BUSINESS VALUATION FOR SMALL MEDIUM ENTERPRISE (CASE STUDY: PIKSEL INDONESIA)

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ABSTRACT

The result of the study aims to assess due diligence of Piksel Indonesia for the impending investor and to identify about the batik consumer preferences while they plan to but batik products. Textile and apparel industry are one of the industries that promise to be a strategic industry in Indonesia. According to the secretary general of the Indonesian Textile Association, Indonesia's textile export increased 6% in 2017. Piksel Indonesia is a creative company focusing on technology and design. It is the only company in Indonesia that creates software design and specialize the software for handicraft especially for batik artisan in Indonesia. In order to know the costumers' preference towards batik products, the researcher conducts market survey using questionnaire. Data was gathered from the total of 338 respondents which randomly taken from various cities in Indonesia. It is comprised of 21 questions, the first five questions are related to the respondents' demographic background, and the rest of the questions are related to the respondents' tendency towards batik products, the expected price and preferences in buying batik products. The result of the survey shows disparities from previous research. The first disparity is about the source of information that customer gets about the batik products. Second, the researcher's survey constructs the customer taste about batik style and the result is 54.6% respondents choose traditional batik combined with modern style. Three cash flow scenarios with various income approach modification are conducted in order to make the valuation more comprehensive. The standard discounted cash flow valuation and adjusted present value are the approaches used to calculate the company valuation. From the result of each scenarios and methods showing different result of the company value, the highest number of company DCF valuation achieved by the employing the first scenario which equals to Rp. 9,788,406,837contrived by the amount of quantity by simple linear regression, and average price of uniforms contrived using thirty-six months moving average based on three years' data. Subsequently, the highest APV value achieved by the third scenario which equals to Rp. 7,407,851,820contrived with the total quantity of uniform and the average price vice versa with the first scenario, and the total overall products items are increasing 30% align with the company strategy.

Keywords: Business Valuation, Small Medium Enterprise, Batik Industry, Standard Discounted Cash Flow Valuation, Adjusted Present Value

INTRODUCTION

Batik, one of the textile products is both Indonesian standard method of textile printing, and the printed design style. The United Nations Agency for Education, Science and Culture, UNESCO, recognized batik as a world heritage and set batik as the Masterpieces of the Oral and the Intangible Heritage of Humanity on October 2nd 2009. Previously, Indonesian saw batik as formal apparel that only fit for various occasions, but nowadays batik has to turn into a fashion item that every Indonesian must have. As the shifting of batik's role to Indonesian, there are many preferences regarding batik quality, pattern, colour, and model. Batik industry currently experiences rapid development and has huge potential to be developed in the future. Moreover, based on the Directorate General of SME, The Ministry of Industry of the Republic of Indonesia, there was 47,755 batik SMEs in 2015, which contributed to employment for more than 200,000 workers (Pinasti&Adawiyah, 2016).

According to Director General of Small and Medium Industries (SMI), Indonesia's batik industry dominated by SMI sector is spread across 101 centres all over Indonesia. The Bank of Indonesia recorded that the economy in Indonesia supported by SME provides about 99% contribution in Indonesia economic development (Suwandari*et. al*, 2017). The Ministry of Industry also stated that Indonesia's batik has dominated the global market. The statement proved with the fact that batik export and other batik products in 2017 generated USD 58.46 million with the main destination countries namely Japan, United States, and European countries. Indonesian Textile Association stated that Indonesia's textile export increased 6% in 2017. Moreover, the balance of trade in the textile industry grew 1.7% in 2017 and gained surplus as much as US$3.73 billion.

Piksel Indonesia is a creative company focusing on technology and design. Piksel Indonesia is the only company in Indonesia that creates software design and specialize the software for handicraft especially for batik artisan in Indonesia. It begins with scientific research conducted by Nancy Margried, Yun Hariadi, and Muhamad Lukman, about the traditional batik pattern and their relationship to the science of fractal mathematics. Throughout 2007 this research collected more than 300 traditional batik motifs from all over Indonesia and examined the fractal mathematical elements in it. From the research, it can be seen that batik has a mathematical element and can be modeled with fractal. The modeling of the fractal mathematical formula that made the new batik variant was later named Batik Fractal. The study was first shown at the 10th Generative Art International Conference in Milan, Italy at the end of 2007. In the growing industry, Piksel Indonesia plan to conduct several program in order to develop their business, those program need external funding other than their annual profit.

As a business entity, Piksel Indonesia engages in technology, design technology consulting and trading of textile products such as batik. It has two main products namely:

1. **jBatik**
   jBatik is a parametric software to create a variety of quick batik pattern created by Piksel Indonesia. Batik Fractal is a brand that carried by Piksel Indonesia in introducing batik cloth products whose designs are created using jBatik. This software is made with Java programming language that works with the generative system. The input is a fractal formula where this softwaregenerates into images.
2. **Batik Fractal**
   Batik Fractal is a batik designed with a fractal formula using the jBatik software. Batik Fractal design is made in-house by the Piksel Indonesia's designer with seasonal design planning. Batik Fractal production is made by batik artisan in Solo, Yogyakarta, Pekalongan, Cirebon, and Bandung. Batik Fractal products are all done by artisans in Indonesia with 90% -100% materials made in Indonesia.

BUSINESS ISSUE

Piksel Indonesia helps artisans increase their income in two ways 1) trains artisan in their proprietary technology called jBatik so they can individualize design; 2) Piksel Indonesia markets artisan products under the collective brand Batik Fractal. The company found two key problems in batik industry, the first one is low product differentiation since traditional patterns and similar designs are often used by artisans in close geographic proximity, which leads into price competition driving down prices in the local market. The second one is the portion of the profits from batik businesses go to the middlemen and store-owners rather than artisans which impacted the average income for a batik worker, currently their income is as low as SGD $1 – SGD $3 per day despite their products being valued at SGD $20 – SGD $500/piece.

To achieve their objectives and tackle the problems, Piksel Indonesia arranged some programs. The main program that will be conducted is to market and sale the batik fractal products which will focus on corporate uniforms and merchandising and wholesale in Indonesia. Moreover, they aim to strengthen their export and funding buyers abroad remember that the batik SMI is always growing year by year. The program will lead into artisan partners increasing income. These programs need some sufficient fund to exclude their annual budget for operational. Even though it appears that the company's sales improved by 117% from 2016 to 2017.

Table 1: Piksel Indonesia's Revenue (*Source: Piksel Indonesia, 2018)*

	2016 (USD)	**2017 (USD)**
Uniforms	7607.54	21865.86
Software	970.38	604.33
Retail Product	1073.48	141.07
Design Fee	60.93	1340.48
Corporate Merchandise	1429.53	0
Total	**11141.86**	**23951.74**

External funding is one of the most frequent funding sources used by many companies in various size of business. The kind of external funding that might be earned by Piksel Indonesia is venture capital. Venture capital provides equity financing to small and often risky businesses in return for a share of the ownership of the firm (Damodaran, 2011). On the other side, investor as the funds' provider needs to assess due diligence of the company which they are going to invest. Also, investors definitely expect profitable products and an attractive income-to-equity-ratio, which makes the management should manage sources of surplus successfully and sustainably (Pohl, 2017). Piksel Indonesia itself is facing an upcoming new investor. Parameters are needed to assess the company's value because the investor only assesses the company through revenue, so that other methods of valuation need to be conducted. The first parameter is standard Discounted Cash Flow, the researcher decided to use DCF considering that DCF is the fundamental approach to in valuing a firm. The second one is Adjusted Present Value (APV), which still part of the discounted cash flow approach. The company valuation is playing a critical role in determining the proportion of equity retained by the founders and the investors, also it sets the base future fundraising if needed (Bell, 2014).

LITERATURE REVIEW

Customer Preferences on Batik Product

Based on the consumer empathy map, which is arranged by Nurfikriyadi (2016) on his research, the respondents or batik customers prefer the casual batik to be cheap, yet in the decision in buying batik, the most preferences to be considered are design and the product quality. Moreover, according to the research conducted, the customers favor to see great promotion offering from the producer or seller. In addition, they also tend to touch and see the product in order to consider whether they will buy it or not. The customers strongly consider their colleagues' recommendation in buying batik rather than doing advanced research about the product. Nowadays, customers tend to buy batik product that reflects their personality as the part of smart generation yet they still try to preserve the traditional culture, so that the most style chosen by customers is a smart and simple product.

Table 2: Factors Affecting Buying Decision (*Source: Nurfikriyadi, 2016)*

Factors	Effect Level
Price	Affecting
Product Design	Very Affecting
Promotion/Discount	Affecting
Brand	Neutral
Product Quality	Very Affecting
Service and After Sales Service	Neutral
Ease of Payment	Affecting
Shopping Experience	Neutral

Company Valuation

Company valuation is commonly used to determine the precise value of one company in a period of time. One of the reasons why company assess their value is because of the requirement from impending investor or the investor do the valuation by themselves or in order to maximize the company's value and estimating the effects of various alternative strategies (Brigham & Daves, 2004:332). According to Damodaran (2011; 596) and Fernandez (2013) on Beld (2017), de Souza *et. al* (2017) and Chirputkar *et. al*. (2016) there are five approaches in valuation, namely:

1) Discounted Cash Flow Valuation
   The project's analysis is done by valuing a firm by providing the present value principles which determined after four considerations: the capacity to generate cash flows from assets, the expected growth rate of those cash flows, the length of time it will take for the firm to reach stable growth, and last but not least the cost of capital.
2) Relative Valuation
   Different from discounted cash flow valuation, the purpose of relative valuation is to value the assets based on how similar assets are currently priced in the market. There are some key steps in doing relative valuation: standardized values and multiples, determinants of multiples, and the use of comparable firms.
3) Call Option
   This approach is valid for highly levered firms, when the equity becomes more valuable, debt maturity increasing and volatility in asset value goes up.
4) Liquidation and Accounting Valuation
   This approach considers the company's value lies in the balance sheet, which specifies the value from a static viewpoint (Beld, 2017).
5) Goodwill Valuation
   Goodwill reflects one of the intangible assets of the company. It is not always presented on the balance sheet, yet goodwill could become an advantage of the company.

Discounted Cash Flow

Discounted cash flow valuation estimates the value of any asset by discounting the expected cash flow on that asset at the rate that reflects their riskiness (Damodaran, 2011). The only path that will be used is to value the entire firm, including equity and any other claims in the firm (from bondholders, preferred stockholders, etc). There are three major variables functioned by the value of the company: the expected net cash flows, the expected growth of the cash flows, and the required rate of return (Ivanovska *et. al*, 2014). The value of the firm is obtained by discounting expected cash flow to the firm at the weighted average cost of capital. The formula of the calculation showed below based on Curry *et. al* (2018):

$$Value\ of\ Firm = \sum_{t=1}^{t=n} \frac{CF\ to\ Firm_t}{(1+WACC)^t}$$

Where:

$CF\ to\ Firm_t$=expected cash flow to firm in period t

WACC=Weighted Average Cost of Capital

According to the survey conducted by Brotherson *et. al* (2014) all of the respondents which consisted of investment banks in the US used DCF as the standard to valuate a company, even though they think that this method is not suitable in every situation.

Adjusted Present Value

The Adjusted Present Value (APV) model is actually similar to the net present value approach, yet it uses cost of equity as the discount rate. Also it is a net present value method that detached the value that is created by debt financing. The company is valued as if it is all equity financed and subsequently the impact of debt financing is added (Van de Sande, 2012). Calculating the firm's value using APV the formula is shown below:

$$APV = NPV_{all\ equity\ financing} + PV_{Tax\ shields} - Expected\ Bankruptcy\ Costs$$

Terminal Value

On the DCF and PV approaches, terminal value will be calculated using the Gordon Growth Model, according to Elsner & Krumholz (2013) terminal value or residual value held a significant portion of the firm value; hence exact and unbiased calculation of terminal value is essential. Thus, the formula to calculate terminal value based on Gordon Growth Model is shown below:

$$Terminal\ Value = \frac{Final\ project\ year\ cash\ flow \times (1+growth)}{(Discount\ rate - growth)}$$

RESEARCH METHODOLOGY

Market Survey

In order to know the customers' preference towards batik products, the researcher conducts market survey using a questionnaire. Market survey or market research is a technique that is designed to collect, analyze, and report the relevant data regarding the current situation of the market (Kotler & Armmstrong, 2014), The questionnaire is an appropriate method to gather quantitative or/and qualitative data. There are some advantages using the questionnaire as a method in research such as structured format, easy and convenient for respondents, and cheap and quick (Walliman, 2011). The questionnaire was modified ones from previous research about the batik industry conducted by Nurfikriyadi (2017). Data was gathered from the total 338 respondents which randomly taken from various cities in Indonesia. It is comprised of 21 questions, the first five questions are related to the respondents' demographic background, and the rest are related to the respondents' tendency towards batik products, the most ideal batik products, the expected price for batik products and preferences in buying batik products. To process the gathered data, the statistical analysis used descriptive analysis. Descriptive analysis is a method of quantifying the parametric numerical data such as where the centre, the broad of the spread, the point of central tendency, the mode, median and means (Walliman, 2011).

Company Valuation

Company valuation or business valuation is one of the assessments and evaluations towards a company's strategy and its ability to generate value in order to maximize the shareholders or investor wealth. It is necessary or investors to determine a correct model of valuation based on specific characteristics of the company (Rojo-Ramirez, 2014). According to Beld (2017), there are various methods in calculating company valuation that are income approach, market approach, and asset approach. However, Jones and Dunse (2015) determined the three main methods of valuation, namely: earning multiplier, DCF models, and asset-based model. Based on the survey findings the researcher devises several modified scenarios for Piksel Indonesia's valuation. This valuation is used as the additional valuation for the impending investor. Moreover, there are various assumptions that already changed by the researcher:

1. Products price, for casual batik, formal batik, and merchandises the price are determined by the market survey that already conducted by the researchers.
2. The price added for the technology used and social impact is driven from the market survey as well as the probability of how many customers are willing to pay more for the social impact for the batik artisan under Piksel Indonesia guidance.
3. The quantity of all products sales each year is obtained from the three years' previous data on sales and forecasted by using the moving average method.
4. Since the revenue from the past years are dominated by uniforms so the researcher separates it from the all items revenue.

STUDY RESULTS

First Scenario of Company Valuation

The company valuation on the first scenario is contrived by the modified quantity of total item sold in each year which obtained from the three years moving average forecasting using the monthly data and the price is obtained from the market survey and the price of each item are obtained from the most chosen options by the respondents. Afterward, revenue from uniforms sold is gathered by multiplying the quantity, which obtained from simple linear regression forecasting and the average price obtained from three years moving average forecasting still using the monthly data of each year. In addition, the forecasting method also applies for other calculation components required, and the annual inflation each year equals to 3.5%.

DCF Method Calculation

Table 3: 1st Scenario DCF valuation *(Author's Analysis)*

Year	Free Cash Flow	WACC	Total DCF	Company Value
2018	Rp. 455,480,343	5.86%	**Rp. 430,249,486**	**Rp. 9,592,979,632**
2019	Rp. 606,032,024	10.14%	**Rp. 499,598,588**	
2020	Rp. 747,147,578	11.42%	**Rp. 540,211,351**	
2021	Rp. 894,472,003	12.69%	**Rp. 554,579,197**	
Terminal Value	Rp. 12,206,857,329	12.69%	**Rp. 7,568,341,010**	

APV Method Calculation

Table 4: 1st Scenario APV valuation *(Author's Analysis)*

Year	Free Cash Flow	K_e	Discounted value cash flows	APV	Company Value
2018	Rp. 455,480,343	9.35%	**Rp. 416,538,188**	**Rp. 397,976,191**	**Rp. 6,616,506,371**
2019	Rp. 606,032,024	11.48%	**Rp. 487,607,625**	**Rp. 454,787,424**	
2020	Rp. 747,147,578	13.62%	**Rp. 509,393,625**	**Rp. 462,315,220**	
2021	Rp. 894,472,003	15.75%	**Rp. 498,221,795**	**Rp. 436,885,186**	
Terminal Value	**Rp. 8,733,453,626**	15.75%	**Rp. 4,864,542,351**		

Second Scenario of Company Valuation

The modification on the company valuation of the second scenario is contrived by assuming that the total quantity sold in each year is increasing 10% according to the CEO's perception and the based quantity is from the three years moving average forecasting on the previous scenario. The price for this scenario is determined by the second most chosen options by the respondents. Revenue from uniforms sold is achieved by multiplying the total quantity and average price that both obtained from simple linear regression based on thirty-six-month data. Also, all the other calculation components such as WACC, the cost of equity increase by 10%, and the annual inflation each year equals to 3.5%.

DCF Method Calculation

Table 5: 2nd Scenario DCF valuation *(Author's Analysis)*

Year	Free Cash Flow	WACC	Total DCF	Company Value
2018	Rp. 239,817,863	6.45%	**Rp. 225,285,458**	**Rp. 8,728,983,307**
2019	Rp. 401,578,343	7.10%	**Rp. 350,127,304**	
2020	Rp. 564,845,400	7.81%	**Rp. 450,826,291**	
2021	Rp. 731,121,445	8.59%	**Rp. 525,892,366**	
Terminal Value	Rp. 9,977,612,655	8.59%	**Rp. 7,176,851,888**	

APV Method Calculation

Table 6: 2nd Scenario APV valuation *(Author's Analysis)*

Year	Free Cash Flow	K_e	Discounted value cash flows	APV	Company Value
2018	Rp. 239,817,863	10.28%	**Rp. 217,455,008**	**Rp. 198,893,010**	**Rp. 6,506,155,411**
2019	Rp. 401,578,343	11.31%	**Rp. 324,103,744**	**Rp. 291,283,543**	
2020	Rp. 564,845,400	12.44%	**Rp. 397,307,085**	**Rp. 350,228,680**	
2021	Rp. 731,121,445	13.69%	**Rp. 437,656,104**	**Rp. 376,319,495**	
Terminal Value	Rp. 8,836,198,495	13.69%	**Rp. 5,289,430,683**		

Third Scenario of Company Valuation

The company valuation on the third scenario is contrived by modifying all quantity sold in each year which increased 30% according to the company strategy and the base quantity from the three years moving average forecasting that is already done before on the first scenario. The price for this scenario is determined by the third most chosen options by the respondents. Revenue from uniforms sold is achieved by multiplying the total quantity obtained from three years moving average and the average price from the simple linear regression is using the monthly data of the company. In addition, all the other calculation components such as WACC, the cost of equity increase by 30%, and the annual inflation each year equals to 3.5%.

DCF Method Calculation

Table 7: 3rd Scenario DCF valuation *(Author's Analysis)*

Year	Free Cash Flow	WACC	Total DCF	Company Value
2018	Rp. 541,251,779	6.45%	**Rp. 508,453,179**	**Rp. 9,788,406,837**
2019	Rp. 630,864,004	7.10%	**Rp. 550,036,417**	
2020	Rp. 699,430,220	7.81%	**Rp. 558,243,958**	
2021	Rp. 775,630,786	8.59%	**Rp. 557,907,735**	
Terminal Value	Rp. 10,585,031,525	8.59%	**Rp. 7,613,765,548**	

APV Method Calculation

Table 8: 3rd Scenario APV valuation *(Author's Analysis)*

Year	Free Cash Flow	K_e	Discounted value cash flows	APV	Company Value
2018	Rp. 541,251,779	10.28%	**Rp. 490,780,412**	**Rp. 472,218,415**	**Rp. 7,407,851,820**
2019	Rp. 630,864,004	11.31%	**Rp. 509,154,414**	**Rp. 476,334,212**	
2020	Rp. 699,430,220	12.44%	**Rp. 491,972,816**	**Rp. 444,894,411**	
2021	Rp. 775,630,786	13.69%	**Rp. 464,299,810**	**Rp. 402,963,201**	
Terminal Value	Rp. 9,374,130,151	13.69%	**Rp. 5,611,441,580**		

CONCLUSIONS AND RECOMMENDATIONS

Some disparities and similarities about the customers' preference are found from the previous customer preferences research conducted by Nurfikriyadi (2016) and the survey conducted by the researcher. The first disparity is about the source of information that customer gets about the batik products. The researcher found that most of the customers prefer to gather information from social media and the recommendation from colleagues is the second most option of all. Secondly, the researcher's survey on the customer taste about batik style says that54.6% respondents chose traditional batik combine with modern style. The similarities and disparities found in the factors that affect customers in buying batik products is shown on the table below:

Table 9: Factors Affecting Buying Decision Comparison *(Author's Analysis)*

Factors	Effect Level	
	Nurfikriyadi (2016)	Latest Survey
Price	Affecting	Very Affecting
Product Design	Very Affecting	Very Affecting
Promotion/Discount	Affecting	Affecting
Brand	Neutral	Neutral
Product Quality	Very Affecting	Very Affecting
Service and After Sales Service	Neutral	Neutral
Ease of Payment	Affecting	Affecting
Shopping Experience	Neutral	Neutral

Table 10: All valuation results *(Author's Analysis)*

Methods	1st Scenario	2nd Scenario	3rd Scenario
DCF	Rp. 9,592,979,632	Rp. 8,728,983,307	Rp. 9,788,406,837
APV	Rp. 6,616,506,371	Rp. 6,506,155,411	Rp. 7,407,851,820

Obviously, each scenarios and methods shows different result of the company value. The highest number of company DCF and APV valuation are both achieved in the third scenario, which contrived by the amount of quantity by three months moving average from thirty-six months' data for the first year, which defined as a functional relationship between two correlated variables, and the next three years increased by 30% aligned with the company's strategy. In this case, the quantity of demand of uniforms contrived using thirty-six months moving average based on three years' data and the price of the uniform gathered from the simple linear regression. The linear regression is a useful tool in forecasting long-term major occurrences and aggregate planning (Jacobs & Chase, 2008). Meanwhile, simple moving average can only be removing the random volatility of forecasting. This scenario could be one of the Piksel Indonesia's considerations to set their future goals and strategy in using the funds from the investor.

Moreover, the prices set on the third scenario are the third most chosen price by the respondents; hence the customer preferences and their price expectation towards batik products still affect the company valuation, because this is the source of the sales volatility faced by the company. In addition, the price increased over the year following the inflation rate that equals to 3.5%. Howbeit, the DCF, and APV valuation give insights of the cash flows, income or outcome, and also on how the value is established and how much the company worth the investment funding from impending investor. Finally, yet importantly, the sales and cash flow projections can be used as a standard target in managing funds from the investor to form a new business strategy on developing market or products and services, by using the overall market research results, it gives the information about the market condition and customers' preferences and it could be the base for its financial strategy decision whether using the conservative or aggressive strategy. From the amount of the valuation, the company managerial could decide its financial strategy whether using the conservative or aggressive strategy. Hence they may determine the proper proportion of the impending investor's ownership. After discussing with the CEO, the author suggests the company to sells maximum 49% of the ownership, and the rest still owned by the founders, since the founders and the management are tending to be conservative. That will earn the fund as much as the nominal shown on the table below:

Table 11: Fund Proportion Projection *(Author's Analysis)*

Methods	Fund Earned
DCF	Rp. 4,796,319,350
APV	Rp. 3,629,847,392

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