"The impact of listing on banks' performance: case study from Saudi Arabia"

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THE IMPACT OF LISTING ON BANKS' PERFORMANCE: CASE STUDY FROM SAUDI ARABIA

Abstract

Using quarterly data from 2010 to 2019, this paper investigates the impact of listing status on the performance of the National Commercial Bank (NCB), the largest commercial bank in Saudi Arabia, by applying a combination of financial ratios analysis and efficient frontier analysis with a mix of parametric and non-parametric tests. The overall results show that although the NCB performance is superior compared to their counterparts, this superiority has deteriorated after the bank was listed in 2014. This result was captured by the deterioration in the efficiency measures of NCB, indicating the significance of using the efficient frontier analysis as an additional monitoring tool by the Saudi regulators. The financial ratios analysis also shows that even though the NCB profitability has increased, there is an increase in the bank's overall risk after being listed. Therefore, Saudi regulators should closely monitor their listed banks as these banks are directed toward high-risk assets.

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INTRODUCTION

There has been a debate on the impact of the going public decision on the firms' performance in the literature. Although this decision has several advantages such as the capital base increase, the ability to attract additional funds at a favorable price, the improvement in the publicity of the company, and the enhancement in the company liquidity as their shares become listed, there are several disadvantages such as the ownership dispersion, the loss of control, the compulsion of information disclosure and its related costs, the higher taxes due to the usual overvaluation of the company in the market (Schneider, Manko, & Kant, 1981). Pagano and Röell (1998) argue that the going public decision is a trade-off between the costs of over-monitoring (private financing) and the costs associated with being listed (public financing). However, according to Röell (1996), more studies are needed to understand the pros and cons of the increased use of listed equity.

Therefore, this study analyzes the impact of the going public decision on the performance of the National Commercial Bank (also known as AlAhli Bank) in Saudi Arabia. The Saudi banking industry is one of the largest in the Gulf Cooperation Council (GCC) region with a value of USD 630.3 billion that accounts for 28% of the GCC banking industry, and the National Commercial Bank is the largest commercial bank in Saudi Arabia with an assets' value of USD 120.9 billion that represents 20% of the Saudi banking sector (Alsharif, in press). Moreover, the NCB initial public offering (IPO) is the second-largest IPO in the Saudi Stock Market Exchange (Tadawul) with a value of USD 6.1 billion (Argaam, 2019). Thus, even though a case study is considered a poor basis for generalization, the National Commercial Bank

represents a target case study that its results could be generalized to similar cases in the Saudi banking sector (Stake, 1978). According to Zainal (2007), one of the main advantages of the case study method is its ability to examine the phenomenon within its context.

1. LITERATURE REVIEW

In the literature, although there are studies that investigated the performance of non-financial firms after being listed, there is a lack of academic literature on banks' performance after IPOs (Yin, Yang, & Mehran, 2015). Berger and Mester (1997) examined the impact of being listed on US banks' cost and profit efficiencies from 1990 to 1995. They found listed banks tend to be more cost and profit efficient compared to unlisted banks. Moreover, Dong, Firth, Hou, and Yang (2016) found that listed Chinese banks were more cost-efficient due to the market discipline role. This is in line with the finding of Jiang, Yao, and Feng (2013) that listed Chinese banks were more efficient regardless of their ownership types. In Malaysia, Sufian (2011) found that listed Malaysian banks were more productive. Ghosh (2012) analyzed Indian banks' performance after IPOs and concluded that there was no significant underperformance in their operating performance after the IPO. He argues that this is because the Reserve Bank of India has succeeded in reducing the window dressing practice and the agency problem. In the GCC region, Alqahtani, Mayes, and Brown (2017) pointed out that listed GCC banks were more cost-efficient than unlisted GCC banks. However, Alsharif (2020) shows that this result varies across the GCC countries. He found that listed banks are only efficient in Oman and the United Arab Emirates.

In contrast, Jain and Kini (1994) investigated the change in firms' operating performance after the initial public offering (IPO) and found that there was a significant decline in their operating performance after the listing. Further, Houge and Loughran (1999) analyzed the US banks' performance after IPO from 1983 to 1991 and found that the US banks had poor performance after being listed, especially the larger ones with a higher pre-listing loan growth rate. They argued that the market is usually over-optimistic in terms of future earnings based on the bank's rapid growth around its IPO. More, Jiang, Yao, and Zhang (2009) examined the influence of being listed on Chinese banks' technical efficiency from 1995 to 2005 and found that though listed banks outperformed unlisted banks, this positive impact tends to be only in the short term. Wu, Chen, and Lin (2009) found similar results and argue that the stock market listing does not improve Chinese banks' operating performance in the long term as the ROA worsened after the listing. This is also confirmed by the findings of Wang, Xu, and Zhu (2004) who argue that the decline in Chinese banks' operating performance after the listing can be explained by the pre-IPO earnings management evidence in the Chinese banking industry. In the same manner, Yin, Yang, and Mehran (2015) analyzed the efficiency of Chinese banks after being listed over the period 1999–2010 and found that banks performed better in the pre-listing period than the post-listing period. They argued that their results are consistent with the window dressing hypothesis that states IPO firms tend to manipulate their accounting numbers to attract more investors and sell their shares at higher prices. Internationally, Yin (2014) investigated the cost and profit efficiencies of banks after IPO in 58 countries from 1987 to 2010 and found that there was post-IPO underperformance, especially in banks' profit efficiency. The author also found mixed results between US banks and non-US banks, implying that the results cannot be generalized.

Overall, the results are mixed and inconclusive, and most studies cover the IPO impact as a way of ownership structure rather than deeply investigated the performance of banks after the IPO. Moreover, to the best of author's knowledge, this is the first study that examines the post-listing performance of banks in Saudi Arabia, the largest country in the Middle East region. Finally, this study also combines financial ratios analysis and efficient frontier analysis with a mix of parametric and non-parametric tests to ensure the robustness of the results.

2. METHODOLOGY

The National Commercial Bank (NCB) has been recently listed in November 2014 on the Saudi Stock Exchange (Tadawul). Hence, the current study uses quarterly data from 2010Q2 to 2019Q3, primarily obtained from the Bloomberg database. The sample size is chosen based on data availability and to match the experimental design of the before-and-after study. This kind of experimental study requires the before-and-after samples to be equal since the paired sample test is applied. The sample paired test is used because the before-and-after samples are not independent as they belong to the same object (Black, 2013). Moreover, a combination of financial ratios analysis and efficient frontier analysis is used with parametric and non-parametric paired sample tests to robustly investigate the impact of being listed on the performance of the National Commercial Bank. For the financial ratios analysis, the well-known CAMEL ratios are estimated, which account for five components of banks' strength: (1) Capital adequacy, (2) Asset quality, (3) Management quality, (4) Earning ability, (5) Liquidity.

However, regarding the efficient frontier analysis, seven measures of efficiency are estimated, which are the profit efficiency (PE), revenue efficiency (RE), cost efficiency (CE), allocative efficiency (AE), overall technical efficiency (OTE), pure technical efficiency (PTE) and scale efficiency (SE), to make an in-depth analysis. However, in the interest of brevity, for more technical details, refer to Cooper, Seiford, and Tone (2007). All 12 Saudi commercial banks are employed to construct the efficient frontier over the sample period 2010Q2–2019Q3 with 454 observations. The efficiency measures are estimated by the non-parametric Data Envelopment Analysis (DEA) method. The DEA is the most popular method used in the efficiency literature. Moreover, the DEA suits the small study sample and requires no assumption concerning the function form (Chu & Lim, 1998). The decomposition

Table 1. Variables definition

Variable	Symbol	Definition
Financial ratios analysis		
Capital adequacy	ETA	The ratio of equity to total assets
	CAP	The ratio of (Tier I + Tier II) to total risk-weighted assets
Asset quality	NPLTL	The ratio of loan-loss reserve to total loans
	LLPTL	The ratio of non-performing loans to total loans
	LLRTL	The ratio of loan-loss provision to total loans
Management quality	CTI	The ratio of overhead cost to total income
	RWA	The ratio of risk-weighted assets to total assets
Earning ability	ROA	The ratio of net income to total assets
	ROE	The ratio of net income to total equity
	NIM	The ratio of net interest income to total assets
Liquidity	LATA	The ratio of liquid assets to total assets
	LATD	The ratio of liquid assets to total deposits
	NTLTD	The ratio of net loans to total deposits
	TLTD	The ratio of total loans to total deposits
	TDTA	The ratio of total deposits to total assets
	FCI	The ratio of fees and commission income to total income
Efficient frontier analysis		
Profit efficiency	PE	Maximize the profit (revenue – cost) relative to the best practice
Revenue efficiency	RE	Maximize the revenue relative to the best practice
Cost efficiency	CE	Minimize the cost relative to the best practice
Allocative efficiency	AE	Choosing the optimal mixture relative to the best practice
Overall technical efficiency	OTE	Optimal utilization of inputs relative to the best practice
Pure technical efficiency	PTE	Optimal utilization of inputs purely related to managerial behavior relative to the best practice
Scale efficiency	SE	Operating at the optimal scale relative to the best practice

of the efficiency measures is easier and more applicable under the DEA than other parametric methods (Brissimis, Delis, & Tsionas, 2010). The DEA outperforms the parametric methods in estimating the efficiency scores based on Monte Carlo simulations (Banker & Natarajan, 2008). Moreover, because the variable returns to scale assumption tend to overestimate the efficiency scores of large and small banks, the price efficiencies (profit, revenue, and cost) are computed based on the constant returns to scale assumption to avoid biases in the results (Ariff & Can, 2008). The well-known intermediation approach is followed in selecting the inputs and outputs for the efficiency estimation that allows someone to capture the bank's entire performance. In this study, two outputs and three inputs are chosen: loans, other earning assets, personnel expenses, fixed assets, and deposits, usually used in the literature. Nonetheless, the variables employed in the study are defined in Table 1.

3. RESULTS

The NCB is the largest commercial bank in Saudi Arabia concerning assets, loans, and deposits (Figure 1). The value of NCB assets has grown from USD 25.9 billion in 2000 to USD 120.9 billion in 2018, with an annual compound growth rate of 8.94%. Moreover, the total loans and deposits of NCB have risen by USD 61 billion and

USD 65 billion from USD 12 billion and USD 20 billion in 2000 to USD 73 billion and USD 85 in 2018 (Figure 2). Moreover, through an extensive network of 401 branches, 3,661 ATMs, 150 quick-pay centers, and 13,058 employees, the NCB serves their 6.7 million customers to generate a net profit of USD 2.9 billion in 2018 (NCB, 2018). Lastly, three government agencies, which are the Public Investments Fund (44.29%), the Public Pension Agency (10.26%), and the General Organization for Social Insurance (10%), represent the key NCB shareholders in 2018.

The descriptive statistics of the variables used in the analysis are displayed in Table 2. However, Table 3 presents the empirical results of the study. The financial ratios analysis, in general, shows that there is an improvement in the bank's performance after it became listed. As a result of the IPO, the NCB's capital has increased by 2.05 percentage point change on average. Moreover, the asset quality has improved since the credit risk measured by the three ratios (NPLTL, LLPTL, and LLRTL) has decreased, especially for the non-performing loans ratio and loan-loss reserve ratio. Further, the bank's profitability, post-listing, has enhanced because the ROA and NIM ratios have increased by 0.12 and 1.06 percentage point change on average, respectively. On the other hand, although the cost to income ratio has decreased by 4.24 percentage point change on average, there is an increase in
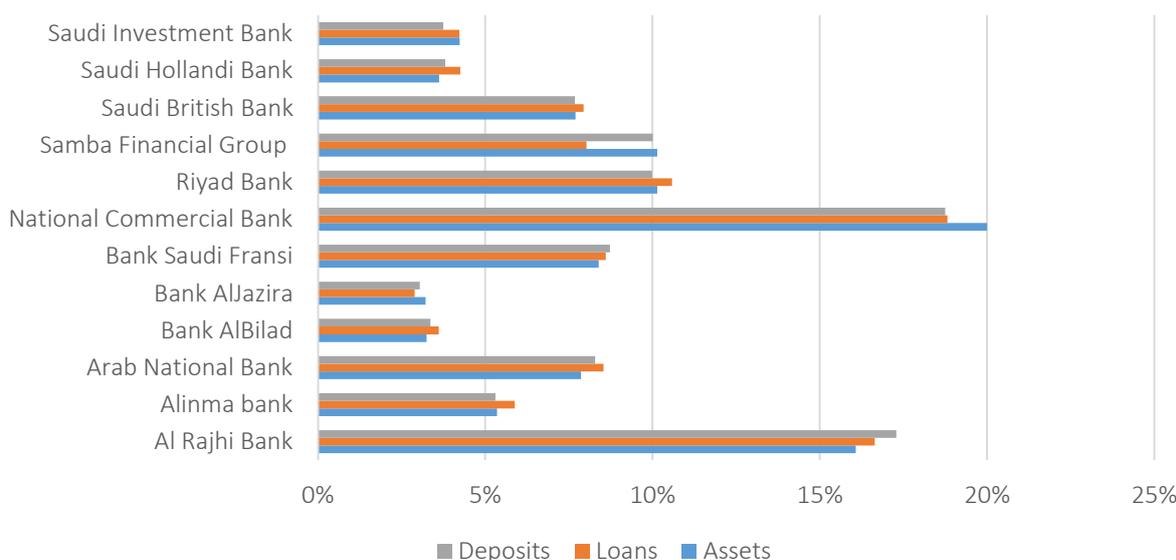

Figure 1. Saudi banks' market share (%) concerning deposits, loans, and assets in 2018
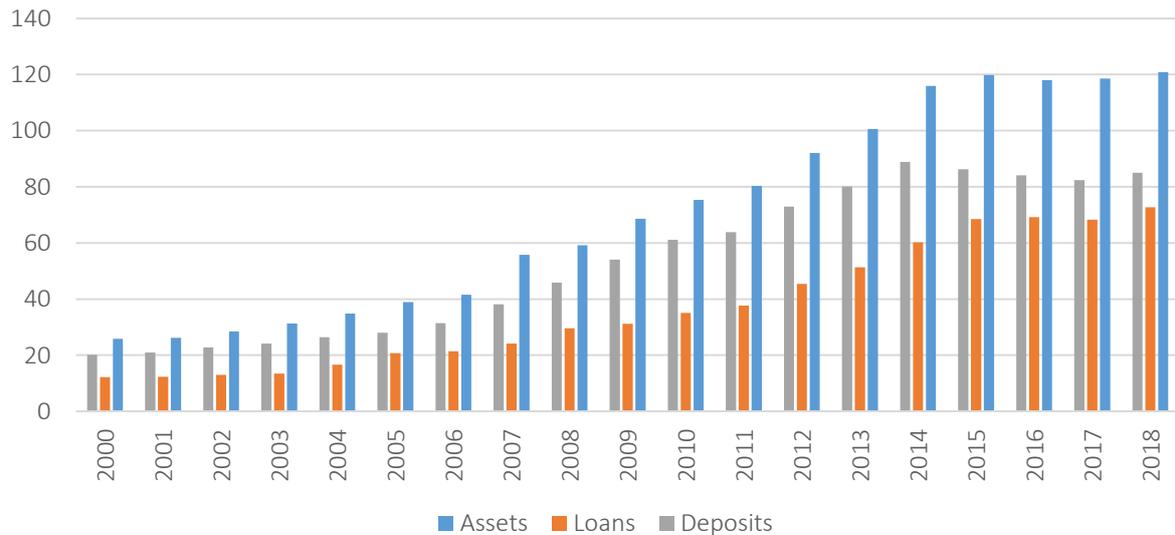
Figure 2. NCB's assets, loans, and deposits from 2000 to 2018, USD billion

Table 2. Descriptive statistics of all variables of the NCB

Variable	Obs.	Min	Max	Mean	Std. deviation
Capital adequacy					
ETA	38	10.45	14.78	12.34	1.40
CAP	38	16.40	20.60	18.17	1.08
Asset quality					
NPLTL	38	1.26	4.46	2.18	0.95
LLPTL	38	0.00	0.52	0.18	0.11
LLRTL	38	2.06	4.86	3.05	0.91
Management quality					
CTI	38	30.96	47.30	38.00	4.08
RWA	38	58.86	85.12	73.44	7.59
Earning ability					
ROA	38	1.62	2.30	2.05	0.17
ROE	38	14.22	20.33	18.04	1.44
NIM	38	2.03	3.67	2.80	0.60
Liquidity					
LATA	38	9.53	17.64	12.53	1.99
LATD	38	12.90	22.89	16.71	2.53
NTLTD	38	51.94	86.76	69.13	12.22
TLTD	38	54.29	89.08	71.26	12.11
TDTA	38	66.40	81.16	75.02	4.69
FCI	38	12.48	28.86	18.26	4.01
Efficiency measures					
PE	38	0.63	1.00	0.97	0.09
RE	38	0.71	1.00	0.96	0.07
CE	38	0.74	1.00	0.96	0.08
AE	38	0.79	1.00	0.97	0.06
OTE	38	0.88	1.00	0.99	0.03
PTE	38	1.00	1.00	1.00	0.00
SE	38	0.88	1.00	0.99	0.03

the risk-weighted assets ratio by 13.51 percentage point change on average.

Besides, the NCB's liquidity has deteriorated as the NTLTD and TLTD ratios have increased, indicating more deposits are locked in less liquid assets (i.e., loans). Moreover, the amount of deposits has decreased relative to the bank's assets, implying less liquidity status. In the same manner, the fees and commission income ratio has decreased, which indicates that the NCB becomes less diversified (higher risk) and has less power in generating more income.

However, all the efficiency measures (except the PTE) have deteriorated after the NCB became listed. *PE*, *RE*, *CE*, *OTE*, *AE*, and *SE* scores have regressed by 0.068, 0.071, 0.070, 0.048, 0.025, and 0.025 on average, respectively. These changes are highly statistically significant. In the pre-listing period, the NCB dominated the efficient frontier, but after the IPO (November 2014), the NCB has lost its superiority (Figure 3). Recall that a value of less than one indicates that the bank is inefficient. The further analysis illustrates that in the pre-listing period, the NCB was located on the efficient frontier (i.e., perfectly efficient) by 95% on average for all efficiency measures. In contrast, in the post-listing period, the NCB was located on the efficient frontier by 56% on average. This is additional evidence for the deterioration of the NCB's performance after it became listed.

Table 3. The results of the pre- and post-listing empirical design of the NCB

Variable	Pre-listing (1)		Post-listing (2)		Differ	Paired samples t-test		Wilcoxon signed ranks test	
	Mean	SD	Mean	SD	(2) – (1)	t-test	p-value	Z-test	p-value
Capital adequacy									
ETA	11.31	0.48	13.36	1.25	2.05	5.81***	0.000	−3.541***	0.000
CAP	17.74	0.60	18.61	1.29	0.87	2.37**	0.029	−1.933*	0.053
Asset quality									
NPLTL	2.72	1.10	1.63	0.21	−1.09	−3.68***	0.002	−2.777***	0.005
LLPTL	0.21	0.13	0.16	0.08	−0.05	−1.31	0.206	−1.207	0.227
LLRTL	3.65	0.93	2.45	0.27	−1.21	−4.55***	0.000	−2.777***	0.005
Management quality									
CTI	40.11	4.13	35.88	2.77	−4.24	−3.60***	0.002	−2.897***	0.004
RWA	66.68	3.39	80.20	3.24	13.51	13.13***	0.000	−3.823***	0.000
Earning ability									
ROA	1.99	0.18	2.12	0.12	0.12	4.28***	0.000	−2.938***	0.003
ROE	18.27	1.86	17.80	0.83	−0.47	−0.80	0.432	−0.684	0.494
NIM	2.27	0.22	3.34	0.31	1.06	9.67***	0.000	−3.743***	0.000
Liquidity									
LATA	12.80	1.96	12.25	2.04	−0.56	−0.79	0.439	−0.765	0.445
LATD	16.20	2.48	17.23	2.55	1.03	1.12	0.278	−1.087	0.277
NTLTD	58.39	3.88	79.87	6.94	21.48	14.45***	0.000	−3.823***	0.000
TLTD	60.68	4.05	81.83	6.98	21.15	15.61***	0.000	−3.823***	0.000
TDTA	79.05	1.08	70.99	3.11	−8.06	−11.85***	0.000	−3.823***	0.000
FCI	20.85	3.32	15.67	2.81	−5.18	−4.66***	0.000	−3.219***	0.001
Efficiency analysis									
PE	1.000	0.00	0.932	0.12	−0.068	−2.52**	0.021	−2.63***	0.009
RE	0.997	0.01	0.926	0.08	−0.071	−3.87***	0.001	−3.64***	0.000
CE	0.992	0.03	0.923	0.09	−0.070	−3.53***	0.002	−3.24***	0.001
AE	0.992	0.03	0.945	0.07	−0.048	−3.23***	0.005	−2.86***	0.004
OTE	1.000	0.00	0.975	0.04	−0.025	−2.72**	0.014	−2.63***	0.009
PTE	1.000	0.00	1.000	0.00	0.000	–	–	–	–
SE	1.000	0.00	0.975	0.04	−0.025	−2.72**	0.014	−2.63***	0.009

Note: ***, ** and * are the statistical significance levels at the 1%, 5%, and 10%, respectively.
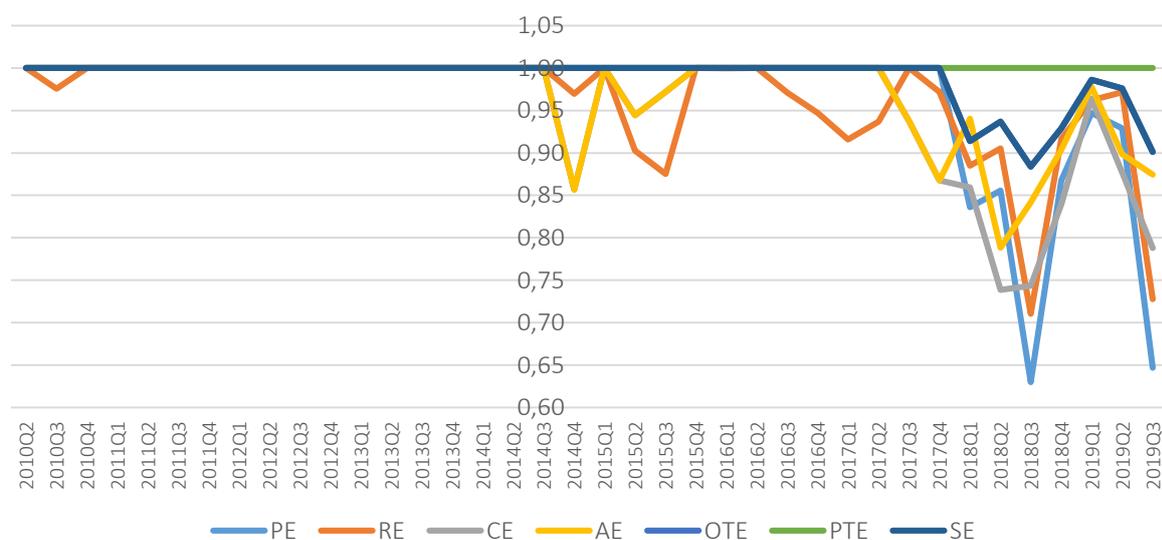

Figure 3. Efficiency measures of the NCB over the sample period

4. DISCUSSION

The empirical results show that the NCB's capital adequacy ratio has increased on average, and this could be related to the implementation of Basel III in the Saudi banking sector (Alsharif, Nassir, Kamarudin, & Zariyawati, 2019). On the other hand, the NCB's liquidity has decreased after being listed. Hence, the increase in the capital after being listed made the NCB reduces its liquid assets base. This is consistent with the finding of Haan and van den End (2013) that there is an interchangeable role between capitalization and liquidity in the banking industry; thus, more capitalized banks tend to have less liquid assets. However, the financial ratio analysis shows that although there is a rise in NCB bank profitability after being listed, there is an increase in the risk-weighted assets ratio. The increase in the capital could explain this after being listed as public banks' managers tend to increase their risk if the capital has increased (Jeitschko & Jeung, 2005). This provides a mix of views on management quality. The risk-weighted assets ratio measures the management quality in managing the bank's assets portfolio, and a higher ratio raises the bank's financial instability.

However, the efficient frontier analysis results are more consensual and obvious concerning the impact of being listed on the NCB's performance as all efficiency measures were deteriorated after the NCB bank became listed. This is not surprising as the financial ratio analysis is considered as a one-dimensional view analysis that cannot capture the entire performance of banks since it does not account for any interactions, substitutions or tradeoffs between main variables, whereas the efficient frontier analysis is a multi-dimensional view that considers multiple inputs and outputs in measuring banks performance that can capture the managerial performance and other operating performance that beyond the accounting ratios analysis (Siems & Barr, 1998). According to Bitar, Hassan, and Walker (2017), a higher efficiency level in a bank implies better management, higher earnings power, better use of the bank's resources, and more financial stability.

This finding agrees with a recent study of Alsharif (2020) who found that unlisted GCC banks are more efficient than the listed ones. According to Jain and Kini (1994), an explanation for this deterioration is that public companies have more agency costs than the private one due to the separation between management and ownership. This argument is proven by Gorton and Schmid (1999) who found that there is an increase in the agency cost positively related to an increase in the degree of ownership dispersion or separation. This result suggests that the cost of agency conflicts surpasses the advantages of being listed in the NCB case. Another explanation is that public banks tend to be directed by managers' incentives, and under this situation, bank managers have more incentives to increase the bank's risk if the capital has increased (Jeitschko & Jeung, 2005). According to Houge and Loughran (1999), IPO banks use the income to rapidly grow new loans that usually end up with riskier borrowers and markets because of the competitive banks' environment. This agrees with the increase in the ratio of risk-weighted assets of the NCB after being listed.

CONCLUSION

To conclude, this study analyses the impact of listing on the performance of the National Commercial Bank (NCB), the largest commercial bank in Saudi Arabia, by applying a combination of financial ratios analysis and efficient frontier analysis with parametric and non-parametric paired sample tests over the sample period 2010Q2–2019Q3. The overall results show that there is a deterioration in the NCB's performance after it was listed in 2014. This deterioration in performance was captured by the decline in the efficiency measures of the NCB in the post-listing period. More, the financial ratios analysis shows that even though the NCB profitability has increased, there is an increase in the bank's overall risk after being listed implying that listed banks are directed toward high-risk assets. Finally, in line with the Siems and Barr (1998) argument, the current study result shows the significance of using the efficient frontier analysis as an additional monitoring tool by the Saudi regulators.

AUTHOR CONTRIBUTIONS

Conceptualization: Mohammad Alsharif.
Data curation: Mohammad Alsharif.
Formal analysis: Mohammad Alsharif.
Investigation: Mohammad Alsharif.
Resources: Mohammad Alsharif.
Writing – original draft: Mohammad Alsharif.
Writing – review & editing: Mohammad Alsharif.

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