC, 2019).
- Rationalizing investment decisions.

2.3 Principles of Project Evaluation

- Establishing compatibility between evaluation criteria and proposed project objectives
- Achieving alignment between project objectives and national development plans.
- Ensuring harmony among integrated and competing project objectives while eliminating conflicts.
- Providing necessary requirements for success assurance (Al-Jami'a, 2017; Abu Zaid, 2020)
- Evaluation Methodologies.

3.1 Investment Project Evaluation Criteria

The evaluation process precedes implementation and serves as the basis for project selection using various criteria depending on decision-making circumstances (Abu Al-Qasim, 2017):

A. Profitability-Based Criteria:

These criteria rely on expected relationships between inward and outward cash flows.

B. Risk and Uncertainty Evaluation:

Risk is defined as the relative standard deviation of expected investment factors, while uncertainty refers to conditions where probability distributions are unknown, making future identification difficult for decision-makers.

C. Social Profitability Measurement:

Individual investors must demonstrate not only commercial profitability but also social viability to state authorities (Boushnafa, 2017; Al-Sahil, 2019).

3.2 Evaluation Process Steps

Scope Definition: Including location, existing buildings, property ownership type, required valuation type, evaluation purpose, valuation date, and limiting factors.

Information Requirements: Determining necessary data and sources based on selected valuation methodology.

Data Collection: Gathering and verifying general information (country, governorate, city, neighboring areas) and property-specific data.

Highest and Best Use Determination: Identifying market pressures for optimal property utilization.

Land Valuation: Comparing physical characteristics and services of comparable sites with similar optimal uses.

Building Valuation: Applying one of three recognized methods:

- Cost Approach
- Sales Comparison Approach
- Income Capitalization Approach

Results Reconciliation: Weighting methods based on reliability and accuracy rather than simple averaging.

Final Report Preparation: Including limiting conditions, appraiser responsibilities, general circumstances, and certification of methodology adherence (Al-Kuwaz, 2005; Abu Al-Qasim, 2017; Marhaj, 2018; Mustafa, 2020; Abdulaziz, 2021; Aqouni, 2024).

Pre-Revenue Startup Valuation Methods

4.1 Scorecard Method

This approach involves identifying comparable recent startups in the same location that have been valued, sold, or invested in, then adjusting based on specific factors:

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- Factor Weight Assessment
- Management Team Strength 30% Match percentage to comparable sample
- Investment Opportunity Size 25% Match percentage
- Product/Service Strength & Protection 15% Match percentage
- Competitive Environment 10% Match percentage
- Strategic Partner Relationships 10% Match percentage
- Financing Requirements 10% Match percentage

4.2 Checklist Method

Assumes maximum startup value of 8 million USD, processing each element against ideal weights:

- Management Team Strength: 30% × 80% (match) × 8M = 1.92M
- Idea Quality: 20% × 65% × 8M = 1.04M
- Product/Protection: 15% × 40% × 8M = 0.48M
- Strategic Relationships: 15% × 50% × 8M = 0.60M
- Operational Success: 20% × 50% × 8M = 0.80M
- Total Valuation: 4.84M (60.5% of maximum 8M) (Al-Sheikh, 2008)

4.3 Discounted Cash Flow Method

- Annual Cash Flows: Adjust expected flows by annual success probability (e.g., 50%)
- Net Present Value: Reduce by illiquidity premium reflecting inability to sell shares
- Free Cash Flows: Operating cash flows minus capital expenditures
- Annual Growth Rate: Estimated via risk-adjusted return calculation (risk-free vs. risky returns) (Al-Sheikh, 2008)

4.4 Venture Capital Method

Estimates future enterprise value (3-5 years) representing target exit valuation using price multiples (expected operating earnings × sector P/E ratio). Discount future value using high discount rates (50-135% depending on project stage) reflecting required investor returns. Deduct loans and previous financing rounds from present value (Al-Sheikh, 2008).

Factors Affecting Real Estate Valuation:

Real estate valuation is influenced by economic, social, legal, and technical factors (Abu Zaid, 2020; Al-Deeb, 2019):

- Geographic Location: Proximity to commercial areas, transportation, schools, hospitals, and vital facilities.
- Physical Characteristics: Land and building size, area, construction type, age, and design.
- General Economic Conditions: National/local economic state, interest rates, inflation, unemployment.
- Legal and Regulatory Framework: Urban planning laws, land use regulations, property rights.
- Market Supply and Demand: Balance between property availability and market requirements.
- Real Estate Financing: Loan availability and terms affecting purchaser capacity
- Social Factors: Community income levels and property type demand.
- Future Risks and Environmental Changes: Climate change threats and natural disaster zones.
- Comparative Market Analysis: Recent sales of comparable properties in the same area
- Research Methodology.

6.1 Data Collection

Data collection represents a critical phase in scientific research, particularly studies with direct societal impact. This research employed electronic questionnaires with multiple-choice formats supplemented by open-ended suggestion options, distributed via internet link to ensure respondent flexibility. The simplified, direct question format facilitated strong participation rates.

6.2 Sample Characteristics

The survey targeted 35 professionals involved in project evaluation across the Blue Nile region, representing diverse academic backgrounds, professional designations, and experience levels (ranging from <1 year to >10 years).

Case Study: Hotel of Laboure's union

7.1 Property Description

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- Asset: Workers' Union of Blue Nile State Hotel
- Location: Al-Damazin City, Block 18, Plot 167
- Land Area: 1,500 m²
- Structure: Reinforced concrete frame, ground floor + 4 stories
- Age: 3 years
- Condition: Excellent
- Depreciation Rate: 5% (applied to total valuation of 198,675,500 Sudanese Pounds)

Floor Configuration:

- Ground Floor: 4 rooms + 2 bathrooms + manager's office with bathroom + reception + kitchen + 2 bathrooms + cafeteria (350 m²) @ 120,000 SDG/m² = 42,000,000 SDG.
- Floors 1-3: Each contains 14 rooms + 12 bathrooms + 2 storage rooms + 9 balconies + stairwell room (375.5 m² each) @ 110,000/100,000/90,000 SDG/m² respectively.
- Fourth Floor: 2 halls + 2 bathrooms + office + stairwell room (324 m²) @ 80,000 SDG/m².
- Total Construction Area: 1,800.5 m².

Total Market Value: 180,570,000 SDG

7.2 Financial Modeling Assumptions

For financial evaluation purposes, the property is analyzed as a fully operational hotel:

- Occupancy Rate: 60% annually (conservative estimate given Al-Damazin's status as a resource-rich state capital).
- Average Room Rate: 75,000 SDG per night.
- Other Income: 10% of room revenue (cafeteria and ancillary services).
- Operating Costs: 50% of total revenue (salaries, utilities, maintenance, marketing).
- Project Economic Life: 10 years.
- Discount Rate: 15% annually (reflecting high regional risk premium).
- Residual Value: Current market value (180,570,000 SDG) at Year 10.

7.3 Cash Flow Projections

Annual Room Revenue Calculation:

- Rentable rooms: 42 (14 rooms × 3 floors).
- Annual room revenue = 42 rooms × 60% occupancy × 75,000 SDG × 365 days = 689,850,000 SDG.
- Other Income: 68,985,000 SDG (10% of room revenue).
- Total Annual Revenue: 758,835,000 SDG.
- Annual Operating Costs: 379,417,500 SDG (50% of revenue).
- Net Annual Operating Cash Flow (Years 1-9): 379,417,500 SDG.
- Year 10 Cash Flow: 379,417,500 + 180,570,000 (residual value) = 559,987,500 SDG.

7.4 Investment Appraisal Results

A. Payback Period (PP)

$$PP = \frac{\text{Initial Investment}}{\text{Annual Cash Flow}} = \frac{180,570,000}{379,417,500} = 0.48 \text{ years} \approx 0.$$

Interpretation: The investment recovers in approximately 6 months, indicating strong liquidity and minimal payback risk.

B. Net Present Value (NPV)

$$NPV = -I_0 + \sum t = 1^n \frac{CF_t}{(1+r)^t}$$

$$NPV = -180,570,000 + \sum t = 1^9 \frac{379,417,500}{(1.15)^t} + \frac{559,987,500}{(1.15)^{10}}$$

$$NPV = -86,783,796.76 \text{ SDG}$$

Interpretation: The negative NPV suggests the project is financially unviable at the 15% discount rate, despite strong

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cash flows, due to the high cost of capital in the Sudanese market.

C. Internal Rate of Return (IRR)

Solving for r where NPV = 0:

$$-180,570,000 + \sum t = 1^{9} \frac{379,417,500}{(1+r)^{t}} + \frac{559,987,500}{(1+r)^{10}} = 0$$

$$IRR = 210.1\%$$

Interpretation: The extraordinarily high IRR reflects the exceptional cash flow generation relative to initial investment. However, this metric must be interpreted cautiously in high-inflation contexts where nominal returns may not represent real value creation.

D. Profitability Index (PI)

$$PI = \frac{\text{PV of Future Cash Flows}}{\text{Initial Investment}} = \frac{93,786,203}{180,570,000} = 0.52$$

Interpretation: With PI < 1, the project destroys value relative to the discount rate, confirming the NPV finding.

Survey Results and Analysis

8.1 Project Types Evaluated

Survey respondents demonstrated diverse evaluation experience:

- Project Type Frequency Percentage
- Real Estate/Residential 16 45.7%
- Vehicle Evaluation 8 22.9%
- Company Evaluation 2 5.7%
- Agricultural Land 1 2.9%
- Mining Projects 1 2.9%
- Mixed/Other 7 20.0%

Finding: Real estate dominates evaluation practice in the region (45.7%), reflecting the sector's importance as loan collateral.

8.2 Evaluation Objectives

- Objective Frequency Percentage
- Development 10 28.6%
- Replacement 7 20.0%
- Expansion 6 17.1%
- Bank Financing (Murabaha) 5 14.3%
- Mixed/Other 7 20.0%

8.3 Evaluation Methods Employed

Method Frequency Percentage

- NPV Only 16 45.7%
- NPV + IRR + Payback 4 11.4%
- Payback Period Only 4 11.4%
- NPV + IRR 2 5.7%
- NPV + Payback 2 5.7%
- DCF 1 2.9%
- IRR Only 1 2.9%
- ARR 3 8.6%
- Mixed Methods 2 5.7%

Critical Finding: NPV is the dominant evaluation tool (45.7% exclusive use, 71.4% including combinations), aligning with academic recommendations for value-based decision-making .

8.4 Return Measurement Approaches

54.3% of practitioners measure investment returns through comprehensive revenue-expense analysis relative to initial investment, while 20% rely on supply-demand analysis for project products.

8.5 Project Selection Factors

When selecting high-return projects, practitioners prioritize:

- Good Marketing Locations: 25.7%
- Differentiation/Unique Ideas: 25.7%
- Production Location Proximity: 14.3%

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- Government Incentives: 5.7%
- Multiple Factors: 28.6%

8.6 Primary Challenges

Challenge Frequency Percentage

- Economic Deterioration & Currency Instability 16 45.7%
- Economic Instability + Information Asymmetry 12 34.3%
- Lack of Accurate Information from Owners 7 20.0%

Critical Finding: Economic instability and currency volatility represent the overwhelming challenge (80% combined), significantly complicating discount rate selection and cash flow forecasting.

8.7 Experience Distribution

Experience Level Frequency Percentage

- < 1 Year 9 25.7%
- 1-5 Years 12 34.3%
- 5-10 Years 7 20.0%
- 10 Years 7 20.0%

DISCUSSION

The case study analysis reveals the complexity of investment evaluation in high-inflation, volatile economies. While the hotel property exhibits exceptional nominal performance metrics (IRR of 210.1%, payback of 0.5 years), the negative NPV (-86.8 million SDG) at a 15% discount rate indicates value destruction when accounting for the high cost of capital and risk premiums prevalent in the Sudanese market.

This divergence between traditional metrics highlights several critical considerations for emerging market valuation:

Discount Rate Sensitivity: In high-inflation environments, small changes in discount rates dramatically affect NPV calculations. The 15% rate used may still underestimate true risk premiums given currency volatility.

Nominal vs. Real Returns: The exceptional IRR reflects nominal cash flows that may not maintain real purchasing power over the 10-year horizon.

Residual Value Uncertainty: Assuming constant property values ignores potential currency depreciation and real estate market volatility.

Methodological Conflicts: The positive IRR but negative NPV demonstrates that these metrics can provide contradictory signals when cash flow patterns are unconventional or discount rates exceed reinvestment assumptions.

The survey findings align with global best practices, showing strong preference for NPV-based evaluation (45.7%) while maintaining payback period as a risk measure (11.4% exclusive use) . However, the predominance of economic instability as the primary challenge (45.7%) underscores the limitations of standard DCF approaches in volatile contexts.

CONCLUSION AND RECOMMENDATIONS:

Project evaluation remains fundamental to economic development through ensuring optimal resource allocation. This study demonstrates that while financial evaluation tools provide essential decision-making frameworks, their application in emerging markets requires careful adaptation to local economic conditions.

The analysis of the Workers' Union Hotel reveals that even assets generating strong cash flows may destroy value when evaluated against appropriate risk-adjusted discount rates. The conflicting signals between IRR (210.1%) and NPV (-86.8M SDG) emphasize the importance of using multiple metrics and understanding their underlying assumptions.

RECOMMENDATIONS:

1. Enhanced Transparency: Develop clear legal mechanisms ensuring rights protection for all stakeholders in property valuation.
2. Advanced Data Analytics: Implement sophisticated techniques for economic data analysis to ensure evaluation accuracy, moving beyond basic Excel modeling.
3. Professional Development: Conduct continuous training for evaluators on international standards (IVSC) and advanced methodologies including real options analysis.
4. Dynamic Financial Modeling: Develop models explicitly incorporating inflation effects and price volatility across project lifecycles, using probabilistic approaches rather than point estimates.
5. Bank-Evaluator Collaboration: Strengthen cooperation between financial institutions and valuation professionals to align investor requirements with economic realities.

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6. Standardized Software: Replace theoretical evaluation methods with standardized computerized systems incorporating scientific parameters and sensitivity analysis capabilities.
7. Market Data Infrastructure: Address information asymmetry through establishment of centralized property transaction databases and transparent market reporting systems.
8. Risk-Adjusted Discount Rates: Develop sector-specific discount rate guidelines reflecting Sudan's unique risk profile rather than applying generic rates.
9. Scenario Analysis: Mandate multi-scenario evaluation (optimistic, base, pessimistic) to capture range of possible outcomes in volatile environments.
10. Continuous Monitoring: Implement post-investment evaluation protocols to validate initial assumptions and improve future valuation accuracy.

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