

DAMPAK PENERAPAN BLOCKCHAIN PADA MANAJEMEN RANTAI PASOK VALUASI PT
PERKEBUNAN NUSANTARA III

**IMPACT OF THE APPLICATION OF BLOCKCHAIN ON SUPPLY CHAIN
MANAGEMENT OF PT PERKEBUNAN NUSANTARA III VALUATION**

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Abstrak

Dalam usaha meningkatkan performa bisnis, PT Perkebunan Nusantara III diharuskan untuk menaikkan pendapatan. Untuk mewujudkan itu, diperlukan system pendukung agar pendapatan dapat bertambah secara terus menerus. Penggunaan blockchain dapat menjadi opsi sebagai sitem pendukung untuk membantu performa keuangan semakin baik..Tujuan penelitian ini adalah: 1) untuk mengetahui valuasi bisnis PT Perkebunan Nusantara III krtika tidak diterapkannya blockchain pada rantai pasoknya; 2) untuk mengetahui valuasi bisnis PT Perkebunana Nusantara III ketika sudah diterapkannya blockchain pada rantai pasok; Data perusahaan didapatkan dari Laporan Tahunan PTPN III dari tahun 2014 - 2018. Jenis penelitian ini adalah penelitian kuantitatif, dengan analisis deskriptif. Metode yang digunakan dalam penelitian ini adalah analisis discounted cash flow. Dalam menganalisis arus kas dengan memprediksi nilai dimasa yang akan dating digunakan analisis regresi linier. Untuk mengumpulkan data tentang blockchain penulis melakukan wawancara dengan perusahaan penyedia blockchain. Hasil dari penelitian ini adalah, dengan diaplikasikan blockchain pada rantai pasok PTPN III dapat meningkatkan pendapatan mencapai dua kali lipat. Berdasarkan hal tersebut diasumsikan tiga scenario untuk memperediksi arus kas dimasa depan yaitu, scenario pesimis (terjadi kenaikan pendapatan 50%), scenario moderat (terjadi kenaikan pendapatan 75%), dan scenario optimis (terjadi kenaikan pendapatan 100%). Hasil akhir dari penelitian ini adalah, blockchain dapat menunda nilai arus kas untuk **mengalami nilai negatif lebih dari 10 tahun yang akan datang.**

Kata kunci: *Valuasi, Discounted Cash flow, Blockchain*

Abstract

In order to improve business performance, PT Perkebunan Nusantara III is required to increase revenue. To realize that, a support system is needed so that income can increase continuously. The use of blockchain can be an option as a supporting system to help improve financial performance. The objectives of this study are: 1) to determine the business valuation of PT Perkebunan Nusantara III if blockchain is not applied to its supply chain; 2) to determine the business valuation of PT Perkebunan Nusantara III when blockchain has been implemented in the supply chain; Company data was obtained from the PTPN III Annual Report from 2014 - 2018. This type of research is quantitative research, with descriptive analysis. The method used in this research is discounted cash flow analysis. In analysing cash flow by predicting future value, linear regression analysis is used. To collect data about blockchain the author conducted interviews with blockchain provider companies. The results of this study are that applying blockchain to the PTPN III supply chain can increase revenue by twofold. Based on this, it is assumed that there are three scenarios to predict future cash flows, namely, the pessimistic scenario (an increase in income of 50%), a moderate scenario (an increase in income of 75%), and an optimistic

scenario (an increase in income of 100%). The end result of this research is, blockchain can delay the value of cash flows to experience a negative value for more than 10 years to come.

Keywords: Valuation, Discounted Cash Flow, Blockchain

1. Introduction

PT. Perkebunan Nusantara III (Persero) Holding is a State-Owned Company that engaged in the management, processing, and marketing of plantation products. The company established on 11th March 1996. The company is result of merger PT. Perkebunan III, IV and, V. The three merged PTPs were the result of restructuring of Perseroan Perkebunan Nusantara (PPN). In 2014, The government of Indonesia published Government regulation on addition of equity participation of the Republic of Indonesia into the shares capital of PT. Perkebunan Nusantara III (Persero).

Supply chain is activities that involve all parties that produce both goods and services. Starting from the producer or suppliers of raw material to the consumers. Supply chain management makes business competition is getting tougher these days. One of the things that makes a company survive is the provision of the right product for consumer at the right time and at the economic cost. The application of supply chain management to a company can affect the company's performance. The performance of company is something that is produced by a company in the period and standard that have been set. Business performance is determined by how much the company is oriented in the market and the purpose of seeking profit (Rahadi, 2012). Basically, companies that implement supply chain are satisfying consumers by working together with other parties to create cheap products, on-time delivery, and good quality. Therefore, the supply chain management is expected to improve business performance both financial and non-financial. To improve company performance, supportive technology such as blockchain is needed.

Blockchain was recently introduced and bringing a new perspective to security system, resiliency, and efficiency of system. From all the development of technology, blockchain has profound implications for supply chain sustainability (Lokollo, 2012), also known as distributed ledger technology which ensures transparency, traceability and security, is showing promise to alleviate some of the problems of global supply chain management. Economically, adopting blockchain technology can benefit a firm and its supply chain from different business dimensions affecting their economic performances. To find out how valuable the company is after the implementation of the blockchain, a valuation is carried out using the Discounted Cash Flow method.

Based on phenomenon the supply chain management is indispensable for many industries, one of them is the agricultural industry. The supply chain management also need the supporting technology to make the system effective and efficient such as blockchain. The use of blockchain was believed to help company to create better supply chain management so that supply chain more efficient and cost-effective.

1.2 Research Objectives

- 1) Analyse the business valuation using Discounted Cash Flow of PT Perkebunan Nusantara III when the blockchain is not added to the supply chain management system.
- 2) Analyse the business valuation using Discounted Cash Flow of PT Perkebunan Nusantara III when the blockchain is added to the supply chain management system.

2. Literature Review

There are several literature review regarding to the variables that author use to become the research variables.

2.1 Blockchain Technology

According to Ahram (2017) “blockchain is a distributed ledger technology”. Blockchain was popularized by bitcoin, but this technology was more than a foundation of crypto currency. It provides a secure way to exchange any kind of goods, services, or transaction. Blockchain enabled more agile value chain, faster product innovation, better customer relationship, and the integration with the IoT and cloud technology was advance.

2.2 Supply Chain Management

According to Prater and Whitehead (2013), The supply chain consists of a sequence of companies that contribute to the creation and delivery of goods and services to end customers. Starting from the origin of raw material and subcomponents to the point of consumption.

2.3 Discounted cash flow

According to Damodaran (2006), In the DCF method, the value of an asset is the present value of the expected cash flow asset which is discounted at a discount rate that describes the risk level of the expected cash flow

2.4 Linear Regression Analysis

Based on Alfigari (2000), Galton’s theory develops into a regression analysis that can be used as a means of estimating the value of a variable by using several other variables related to these variables.

2.5 Research Framework

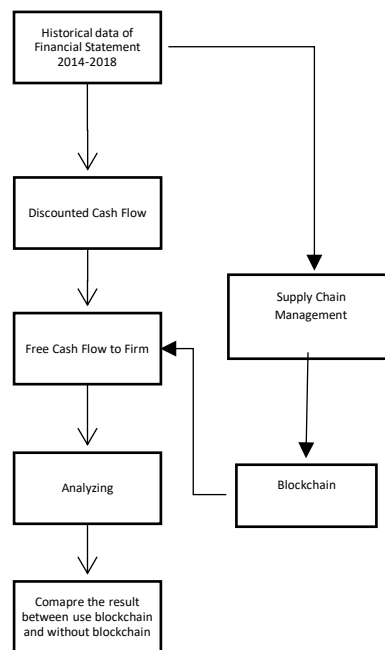


Figure 2.1 Research Framework
Source: Processed by Author

3. Research Methodology and Data Analysis

3.1 Sample

According to Cohen et.al, (2007:101), the greater sample from the size of the population, is better, however this research use the purposive sample. The sample that used in this research is PT Perkebunan Nusantara III

This research use both data sources from primary data sources and secondary data sources. Primary data sources are gathered from the interviewing the blockchain provider. Secondary data sources are gathered from internet research, annual report of PTPN from 2014-2018, journals, and articles.

3.2 Data Analysis Technique

To identify the future cash flow of PT Perkebunan Nusantara III, author using linear regression analysis to predict or estimate the future value of cash flow with the three scenarios, namely pessimistic,

moderate and optimistic scenarios. The results are compared by the graphics and tables to illustrate the movement of the cash flow. The discounted cash flow is a method used to calculate the present value of the cash flow

4. Result and Discussion

4.1 Research Result

In order to completing the research, there are 2 methods and 3 scenarios that used in this research. Those methods in an order are Linear regression analysis and Discounted Cash Flow analysis that applied to 3 scenarios such as pessimistic scenarios, moderate scenario, and optimistic scenario. Interview as the complementary for the research.

4.1.2 Linear Regression Analysis

Table 4.1 Descriptive Analysis

<i>(In Million Rupiah)</i>					
<i>Description</i>	2014	2015	2016	2017	2018
<i>Net Sales</i>	39,520,136	36,212,111	33,897,160	35,216,436	32,842,657
<i>Cost of Goods Sold</i>	29,925,679	27,740,613	25,373,311	24,225,320	24,143,328
<i>Gross Profit</i>	9,594,457	8,471,498	8,523,849	10,991,116	8,699,329
<i>EBIT</i>	1,316,066	-	-	1,912,905	802,025
<i>Income tax expense</i>	640,456	456,668	652,954	1,176,901	520,586
<i>Net Income</i>	675,610	613,266	1,386,595	736,004	281,439
<i>Comprehensive Income</i>	580,110	37,978,680	2,073,395	277,083	6,889,999

Source: Annual report PTPN III 2014-2018

From the descriptive analysis table above, it can be interpreted that there are 7 classification of data from 5 years. Every year has data of Net Sales, Cot of Good Sold, Gross Profit, EBIT, Income tax expense, Net Income and Comprehensive Income. In general, the trend of each item is fluctuating, where the value of items is not stable.

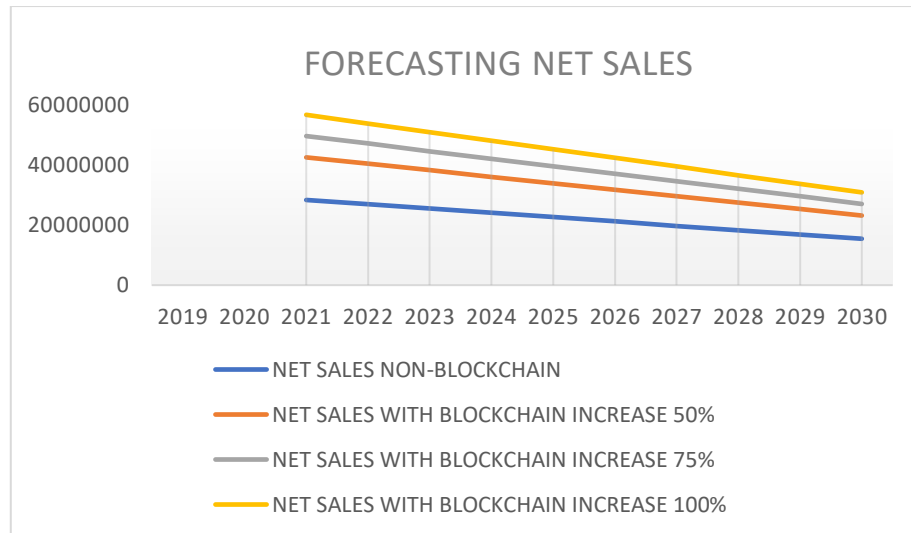
For the forecasting value of those items, author used the linear regression analysis that yields the following values.

After historical data is collected, the data is processed using linear regression which produces the equation.

$$Y = a - bX$$

For example, the forecasting Net Sales. From the historical data, then use the linear regression formula which produces the equation.

$$Y = 2928625313 - 1435063 \text{ years}$$



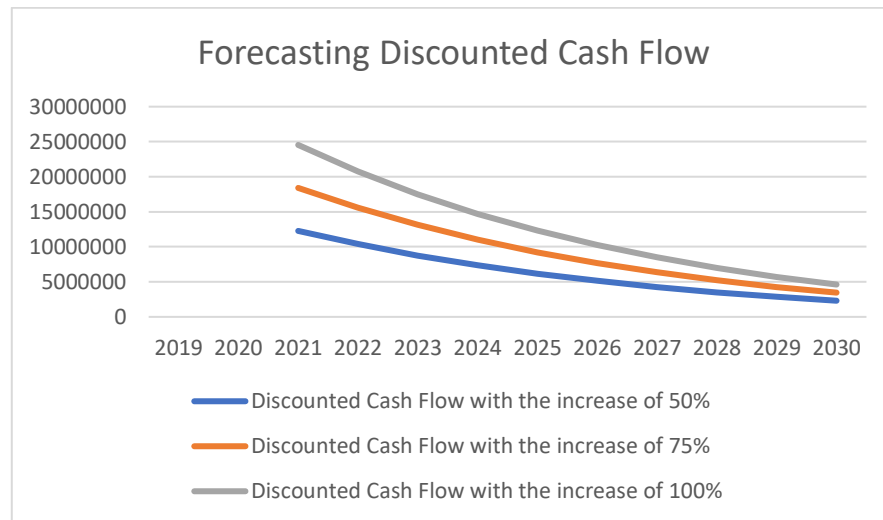
From the graph above shows the result of forecasting net sales non blockchain, pessimistic scenario (50% increase), moderate scenario (75% increase) and optimistic scenario (100% increase) on period 2021 – 2030. It can be seen on the graph, which shows a graph with a downward trend. It means the net sales will be continuously decreasing but the use of blockchain is slowing down the net sales value towards a negative number.

4.1.3 Discounted Cash Flow

To calculate the discounted cash flow needs relevant income, required returns and years. In this calculation, the relevant cash flow, required return and projection years are required. DCF is generated by dividing the relevant cash flow value by 1 plus the required return to the power of n as a year. For example, for 2019 period, 13,730,677 as a relevant cash flow divided by (1+ 11.8%) ^1. The

required return (11.8%) is obtained from the article. The following years it differs in the n being n+1, n+2, n+3 and so on. This can be seen in the attachment.

Below are the results classified under three growth scenarios, pessimistic, moderate and optimistic.



From the graph above, the DCF result of 50% growth, 75% growth and 100% growth. It can be seen that the DCF results scenario experienced a downward trend. On the Discounted Cash Flow with the optimistic growth, the result of DCF were same as the pessimistic and moderate scenario which experienced a downward trend. There was declining of discounted cash flow result with the declining rate from -15% to -18%. There was a change of decline rate every year around -0,3% until -0.7%. however, in this scenario, the DCF value is still greater than in other scenarios.

5. Conclusion

The conclusion for this research is formed in a form of sentences and points.

1. The forecasting simulation carried out by not applying blockchain to the supply chain management of PTPN III obtained a Discounted Cash Flow value with a positive value that tends to decrease.
2. The forecasting simulation carried out after implementing blockchain technology in supply chain management is resulting a Discounted Cash Flow of PTPN III value with a positive value that tends to decrease even though the value is greater than not implementing blockchain.

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