

PROCEEDING

IC 2018 MS

**The 4th International Conference on Management Sciences
Universitas Muhammadiyah Yogyakarta, Indonesia**

“Disruptive Innovation in Modern Business Era”

held in UMY, Indonesia, on March 28, 2018

Department of Management

FACULTY OF ECONOMICS AND BUSINESS
Universitas Muhammadiyah Yogyakarta

in collaboration with:
Universiti Sains Islam, Malaysia
Tamkang University, Taiwan
Khon Kaen University, Thailand



**The 4rd International Conference on Management Sciences 2018
(ICoMS 2018)**

March 28 2018

Universitas Muhammadiyah Yogyakarta, Indonesia

Chair Person

Dr. Indah Fatmawati, S.E., M.Si

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1. Prof. Shu Hsein Liao, Ph.D (Tamkang University, Taiwan)
2. Dr. Kawpong Polyorat (Khon Khaen University, Thailand)
3. Dr. Syadiyah Abdul Shukor (Universiti Sains Islam Malaysia)
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Meika Kurnia Puji RDA, S.E., M.Si., Ph.D (Universitas Muhammadiyah Yogyakarta)

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Preface ICoMS 2018
The 4rd International Conference on Management Sciences 2018
(ICoMS 2018)
March 28 2018
Universitas Muhammadiyah Yogyakarta, Indonesia

Dear Presenters and Delegates,

Department of Management, Economics Faculty, University of Muhammadiyah Yogyakarta, in collaboration with the Tamkang University Taiwan, Khon Kaen University Thailand, USIM Malaysia, organized an International Conference which will be held on March 28 2018.

We are proud to know that there is a thick manuscript submissions came to our table for this conference. In detail, there are 42 international academic manuscripts which we received from Indonesia, Malaysia, Thailand. And in this conference we choose **Disruptive Innovation in Modern Business Era** as the main theme.

Our international conference is a manifestation of the Government of Indonesia through the Directorate General of Higher Education, which has encouraged the internationalization of research and teaching in order to foster high-caliber academic institutions globally and increase competitiveness in International Higher Education.

We are very confident that our presenters and delegates will get a lot of ideas together and experience of this conference. In addition, our participants will enjoy additional insight from our plenary session keynote speakers, namely, Prof.Dr.Shu-Hsien Liao from Tamkang University Taiwan, Dr. Kawpong Polyorat from Khon Kaen University Thailand, Prof. Dr. Syadiyah Abdul Shukor from USIM Malaysia, and Punang Amaripuja, S.E., S.T., M.IT. from Universitas Muhammadiyah Yogyakarta.

Through this conference, we are committed to promote and improve our mission and academic culture synthesize global progress with local knowledge. Therefore, it is my great honour to welcome you to ICoMS 2018 in great cultural city of Yogyakarta, Indonesia. I look forward to seeing you soon in the conference.

Best wishes,

Dr. Indah Fatmawati

Chair of ICoMS 2018

<http://icoms.umy.ac.id/call-for-papers>

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**THE DEPARTMENT OF MANAGEMENT
FACULTY OF ECONOMICS AND BUSINESS
UNIVERSITAS MUHAMMADIYAH YOGYAKARTA**

Website: www.icoms.umy.ac.id | Email: icoms@umy.ac.id
Jl. Brawijaya, Tamantirto, Kasihan, Bantul, D.I. Yogyakarta 55183
Telp. 0274-387656 ext 118 Fax. 0274-387656

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Financial Feasibility Study Of Mix-Use Building Area Investment Plan

Nurul Sandy Putri¹, Arson Aliludin²

¹ MBA Program of Institut Teknologi Bandung, Bandung
(nurul.sandy@sbm-itb.ac.id)

² School of Business and Management Institut Teknologi Bandung, Bandung
(arson@sbm-itb.com)

ABSTRACT

PT XYZ owns a plot of land located in one of big cities in West Java Province and wants to maximize the utilization of the land. They proposes a business agreement to PT ABC to develop it into an area consisting of several buildings with different functions (mix-use building area). The area is planned to have 9 businesses; hotel, convention center, apartment, sport center, school, co-working space, parking building, and theme park. The cooperation or business agreement between PT XYZ and PT ABC is business cooperation with a 30 years consortium time. This research is intended to conduct a financial feasibility analysis of investment plan of this mix-use building area as consideration to ABC as the prospective investor of this investment. The feasibility of an investment plan can be financially analyzed by using Discounted Cash Flow (DCF) method. In order to reduce uncertainty from the calculation, the financial projection is performed by using 3 scenarios; moderate, pessimistic, and optimistic. From the results of financial projections, the development of mix-use building area required Rp 957 Billion. In term of business cooperation, ABC need to pay a compensation fee as much as Rp 555 Billion within first 10 years of the consortium time. With WACC 11.51%, by using the basic assumption (moderate scenario) the NPV of this investment is Rp 335.5 Billion, IRR 17.54%, and 17 years of payback period. From the sensitivity analysis, there are 4 variables that greatly affect the NPV and IRR, which are total investment cost (capital expenditure), hotel operating cost, theme park operating cost, and total compensation fee.

Keywords: Feasibility analysis, investment, mix-use building, free cash flow.

1. Introduction

PT XYZ (fictive name) is a State-Owned Enterprise. It has an idle asset in various locations in Indonesia. One of them is a land in one of the big city in West Java Province, Indonesia with the total of 206.400 m². Every year, XYZ still bear the burden of costs from the idle asset in the form of land and building tax costs, maintenance costs, and other expenses while the revenue of the company cannot cover the costs incurred. As the solution, XYZ needs to optimize the empowerment of its idle asset. The empowerment of State-Owned Enterprise Fix

Assets has been regulated by Minister of State-Owned Enterprise in *Peraturan Menteri Badan Usaha Milik Negara Republik Indonesia Nomor PER-13/MBU/2014*. Referring to this regulation, the optimization of the asset can be done through a partnership with business partners, bound in agreement by giving priority to mutual benefits.

XYZ wants to optimize the profit from idle assets and choose ABC as a business partner in several locations. The type of partnership that used in this project is *Kerja Sama Usaha* (KSU). This kind of partnership is defined in *Peraturan Menteri Badan Usaha Milik Negara Republik Indonesia Nomor*

PER-13/MBU/2014 as the business collaboration with the principal of profit sharing between XYZ and ABC, and XYZ is not involved in operating management. On their idle asset in one of the big city in West Java Province, XYZ wants to build a mix-use building area with a green concept. As the owner, they will give ABC an authority to use the area for 30 years. At the end of the agreement, the ownership of the building will be return back to XYZ.

Inside of this area, there are heritage buildings that established since *Staatspoorwegen* era. XYZ intended to make this area become a mixed-use area. The development plan should be in accordance with the government policy. This area is located in three kinds of development zones; high-mix-intensity zone, linear commercial and service zone, and protected zone. Based on their analysis, the consultant recommends ABC to build 9 types of business in this area; 4-star hotel, convention center, retail, co-living apartment, sports center, school, co-working space, parking building, and theme park.

In the form of *Kerja Sama Usaha* (KSU), ABC as a business partner has various obligations to XYZ such as giving a compensation fee during certain periods, ensure the building and other fix assets which are the object of the agreement, pay the land and building tax and other expenses of the fix assets due to the agreement, and give an annual report to the XYZ. Basically, all the building that will support the businesses in mix-use building area will be constructed by ABC except the school buildings. ABC has negotiated to one of education institute to join as the tenant for this mix-use area. The educational institute wants to choose the contractor for them self. But, in 2026 it requested ABC to buy back the buildings with an assumption as much as Rp 103 Billion. This mix-use building area is becoming one of ABC long-term investment and it costs a lot of money. Further analysis of financial aspects needs to be conducted to analyze the

feasibility of the investment, whether this investment will bring profits or loss.

2. Business Issue Exploration

The business collaboration between XYZ and ABC in optimizing the empowerment of XYZ's fix asset is an embodiment of State-Owned Enterprise Synergy (*Sinergi BUMN*) Program. Through direct appointment, ABC had a chance to utilize XYZ idle asset in various location, one of them is at the big city of West Java Province. This study will be focused in analyzing the financial feasibility of mix-use building area. Through this study, the author will analyze several things that important to decide whether ABC should invest or not.

There are several aspects that is usually considered in investment decision analysis such as market condition, technical aspect, internal and external condition, financial aspect, and risk management. This research will be focused on the financial analysis. But, the internal and external analysis will be briefly explained to complete this investment analysis. The financial feasibility analysis will be calculated by using Discounted Cash Flow (DCF) method. This method will analyze the financial feasibility based on several parameters which are Net Present Value (NPV), Internal Rate of Return (IRR), and Payback Period (PP). After calculating those parameters, the author does the sensitivity analysis which used to analyze which variable greatly affect the parameter. The financial projection and financial modeling will be calculated by using assumptions from internal company with some adjustment based on current and reliable data.

2.1 Conceptual Framework

In this research, the author conducted several steps to analyze the feasibility of mix-use building area. The first step is analyzing internal and external condition by using SWOT and TOWS analysis. After that, author calculated revenue and expenses

projection of the investment plan. Based on the projection results, author calculating free cash flow which is later used to calculate DCF parameters (NPV, IRR, and Payback Period). Then, the last step is calculating sensitivity analysis. The detail of conceptual framework can be seen in Figure 1.

2.2 Method of Data Collection and Analysis

The focus of this study is to analyze the feasibility of mix-use building investment plan. This study begins with identifying the business issue. The next step is collecting external environment and industry through a literature study. This information is required to conduct PEST analysis for external analysis and Porter's 5 Forces for industry analysis. ABC internal condition is also an important aspect to be included in conducting the internal analysis. After external, industry, and internal data have been gathered, the next step is to analyze strengths, weaknesses, opportunities, and threats of mix-use building area by using SWOT analysis. This analysis was defined in the book SWOT Analysis Strategy Skills as "business analysis technique that your organization can perform for each of its products, services, and market when deciding on the best way to achieve future growth" (Free Management E-Books, 2013, p.6). The result of SWOT analysis will be used to determine the position of the mix-use building area in IE Matrix and also to enhance the use of business strategy by using TOWS matrix analysis. The mix-use building project business plan is also collected from ABC to calculate the feasibility of the investment plan.

Figure 1 Conceptual Framework

2.3 Analysis of Business Situation

In order to analyze the business situation of mix-use building investment plan, the author conducted SWOT analysis to determine strengths, weaknesses, threats, and opportunities of the project. Table 1 shows the strengths and weaknesses of the internal analysis and its weighted score, while Table 2 shows the opportunities and threats based on an external analysis.

The total score from IFAS and EFAS then is used to determine the category of mix-use building area based on Internal-External Matrix (IE Matrix). In one of the business journal it was stated that "The I-E Matrix categorizes IFE as weak, average, or strong on one axis, and categorizes EFE as low, medium, and high on the other axis" (Cassidy, Glissmeyer, & Capps, 2013, p. 1525).

From the calculation before, the weighted score for IFAS is 3.03 and for the EFAS is 3.04. Based on Figure 2, both IFAS and EFAS values obtained refers to grow and build the region. From the result, the mix-use building area has strong internal factors and its business strategy has a high level of responsiveness to external factors that might harm its businesses.



As the conclusion, referring to the internal and external factors, the mix-use building area is worth to be executed. But, the further financial

analysis should be conducted to get an insight from the financial perspective.

Table 1 IFAS Weighted Score Calculation

Strength		Rating	Weight	Weighted Score
S.1	Good Financial Condition	3.5	0.18	0.63
S.2	Well-trained Employee	3.5	0.11	0.385
S.3	Support from Subsidiaries	3	0.13	0.39
S.4	Equipment	3	0.11	0.33
S.5	Positioning	3.5	0.12	0.42
Weakness		Rating	Weight	Weighted Score
W.1	Experience in Managing Mix-Building Area	2.5	0.13	0.325
W.2	Targeting	2.5	0.11	0.275
W.3	Brand and Image	2.5	0.11	0.275
Total			1.00	3.03

Table 2 EFAS Weighted Score Calculation

Opportunity		Rating	Weight	Weighted Score
O.1	Location	3.5	0.12	0.42
O.2	Demography Structure	3.5	0.11	0.385
O.3	Light Rail Transport (LRT) Development	3.5	0.13	0.455
O.4	Low Bargaining Power of Supplier (PT XYZ)	3	0.09	0.27
O.5	Product Differentiation	3.5	0.09	0.315
Threat		Rating	Weight	Weighted Score
T.1	High-Speed Railway Development	3	0.09	0.27
T.2	Political Situation	2.5	0.12	0.3
T.3	Economic Condition	2.5	0.13	0.325
T.4	Market Situation	2.5	0.12	0.3
Total			1.00	3.04

In term of financial, mix-use building area requires a capital expenditure (CAPEX) for about Rp 785,741 Million to develop 9 kinds of businesses and public facilities. The development process was planned to start with pre-construction activity in 2017 and finish in 2020. It will be done gradually. Some of the businesses will be ready to operate during the construction time. The source of fund for mix-use building area is planned to be 70% from loan and 30% from equity. Since ABC is

using debt to fund this project, the author should calculate Interest During Construction (IDC) which will be calculated as the component of CAPEX.

Other major expenses from the business issue exploration are compensation fee and additional investment plan in 2026. Compensation fee is the expense that ABC should pay to XYZ as the benefit of using their land. The amount of compensation fee is Rp 553 Billion and it should be paid in first 10

years of the consortium time. As the part of the investment plan, mix-use building area will be equipped with a school which will be held by one of popular education institution in Indonesia. In the business agreement, they requested to build the school facility on its own and in 2026 ABC should buyback the school building. The value of assets was estimated at Rp 103 Billion.

The IFAS Total Weighted Score

IE MATRIX	STRONG 3.0-4.0	AVERAGE 2.0-2.99	WEAK 1.0-1.99
HIGH 3.0-4.0	Grow & Build I	Grow & Build II	Hold & Maintain III
MEDIUM 2.0-2.99	Grow & Build IV	Hold & Maintain V	Harvest & Divest VI
LOW 1.0-1.99	Hold & Maintain VII	Harvest & Divest VIII	Harvest & Divest IX

The EFAS Total Weighted Score

Figure 2 IE Matrix

Table 3 Capital Expenditure (CAPEX)

Activity	Total (Mio IDR)	Year			
		2017	2018	2019	2020
Pre-Construction	26,327	752	20,942	4,632	-
Construction	637,529	-	326,467	254,548	56,512
Pre-Operating	50,454	5,673	22,702	16,707	5,370
PPN (10%)	71,431	642	37,011	27,588	6,188
Total CAPEX	785,741	7,068	407,124	303,477	68,070
IDC	68,885	-	-	20,240	48,643
CAPEX + IDC	854,656	7,068	407,124	323,718	116,714

3. Business Solution

3.1 Alternative to Business Solution

In this paper, author tries to provide a solution of financial feasibility issue by using Discounted Cash Flow (DCF) Analysis. DCF is a technique that is usually used to determine the attractiveness of an investment opportunity. DCF works by valuing a project, company, or assets based on how much money it is projected to make in the future. DCF analysis takes in the historical and projected cash-in and cash-out data. The projected future cash flow is discounted by using interest rate (mostly using the weighted average cost of capital) to get the present value.

For project investment analysis, the investors need to calculate DCF from Free Cash Flow (FCF). Referring to Managerial Finance Book, FCF defined as: "The firm's cash flow represents the cash available to investors-the providers of debt (creditors) and equity (owners)-after the firm has met all operating needs and paid for net investments in fix assets and current assets" (Gittman & Lawrence, 2010, p. 122).

To calculate NPV, IRR, and Payback Period of mix-use building area, the FCF should be determined and discounted by the discount factor. The following data calculation is the components of Free Cash Flow:

3.1.1 Depreciation Calculation

The depreciation method used in this research is a straight-line method. Depreciation calculation has been described in *Undang-Undang Republik Indonesia Nomor 36 Tahun 2008*. It is defined as the subtraction of gross profit. In the clausal number 11 verse 1, the depreciation value of the expenses is equal during its lifetime. The lifetime of tangible assets described in clausal 1 verse 6 for the permanent building is 20 years. The depreciation expense is counted when the asset has been used. Table 4 shows the depreciation expense of mix-use building.

3.1.2 Loan Schedule and Interest Rate Calculation

The source of long-term loan that will be used was assumed from a bank with 10 years maturity time. The interest rate is calculated

based on the average of Jakarta Interbank Offered Rate (JIBOR) from January 2010 to August 2017 added with the average margin from the bank. The percentage of margin used in this research is referred to the historical data from company's annual report.

Table 4 Depreciation Expense

End of Year	Total Depreciation Expense (in Thousand IDR)
2019	17,460,340
2020	14,751,417
2021-2026	42,731,267
2027-2038	47,881,267
2039	30,420,927
2040	8,604,206
2041-2046	5,150,000

Table 5 Interest Rate Calculation

Average JIBOR (January 2010- August 2017)	7.21%
Average Bank Margin	2.48%
Bank Loan Interest Rate (Average JIBOR + Margin)	9.69%

This mix-use building development will use the bank loan to fund 70% of the total capital expenditure. As calculated in Table 3, the total CAPEX is Rp 785,741 million. Around Rp 550,019 million will be funded by using bank loan.

3.1.3 Discount Rate Calculation

For this study, the author uses Weight Average Cost of Capital (WACC) as the discount factor. WACC is used to evaluate the returns a firm needs to meet all of its capital obligation. The capital structure used to fund this project is 70% from debt and 30% from equity. This strategy surely brings cost that should be considered by the company. The cost of debt is the loan interest after-tax that should be paid to creditors, while the cost of equity is the risk that shareholders must be

borne when the company invests in the project. The cost of equity is 21.43% calculated by using Capital Asset Pricing Method (CAPM). While the cost of debt is after-tax interest rate 7.26%.

CAPM formula:

$$rs = Rf + [b \times (rm - Rf)] \quad (1)$$

WACC formula:

$$WACC = (wi \times ri) + (ws \times rs) \quad (2)$$

Table 6 WACC Variables

WACC Variable	Value	Source
Debt proportion (w_i)	70%	Internal assumption
Equity proportion (w_s)	30%	Internal assumption
Risk-Free Rate (R_f)	8.75%	Indonesian 30 years bond yield
Market Risk (r_m)	16.21%	Market return based on Jakarta Composite Index
Income Tax Rate (T)	25%	Undang-Undang RI No. 36 Tahun 2008
Interest Rate (r_d)	9.69%	Average JIBOR + margin
Beta (b)	1.69	Reuters.com with adjustment (re-levered)
Cost of Equity (r_s)	21.43%	Author's calculation
Cost of Debt (r_i)	7.26%	Author's calculation
WACC	11.51%	Author's calculation

3.1.4 Sales Volume and Product Pricing

The mix-use building area consists of 9 businesses. Each of them has a different concept, target market, and also a difference in sales volume and product prices. Sales volume and product pricing will change every time. The sales volume of the product relies on its supply and demand. Where the product price will change due to the economic condition, behavior of competitors, and product supply and demand.

In order to analyze the investment financial feasibility, the financial model should be made. It requires to estimating the

investment cash inflow and outflow. Since the sales and product price are the component of investment cash flow, the future sales volume and product price should be defined. In this research, sales volume and projected price during the consortium time were taking from the company market analysis which become the moderate assumption to estimate the mix-use building project. Due to the confidential of company's data, the assumption of sales volume and projected price cannot be explained further.

3.1.5 Projected Earnings After Tax (EAT)

ABC as the future investor has created several assumptions related to sales and expenses of businesses in the mix-use building area. However, the condition of an internal and external factor during 30 years consortium time might be different. To cover the uncertainty from those conditions, author calculating financial analysis in three scenarios; moderate, pessimistic, and optimistic. Moderate scenario calculates financial projection based on company basic assumption, while the pessimistic and optimistic are \pm industry's growth (11.1%). The projected EAT from three scenario is show in Table 7. For the confidentiality of corporate data, the EAT results shown is value that has been disguised.

3.1.6 Free Cash Flow

As explained before, DCF analysis works by calculating the value of the project based on how much money it's projected to make in the future. CFA Institute in their program material Free Cash Flow Valuation has divided Free Cash Flow into two type, Free Cash Flow for Firm (FCFF) and Free Cash Flow for Equity

(FCFE). The FCFF is cash available to the firm's suppliers of capital after the firm pays all of its operating expenses, taxes, and other expenditures such as purchasing fix assets, inventory, and working capital. Whereas, FCFE is the cash flow available to the firm's common stockholders once the operating expense, taxes, expenditures needed to support productivity, and payments to (and receipt from) debtholders are accounted for.

$$FCFE = EAT + Depreciation - CAPEX - WC Investment + Net Borrowing \quad (3)$$

Where:

- CAPEX* = Capital Expenditures
- EAT* = Earnings After Tax (Net Income)
- WC* = Working Capital

In order to analyze the financial feasibility of this project, the valuation should be calculated based on FCFE because this cash flow shows the available cash after all of the financial obligations have been fulfilled.

3.2 Analysis of Business Solution

3.2.1 Comparison of Business Revenue and Cost

After calculating the projected revenue and cost from each businesses, author create a resume table and calculate the profitability index based on the cash flow of each businesses. Profitability index is calculated by divided the present value of cash flow with the total capital expenditure (CAPEX) or investment cost of that business

Table 7 Projected EAT

EOY		EAT (in Million IDR)			EOY		EAT (in Million IDR)		
		Moderate	Pessimistic	Optimistic			Moderate	Pessimistic	Optimistic
0	2017	-	0	-	16	2033	189,496	145,957	235,566
1	2018	(59,841)	(59,841)	(59,841)	17	2034	204,090	159,137	253,216

2	2019	(54,124)	(57,794)	(50,438)	18	2035	212,950	166,301	263,901
3	2020	(8,724)	(27,800)	12,064	19	2036	221,614	173,456	274,194
4	2021	(31,138)	(57,925)	(2,074)	20	2037	232,599	182,532	287,240
5	2022	(1,998)	(36,255)	35,207	21	2038	243,088	191,203	299,691
6	2023	13,984	(26,221)	57,677	22	2039	265,231	212,898	322,174
7	2024	34,152	(12,699)	65,698	23	2040	291,620	237,325	350,672
8	2025	50,070	(572)	80,500	24	2041	305,672	249,406	366,848
9	2026	56,287	13,803	97,453	25	2042	317,492	259,205	380,842
10	2027	61,155	12,742	106,096	26	2043	331,266	270,616	397,162
11	2028	119,990	72,829	163,187	27	2044	345,772	282,901	414,055
12	2029	136,617	79,608	177,218	28	2045	359,963	294,399	431,149
13	2030	155,006	98,772	195,377	29	2046	281,703	305,552	447,093
14	2031	168,101	116,918	209,660	30	2047	297,224	321,913	468,817
15	2032	180,638	134,464	225,038					

Table 8 Comparison of Business Revenue and Cost

Business	CAPEX	Revenue	Cost	Present Value of Cash Flow	Profitability Index	Ranking
	in Million IDR					
Co-Working Space	7,287	33,308	(1,294)	32,014	4.39	1
Retail	208,761	816,653	(158,184)	658,470	3.15	2
Convention Center	36,192	200,395	(133,472)	66,923	1.85	3
Hotel	183,724	736,485	(426,687)	309,798	1.69	4
Sport Center	26,560	55,519	(19,311)	36,208	1.36	5
Apartment	69,084	142,429	(54,835)	87,594	1.27	6
Theme Park	189,859	557,295	(329,733)	227,562	1.20	7
School	103,000	63,820	(1,595)	62,224	0.60	8
Parking Building	133,159	98,724	(24,681)	74,043	0.56	9

Profitability index usually used to evaluate the opportunity of the investment. When the index is higher than 1.0, it means the present value from cash inflow (business revenue) is higher than its investment cost. As shown in Table 8, Co-Working Space has the highest profitability index, because this business utilized the existing heritage buildings. Based on that fact, it is not required a high amount of investment cost (CAPEX).

3.2.2 DCF Analysis

Referring to the calculation of FCFE and Discounted FCFE, the DCF parameter can be calculated. Bierman and Smidt introduce two primary discounted cash flow (DCF) investment evaluation procedures in The Capital Budgeting Decision book. That is Net Present Value (NPV) and Internal Rate of Return (IRR).

NPV is a method with the concept that investors expect a return on its investment. The firm should undertake an investment only if the present value of the cash flow that the investment generates is greater than its investment cost. In the other perspective, some company uses Internal Rate of Return (IRR) to

analyze the prospective investment. IRR is the discount rate that equates the NPV of an investment opportunity with \$0 (because the present value of cash inflows equals the initial investment) (Gittman & Lawrence, 2010).

$$NPV = \sum_{t=1}^n \frac{CF_t}{(1+r)^t} - CF_0 \quad (4)$$

$$IRR = \sum_{t=1}^n \frac{CF_t}{(1+IRR)^t} = CF_0 \quad (5)$$

Where:

CF_0 = Cash flow at year 0

CF_t = Cash flow at year

The NPV of pessimistic, moderate, and optimistic are higher than zero (IDR 0), the IRR is higher than WACC, while the payback period of optimistic scenario is 14 years, the moderate scenario is 17 years, and for the pessimistic is 22 years.

Besides NPV and IRR, Payback Period is commonly used to evaluate the proposed investment. Payback period is the amount of time required for the firm to recover its initial investment in a project, as calculated from cash inflow (Gittman & Lawrence, 2010, p. 393). The results of mix-use building area DCF analysis is shown in Table 9 below.

Table 9 Resume of DCF Analysis

Scenario	NPV	IRR	Payback Period
Pessimistic	Rp 132,449,663,253	14.20%	22 years
Moderate	Rp 335,546,319,699	17.54%	17 years
Optimistic	Rp 561,288,899,228	20.97 %	14 years

3.2.3 Sensitivity Analysis

Sensitivity analysis is conducted to see the possibility that will be occurred if one of the variables or basic assumption was changed. In this analysis, the author makes some changes to the basic assumptions by increasing or decreasing the basic assumption by 20%. This number chosen because it is higher than the average growth rate of commercial property which used in scenario analysis (11.1%). Another Author want to know what will happened if the condition is changed a little bit extreme higher or lower than common growth rate. The sensitivity of these variables will be measured through the changes of Net Present Value (NPV) and Internal Rate of Return (IRR) due to the variable changes. In this part, author

will show 10 variables which give the most impact to NPV and IRR of the project. The result will be presented through tornado chart in Figure 3 and Figure 4.

Capital Expenditure (CAPEX) is the variable which give a great effect on the NPV of the project. The range of change in CAPEX value between its upside and downside condition is the highest among all variables which is around Rp 221,036 million. Another factor that also has a wide NPV range from sensitivity analysis are hotel operating expense, total compensation fee, and theme park operating expense.

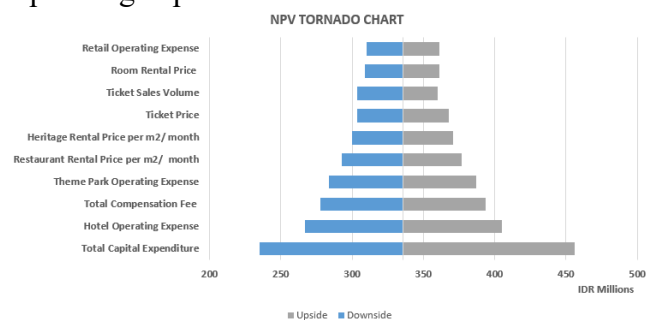


Figure 3 NPV Tornado Chart

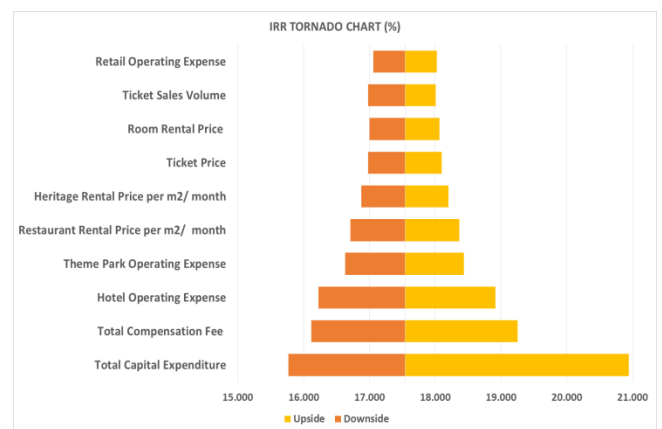


Figure 4 IRR Tornado Chart

The result of IRR sensitivity analysis is quite similar with the NPV sensitivity analysis. There are 4 input variables that greatly affect the project IRR; total capital expenditure, hotel operating expense, theme park operating expense, and total compensation fee.

Table 10 NPV Sensitivity Calculation

Input Variable	NPV (in Million IDR)		Range (Mio IDR)
	Downside	Upside	
Total Capital Expenditure	234,939	455,975	221,036

Hotel Operating Expense	266,802	404,860	138,057
Total Compensation Fee	278,016	393,659	115,644
Theme Park Operating Expense	283,714	387,283	103,569
Restaurant Rental Price per m2/ month	293,017	376,882	83,864
Heritage Rental Price per m2/ month	299,971	371,045	71,074
Ticket Price	303,417	367,662	64,245
Ticket Sales Volume	303,417	360,135	56,718
Room Rental Price	309,200	360,988	51,788
Retail Operating Expense	310,166	360,908	50,743

Table 11 IRR Sensitivity Calculation

Input Variable	IRR (%)		Range (%)
	Downside	Upside	
Total Capital Expenditure	15.76	20.94	5.17
Total Compensation Fee	16.12	19.26	3.14
Hotel Operating Expense	16.224	18.91	2.68
Theme Park Operating Expense	16.63	18.44	1.81
Restaurant Rental Price per m2/ month	16.71	18.37	1.66
Heritage Rental Price per m2/ month	16.88	18.20	1.33
Ticket Price	16.98	18.10	1.12
Room Rental Price	17.01	18.06	1.06
Ticket Sales Volume	16.98	18.00	1.03
Retail Operating Expense	17.05	18.02	0.96

4. Conclusion and Recommendation

4.1 Discussion

There are two aspects that should be determined in order to decide whether the investment project is feasible or not. First is the external and internal aspects, and the second one is financial aspect. Referring to the SWOT analysis the score of internal factor (IFAS) is 3.03 and the external factor (EFAS) is 3.04. Then, author plotted those score to the

IE matrix, and this investment plan categorized as growth and build the region.

The basic sales volume and product price assumptions (moderate scenario) has been stated in part 3. These assumption used to calculate the revenue and expenses of 9 businesses in mix-use building area. Based on these assumptions, the financial projection forecasted for the next 30 years. The result shows that the mix-use building area is feasible to be executed. This project will cost the company for approximately Rp 957,625 million. Referring to the financial feasibility analysis the NPV of the project is Rp 335,546 million, and IRR is 17.5% and the payback period (PP) is 17 years. The result from optimistic and pessimistic scenarios also show that this investment is feasible to be conducted. By increasing the product pricing assumption for 11.1 %, the NPV of this investment is become Rp 561,288 million, IRR is 20.97%, and the payback period is 14 years. While by decreasing 11.1% of product pricing assumption, the NPV of pessimistic scenario will be Rp 132,449 million, IRR 14.2%, and the payback period is 22 years.

Even though all of the scenario results indicate that this mix-use building area investment is feasible to be conducted, bear in mind that this investment required working capital loan to support its operation. The total working capital loan for moderate scenario is Rp 731.34 million, while for optimistic scenario is Rp 567.62 million and for pessimistic is Rp 1.8 billion. These are a huge amount of money and the amount is almost the same as the total capital expenditure (CAPEX) required to develop the building. It is also not easy to get a bank loan with that amount of money. So, it can be conclude that this investment plan might be feasible but difficult to be executed.

In this financial feasibility analysis, author also conducts a sensitivity analysis to determine which input variable of the financial model greatly affects the NPV and IRR of the project. By using tornado chart analysis, there are 4 variables which give a big impact to project feasibility result which are total capital expenditure, hotel operating expense,

theme park operating expense, and total compensation fee. The range of change in NPV from those variables between upside and downside condition is more than Rp 100 million, while the range of IRR is higher than 2%.

As mention before, this mix-use building investment plan is a part of the business agreement between PT XYZ and PT ABC to maximize the utilization of XYZ's idle assets. This project is carrying a spirit of State-Owned Enterprise Synergy Program (*Sinergi BUMN*). Therefore, the investment decision cannot only be concluded based on the financial feasibility of mix-use building area but also considering the investment analysis from other locations and non-financial aspect in State-Owned Enterprise Synergy Program.

4.2 Recommendation

From this financial analysis study, author recommend ABC to execute the mix-use building area investment plan. But, ABC should be concerned to the business and market condition, in order to maximise the profitability. Thus, author want to propose some recommendations:

1. Evaluate the business concepts of mix-use building area to see whether any of them are in saturated condition which results in small operating income.
2. Evaluate the operating expense assumptions from current business plan to recognize whether any of them having such a wasteful operating expenditure. So, ABC can create a new strategy to minimize the business spending.
3. Evaluate the efficiency of current investment plan to reduce project's investment expenses (CAPEX), including the plan to buyback school building. ABC should conduct a further discussion with the education institute to determine the fair value of the property.
4. Renegotiate with XYZ to reduce the compensation fee. Another option is proposing the extension of consortium time. So, ABC will have additional year to earn profit.

5. Conduct a value analysis towards the design of buildings in order to minimize the construction cost without eliminating the basic function of the building.
6. Evaluating the schedule of construction to optimize the revenue generation from a business with high profitability index. The optimization can be conduct by prioritizing the development of high profitability business, or may be to hold the development of supporting business until the cash flow of the project can support the additional development without requiring an injection of funds from working capital loan.
7. Conduct further analysis by using operatorship concept. The investment is not analyzed as a whole integrated investment area operated by one company, but each of the business managed as a separates entity and might be operated by third party.

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