FEASIBILITY INVESTING IN DEVELOPMENT PROJECTS
CITRA HARMONI SHOP (PT CIPUTRA TBK)

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INTRODUCTION
Every commercial project is expected to have revenue, whether it comes from rental or lease-purchase. If the income is derived from rent, the building and its land remain the property of the building entrepreneur in perpetuity, while in a lease-purchase, after a calculated period, the building becomes the property of the lessee and the land remains the property of the building entrepreneur along with the land tenant. Commercial projects such as RUKO (Rumah Toko) generally generate income from this.

Investment analysis is a systematic evaluation of capital expenditures about expected income streams for the benefit of contributing to an investment decision. In the property sector, the problems that must be resolved are improving the performance of the real sector and the availability of loan funds at affordable interest rates to generate demand in the property sector.

The implementation of a project development requires substantial funds so that before deciding to undertake an investment project, a study or analysis of the factors that will affect the business entity's investment project is carried out through investment decisions. An investment decision is an action taken after going through the analysis process and the investment promises security and satisfactory investment results.

Based on the concept of investment analysis, financial analysis is carried out on cash flow in terms of income, expenditure and project funding, taxes, how to return capital, project growth each year. The technique used in financial analysis is discounted cash flow analysis. Then the method used in determining investment profitability is the method of an average rate of return, payback, internal rate of return, and net present value method.

From the description above, there are several problems, namely:
1. How much is the Development Cost (DC) for the construction of Ruko?
2. How much loan and equity are needed?
3. How much Net Present Value (NPV) will be obtained during the calculation analysis period?
4. How much is the Internal Rate of Return (IRR) obtained during the calculation analysis period and when the Net present value (NPV) = 0?
5. How long is the payback period?
6. How big is the Benefit-Cost Ratio (BCR) achieved?

METHOD
Data processing
Data processing is carried out by identifying related variables that will influence investment decisions for this RUKO construction project. Can be grouped into three data, namely:

Abstract
Investment is a commitment to several funds or other resources carried out at this time, intending to obtain some benefits in the future. Investments can be associated with a wide variety of activities. Investing many funds in real assets (land, gold, machinery, or buildings) or financial assets (deposits, stocks, or bonds) is an investment activity that is generally carried out, especially for developers. So that before stepping into the development stage, it is necessary to conduct a feasibility study first to be able to state whether or not the development of a project is continued.

This study takes a case study of RUKO (Rumah Toko) in the Sidoarjo area, namely Ruko Citra Harmoni, and in its financial analysis uses discounted cash flow analysis.

From the analysis results obtained: (1) Total development costs (development costs) calculated from the cost of DC phase, I added to the DC phase II is Rp. 3,831,665,014,-. (2) Loan from 60% development cost (DC) which is Rp. 2,298,999,008,-, while the remaining 40% of Rp.1,532,666,006,- is equity. So that the Debt Service from the loan that must be paid annually is Rp. 285,075,877,-. (3) The net present value obtained is Rp. 1,389,027,781,- during 30 years. (4) Internal rate of return (IRR) = 18.47 % > discount factor (DF) 16%. (5) Payback period is 23.8 years. (6) BCR > 1, i.e. 1.29 > 1. So from the several assessments above it can be stated that the Royal Business Regency Ruko Palm Project is feasible to work on and carry out construction.

Keywords: Feasibility study, discounted cash flow analysis
1. Income Data
   a. Shophouse Sales
   b. Shophouse Rental
2. Expenditure Data
   a. Details of expenses from the company
3. Development Costs (Development Costs).

At this stage, initial activities are carried out to build shophouses such as land purchases.

Phase II (in 2020)
Shophouse construction completed 100%.
Phase I Development Planning

Table 1. Plan and Cost Details of Phase I Shophouse Construction

<table>
<thead>
<tr>
<th>Keterangan</th>
<th>Biaya (Rp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
| 1. Pembelian Tanah                         445.934.014,00
| 2. Pekerjaan Infrastruktur
   a. Pematangan tanah
      Cut & Fill                      11.500.000,00
   b. Ijin Lokasi + Ijin Siteplan + IMB Induk 10.500.000,00
   c. Planologi                      750.000,00
   d. Sertifikat Induk               4.600.000,00
   e. Jaringan PLN                   8.230.000,00
   f. Jaringan PDAM                  168.221.000,00
   g. Jaringan Telpon & MATV         2.650.000,00
| 3. Design                                100.000.000,00
| 4. IMB                                   5.000.000,00
| 5. Pelaksanaan Pembangunan               902.220.000,00
| Jumlah                                  1.661.105.014,00 |

Source: Company Secondary Data

It can be explained that until the end of 2019 the construction of the shophouse cost Rp. 1,661,105,014,-.

Phase II Development Planning

Table 2. Plan and Cost Details for Phase II Shophouse Construction

<table>
<thead>
<tr>
<th>Keterangan</th>
<th>Biaya (Rp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
| 1. Pelaksanaan Pembangunan                     2.105.180.000,00
| 2. Prasarana
   a. Jalan Lingkungan ROW 8                        11.250.000,00
   b. Saluran tertutup diameter 600+ inchi hole        27.000.000,00
   c. Pohon pelindung palem depan kav/palem          5.960.000,00
   d. Pagar depan Ruko                              11.520.000,00
   e. Lain-lain                                     6.525.000,00
| 3. Pemecahan sertifikat                         3.125.000,00
| Jumlah                                           2.170.560.000,00 |

Source: Company Secondary Data

The certificate split was carried out to divide the entire Ruko into 8 predetermined units. Construction in 2020 is Rp. 2,170,560,000,-. So that the total construction cost (Development Cost = DC) of the shophouse is:

DC = DC stage I + DC stage II
  = Rp. 1,661,105,014,- + Rp. 2,170,560,000,-
  = IDR 3,831,665,014,-

The details of the capital costs used are as follows:
- 60% of DC, which is equal to = Rp. 2,298,999,008,- is capital from bank loans (Loans), which will be returned annually in the form of Debt Service
- 40% of DC which is equal to = Rp. 1,532,666,006,- is own capital (Equity).

Calculation of Discounted Cash Flow Market Valuation
Ruko income is obtained from the sale and rental of each Ruko. Obtained a list of selling prices, as follows.

**Table 3. List of Ruko selling prices in 2020**

<table>
<thead>
<tr>
<th>Type</th>
<th>Jumlah unit</th>
<th>Harga Per Unit (Rp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>217.5</td>
<td>4</td>
<td>600,000,000,-</td>
</tr>
<tr>
<td>195</td>
<td>3</td>
<td>550,000,000,-</td>
</tr>
<tr>
<td>Gate</td>
<td>1</td>
<td>3,000,000,000,-</td>
</tr>
</tbody>
</table>

| Jumlah | 2,300,000,000,- |

**Source: Company Secondary Data**

The price of shophouses increases by 20% every year.

Calculation of Potential Gross Income (PGI)

Potential gross income (PGI)/gross income in this study, is the result of the sum of the income derived from the sale and rental of Ruko.

**Table 4. Shophouse Sales Results in 2020**

<table>
<thead>
<tr>
<th>Type</th>
<th>Jumlah unit</th>
<th>Harga Per Unit (Rp)</th>
<th>Jumlah Harga (Rp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>217.5</td>
<td>2</td>
<td>600,000,000,-</td>
<td>1,200,000,000,-</td>
</tr>
<tr>
<td>195</td>
<td>2</td>
<td>550,000,000,-</td>
<td>1,100,000,000,-</td>
</tr>
<tr>
<td>Jumlah</td>
<td></td>
<td></td>
<td>2,300,000,000,-</td>
</tr>
</tbody>
</table>

Shophouses with Type Gate and 1 unit shophouse type 217.5 will be rented out.

Following are the details of the Ruko rental:

- Gate type shophouse is rented for 2 years with a rental price per 2 years of IDR 400,000,000. The payment is paid in annual installments of Rp. 200,000,000, - and it is assumed that the price will increase by 40% per 2. The calculation is as follows:

  - For 2021, shop houses with types 217.5 and 195 are assumed to be sold. With the increase in the sales price (i = 20% per year), the price of Ruko buildings in 2021 will be:

**Table 5. Rental results in 2020**

<table>
<thead>
<tr>
<th>Type</th>
<th>Jumlah unit</th>
<th>Harga Per Unit tahun 2005 (Rp)</th>
<th>i x 20% per P/F</th>
<th>Harga Per Unit tahun 2006 (Rp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gate</td>
<td>1</td>
<td>200,000,000,-</td>
<td></td>
<td>200,000,000,-</td>
</tr>
<tr>
<td>217.5</td>
<td>1</td>
<td>550,000,000,-</td>
<td>1.44</td>
<td>792,000,000,-</td>
</tr>
<tr>
<td>Jumlah</td>
<td></td>
<td></td>
<td></td>
<td>1,656,000,000,-</td>
</tr>
</tbody>
</table>

or you can use the following formula:

\[ F = P \times (F/P; n; i) \]

(F/P; n; i) seen in the compound interest tables

Where:

- \( F \) = value in year \( n \)
- \( P \) = value at the beginning of the year
- \( n \) = Number of years \( n \)
- \( i \) = Total percentage increase

In more detail, the calculation of potential gross income is as follows:

**Revenue at the end of 2020:**

- Shophouse Sales = Rp. 2,300,000,000,-
- Shophouse Rent = Rp. 50,000,000,-
- Amount = Rp.2,5500.000,-

**Revenues at the end of 2006 amounted to:**

- Shophouse Sales = Rp.1,656,000,000,-
- T. Gate Ruko Rent = Rp. 200,000,000,-
- Ruko T. 217.5 = Rp. 50,000,000,-
- Amount = Rp. 1,906,000,000,-

**Calculation of Effective Gross Income (EGI)**

The calculation of effective gross income (EGI), is the potential gross income reduced by the presence of vacancy and collection losses, namely the possibility of inflation and also building depreciation. In this study, the amount of vacancy and collection losses (VCL) is set (assumed) at 5% of the potential gross income [12]. The calculation is as follows:

**At the end of 2020**

- PGI = Rp.2.5500.000,-
- VCL (5%) = Rp.2.5500.000,- x 5%
- EGI = IDR 2,422,500,000,-

**At the end of 2021**

- PGI = Rp. 1,906,000,000,-
- VCL (5%) = Rp. 1,906,000,000,- x 5%
- EGI = Rp. 95,300,000,-

EGI = Rp. 1,810,700,000,

**Calculation of Operating Expenses (OE)**

Calculation of operating expenses (OE) is based on financial data to finance operational activities every month [12].

**Table 6. Expenditure Details in 2020**

<table>
<thead>
<tr>
<th>Type</th>
<th>Jumlah</th>
<th>Harga Per Unit (Rp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gate</td>
<td>1</td>
<td>200,000,000,-</td>
</tr>
<tr>
<td>217.5</td>
<td>1</td>
<td>50,000,000,-</td>
</tr>
<tr>
<td>Jumlah</td>
<td></td>
<td>250,000,000,-</td>
</tr>
</tbody>
</table>

**Table 7. Expenditure Details in 2020**

- Table 7. Expenditure Details in 2020

<table>
<thead>
<tr>
<th>Type</th>
<th>Jumlah</th>
<th>Harga Per Unit (Rp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gate</td>
<td>1</td>
<td>200,000,000,-</td>
</tr>
<tr>
<td>217.5</td>
<td>1</td>
<td>50,000,000,-</td>
</tr>
<tr>
<td>Jumlah</td>
<td></td>
<td>250,000,000,-</td>
</tr>
</tbody>
</table>

...
The details of the expenses used as operating expenses in 2020 are Rp. 608,591,000. And for 2021 it is IDR 285,350,000, which is obtained from the details of 2021 expenses below.

Table 8. Expenditure Details in 2021

<table>
<thead>
<tr>
<th>Uraian</th>
<th>Jumlah (Rp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Biaya Kantor &amp; Administrasi / tahun</td>
<td></td>
</tr>
<tr>
<td>Gaji karyawan</td>
<td>215,000,000,00</td>
</tr>
<tr>
<td>Transp. &amp; perjalanan dinas, bahan bakar</td>
<td>8,000,000,00</td>
</tr>
<tr>
<td>Perbaikan &amp; perawatan</td>
<td>3,000,000,00</td>
</tr>
<tr>
<td>Utilities &amp; komunikasi</td>
<td>5,200,000,00</td>
</tr>
<tr>
<td>Peralatan &amp; keperluan kantor</td>
<td>3,000,000,00</td>
</tr>
<tr>
<td>Penijinan</td>
<td>2,250,000,00</td>
</tr>
<tr>
<td>Kebersihan &amp; keamanan</td>
<td>900,000,00</td>
</tr>
<tr>
<td>Iuran Organisasi</td>
<td>1,500,000,00</td>
</tr>
<tr>
<td>Sewa bangunan kantor</td>
<td>32,000,000,00</td>
</tr>
<tr>
<td>Pameran</td>
<td>12,000,000,00</td>
</tr>
<tr>
<td>Lain-lain</td>
<td>2,500,000,00</td>
</tr>
<tr>
<td><strong>Jumlah OE (Operating Expenses)</strong></td>
<td><strong>285,350,000,00</strong></td>
</tr>
</tbody>
</table>

Source: Company Secondary Data

For 2021 Operating Expenses (OE) is Rp. 25,000,000, - and for the following year, it is assumed to increase by 5% per year.

Calculation of Net Operating Income (NOI)

After obtaining the value of effective gross income (EGI) and operating expenses (OE), a calculation of net operating income (NOI) is carried out, because the calculation of net operating income (NOI) is the result of the subtraction between effective gross income (EGI) and operating expenses (OE) which occurs every year [12] [13].

At the end of 2020

EGI = IDR 2,422,500,000,-
OE = Rp. 608,591,000,-
NOI = Rp. 2,137,150,000,-

At the end of 2021

EGI = IDR 1,810,700,000,-
OE = Rp. 285,350,000,-

NOI = Rp. 1,525,350,000,-

Debt Service (DS) Calculation

Debt service (DS), is the amount of debt that must be paid annually, the amount of debt service (DS), depending on the applicable loan interest rate.

In this study, the amount of debt service (DS) that must be paid annually is Rp. 285,075,877,- with the following calculation details:

Debt service = mortgage constant x loan amount

The definition of a constant mortgage itself is, among others [14].

1. Mortgage constant calculates the debt service payment from the loan balance in a certain period, the result is the loan amount.

2. The debt service payment period will be reduced according to the size/number of increases in the number of payments each year.

3. Mortgage constant, the initial calculation step to determine the estimated payment to be made at the end of each period.

\[
MortgageCons_{tan} = \frac{i}{1 - \left(1 + i\right)^n}
\]

Where,

i = interest rate on the loan used
n = analysis period

Loan amount = loan x development cost

In this study, the assumptions obtained from the existing data are as follows:

The capital used in the construction of RUKO comes from 60% of the loan (loan) and the remaining 40% of the own capital (equity). The funds used as development costs amounted to Rp. 3,831,665,014,- with these details the amount of the loan amount is Rp. 2,989,999,008,- by the calculation method as below,

Loan amount = loan x development cost
= 60% x IDR 3,831,665,014,-
= Rp. 2,989,999,008,-

By using existing data, at the beginning of the analysis, an analysis period of 30 years is planned using a loan rate/interest rate on bank loans of 12% per year. Debt service = mortgage constant x loan amount

\[
MortgageCons_{tan} = \frac{12\%}{1 - \left(1 + 12\%\right)^n} = 0,124
\]

Debt Service = 0,124 x Rp. 2,989,999,008,-
= Rp. 285,075,877,-

So the Debt Service that must be paid to the bank every year is Rp. 285,075,877,-

Sum Of D.C.F (Sum of Discounted Cash Flow) [12], [15].

The calculation of the Sum of D.C.F or also called Net Present Value (NPV), is obtained by adding up the discounted cash flows (DCF) that occur every year. In this research, there are two periods of discounted fund flow analysis research. The first is an analysis of the flow of discounted funds with a period of 30 years which aims to
obtain a net present value that is greater than or equal to the development costs incurred. The second is discounted fund flow analysis using sensitivity analysis which aims to get the NPV value equal to zero.

In the explanation above, it has been mentioned that in this study there are two periods of discounted fund flow analysis, each period having a different purpose and net present value result. This Discounted Cash Flow Market Valuation method reviews in more detail the discounted cash flow analysis with an analysis period of 30 years. The NPV value during the 30 year analysis period was Rp. 1,389,027,781.56. More details can be seen in Table 4.12. Discounted Cash Flow Market Valuation and Figure 4.3. Cash Flow Diagram (Cash Flow).

\[ \text{NPV} = \text{Rp. 1,389,027,781.56} \]
\[ \text{IRR} = 18.47\% > \text{DF} = 16\% \]

Calculation of Benefit Cost Ratio (BCR)

In this study, the calculation of the benefit-cost ratio (BCR), is the quotient of the cumulative effective gross income (EGI), hereinafter referred to as cost, with the cumulative amount of additional Development Cost (DC), operating expenses (OE) and the value of Debt Service (DS), hereinafter referred to as benefit, with the formula:

\[ \text{BCR} = \frac{\text{SOB}}{\text{SOC}} = \frac{6.821.598.359}{5.284.396.233} = 1.29 > 1 \]

**CONCLUSION**

1. The total development cost calculated from the cost of the DC phase I added to the DC phase II is Rp. 3,831,665,014,.
2. Loan from 60% development cost (DC) which is Rp. 2,298,999,008,-, while the remaining 40% of Rp.1,532,666,006,- is equity. So that the Debt Service from the loan that must be paid annually is Rp. 285,075,877,-.
3. The net present value obtained is Rp. 1,389,027,781,- during 30 years.
4. Internal rate of return (IRR) = 18.47 % > discount factor (DF) 16%..
5. By using sensitivity analysis, the payback period is 23.8 years. At that time, the net present value (NPV) = 0 and the Internal Rate of Return (IRR) = 16%.
6. The resulting benefit cost ratio (BCR) is BCR > 1, which is 1.29 > 1 at 23.8 years.

So from some of the assessments above, it can be stated that the Palm Royal Business Regency Ruko Project is feasible to work on and carry out development.

REFERENCES


