Financial and Social Well-being Performance after Privatisation of the Port-of-Brisbane: A Case Study

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Abstract

Available literature has failed to provided a satisfactory expalination to the contradiction between 'the theory of the firm' and 'stakeholder theory' predictions related to financial and social-wellbeing performance of public versus private firms. Limited literature has evaluated the financial and social-wellbeing performance of privatised ports in Australia. This study investigates the potential impact of the privatisation of the Port of Brisbane Corporation (PBC) to the Port of Brisbane Proprietary Limited (PBPL) on its financial and social-wellbeing performance.

Mixed methods research is employed following the theory of the firm, investigating the relationship between the change of ownership and financial and social-wellbeing performance of PBPL, under pre-and post-privatisation conditions. Firstly, quantitative methods are used to analyse secondary data from annual financial reports, comparing ratios between 2005 and 2017. Privatisation occurred during 2011 and this year was eliminated from the study as both ownership types existed. MANOVA will be used 'before and after privatisation' to test the null hypothesis, and subsequentially to design open-ended questions for interviews of PBPL employees.

MANOVA results did not support the null hypothesis, consequently, ANOVA and Tukey's post-hoc tests were conducted, provideding significant differences, with improved performance under privatisation. Findings from interviews provided explainations related to improvments the financial and social-wellbeing performance during private (2012-2017) compared to State ownership (2005-2010). This study revealed private ownership, as posited by the theory of the firm, maximised profits, and following stakeholder theory predictions managed social well-being.

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INTRODUCTION

There are inconsistencies in the findings of prior studies related to changes in financial performance related to the privatisation issue of public sector businesses. Consequently, contrasting points of view have evolved from previous research with some authors providing arguments or evidence against improvements through privatisation (Starr, 1987; Boycko, Shleifer, & Vishny, 1996; Yoshihiro Toyama, 1998) and other authors evidence for improvements through privatisation (Mendoza, 2017).

These inconsistent results may be due to studies either following a specific underpinning theoretical paradigm or reflecting the advancement of knowledge through a cycle described by Kuhn (1962) and Thwink (2014) as the revolution of thought that occurs within an area of research. Examples of inconsistencies in findings of prior privatisation of public sector businesses are reflected, firstly, in a belief that privatisation brings financial success to Government Owned Companies (GOCs) based on the perception of private ownership being superior to public ownership (Shleifer 1998). Conversely, some believe that private ownership focuses on shareholder profit maximisation giving less attention to the provision of public interests, especially protecting the social well-being of employees (Parker 1998).

The research problem, therefore, is whether privatisation causes a focus on profit maximisation and reduces the focus on social-wellbeing performance, which follows the theory of the firm. Alternatively, the research problem may relate to whether privatisation causes a focus on financial performance while maintaining the social-wellbeing focus of SOC's, which follows a stakeholder theory perspective.

Australian major ports, including the Port of Brisbane, play a significant and vital role in the development of the economy. Therefore, an evaluation of the financial and social well-being impact resulting from a change of ownership of the port is a relevant and warranted project. The business goals of PBPL are important not only to the public, stakeholders, and import-export traders but also, to shipping companies, and it is vital to analyse the firm's ownership transfer and effect on the financial and social-wellbeing performance of PBPL.

This paper is organised as follows. The next section provides the literature review, followed by the research framework, research questions, and hypothesis development. The research method section describes the identification and operationalisation of variables. The results are discussed in the fifth section. The final section provides findings, conclusions, implications of the study and\ limitations of the research.

LITERATURE REVIEW

Privatisation is a significant issue for researchers, governments and the general public. Globally, many countries have shifted their State-Owned Enterprises (SOEs) to private ownership in the past 50 years. In the Australian context, total revenues between 1987 and 2013 from the privatisation process were AUS$ 142.59 billion (Reserve Bank). However, few studies have conducted a performance evaluation of an Australian privatisation process. Particularly, insufficient studies have investigated the port transport industry because it is difficult to collect reliable accounting data (Abbot and Cohen 2014). Further, no evidence appears available of any independent research

conducted on the performance of the Port of Brisbane. In 2010, the Port of Brisbane Corporation (PBC) was privatised becoming the Port of Brisbane Proprietary Limited (PBPL). The Port of Brisbane's importance to the development of the economy warrants undertaking a case study analysis about the impact of privatisation.

The primary literary debate about privatisation, and the scope of this research, is whether privatisation is associated with improvements when compared to previous GOC's performance and efficiency (Boycko, Shleifer & Vishny, 1996, p. 310). Talley (2007) argues that a single port's performance can be evaluated by comparing actual performance indicators that satisfy its economic objects, to the standards. Such standards can be technical efficiency standards, cost efficiency standards or effectiveness standards. For instance, Parker (1999) as well as Poitras, Tongzon and Li (1996) considered technical and cost efficiency or effectiveness when they evaluate the effect of privatisation but have not considered operational efficiency. This research considers profitability, leverage, capital investment as financial performance indicators (as well as non-financial indicators - level of employment and port operations) to evaluate the financial and social-wellbeing performance of privatisation.

Many studies on privatisation have emphasised financial perspectives only (Parker, 1999, Poitras, 1998, Shleifer 1998, Poitras, Tongzon and Li 1996). Variation has occurred in the findings of prior studies ranging from, privatisation having a positive impacted on the performance of firms (Megginson et al, 1994; Beck et al, 2003; Tsamenyi, Onumah and Tetteh-Kumah 2010), or moderate improved performance after privatisation (Verbrugge et al, 1999), to no evidence found about performance improved after privatisation (Parker, 1998; Ahmad, Nouman and Siddiqi, 2012; McKenzie and Keneley, 2011). While others, such as Tull and Reveley (2010) highlighted that while privitisation tended to improve profitability for the firms but also increased ports costs to the users. Tull and Reveley (2010) also described a related increase in productivity while at the same time increases in labour productivity and a decrease in employee numbers.

Even though some privatisation studies have found there were improvements in a privatised company performance, the change of ownership itself may not be the only reason for this improvement. Increases in efficiency may be attributed, in part, to other factors; i.e. competition, change of technology, and regulation reforms (Megginson and Netter, 2001; Guriev and Megginson, 2005; Boardman and Vining, 1989; Bachiller, 2015). Previous researchers have not suggested a world-wide accepted methodology to evaluate the performance of a privatised firm. Accordingly, it is evident that there is no consensus about the improved performance of GOCs after privatisation. This inconsistency provides motivation for this study researching the relationship between a firm's performance and its nature of ownership.

Results of any research into privatisation can be problematic due to its methodology. For example, many researchers compared the performance of firms under public and private ownership using cross-sectional regression analysis with an assumption of the effect of ownership controls on other determinants of performance. This regression analysis is considered to be inappropriate because ownership is endogenous in a cross-section and difficult to control for all possible determinants of performance at the firm level (Boardman and Vining 1989).

Finally, irrespective of a country's political basis or its level of development, each society has beliefs for and against privatisation (Garcia 2013). From employees' perspective, they fear losing their jobs due to privatisation (a social well-being issue), and therefore, may protest against the

restructuring programmes (Busch 2013, NSWNMA. 2016, Rourke 2017, ABCnews 2017, Skynews 2017, Telford 2015 and WSWS 2017). Therefore, social well-being performance of a privatised of a formerly State-owned business needs to be addressed in a pragmatic approach to justify the effects of privatisation and its impact on different sectors (Creswell, 2016).

CONCEPTUAL FRAMEWORK, RESEARCH QUESTIONS, AND HYPOTHESIS

The following discussion provides views related to performance outcomes resulting from privatisation framed by two specific theories. These theories reflect the advancement of knowledge through a cycle described by Kuhn (1962), as the revolution of thought that occurs within an area of research (Thwink, 2014). The discussion begins with the traditional theory of the firm and transitions into a discussion reflecting multidimensional stakeholder theory. The development and influences of stakeholder theory on the modern business environment have been the result of legislation requirements, case precedent judgements, as well as public and political expectations needed to legitimise business activities (Deegan, 2013; Du plessis et al, 2018).

The theory of the firm

The theory of the firm is clustered with several other economic theories to explain the nature of a firm and predict the existence, structure, behaviour and relationships of a business entity within the market (Spulber, 2009). This theory proposes that firms exist and make decisions in order to maximise profits. To achieve that goal, the firms, interact with the market-price mechanisms in determining price and demand/supply and then allocate scarce resources in the most profitable manner (Spulber, 2009).

Stakeholder theory

Stakeholder theory, (Freeman, 1984) suggests that shareholders are just one of many stakeholders of a firm; employees, vendors, government agencies, environmentalists, suppliers, investors, and communities. These stakeholders have interconnected relationships and therefore, should be collectively valued by the firm. Although this theory is not associated only with privatisation, it is important to establish whether the privatised enterprise values not only profit maximisation, but also considers its stakeholder responsibility to public welfare when a low profitable or loss generating Stated-Owned-Enterprise is privatised.

The essence of shareholder theory is that a business exists to maximise profits (profitability) for the benefit of the shareholders. However, the revolution of thought that has occurred within stakeholder theory reflects societal expectation over time. Deegan (2013) delves into two branches of stakeholder theory; ethical (a normativist's view point) and managerial (a positivist's view point). These two branches of stakeholder theory incorporate the paradigms of theory of the firm that have been discussed in this section. Du plessis et al (2018) explains the changing expectations of the courts, follows community expectation, forming part of this change in paradigm.

In summary, the change in society's expectation of a firm, discussed in the previous paragraph, now exceeds the purpose of the firm as posited under the theory of the firm. From a positivist's managerial branch of stakeholder view, society's expectation extension reflects an extension of the scope of management's focus to include the needs of the firm's salient stakeholder and not be limited to the needs of shareholders. That is, the paradigms within the managerial branch of stakeholder theory encompasses the theory of the firm and now provides the needs of the firm's

salient stakeholders as motivational influences on the financial and social-wellbeing performance of PBPL.

Null hypothesis

The following null hypothesis (H_0) has been developed based on the recognition of the firm's focus to meet continually the salient stakeholders' needs that is proposed under the managerial branch of stakeholder theory:

H_{0-} *There is no change of the financial and social-wellbeing performance of Port of Brisbane under private or state ownership.*

Should this null hypothesis be rejected, the following two research questions will help focus further investigation:

Research Question 1 (RQ1): To what extent, and why, does privatisation impact on the financial performance of PBPL compared to PBC?

Research Question 2 (RQ2): How, and why, does private ownership impact on the social well-being of employees while maximising profits compared to PBC non-for-profit aim?'

In addition to providing some findings for these questions, the outcomes will be compared to inconsistent results with prior studies.

RESEARCH METHOD

A qualitative and quantitative sequential mixed-method approach was taken to collect and evaluate the impact of privatisation on the overall financial and social-wellbeing performance of PBPL (Creswell 2002, Morgan 2007, Tashakkori & Teddlie 2009, Collins & Onwuegbuzie 2007). PBPL has been selected for the case study because it is a good example of a privatised public entity, providing pre- and post-ownership change data, to enable comparison. The question asked during the interviews received the university's ethical clearance (Smith, D. 2003).

Data from several secondary sources[4] were used for quantitative analysis and interview employees of the firm are used for qualitative analysis, and form the component of this study's mixed methods design.

Operationalising the concepts used proxies for PBPL's profit maximisation, operational and social-wellbeing performance as used in prior privatisation studies (Roos and Neto, 2016; Rockefeller Brothers Fund, 2012; Adams, Moynihan, Zietlow, Fok, Miller, Oberhart, Schumann, and Wang 2017; Acquaye, Feng, Oppon, Salhi, IbnMohammed, Genovese, and Hubacek, 2017) and are detailed in Table 1.

[4] Publicly available financial reports as well as alternative sources: BIRTE and Water Line reports, Australian Bureau of Statistics (ABS), Ports Australia, and the Department of Infrastructure and Regional Development (DIRD).

Table 1. Operationalising financial and non-financial social-wellbeing performance measures

Performance	Variables	Proxies (ratios)[5]	Null hypothesis
Financial	Profitability	Return on Assets (ROA_1) = Earnings Before Interests & Tax/Total Assets	$ROA_{1A} = ROA_{1B}$
		Return on Assets (ROA_2) = Earnings Before Tax/Total Assets	$ROA_{2A} = ROA_{2B}$
		Return on Equity (ROE_1) = Earnings Before Interests & Tax / Total Equity	$ROE_{1A} = ROE_{1B}$
		Return on Equity (ROE_2) = Earnings Before Tax / Total Equity	$ROE_{2A} = ROE_{2B}$
	Leverage	Debt to Assets (DTA) = Total Debt/ Total Assets	$DTA_A = DTA_B$
	Investment Intensity	Capital Expenditure to Total Assets (CEA)= Capital Expenditure/Total Assets	$CEA_A = CEA_B$
Non-Financial	Port Operations	Total Container Throughput-TEUs	$TEUs_A = TEUs_B$
		Total Trade Throughput-Mass Tonnes	$Tonnes_A = Tonnes_B$
		Number of ships handled	$NOS_A = NOS_B$
	Employment	(TE)=Total number of Employees	$TE_A = TE_B$

Literature has indicated that progressing towards and from a change of ownership structure involves a transitional period, from the old structure into the new structure (Psarouthakis, 2013). Therefore, the categorical independent variable has been dissected into four periods of three years. Two "three-year periods" prior to the change of ownership and two periods of three years subsequent to the change of ownership (see table 2). The data consisted of 12 financial years; from 2005 to 2017. The pre-privatisation period of PBPL from 2005 to 2010, and the post-privatisationn period from 2012 to 2017 (each 6 financial years). The 2011financial year; has treated as a transitional period as both types of ownership existed (seven months by public ownership and five months by private ownership). For better analysis, both pre and post privatisation periods are divided in to 4 periods.

[5] Ratio Analysis are widely used statistical measures to analyse the change of ownership and performance (Bachiller 2015).

Table 2. Divisions of ownership periods of PBPL for MANOVA testing

Pre-privatisation	2005	2006	2007	2008	2009	2010
State Ownership	**Period 1 S**tate Ownership Operations			**Period 2 S**tate Ownership Operation during Transitioning to privatisation		
Post-privatisation	2012	2013	2014	2015	2016	2017
Private Ownership	**Period 3** Privatisation Operation during Transitioning from **S**tate Ownership Operation			**Period 4** Privatisation Operation		

Cohen (1988, 1992), Pallant (2007), and Tabachnick and Fidell (2007) stated that MANOVA needs more cases in each cell than the available dependent variables. Therefore, the division of state and private ownerships of PBPL into four periods is important to create multiple cases for the MANOVA analysis.

To test the feasibility, the study performed the SPSS tests for five most important MANOVA assumptions; normality of distribution, multicollinearity, multivariate outliers, and homogeneity of variances between groups. Meeting the first four assumptions is not crucial in running MANOVA as this study was an analysis of a single-firm performance with four three-year periods. (Pallant 2007, Landau & Everitt 2004).

SPSS results of the selected data support not violation the assumption of normality as the P values of Shapiro-Wilk above were always as $P>0.05$. Also, no evidence of outliers was found using the Mahalanobis Distance and Boxplot test. The results the Pearson Correlation and the Q-Q plots support an absence of multicollinearity. Scatterplots did not depict any obvious evidence of non-linearity within the variables and therefore, the assumption of linearity was satisfied. The homogeneity of error variances was not performed at this stage as the SPSS performed Levene's Test of Equality of Error Variances during MANOVA analysis.

RESULTS

This analysis involved two steps, first, quantitative analysis and second, the qualitative interview research design in the following subsections, respectively.

Quantitative analysis

MANOVA was used to analyse the data collected from the publically available reports and test the Null hypothesis.

The MANOVA Pillai's Trace test results (step 1) did not support the null hypothesis, and significant differences were found in the ANOVA post-hoc tests of the quantitative analysis. The Multivariate Tests results, ownership was 2.84 with an F value of 6.55. This was significant at 5% level as Pillai's Trace is $P=0.003 <0.05= \alpha$. and Wilk Lambda was $P=0.004 < 0.05= \alpha$. Levene's

Test of Equality of Error Variances produced the following mean values which are summarised in Table 3.

Table 3 Summary of *P* trimmed mean values of Levene's test	
ROA_1 *P* =0.076; (P>0.05),	ROA_2 *P*=0.093; (P>0.05),
ROE_1 *P*=0.139; (P>0.05),	ROE_2 *P*=0.159; (P>0.05),
DTA *P*=0.485; (P>0.05),	**CEA *P*=0.031; (P<0.05),**
TE *P*=0.794; (P>0.05),	TEU *P*=0.052; (P>0.05),
Tonnes *P*=0.159; (P>0.05),	NOS *P*=0.322; (P>0.05),

To identify the significant differences between the two ownership types, Tests of Between-Subject Effects (one-way ANOVAs) on each of the twelve dependent variable proxies was conducted. The results are significant for all performance indicators except for CEA, which supports no significance in the investment intensity between the two ownership types. See Table 4 below.

Table 4 Tests of Between-Subject Effects (one-way ANOVAs)

Source	Dependent Variable	F	Sig.	Partial Eta Squared	Non-cent. Parameter	Observed Power
Ownership Group	ROA1	72.396	.000	.964	217.189	1.000
	ROA2	77.788	.000	.967	233.365	1.000
	ROA1	163.599	.000	.984	490.798	1.000
	ROA2	158.406	.000	.983	475.218	1.000
	CEA	106.769	.000	.976	320.306	1.000
	CEA	2.398	.144	.473	7.194	.400
	TE	73.142	.000	.965	219.426	1.000
	TUEs	41.043	.000	.939	123.130	1.000
	Tonnes	21.801	.000	.891	65.403	1.000
	NOS	4.373	.042	.621	13.120	.658

A series of Tukey's Significant Difference post-hoc tests were then performed to examine individual mean difference comparisons across four 3-year time periods that represent two independent variable groups of ownership (state and private) and 10 dependent variable performance evaluation indicators. The Tukey's test disclosed a number of significant differences between the four periods; 2 periods; post-privatisation transitional period - 12/13/14 and post-privatisation normal operations - 15/16/17) and state ownership (2 periods; pre-privatisation transitional period 05/06/07 and 08/09/10 state ownership normal operations period) direction.

ROA_1 has a statistically significantly difference with a significance of $P=0.001 < 0.05= \alpha$during the PBPL12/13/14 period against PBC05/06/07 and PBC08/09/10 periods. The positive difference is depicted by the mean differences of 21.76 and 23.44, respectively, which results in ROA_1 financial performance means for PBPL12/13/14 being greater than the ROA_1 financial performance means for PBC05/06/07 and PBC08/09/10 periods. To the contrary, it is possible to interpret as ROA_1 has a negative difference in PBC05/06/07 against PBPL12/13/14 and PBPL15/16/17 periods as they have mean differences of -21.76 and -16.91 respectively. (The mean difference of PBC08/09/10 against PBPL12/13/14 period is -23.44). In brief, ROA_1 has statistically significantly higher financial performance differences during both PBPL period 3 and 4, compared to the financial performance in period 1 and 2. Overall, ROA_1 financial performance during private

ownership is statistically significantly different than state ownership. As the ROA_1 ratio has EBIT as its denominator, this financial performance ratio excludes amounts from expenses. Therefore, the significant higher financial performance differences under private ownership relate to operational incomes and other expenses occurring during private ownership. ROA_2 includes interest expense. Therefore these are included in the performance. Consequently, the significant difference relates to operational incomes and other expenses, including interest expense. Therefore, the lack of interest expense for private ownership also has contributed to the significant financial performance differences using private ownership as identified by ROA_2.

During the PBPL period 3, the ROA_2 proxy has mean values for PBCperiod 1 and 2 as 23.36 and 24.21 whereas, PBPL period 4 the mean difference of ROA_2 against PBC periods 1 and 2 are 18.54 followed by 19.39. ROA_2 has statistically significant differences during both period 3 and 4, compared to period 1 and 2. Overall, during the private ownership ROA_2 is statistically significantly different than PBC ownership. CEA however, has negative mean values during both period 3 and 4 of PBPL compared to the periods 1 and 2 of PBC. They are as, -0.163, -0.177, -0.18, and -0.193 and may reflect the funding source disparity between PBC and PBPL; as identified by ROA_2. The reasons for these decreases have been addressed during the interview sessions and the results are discussed in the qualitative analysis section. However, overall, CEA means that the difference is statistically significantly lower during both period 3 and 4, compared to period 1 and 2. Overall, during the private ownership periods, the CEA differences in means are statistically significantly lower than during the PBC ownership periods.

The level of the significance of CEA during PBPL periods against PBC periods are not statistically significant. As an observation for an insignificant difference, it is noted that CEA too has negative comparison mean values during both PBPL periods against PBC periods; -0.633, -0.50, -0.500, and -0.0367. Further, the level of the significance of CEA during PBPL periods against PBC periods are statistically insignificant. The reasons for these insignificances and negative mean differences are the continued investments strategy and assets devaluation practice. These reasons will be discussed extensively in the qualitative analysis below.

TEUs of PBPL is statistically significantly larger difference during the both periods of private ownership than to the both periods of PBC ownership. Comparatively, the significance of the higher ratio for total container throughputs is noticeable after privatisation. This result may have some impact of the ROA_1 related to increased operational incomes and lower other expenses achieved during private ownership.

Tonnes ratio of PBPL during private ownership (periods 3 and 4) were statistically significantly larger differences compared to PBC ownership periods (periods 1 and 2). Further, the Tonnes value in the period 4 in private ownership was decreased relatively, and significantly to private ownership period 3.

While NOS of PBPL did not have any statistical mean differences during its private ownership period compared to PBC ownership period, there was a significant means difference between periods 1 and 2 of PBC ownership. The results show a lower number of ships were processed during the PBC ownership transitional period (period 2) compared to the normal PBC ownership period 1. Therefore, NOS was statistically insignificant under the transitional private ownership period and the normal private ownership period compared to state ownership. However, comparison across periods 2, 3 and 4, while statistical insignificance, showed there was a smaller

number of ships processed in period 3 compared to period 2 but an increase occurred during period 4 under private ownership. This could be due to the investments on latest technology such as NCOS and Blockchain at PBPL. Overall, the NOS mean value differences during private ownership was statistically insignificant than compared to state ownership.

The test outcome revealed that all Tukey's HSD test mean comparisons were statistically significant ($P<0.05$) after the privatisation except two indicators (CEA and NOS)[6]. Accordingly, after privatisation PBPL had not statistically significantly increased its investment intensity (CEA) and the number of ships (NOS) served, compared to the state ownership period. When comparing the financial performance of PBPL under private ownership, to PBC under state ownership, the performance proxies indicated a significant increase in financial and social-wellbeing performance under private ownership.

Consequently, step 2 involved interviewing PBPL's employees to help identify reasons for the statistically significant financial performance differences between state and private ownership of this business.

Interview results

During the quantitative analysis of this study, it was revealed that there were differences in the financial performance of PBPL before and after privatisation between 2012 and 2017, which was confirmed from the MANOVA analysis. The purposes of having interviews were two-fold. First, information gathered from a selected group of PBPL employees who held the required information because of their positions within the company. Second, extracting this information was to help investigate the reasons for the significant differences in the financial and social-wellbeing performance of PBPL post-privatisation.

The managerial branch of stakeholder theory will be the basis for this investigation because it asserts the company will consider the needs of other stakeholders in addition to the shareholders' needs. That is, the company's management will incorporate into their actions the needs of a broader range of salient stakeholders. This broader range of considerations and would lead management to undertake social-wellbeing responsibility actions related to salient stakeholders in conjunction with the conventional profit maximisation motivation of shareholders. The theory states that management's actions not only consider profit maximisation but also address salient stakeholders' expectations regarding well-being performance.

The results provided in the previous section suggest that the privatisation of this SOC will require the maximisation of shareholders' profits and the satisfaction of salient stakeholders' social-wellbeing performance expectations. Therefore, the interview questions asked about the causes of these performance differences in the interviews focussed on 5 performance categories. They were as follows:

[6] The purpose of this study was to examine a single firm's operation across 12 years where there have been two ownership types for the operation. The limitations of examining the performance of only one company with quantitative analysis are to provide some basis for the collection of information using a qualitative research design. Therefore, this analysis was to provide a direction for further investigated data collection through interviews. Consequently, not achieving some expected statistical outcomes was not considered to be a significant limitation to this study because the qualitative data would provide a more robust explanation of these violations of the expected outcomes.

1. Financial
2. Leverage and Investment intensity
3. Port operations
4. Infrastructure
5. Community relations

The purpose of dividing the interview question into categories, as identified above, was to elicit reasons for differences in the financial and social-wellbeing performance of the firm.

ROA and ROE were statistically significantly increased after privatisation.

During the interviews, interviewees were presented with general information about the quantitative analysis results. Interviewees were asked probing and open-ended questions about possible reasons for these results.

For example, profitability ratio indicators supported profitability increased during the post-privatisation period. One reason suggested was that

> *The decline in interest expenses after the privatisation of PBPL was the main reason. This decline was because pre-privatisation operations had been funded by external loans, whereas, the post-privatisation operations were funded by equity. This was a result of changes to the capital structure of the firm and an increase of both profits and assets of PBPL under the private ownership because assets increased after 2014 as the firm had invested in new major projects. These projects were the Nonlinear Channel Optimisation Simulator system (NCOS Online system), port drive upgrades, Brisbane International Cruise Terminal, future port expansion works and offsite stormwater management projects.*

This reasoning that the increased profit was the effect of the change to the capital structure of the firm is consistent with the earlier reported MANOVA analysis, which indicated there were differences between dependent variables (ROA_1+ ROA_2 and ROE_1 +ROE_2) over the time.[7][8]

[7] After the interviews, additional searches were conducted to provide the following specific information. Before the privatisation, PBC had ROAs levels of less than 10%, but it rose above 10% after privatisation for PBPL. Also, the total book value of the assets of PBPL was considerably reduced after privatisation, between 2012 until 2014. According to the notes of the financial reports, this was due to the impairment of assets after privatisation. These were reported as expenses in PBPL's reports. As a result, the return on assets decreased right after the privatisation. This increased the net profit numerator and decreased total assets denominator combination depicted a higher value of ROA. The ROA value of PBPL before the privatisation was below 1% in 2010. However, PBPL reported its double-digit ROA values after the privatisation; 20% in 2012, reaching 30% by 2013, declining to 21% by 2017. Compared to the PBC ownership performance, there was a significant increase of ROA under private ownership.

[8] The financial information available shows that ROE also increased after privatisation. This may be either the increase in total revenues after privatisation or the new management of PBPL was making better reinvestment decisions. A reduction of interest expenses as the numerator and an increase of equity as the denominator changed the integer of the ratio. An increase of ROE indicated that the firm generated increased profits on every dollar invested by its shareholders. When compared with the performance of PBPL under PBC ownership, the ROE

It was further revealed that:

> *The other important change in PBPL's financial activities was that after the privatisation, the firm's total liabilities increased, while assets were impaired, there was also new asset investments, however, overall the value of total assets were reduced Compared to the PBC State ownership period, ROE of PBPL increased immediately post-privatisation however declined during private ownership, because PBPL's liabilities were increased while the assets were being impaired*[9]

Leverage (DTA) was statistically insignificant after privatisation.

The interviewees advised that:

> *PBPL had grown, and acquired assets, investments in the Port Drive, local road network upgrade project and the use of the Under-Keel Clearance (UKC) system in the sea channel, especially after 2014 but the greater portion of new assets were financed by equity than debt.*

This comment explains not only why before the privatisation PBC had higher leverage (CEA) than PBPL after privatisation but also why CEA leverage during the private management was not significantly different, statistically even though there was an increase in capital investment post-privatisation.[10] Accordingly, PBPL showed an improving financial risk profile, and this means the firm would be able to pay its debts.

Investment intensity (CEA) was statistically insignificant after privatisation.

The interviewees revealed the following two significant investments that PBPL had undertaken after privatisation, especially in 2015/16 and caused changes to CEA:

> *The first was Port Drive and local road network upgrade project ($ 110 Million) improving access to the port in 2015/16. The second was part of the original privatisation contract, PBPL had to complete the AUS $110 million worth Port Drive project by August 2018. This investment included 4.2 kilometres of duplication of Port Drive, construction of a new overpass, an advanced connector access, entry/exit accesses to surrounded highways, and a new shared path. At completion, this project adds values to the stakeholders as the longest pre-cast and pre-stressed concrete bridge in Australia. The use of world's most advanced Under-Keel Clearance (UKC) system in the sea channel- As a part of the Nonlinear*

values under private ownership were increased between 2012 and 2017. This was mainly due to the increase of the equity of the firm (change of capital structure). The new owners of PBPL were Q-Port Holdings which comprised four of the largest and most experienced infrastructure investors in the world, suggesting that their experience may make them better at managing investments than the State.

[9] In order to distinguish the mentioned differences in ROA and ROE, this study calculated EBIT which excludes pre-privatisation operating expenses that do not exist within the post-privatisation operational expenses. Lease payments and the other interest expenses were not included in the pre-privatisation operating expenses, and these have been explained under the notes of PBPL's financial reports. A closer comparison of the financial reports of PBPL revealed that the net profit of the firm gradually increased during private ownership.

[10] For example, during state ownership, the average leverage ratio, from 2005 to 2010 was 0.48, whereas this was 0.30 during private ownership from 2012 to 2017.

> *Channel Optimisation Simulator System (NCOS Online system), UKC is probably the most sophisticated, safest and accurate clearing forecast systems in the world.*

The greater equity funding under PBPL and the not significant impact of this funding source identified in the two previous sections, explain a decrease in the positive values of CEA, which is supported by the MANOVA's statistically insignificant result during the first period of private management (3 periods, 2012-2014). Also, PBPL's investment intensity decreased gradually during the second period (4th period of the analysis) of private ownership.[11]

Also, the following was revealed that:

> *Even though there were new investments after privatisation a slight increase in its revenues, occurred because the new investments created efficiencies, leading to decreased operational expenses; especially in 2015 and 2016.*

This delay in achieving efficiencies until the second period (4th period of the analysis) of private ownership was not unexpected because, as Psarouthakis (2013) explained, usually the anticipated gains from privatisation may take a few years after the transition from public operations.

Total Container Throughputs (TEUs) were statistically mounted.

The interviewees revealed that:

> *the game changer for PBPL's financial performance under the private ownership was the implementation of the new Nonlinear Channel Optimisation Simulator System (NCOS) in the port precinct which boosted the capacity of larger vessels handling facilities of the port without compromising safety. The application increased the operational flexibility and the efficiency of port operations while adding value to its customers. For instance, in 2017, the port welcomed the longest-ever 347 metre, container ship; 'Susan Maersk' to its quays with a capacity of 9500TEU. According to the port records, PBPL experienced a significant uplift in the number of large cargo vessels calling due to the introduction of NCOS. Typically, the calling number of deep drafted bulk carrier ships above 14 metres was tripled while the calling number of carries above 13 metres was doubled. The application of NCOS has led the firm to win the Innovative Support Services award in 2017 and the Smart Infrastructure award in 2018.*

The data collected confirmed that under PBPL, at the end of the investigation period to reach its maximum number of containers handled during the year 2017, the number of TEUs doubled compared to TEUs for PBC in 2005. TEUs increased each year from the beginning of the privatisation and until the end of the study period 2017.

The reason for such observations was explained as being the result of:

[11] The higher value of CEA during the second period of privatisation (2015-2017) compared to the first period of private privatisation (3 period, 2012-2014) suggests that acquisitions increased during the second period of privatisation (2015-2017). The latter increased seems linked to the investment in Nonlinear Channel Optimisation Simulator System (NCOS Online security system), Brisbane International Cruise Terminal (BICT), port expansion projects, and offsite stormwater projects identified by the interviewees.

> *There were heavy investments in new technology by the private ownership after 2014, and this was the main reason for the growth of the TEUs of PBPL during the post-privatisation. Consequently, private ownership by PBPL was able to increase its port operations despite the decrease in staffing numbers. The following are some interview findings for the rapid increase of TEUs of PBPL after privatisation.*

The other most important reason for the increased performance of PBPL was put forward *that:*

> *The port implemented a new decentralised digital ledger technology system called 'Blockchain' which connects its way through banking business and technology firms internationally. This sophisticated system holds information as a database while sharing and continually reconciling facilities.*

Also, it was disclosed that when the privatisation deal was negotiated,

> *The new ownership of PBPL entered into an agreement with a condition of investing AUS $110 million to upgrade the Port Drive and other local road network projects which have already been finished. Additionally, the extended and dedicated freight and rail connection to the port enhanced the accessibility to the port precinct. These upgraded Port Drive, local road network and extended rail and freight connections to the port have significantly reduced the travel time of trucks, movers and trains lowering the traffic congestions, road accidents pollutions around Brisbane city and its vicinity suburbs.*

The information provided by the interviewees and reported in this sub-section provides a number of reasons for increased *TEU.* These reasons range from an intentional new investment that helped expand the business opportunities and investment into modern technology to contractual obligations negotiated within the privatisation deal that upgraded infrastructure facilities. The expansion investment led to increased revenue while the latter two investments produced, either directly or indirectly, operational efficiencies.

Total Trade Throughput Mass has increased after privatisation.

In conjunction with the increase of TEUs of PBPL, as described in the previous sub-section, the total tonnage was increased gradually after privatisation. In addition to the increase of TEUs, which increased the total throughputs of PBPL, responses gathered during interviewing employees has revealed other reasons.

> *One important reason was that during this period, PBPL had exported a considerable number of agricultural products due to the improvements in the agricultural sector in Queensland.*

Other reasons provided were opportunities either PBPL generated or outside of its control and were as follows:

> *We experienced agriculturally favourable weather, conducted extensive research and developments and new investments in the agricultural sector, there were new settlements in Queensland and improved irrigational and water management systems during the period through increased government assistance in the*

> *agriculture sector as well as increased investments in the offsite stormwater management projects and increased demand for the Queensland based agricultural products in the local and international markets.*

Therefore, while some of the increased total throughputs were the outcome of investment decisions by PBPL, there were many factors extraneous to PBPL's decision making identified by interviewees that involved the development of the Queensland agriculture sector.[12]

The number of ships handled has been increased after the privatisation of PBPL.

The reasons mentioned in two earlier sub-sections which improved the total TEUs as well as total tonnages of PBPL, were also instrumental in enhancing the total number of ships handled after its privatisation. There were the following additional reasons for these increases that were mentioned during the interview sessions.

> *Compulsory pilotage service for the ships that have an overall length of 50 metres or above encouraged the shipping lines to accommodate the precinct more than ever before. Maintaining a 24-hour listening watch on VHF channel 12 and confirming the Estimated Time of Arrival (ETA) of a ship two hours before via the channel, PBPL had provided value-added services to its stakeholders. Also, for the safety purpose, the PBPL management launched a 24 hours Vessels Traffic Service called REEFVTS in the Great Barrier Reef and Torres Strait areas. Also, the use of Mudmaster vessel expedited the dredging and drying process allowing more ships to be served at the precinct. The significance of this Mudmaster was that this dredging vessel had advanced technology to remove mud, and silts efficiently while protecting flora and fauna in the area. All these facilities encouraged the shipping lines to visit the port while providing them with the highest safety for the ships and their contents. Consequently, these facilities increased TEU; an increase in the number of ships to the port and an increase in the number of tonnages shipped through the port have an interrelation to each other. Therefore, a reason which affected to change one of the above would affect to change the others as well.*

The theoretical implication of these differences of financial ratios of PBPL is explained by the profit maximisation component of the managerial stakeholder. This increased financial performance was achieved by increased revenue or increased operational efficiencies, which are reflected in increased profits by PBPL. These performance improvements have been related to their increased ROA, ROE, TEUs, tonnage, and the number of ships and had decreased its leverage (DTA) and investment intensity (CEA). Therefore, one of the main purposes is maintaining the financial performance of port business by Q-Port Holdings shareholders (PBPL). However, the new investment, whether intentional or contractual, has improved the services to the community and the environment as well as social wellbeing. The increased its use of modern technology in the port operations was identified as creating an opportunity to reduce the heavy work for all employees and attract female employees to the company:

[12] The information was confirmed by referring to the Bureau of Infrastructure, Transport and Regional Economics (BITRE), Publication, viewed 10 September 2017, https://bitre.gov.au/.

> *The company had provided opportunities for both males and females and a proportional increase in female participation at PBPL during the private ownership.*

A decline of total number of employees of PBPL after privatisation.

Interviewees were asked about the decrease in employment number and its impact on working conditions because this decline in total employee numbers is not consistent with the lower investment intensity ratio, which suggests the revaluation of fixed assets may have diluted the MANOVA results.

This conclusion of interviewees is based on their following observation.

> *Total employee numbers for PBC were significantly high and increased before privatisation, reaching a maximum of 378 by 2009 but declining to 338 full-time employees by 2010. This created high labour costs for PBC, which was inherited by PBPL. After the privatisation, PBPL gradually decreased its workforce until it reached its lowest 187 by the end of 2017. From 2012 to 2017, PBPL implemented significant labour redundancies, which resulted in an average of 200 employees per year, and as a result, the cost of labour also declined.*

These comments are consistent with prior findings (Megginson et al., 1994; Megginson & Netter, 2001) which found that most privatised firms cut the number of employees' jobs with the purpose of enhancing the labour productivity immediately after the transition.

Interviewees, therefore, were asked social well-being questions that may have been caused by the significant decrease to 200 average total number of employees from over 300 pre-privatisation. These questions related to whether this reduced workforce increased pressure and hardship on remaining employees. However, it was discovered that:

> *The decline of the total number of employments occurred when PBPL increased its use of modern technology in the port operations, which in return created a difference in the financial performance of PBPL.*

Unfortunately, interviewees did not reveal any additional information about a labour retrenchment during the interviews. Therefore additional searches were conducted, but these were unsuccessful in determining the full labour demography (male and female numbers of employees) of PBC pre-privatisation or post-privatisation for PBPL. However, Table 5 provides some full-time employee demographic statistics of PBPL for the second period of private ownership. The ratio of female employees to male employees has increased from one in four to one in three employees. Based on raw numbers, the increase from 29 to 47 female employees is a 62% increase, which may be attributed to the statement reported in the previous sub-section about the increased opportunity for females following the investment and use of modern technology. Therefore this would tend to support some social wellbeing through increased employment opportunities[13]

[13] — information about PBPL's goals as an equal employment opportunity provider that is contained in its HR policies.

Table 5 PBPL's Male/Female Demographics for 2014-2017				
Year	**Male Employees**	**Female Employees**	**Total Employees**	**Ratio Male to Female Employees**
2014-	142	29	191	(4:1)
2015-	142	49	191	(3:1)
2016-	158	53	211	(3:1)
2017-	140	47	187	(3:1)

The average of male to female ratio of 3:1 is not a balanced workforce as required in Australia under the Equal Opportunity for Women in the Workplace Amendment Bill 2012.[14] However, the specific industry sector statistics are not available, but Scutt (2018) provides male to female statistics that reveals there are some industry sectors where the male to female employment where an 'imbalance' occurs.

Though the analyses of PBPL financial and social wellbeing performance clearly depicts the gradual increase of the total number of employees under state control (PBC) and the gradual decrease of that number during the private ownership (PBPL). This phenomenon would be accepted under the managerial branch of stakeholder theory, where the firm should be responsible for not only the profitability of the company but also its salient stakeholders' needs; in this instance its employees and their career prospects. Even though privatisation offers opportunities for the redistribution of wealth and the new technology investment in operational efficiency that provides social wellbeing opportunity for females there also is a downside involved. Some disadvantages are labour retrenchment increases the unemployment rate and opens gaps in economic distribution, which may not be congruent with social well-being. According to Megginson and Netter (2001), labour retrenchment is an unresolved issue in privatised firms.

FINDINGS AND CONCLUSIONS

This research has investigated the impact of privatisation on the financial and social wellbeing performance of Port of Brisbane under pre and post-privatisation conditions. Thus, based on the managerial branch of stakeholder theory, this study investigated the potential impact of privatisation of PBPL. Using ten indicators, which represented both financial performance and social well-being performance as dependent variables, MANOVA tests and qualitative interview sessions in order to determine the impact of the change of ownership of PBPL on its financial performance and potential social well-being performance.

A one-way MANOVA significant results did not support the null hypothesis because the statistically significant results support changes in the financial and social wellbeing performance for the private ownership firm. The interview sessions revealed that private sector management had undoubtedly led to lower operating costs, heavily depended on modern technology in port operations initiatives. The private management of PBPL has invested more equity capital on Property, Plant and Equipment (PPE) during the period. Also, PBPL has used new technology in their port operations during the period, and this involved in enhancing the TEUs, the number of ships served, and the total tonnage handled. Also, port management had to comply with the

[14] According to the bill issued by the Federal Register of Legislation, Australian Ports may have a similar specific workplace gender imbalance

standards of the service and technology providers of state-of-the-art technology in order to subscribe to their services. The increase of using new technology had a twofold effect. First, it resulted in a decrease in the total number of employments of PBPL after privatisation, and as a result, the productivity of the human resources had been improved during the private ownership. Second, the change in working conditions using new technology provided appealing employment opportunities for females.

PBPL privatisation process involved the displacement of one set of state management entrusted by the shareholders (government-ministry) with another set of private management who may have answered to a completely different set of shareholders (the stakeholders). At the beginning of the private ownership, PBPL may not have been concerned about adopting profit-making business strategies or practices. However, reluctance to create sustainable port services was mitigated by the terms and conditions of the PBPL privatisation agreement. These terms and conditions included adoption of specific corporate governance practices, accountability, competition created by vicinity ports, the advantages of the geographical location of PBPL, and organisational mechanism (financial strength of the new investors). As a result, PBPL ensured its business affairs and operational activities met its financial, operational, strategic objectives in order to achieve its long term sustainability.

It was revealed in the interview sessions that the new management of PBPL had generated a sharp increase in its shareholder value through correct market anticipations of improvements in performance, heavy use of modern technology in port operations and services, and general managerial effectiveness. Unfortunately, the elimination of unnecessary staff, employed during the state ownership, and the cessation of unprofitable port activities inherited from state ownership may have led to a lack of congruency with social well-being objectives.

Overall, it was interesting that some of the stakeholders' responsibilities, especially the social well-being, had been emphasised by the private management of PBPL. This could be a typical example for a privatised firm, which seemed to operate under stakeholder theory after privatisation while generating profits.

Therefore, this study concluded that overall, the financial performance of PBPL improved due to the change of ownership of PBPL. It was evident that the port's throughputs, during the private ownership increased as evidenced by the improved financial and operational performance of PBPL during 2012 and 2017. However, as noted by Talley (2007), it was difficult to conclude causal relationships of how PBPL reached this improved throughput (economic or engineering) during this period unless the study was able to reveal the actual throughput of PBPL.

Implications of the study

The conclusion of this case study explains the relationship between the change of ownership and its effect on the performance of the single firm. It reveals how private ownership may maximise profits while managing social well-being. Further research should examine the management of the environment after privatisation... Additionally, the implication for future studies is the need to consider the findings of this study and the use of the methodology for other privatisation processes in Queensland. The expansion of proposed performance measures and the methodology in this study may add to the body of knowledge about the behaviour of other privatised ports in the

country. Future studies may undertake cross-comparison of a local port with international ports to increase the generalisability of these accumulated results.

Also, future research needs to investigate thoroughly, under what conditions did private management of PBPL perform its social well-being objectives, in the public's interest, while maximising profits in a sustainable manner. Finally, it would be an important opportunity for future studies to investigate the labour retrenchment following privatisation, include the compensation paid to retrenched employees and the socio-economic issues. However, interviews of retrenched employees would be required to divulge such sensitive information.

Limitations of the study

This study only examined the privatisation of a single port in Australia. The results for this case study may be limited in their generalisability to the performance of all privatised ports in Australia. Additionally, data were gathered from interviews, and some questions were based on observations of the researcher.

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