

# Analyzing Business Feasibility: A Comprehensive Study Using Hamdi's Method

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**Submission date:** 19-Sep-2024 12:10AM (UTC+0700)

**Submission ID:** 2458066756

**File name:** a\_2023\_Analyzing\_Business\_Feasibility\_A\_Comprehensive\_Study.pdf (348.45K)

**Word count:** 7059

**Character count:** 36651

## Analyzing Business Feasibility: A Comprehensive Study Using Hamdi's Method

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**Abstract.** The current study examines the efficacy of Hamdi's method, which utilizes the gold value method (GVM) and the gold index (GI) to calculate business feasibility studies on the financial aspect. The GVM serves as an alternative to the net present value (NPV) method, while the GI acts as a substitute for the profitability index (PI). The objective is to investigate whether the feasibility decision results of Hamdi's method align with the conventional approach, which uses NPV and PI, widely applied in academia. To this end, the researchers conducted a case study on Mr. Win's tofu small industrial business in Pekanbaru. The findings suggest that the feasibility decision outcome using GVM aligns with that of the NPV calculation, and the feasibility decision outcome using GI aligns with that of the PI calculation. As such, Hamdi's method presents a viable option for assessing the feasibility of a business on the financial aspect and contributes to the existing calculation method in this domain.

**Keywords:** Gold Value Method, Gold Index, Hamdi's Method, Net Present Value

## 1. Introduction

Net Present Value (NPV) or Net Present Worth (Lin dan Nagalingam 2000; Berk et al. 2015) is defined as the aggregate of present value derived from inflow cash (revenue) and outflow cash (cost) within a certain period. NPV can be demonstrated as the difference between the amount of discounted inflow cash and outflow cash (Helena Gaspar-Wieloch, 2019). According to investment profitability valuation method based on NPV, present's cash flow is more valuable than the cash flow in the future, reason being present's cash flow can be invested, becoming more profitable and grants more returns, although may not be able to define cash flow in the future (Berk et al. 2015).

NPV is one form of feasibility study whose purpose includes decision making in the uncertain future (refer to Beauchene 2015; Etner et al. 2012; Gaspar-Wieloch, 2017a, b, c, d). In the instance of uncertain projects with high irreversibility, despite its unpretentious method, the current NPV method still retain some weaknesses in identifying cash flow and risk estimation, calculating the level of discount and option consideration, in which it will affect investment decision (Knoke, et.al. 2020). The implementation of NPV method in actual corporate financial decision making requires adjustment and improvement in combination with various environment and situation (Li et.al., 2022).

In empirical literature, NPV method's implementations for feasibility study practices have been in examined numbers of countries (refer to South Africa; Brijlal, 2008; Maroyi & Poll, 2012; USA: Gitman & Forrester, 1977; Gitman & Mercurio, 1982; Moore & Reichert, 1983; Graham & Harvey, 2001; Hogaboam & Shook, 2004; Apap & Masson, 2004; Colombia: Velez & Nieto, 1986; Canada: Jog & Srivastava, 1995; Chan, 2004; Croatia: Dedi & Crag, 2007; UK: Drury & Tayles, 1996, 1997; Pike, 1996; Arnold & Hatzopoulos, 2000; Singapore: Kester and Chong, 1998; Asia-Pacific region: Kester et al., 1999; Wong, Farragher, & Leung, 1987; US and Canada: Jog & Srivastava, 1995; Payne et al., 1999; Sudan: Eljelly & AbuIdris, 2001; Sweden: Sandahl & Sjögren, 2003; Daunfeldt & Hartwig, 2012; Cyprus: Lazaridis, 2004; Australia: Truong et al., 2008; India: Babu & Sharma, 1996; Verma et al., 2009; Arora, 2012; Gupta, 2016; Batra & Verma, 2017; Mohan & Narwal, 2017; Netherlands and China: Hermes et al., 2006; Japan: Shinoda, 2010; Sri Lanka: Ramesh & Nimalathan, 2011; Jordan: Khamees et al., 2010; Al-Azawai, 2010; Eastern European: Andor et al., 2015; Pakistan: Nishat & Haq, 2009; Zubairi, 2008; Malaysia: Abdulsamad & Shaharuddin, 2009 Palestine: El-Daour & Abu Shaaban, 2014; Brazil: Souza & Lunkes, 2016; Spain: Andrés et al., 2015).

NPV method assumes that once a certain investment has been decided, it will not be able to be amended within the project's lifetime, regardless any alteration in economic and business circumstances. Meanwhile in reality, most investment projects have some sort flexibility in its management, business circumstance and adaptability are demanded. This idea is concurred by Bogataj and Bogataj (2019) which stated that such flexibility is implemented in reality that manager is required to make evaluation and decision according to the actual condition within the project's lifetime, including postponement, neglecting or expansion. The existence of these managerial options will affect the project's cash flow which eventually also influences investment decision. Therefore, when it comes to utilizing NPV method in investment project's valuation, it is crucial to consider option values in the form of project's value that is equal to common NPV plus some certain option values (Rijal & Sarsour, 2019).

Another assumption implied in NPV's condition is that the value of risk has to be constant in the entire investment project's lifetime. However, in reality, the level of risk in the cash flow within a project's lifetime cannot be consistent (Lilford, et.al, 2018). It is reflected in the design and the calculation of model valuation; the level of discount does fluctuate overtime. The survey reveals that the main reasons for nonusage of DCF techniques (though by a few companies) are its non-suitability of these techniques as per the business condition, high level of complexity and difficulty of these techniques and unwillingness of top management to implement these techniques (Poonam & Aneja, 2018).

The application of NPV method is based on the problems that occur from mutually exclusive

alternative evaluation; when the scale of the project differs, or when the timing of the project's cash flow differs or when a project that represents non-conventional projects: which are projects that have both positive and negative significant cash flows in the entire project's lifetime. Recently, it is being argued that (refer to Trigeorgis, 1993; Dixit & Pindyk, 1995; Copeland & Keenan, 1998; Copeland & Antikarov, 2001) NPV method does not take project's flexibility into account; and also, how the value of real option relating to the project has to be considered in the evaluation of capital project (Correia, 2012). Studies show that NPV model may theoretically be more reliable compared to payback period method; it has been found that errors in NPV method application in the instance of not making necessary adjustment for issues like inflation, taxation, mutually exclusive investment evaluation and capital ability of company for a certain project investment will affect the implementation of NPV method (Correia, 2012).

Another reason as to why not use NPV is the prohibition of interest (usury; or *riba* in Arabic), which is enforced in both Islam and Christian's belief. Meanwhile in its foundation, *riba* or usury refers to the imposing interest at any level; whereas the modern belief imposing interest at an unfair and disproportional rate (as defined by, such as Webster, 2013); developing parallelly with periodical interest obtained. Although the historical discussion in regard of *riba* or usury is based on taking and providing loan and not in project valuation, there is a close association between two problems: in NPV, the level of interest is used as the opportunity cost capital. The implied opportunity is the financial investment where the funds will be loaned elsewhere and invested as an asset. Therefore, the prohibition of interest in loan is directly impacting the interest prohibition, specifically compounded interest; the overdue development of banking instrument and advance management has to be analyzed (Behring, 2015).

Obaidullah (2017) stated that the rate of interest in the calculation is a mere simplification tool and alleviates the calculation. The application of compounded interest list is an instrument to calculate the amount of expected present and future return. Discount rate is defined based on expected profit, and being used to estimate the rate – referred as *nisbah* in Islamic perspective, of the profit sharing.

The profit sharing ratio is multiplied by the actual return, where the actual return may not be equal to its expected return. Meanwhile, in conventional context, actual return is required to be equal with the expected return; and this is where it is barred in Islam. However, if in the beginning both parties agreed to share the risk and profit, therefore this business practice will be legitimate and allowed in Islamic law.

With that being explained, it can be concurred that NPV method has issues and limitations, such as "inability to measure uncertainty in the future", "unable to adjust in time in regard of decision amendment" (Kuckartz & Peroni, 2019), and lastly the prohibition of usury or *riba*. Therefore, greater effort has been made to develop a novel version of NPV, and many innovative modified NPV models with higher value and practical significance emerge. Three typical models are selected for the sake of advancement in research analysis, namely Max-NPV, Fuzzy NPV and DNPV. Nevertheless, the development of NPV that has been made are still preserving the foundation of NPV model which still retain the concept of interest or *riba* that's prohibited in the religion. The solution on this issue can be done by substituting the use interest rate in the calculation.

Writers offer alternative by using gold price instead, this is to cover the inflation and interest level with profit sharing ratio that has been adopted by Islamic banks. From several studies and what actually happened, gold is a precious metal that is not touched by inflation (Istan, 2023). Gold is also a measure of value for everything related to the economy, gold is also the real medium of exchange. It can be seen that gold continues to increase in price from year to year. In the present day, researches in regard of capital allocation practices such as NPV has been attracting interest of those graduates, due to the importance of the knowledge that can be gained (Mollah, et.al, 2021). Though compared to other countries, this field is still lacking of interest of many academics in developing country such as

Indonesia.

This research is the pioneer research that proposes and invents developed NPV model where its decision result is equal to NPV model and Profitability Index (PI). The method is named as Hamdi's Method. In this article, Hamdi's Model is comprised in 2 unique models that has been chose to analyze research progression, that is Gold Value Method (GVM) and Gold Index (GI). The GVM calculation substitutes the net NPV method. This is due to the fact that NPV method uses the bank's interest rate as the basis for calculating the NPV. Meanwhile, GVM uses the profit-sharing ratio of Islamic banks which then converts the present value to the gold price in the future. The GI method calculates the ratio between the present value of converting gold cash flows and the present value of converting the amount of gold from the initial investment (Agustin, 2017). Meanwhile, the PI calculates the present value of cash flows compared to the initial investment amount.

Queries in this research is whether the feasibility study valuation uses the Hamdi's method which contain GVM and GI provides equal results compared to conventional method that use NPV and PI? Hence the purpose of this study is to test whether the assessment of a business feasibility study using Hamdi's method that consists of the GVM and the GI yield the same decision results as that using the conventional method consisting of NPV and PI. This study attempts to test the Mr. Win's tofu business situated in Pekanbaru. The results of this assessment will be valuable as a consideration material in decision making for business development.

## 2. Literature Review

This study uses Hamdi's method as the business valuation and assessment method.

### 2.1. Gold Value Method

Agustin (2017) stated that Islam uses the following principle: investment should not immediately ensure profit first, but should be tried for results in profit and loss conditions (profit and loss sharing). This principle upholds justice because the real outcome of business activity is uncertain. Ensuring to generate profit first would result in one party's loss. Meanwhile, Islam requires that the calculation be conducted to yield fair results by linking the provision of funds and the party conducting the business activity.

An investment feasibility assessment using NPV, which prioritizes financial feasibility analysis, will reject investment businesses with a net cash flow value smaller than capital because the investors will suffer losses. However, according to Islamic principles, investment should not be made by determining profits in advance, but through profit and loss sharing. This principle upholds justice because the outcome of business activity cannot be ascertained. If profits are determined in advance, a party will most likely experience a loss. Meanwhile, Islam requires a fair calculation of profit-sharing by involving providers of funds and business activities.

The use of gold standard in calculating GVM is based on Ibn Khaldun, who stated that two metals, namely, gold and silver, are a measure of value. These metals are accepted naturally as money whose value is not affected by subjective fluctuations. According to the word of God in the letter at Taubah: 34, "O you who believe, indeed most of the Jewish scholars and Christian monks actually eat people's wealth in a false way and they hinder (people) from the path of Allah. and those who keep gold and silver and do not spend them in the way of Allah, then tell them, (that they will have) a painful torment."

Therefore, Ibn Khaldun supported the use of gold and silver as monetary standards. For him, the manufacture of coins is only a guarantee given by the authorities that a coin contains a certain amount of gold and silver content. The printery was a religious office and therefore not subject to temporal rules. The amount of gold and silver contained in a coin cannot be changed once the coin has been issued.

In addition, several scholars, such as Imam Ghazali, stated that Allah *Ta'ala* created the Dinar and Dirham as judges (breakers) and mediators of other assets to measure their value or price. Sarkhasi

believed that gold and silver, whatever their form, were created by Allah *Ta'ala* as a price substance. Al Magrizi emphasized that no news from any *ummah* state that currency was from materials, other than gold and silver, both in the past and in the present.

Using <sup>24</sup> GVM aims to create an alternative to replace the NPV method with an interest. This method is used to calculate the time value of an investment based on the future gold price. The calculation and GVM use a simple and rational formula adjusted to the price of gold.

## 2.2 Gold Index

The GI is the ratio between the present value of gold price and that from cash flow expenditures (Agustin, 2017). If the result of the GI calculation is greater than 1, then the business is feasible and can operate.

This research was further carried out by Agustin (2017) conducted a business feasibility study using Hamdi's method in his study entitled, "Financial Analysis of the Feasibility of Islamic Business Hamdi's Model (Case Study of Sharia Supermarkets in Pekanbaru)." This study uses Hamdi's model for calculating financial aspects. The results showed that the Islamic business feasibility study using Hamdi's model consisted of the calculation of the GVM, GI method, and the investible surplus method (ISM) analysis, which could be used in assessing investment feasibility.

Hamdi and Azwirman (2019) in their study entitled, "The Analysis Feasibility Study on the Financial Aspects of Islamic Perspective." The current study calculates the feasibility of investing in the financial aspect using an Islamic perspective, namely, Hamdi's method. The GVM and GI methods are new methods for calculating financial aspects in determining investment feasibility from an Islamic perspective. The calculation results show that the business of English courses is feasible using Hamdi's method. The results are the same when using NPV and PI calculations. Thus, calculating the feasibility of investing in the financial aspect using Hamdi's method can be used in the academic field. Agustin et al. (2021) conducted research on Sakinah Pineapple Chips Business. The result of calculation using the Gold Value Method (GVM) is 94.56 grams of gold and using the Gold Index (GI) method is 1.25 which is greater than 1 (one), so Sakinah Pineapple Chips Business is feasible to continue. Meanwhile, using NPV method that uses a discount rate of 6.48% capital costs can produce a positive Net Present Value IDR 571,943,747. It shows Sakinah Pineapple Chips business is feasible. Using the Profitability Index (PI) analysis, Sakinah Pineapple Chips business also shows decent results with a Profitability Index (PI) value of more than 1 (one), which is 2.59. The result of this study indicates that the calculation result is the same between GVM and NPV and also in the calculation of GI and PI.

## 3. Research Methodology

To apply the concept of assessing business feasibility study using Hamdi's method, research was conducted on the tofu business of Mr. Win in Pekanbaru. The primary data used by the author in this present study are the direct interviews with the owner of the tofu business, Mr. Win in Pekanbaru. Meanwhile, the secondary data are those that already existed and were arranged systematically by business owners.

The business feasibility assessment method in Islamic perspective using Hamdi's model consists of the following:

### 3.1 Gold Value Method (Agustin, 2017, Agustin et al, 2023)

The Gold Value Method is the difference between the investment converted to the current gold price and the net cash receipts (operating cash flow and terminal cash flow) converted to the gold price. GVM is one of the approaches to evaluate investment proposals by sharing the results of net income based on the profit sharing level of Islamic banks.

Project acceptance criteria based on GVM calculations:

The project is accepted if the GVM value > 0

Project is rejected if GVM value < 0

Project is rejected if GVM value = 0

Project is rejected if GVM value ( - )

The NPV formula is

$$GVM_n = \sum_{t=1}^n (LB_t \times N_t) : (HE_t) - INV$$

$$PV = \frac{INC_{t1}}{GP_{t1}} + \frac{INC_{t2}}{GP_{t2}} + \frac{INC_{t2}}{GP_{t3}} + \dots + \frac{INC_{tn}}{GP_{tn}} - INV$$

$$GVM = \sum PV \text{ Cash flow} - INV \text{ (Original investment)}$$

Description:

$GVM_n$  = Investment surplus for n years

$LB_t$  = net profit (cash inflow)

$N_t$  = Profit sharing ratio

$HE_t$  = net profit (cash inflow)

INV = Initial investment

n = Project life

t = A period of time

INC=Income

GP=Gold Price

### 3.2 GI method

The Gold Index (GI) is the ratio between the Present Value of the price of gold compared to the Present Value of the price of gold from outlay of cash flows. If the GI calculation results are more than one, then the business is feasible and can be run. The results are calculated by means of the Gold Index using the formula:

$$GI = \frac{\text{Total Gold Earnings (g)}}{\text{Initial Investment Amount (g)}}$$

### 3.3 Net present value

Net Present Value is the difference between the present value of the investment and the present value of net cash receipts (operating cash flows and terminal cash flows) in the future. NPV is one approach to evaluating investment proposal by discounting cash and cash equivalents by giving a certain interest rate over the life of the business. Net Present Value is the difference between the present value of the investment and the present value of net cash receipts (operational cash flow or bus stop cash flow) in the future.

Project acceptance criteria based on NPV calculation:

The project is accepted if the NPV value > 0

The project is rejected if the NPV value < 0

The project is rejected if the NPV = 0

The project is rejected if the NPV value ( - )

The NPV formula is

$$NPV = \sum_{t=1}^n (B_t - C_t) / (1 + i)^t$$

Description:

- $B_t$  = Cash inflow in year  $t$
- $C_t$  = Capital issued in year  $t$
- $n$  = Economic life of investment
- $i$  = Credit interest rates at the bank

### 3.4 Profitability index

$$PI = \frac{\sum PV \text{ Net Cash}}{\sum PV \text{ Investment}} \times 100\%$$

Project acceptance criteria using the PI method:

1. The project is accepted if the PI value is greater than 1.
2. The project is accepted if the PI value is equal to 1.
3. The project is accepted if the PI value is lower than 1.

## 4. Result and Discussion

### 4.1. Cash Flow Analysis

The details of the cash flow of Mr. Win's tofu business in Pekanbaru is presented in Table 1 below:

Table 1. Cash flow of Mr. Win's Tofu Business in Pekanbaru

Description	1st Year	2nd Year	3rd Year	4th Year	5th Year
	Net sales	277,200,000	334,719,000	397,295,184	481,388,000
Total income	277,200,000	334,719,000	397,295,184	481,388,000	589,641,360
Cost of goods sold					
Row material	137,280,000	160,776,000	187,492,800	217,509,600	253,756,800
Firewood	18,000,000	20,700,000	23,805,000	27,375,756	31,482,108
Diesel oil	1,200,000	1,380,000	1,587,000	1,825,056	2,095,920
Electricity	3,600,000	4,140,000	4,761,000	5,475,156	6,296,424
Transportation	3,600,000	4,140,000	4,761,000	5,475,156	6,296,424
Vehicle maintenance	2,100,000	2,415,000	2,777,250	3,193,837	3,672,913
Machine maintenance	3,000,000	3,450,000	3,967,500	4,562,628	5,247,024
Total cost of goods sold	168,780,000	197,001,000	229,151,550	265,417,189	308,847,613
Gross profit	108,420,000	137,718,000	168,143,634	215,970,811	280,793,747
Depreciation	13,225,950	13,225,950	13,225,950	13,225,950	13,225,950
Total Cost	13,225,950	13,225,950	13,225,950	13,225,950	13,225,950
Profit before tax	95,194,050	124,492,050	154,917,684	202,744,861	267,567,797
Tax	1,800,000	2,070,000	2,380,500	2,737,575	3,148,211
<b>Net income</b>	<b>93,394,050</b>	<b>122,422,050</b>	<b>152,537,184</b>	<b>200,007,286</b>	<b>264,419,586</b>
<b>Cash Inflow</b>	<b>106,620,000</b>	<b>135,648,000</b>	<b>165,763,134</b>	<b>213,233,236</b>	<b>277,645,536</b>



#### 4.2. Gold Value Method

Table 2. Gold value method of Mr. Win's tofu business in Pekanbaru

Year	Net profit (IDR)	Profit Sharing Ratio 70%	Income (IDR)	Gold Price (per g)	Income Value after being converted into g of gold
1 <sup>st</sup> Year	93,394.050	0,6	166.320.000	950.000	175,07
2 <sup>nd</sup> Year	122,422,050	0,6	200.831.400	997.500	201,33
3 <sup>rd</sup> Year	152,537,184	0,6	238.377.110	1.047.000	227,68
4 <sup>th</sup> Year	200,007,286	0,6	288.832.800	1.099.350	262,73
5 <sup>th</sup> Year	264.419,586	0,6	353.784.816	1.154.317	306,49
Total Gold Earning (g)					<b>1173,3</b>
Initial Investment amount (g)			239.173.000	950.000	251,76
Gold Income Value (g)					<b>921,54</b>

The size of the ratio can be determined based on justice. This means that the fund manager can bid on the ratio amount based on the agreement of both parties. In this business, the profit-sharing ratio agreement is 60:40.

Based on the 60:40 ratio, the amount of gold income is 921.54 g. That is, if Mr. Win's tofu business in Pekanbaru is established, the fund manager will obtain a profit of 921.54 g of gold. The GVM result is positive for 921.54 g of gold; hence, this effort was feasible.

#### 4.3. Gold index

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GI is the ratio between the present value of gold and that from cash flow expenditures. The results of calculations using the GI are as follows:

$$\begin{aligned}
 GI &= \frac{\text{Total Gold Earning (g)}}{\text{Initial Investment amount (g)}} \\
 &= \frac{1173.3}{921.54} \\
 &= 1.27
 \end{aligned}$$

Thus, the GI value of Mr. Win's tofu business is greater than 1, indicating the feasibility of the business.

#### 25 4.4 Net present value

Table 3. Net present value of Mr. Win's tofu business in Pekanbaru

Year	Cash Flow (IDR)	Discount Factor (7%)	Present Value (IDR)
1 <sup>st</sup> Year	106.620.000	0,934	99.583.080
2 <sup>nd</sup> Year	135.648.000	0,873	118.420.704
3 <sup>rd</sup> Year	165.763.134	0,816	135.262.717
4 <sup>th</sup> Year	213.233.236	0,763	162.696.959
5 <sup>th</sup> Year	277.645.536	0,713	197.961.267
Total present cash value			713.924.728
Investment amount			239.173.000
NPV			474.751.728

NPV is determined by discounting cash and weld equivalent disbursement by providing a certain interest rate over the business's life. The difference between the present value (discounted value) of cash disbursements and cash receipts is the NPV.

From the NPV calculation, the NPV (+) is 474,751,728, which means that this business is feasible.

#### 4.5 Profitability Index

PI is the present value of cash flow compared to the investment value. If the PI is >1, then the investment is acceptable.

$$PI = \frac{713,924,728}{239,173,000} = 2.9$$

The results of the PI calculation reveal that Mr. Win's tofu business is feasible to be developed. The PI value is greater than 1. The results of the recapitulation of the calculation are presented in the following:

Table 4. The results of the calculations

1.	<i>Gold value method</i>	921.54 Gold g	feasible
2.	<i>Gold index</i>	1.03	feasible
3.	<i>Net present value</i>	474,751,728 IDR	feasible
4.	<i>Profitability index</i>	2.9	feasible

Based on the results of the calculations, the same decision between the GVM and NPV is feasible. Similarly, the GI and PI methods resulted in the same decision; that is, the tofu business of Mr. Win in Pekanbaru is feasible to develop. The results of this study are the same as those of Agustin (2017), Ningsih (2018), Agustin and Azwirman (2019), Agustin et al. (2021), and Ridho (2021).

The results showed that the tofu business of Mr. Win can be developed either by conventional methods (NPV and PI) or by using Hamdi's method (GVM and GI). The results of this study are also consistent with several previous research results. The GVM and GI methods are alternative methods to add or replace the conventional NPV and PI methods that use interest rates. Meanwhile, the GVM and GI methods use the gold price as the basis for calculating the time value of money that is free from usury for investment in the future. Thus, this study shows that the calculation of the financial aspect using Hamdi's method is under the Islamic perspective. This follows the notion of Islamic economists, such as Ibn Khaldun, Imam Ghazali, Sarkhasi, and Al Magrizi, that gold can be used to measure investment value and prices whose value does not change over time.

Hamdi's method is new in financial management for assessing financial aspects to determine business feasibility; it is a new discovery. The new finding method follows Islamic sharia, namely, the GVM and PI methods. Several previous studies have also carried out Hamdi's method. So, far, the NPV and PI methods have been widely used in academia to calculate business feasibility in the financial aspect. However, Hamdi's method can also be added in the literature on the methods for calculating financial aspects in a business feasibility study. This method yields the same results as the calculation of NPV and PI methods.

## 5. Conclusion

As presented in the previous section, the calculation method of the GVM obtained a value of 96.17 g of gold, and the NPV produces a positive value of Rp. 2,976,151,436. The results of these two methods give the same decision; that is, the tofu business in Pekanbaru is feasible to be developed. Meanwhile, the GI and PI calculation methods produced acceptable results (i.e., 1.03 and 1.91, respectively). Similarly, these two methods support the decision of developing the tofu business of Mr. Win in Pekanbaru. Thus, Hamdi's calculation method can assess business feasibility on the financial aspect. This method is expected to add to the calculation method in assessing business feasibility in the financial aspect. The limitation of this research is that gold pricing can be mistaken as a substitute for the discount factor in calculating GVM method.

## Acknowledgements

Many thanks to the Mr. Win's, holder of small industrial tofu business, Pekanbaru for his contribution to implements the Hamdi's method. This study was conducted with collected data from the small industrial business without any harm to a person or communities. For that reason, approval from the company holder was already obtained and it is not necessary to obtain approval Ethics Committee of Universitas Islam Riau or related institution

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