# Broiler Partnerships Scheme Advantages toward Minimising Its Production and Marketing Risks at Mojokerto Indonesia

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*Abstract*—**Small scale broiler farmers have faced problems of the capital limitation, less information and technology access, and lead to uncertainty in providing the input production as well as no marketing guarantee. The existence of poultry partnership scheme may become alternative risk management strategy in supplying the continuity DOC, feed concentrate, Vitamin, and medicine in up-stream sub-system and ensuring for broiler marketing at downstream sub-system. Research proposed to relate with production and marketing risk alleviation for broiler plasma farmers at Mojokerto Regency. Case study used 30 plasma farmers who selected by purposive sampling method. Data consisted of six broiler production periods during one year. Primary data consisted of production cost, revenue, and liabilities that obtained by survey method using structured questionnaire. Core Company and related institution has provided secondary data. Data analysis employed descriptive technique with applying economic formulation involving Profit, Rentability, and Debt to Asset Ratio (DTAR). Results discovered that poultry partnership participants was male farmers aged between 31 - 40 years old with tertiary school attainment, 7 – 10 years experiences in operating broiler farming, and less than two years joining in broiler partnership scheme. The first produce period has utilised the poultry partnership scheme in reducing production risk through the good production performance in terms of FCR which still involved in the range of core company standard (1.68), low mortality (4.10%), and quite higher of harvest live weight broiler (1.95 Kg). The role of broiler partnership scheme in mitigating market risks occurred in the sixth harvest time through financial performance achievement on the basis of high profit (IDR 399/Kg live body weight), the low category of enterprise and economic rentabilities ($R_{Ent}$=4.07% and $R_{Eco}$ = 1.68%), and a limited payment capability toward total liabilities as the solvency level in the caution category (DTAR = 55.87%).**

*Index Terms*—**FCR, profit, rentability, DTAR, solvency**

## I. Introduction

Majority of small scale farming has executed the broiler enterprise as the primary or secondary livelihoods. Risks and uncertainty circumstances prevalent occur among those poultry farmers which influence on the unexpected farming's output, and hence decrease their income [1]. The capital limitation impacts on the downstream sector that required more expenses on DOC, concentrate feed, medicine and vitamin procurement. In addition, the efficiency and effective management in raising broiler hasn't come through since the smallholder farming performed less access to technology on farm sector. The high volatility in production cost and the fluctuation price for broiler also become another cases. It was evidence that majority (91.2%) of poultry farmers practice with intensive farming system still low adopted risk management strategy [2]. Hence, risk attitudes of farmers and the use of potential risk management instruments play an important in carrying out the broiler farming practice [3].

The availability of poultry partnership scheme may become alternative solution for farmer in dealing with the broiler farming risks. Plasma- core poultry partnership scheme is more favourable in which broiler farmer as plasma and chicken company as core [4]. Broiler farming has vastly growing since the rely on sturdy support of up-stream sector for instance the presence of Breeding Farm, Feed Mill, livestock medicine company, and equipment plant [5]. This model of partnership can provide advances in shaping the dependency and mutually benefits as well as impelling economic development, while plasma may less understand about their agreement since they haven't involved in arrange their agreement and therefore, core company can dominate in determining price [6].

Farmer who participates in the partnership system can generate income since the great cost of working capital is provided by core company [7].

However, the expenses for supplying DOC, concentrate feed, medicine and vitamin reveal the higher proportion of 66.50 % compared to 33.50% for fixed asset [8]. Therefore, farmers are then getting in financial risk since they can't pay their debt and the operational cost [9]. It is because most capital comes from core company loan and it leads to the plasma farming solvency getting worse [10]. Otherwise, farmer still has capability to use capital efficiently in achieving the profit [11] during the volatile broiler market price, hence the financial risk can be minimising [12].

Concerning to the role of poultry partnership system, the study elaborated on two problems. Production risks were the first focus, which related to technical variables including FCR, mortality and the harvest weight. The

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second case addressed to explore marketing risk when famers face fluctuation market price. Hence, the study aims to investigate production achievement in dealing with broiler harvest risk, and to determine financial performance in facing marketing risks.

## II. METHODOLOGY

Research located on Mojokerto district which determined by purposive sampling method. The selection of study area based on the two considerations. First, majority community engaged the broiler farming and they participated in poultry partnership scheme. Second, the broiler farming performed as the important livelihood whether as primary and secondary earning.

Case study used 30 plasma farmers who selected by purposive sampling method. Data consisted of six broiler production periods during one year. Primary data consisted of capital production cost, revenue, profit and liabilities that obtained by survey method using structured questionnaire. Production risks data include Feed Conversion Ratio (FCR), mortality, and the evenly broiler live weight at harvest time. Core Company and related institution has provided secondary data. Data analysis employed descriptive technique with applying economic formulation involving Profit, Rentability, and Debt to Asset Ratio (DTAR).

## III. RESULTS AND DISUSSIONS

### A. *Broiler Production Achievement and Its Risk Minimising*

Production uncertainty incorporated with the probability distributions for key technical variables, including Feed Conversion Ratio (FCR), mortality, and the evenly broiler live weight at harvest time. The poultry partnership scheme plays an important role in keeping the efficiency production using core company standard for these variables as an effort in reducing production risk. Therefore, production risk is measured based on the several criteria namely Feed Conversion Ratio (FCR), mortality, and the evenly broiler live weight at harvest time. FCR value reveals fluctuation with increase trend from 1.68 in the first harvest time to 1.75 in the sixth production period. This finding however, still represents the efficiency (less than 2) in feed management, and it keeps the least broiler production risk (Fig. 1).

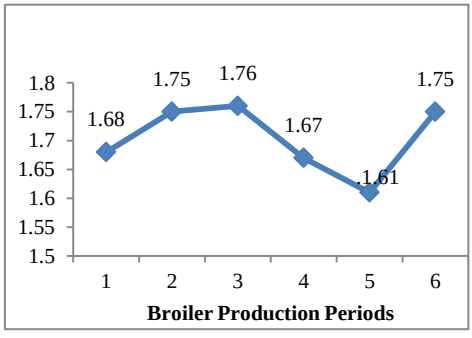


Figure 1. FCR based on broiler production periods

The fifth broiler production period performed the most economic (1.61), whereas the third harvest time has lavishly used concentrate feed (1.76) as seen in the Fig. 1. The fifth produce time only needed 1.61 Kg compared to 1.76 Kg of concentrate feed in the third production period in producing per kg of live weight. Hence, the least change FCR among periods imply the important role of core company in insuring the availability and continuity the good concentrate brand, and leads to minimising production risk, DOC quality, management, and broiler mortality together have also influenced in the lower FCR achievement.

The broiler mortality is lowest (4.10%) in the first BPP, whereas the highest (7.29%) one occurs in the fourth BPP. In the poultry partnership scheme, the broiler mortality effects on the harvest yield achievement both in the bird number and the Kg live weight. It is also impact on the bonus that received by farmers who can meet the poultry company requirement regarding to broiler mortality.

It shows the fluctuation of broiler live weight during one year in the six production periods. The variations of broiler live weight indicate the broiler production risk. The first of BPP (1.95) performs the outweigh than those of the sixth of BPP (1.7 Kg). The farmers involvement in poultry partnership therefore, improve the management practice to save production cost through the efficient in FCR and reduce mortality and lead to enhance the productivity and minimise the effect risks in production.

### B. *Broiler Farming Financial Performance and Marketing Risk Mitigation*

The role of poultry partnership scheme in ensuring the input production availability, the management service, and the certain of broiler marketing, can strong the financial achievement, and lead to alleviate marketing risk. The financial variable involves broiler production cost, concentrate feed cost, DOC expenses, broiler revenue and profit, ROA, ROE, and DTAR and these variables influence on the marketing risk for broiler farming.

Fig. 2 reveals that broiler production costs compose the greatest proportion (97.31%) of variable cost with the large proportion being purchase feed concentrate (76.44%), whereas fixed cost structured the least percentage (2.69%). On average per Kg broiler live weight require IDR 14,738 or IDR 27,525 per bird (equal to 1.85Kg). Regarding to variable cost, DOC is second dominant expenditure of broiler production cost.

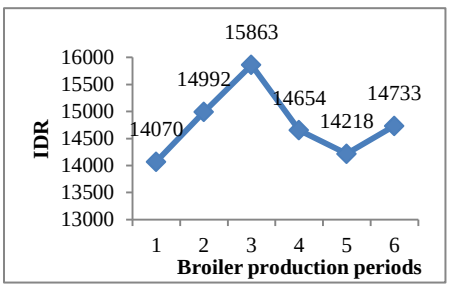


Figure 2. Broiler production cost based on production periods

Fig. 2 depicts the disparity of broiler production cost ranging between IDR 14,070 and IDR 15,863 per Kg live weight in the six production periods. The volatile of production costs during six production periods are exhibiting the efficient (IDR 14,070) and the lavish (IDR 15,863) of production costs occur in the first and third production periods, respectively.

Broiler feed cost for six production periods reveals a ascend trend from 73.44% in the first production period to 80, 32 % in the sixth yield period (Fig. 3). The first produce time also employs an efficient feed concentrate of 73.44 %; on the contrary it was an excessive about 81.18 % in the fifth production period. The large proportion of the concentrate expenses exist because the volatile of those price and it has certainly impact on high production costs.

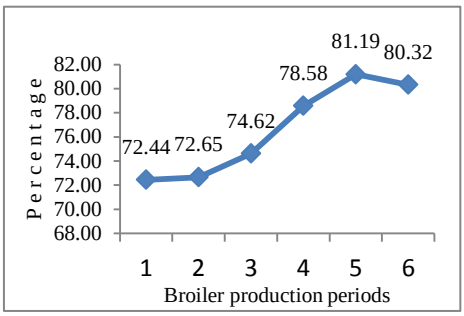


Figure 3. Feed concentrate based on production periods

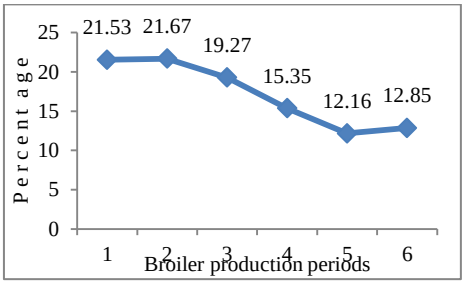


Figure 4. DOC expenses based on yield periods

The production performance depends on DOC cost which required on average about 17.55% which second dominating production cost (Fig. 4). DOC procurement has fluctuated during six production periods and this trend tends to decrease from 21.53 % in the first period to 12.85% in the sixth production period.

The fifth production period represents the economic (12.16%) time in utilising DOC expenses, whilst the largest (21.67%) one exists in the second production period. The variety of the expenditure in DOC incorporates with the unstable market price. Even though the highest proportion for DOC costs are still in normal category, it will impact on the reducing farm revenue. Fig. 5 explains farming revenue that composed by the highest proportion (98.83 %) of selling live broiler.

The revenue per Kg live weight depicts the lowest about IDR 14,457 in the first period, whilst the highest one approximately IDR 16,240 existing in the third production period (Fig. 5). The live broiler price plays an important role towards the value of selling meat chicken. Selling live broiler therefore, become dominant factor since the average of selling broiler contribute about 99% in determine revenue (Fig. 6).

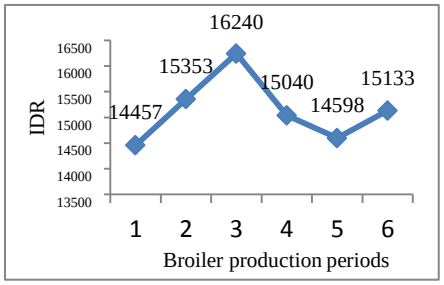


Figure 5. Broiler revenue based on produce periods

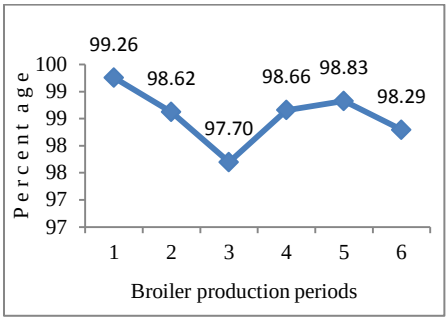


Figure 6. The contribution of selling broiler based on production periods

Fig. 6 explain that selling live broiler fluctuate along six production periods and has a descend trend from 99.26% (in the first production period) into 98.27% (in the six period). The third production period exhibits the lowest (97.70%) contribution to revenue than those the highest (99.26 %) one in the first production period. Bonus of FCR has also an important role in establishing broiler revenue. The contribution of FCR bonus to broiler revenue during one year time with six production periods.

Fig. 7 presents the profit of poultry partnership participant during one year with six production periods. Plasma farmers obtain the high profit of IDR 709 per birth with 1.85 live weight or IDR 391 per Kg live weight. The six production periods invents uneven profit as described below.

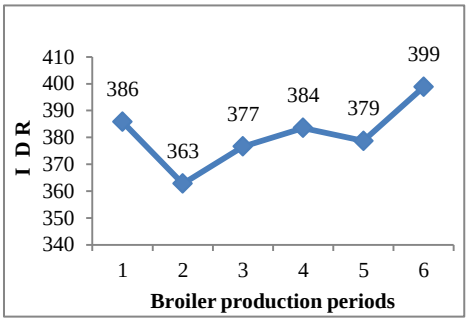


Figure 7. Profit based on broiler production periods

The profits of plasma farmers fluctuate during one year with the incline trend to IDR 399 per Kg live Wight in the sixth production periods (Fig. 7). The range of

profit in the six production period revolves from IDR 363 to IDR 399. The second production period indicates the lowest income (IDR 363), while the highest profit (IDR 399) come from the sixth production period in producing one Kg of broiler liv weight. It is the fact that farmers who join in poultry partnership obtain profit during a year because of facilities provided by Core Company such as the availability and continuity input supply and management service. These can bring farmers to meet company standard quality and limit the financial risk.

Farmers who join in poultry scheme agribusiness obtain profit per each production periods since they get marketing warranties without doubt regarding stabile of market price. The research showed that on average ration between profit and total asset was 1.57% which involving the low economic rentability. Fig. 8 delineates economic rentability for six production periods during one year time.

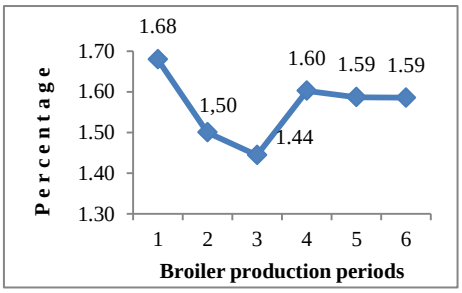


Figure 8. Economic Rentability based on production periods

Fig. 8 exhibits the unstable trend of economic rentability among six production periods which the trend decreases of 1.59% for fifth and sixth periods. In general profit and total capital ratio is about 1.44% - 1.68%. The first period can obtain the high economic retability of 1.68%. This finding explains that the expenses of IDR 10,000,000 of total asset will achieve IDR 1,680,000 of income. The third reduction period however, shows the least economic rentability of 1.44% and it includes in low category. This invention explains that farmers who participate on poultry partnership scheme have benefit in minimising financial risk, despite the low category of economic rentability.

Plasma farmers who join in the poultry partnership can obtain profit in each production period because they have marketing guarantee from Core Company with no consideration toward the unstable of broiler market price. This study discovered that on average, the profit and own capital ratio is 3.75% and it includes in low category. Fig. 9 explains the volatile trend of enterprise rentability for six production periods during one year.

Fig. 9 shows the fluctuation trend of broiler rentability and tends to decrease inti 3.47%. on third production period. Profit and equity ratio within one year period ranged between 3, 47% - 4, 07%. The first period has obtained the highest rentability of 4.07%. This invention explained that the capital expense of IDR 1,000,000 can achieve profit about IDR 407,000.The third period exhibits the bit percentage of rentability (3.47%) which involved in low category. This finding explains that joining in poultry partnership scheme has benefit in reducing financial risk, even though despite the less profit which mirrored in the low rentability category.

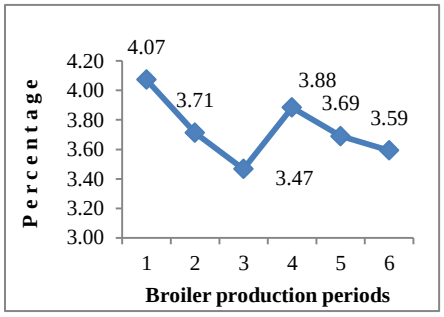


Figure 9. Venture rentability based on harvest times

This study found that on average the ratio total debt to total asset was 58.5%. It means than in general, broiler farming exist on the caution level in accordance toward financial risk. Farming solvency has fluctuated along with the six production periods. According to standard regulation of SME in Indonesia [13] the value of DAR between 41-75% is categorised as caution category.

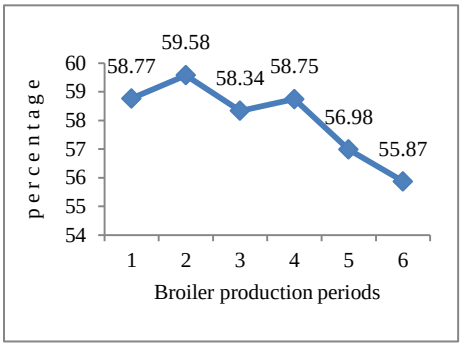


Figure 10. Debt to asset ratio based on harvest periods

Fig. 10 depicts the fluctuation trend of broiler farming solvency and going down especially in the sixth production period. The DTR ranges about 55.87% - 59.58%. The six production period exhibited the lowest (55.87%) solvability. It can be interpreted that every IDR 10,000,000 of capital, IDR 5,587,000 was paid by external fund or covered by debt. Of farming debt. The second production period performs the highest solvency level of 59.58% and it considered as the caution category of financial risk. So, broiler farming who participated on layer partnership scheme have an advantage regarding to mitigate the financial risk, even it include in the caution category.

## IV. CONCLUSIONS

The study of production and marketing risks for small scale plasma farmers who participate on broiler partnership scheme exhibited the following finding:

1. Poultry partnership participants was male farmers aged between 31 - 40 years old with tertiary school attainment, 7 – 10 years experiences in operating broiler farming, and less than two years joining in broiler partnership scheme.

2. The first production period has utilised the poultry partnership scheme in reducing production risk through the good production performance in terms of FCR which still involved in the range of core company standard (1.68), low mortality (4.10%), and quite higher of harvest live weight broiler (1.95Kg).
3. The role of broiler partnership scheme in mitigating market risks occurred in the sixth production period through financial performance achievement on the basis of high profit (IDR 399/Kg live body weight), the low category of enterprise and economic rent abilities (REnt=4.07% and REco=1.68%), and a limited payment capability toward total liabilities as the solvency level in the caution category (DTAR=55.87%).

## REFERENCES


[1] Kasidi, *Risk Management*, Bogor: Penerbit Ghalia Indonesia, 2014.

[2] O. R. Iheke and C. A. Igbelina, "Risks management in poultry production in ikeduru local government area of Imo State, Nigeria," *Nigerian Journal of Agriculture, Food and Environment*, vol. 12, no. 1, pp. 67-74, 2016.

[3] É. Gocsik, A. G. Lansink, and H. W. Saatkamp, "Mid-term financial impact of animal welfare improvements in Dutch broiler production," *Poultry Science*, vol. 92, no. 12, pp. 3314–3329, December 2013.

[4] F. Rahardi, I. Satyawibawa, and R. N. Setyowati, *Livestock Agribusiness*, published Swadaya, Depok, 2001.

[5] B. Saragih, *Livestock Agribusiness*, Bogor: Pustaka Wirausaha Muda, 2000.

[6] Sumardjo, J. Sulaksana, and W. A. Darmono, *Theory and Practice of Agribusiness Partnership*, Depok: Penebar Swadaya, 2004.

[7] A. C. Rodianvinci, "Profitability analysis among three partnership systems at Kediri Regency," under graduate thesis, Faculty of Animal Husbandry, Brawijaya University, Malang, East Java, Indonesia, 2015.

[8] M. I. Romadhon, "Financial analysis of broiler plasma in 'Jaguar Sejahtera,' partnership scheme at dampit Sub-District, Malang Regency," under graduate thesis, Faculty of Animal Husbandry, Brawijaya University, Malang, East Java, Indonesia, 2016.

[9] B. Djohanputro, *Integrated Corporate Risk Management*, Argya Putra, 2006.

[10] T. Ahmaji, "Analysis financial report of 'KUD Sari Tani Nguter' Sukoharjo," under graduate thesis, University of Sebelas Maret Surakarta, 2005.

[11] H. D. Utami, A. P. Seruni, and G. Maliton, "Partnership in broiler farm closed housed system (case study at Tuban, East Java, Indonesia)," in *Proc. 5th International Conference on Sustainable Animal Agriculture Countries*, 2015.

[12] H. K. Artanti, "Ratio of liquidity, solvability, and rentability in 'Hanita Trasindo Utama'," *Garduasi*, vol. 30, pp. 51-55, 2013.

[13] Regulation in State Ministry of Cooperative and SME of the Republic Indonesia Number .06/Per/M.KUKM/V/2006, About Score Guidance of Cooperative Achievement and Award, Jakarta, Dep. Ko & UKM.


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