VALUATION OF CONTRACT DEMAND VOLUME OF NEW GENERATION PRODUCT (NGP) CAVITY FILTER CIGARETTE PROJECT USING INCOME APPROACH IN CIGARETTE FILTER COMPANY (PT CFC)

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Abstract: PT CFC, a cigarette filter manufacturer, sells the latest patent product capsule cavity sensation filter to MNC Korea's cigarette factory. MNC delivered latest view forecast demand contract, of 356.75 million cigarette filters in totals, period January 2023 to July 2024, which to be marketed in Asia and the Commonwealth of Independent State (CIS) countries. Hence, to decide the feasibility of the project, requires research and analysis whether the project is profitable or detrimental. Objective of this research are to assist PT CFC in taking decision of those above project, by using 2 approach methods, 1). Project Management, aiming to get an initial outlay . 2). Financial Valuation through income approaches (Initial Outlay, cash flow, terminal cash flow, working capital, PP, IRR and NPV). From the research study, the Initial Outlay it cost GBP 1,552,410 which generating from project management through LM (logic Model), WBS (work Breakdown Structure) and AP (Activity Plan)). Annual cash flow will be minus at the 1st year of project started, by GBP -185K, but in the 2nd year positive of GBP 832K, overall project during contract demand period will positive of GBP 647K and terminal cash flow at the end of the project delivered GBP 1.471K. By using CAPM method PT CFC required return 18.01%, contribute from risk free return 3,509%, beta coefficient 1.27, and an annualized return 15%. Capital structure, planned and decided to using 100% equity, which resulting of WACC 18.01%. According to above data, financial valuation could be define, the Payback Period achieved 1.2 years. Internal Rate of Return counted 350% higher compare to WACC 18.01%. Net present value positive of GBP 1.739K. Hence refers to valuation parameter above concluded that, the project investment was feasible and can be continued into project execution.

Keyword: Project Management, Financial Valuation, Initial Outlay, Annual Cash Flow, Terminal Cash Flow, Cost of Capital, NPV, IRR, Payback Period.

INTRODUCTION

PT CFC offers the latest filter patent product, to MNC Korea which to be marketed in Asia and CIS countries. Capsule Sensations Filter Cigarette, is the latest generation of cigarette filters with free adhesive in the filter cavity area, increased flavor delivery, and a vibration sensation in the fingers when smoking.

MNC Korea, based on their market tests, provides the latest view of contract demand forecasts to PT CFC of 356.75 million cigarette filters, for the period January 2023 to July 2024. After the contract expires, all investments are generic in nature and can be used for other similar products from other

customers and PT CFC not required to returning back the rest of the investment. Hence PT CFC, requires a deep analysis to know the feasibility of those investment project which will be carried out.

Based on the background above, the formulation of the problem can be made as follows:

1. Determine the Initial Outlay of this project using Project Management

assistance (project life cycle, logic model, work breakdown structure, gannchart activity planning and project cost monitoring) which aims to determine the required of initial investment cost.

2. Determine the Annual Cash Flow during the project, by evaluating projected cash income and projected cash outlays.
3. Determining Terminal Cash Flow at the end of the project takes place after deducting taxes and other work costs.
4. Evaluate the amount of Cost of Capital needed to run the project.
5. Deciding the investment feasibility using Financial Valuation: NPV, IRR and Payback.

The purpose of this study is to evaluate a new product project by knowing the initial outlay, through project management tools (https://www.pwc.com/jg/en/publications/ned-presentation-project- management.pdf), accessed on October 2nd 2022 : Project life cycle, LM (logic model), WBS (work breakdown structure), AP (activity plan), Gannchart activity. Analyzing annual project cash flow and terminal cash flow, define the cost of capital, and deciding the feasibility of the project through financial valuation with 3 methods, NPV and IRR which are the 1st choices to use in investment analysis tools, and Payback Period is in 2nd alternative, according to references of Ross, Westerfield and Jordan (2011) Fundamentals Corporate Finance books literature.

LITERATURE REVIEW

To ensure that this long-term investment align with the objective and based on the framework above, a research paradigm can be described with a review of literature in each discussion to facilitate problem solving in each subject, as explained in the below figure 1.
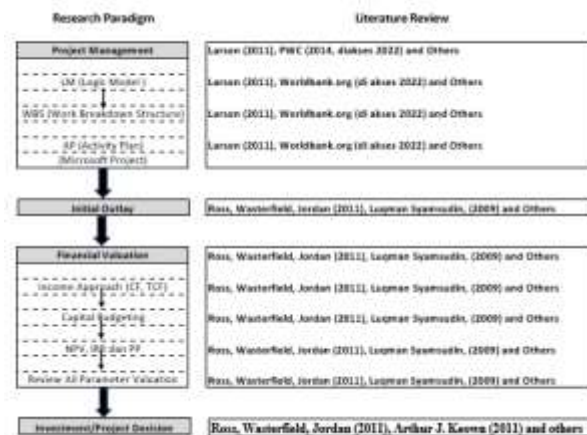

Figure 1. Research Paradigm

The difference between this research (yellow shaded) and previous research is the method used. This research uses PM elements (Project Management- LM, WBS and Activity Plan, to get an income approach and decides about the feasibility of the project using Financial Valuation. Meanwhile, from several previous studies, use financial valuation and project management separately, where in fact the two things cannot be separated. With the use of one of these tools, as a result, a lot of data is assumed, this will affect the accuracy of the project decision making process.

S.No	REVIEW	PROJECT MANAGEMENT					FINANCIAL VALUATION				
		Project Life Cycle	Logic Model (LM)	WBS (Work Breakdown Structure)	AP (Activity Plan)	Microsoft Project Budget Monitoring	BOM, COGs, Initial Investment, WC	Detail Cash Flow and terminal Cash Flow	Payback Period (PP), DPP	Net Present Value (NPV), PI	Internal Rate of Return (IRR)
1	ANALYSIS OF KARTINIPEDIA APPLICATION INVESTMENT OPPORTUNITIES USING NET PRESENT VALUE, 2022 (Shinta Kumala Dwi) - Kartinipedia: Center for Women's Needs and E-Commerce Android-based applications are a new breakthrough as a solution for women to get both in just one application. This study uses an approach based on literature analysis of the NPV approach, International Journal of Economics, Business and Accounting Research (IJEBAR)	×	×	×	×	×	×	×	×	√	×
2	The Analysis of Three Main Creteria ; NPV, IRR and Payback Period, 2022 (Haotian Dai1,a,Ningfan Li2, b,Yuhan Wang3, c, Xinrui Zhao4,d) - In this paper, we will mainly be focusing on the NPV, by elaborate on how it works in the case, the calculation of it, the history, the numerical analysis. Additionally, we will compare NPV with other similar tools including Internal Rate of Return and Payback period that are used to measuring the value of the project, by illustrating their advantages and disadvantages. Proceedings of the 2022 7th International Conference on Financial Innovation and Economic Development (ICFIED 2022)	×	×	×	×	×	×	×	√	√	√
3	The Development and Usage of NPV and IRR and Their Comparison (Yi Wang1), 2021 - The paper presents a review of NPV and IRR from the following perspectives and aims to provide a general understanding of NPV and IRR for the audience. The development of NPV and IRR will be discussed in this paper. The disadvantages and advantages of NPV and IRR will also be presented with detailed examples. Proceedings of the 2021 3rd International Conference on Economic Management and Cultural Industry (ICEMCI 2021)	×	×	×	×	×	×	×	√	√	√
4	FEASIBILITY ANALYSIS OF INVESTMENT IN D'COLOURS FAMILY KARAOKE AND CAFE IN PALOPO CITY, 2021 (Irvan Amir1, Abdul Rakhman Laba2, Erlina Pakky3) - Valuation of business investment using five analytical methods, Average Rate of Return (ARR) analysis technique, Internal Rate of Return (IRR), Payback Period (PP), Net Present Value (NPV), Profitability Index (PI). Journal of Applied Business and Entrepreneurship	×	×	×	×	×	×	×	√	√	√
5	Key aspects of investment analysis, 2022 (András Nábrádi and László Szőllősi) - Four dynamic methods (Net Present Value, Internal Rate of Return, Profitability Index, and Discounted Payback Period) are demonstrated from the viewpoint of application. Moreover, this study clarifies several sensitive questions, such as handling income taxes, inflation and uncertainty. Other examined issues are only mentioned at the end of this paper, and we will publish on these more thoroughly at a later date. SCIENTIFIC SUMMARIES, Agroinform Publishing House, Budapest	×	×	×	×	×	×	×	√	√	√
6	Capital Budgeting Processes for Public Sector Development Projects in South Africa State Owned Entities (SOE). Sefishi Monakgisi (2015) - This paper investigates the capital budgeting processes that are utilized by the State Owned Entities for the public sector development projects in South Africa. Master Thesis	×	×	×	×	×	×	×	√	√	√
7	Work Breakdown Structure as a method for planning and control at Nijhuis Bouw. Ema (2022) - Penelitian di Perusahaan Belanda Nijhuis Bouw, untuk melihat efektivitas WBS methode di planning dan control project, WBS (Work Breakdown Structure) BPMN (Business Process Model and Notation) untuk pemodelan. Bachelor thesis Industrial Engineering and Management Uv. Twente	×	×	√	√	×	×	×	×	×	×
8	The Work Breakdown Structure Matrix : A Tools to Improve Interface Management Project. Myriam Godinot (2013) - The WBS matrix management package improves visibility on project requirements and communication on issues encountered. It also facilitates project and interface control by providing the tools for regular monitoring and reporting. Project showed how the WBS was able to improve all the features of interface management, CIVIL ENGINEERING NATIONAL UNIVERSITY OF SINGAPORE	×	×	√	√	√	×	×	×	×	×
9	The Logic Model for Program Planning and Evaluation. Paul F. McCawley Associate Director University of Idaho - Logic models link the problem (situation) to the intervention (our inputs and outputs), and the impact (outcome). Further, the model helps to identify partnerships critical to enhancing our performance	×	√	√	√	√	×	×	×	×	×

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10	**Valuation of Contract Demand Volume of New Generation Product (NGP) Cavity Filter Cigarette Project Using Income Approach in Cigarette Filter Company (PT CFC).** Anang Junaidi (2022). Financial Project Valuation, for new product lauch with demand contract order, involving 2 user, PT CFC as the IP or patent owners product and MNC Korea as the buyer and distribution to Cig. customers. Valuation will be very comprehensive and detail both from project management and financial valuation.	√	√	√	√	√	√	√	√	√	√

Figure 2. Research Methodolgy Comparasion Table

RESEARCH METHODOLOGY

Framework for this research would following this figure 3, flow chart design.
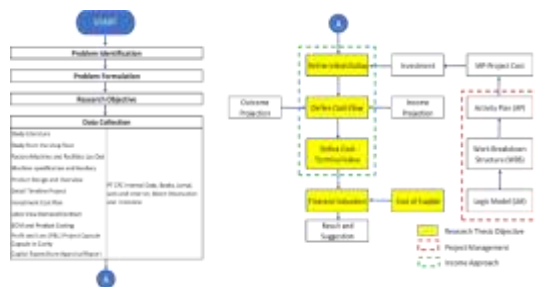

Figure 3. Research Framework Flow Chart.

From figure 3 above, clearly stated that, to carried out the research result, can be explained as follows :

1. Research background has explained through introduction phase 1, hence problem identification could state by justified the formulation and defined the research objective.
2. Data collection are required to support the objective of the research accurately and precisely.
3. There are 2 methods on this research flowchart ; Project Management (red dot line) and Income Approach (green dot line).
4. The yellow shadow will define as research thesis objective.

5. Project Management through LM (Logic Model), WBS (Work Breakdown Structure), and AP (Activity Planning) would able to explore in detail how big project investment cost is required, the final outcome would be initial outlay.

5.1 LM (Logic Model) which has 5 main components to support project management : Input, Activities, Output, Outcome and Impact.

5.2 WBS (Work Breakdown Structure) works to make the logic model more detailed, made in a hierarchical system that is connected to each other in each project activity. The WBS template must be able to accommodate all the work points that have been modeled in the logic model.

5.3 AP (Activity Plan) will be easily make the detail activity each sub project, as we have define the WBS. Herewith figure 4 explain how LM, WBS and AP synchronize, once detail activity has define, requirement of each cost per activity to include the working capital will also easier to come up with initial outlay as the final result.
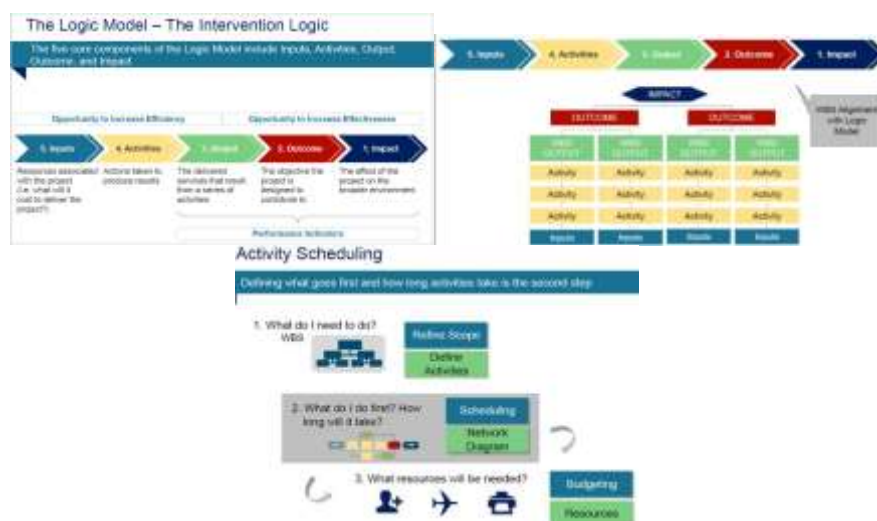
Figure 4. LM, WBS and AP

Sumber:https://olc.worldbank.org/sites/default/files/Project%20Management%20Essentials%20
Materials_0.pdf5

6. Income approach valuation, once the initial outlay define, hence we can calculating annual cash flow, which of course would be consist of outcome and income projection of cash flow. While terminal cash flow counted from the end of the project, to include the working capital, cash flow and salvage value of the machine.

7. Cost of capital define by calculating required return market with CAPM (Capital Assets Pricing Model) method, contribute from risk free return, Beta Coefficient and an annualized return. WACC (weighted average cost of capital) has decided by PT CFC that the structure will be 100% from equity.

8. Once all above data completed, we can start to analyze by using financial valuation as follows; Payback Period (PP) which it should < 2 years (PT CFC standard), Net Present Value (NPV) which should be positive, and Internal Rate of Return it should the value within the range : 0% < IRR > % of WACC.

9. If all indicator as a valuation standard and align with PT CFC standard also, therefore we can decided that project feasible or not to continue into project execution stage.

RESULT AND DISCUSSION

Based on the entire research process that has been carried out, the following conclusions can be drawn:

1. Initial Investment Cost of this project, amounting to GBP 1,552,410, which consist of GBP 864,533 will be paid by MNC Korea through an additional price mechanism at selling price product and GBP 687,877 will be borne by PT CFC through Capital expenditure.

2. Annual Project Cash Flow, until the end of contract project will be positive of GBP 647K.

3. Terminal Cash Flow of GBP 1,471K, which consists of a salvage value after end contract component of GBP 1,389K and added by recapturing working capital for the project of GBP 82K.

4. Cost of Capital, calculated using the CAPM (Capital Assets Pricing Model) method, is obtained at 18.01%, by first calculating several supporting components, including;

   a. Risk Free Rate of Return (Rf), from the data rate of bonds issued by the United Kingdom government for 25 years, amounting to 3.509%
   Beta Value (β), obtained at 1.27, which means that PT CFC's shares have movements that are very responsive to the LSEG.L market. If the LSEG.L market rises then

stock with this beta is likely to rise rapidly and vice versa.

b. Annualized market return (Ar) or a market risk level of 15%.
c. Required return with the CAPM method, amounting to 18.01%.
d. PT CFC decides its capital structure to use 100% of equity capital, Long term debt = 0%; Preferred stock = 0%. PT CFC's WACC for the capsule in cavity project is 18.01% (the same as the required return).
e. To have the figure of PT CFC project, compare to LSEG.L market. can be figure out as the following SML diagram.
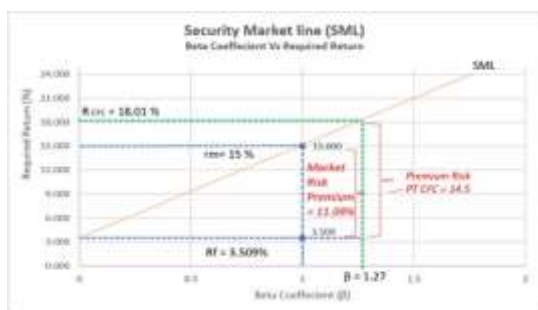

Figure 5. Security Market Line PT CFC Vs Stock Market LESG.L

To strengthen the review of this study, the above calculations are included in a table like Figure 5. SML (Security Market Line), can be concluded that if there is a company with a beta value equal to 1 then its cost of equity will be equal to its market risk premium, in this case is 11.09%. Meanwhile, if the beta coefficient is greater than 1 then the cost of equity is also greater than the market risk premium and vice versa. So if you look at Figure 5 above, PT CFC with a beta value of 1.27 will have a higher expected return compared to the market, this is in line with general theory that the higher the risk of an investment, it will also generating the higher expected return.

5. Financial valuation which is the final review of this study can be concluded as follows.

Table 1. Financial Valuation Project NGP PT CFC Summary Result

	PP (year)	IRR (%)	NPV (GBP 'K)	Summary
Standard	PP < 2 year	0% < IRR > WACC	Positive	
Actual	1.2	0 < 350 > 18.01	269 1.739	with salvage value
Summary	Ok	Ok	Ok	

From table 1 concluded of the three financial valuation parameters above, that overall the review process for capsule in cavity project investments is very good and it can be suggested to proceed to the next stage. The payback period of 1.2 years which is better than PT CFC's minimum standard of less than 2 years, the Internal Rate of Return (IRR) is 350% greater than WACC 18.01% and the Net Present Value (NPV) is positive at GBP 1,739K, which all parameters indicates the project is very feasible and can proceed to the next project execution stage.

CONCLUSION

From this research we can conclude that, initial outlay by using project management and analysis in the capital market is very influential on the investments that we make. Every investor always expects a good rate of return, capital market conditions are one of the indicators, not always a profit of a certain percentage or positive value is a good investment, but how big it is compared to the investment market that will give more value, if it's smaller, of course it's better to put it in capital market without having to bother investing. This research shows that from a managerial point of view, we can carry out a comprehensive research, how project management and financial valuation are combine to decide the feasibility of the project and not only using the conventional method. Those 2 Indicators shall be define simultaneously to get the precise decision both from project management to define initial outlay and financial valuation by using income approaches.

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