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Research Paper

Non-Price Factors as Market Structure Framer and Efficiency in Indonesian Taxi Industry

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ABSTRACT

The collapse of the taxi industry in Indonesia due to the drastic decline of number of taxi firms, from 35 in 2014 remaining only 4 taxi firms, has become one of the government's biggest concerns. The dominance of market share concentrated on Blue Bird and Express and efficiency difference is presumed to be the cause of taxi industry collapse. This study aimed to: (1) measure technical efficiency possessed by Blue-bird and Express, and (2) analyze structure of taxi industrial market in Indonesia. The method used was Data Envelopment Analysis (DEA) to measure the efficiency; whereas multiple linear regression analysis with Panzar Rosse model was applied as well to analyze the market structure. The result indicated that Blue Bird is more efficient in terms of technical efficiency than Express, in addition to market structure that formed in the taxi industry is oligopoly. The number of fleets and capital ownership are non-price input factors which affect the company's income. The oligopoly structure formed led to the situation where taxi firms which did not perform well would lose competitiveness and have to close their firms.

Keywords: efficiency, market structure, non-price factors, oligopoly, Panzar Rosse

INTRODUCTION

The collapse of taxi industry in Indonesia nowadays has become a peculiar concern for government. This is motivated by Indonesian taxi industries' drastic decline from 2014 to 2016. In 2014, 35 taxi firms were recorded operating either in status of 'go-public' or private. However, in 2016, 31 were forced for bankruptcy hence only leaving behind four firms. The four recorded operating within Jabodetabek area are Blue Bird, Express, Gamya, dan Taxiku. Between those, Blue Bird and Express are among the largest taxi operator in Indonesia with total asset each is Rp 6.5 trillion and Rp 2 trillion in 2017, respectively. Presumably, taxi industry collapse in Indonesia from 35 firms to only 4 formed the taxi industry market structure to be concentrated into the biggest two- Blue Bird and Express, who own massive production scale and equity to run business. Dewata (2017) stated that in order to measure a business' size or scale and production capacity, it can be done by measuring their market share. The larger the firm's market share, the bigger their potency to dominate industry.

According to Table 1, Blue Bird and Express are capable to dominate the market share, considering their fleet number spread all around Indonesia. Operator with the largest market share—Blue Bird, always increased from 2012 until 2015, before suffering with declines in the years onwards. Likewise, Express kept rising from 2012 until 2014, before decreased from 2015 to 2017. The market share trend

indicated that indeed starting from 2014, Indonesian taxi markets have been struggling with declining aggregate industrial performance.

Table 1. Blue Bird and Express market share based on fleet ownership (in percentage)

Firm	2012	2013	2014	2015	2016	2017
Blue Bird	30.39	36.98	43.19	44.98	41.83	37.64
Express	12.89	16.12	18.27	18.25	15.51	15.29

The collapse of Indonesian taxi industries also was motivated by a not so proper management system. Although Blue Bird and Express are the biggest players, the dominated market share difference turned out capable in being strong influence on each financial performance. Based on the financial condition of the two largest- Blue Bird and Express considering each revenue, net income and cost from 2015 to 2017, firm performance difference could be investigated, as displayed in Table 2.

Table 2. Financial conditions of Blue Bird and Express (in hundred million IDR)

Time	Revenue		Cost		Income	
	Blue Bird	Express	Blue Bird	Express	Blue Bird	Express
Mar-15	1.284	247	1.059	227	225	20
Jun-15	1.383	263	1.161	251	222	12
Sep-15	1.368	211	1.186	232	182	-21
Dec-15	1.437	249	1.237	228	200	21
Mar-16	1.275	210	1.136	220	139	-9
Jun-16	1.197	164	1.105	197	91	-33
Sep-16	1.174	139	1.041	177	132	-39
Dec-16	1.151	106	1.004	209	147	-103
Mar-17	1.040	78	922	137	118	-59
Jun-17	1.042	80	966	155	76	-75
Sep-17	1.049	73	939	150	110	-77
Des-17	1.073	73	949	355	123	-282

Firm performance can be determined by its efficiency level. When a big firm's size or income flow drops, it means there shall have been a not very efficient management (Jaya 2001). Where in Table 2, it can be identified that Blue Bird was more efficient from 2015 to 2017 compared to Express. It can be seen that starting from March 2016 (the second quarter of 2016), Express operational costs have been always higher than its revenue, hence the net income earned turned negative (net loss). Net loss experienced by a firm indicates that they are not efficient because the generated revenue failed to cover the operational costs. Income ability level of the two taxi firms can be investigated as well from their net income growth per quarter. Blue Bird net worth, despite of fluctuation, stayed in positive remarks and still was considered beneficial. Whereas for Express, since March 2016 it has been consistently suffering with net loss, where the yielded income was negative and disserved the firm.

Ugbam and Okoro (2017) pointed out that firm's industrial structure affects their performance. In case of taxi industry collapse, the low business competition level was caused by a concentrated taxi market and dominated by the two largest taxi firms in Indonesia, who afterwards formed oligopoly market structure or perhaps directing to natural monopoly that forced other firms with inefficient performance to bankrupt. KPPU (2010) declared that market condition that is dominated by some business holders who own big production scale and equity may lead to oligopoly competitive market.

Hapsari (2017) report on efficiency measurement by using traditional approach on Blue Bird and Express with Total Assets Turnover (TATO) ratio for 2 years (2015-2016) per quarter cited that Blue Bird average TATO was 17.86% while Express average TATO was 6.9%. Blue Bird with larger asset total and fleet number possessing greater income by asset rotation, compared to Express thus conclusively Express holding a lower efficiency and productivity than Blue Bird in managing its business. Blue Bird is considered superior in technical efficiency compared to Express due to bigger firm scale and cost. Blue Bird

has more superior income ability as well than Express.

Market share domination that concentrated into only two biggest Indonesian taxi firms formed oligopoly market structure, which can be pointed out by number of fleets owned since it affects both financial and technical efficiency performance. Santorizki (2017) addressed that market form with oligopoly direction may force the inefficient actors to face bankruptcy. Therefore, it is substantial for the still-existing firms to evaluate the importance of them to perform efficiently in operating their business, so that the firm can manage to survive in the taxi industries competition. Therefore, it is substantial for the surviving four taxi firms to stay evaluating how important the non-price competitive determinants to be capable competing and surviving among Indonesian taxi industry, particularly in efficiency aspect so that to be able to dominate the Indonesian taxi market share.

MATERIALS & METHODS

This research focused on Blue Bird and Express taxi firms as two biggest ones in Indonesia according to the total asset owned and registered in Indonesia Stock Exchange. Data type used in this work was secondary, published and available under Indonesia Stock Exchange in form of firm annual financial report data from 2014 to 2017. Sampling technique was by purposive sampling using criteria with samples selection objectives. Criteria picked in selecting samples in this research were firms who run within transport sector, public transport sub-sector, and identified as taxi firm and operator.

By merely focusing on Blue Bird and Express, this study aimed to define how competition within Indonesian taxi industries with pre-assumption on initial cause of Indonesian taxi industry collapse that only remained 4 taxi firms operating in 2016, which formerly were comprised of 35 firms in 2014. Out of 4 taxi firms left, there are two- Blue Bird and Express, who reign the biggest market share calculating from their total owned asset and fleet.

Data processing method conducted in this work was by using panel data regression test to determine market structure in taxi industry with H–statistics Panzar Rosse (PR) test. To obtain firm efficiency level, Data Envelopment Analysis (DEA) was conducted. Meanwhile, softwares utilized during data processing in this study were Microsoft Excel 2013, MAX DEA, and Eviews 9.

Competition occurred among taxi industry was presumed due to each taxi firms' technical efficiency variance in operating business, hence solely the efficient firms survived within industry. DEA as technical efficiency measurement technique is expressed in ratio: output/input, which is intended for efficiency or productivity measurement (Wulansari 2010). Input and output variable determination was based on how important the certain input variable in the on-going taxi firm operations and revenue acquisition. Input variables utilized in DEA method were fleet number, driver dumber, total fuel cost, and total driver revenue; while revenue became the output variable. Technical efficiency value obtained ranged between 0 and 1. Interpretation of efficiency scale was the closer it got to 1, meaning the more efficient the firm was. On the other hand, the lower or closer it got to 0, meaning the more inefficient the firm was technically.

Competitive level measurement to investigate industrial structure constructed in taxi industry used PR model. Introduced by Panzar and Rosse (1987), it indicates competitive indicator known as H-statistic that provides quantitative assessment of competitions in market. Statistic–H value is applied as competitive level size and to define the formed market structure. Both price variables and factors in this study's PR model referred to PR model by Sys (2010) that applied price factors of PO, PL and PCE; Whereas, both non-price variables and factors selection was adjusted to business profile, firm size and performance in

industry. PR revenue test was conducted to estimate linier regression by using formulas as followed:

$$lnTURN_{i,t} = \beta_0 + \beta_1 \ln(PO_{i,t}) + \beta_2 \ln(PL_{i,t}) + \beta_3 \ln(PCE_{i,t}) + \gamma_1 \ln(ARMADA_{i,t}) + \gamma_2 \ln(EQTA_{i,t}) + \gamma_3 \ln(ASET_{i,t}) + \varepsilon_{i,t}$$

Where:

- TURN: turnover or revenue. This variable was set as dependent variable during statistic–H calculation.
- PO (Price of Operational): proxy for operational input price and calculated as operational cost ratio to pick up taxi consumer during trip (total operational cost/total fleet).
- PL (Price of Labor): proxy for driver input price and calculated as labor cost ratio to driver amount (driver cost/total driver).
- PCE (Price of Capital Expenditure): proxy for capital stock input price and calculated by dividing non-operational expenditure with total asset (non-operational cost/total asset).

Thereafter, a set of control variable was added whose essence to observe differences in risk and business profile.

- AR (Armada): market share seen as fleet number owned by taxi firm, as well portrays firm's production scale.
- EQTA: demonstrates how many self-capitals owned by taxi firm to sponsor its assets.
- ASET: displays firm's economic source and wealth.
- i stands for taxi firm i
- t stands for time (t)

PO, PL and PCE were defined as input price factors in form of financial capital, labors and physical capital. PO, PL and PCE variable referred to PR model undertaken in former study by Sys (2010). Meanwhile, ARMADA, EQTA and ASET variable were adjusted to estimated non-price factors that generated performance variance among each taxi firms. β1, β2, β3 are independent variable coefficients of price input factors, whilst γ1,γ2,γ3 are independent variable coefficients of non-price input factors. H-statistics was obtained from addition between revenue elasticity and price factors (β1 + β2 + β3), according to revenue formula's reduced form. PR model contained price and non-price input variables. In order to investigate how impactful the factors as well the non-price variable factors such as fleet amount, equity and asset, towards formation of market structure, hence it could be indicated from the non-price factor coefficient values (γ1, γ2, γ3). H-statistic value ranged between 0 and 1, portraying the existing market competitive level. If $H < 0$, monopoly or oligopoly market would be created. If $0 < H < 1$, monopolistic competition would be fabricated as market structure. If the market was competitive, H value would reach approximately one (H=1) (Bikker dan Haaf 2002).

Main assumption as PR model base was that H test must be conducted during long run equilibrium observation. In long run equilibrium, return level must not correlate with input price. Equilibrium test was based on regression where dependent variable- TURN in PR revenue formula was substituted with incomeability size such as Return on Assets (ROA). Because ROA can be negative, following Claessens and Laeven (2004) in Sys (2010), dependent variable was measured as ln (1 + ROA). Equilibrium test estimation formula was as followed:

$$ln(1 + ROA)_{i,t} = \beta_0 + \beta_1 \ln(PO_{i,t}) + \beta_2 \ln(PL_{i,t}) + \beta_3 \ln(PCE_{i,t}) + \gamma_1 \ln(AR_{i,t}) + \gamma_2 \ln(EQTA_{i,t}) + \gamma_3 \ln(ASET_{i,t}) + \varepsilon_{i,t}$$

Long run equilibrium test measured asset return elasticity number considering the input price of (E= β1+ β2+ β3). If E-statistics was zero, meaning taxi market was within scope of long run equilibrium. Table 3 pointed out general depiction on H-statistics and E-statistics interpretations.

Table 3. H-statistics and E-statistics interpretations according to Bikker *et al.* (2009) in Sys (2010)

Assumption	Long Run Equilibrium		
E-statistics	E < 0 dis-equilibrium	E = 0 equilibrium	
H-statistics	H ≤ 0	0 < H < 1	H = 1
Property	Without threat of entry	Free entry and exit result in 0 profit in equilibrium	
Assumption	Profit maximizing firm		
H-statistics	H < 0	0 < H < 1	
Market structure	Monopoly Oligopoly	Monopolistic	

RESULT

In this paper, we estimated efficiency of the taxi industry in Indonesia by conducting Data Envelopment Analysis (DEA) whose results afterwards proceeded to a financial and accounting behavior test to determine efficient and inefficient firms. Measurement through DEA resulted in efficiency scale ranging between 0 and 1 meaning particular taxi firm's possession on efficiency in certain period of time. DEA efficiency scoring was applied to define the better investigation on taxi firms' performance.

Technical efficiency research within taxi business applied output approach where the taxi firm is capable to earn total revenue to maximum extent by selected input through operational activities. Input variables in this study included fuel cost, driver cost, fleet amount and driver amount, referring to input variables formerly picked by Rai (2013) who calculated efficiency in aviation industry by using the similar method--DEA.

Table 4. Technical efficiency measurement with DEA

DMU	DMU Order in Data	Technical Efficiency Score(CRS)	Pure Technical Efficiency Score(VRS)	Scale Efficiency Score	RTS
Blue Bird 2014	1	0.995689	1	0.995689	Decreasing
Blue Bird 2015	2	1	1	1	Constant
Blue Bird 2016	3	1	1	1	Constant
Blue Bird 2017	4	1	1	1	Constant
Express 2014	5	1	1	1	Constant
Express 2015	6	0.916738	0.97229	0.942866	Increasing
Express 2016	7	0.711978	1	0.711978	Increasing
Express 2017	8	0.37118	1	0.37118	Increasing

It can be pointed out in Table 4, according to efficiency measurement of two biggest taxi firms in Indonesia by using DEA, output evidenced that PT Blue Bird Tbk. from 2013 to 2017 possessed better efficiency than PT Express Trasindo Utama Tbk. In 2014, Blue Bird efficiency level reached 99.5689 %, even managed to top to 100 % throughout next couple years (2015-2017). The shown accomplishment proved Blue Bird status as an efficient taxi firm that is capable in efficiently converting input to output at maximum extent. Looking through its Return to Scale, Blue Bird efficiency performance had decreasing return to scale, meaning condition where efficiency scale ≠ 1 ≠ TEVRS and TEVRS ≠ TECRS. Meanwhile Bluebird efficiency performance during 2015, 2016 and 2017 faced a constant return to scale obtained from efficiency scale value = TECRS = TEVRS.

On the other hand based on the provided data above, Express efficiency scale value kept dropping each year. In 2014, Express peaked its efficiency value of 1 or 100%. However, Express technical efficiency went through declining rate in the coming years. Express efficiency level in 2015 was to 94.266 % that stayed falling downhill to be 71.978% in 2016, and 37.118% in 2017. The enlisted efficiency scales below 1 or 100% indicated that Express ought to optimize their input utilization to be output at maximum extent.

It can be noted from technical efficiency performance of Blue Bird and Express that Blue Bird was more efficient than Express. The efficiency scale generated

as division output between Technical Efficiency Score (CRS) and Pure Technical Efficiency Score (VRS) emphasized that Blue Bird achieved the top tier efficiency level of 1 or 100 % for three times, namely in 2015, 2016 and 2017. Whereas, Express managed to do so merely once in 2014. Express though as well has once topped Blue Bird efficiency–wise in 2014, where Express achieved 100 % whilst Blue Bird had 99.5689. These aforesaid efficiencies rendered the taxi firms which ran their business inefficiently gradually had to quit the industry and fabricate a no more competitive market structure. This phenomenon was supported by market structure constructed within taxi industry by using Panzar Rosse (PR) model.

Long run equilibrium condition test towards taxi industry observation samples shall be carried out prior H-statistics value determination by using PR model. This long run equilibrium condition test with E-statistics calculation was result of addition between LN 1+Return on Asset (ROA) or LN_1+ROA and input factor price. Addition of value 1 into ROA that was set as dependent variable was motivated by negative valued ROA.

Table 5. Long Run Equilibrium Test

Dependent Variable: LN_1ROA		
Method: Panel Least Squares		
Date: 01/02/19 Time: 11:56		
Sample: 2014 2017		
Periods included: 4		
Cross-sections included: 2		
Total panel (balanced/equilibrium) observations: 8		
Variable	Coefficient	Prob.
LN_PO	-0.47646	0.0968
LN_PL	0.061012	0.4033
LN_PCE	0.06423	0.2601
LN_ARMADA	0.527343	0.1557
LN_EQTA	0.275386	0.1128
LN_ASET	-0.20872	0.3875
C	9.155866	0.2402
R-squared		0.999234
Adjusted R-squared		0.994641
F-statistic		217.5419
Prob(F-statistic)		0.051852

Long run equilibrium condition test in Indonesian taxi industry of 2014-2017 period yielded in E-statistics of -0.35122, where that value was obviously not zero. Shaffer (2004) stated in Pandi (2018) that if industry was not in long run equilibrium state or E value ≠ 0, thus it did not necessarily mean the PR model calculation outcome was invalid. This demonstrated that Indonesian taxi industry was in development stage dynamically during the observation period of 2014-2017. Moreover, Widyastuti and Armanto (2013) declared that long run equilibrium assumption compliance was among the toughest obstacle to tackle through PR method.

Table 6. Market Structure Measurement by Using *Panzar Rosse* Model

Dependent Variable: LN_TURN Method: Panel Least Squares Date: 12/31/18 Time: 21:16 Sample: 2014 2017 Periods included: 4 Cross-sections included: 2 Total panel (balanced/equilibrium) observations: 8		
Variable	Coefficient	Prob.
LN_PO	-0.591974	0.0577
LN_PL	0.00373	0.9284
LN_PCE	0.107388	0.1201
LN_ARMADA	2.12218	0.0291
LN_EQTA	0.755246	0.0306
LN_ASET	-0.032281	0.8139
C	20.39675	0.083
R-squared	0.999995	
Adjusted R-squared	0.999963	
Prob(F-statistic)	0.004339	
H-statistic	-0.480856	
Market condition	Oligopoly or monopoly	

Model applied to define market structure fabricated in Indonesian taxi industry was PR, notably to measure H-statistics value. Approach applied during panel data regression analysis was common effect approach. In accordance to Table 6, result showcased influence of entirety of independent variables (PO, PL, PCE, ARMADA, EQTA, and ASET) on dependent variable (TURN). Independent variables impacted on dependent variables if each variables' probability value was lower than 0.05. Based on probability values, whole price input factors e.g. PO, PL and PCE, and non-price input factor of ASET which were insignificant affected TURN or revenue due to each probability that passed 0.05. Whilst, non-price input factors e.g. ARMADA and EQTA with probability of

0.0291 and 0.0306, respectively- which were lower than 0.05, indicated that ARMADA and EQTA each influenced revenue positively.

Significance of an independent variable simultaneously in affecting dependent variables within a model can be seen from probability value (F-statistics). If F-statistics was lower than 0.05, meaning independent variables possessed simultaneously significant influence towards dependent variables. With R-squared value of 0.99999 or 99.9999% with F-statistics obtained from calculation model of 0.004339- lower than 0.05, indicated that 99.9999% independent variables (PO, PL, PCE, ARMADA, EQTA, and ASET) simultaneously gave significant impact on dependent variable (TURN). The high R-squared value implied that the selected independent variables were excellent in describing their linkages towards simultaneous-dependent variables.

Table 6 calculation output can be illustrated into PR model formula as followed:

LN(TURN) = 20.39675 + (-0.591974 LN_PO) + 0.00373 LN_PL + 0.107388 LN_PCE + 2.12218 LN_ARMADA + 0.755246 LN_EQTA + (-0.032281 LN_ASET) + e

H-statistics value from PR model was earned by addition between coefficients of price input factors (PO, PL, and PCE) that was (-0.591974+0.00373+0.107388) or -0.480856. Based on Table 5, with H-statistics value of -0.480856 which was negative ($H \leq 0$), thus market structure in Indonesian taxi industry was grouped as monopoly or oligopoly. Where citing from Sys (2010), monopoly or oligopoly formed rendered a difficulty for other firms to penetrate the industry. Besides, Aprilianus (2010) stated that one of oligopoly market structure characters was non-price competition by firms to dominate the market share.

It was proven in this work, that entire three independent variables of price factor input did not deliver significant impact on revenue. Whereas, two out of three independent variables of price factor input e.g. ARMADA and EQTA showcased positively significant effect on revenue with probability of 0.0291 and 0.0306, respectively, which were lower than 0.05. ARMADA variable coefficient of 2.12218 meant that if fleet amount increased for one unit, hence revenue might as well increase for 2.12218 units with assumption that other variables were kept steady. Besides, referring to its coefficient value, fleet amount owned by taxi firm was capable in providing the most positive and significant effect towards revenue. It could be considered that the greater fleet amount was, the higher revenue of taxi firm would be. More fleet amount ran by taxi firm would as well boost the business to dominate the market thus market could be concentrated to the firm and formed an oligopoly market structure. Express owned less amount of fleet than Blue Bird, hence Express should consider fleet amount rise to enhance its revenue.

EQTA demonstrated capitalization level and equity ratio of a firm towards its whole total asset. The higher EQTA ratio, the higher equity owned that would decrease or even discard risks to aim for an efficient firm (Athoammar 2012). EXTA served a positive and significant impact towards revenue. EQTA variable coefficient of 0.7552 denoted that if EQTA increased for one unit, there would be 0.7552 unit increase as well in revenue with assumption that other variables were kept steady. Blue Bird and Express difference was that Express suffered with more loans than its equity to cover assets, meaning Express spent external budget or loan-based grant or foreign equity more than Blue Bird. On the other hand, Blue Bird utilized more of its equity to fund the assets. Express is expected to lessen loan level and utilize more equities in funding assets; therefore, it would be positive impact on revenue.

PR model outcome in this research was supported by KPPU (2010) that denoted market condition dominated by some business holders who run extensive

production scale or equity would lead to oligopoly-derived competitive market. Large production scale of a taxi firm can be identified by its fleet amount as the main asset. Business size can be defined by total asset owned in term of running business to earn revenue for the firm. Meanwhile, massive equity to fund assets compared to loans would generate a positive influence towards revenue.

Asset is dimension of how big of property a firm owns. Total asset displays wealth of a firm. ASET variable as non-price factor did not affect revenue, presumably since ASET for a taxi firm was even considered a burden. Assets owned by taxi firm such as pool, building, and branch were reckoned not as relevant any longer for firm's revenue since they did not bring direct impact instead turned out as burdens in management. ASET variable coefficient of -0.0322 indicated that if firm asset increased for one unit, there would be 0.0322 unit of revenue decrease with assumption that other variables were kept steady. Both Blue Bird and Express shall mitigate asset level owned in order to enhance the revenue.

DISCUSSION

The Indonesian taxi industry decline that remained solely 4 still-operating-firms in 2016 and dominated by two- Blue Bird and Express was caused by each firm's technical efficiency-related obstacles. It can be investigated and evidenced through technical efficiency measurement results of Blue Bird and Express, as the reigning firms, that Blue Bird's managed to almost reach point 1 during the observed period (2014 and 2017), which indicated Blue Bird was capable in operating its business efficiently. On the other hand, Express despite its survival accomplishment, it endured efficiency fall each year throughout the observed period. Hence, these aforementioned efficiency-forward challenges were considered to be the cause of some of Indonesian taxi industries collapse, which rendered formation of oligopoly market structure by Blue Bird and Express. Ex-press is obliged to press its operational cost, such as fuel and labor expenses. With a steady sales level or revenue, if Express can be adequate in cutting off those costs, Express shall reach significantly better efficiency.

Besides, variance among taxi industries' efficiency is seen as one of the major factors due to previous report by Arsyad (2015) that stated efficiency is key to businesses' success, within oligopoly market as well. In this case, Express somehow could still reigned the field despite its unefficiencies. KPPU (2010) described market's dominant roles often are undertaken by those with the large equity. Blue Bird and Express indeed own massive amount of fleets and equities compared to their contenders. Thus, this research outcome has proven non-price input factors (i.e. fleet amount and EQTA) gave such positive and significant influence to revenue, and formation of oligopoly market structure.

However, Blue Bird and Express alone still have to deal the difference in business size (proximated by their fleet amount), where Blue Bird owns bigger number. Thus, Express should boost up the ownership of more fleets, in order to maintain the reign and increase the revenue. Besides, Express also has to deal with assets affordance, where most are funded by loans. Blue Bird on the other hand is mainly funded by self-equity, considering its revenue and equity are directly proportional. At this point, Express should reduce its assets. In this study, it can be pointed out that asset as one of non-price input factors gave negative impact instead, although not significantly towards the revenue. Taxi industries' used-to-be common as-sets such as workshops and pools nowadays are no longer relevant in operating taxi business. Therefore, both Blue Bird and Express shall diminish irrelevant assets that can be burdening in process of producing revenues.

CONCLUSION

Indonesian taxi industry is concentrated and ruled by merely two biggest taxi firms, Blue Bird and Express, who own most fleets- which led to formation of oligopoly market structure, or even leaning towards natural monopoly. This study evidenced that Indonesian taxi industry market structure was oligopoly that affected the firms' performance, notably in terms of efficiency. Firms who failed to operate efficiently in running their business gradually quitted from the market. Efficiency difference between the two taxi firms doubling as operators affirmed as cause of taxi industry collapse in Indonesia throughout period of 2014-2016. Regarding efficiency, Blue Bird possesses better efficiency level. Thus, Express ought to fix its performance and maximize the utilization of their resources efficiently, in order to stay within the industry considering its incapability competing with Blue Bird. Oligopoly market pushed firms within the industry who were unable to establish efficiently for a bankruptcy. Therefore, it is substantial for Blue Bird and Express as the still-operating and remained firms in the industry to evaluate how important non-price competitive factors, in this regard were fleet amount owned by firm, equity to afford asset and discarding of assets that are irrelevant to revenue, in order to stay capable to compete and survive among Indonesian taxi industry, notably in term of firm efficiency aspect that Express shall perform better to keep reigning Indonesian taxi market share.

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