The Role of Financial Performance and Government Involvement on Bank Profitability: The Case of Jordan

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ABSTRACT

Banking sector is one of the most important sectors in each country, it can be considered as the engine of the economy. Thus, profitability index for banks should be measured and rated. The primary goal of this thesis is to measure the financial performance of top nine commercial banks operating in Jordan during the period 2011-2017 using CAMEL model and law and order. According to the results of the thesis, it is shown that liquidity and assets quality variables have a significant effect on both ROA and ROE models, Management has a significant effect on ROA model but non for ROE, capital adequacy and low and order variables have a significant effect on ROE model but have no effect on ROA model. We can shortly conclude that Jordanian banking sector is a profitable sector reflected by the efficiency of this sector, which requires some improvements to take into the consideration to keep growing this sector, we suggest that Jordanian banks must monitor (PLL) which is provision loan loss, decrease loans write off as possible as they can to increase banks profit, try to decrease dividends payment and increase in employee's productivity and decrease in non-interest expense to improve the efficiency, also implement the government laws in effective way.

Keywords: Banking System, Profitability, Commercial Banks, CAMEL Approach, Law and Order, Jordan.

ÖZ

Bankacılık sektörü her ülkenin en önemli sektörlerinden biridir, ekonominin lokomotifi sayılabilir. Ayrıca, bankacılık sektörü, bu rolü olumlu yönde etkilemeye çalışan hükümetin katılımı ile fazladan para (tasarruflu) olanlardan paraya (borçlulara) ihtiyaç duyanlara para toplayarak topluluk partileri arasındaki ara rolü oynamaktadır. Bu nedenle, bankalar için karlılık endeksi ölçülmeli ve derecelendirilmelidir. Bu çalışmanın birincil amacı 2011-2017 döneminde Ürdün'de faaliyet gösteren ilk dokuz ticari bankanın finansal performansını ölçmektir. Ayrıca, bu çalışmada, en yaygın olan CAMEL yaklaşımıyla özetlenen finansal oranlar uygulanmıştır. kullanılan oranlar. Devletin bankacılık sektörüne katılımını ölçmek ve etkisini ölçmek için LAW ve ORDER vekili aracılığıyla devlet katılımı etkisine girilmiştir. Kârlılık göstergeleri için, bağımlı değişken olan Aktif Getiri (ROA) ve Getiri Borcu (ROE) olmak üzere iki proxy kullanılmıştır. OLS yöntemi, bankacılık ve uygun bir model oluşturmak için ticari bankaların karlılığı ile ilgili çok sayıda makalenin toplanmasından sonra E-view programı ile uygulanmış ve analiz edilmiştir. Çalışmanın sonuçlarına göre Ürdün bankalarının kârlılığının.

Anahtar Kelimeler: Bankacılık sistemi ،karlılık ،ticari bankalar ،CAMEL yaklaşımı ، Hukuk ve Duzen, Ürdün.

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Chapter 1

INTRODUCTION

Since the emergence of banks, the main goal of banks is to achieve a good performance reflecting on the profitability and growth rate. Due to the important role of banking system and the huge effect on the improvement of any country economy, banks profitability become one of the most popular measurement for evaluating banks performance.

Banks implement several ways to generate profits, divided to traditional and non-traditional ways. Starting with traditional way like attracting deposits and lend these deposits with higher interest rate, or using the modern banking strategy like credit cards, mortgage banks (Rice & DeYoung , 2004). Banks make profits in three ways: fees, interest and interchange (Glotfelty, 2019).

Profit is the initial objective of banks, profit is an absolute number which determine the amount of revenue or income after avoiding expenses, profitability is a relevant number used to determine the scope of the profit (Nimalathasan, 2009). Banks profitability measure the efficiency of banks and their ability to achieve a good performance by using all available resources through high level of profitability.

1.1 The Importance of Banks Profitability Proxies

Banks, like all financial institutions seek to maximize its wealth as much as possible by increase the profit, which can be measured by the profitability proxies. The most commonly used benchmarks for bank profitability are Return on Assets (ROA) and Return on Equity (ROE), especially (ROA) when comparing similar banks or comparing a single bank to its previous performance. It measures the income produced by the total asset during a specific period of time. Return on Equity is another benchmark used to measure the income produced by banks using total equity available. Both measurements (ROA) and (ROE) look different because one of them focuses on assets and the other one focuses on equity. However, both of them reflect the health of the management in using banking sources for providing profits (Klaassen & van Eeghen, 2015).

Return on Assets takes into account banks debt, it is calculated by dividing the net income by the total assets. Higher ROA is better for this indicator because it shows how efficient the management is on using banks assets for providing net income, it also gives the stakeholder an idea of how effective the bank is in converting capital (Assets) to incomes. While (ROA) takes into account the debt, return on equity do not. It is calculated by dividing the net income by the total equity. Again, higher ROE is better because it shows that we are providing net income using less equity (Keung & shih, 2014).

1.2 Banks Profitability Determinants

A number of studies have looked at banks profitability in an attempt to identify the variables that account for differences in profitability between banks. To examine the effect of banks performance, CAMEL model has been chosen as an independent

variable. This model implements important parameters like Capital Adequacy, Assets Quality, Management Efficiency, Earning quality and Liquidity. This model is a management tool which use ratios to evaluate the performance through the parameters mentioned before. This model helps the management to monitor the health of the bank, in addition, because of transparency, the confidence of the investors and the stakeholders will be gained.

Starting with ratio of **Capital Adequacy CAR**, which is considered as a parameter of the availability of the capital of the banks, can be explained as a proportion of a risk weighted credit of the banks' exposure (Julie Stackhouse, 2018). CAR is important to make sure that the banks have sufficient cushion to face a sufficient degree of losses before insolvency. This ratio is a good parameter to show how banks are stable and efficient and have the ability to face risks. The higher the ratio is the safer is the bank, by dividing a bank's capital by its risk-weighted assets. The capital used to calculate the capital adequacy ratio is divided into two tiers. This ratio includes two types of capital which is Tier 1 and Tier 2, the first one does not require a bank to end the operation to absorb losses, it is also called Core capital. The second one is Tier 2 which used to face losses if the bank loses its Tier-1 capita at all. So, banks with high CAR are more healthy and are in a better shape to face financial obligations, and it provides less degree of protection to the depositors and creditors.

Assets Quality Ratio, known as the **Loan Loss Rate,** is the second parameter used in CAMEL model which focuses on Banks Assets (including loans, leases, securities and derivative contracts) and its Quality which is one of the most important parameters used to determine the financial situation of the bank (Julie Stackhouse, 2018). This ratio aims to assess the credit risks related to particular type of assets and show how

effective the management in monitoring and controlling these risks is. Implementing Assets Quality ratio has an impact on the overall situation of the bank.

Management always try to improve the assets quality as possible, as the assets quality goes up, the benefits like high liquidity and high-risk controlling will reflect an effect on the overall bank situation, it also shows how the bank is stable in facing risks.

Management efficiency, to manage is to forecast and to plan, to organize, to command, to co-ordinate and to control (Anthony, Robert and Govindarajan,2007). Management Efficiency is the third parameter used in CAMEL model which focus on measure how the banks management are efficient in ensuring the safe of its operation also to point out control and measure the risks.

Earning is the fourth parameter used in CAMEL model. This parameter focuses on banks earning which is also called net benefit, the most necessary element to continue operation, grow and extend (Stackhouse, 2018). A good earning management and performance leads to improve the trust and confidence between banks and stakeholders.

Liquidity is the fifth parameter in CAMEL model. This ratio measures how banks are liquid to meet their requirements like lending customers, withdrawal requests and repaying their own debts. Liquidity is the ratio that keeps the banks alive because it concentrates on the main activities that banks are survive to do, banks are the intermediates in collecting money and reallocate it again to the customers in different ways. If the cash is not available, banks are closer to fail. This ratio is calculated by dividing a bank's high-quality liquid assets by its total net cash flows over a 30-day

stress period. It means that banks should hold cash able to fund 30 days' outflows. The higher the liquidity ratio is the better for banks. Banks are trying to improve the liquidity ratio as possible in order to have the ability to face risks that may occur and cause problems related to the cash shortage in the banks. The minimum liquidity ratio for banks is 100% for 2019 according to **Basel III Standards** (Bonner, Lelyveld & Zymek , 2015)**.**

1.3 Law and Order and Banks Profitability

Government involvement in banks these days is a common issue. Which plays an important role in the banking system and this role is increasing day after day affecting many sensitive parts of the banks structure. **Law and Order** is the situation in which citizens and other people in the country should respect the laws of the government.

The importance of **Law and Order** can be summarized by the system that is built if the society follows the combination of laws and orders given by the government. For banks, the government involvement represented by Law and Order governs banking transactions to save the rights of each related party. It also provides a system for the banking sector that helps reduce the problems that may occur regardless of banks size and other factors. Generally, Low and Order is a system containing a set of comprehensive laws and procedures that manage and control a specific sector or a government at all (Gibbs, 1993).

For the banking sector, Law and Order provide a system that control the transactions between several parties, reduce risks for banks customers and control the banking sector very well. Improving the law and order system for banks will affect the efficiency to be more implemented and reduce the sources that paid in order to increase

the efficiency (Morgan, 2010) the implementation will increase the performance of banks and improve their profitability as well as the values of the banks.

1.4 Scope of the Study

Top nine banks listed in Amman stock exchange in Jordan were selected to be the sample of this thesis using the date in the period 2011-2017 to achieve the purpose of the study. Islamic banks are excluded from research object. This thesis attempts to identify the factors that determine banks' profitability in Jordan, by investigating the effect of each one of them on profitability, mainly **CAMEL model.**

Jordan is chosen as a case study because of the transformation in the banking system in Jordan from the old system to the modern one and also to determine they are affecting by the CAMEL model or not in order to provide good and useful information which will help the management and the related parties to make the correct decisions to achieve the goals that the banks are looking for. Also, the lack of studies and researches made in this field in Jordan motivated us to conduct this study to provide added value to the banking system and other interested parties to improve this sector.

1.5 Aim of the Study

The aim of this thesis is to determine the variables that affect Jordanian banks profitability and performance, as well as their effect on (ROA) and (ROE). In addition, this thesis tries to understand the effect of law and order (LO) on these variables representing the effect of government involvement on the top listed Jordanian banks profitability during the period (2011-2017) with a sample of nine banks.

Understanding the effect of the independent variable and its direction will add a value to the Jordanian banking sector and improve it to reach the level of awareness and

benefit decision maker parties. This thesis will be a starting point to other researchers interested in studying the Jordanian banking sector, improving banks profitability and understanding the volume, direction and the effect of government efficiency on the profitability parameters.

1.6 Contribution of the Thesis

Contribution of this thesis is using Law and Order as a variable of government involvement to study the effect on Jordanian banks profitability. To our knowledge, there is limited number of studies handling the effect of Law and Order on banks profitability in Jordanian banking sector.

The following chapters are as follows: next chapter will review the literature of banks profitability. Chapter 3 will discuss the methodology and data used in this thesis while chapter 4 outline the empirical results. Chapter 5 offers the recommended policies with concluding remarks for the thesis.

Chapter 2

LITERATURE REVIEW

As the banks developed and passed through several stages until reaching the banks that we are dealing with these days, each stage added to the banks structure and some development in each part of the banks (Dow & Ruzi, 2008), the development of banks leads to an increased competition. Banks are trying to develop their performance in order to stay competitive as well, the need for a measurement to analyze the performance and the financial position of banks arises after the development of the banking system around the world. Financial ratios were used in order to evaluate banks, profitability ratios are the most accurate and important ratios that banks use in evaluating banks performance and measuring the ability to generate profits using it sources in excess of its cost (Antwi & Boadi , 2013). The traditional measure of profitability of any business is the return on assets (ROA) and the return on equity (ROE). Having a higher value compared to, or relative to a competitor's ratio of the previous period implies a good result by the company. The ratios are more useful and informative when they are used to the comparison between companies, same companies, the company's own the history, or even the average ratios for the company as a whole (Antwi & Boadi, 2013).

2.1 CAMEL Model and Bank Profitability

Literatures deal with the profitability of banks as a measurement of banks performance, which is measuring the degree of banks' ability in making profit. The (**CAMEL**) rating system followed back to its roots to 1979 after being implemented

in US banking institutions by the Uniform Financial Institutions Rating System (**UFIRS**) to provide a rating manner for the banking institution (Alemu & Aweke, 2017), evaluating and rating the financial institution using (**CAMEL)** model implemented through using five main components which are capital adequacy, asset quality, management, earnings, and liquidity. A sixth component which is a bank's Sensitivity to market risk was added in 1997.

Evaluating the financial performance in the banks occurs by evaluating the profitability indicators like **ROA** and **ROE** and (**CAMEL**) model as well. According to previous study made in this area, we can create a picture about the relationship between **ROA**, **ROE** and **CAMEL** approach, as (Alemu & Aweke, 2017) built their study on **CAMEL** model**, ROA** and **ROE** using the audited financial report for a sample of six banks in Ethiopia for a period extended from 2007-2016 to analyze the commercial banks financials performance, the authors found that the explanatory variables were significant in determining the profitability indicators-ROA and ROE, No asset quality indicators were significant in determining the profitability ratios.

Banks using CAMEL analysis as a risk test, to control the risk efficiently, according to Munir & Bustamam (2017). Using CAMEL model to assess the efficient risks related to banks is a common way, the authors took into account the CAMEL model to measure the profitability of commercial banks performance, the authors used debt to equity ratio (DER) and non-performing loans (NPL) to measure capital adequacy, return on assets (ROA) to measure Assets quality, management measured by cost per income, earnings by return on equity (ROE) and finally liquidity measured by deposit and interest expense. The authors focused on 114 observations (from ten banks from Malaysia and nine in Indonesia) using the data during the period from 2010-2015,

multiple regression analysis and descriptive method were applied. The main objective of this research was to evaluate the effect of CAMEL analysis on banks financial performance and profitability partially and simultaneously, the authors found that CAMEL analysis can be used significantly in measuring the performance of banking profitability, have simultaneously affected on banking profitability. Just management and capital had no significant partially affected on profitability of banks, so the last finding confirm that CAMEL analysis has a significant relationship with bank profitability.

Another study handled CAMEL model as a measurement to measure the bank's profitability in Malaysia was for Muhmad & Hashim (2015), which focused on a case study of 35 banks during the period between 2008-2012 using annual reports to find the appropriate ratios, the aim of the study is to determine whether the CAMEL model variables have a significant effect on the profitability variables of the Malaysian banks. The primary research instrument was CAMEL model ratio in this research, they used Pooled Ordinary Least Squares (OLS). All variable expects management efficiency showed a high significance level, relationships between the explanatory variables toward the dependent variables which is bank performance (ROA, ROE) were strong.

Georgios & Elvis (2019) applied their research on Balkans Banking System using CAMEL model, the authors sample focused on eight Balkans banks from 2009 to 2016, while the study confirms that the CAMEL model has a significant effect on banks profitability indicators (ROA, ROE), it showed that the ratios of Balkans banks profitability has a positive effect on most of the sample but Banks had a big problem with asset quality and even liquidity. There was no issue of capital adequacy but it was

raised later due to the financial crisis and during that time which is logic because most banks were affected by the crises as well as all economies. They conclude that CAMEL is a useful method for assessing and evaluating the profitability of banks.

Another study implemented CAMEL model in banks evaluating their profitability published by Shahid, Saeed, & Tirmizi (2019). The aim of the study was to assess CAMELS's effect on bank performance as far as efficiency is concerned. In this analysis, the financial ratios were Capital Adequacy, Liquidity, Market Risk Sensitivity, Asset Quality, Management Soundness and Earning collectively referred to as the CAMELS ratio were used to evaluate Sri Lankan and Pakistani banks financial performance in terms of empirical validity and efficiency based on the results of Panel Regression Model. The collected sample was for the operating banks in Sri Lanka and Pakistan during the period 2008-2016 has therefore been used. Empirical tests of time-fixed, random-fixed effects and GLS models. After the implementation of the Hausman test, the model estimation showed that the model of random effects was preferred to the model for a fixed effect. Empirical analyses show that all the variables have become important in conjunction with countries efficiency of the banking sectors: CA, LR, AQ, MS. (ROE), and (ROA), while SR is negligible but positive for efficiency. However, the findings of previous research still support that. so, they proved that the ER result indicates that the most of explanatory variables have predictability important, such as AQ, CA, management Soundness, Liquidity, ROE and ROA. shows also indicate that the ratios of LR, CA, AQ, MS, ROA and ROE. Which were confirmed in past studies, play a significant role in ER. However, the efficiency of SR is insignificant but positive. This means that Sri Lanka and Pakistan's banking sectors are not substantially because of market shocks as regards market risk exposure, meaning changes in risk factors have had a beneficial impact on the

efficiency of banks with greater fluctuation in (efficiency ratio). These ratios are key indicators for measuring the efficiency of the banking sector.

Table 1 in below reviews the literature on banks profitability.

Table 1: Literature Table

Paper	Country	Variables	Methodology	Results
Ling, Chen, Fang& Shiu (2009)	China	Dependent: ROA Independent: (FD) financial development, (B) size, (GDP)	Pooled cross-section (banks) and time-series data are employed in the empirical estimation	Negative relationship between variables
Olweny (2012)	Kenya	Dependent: ROA Independent: Capital adequacy, Assets Quality, Liquidity management, Operational cost efficiency, Income diversification	Multiple Linear Regression Analysis	ROA of more than 1.5% indicates good performance - positive
Rumler &Waschiczek (2015)	Austai	Dependent: ROA ROE Independent: NIE / Loans ratio	Dynamic panel regression methods	Lower percentage of loans over total assets and higher market concentration in the banking sector had a positive effect on bank profitability
Trivedi (2015)	India	Dependent: ROA ROE Independent: fee income ratio	Empirical analysis	Positive impact of 'fee income' on profitability

Petriaa, Caprarub, Iulian Ihnatov (2015)	EU27	Dependent: ROAA/ROAE Independent: GDP	Hausman test	Positive effect on bank profitability
Pawłowska (2016)	Poland	Dependent: ROA Independent: GDP growth	Empirical analysis	Positive impact of 'fee income on profitability
Djalilova & Piesse (2016)	Armenia, Azerbaijan. Georgia, Kazakhstan. Czech Republic. Estonia, Hungary, Lithuania	Dependent: ROA Independent: size, government spending	One-way error component linear regression model	Bank profitability in the transition countries is shaped by bank-specific and institutional variables.
Aydemir& Ovenc (2016)	Turkey	Dependent: ROE& ROA Independent: growth in real assets	Autocorrelation and heteroscedasticity tests	Positive relationship between variables
Ting (2016)	China	Dependent: ROA Independent: Financial development – FDI Government involvement – state ownership	Heteroskedasticity standard error and covariance to cope with heteroskedasticity	Positive relationship between government involvement and bank profitability financial liberalization index (financial development) shows a significantly negative effect on ROA

Zheng, Rahman, Begum and Ashraf (2017)	Bangladesh	Dependent: ROA, NIM Independent: CAR, OETTA equals the ratio of bank shareholders	Baseline dynamic panel empirical model.	Higher bank capital ratios have a negatively significant ne association with the net interest margins for banks and a positive association with bank profitability.
Abdrahamane, Alpha & Kargbo (2017)	Mali	Dependent: ROA Independent: Ratio of nonperforming loans to total loans & Ratio of total assets to total deposit	Panel least squares (PLS)	Banks performance compared to when the blanket guarantee scheme was in place but higher capital adequacy. Given the weak positive return on assets (ROA)
Robin, Salim & Bloch (2017)	Bangladesh	Dependent: ROA and ROE Independent: capital ratio, asset quality, bank size and corporate governance	Panel regression model	Negative coefficients for the ownership dummy. variable in all three regressions indicates.
Riyadi (2017)	Indonesia	Dependent: ROA, ROE Independent- Capital	Financial ratio	NIM, LDR, RR and have a significant effect

		adequacy ratio, non interest margin, loan to deposit ratio and risk return ratio.		on ROA. CAR, NIM, LDR, RR and the Exchange rate have a significant effect on ROE
Yigermal (2017)	Ethiopia	Dependent: ROA, ROE Independent- size, GDP growth, interest rate spread	Descriptive and panel econometrics method of data analysis	The magnitude is positive for bank size, GDP growth rate and inflation. While, interest rate spread and loan to deposit ratio negatively affects the return on asset of private commercial banks in Ethiopia.
Shah, Khan and Sajjad (2017)	Pakistan	Dependent: ROA Independent: Equity to Assets (ETA). Debt to Assets (DTA). Deposits to Assets (DPTA). Bank Size (LnTA). Assets Management (AM)	Descriptive Statistics	Equity to assets, deposits to assets, bank size and assets , debts to assets management are significantly related with profitability and hence affect the profitability of banks.

Fapohund, Eragbhe (2017)	Nigeria	Dependent: ROA Independent: Monetary policy rate, Financial development, Financial soundness	Co-integration Test, ordinary least square multivariate regression Model.	Cash reserve ratio and financial development were positively related to bank performance while monetary policy rate was negatively related.
Sun & Stephenson (2017)		Dependent: ROA Independent: non-interest income	Panel threshold model of Hansen	Noninterest rate is negatively correlated with the performance of commercial bank
Bikker & Vervliet (2017)	USA	Dependent: ROA, ROE and Net interest margin Independent: loan loss provisions to total loans (PCL), banks with a problematic loan portfolio (TCR)	Dynamic and static modelling approaches and various estimation techniques	Low interest rate. environment indeed impairs bank performance and compresses net interest margins. Nonetheless, banks have the ability to maintain their overall level of profits, according to low provisioning, which in

				turn may endanger financial Stability.
Rokhim & Harmidy (2017)	Indonesia	Dependent: ROA Independent: ownership structure, risk	Time-series regression analysis.	Negative relationships between the risk management and the performance of banks in terms of ROA
Attah (2017)	Ghana	Dependent: ROA, ROE Independent- bank risk, ownership, size and efficiency	Multiple regression analysis	Ownership structure, size, efficiency, and bank specific variables affected Ghanaian bank efficiency and profitability levels.
Martinho (2017)	EU-15	Dependent: ROA, net interest income, interest income, Interest expenses and other income Independent: Macro and bank-specific controls	Least squares dummy variable (LSDV)	Macro factors explain a large fraction of the evolution of individual bank ROA in the EU.
Zheng, Rahman, Begum and Ashraf (2017)	Bangladesh	Dependent: ROA, NIM Independent: CAR, OETTA equals the ratio of bank shareholders	Baseline dynamic panel empirical model.	Higher bank capital ratios have a negatively significant ne association with the net interest margins for banks and a positive association with bank profitability.

Nisar, Peng, Wang and Ashraf (2018)	South Asia	Dependent: ROA, ROE Independent: Capital adequacy (CA)/ Liquidity (LIQ)/ Credit risk (NPL)/ Diversification (NII)	OLS /Fixed Effects	Non-interest income positively impact on the profitability and stability of commercial banks.
Adelopo, Lloydking & Tauringana (2018)	West African States	Dependent: ROA Independent: Macroeconomic factors. Industry factor and Bank-specific factors	Fixed effect models	Significant relationship between bank-specific determinants and bank profitability (ROA).
Harvey (2018)	USA	Dependent: ROA, market value &net income Independent: Sustainability (business and leadership theory)	Quantitative correlational	No statistically significant correlation between net income or market value but a positive correlation for return on assets
Amdanata & Mansor (2018)	Indonesian	Dependent: ROA Independent: Capital adequacy, Size	OLS	Only capital adequacy has a positive and significant impact
Yan & Donglu (2018)	USA	Dependent: ROA, ROE Independent: Capital, Loans& Noninterest income	OLS	Capital ratio, deposits, and noninterest income positively and significantly influ

				both ROA and ROE, while loan positive influence only on ROA
Chena, Liao, Linc & Yen (2018)	41 Countries	Dependent: ROA and ROE Independent: Country Governance	Multivariate analysis (DID analysis)	Political banks were more likely to engage in making low-quality Loans because of political considerations, which led to poor performance
Santos (2018)	North America, European Union, Far East and Central Asia, South and Central America	Dependent: ROA, ROE & NIM Independent: Capital adequacy ratio	Regression analysis	Negative contribution to profitability
Puspitasari, Desfadlika, Sudiyatno & Muhaimin(2019)	Indonesia	Dependent: ROA Independent: Operating Income Operating Costs, Capital adequacy, non-performing loan, inflation and Loan to Deposit Ratio	Ordinary Least Square (OLS).	CAR, BOPO have negative effect on ROA. NPL, LDR and inflation does not affect the performance of the banks
Nelly, Ambrose & George (2019)	Kenya	Dependent: ROA and ROE Independent: size and risk	Descriptive research	Size and risk have a positive effect on the profitability of Kenyans banks

Chol, Nthambi & Kamau (2019)	Sudan	Dependent: ROA and ROE Independent: CAMEL model	Descriptive analysis and inferential analysis techniques	A strong positive effect of asset quality, management efficiency and liquidity on the financial performance of commercial banks.
Zhou, Peng & Latief (2020)	China	Dependent: ROA Independent: Non interest income ratio, Non-fee and commission, Non-interest cost ratio.	Descriptive Statistics Regression analysis	A U-shaped relationship between non-interest income and the performance of RCBs

2.2 Law and Order

Law and order is one of the indicators that may affect banks profitability. The studies which is focusing on this variable are not commonly implement of available, for example (Naceur & Omran, 2010) investigate the impact on commercial bank margins and profitability in a broad range of Middle East and Northern African countries (MENA) of bank regulation, concentration, financial and institutional growth. The empirical result indicates that characteristics of banks, in particular banking capitalization and risk of credit, have positively significant effects on the net profit margin, profitability and cost efficiency of banks. Further, the authors note that there are no major effects on net interest margins on macro-economic and financial growth measures except inflation. Influencing banks' efficiency tend to be regulatory and structural variables. The regulatory and structural changes tend to influence performance of banks because the result shows that corruption increase cost-effectiveness and margins of net interest while increasing the variable law and order reduce the cost-effectiveness. Without performance affecting. These results show that MENA banks need to operate in an atmosphere that is more competitive, better governance environment are present and developed capital markets as well. We can conclude from their regressions that they noted that corruption rise both net interest margins and cost efficiency while improving the variable **law and order** lows cost efficiency without impacting performance.

2.3 Variables Proxies

Relying on the previous studies that tested banks profitability by CAMEL model and law and order variables, different proxies were used by the authors to achieve the purpose of the study. In this thesis, ROA and ROE proxies were used to measure the financial performance for Jordanian banks financially, while CAMEL model and law

and order were used as independent proxies, Chol, Nthambi & Kamau (2019) in their study used the same proxies to check the effect of bank stability on the performance of Sudanese commercial banks, descriptive analysis and inferential analysis techniques were used to came out with a result that the correlation tests indicated a strong positive effect of asset quality, management efficiency and liquidity on the financial performance of commercial banks.

Bawaneh & Dahiyat (2019) used the same proxies in their paper, it concluded that CAMEL model except asset quality and capital adequacy affect the financial performance of the commercial banks significantly.

Naceur & Omran (2010) in their study used concentration, financial and institutional growth and law and order the empirical results show that the improvement in the law and order variable.

2.4 Literature Review on Jordan

This section will hit the studies that have already done about the determination of banks profitability in our sample country which is Jordan in order to expand our knowledge, awareness and understanding about the variables that affect the banking sector profitability in Jordan.

Ramadan, Qais, & Kaddumi (2011) mentioned in their study that there's many factors or variables that may affect the performance of Jordanian banks, 10 banks with hundred observations over the period 2001-2010 were included for this reason. The authors considered Bank-specific, industry specific and macroeconomic factors as independent variables. One of the factors that we focus on in our thesis is capital adequacy which is fall under bank specific factors, two indicators of bank profitability were used: the asset yield rate (ROA) and the equity yield rate (ROE). based on the empirical results, profitability of the Jordanian banks has been explained significantly by specific determinacies of the banks. A main finding of this research is that high capital ratios banks appear to gain higher income by turning the safety value into income.

Studies that used CAMEL model as independent variables can be considered more comprehensive because of CAMEL model contains several parts of the banks, Bawaneh & Dahiyat (2019) imply the CAMEL model as an explanatory variable to evaluate the financial performance of a sample of Jordanian banks consist of listed 13 banks during the period of 2012-2018. The study is based on an analysis of the available annual financial statements of all listed banks, the authors assert commercial banks performance effected significantly by the capacity of management, earning consistency, liquidity and risk aversion of CAMELS dimensions, but there is no statistically important impact on the performance of commercial banks on the capital adequacy and consistency of assets of CAMELS dimensions.

Studies in Jordan were diversified and kind of comprehensive that include a wide compensation of explanatory variables that help to evaluate the financial performance for banks, they used the economics proxies moving to characteristics of the banks like

size, using the governance dimensions which is (Board Composition, Board Size , Chief Executive Officer (CEO) Status and Foreign Ownership) in order to find the appropriate factors to analyze the banks performance which will lead us to maximize the banks value and shareholders wealth. Manaseer, Al-Hindawi , Al-Dahiyat, & Sartawi (2012) tried to empirically explores the effect of the measurements of corporate governance (Board Size, Board Structure, Chief Executive Officer (CEO) Status and Foreign Ownership) on the efficiency of 13 Jordanian banks during the period 2007-2009, The analysis showed a significant and positive relationship between the dimensions of corporate governance: the number of international board members and foreign investment and the success of the banks of Jordan. Whereas the authors found a negative relationship between size, role of CEO and the financial performance, another finding that they announce that banks with larger size board are more benefit able than granting loans in offering services.

Commercial banks are finding benefit by investing financial capital in loans and diversified assets and providing liquidity to allow depositors to make cash withdrawals. This is the problem that banks always afraid to face, which is liquidity. Alali (2019) tried to explain the effect of the liquidity of banks on the performance of Jordanian banks, the sample used was commercial banks using the data from 2013-2017, she used the variables of (liquidity, legal liquidity, employment ratio) as a measurement for the liquidity, ROA and ROE as a measurement for banks profitability, the study showed that banks liquidity (liquidity ratio, legal liquidity ratio) has an effect on return on equity of the banks and the profitability of the banks as well The study recommends that commercial banks take banking liquidity into account because it is necessary and great important.

Moving through the previous studies that focused on the performance of the commercial banks in Jordan, it is clear that most of the authors used CAMEL model for choosing explanatory variables to explain the determinants of Jordanian banks profitability. These studies conclude a similar finding which helps authors and related parties to understand the relationship between banks profitability and CAMEL model indicators. After reviewing the literature, including law and order as a determinants of bank profitability are very limited. Actually, according to our knowledge, in this field, there has been one paper only using law and order, Naceur & Omran (2010) investigate the impact of bank concentration, regulation, institutional and financial growth on profitability and commercial bank margins in a broad range of Middle East and northern African countries (MENA). The empirical study results indicate that the characteristics of banks, the risk of credit and banking capitalization, have positively and significant effect on the net profit margin, profitability and cost efficiency of banks. This minimal usage of law and order in the field of identifying the impact of CAMEL model and law and order leaves a literature gap that this thesis is seeking to fill for the case of JORDAN.

Chapter 3

DATA AND METHODOLGY

3.1 Data Source and Collection

The thesis assesses the performance of Jordanian banks, which is heavily dependent on the data from audited financial reports by adopting CAMEL model. The analysis took secondary source as its basis. Those data were obtained from selected commercial banks published and audited annual reports. In addition to annual reports, other documents and literature records were reviewed to accomplish the thesis objective. The data is based on financial reports of nine Jordanian listed banks on Amman stock exchange during the annual period from 2011-2018 which is listed in the table below:

Table 2: Banks Chosen for the Thesis

Arab Banking Corporation (Jordan)	Bank of Jordan
Housing Bank for Trade and Finance	Bank Al Etihad
Jordan Ahli Bank	Capital Bank of Jordan
Jordan Kuwait Bank	Arab Jordan Investment Bank
Cairo Amman bank	

In this thesis, dependent variables are return on asset (ROA), return on equity (ROE). Independent variables are Capital Adequacy (CAR), Assets Quality (ASQ), Management (MGT), Liquidity (LIQ) and Law and Order (LAO). Table 2 below indicates the variables which are used.

Table 3: Variables and Proxies

Variable	Type	Proxy
Roa	Dependent	• Net income / Average total assets %
Roe	Dependent	• Net Income/ Shareholder's Equity %
Capital adequacy	Independent	• (Tier 1capital + Tier 2 capital) / Risk weighted-assets %,
Assets management	Independent	• Loan loss prov / Net int rev% • Impaired loans / Gross loans%
Management efficiency	Independent	• Non int exp / Avg assets%
Earnings	Independent	• Non – interest income to total income ratio
Liquidity	Independent	• Liquid assets / Dep & ST funding% • Net loans / Tot assets%
Law and order	Independent	

Financial performance of the banks measured through profitability proxies which are return on assets (ROA) and return on equity (ROE), (Rose & Hudgins, 2008). CAMEL model variables including (CAR, ASQ, MGT, LIQ) and (LAO) are used to measure and rate the banks according to four factors of CAMEL and law and order as well. It is important to add that Law and Order variable has been added to the model according to the expectation that it can affect bank profitability (Naceur & Omran, 2010). CAMEL model variables may have a significant effect on the financial performance of the jordanian banks, while law and order may has no significant effect.

Dependent variables, which represent the financial performance for Jordanian banks represented as follows:

$$ROA_{i.t} = \alpha + \beta_1 CAR_{i.t} + \beta_2 ASQ2_{i.t} + \beta_3 ME_{i.t} + \beta_4 LIQ2_{i.t} + \beta_5 LAO_{i.t} + \varepsilon_{i,t} n \quad (1)$$

$$ROE_{i.t} = \alpha + \beta_1 CAR_{i.t} + \beta_2 ASQ4_{i.t} + \beta_3 ME_{i.t} + \beta_4 LIQ5_{i.t} + \beta_5 LAO_{i.t} + \varepsilon_{i,t} \text{n} \quad (2)$$

Where ROA and ROE represent return on asset, return on equity, respectively. CAR is capital adecuacy, ASQ represent Asset quality, ME represent management effecincy, LIQ represent liquidity, LAO represent law and order and ET is error term.

In this thesis, to examine the finacial performance of banks. regression analysis will be used taking CAMEL model into acount.

one of the most important profitability ratios which is return on assets (ROA), net profit over total assets considered to be applied to check whether or not the assets are effectively and efficiently financially viable (Naceur, 2003). The second dependent variable used to evaluate the financial performance of the banks through profitability is the return on equity (ROE), it is a financial performance indicator determined by dividing net income by equity of the shareholders (Gul et al, 2011).

First independent variable of the thesis is Capital adequacy measuring if the bank has sufficient capital or not to face prospect dangers. More proportion, therefore the more effective and steady banks are, (Mursal, Darwanis & Ibrahim, 2019)**.**

Assets Quality Ratio, known as the **Loan Loss Rate,** is the second parameter used in CAMEL model which focuses on Banks Assets (including loans, leases, securities and derivative contracts) and its Quality which is one of the most important parameters used to determine the financial situation of the banks (Stackhouse, 2018). This ratio aims to assess the credit risks related to particular type of assets and show how

effective the management in monitoring and controlling these risks is. Implementing Assets Quality ratio has an impact on the overall situation of the bank.

Quality of management is interest spending divided by total deposits. In addition, management quality tests how banks become interest efficient to deposit spending, banks bring about make more benefit and lower costs when proportion comes down (Duong & Swierczek, 2019).

Liquidity measures how banks are liquid to meet their requirements like lending customers, withdrawal requests and repaying their own debts. Liquidity is the ratio that keeps the banks alive because it concentrates on the main activities that banks are survive to do, banks are the intermediates in collecting money and reallocate it again to the customers in different ways (Abbas, qbal & Aziz, 2019).

Law and order for banks, the government involvement represented by law and order governs banking transactions to save the rights of each related party. It also provides a system for the banking sector that helps reduce the problems that may occur regardless of banks size and other factors (Naceur & Omran, 2010).

3.2 Methodology

In this thesis, Levin, Lin and Chu test (LLC test), Augmented Dickey Fuller test (ADF test), Phillips–Perron test (PP test) and Im, Pesaran and Shin test (IPS test) were undertaken to test unit roots. Hausmann test were applied to find that, fixed. effect test is the suitable test to use, then the regression analysis applied to predict the relationship between dependent and independent variables.

3.2.1 Unit Root Tests

Before starting analysis, unit Root Testing should be handled to check out the stationary of panel data series. Stationary data, means data which have, constant covariance and variance over the time horizon. There are multiple unit root tests to analyze the integration properties of variables. Augmented Dickey Fuller Test **(ADF)** Test is one of the most common used test which used to test whether the series are station or not, The ADF test expands the equation to include high order regressive process in the model and make a fair inference on whether the series is stationary or not. This adds more thoroughness to the test.

Phillips- Perron test **(PP)** is similar to Dickey-Fuller test (**ADF)**, however, **PP** is concerned with serial correlation and heteroskedasticity of errors in a different manner (Gokmenoglu, Azin, & Taspinar, 2015), The **PP** method is used to look for Unit roots, this is an alternative to the **ADF** root test, computes the residual root test, and computes the variance that is stable for auto-correlation (Katırcıoğlu, 2009). Levin, Lin and Chu test (**LLC**) is the test that based on the assumption that each individual unit in the panel has the same coefficient, but enable for individual effects, time effects and, possibly, time patterns (Baum, 2006). Im, Pesaran and Shin (**IPS**) test is a popular unit root test with adaptability to enable serial correlations on error terms; a few other individual series have unit root and error variance along all groups and heterogeneous coefficients. (Pesaran, & Shin, 2003).

Panel Unit Root Test hypotheses can be represented as below:

H0: Series, are not. stationary.

H1: Series, are. stationary.

3.2.2 Hausman Test

In a regression model, endogenous regressors which is variables of the predictors are detected by Hausman Test (Hausman specification test). Endogenous variables have values in the system which are determined by other variables. As one of OLS 'assumptions is that there is no association between a predictor variable and the error word, having endogenous regressors in a model would cause ordinary least square estimators to fail. Estimators of instrumental variables can be used as an alternative here. However, first you have to figure out if your predictor variables are endogenous, before you can decide on the best regression method. That is what the Hausman test is (Chmelarova, 2007).

Hausman test examines the correlation between the independent variables and effects and has the following hypotheses:

H_0: Random effect model is the most appropriate to apply to the analysis.

H_1: Fixed effect model is the most appropriate to apply to the analysis.

If the probability value of the chi-square statistic is more than the significance level, Hausman test preferred random effect model at most (Greene, 2003).

Likelihood ratio measures for fixed model terms are introduced by using the residual maximum likelihood calculation to evaluate linear mixed models. Utilizing maximum likelihood estimation, a probability ratio checks for inclusion of a, in that model was based on a difference in the magnitude of a log-likelihood between fitting the complete fixed model, However, in order to prevent the down-ward bias of variance parameters estimated by the maximum likelihood (related to the number of fixe effects fitted), residual maximum likelihood estimates are often used where

variance parameter in the presences of fixed effects have to be estimated (Thompson, 1997).

3.2.3 Fixed Effect Regression

A fixed effect model is a statistical model of constant or non-random quantities of the variable parameters. This is opposed to theories of random effects and mix models, in which all or any of the parameters of the experiment are called random variables. The fixed effect regression is represented in:

$$Yit = \beta_0 + \beta_1 Xit + \beta_2 Zi + uit$$

Ordinary last square regression **(OLS)** is the method that used in this thesis, it is commonly named linear regression which estimate the relationship between dependent and independent variables by minimizing the sum of the squares in the differences between the observed and predicted variables value (Baier & Bergstrand, 2009).

Chapter 4

EMPIRICAL RESULTS

4.1 Unit Root Test Results

LLC, ADF, PP and IPS unit root tests are applied to examine integration orders of variables in this thesis. Table 4 summarizes results of unit root tests.

Table 4: Unit Root Test Results

Variables		Levels			
		LLC	ADF-Fisher	Fisher- PP	IPS
ROA	τ_T	-0.81	14.64	27.53	0.49
	τ_μ	-20.09 *	27.37	21.96	-0.57
	τ	-1.61	18.47	22.98	-
ROE	τ_T	-0.49	14.87	22.63	0.37
	τ_μ	-12.26*	19.50	15.07	0.20
	τ	-1.31	16.13	15.65	-
CAR	τ_T	-2.64*	32.75 *	36.52*	-2.35*
	τ_μ	-4.09*	19.63	27.76	-0.02
	τ	-1.30	13.97	20.25	-
AQ	τ_T	-3.88*	25.90	34.02*	-1.15
	τ_μ	-2.41*	16.74	17.55	0.34
	τ	-2.28*	25.45	28.52*	-
ME	τ_T	-9.822*	34.97 *	21.51	-2.21*
	τ_μ	-16.24*	19.61	8.46	0.12
	τ	-9.82	10.24	10. 80	-
L	τ_T	-2.66*	13.12	19.86	0.27
	τ_μ	-12.06*	26.01	10.46	-0.37
	τ	-2.08*	18.36	32.20*	-
LO	τ_T	-5.44	10.38	27.50*	0.27
	τ_μ	-2.09*	11.29	21.58	0.41
	τ	-1.26	17.08	29.51*	-

Note: ROE indicates return on equity; ROA is return on assets; ROE is return on equity; CAR is capital adequacy ratio; AQ is Assets quality ratio; ME is management efficiency; L is liquidity; LO is law and order. τ_T represents individual intercept; τ_μ is individual intercept and trend; τ is none test. Stared cells (*) are statistically significant.

Stata implements a variety of tests for unit roots or stationarity in panel datasets. The Levin–Lin–Chu, Im–Pesaran–Shin, Phillips- Perron test and Dickey-Fuller test, tests have as the null hypothesis that all the panels contain a unit root. The null hypothesis is generally defined as the presence of a unit root and the alternative hypothesis is either stationarity, trend stationarity or explosive root depending on the test used.

4.2 Hausman Test Results

The Hausman test applied to choose between fixed effects model or a random effects model. Table 5 and 6 summarized Hausmann test results.

Table 5: "ROA Model" Random Hausman Effect

Test summary	Chi sq. Statics	Prob.
Cross section random	45.768506	**0.000**

As can be seen from table 5 for ROA model, that random effect test null hypothesis is appropriate, can be rejected, which tells that the regression analysis accept fixed effect as the appropriate test for the thesis.

Table 6: "ROE model" Random Hausman Effect

Test summary	Chi sq. Statics	Prob.
Cross section random	27.587485	**0.000**

As can be seen from table 6 for ROE model, that random effect test null hypothesis is appropriate, can be rejected, which tells that the regression analysis accept fixed effect as the appropriate test for the thesis.

4.3 Correlation Matrix Analysis

Correlation matrix measure the linear association among the variables, it shows the relation between them and the direction whether it is positive or negative. Table 9 shows correlation matrix analysis results for Jordanian banks.

Table 7: Jordanian Banks Variables Correlation

	ROA	ROE	CAR	AQ	ME	L	LO
ROA	1						
ROE	.91	1					
CAR	.04	.31	1				
AQ	-.47	-.42	-.04	1			
ME	-.18	-.34	-.49	.41	1		
L	.08	.21	.44	-.6	-.35	1	
LO	.14	.26	.38	-.04	-.31	.98	1

4.4 Regression Analysis

Table 8: Regression Analysis Results for ROA

Roa	Coef.	Robust Std.Err.	T-statistic	[Prob.]
C	15.05	4.14	3.63	0.00
Car	0.05	0.14	0.36	0.71
Aq	-0.15	0.02	-5.36	0.00
Me	1.86	0.80	2.32	0.02
L2	-0.26	0.07	-3.80	0.00
Lo	0.10	0.05	1.88	0.06

Regression S.E: 2.85
Durbin Watson stat: 1.61
R-square: 0.38
Adjusted R-square: 0.33
Prob(F-statistic): 0.00

Table 9: Regression Analysis Results for ROE

Roe	Coef.	Robust Std.Err.	T-statistic	[Prob.]
C	1.07	0.53	1.99	0.05
Car	0.04	0.02	2.19	0.03
Aq4	-0.04	0.01	-2.48	0.01
Me	-0.15	0.09	-1.66	0.10
L5	-0.18	0.04	-4.62	0.00
Lo	0.19	0.04	0.04	0.00

Regression S.E: 0.40
Durbin Watson stat: 1.03
R-square: 0.39
Adjusted R-square: 0.34
Prob(F-statistic): 0.00

Regression analysis applied in this thesis to predict and forecast the relationship between dependent and independent variables. Table 11 and 12 below represent the regression analysis results for both ROA and ROE model respectively.

According to regression analysis applied previously, it showed that capital adequacy variable (CAR) was insignificant in ROA model which is similar to Munir & Bustamam (2017).

In (ROE) model, it was positively statistically significant by 0.046, which means that, if Jordanian banks capital adequacy increased by 1 percent, ROE will increase by 0.046 percent which helps the Jordanian banks to determine if it is possible to face their financial obligation or it is not. In addition, ratio of asset quality was statistically significant for both models, it was negative by -0.1539 in the first model and -0.0403 in the second model, which tells, if asset quality ratio increased 1 percent, (ROA) will decrease by 0.1539 percent, and if Assets quality increased by 1 percent, return on equity will decrease by 0.0403 percent, this result is similar to Muhmad & Hashim

(2015). That lead us to know that the Jordanian banks profitability increases when customers loans default is less.

For the quality of management, it was statistically insignificant for ROE model same as to Munir & Bustamam (2017). Which has no influence on banks profitability on this model, but it was positively significant by 0.0237 in ROA model which means for each unit increasing in management quality, Jordanian banks profitability represented by ROA will increase by 1.867 percent.

Liquidity ratio in both models, was statistically significant. It equals -0.2675 in the first model, and -0.1853 in the second model. which means, an increase by 1 percent in the liquidity , (ROA) will fall down by 0.2675 percent and if it is increased by 1 percent the (ROE) will be reduced by 0.1853 percent. They can know if it is possible to face short-term (current debt) using this ratio.

Finally, law and order variable which represent the government involvement on the banks was not significant in the first model, but it is significant in the second model by 0.196 positive which means if LOW and ORDER effect increase by one-percent, Jordanian banks profitability will increase by 0.196 percent as well.

Furthermore, both estimated models showed statistically significant through F-probability, R- squared showed 38% of variance in return on asset (ROA) can be explained by the variance of the independent variables, and based on R- squared of ROE model, 39% of the variance of return on equity (ROE) can be explained by the variations of independent variables.

Chapter 5

CONCLUSION AND RECOMMENDATION

In fact, the importance of banking sector was increasing day after day since emergence of banks to reach a place that the nations can't be able to survive without this sector and its services and its involvement in other sectors like economic, health and social sector. Banks has a participance on industrial, agriculture and other commercial institution that affect their production levels in general, that means economic growth for each nation is related with a well-developed banking system.

Regression analysis suggests that assets quality and liquidity variables have a negative impact on both models ROA and ROE, also suggests that, there is a positive impact from management efficiency on ROA model while law and order and capital adequacy have a positive impact on ROE model.

Regression analysis suggests also that capital adequacy and law and order have no impact on ROA model while ROE model is not affected by management efficiency variable.

According to this thesis findings about profitability of Jordanian banks, the recommendation is that Jordanian banks must monitor (PLL) which is provision loan loss. Because of the negative effect of bad dept on banks profit and on the efficiency of using assets, decrease loans write off as possible as they can to increase banks profit,

try to decrease dividends payment and increase in employee's productivity and decrease in non-interest expense to improve the efficiency, findings also showed that the effective government involvement on the banking sector effect the profitability of the banks positively, so they have to implement the government laws in effective way.

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