NEAR EAST UNIVERSITY

GRADUATE SCHOOL OF SOCIAL SCIENCES

BANKING AND ACCOUNTING PROGRAM

CAUSAL RELATIONSHIP BETWEEN BANK CAPITAL AND PROFITABILITY: EVIDENCE FROM COMMERCIAL BANKS IN JORDAN

MOHAMMAD ALRFAI

MASTER'S THESIS

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DEDICATION

This study is dedicated to my parents and my two brothers Yazan and Anas and friends who have offered me with essential support and encouragement to see me through towards the accomplishment of this study

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ABSTRACT

CAUSAL RELATIONSHIP BETWEEN BANK CAPITAL AND PROFITABILITY: EVIDENCE FROM COMMERCIAL BANKS IN JORDAN

The main emphasis of this study is to examine the causal effects of capital on the profitability of banks in Jordan. The study also looks at factors that determine the interaction between capital and profitability of banks in Jordan. The study is based on annual time series data collected from 13 Jordanian banks. Panel data analysis involving the use of pooled regression, random and fixed effects models was used to estimate the effects of capital on bank profitability. The results from the study showed that that there is no causality that exists between bank capital and profitability and that increases in capital levels are more likely to move in the same direction with bank profitability. The findings also showed that an increase in bank size results in anunfavourable operational condition that allows banks to make losses by servicing a huge market share. Conclusions were made from the study that severe changes in the banking and economic environments are the key factors that are influencing the interaction that exists between bank capital and bank profitability in Jordan's banking sector.

Keywords: **Bank, Bank Capital, Bank liquidity, Bank Profitability, Customer Deposits, Equity Ratio.**

ŐZ

BANKA SERMAYESI VE KÂRLILIK ARASINDAKI NEDENSEL ILIŞKI: ÜRDÜN 'DEKI TICARI BANKALARDAN KANIT

Bu çalışmanın ana vurgu Ürdün bankaların karlılığında sermayenin nedensel etkilerini incelemek için. Çalışma aynı zamanda Ürdün bankalarının sermaye ve karlılıkları arasındaki etkileşimi belirleyen faktörlere de bakıyor. Çalışma, 13 Jordanian bankalarından toplanan yıllık zaman serisi verilerine dayanmaktadır. Havuzlanmış regresyon kullanımını içeren panel veri analizi, rasgele ve sabit efektler modelleri sermaye banka karlılık üzerindeki etkilerini tahmin etmek için kullanıldı. Çalışmanın sonuçları, banka sermayesi ve karlılık arasında var olan hiçbir nedensellik olduğunu ve sermaye düzeylerinde artışların banka karlılığıyla aynı yönde hareket etme olasılığı olduğunu gösterdi. Bulgular, bankaların büyük bir pazar payını servis ederek kayıplar vermesine olanak sağlayan, banka boyutunda bir artışla sonuçlanabilir bir operasyonel durumda olduğunu da gösterdi. Çalışmada, bankacılıkta ve ekonomik ortamlarda ciddi değişikliklerin Ürdün bankacılık sektöründe banka sermayesi ve banka karlılığı arasında bulunan etkileşimi etkileyen önemli faktörler olduğu araştırmadan yapıldı.

Anahtar Kelimeler: Banka, Banka Sermayesi, Banka likiditesi, Banka Kârlılığı, müşteri mevduatları, Eşitlikoranı.

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BC: Bank Capital

BP: Bank Profitability

BS: Bank Share Capital

CBJ: Central Bank of Jordan

CD: Customer Deposits

ER: Equity Ratio

IMF: International Monetary Fund

INF: Inflation

LNS: Bank Liquidity

LNS: Loans

TA: Total Assets

TR: Asset Turnover Ratio

UNCTAD: The United Nations Conference on Trade and Development

INTRODUCTION

There are numerous economic misfortunes that have been taking place around the world and such economic events have not spared the banking sector from threats. One notable economic incidence that affected a lot of banks is the 2008 financial crisis which resulted in the closure of so many banks. Reports indicate that a total 465 banks failed in the United States of America soon after the 2008 financial crisis (Roberstson, 2008). Recommendations were made that the ability of banks to withstand economic shocks like this can be minimised by advocating that banks be heavily capitalised (Hutchison and Cox, 2007). This can be supported by ideas given by Lee and Hsieh (2013) which contends that well capitalised banks have a high tendency to survive during periods of economic hardships. On the other hand, a study by Deloof (2013) established that having enough capital is not only important for banks to survive during periods of economic and or business difficulties, but also allows banks to attain better performance levels. Moreover, there is growing concern about the causal relationship that exist between bank capital and profitability with studies seeking to establish how exactly capital influence a bank's performance level and whether there are conditions that can influence the interaction of these two variables (Seydnourani and Amiri, 2012).

Meanwhile, there are several ideas that have been established to explain the relationship that exist between bank capital and profitability. For instance, Mathuva (2009) highlighted that banks that are highly capitalised tend to portray a good picture to depositors that they are in a strong position to withstand shocks. As a result, consumer confidence towards such banks will be high and this will be shown by increased levels of services engagement with banks. Thus, a combination of increased customer confidence levels and service engagements levels will have a resultant positive effect on profitability. On the other hand, a study by Lazaridis and Tryfonidis (2006) offered suggestions which pointed out that bank capital allows banks to absorb losses that can threaten the survival of banks, and that increases in profitability are

as a result of indirect effects of surviving during periods of losses. This is because when banks are making losses, they are forced to raise additional capital to guard against insolvency (Lee and Hsieh, 2013). When such capital is high enough to absorb all the losses, extra capital resources can therefore be used to investment or fund other profitable income generating activities which may trigger a long run increase in bank profitability (Dellof, 2013).

In addition, the importance of bank capital towards profitability can be supported by ideas which showed that Central banks on the other hand, require that banks be well capitalised and that they must maintain a reserve requirement ratio (RRR) of more than 20% so that they will be able to meet a sudden rise in consumer withdrawals which may in the long run lead to bank runs (Hutchinson and Cox, 2007). Observations have been made that banks which can easily meet the RRR imposed by the Central Bank are considered to be more stable and efficient and this denotes an ability to easily make profits (Lee, 2013). This is also what bank depositors are also interested in, as it helps to promote their confidence towards such banks. In the long run it attracts both existing and new users towards that bank and banks will be able to generate more income from the increased user base (market share).

The relationship between capital and profitability is also determined by banking risks such as solvency, credit and interest rate risks. An increase in these risks requires that there be a cushion that safeguards banks from losses and this creates a platform for banks to raise interest rates which may also result in high interest income in the long run (Deloof, 2003; Sefnourani et al., 2012). Bank profitability will increase as interest income exceeds interest expenditure.

More so, by having more capital, banks will be in a strong position to invest in huge projects and buy profitable assets that have a high capacity to generate high returns in the future. This is based on the argument that banks with high capital resources are more liquid and have better liquidity and working capital management strategies that allow them to make the best use of their funds (Hutchison and Cox, 2007). This often results in better returns on assets

(ROA) and high paybacks on capitalisation efforts and can spearhead a bank into a profitable position.

Meanwhile, banks in Jordan have enjoyed huge success out of profitable market operations and reports by the Central Bank of Jordan indicates that more than 75% of banks in Jordan manage to post huge profitable returns between the year 2016 and 2017 (Central Ban of Jordan, 2017). The increase in bank profitability has been attributed to bank stability as all banks in Jordan are considered to be highly capitalised (Central Ban of Jordan, 2017). This implies that the relationship between capital and profitability in Jordan is showing positive signs for most banks. However, questions can be level against the idea that increases in capital will trigger an increase in profitability. This is because some banks in Jordan also went on to make losses within the year 2016 and 2017 (Central Ban of Jordan, 2017).

With also these ideas in mind, it can be noted that capital is not only important for bank stability purposes but also for profitability purposes as well. This study therefore seeks to examine further how the relationship between bank capital and profitability can be explained in relation to Jordan banks.

It is widely known that banks with high capital resources tend to have better profitable positions than those with low capital resources (Dong &Su, 2010; Gill et al., 2007; Raheman and Nasr, 2007). This is attributed to the idea that banks with high capital resources are usually big in size and hence can easily benefit from economies of scale (Lzaridis and Tryfonidis, 2006). Other ideas also show that banks with high capital ratios have no need to raise additional capital and this prevents them from incurring additional capital costs (Mathuva, 2009). Others have linked the relationship between capital and profitability to low risk, high banking efficiency and customer confidence towards the bank (Ahangar, 2011; Deloof, 2003; Hutchison & Cox, 2007). However, what has been witnessed in Jordan is that some banks have made losses despite having high capital resources (Central Ban of Jordan, 2017). Questions can be levelled on whether the relationship between capital and profitability is influenced by a lot of factors that do not relate to Jordan be it

they bank specific or not. This can be supported by ideas given by Seydnourani et al. (2012) which showed that having enough capital funds is not a guarantee that all banks will make profits. Ideas by Hutchison and Cox (2007) also showed that banks can also make losses while other are making profits in the same economic environment. A study by Deloof (2013) revealed that capital has direct and indirect effects on profitability and that the extent to which a bank will make profits depends on how well it takes deals with these indirect and direct effects. But arguments are still being levelled in support of why sound capital has made most banks in Jordan to make profitable gains as compared to other banks around the world (Lee & Hsieh, 2013; Mathuva, 2009; Velnampy AND Niresh, 2012). This places concern on the causal effects of capital on the profitability of banks in Jordan. It therefore remains to be explored as to the nature of exact bank specific factors that are influencing the relationship between capital and profitability in Jordan. Hence, this study seeks to examine the causal effects of capital on the profitability of banks in Jordan.

The main emphasis of this study is to examine the causal effects of capital on the profitability of banks in Jordan. The study also seeks to look at the following targets;

1. The examination of factors that determine the interaction between capital and profitability of banks in Jordan.
2. The determination of the best capitalisation strategies that can be used by banks in Jordan to maximise profits and guard against market shocks.

This study is motivated by the need to provide answers to the following questions;

1. What is the nature of the causal relationship between capital and profitability of banks in Jordan?
2. What are the underlying factors that determine the interaction between capital and profitability of banks in Jordan?
3. What are the best capitalisation strategies that can be used by banks in Jordan to maximise profits and guard against market shocks?

The study is important because bank stability and profitability are important for a well-functioning economy and thus by looking at how best banks can improve their capital and profitability measures, this will be contributing towards financial development and economic growth. This is because this will help banks to perform their financial intermediation roles effectively. In addition, this study will offer strategies on how best banks can raise and utilise their capital resources to guard against market shocks which will help to ensure their long run survival. It also offers a platform upon which better capital management and profitability strategies can be introduced. The study also important for academic purposes and allows other future studies to draw ideas from it.

This study will be structured into six chapters. The first chapter introduces the study while the second chapter will look at the theoretical and empirical ideas that surround the relationship between capital and profitability of banks. An analysis of the banking situation in Jordan will be done in the third chapter and a probable research methodology will be laid out in the fourth chapter. The fifth chapter will look at the analysis and presentation of the obtained findings while the last chapter will deal with conclusions and suggestions that can be made from the study.

1.CHAPTER: LITERATURE REVIEW

1.1 Introduction

The main emphasis of this chapter is to establish a sound base upon which justifiable arguments and conclusions can be made about the interaction between capital and profitability of banks in Jordan. This chapter also seeks to identify empirical gaps and possibly make empirical improvements for future studies. This chapter will thus look at Modigliani and Miller theory of capital structure and how it influences bank profitability. This chapter will also examine the importance of capital and factors that influence bank profitability.

1.2 Theoretical Support of the Relationship Between Bank Capital and Profitability

1.2.1 Theory of Capital Structure

The relationship between bank capital and profitability can be illustrated by using Modigliani and Miller's (1955) theory of capital structure. This theory was adopted because it shows that the objective of the firms is to minimise the cost of capital which has a huge negative effect on bank profitability (Gill, Biger, and Mathur, 2010). The theory also takes into account the need to maximise the value of the firm which most bank shareholders will be interested in (Dong and Su, 2010). This can be supported by ideas given by Deloof, (2003) which showed that shareholders have a tendency to inject more investment funds into banks that are earning more profits. Hence, banks will try by all means to maximise profits so that they can lure more investors

The theory asserts that capital structure includes all the resources that a firm considers to be capital resources (Modigliani, 1955). The key distinguishable feature is that it shows that capital is made up of three key elements and these are equity, common stock and preferred stock. This will help to explain why efforts to raise money capital by banks can negatively affect bank profitability. This is because of bank capital elements such as preferred stock results in interest obligations that must be paid by the bank (Ayaydin and

Karakya, 2014). Hence, when banks use debts to finance theircapitalisation requirements, the resultant effect will be a reduction in profits as interest expenses are forced to rise at each annual balance sheet period.

The theory also outlines that it is important to ensure that banks have optimum capital at their disposal. According to this theory, an optimum capital level is therefore considered to be a level where capital costs are low (Lazaridis and Tryfonidis, 2006). From this idea, it can, therefore, be noted that when banks do not have optimum capital whether sub-optimal or over-optimal capital, high costs will be incurred. Implies that imbalances in capital levels which are not optimum will have a tendency to squeeze out profits. This requires also that a balance is met between debt and equity and possible suggestions why banks will suffer a reduction in profits even though they have high capital levels is that their capital levels are highly dominated by debt as opposed to equity. Thus, banks capital levels will not be maximising the value of the banks.

1.2.2 Agent Cost Theory

The agent cost theory (ACT) presumes that owners of the business are sometimes are involved in conflicts of interests with managers of the firm (Kensington, 1995). With managers being tasked to run the business on behalf of the owners, the ACT considers that management will always act in a manner that will favour its interests at the expense of the shareholders. Thus, owners of the business are presumed to be mainly interested Inmaximisingthe value of the business while managers are considered to be interested in making huge profits (Kuo, 2003). The theory also considers that management can and will always engage in activities that owners of the business will consider as irrational or unethical. Hence, there is a need to monitor management and in doing so, banks will incur costs and this is what the agent theory asserts about when it contends that there are costs that are as a result of conflicting interests.

With these ideas in mind, the ACT has managed to create a platform upon which strategies could be devised by firms to handle matters pertaining to debtors, shareholders,and managers.

The ACT thus aims to determine the optimal capital structure level at which costs that are linked to conflicts can be minimised. The basic idea is that there are levels of the capital where costs of conflict will be high and also where costs of conflict will be falling and that firms should always aim for the optimum level of capital that exists.

This theory has implications for financial distress which is one common feature that affects banks. This is because it contends that during periods of financial distress the best possible source of funds that must be used is external funding but the challenge is that creditors will be asking for high-interest rates on loans especially when the loans involve a transfer of wealth (Asarkaya and Ozcan, 2007).

On the other hand, the rate of interest rates charged as well the principal debt is considered to reduce the agency problem between managers and shareholders. This is because creditors will be seeking to ensure that the money is paid to them and in the event that managers fail to pay, then creditors can push for a 'legal redress' (Çağlayan and Şak, 2010). Managers can, in turn, lose their jobs but with banks the situation is different. When banks fail to pay creditors and depositors at the same the former will have an effect called liquidity challenges while the latter will lead to bank runs. Both of these outcomes are undesirable and can force the bank out of existence. They are often associated with a huge loss in market share that ruins the image and reputation of the bank. Hence the ACT can be said to offer explanations of the potential causes of bank runs and liquidity challenges and possible collapse of banks.

1.2.3 Pecking Order Theory

This theory assumes that information within a business sector is always asymmetry and that efforts to obtained information are always costly (Myers and Majuf, 1984). This is true in a market where the level of competition is perfect and such can also be said to be a common feature on the banking sector because not all banks possess the same information at the same time.

Information within the banking sector can be accessed at different levels and in different magnitudes.

The idea that information is not always easily available implies that banks have to pay to obtain additional information (Binici and Köksal, 2012). This is because by having information which other banks do not have, banks can maintain a huge competitive advantage over other banks.

The pecking order theory (POT) also considers that firms have access to three forms of corporate finance and these are;

1. Equity which is provided by owners of the business probably when they buy new shares,
2. Debt which is the additional capital of funds that are borrowed by the bank from external sources.
3. Retained earnings are profits that are plowed back into the business.

In most cases, the POT presumes that the most easily accessible source of funds is retained earnings (Kleff and Weber, 2004). In other words, retained earnings are considered to be a primary source of funds as opposed to other sources of funds such as debt and equity. Apart from retained earnings. The POT favours debt over equity and hence it considers that the way firms finance their operations is in some form of hierarchy and thus it is often called the hierarchical financing theory.

When it comes to the idea of having to pay dividends, the POT presumes that firms, in fact, banks will use existing sources of funds. That is retained earnings to pay for dividends. This also extends to efforts to undertake new investments in assets and other projects since retained earnings represent easily accessible and cost effective source of funds (Kuo, 2003). In terms of the hierarchy, retained earnings or internal sources of funds are considered to be the main or highest source of funds that stay at the top of the pecking order.

Given the idea that retained earnings have been considered to be insufficient to cater for the required amount of investment, the pecking order considers that banks can now turn to equity funding (Çağlayan and Şak, 2010). The

major challenge that banks will encounter using equity to get additional funds is that shareholders of the bank will be risking diluting their ownership of the banks. This, in other words, represents some form of loss in control of the bank. This is exactly what existing shareholders are reluctant to see. Hence, they often consider turning to other sources of funds such as debt financing when retained earnings have proved to be insufficient to meet existing investments demands.

In terms of financial leverage, the POT can thus be said to presume that there is a positive relationship between financial leverage and debt finance. Which implies that the more debt the bank acquires, the greater the financial leverage it will possess. However, in terms of profitability, conclusions can be made that debt equity is negatively related to bank profitability. This can be explained by the idea that debt equity is expensive to secure and raise and interest charges and other service or transaction costs will be incurred in the process (Kleff and Weber, 2004).

The ACT can also offer insights about ways of dealing with the agent problem since managers are considered to be in a strong position to waste the organisation's resources or unprofitable investments but the situation forces them to make an effective and efficient use of the resources of the firm which leads to shareholder wealth maximization (Kuo, 2003).

1.3 Determinants of Bank Capital Levels

1.3.1 Market Discipline

Bank owners usually promote and enforce discipline by offering incentives to managers so that they continuously uphold good corporate practices that safeguarded the image and reputation of the bank. If not so, then bank owners are the ones who stand to lose. Hence, bank owners are there to ensure that the bank has enough capital to ensure market discipline (Hellmann et al, 2000). This is because ideas by Demsetz et al. (1996), hinted that well-disciplined banks have high capital levels which helps them to fund banking operations and give bank managers enough room to freely exercises the needed changes in bank activities and operations. But high capital levels

are tied to high risks the banks are facing and the increase in capital levels is seen as a cushion that safeguards banks from losses, bank runs and other forms of risks which can threaten their operations.

1.3.2 Agency Problems

Agency problems are a common feature in the banking sector and propositions were made that these problems can be dealt with by increasing banks' capital levels (Allen, Carletti and Marquez, 2011). In most cases, the problem of information asymmetries is tied to agency problems; Mehran and Thakor, 2011). As a result, banks with more capital can easily acquire and access information which they need and this helps them to deal with agency problems. Potential investors often look at the ability of the bank to engage in monitoring activities. On the other hand, it has been established that efforts to deal with agency problems can also be high especially when the level of capital banks are managing is so high (Holmstrom and Tirole, 1997). This is because what is at stake will be so high and bank owners will be desiring to ensure that their funds are not being misused and are being put to effective use.

1.3.3 Government Guarantees

Bank guarantees have an effect of causing a severe decline in bank capital levels. This is because the level optimum level of capital bank need is considered to be negatively related with bank guarantees (Flannery and Rangan, 2008). Most of the issued liabilities are not guaranteed by the government that they will be met in the event of default. But they are however considered to be some form of a cushion that guards banks against banking risks though various ideas are still considering them as restricting optimal bank capital ratios (NieandBaumann, 2006).

1.3.4 Information Costs

Information costs are a huge challenge to banks and this because relies on the availability of information to make sound decisions. However, the supply and access of information are surrounded by costs. Which means that it is not

every bank that can access the required information and those banks that desire to access such information must pay for it Myers and Majluf, 1984). Banks,on the other hand, can invest in efforts to ensure that they timely access to desired and accurate information and this too represents a cost which is usually met from capital sources that would have been raised or provided by the shareholders. Hence, banks will require more capital so as to ensure that they will have timely access to information and hence the relationship between bank capital and information costs is positive.

1.3.5 Business Plans

It is important to note that the amount of capital required by a bank is directly related to the bank's business plan (Goddard et al, 2004). This is because a business plan outlines activities or projects that the banks desire to undertake and how much the banks will require in order to undertake such activities. For instance, ideas established by Berger et al. (2008), showed that plans by a bank to acquire another bank or invest in another bank require banks to be having access to more capital funds especially after observing that the bank that is about to be acquired is capitalised and that by merging or acquisition, the bank will be adequately capitalised.

1.3.6 Government Regulation

Government regulation is meant to ensure that there is stability in the entire banking sector (Heid, 2007). But this is not always the case and it is important to note that bank regulation always comes with costs. For instance, banks can impose minimum capital requirements which require that banks hold more capital as reserves. But observations were made by Repullo and Suarez (2008), that this means that more capital is being tied into unprofitable activities which threaten the bank's profit earning capacity. Even though, central banks still insist that banks hold relatively high capital levels to absorb losses and deal with banking risks (Jokipi and Milne, 2011). From this observation, it can be noted that high capital levels imposed by the are there

to serve two important functions, that is, absorb losses and deal with banking risks.

1.3.7 Empirical Studies on the Determinants of Capital

Kensington (1995), used an OLS approach to examine the determinants of capital structure in Australian banks from 1967 to 1988. The study focused on the type of bank, bank regulation, bankruptcy costs and tax benefit as the major determinants of bank capital. The findings showed that bankruptcy costs are positively related with tax benefits and that type of bank and bank regulation have a significant influence on bank capital.

Kuo (2003) did a study that drew focus from the period 1989 to 1994 and examined factors influencing bank capital in Taiwan drawing from a sample size of 21 local banks and 15 private banks. The study outlined that factors influencing bank capital tend to differ in nature and magnitude of effect bet the type of banks that will be under study.

There is also a study by Asarkaya and Ozcan (2007) which used correlation coefficient techniques to examine factors influence banks capital positions in Turkey from the period 2002 to 2006. The results showed that capital adequacy is positively correlated with ROE, average capital level, GDP, portfolio risk and lagged capital. However, the adequacy ratio was established to be inversely related with share deposits.

Çağlayan and Şak (2010) also did a similar study that focused on Turkish banks and the period of study spanned from 1992 to 2007. The focused variables include book leverage, profitability, tangibility,and market size. The findings showed that profitability and tangibility are inversely related to leverage whereas size is positively related with leverage.

Binici and Köksal (2012) did a similar study that focused on Turkey spanning exactly from the same period but the difference being the introduction of the variables leverage, profitability,and size. The findings revealed that profitability and size are positively related to leverage. Implying that small banks will experience an inverse relationship between leverage and, profitability and size.

Kleff and Weber (2004) drew a focus on the period 1992 to 2001 and employed OLS estimation techniques to examine bank capital determinants in German. The employed variables were regulatory costs, buffer capital, portfolio risk and the study established that there is a positive relationship between regulatory costs and buffer capital and that bank capital is positively related to risk.

Table 1.1: Summary of main empirical studies on the determinants of bank capital

Author(s)	*Country*	*Variables*	*Expected results*
Kensington (1995),	Australia OLS (1967 - 1988)	type of bank, bank regulation, bankruptcy costs and a tax benefit	type of bank, bank regulation, bankruptcy costs and tax benefit are positively related with capital
Kuo (2003)	Taiwan OLS (1989 - 1994)	Generalised study	factors influencing bank capital tend to differ in nature and magnitude of effect bet the type of banks that will be under study
Kensington (1995)	Australia OLS (1967 - 1988)	type of bank, bank regulation, bankruptcy costs and tax benefit	bankruptcy costs are positively related with tax benefits and that type of bank and bank regulation have a significant influence on bank capital.
Çağlayan and Şak (2010)	Turkey OLS (1992 - 2007)	book leverage, profitability, tangibility and market size	profitability and tangibility are inversely related to leverage whereas size is positively related with leverage
Binici and Köksal (2012)	Turkey OLS (1992 - 2007)	leverage, profitability,and size	profitability and size are positively related to leverage. Implying that small banks will experience an inverse relationship between leverage and, profitability and size.
Kleff and Weber (2004)	German OLS (1992 - 2001)	Regulatory costs, buffer capital, portfolio risk	Positive relationship between regulatory costs and buffer capital and that bank capital is positively related to risk

1.4 Measures of Bank Profitability

There are three important measures of bank performance and these are Return on Equity (ROE) which provides an indication of how much owners of the business will get from investing their money into the bank, Return on Assets (ROA) which shows how much profits have been made from the use of the bank's assets, and Net interest margin which shows how income was generated from interest-earning assets against interest expenses (Barrios & Blanco, 2003).

Irrespective of the various measures of bank profitability is thus tied to the performance of these three indicators. Thus, high levels of ROE, ROA,and NIM indicate that the bank is performing quite well. These indicators are of interest to both the investors, managers of the bank and owners of the bank. Thus, banks with high levels of ROE, ROA,and NIM tend to be associated with capital investments both short term and long term.

1.5Determinants of Bank Performance

Bank earnings are as a result of three major components; bank specific, industry-specific and macroeconomic determinants, which are as follows;

1.5.1 Industry Specific Factors

This is specific factors that are mainly influenced or related to the industry to which the bank is operating. Industry-specific factors are also related to bank concentration and deductions can be made that the more concentrated the banking market is, the more profitable the market will be, the greater the level of competition which can squeeze out bank profits (Barrios and Blanco, 2003). This is along with observations that also been by made by Estrella (2004) which showed that low concentrated banking industries are associated with high market power that which cause monopolistic behaviour (Barrios & Blanco, 2003). In the event that monopolistic behaviour has resurfaced, banks must be prepared to share a larger part of the market share. Banks will be able to make profits on the condition that they are offering a well-differentiated product or service (Estrella, 2004). This is reinforced by the relative market power hypothesis which asserts that a bank's market power tends to decline

with each successive increase in nature and extent to which other banks are developing a new and well-differentiated product or service.

1.5.2 Macro-Economic Factors

Macroeconomic determinants are factors that the bank has no control over and they are as follows:

1.5.2.1 Credit Demand:

Firstly, it can be said that changes in the demand for credit by customers will have an effect of causing changes in bank profitability. This is because banks rely on loans made by banks to customers so that they can make profits out of them (Hutchison and Cox, 2007). If demand for a credit increase, following an improvement in economic performance which triggered a rise in disposable incomes, banks will be capable of issuing more credit and possibly make money out of the issued loans. This is,however, conditional on the basis that the issued loans will remain to perform and not non-performing (Staikouras and Wood, 2003).

1.5.2.3 Change in Interest Rates:

Secondly, change in interest rates can trigger an upward change in interest rates levied by banks on products and services. This simultaneously causes a rise in interest income as well as interest-earning assets which cause a rise in banks interest rate spreads. Hence, the relationship between bank profitability and the interest rate has been established to be unilateral (Demirguc-Kunt and Huizinga, 1999),

1.5.2.4 Inflation:

this is a major determinant of bank performance and its effects can threaten the operational capacity of banks to survive the market, earn more profits and survive. What,however, differs are ideas surrounding the effects of inflation on bank profitability. This is because studies have established that inflation can causeanegative effect on bank profitability (Demirguc-Kunt& Huizinga, 1999; Jiang et al., 2003). There are some studies which consider inflation and bank

performance to be negatively related to each other (Hoggarth et al., 1998; Guru et al., 2002).

The notable effect, however, lies in the idea that inflation can pose different effects on bank profitability on the basis of whether it is anticipated or not. This implies that anticipate inflation will not have serious or possibly negative effects on bank performance (Naceur, 2003). On the other hand, unanticipated inflation will have adverse effects on bank performance. This is because the level of preparedness by banks to deal with inflation would have been undermined.

The above ideas do concur with findings which have been made which showed that inflation has negative effects on other economic variables such as economic growth and bank performance in the long run (Staikouras and Wood, 2003). However, in the short run, the effects can be observed to be positive (Naceur (2003).

1.5.3 Management

Management is the heart of bank operations and the ability of banks to make more profits, deal with difficult operational activities and expand in the foreseeable future is determined by the effectiveness of their management. This implies that banks with effective management are more capable of earning huge profits as compared to other banks which lack the necessary skills. Thus, strategic human resources management and development is being employed so as to help banks achieve their operational targets and goals (Jiang et al., 2003).

Hence, conclusions can be made that the more qualified and skilled employee's banks possess to their advantage, the greater levels of efficiency and effectiveness they will achieve. This will translate in the ability of the banks to deal with problems and take advantage of market opportunities. Hence, management can be said to be positively related to bank profitability.

1.5.4 Size

Bank size is also another huge determinant of bank performance. This is because the ability of banks to make profits relies heavily on the level of assets that are available, at their disposal. Which further implies that the differences in bank size as denoted by total assets will have a significant bearing on the operational capacity of the banks. This is because small banks do not have the necessary level of required financial assets that can generate huge returns (Jiang et al., 2003). Moreso, the level of total assets also determines whether a bank will operate at optimum levels or not and this is because there is an assumption that there exists a certain level of size that can cause banks to start earning huge profits and that any level below that banks will not make many profits (Naceur, 2003). Bank size is also positively related with other banking activities such as deposits, loans market share etc. hence, a bank that has a high level of total assets is more likely to make more profits.

1.5.5 Capital

Athanasoglou et al. (2005), outlined that capital plays an important role in any bank and that it is always good for banks to have high capital levels. The reasons for having high capital levels vary but the most important reason is associated with risk (Hutchison and Cox, 2007)the other reason pertains to dealing with losses and contentions can be made that banks must have high capital levels somas to absorb losses. Berger (1995), on the other hand, considers capital to be a source of funds that are used by banks to further their investment goals either in assets or profitable projects. Hence, it can be said that high capital levels are positively related to the ability of a bank to absorb losses, deal with risks and invest more in assets or profitable projects.

1.5.6 Activity Mix

Bank profitability also relies on the extent to which the bank is able to enlarge its activity mix. Ideas established by Demirguc-Kunt and Huizinga (1998), related activity mix to high and increased income flows into the bank. In this

aspect, activity mix is seen as a form of diversification that allows banks to have multiple sources of income. Also, the failure of one activity does not reduce the ability of the bank to earn more profits since the other activities will be generating more income. Hence, it can be said and expected that the greater the level of activity mix, the more profits banks will make.

1.5.7 Credit Risk

As noted earlier on that banks often rely on issued loans to make profits, considerations can be made that the issuing of loans is surrounded by risks such as credit risk. Which means that there is always a risk that consumers will fail to pay back the borrowed funds and this can undermine bank profitability. Concerns can also be placed on interest risk in relation to borrowed funds and this means that the issued loans might also fail to generate the required levels of interest rates. This will place the bank in an adverse position which leads to reduced profit levels. Hence, it is in most cases expected that credit risk will lead to a reduction in bank performance.

1.5.8 Empirical literature on The Determinants of Bank Performance

Molyneix and Thornton (1992) placed emphasis on examining the main drivers of bank performance in Europe using a sample of 18 banks. Panel data estimations were employed on data covering the period 1986 to 1989 and the findings revealed that there exists a unilateral association between government ownership, concentration, interest rate, capital,and ROE. Implications were made that in order to make more profits banks must expand their operations and this entails that any potential increase in bank size is more likely to cause positive changes in bank performance. The same can be applied to bank capital and an increase in bank capital is thus more likely to spearhead the banks' profit earning capacity.

Goaddard et al. (2004) did a panel estimation of European banks to determine the impact of the determinants of bank performance from 1992 to 1998. The study showed that there is a unilateral association between bank size and profitability and that any potential increase in bank size whether by small or large banks is more likely to cause the bank to earn more profits. The study

also showed that off-balance sheet events tend to positively influence the performance of banks in the UK and negatively affects the performance of banks in other parts of Europe.

Naceur and Goaied (2001) looked at how bank performance varies in relation to changes in bank portfolio, market capitalisation and size of banks in Tunisia from 1980 to 1995 using cointegration techniques. The study showed that there is a long run cointegration between bank performance, bank portfolio, market capitalisation and bank size.

Beck et al. (2005) placed a different focus on the examination of changes in bank performance by looking at how privatisation affects bank profitability in Nigeria from 1990 to 2001 using panel data estimation approaches. The findings revealed that there is a significant difference in the effects of privatisation on banks and that old banks were relatively showing strong signs of miss performance that privatisation will help steer the banks into a profit-making position. The results also showed that new banks experienced insignificant changes in performance.

Al-Haschimi (2007) used panel estimation techniques to examine how NIM varies among 10 countries in Asia. The study used operating inefficiency and credit risk to explain variations in NIM and the results showed that much of the changes in NIM were attributed to operating inefficiency and credit risk. This possibly implies that any operating inefficiency will have a possible negative effect of curtailing bank performance. The same implies to risk as banks will engage in risk aversion techniques. This therefore possibly implies that operating inefficiency and credit risk are more likely to pose a negative effect on the performance of banks in Jordan.

Angabazo (1997) focused on banks in the USA and used an OLS approach to examine how NIM varies in respect of changes in risk, credit, management quality, reserves and capital from the year 1989 to 1993. The results revealed that there is a significant negative association between risk, reserves and NIM and a positive relationship between credit, management quality, reserves,and capital. Hence, expectations are that total loans made to customers and bank

capital of banks in Jordan are more likely to positively influence bank performance.

Table 1.2: Summary of main empirical studies on the determinants of bank performance

Author(s)	*Country*	*Variables*	*Expected results*
Molyneix and Thornton (1992)	Europe Panel (1986 - 1989)	government ownership, concentration, interest rate, capital and ROE	a unilateral association between government ownership, concentration, interest rate, capital,and ROE
Goaddard et al. (2004)	Europe Panel (1992 - 1998)	Off-balance sheet events, bank size,and profitability	increase in bank size is more likely to cause the bank to earn more profits and off-balance sheet events tend to positively influence the performance of banks in the UK
Naceur and Goaied (2001)	Tunisia cointegration techniques (1980 - 1995)	bank performance, bank portfolio, market capitalisation and bank size.	a long run cointegration between bank performance, bank portfolio, market capitalisation and bank size.
Beck et al. (2005)	Nigeria panel data estimation (1990 to 2001)	privatisation and bank performance.	old banks were relatively showing strong signs of mis-performance and new banks experienced insignificant changes in performance.
Al-Haschimi (2007)	Asia Panel regression	NIM, operating inefficiency and credit risk	much of the changes in NIM were attributed to operating inefficiency and credit risk
Angabazo (1997)	USA OLS approach (1989 - 1993)	risk, credit, management quality, reserves and capital	there is a significant negative association between risk, reserves and NIM and a positive relationship between credit, management quality, reserves,and capital.

1.6 The Importance of Capital in Banking Institutions

Bank capital is one of the key pillars of a sound and innovative banking system and efforts are always placed to ensure that banks are well capitalised. Central Banks usually favour the idea that banks maintain enough

capital resources to absorb losses that may be incurred by the bank. This is because if banks fail to cover such losses they might end up getting bankrupt or insolvent and this might also cause consumers to begin to panic and withdraw their deposits from banks (bank runs), (Dellof, 2003). Hence, by capitalising, banks will be guarding against losses and the possibility of the situation turning into a bank run.

Central Banks also place focus on capitalisationbecause of this is one of the most effective ways of ensuring that depositors funds are safe. The Central Bank will thus require banks to maintain a certain percentage of deposits received from customers as reserves (RRR). These reserves are meant to deal with potential risks that may threaten banks survival prospects (Lee and Hsieh, 2013). With prevailing incidences of the economic and financial crisis taking place and leaving deep 'financial wounds', banks are bound to fail. Robertson (2008) established that a total of 465 banks failed in the USA following incidences of the 2008 financial crisis. In this case, capital places banks on a point of stability where they can easily regain their efficient levels as losses are absorbed, consumers are given confidence that the bank is safe and sound and bank managers begin to engage in turnaround strategies.

Capital also plays an important role in banks as it allows banks to easily finance their existing operations by meeting their daily and annual banking needs (Mathuva, 2009). It is through capital that banks will procure new assets and possibly expand their market operations into existing markets and other untapped markets (Lazaridis and Tryfonidis, 2006). Without enough capital, it is impossible for banks to undertake big and profitable projects that can generate high future returns. This also limits the ability of banks to also invest in profitable assets and hence compromising future earnings. As a result, lack of capital can be said to limit banks revenue earning capacity and will eventually reduce revenue inflows in the future leading to potential losses.

Form either perspective one may desire to look at the importance of capital in the banking sector, it can be noted that capital helps to ensure bank stability. More so, it offers a platform upon which banks can cushion themselves against potential risks which may threaten their survival. Deductions can also

be made that capital is important to banks as it helps them to fund the acquisition of profitable assets, undertake expansionary projects and fund banking operations. Capital is also important as noted from recommendations made by Central banks to protect depositors and ensure a safe and sound, growing and innovative financial system.

1.7 Related literature Studies

Lee and Hsieh (2013) used a GMM to examine how bank capital affects profitability and risk from 1998 to 2008 drawing focus from 42 countries in Asia. The study established that the way capital influences profitability and risk in the banking sector varies according to the types and sizes of banks in that economy. Thus, the findings showed that capital has a strong significant effect on profitability on commercial banks as opposed to investment banks. The study also outlines that the effects of capital on risk are high and low on profitability in low-incomecountries and that the opposite is true for high-income countries.

Ayaydin and Karakaya (2014) placed effort in examining how bank capital affects the risk structure and profitability of banks in Turkey. The study outlines that a high capital structure is as a result of a high-risk banking environment. Hence, banks have to capitalise so as to cushion themselves against possible risks and avoid chances of suffering from bank runs. The study also outlines that positive changes in profitability are as a result of turnaround measures employed by banks which sees them earning high returns on risk assets and investments. Hence, expectations can be made in the context of banks in Jordan that capital is positively related to bank profitability.

Ahangar (2011) did a study that examines the implications of intellectual capital on financial performance in Iranian company. The findings are in support of the argument that there are a lot of factors that influence bank profitability and that having a high capital base does not warrant that a bank will make more profits. The study results thus suggest that it is important for banks to have highly skilled and qualified individuals who can deal with

challenges affecting banks and are able to propose new strategies that will turnaround the banks' fortunes. Hence, possible suggestions can be made that those banks in Jordan that are making losses despite having high capital bases do not have the right skilled and qualified employees.

Gill et al. (2010) also conducted a study that looked at how working capital management affects bank in the USA. The results showed that having a good ability to manage the available working capital is one of the key strategies that determine whether corporations such as banks will be able to make profits. This shows that banks in Jordan might be having a lot of capital funds which they are not properly managing well. This will not have a positive contribution to profitability as much funds will be tied in non-income generating activities (Lazaridis and Tryfonidis, 2006).

Bergerand Di Patti (2006) employed the agency theory to examine how capital structure affects performance. The study bases its arguments on the idea that management will always act in a manner that will result in the maximisation of performance and hence require huge capital resources to engage in activities that will result in the expansion of the firm.

Zafar et al. (2016) examined the effects of capital structure on bank profitability in Pakistan. The study applied OLS procedures on data collected from 25 commercial banks using 3 profitability models, that is, ROE, ROA,and NIM. The results from the study showed that all capital structure determinants are positively linked to upwards changes in bank profitability.

Hutchison and Cox (2007) examined the causal implications of bank capital and profitability. The study examines how profit levels vary at every lagged period following changes in capital. The findings showed that capital has a positive effect on all the three basic bank profitability indicators. Hence, expectations are that bank capital will positively influence NIM, ROE,and ROA of Jordan's private banks.

Mathuva (2009) undertook a study to look at how capital adequacy and cost income ratio affect the performance of commercial banks in Kenya. The study argues that it is important to ensure that banks have adequate capital at their disposal. Given reasons showed that having an adequate capital is essential

to guard against banking challenges which might threaten the survival of banks. Hence, the findings established that bank capital and profitability are positively related. This places support on expectations that a positive association will be observed about the relationship between capital and profitability of banks in Jordan.

Seydnourani et al. (2012) used return on equity to explore the causal association between bank capital and profitability. The findings from the study reaffirm that there is a positive association between capital and profitability in the banking sector. Arguments in support of the findings showed that a high capital base allows banks to engage in high income generating projects which result in high streams of profits in the long run. This, therefore, sets a condition that capital and bank profitability will be positively related to the condition that much of the capital is spent towards high income generating projects.

(Velnampy and Niresh) (2012) conducted a study that looks at how capital structure and profitability are related in Sri Lanka's banking sector from the year 2000 to 2009. The findings showed that capital structure and profitability are inversely related and that efforts to boost a bank's capital structure will reduce a bank's profitability. This possibly suggests that having a high capital is costly and such costs tend to weigh down profit levels as interest, transaction and other information costs are incurred in the process. The results, however,emphasised that a high capital structure is important to maintain bank stability. This can help to explain why some banks in Jordan have been making losses while others are making profits despite having high capital structures.

Meanwhile, there have been different perspective surrounding the relationship that exists between capital and profitability. This is because there are ideas which suggest that this relationship is governed by a lot of factors which include among others risk (Lee and Hsieh, 2013). Such denotes that risk influences the level of bank profitability that is attainable but the extent to which this is possible varies on the ability of the banks to deal with the risk.

For instance, banks that are well placed to handle risks either as a result of proper risk management practices or strategies and tools are better positioned to make more profits. This is because the risk, in this case, will be anticipated and measures would have been adopted to guard and cushion the bank against such risks (Agusman et al., 2008). In addition, these banks will not only be viewing risks as a challenge but as an opportunity to which they will maximise their returns (Lee and Hsieh, 2013a).

The other aspect relates to differences in approach towards risk. Some banks may be risk-averse while others may be risk tolerate. This means that banks which are risk averse will not usually engage in highly risky activities and operations and this tends to cut down on possible interest rates they would have leveled on the risky activities (Iannotta et al., 2007). Some banks can take advantage of risky situations and charge high-interest rates to commensurate for the high-risk exposure they will be exposed to. This is because there is a positive relationship that exists between risk and returns.

Risk has also been linked to moral hazard and Iannotta et al. (2007) outlined that differences in the impact of risk on bank profitability as a result of differences in moral hazard. The idea is that small banks are more willing to exploit all the risky situations so as to make more profits (Lee and Hsieh, 2013). Notable examples include what are called deposit insurance schemes which have been hugely taken advantage of by smaller banks (Aggarwal and Jacques, 1998).

There are also suggestions that have been made which showed that the relationship between bank capital and profitability is governed by capital levels (Agusman et al., 2008). This implies that though capital is meant to absorb losses, there are some banks which can use that capital to increase their investment levels in profitable assets and projects and thereby earning high returns. But the problem is that this idea is debatable since there are ideas which suggest that most of the capital that is available in banks in to cater for risky situations (Iannotta et al., 2007). This is because such capital levels are not being put to productive uses but are just representing money that is tied

up and not earning profits. In this case, the argument of saying capital levels can trigger positive changes in profitability can be dismissed.

From the above analysis, it can, therefore, be seen that there are conditions which influence the relationship between capital and profitability of banks. Such conditions are not only restricted to monetary values but also extends to include non-monetary factors such as skills. Moreover, it can also be seen that having high capital funds is not a guarantee that banks will make profits.

Table 1.3: Summary of main empirical studies

Author(s)	*Country*	*Variables*	*Expected results*
Guru et al. (2002)	Malaysia OLS (1990-2000)	NIM, asset quality, liquidity, capital, total assets, asset turnover, non-performing loans	Net interest margin is positively related with, efficiency (asset quality), capital, total assets, asset turnover and liquidity but negatively related with non-performing loans
Hutchison and Cox (2007)	USA OLS model (2001-2005)	ROA, ROE and EPS and bank capital, total assets, economic growth.	Positive relationship between profitability ROA, ROE and EPS and, bank capital, total assets, economic growth, asset turnover, and deposits.
Awunyo and Badu (2012)	Ghana Panel GLS (2001-2012)	Effect of capital structure on bank performance.	Performance and capital structure are inversely related.
Osborne et al. (2009)	USA OLS (2001-2008)	Capital, bank profitability,	Capital and profitability are positively related but the relationship varies from one bank to another.The relationship is negative after a crisis and for most banks. used OLS model
Berger and Patti (2006)	USA 2SLS (1990-2004)	Shareholder capital structure, total assets, asset quality, loans, deposits and bank performance	Positive association between performance and total assets, asset quality, loans, deposits and capital structure. use
Awunyo and Badu 2012	Ghana	causal implications of bank capital and profitability	There is a causality between bank capital and profitability which runs from capital to profitability

Author(s)	*Country*	*Variables*	*Expected results*
Lee and Hsieh (2013)	Asian Countries OLS (1994 to 2008)	bank capital, ROA, ROE, total assets, loans and liquid asset	A positive relationship between total asset, liquid asset, capital,and profitability but negative relationship with risk and loans
Ayaydin and Karakaya (2014)	Turkey Panel OLS (2000-2012)	Capital, liquid asset, ROA, ROE, asset quality, loans, GDP.	Positive relationship between capital and profitability but negative relationship with risk
Ahangar (2011)	Iran Panel OLS (2000-2010)	intellectual capital, ROA, GDP, deposits, assets	Positiverelationship between intellectual, GDP, deposits, size capital and financial performance
Bergerand Di Patti (2006)	USA Panel OLS	capital structure, ROA, bank asset, non-performing loans, deposits, equity	positive relationship between capital, equity ratio, customer deposits and bank performance
Zafar et al. (2006)	Pakistan (2000-2004)	Capital, ROA, NIM, asset turnover	Positiverelationship between capital, loans, size, asset turnover and profitability
Gill et al. (2010)	USA OLS (2000-2009)	bank capital, ROA, ROE, NIM profitability, loans and deposits	There is a causality between bank capital and profitability which runs from capital to profitability
Velnampy and Niresh (2012)	Sri Lanka's (2000-2009)	Bank capital, ROA, asset quality, turnover, loans	high capital structure is important to maintain bank stability

2.CHAPTER: BANK CAPITAL AND PROFITABILITY IN JORDAN

2.1 Introduction

This chapter seeks to offer an outline of Jordan's banking sector as well as factors that are affecting the development and growth of the sector. This chapter also looks at the major issues and challenges that are affecting the Jordanian banking sector and how such challenges will influence the casual relationship that exists between capital and profitability.

2.2 Profile of the Banking Sector in Jordan

2.2.1 Size and Shape of the Sector

Jordan's banking sector is one of the sectors of the economy that stands as s huge pillar of success and has in the past managed to contribute a share of 11.6% towards boosting economic performance (CBJ, 2014). On the other hand, the Central bank of Jordan asserts that Jordan's banking sector is not only a contributor to GDP but plays an important role towards employing the increasing Jordan population. But what makes it a key pillar, is that it is well capitalised and stands out to be one of the most capitalisedsectors of the economy that is listed on the Amman Stock Exchange.

There has also been a notable change in the number of licensed banks growing in size as noted by a positive change in total assets to JOD 60.5 billion from JOD 14.15 billion between the period 2013 to 2015 and this equates to a 328% (CBJ, 2014). Such a growth rate can be explained using ideas established by Demirgüç-Kunt and Peria (2010), which contends that a high rise in total assets is usually surrounded by significant improvements and increases in conservative banking policies. Such has also been at the backdrop of the ravaging 2009 financial crisis.

One notable feature that can be observed to be characterising Jordan's banking sector is that it is composed of a lot of firms that offer numerous retail service, investment, products and services that are up to international standards. The Central Bank of Jordan (CBJ), currently stands as the main supervising and regulating agent of the Jordanian banking sector. As a result, the CBJ is responsible for establishing banking practices and regulations on which Jordanian banks can operate competitively and conductively. The CBJ has been establishing good macro-prudential indicators which have been proving to be handy especially after the 2009 financial crisis had threatened the stability of Jordan's banking sector.

The financial crisis which became widely known as the 'Arab Spring' was a regional phenomenon which caused most of the banks to go out operations while were placed under curatorship. But because of the role that was played by the CBJ, Jordan's banking sector managed to withstand a lot of shocks, challenges,and problems posed by the 'Arab Spring'. The CBJ greatly emphasised Jordanian banks to restructure their operations in line with international standards especially those listed under Basel III regarding capital adequacy and liquidity (Al-Fayoumi and Abuzayed, 2009). Ever since there has been a continued growth in the number of local and international banks launching operations in Jordan. Such developments went on to be experienced by the Amman Stock Exchange which also saw a lot of financial development and innovativeness activities being introduced to spearhead its operational capacity to a financially developed level that greatly mirrors international standards (CBJ, 2010).

When it comes to the idea of profitability, Jordan's banking sector can be said to be profitable for banks to venture into. This is because equity holders have been getting ROE which has been averaging 14%. Jordanian banks have been showing strong signs of resilience even after the credit crunch and there have been significant improvements in credit conditions (IMF, 2016). Changes began to take effect as banking activities began to shift to other areas from Amman where most of the banking activities have been highly concentrated on. Most of the cities around Jordan are not well banked and it a huge toil of banking activities are highly concentrated in the capital city Amman.

Even though the Jordanian banking sector has so far proven rather resilient to global and regional economic and political events, the risk of a further deterioration of the credit quality and therefore profitability nevertheless persists. The rapid credit growth observed in recent years could affect underlying asset quality and with it the financial strength of commercial banks. However, banks seem to display potential for expanding their operations by providing increased access to credit to Small and Medium Enterprises (SMEs). Only about 10% of total loans are extended to SMEs in Jordan, but banks are now starting to recognize this segment of the economy as potentially profitable (Saleh and Zeitun, 2006).

2.3Sector Structure and Categories of Sector Enterprises

When it comes to the structure of the Jordanian banking sector, observations were made in 2017 by the CBJ that licensed Kingdom banks are increasing their dominance of the sector with more than 739 branches and being more than 30 in numbers (CBJ, 2017). Of these 30 banks, 15 are currently licensed banks and listed on the Amman Stock Exchange. There is also a total of more than 15 commercial banks, 3 Islamic banks and 9 foreign-owned.

Bank concentration is on a high note and is dominated by 3 banks (Jordan Islamic Bank, theHousing Bank for Trade and Finance and Arab Bank) that control 50% of the banking sector assets (CBJ, 2014). The level of banking stability that has been attained has been due to the strong ability of the CBJ to come up with sound monetary and fiscal policies which resulted in a conducive macroeconomic environment upon which banks could thrive to operate effectively without facing huge limitations. As a result, there has been a high increase in ownership ratio of foreign players into the Jordanian banking sector.

UNCTAD (2015), reports that foreign investment ownership levels rose dramatically to 46.7% in 2010 from the 2003 figure of 38.6%. the banking requirements are not strict and hence new players are always welcome to venture into the Jordanian banking sector. However, the sector has been

restrictive in allowing a high increase in the number of small banks that are natively owned and have limited capital funding.

Furthermore, the effective role of the CBJ to regulate and control banking activities in Jordan still remains high, efforts are to ensure that banks continue to operate in an ethical manner that is of international standards and contributes to an effective functioning and growth of the Jordanian economy(CBJ, 2015). Among the regulations imposed are regulations on deposit insurance, payments made using debit or credit cards, liquidity management, internal controls, risk-based provisioning, capital adequacy, internal loans, commercial papers government securities transactions, and foreign currency positions. Figure 3.1, shows the structure of Jordan's banking sector.

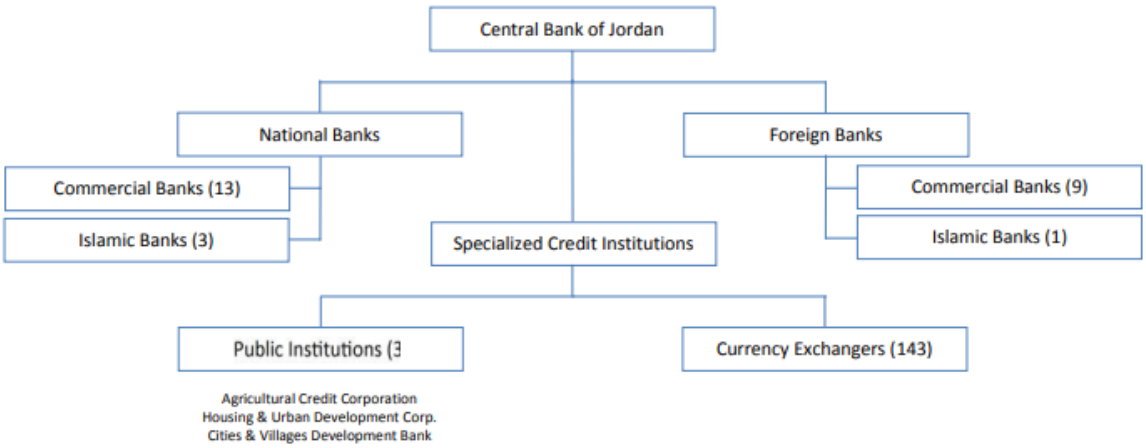

Figure 2.1: The structure of Jordan's banking sector

2.4 Factors Impacting on Development of the Sector (PESTEL)

2.4.1 Key Political Factors:

Politics is another instrumental factor that affects banks around the world. This is because politicians can interfere with banking activities especially in the use and allocation of funds which might be allocated on the basis of political and family patronage. Observations made by the CBJ (2014), showed that banks in Jordan were more prone to risks posed by political instabilities.

2.4.2 Key Economic Factors:

In overall, the Jordanian economy has been experiencing a series of challenges which include a high rising inflation level which was eroding disposable incomes and an increase in public debt which rose from 80% in 2012 to 86% in 2013 (CBJ, 2014). Using insights provided by Zaher and Kabir (2001), the economic environment in Jordan can be said to have been facing challenges though banks have been remaining resilient to immune to economic challenges.

2.4.3 Key Socio-Cultural Factors:

Major social changes and development that have been observed in Jordan are mainly in the form of social developments. With a high number of Jordan population increasingly becoming well educated and well versed in the usage of electronic devices. Their consumption patterns and culture have remained unchanged but are increasingly starting to shift as a result of increased globalisation activities. Also, Al-Fayoumi and Abuzayed (2009), managed to establish that there is a high rise in demand for Islamic Banking services in most Arabic nations such as Jordan as a result of the increased or spreading levels of Islam.

2.4.4 Key Technological Factors:

There has been a significant increase in the level of technological developments that have been observed around the world and such developments have also been observed in Jordan. The first idea behind such technological developments is being attributed to the need by banks to enhance efficiency and effectiveness in operations as well as in the distribution of products and services. Such developments include the use of credit and cards, telebanking, net banking, mobile banking etc.

Mansoor and Ishaq (2008) asserted that there has been an increase in the number of Islamic banks that are offering electronic banking services and much of these services are mainly concentrated in the retail sector. The challenge is that banking services in Jordan were mainly being used to transfer money, update bank statements and enquire balances.

Technological developments have been a source of bank innovativeness as banks could now afford to use innovative devices and systems to venture into new markets and increase their level of exploitation of existing market potential. Technological innovations also made it possible for banks to engage in international diversification and banks could now easily tap into foreign markets easily and at relatively low costs.

Despite the notable benefits of technological innovations, such changes have not always been to the advantage of banks. This follows the relativeamount of risks that are associated with the use of such technological developments. Foremost, there have been a lot of security concerns especially with the use of internet banking and consumers have been dissuading from using high-risk internet services as a result of a high number of cases of internet fraud (Iannotta et al., 2007).

Secondly, the use of such technological apparatus requires a lot of money to buy, install and maintain. This can present a huge burden for banks as they may also be trying to cut down on their operational costs so as to remain competitive (Saleh and Zeitun, 2006). Bank employees,on the other hand, need to be trained so that they will be in a position to use and monitor the system.

2.4.5 Key Legal or Legislative Factors:

Much of the banking regulation and supervision activities of banks in Jordan are done by the CBJ which is responsible for establishing sound operational laws for banks to operate in. the CBJ can be well applauded for positive developments that have been observed in Jordan's banking sector. This is part of efforts by the CBJ to ensure that banking activities in Jordan are in line with international standards and guidelines. In addition, the CBJ has been established to be one of the notable economic and banking sector regulator in the Middle East region which has managed to promote a lot of consolidation practices within the Jordanian banking sector (CBJ, 2015).

2.5.6 Key Customer Trends in the Banking Sector:

There are a lot of developmental trends that are being observable in consumer behaviour. This follows observations which have been made which showed that consumers in Jordan are now becoming less 'passive' consumers (UNCTAD, 2015).

Changes in consumers trends and behaviour are being attributed by the level at which information is spreading across the world. Such is being attributed to a lot of telecommunications and electronic developments that are associated with a high usage of internet and media devices. As a result, consumers are increasingly becoming well informed of market developments and trends. This includes awareness of products and services being offered by banks as well as technological innovations being introduced in the banking sector.

With such observations being made, it is therefore imperative that banks develop products and introduce services that are tailored made to meet consumers' expectations. But the problem is that the ability to produce products and offer services that are that are tailored made to meet consumers' expectations requires huge sources of funds which might not be available for banks or can prove to be costly (Capgemini, 2012)This does also

put banks in a difficult position because failure to respond to these changes can actually prove to be dangerous things as they can lose a huge market share to those banks that have the necessary resources to undertake and execute the necessary changes in product and service composition and functionality.

Moreso, there has been an increase in the usage of internet related services and observations made by UNCTAD (2015), showed that there has been a significant growth in the demand for internet related services with more consumers preferring banks that offer a wide range of internet banking services. This has adverse implications on the profitability and market share of other banks. This can be supported by an observation that was made in 2012 by Capgemini (2012), which showed that more 40% of banks were reluctant to switch back to their former banks after having to use another bank.

Today banking service consumers in Jordan, in all segments, whether individual 'retail' or corporate customers, have become more informed and have higher expectations. They are becoming less and less 'passive' consumers. Worldwide consumer communication is getting more and more personal in the banking industry (UNCTAD, 2015). Banks worldwide are trying to make consumers more of business partners and are developing service packages that are tailored to customers' specific needs and trying to build a long-term relationship with consumers.

Insights are given by Demirgüç-Kunt and Martinez (2010), also showed that the complexity of the retail banking experience today brings a new level of difficulty in understanding the drivers of customer loyalty. The array of options available to customers for accessing the bank has expanded enormously from the possibilities of only a few years ago. In addition, customer preferences on banking channels may shift based on any one of a number of factors, such as location, the amount of time they have, or the type of product they are seeking.

The CBJ also contends that quality of overall service is the primary factor that drives customers to leave their bank. However, banks need to work on understanding customers and their needs, as well as building trust. Perceptions of positive experience and customer knowledge are strongly correlated (CBJ, 2014).

Increased demand for internet and mobile banking services. A market research conducted by Capgemini (2012), shows that globally, nearly 10% of customers say they are likely to switch banks in the next six months, while more than 40% are not sure if they will stay with their bank in the next six months. In Jordan, the case is no different, as the consumer switching costs are minimal.

2.5Main Issues and Challenges of the Banking Sector in Jordan

A sound understanding of the main issues that are hampering Jordan's banking sector can be illustrated using table 2.1.

Table 2.1: Challenges and Issues affecting Jordan's Banking Sector

Issues	Implications for the Sector
1. Severe market and economic restrictions.	The economic growth pattern of Jordan has relatively been on slowdown path coupled by high inflation rate (CBJ, 2014). Such has been affecting the quality of credit portfolio and banks' asset quality
2. Growing public debt being serviced by domestic banks and reserve drawdown.	High government borrowing patterns have been causing a surge in public debt which is being serviced by the domestic market. Hence, banks have been suffering from increased public debt as their reserves and liquidity levels were being adversely affected.
3. Insufficient SME support, credit and banking facilities (UNCTAD, 2005)	Must of the credit facilities are offered to large firms as opposed to SMEs which restricts the ability of banks to service SME and retail divisions (Al-Fayoumi and Abuzayed, 2009).
4. Highly banked and overconcentratedbanking market with severe levels of competition	Inability to offer incentives to encourage long bank sustainability is affecting banks' effort to engage in research and development activities (Mansoor and Ishaq, 2008). This is also reducing incentives for banks to engage in mergers and acquisitions
5. Poor liquidity management	Reduces the level of assets that can be offered by banks ascollateral security when desiring to access funds from the interbank market (Naser, Jamal,andAl-Khatib, 1999). Bans are also failing to expand their instruments levels.
6. Increased and ever customer demands, and emerging customer segments (UNCTAD, 2015).	This is associated with a high level of customer retention costs as well ascustomer acquisition costs which has a negative effect on banks' market share (Al-Fayoumi and Abuzayed, 2009).

Issues	Implications for the Sector
7. Underdeveloped information exchange	Reduces the availability and exchange of credit information and this happens as the level of credit risk continues to rise
8. High operational costs and government regulation	The level of costs incurred by banks especially as a result of government regulation is increasingly getting high and causing operational insufficiencies (Al-Fayoumi and Abuzayed, 2009).
9. Volatility in customer channel preferences	Most bank customers are increasingly changing their preferences towards ebanking channels which is imposing a lot of pressure on banks to adopt new technologies
10. Increase in competition caused by non-bank firms	A lot oftelecom firms) are gradually offering services that are offered by banking and venturing into banking markets and area. Thus, Increasing competitive pressures on banks (Mansoor and Ishaq, 2008)
11. Insufficient hedging tools	It is causing banks to disregard country risk and this is affecting the value of their portfolios (Naser, Jamal and Al-Khatib, 1999).

3.CHAPTER: PROPOSED RESEARCH METHODOLOGY

3.1 Research Design

The study will use a quantitative approach to examine the causal effects of capital on the profitability of banks in Jordan. This will be made possible by using secondary data collected from the Amman Stock Exchange. The study will also use econometric techniques to analyse the collected findings as well as test the model for misspecifications.

3.2 Research Model

The study will use a standard regression analysis model, that is, an ordinary least squares regression approach (OLS) to determine the magnitude of effect as well as the significance of the relationship between the variables (Greene, 2003). Using the idea that the study seeks to examine how capital and profitability are related, we can thus functionally state that bank profitability (BP) is a function of bank capital (BC) and this can be written as follows;

$$BP = F(BC) \quad (1).$$

The available literature showed that changes in bank performance are influenced by both bank-specific and economic factors which include banks size (BS), equity ratio (ER), customer deposits (CD), loans (LNS) and asset turnover ratio (TR). Adding these to expression (1) results in the following expression;

$$BP = F(BC, ER, CD, LNS, TR) \quad (2).$$

Literature also shows that BP can be measured in three basic ways and these include the use of NIM, ROE,and ROA. However, BP will be substituted by ROA as a profitability indicator resulting in the formulation of one BP model. Expression (2), can be changed into a regression model by introducing a constant $\boldsymbol{\alpha}$, parameters $\boldsymbol{\beta_1}$-$\boldsymbol{\beta_5}$ and an error term $\boldsymbol{e_i}$which gives expression 3, 4 and 5. However, the data will be converted to logarithms for scaling and homoscedasticity purposes (Zarembka, 1990). The estimation process will

thus include a pooled regression model, random effect model,and a variable effect model.

$$\mathbf{LROA} = \boldsymbol{\alpha} + \boldsymbol{\beta_1}LBC + \boldsymbol{\beta_2}LER + \boldsymbol{\beta_3}LCD + \boldsymbol{\beta_4}LLNS + \boldsymbol{\beta_5}TR + \mathbf{e_i} \quad (3).$$

3.2.1 Fixed Effect Regression Model

This is a regression model which assumes that the parameters have an element of non-randomness (Magrati, 2003). Fixed effects models are different from pooled effect model in the sense that pooled regression assumes that all the elements of the cross-section are the same. The main feature of fixed effects models is that all the means are fixed as well. The estimation process revolves around efforts to determine what is termed the within estimator or the fixed effect estimator which models the fixed effects (Gujarat, 2003).

Fixed effects are important because they help to deal with heterogeneity problems which may be inherent in the data. Thus, such heterogeneity can be identified and address by isolating invariant elements and removed by differencing the variables.

3.2.2 Stationarity Tests

The term stationarity is usually associated with the idea of unit roots. The basic idea is that any statistical distribution in a data set does not rely on time This implies that both the mean and the variance do not change irrespective of the changes in time that are taking place. Stationarity tests are done at levels, first-difference and second level and effort are often placed to determine if the variables are stationary at first differences. This is the basic requirement which contends that variables should be I(I) and not I(II). In the event that the variables are non-stationary, then chances are very high the obtained results will be spurious.

There are however differences in treatment of stationarity that occurs with each model estimation model. For instance, classical regression models require that the variables be stationary at levels I(O) whereas error correction

models such as VECM require that the variables be I (I) while the ARDL works with either I(O), I(I), I(II) or a mixture of both features.

The basic tests that are used to test for stationarity are the Augmented Dickey Fuller (ADF) test and the Phillips Perron (PP) test. Both stationarity tests are done in three basic steps and these are;

- No constant, no trend: $\Delta y_t = \gamma y_{t-1} + \sum_{s=1}^{m} \partial s \Delta y_{t-s} + vt$
- Constant, no trend: $\Delta y_t = \alpha + \gamma y_{t-1} + \sum_{s=1}^{m} \partial s \Delta y_{t-s} + vt$
- Constant and trend: $\Delta y_t = \alpha + \gamma y_{t-1} + \lambda_t + \sum_{s=1}^{m} \partial s \Delta y_{t-s} + vt$

Preference is often given to the PP over the ADF because the PP caters for autocorrelation concerns. Hence, the obtained stationarity and estimation results are often considered to be from autocorrelation(Phillips andPerron, 1988).

In this study, panel stationarity tests were conducted using the Levin, Lin and Chu t*, Im, Pesaran and Shin W-test, ADF Chi-square and PP Chi-square tests. The decision is to accept that the null hypothesis that the data has a unit root when the obtained p-value is greater than 0.05.

3.2.3 Granger Causality Tests

Granger causality test aims to determine if two variables granger cause each other (Granger, 1988). For instance, it can be established that Y granger causes X when previous values of Y help to determine to predict future values of X, that is, X_{t+1} using Y_{t+1}. Thus, causality can be said to exist when two basic conditions have been fulfilled and these are;

- Y_{t+1} possess information that can utilised in forecasting X_{t+1}.
- Y_t occurs before X_{t+1}.

Granger causality can either be one-way causality or two-way causality. One-way causality occurs when only one variables granger causes the other and the other does not granger cause the other. For instance, a one-way causality that runs from Y to X exists when $Y_t$is said to grangercause X_{t+1} and $X_t$do not

granger cause Y_{T+1}. Two-way causality exists when bot variables granger causes each other.

3.3 Definition of Variables

3.3.1 Dependent Variables

3.3.1.1 Bank Profitability (BP)

In this study, the term bank profitability will be taken for profits made by the bank over the course of a business period. There are various methods or indicators that are used to determine bank profitability and these include the use of ROA, ROE,and NIM. The higher the ratios, the more profitable the bank is assumed to be. In this study, bank profitability will be determined using ROA as a proxy of BP.

3.3.2 Independent Variables

3.3.2.1 Bank Capital (BC)

This refers to the amount of capital that a bank has in its possession (Dong and Su, 2010). However, bank capital is in various forms and thecommonly referred capital is the one banks holds as a provision against unforeseeable circumstances such as losses and risks (Ayaydin and Karakaya, 2014). In this case, banks are required by the central banks to hold capital reserves that are in line with the given reserve requirement ratio which has been in most cases pegged at 20%. Which implied that for every deposit that banks receive, 20% must be held as reserves. In this study, the ratio of shareholder equity to total assets denoted by BC was used as an estimator of bank capital banks shareholder capital plays an important role to determine how much capital will continue to be injected into the bank as well as the reputation of the bank. It is often considered that an increase in bank capital will result in an increase in bank profitability (Lazaridis and Tryfonidis, 2006). Hence, a positive relationship between capital and profitability is anticipated.

3.3.2.2 Equity Ratio (ER)

Equity ratio provides an indication of how much assets are financed by shareholder equity over funds borrowed from creditors (Seydnourani et al., 2012). A high equity ratio indicates that bank is heavily financed by debt and this is not a good thing as opposed to a low the equity ratio. Equity ratio can cause a negative effect on bank performance in the event that the costs of financing are relatively high. This can signify that equity ratio can either cause a decrease in bank profitability on an increase in bank profitability on the condition that the costs of financing are high or low (Mathuva, 2009).

3.3.2.3 Total Asset (TA)

Provides a measure of the size of the bank and this implies that banks with more assets are considered to be bigger in size as opposed to those with fewer assets (Velnampy and Niresh, 2012). Generally, there has also been a believer that an increase in banks assets results in an increase in bank performance as noted by Velnampy and Niresh (2012). Hence, expectations are that an increase in banks assets will result in an increase in bank performance. Total assets can also be related to asset quality which shows how total loans made are bringing in profits to the bank. Thus, a high asset quality indicates that the banks have sound, better and quality assets. As a result, improvements in asset quality can cause an improvement in bank profitability. But there are cases where asset quality can actually cause bank performance to fall and such occurs under poor management exercises(Seydnourani et al., 2012).

3.3.2.4 Customer Deposits (CD)

This refers to the level of customer deposits that are made by customers into the bank (Lee,Thewbasis and Hsieh, 2013). The basic notion is that the more customer deposit into the bank, the more funds will have to make loans and invest in other activities. Hence, the relationship between customer deposits and capital is positive. Positive either as a result of the fact that more asset can now be acquired or more income generating projects can be done (Dong and Su, 2010).

3.3.2.5 Loans (LLNS)

These are funds that are lent to customers by the bank and the more banks issue out loans, the more profits they are bound to make. But, there are cases whereby banks have failed to make profits out of loans given the fact that most loans were considered as being non-performing loans (Raheman and Nasr, 2007).

3.3.2.6 Asset Turnover (TR)

The way a company uses its assets to make money is known as a turnover ratio. A high turnover ratio thus indicates that banks are using their assets to generate money is an effective way (Velnampy and Niresh, 2012). Hence, the relationship between bank performance and asset turnover can be presumed to be positive.

3.3 Population

The population under study is private banks listed on the Amman Stock Exchange and focus will be restricted to 13 major banks that have exhibited high profitability returns over the period 2000 to 2017 and are considered by the CBJ to be highly capitalised (CBJ, 2017).

Table 3.1: Research population

No.	Bank	Capital	Period under observation
	Conventional banks		
1	Jordan National Bank	302665404	2000-2016
2	Arab Bank	214609806	2000-2016
3	Cairo Amman Bank	73066529	2000-2016
4	The Housing Bank for Trade and Finance	66404348	2000-2016
5	Bank of Jordan	86048957	2000-2016
6	Jordan Kuwait Bank	351193000	2000-2016
7	SocieteGenerale De Banque - Jordanie	813524000	2000-2016
8	Capital Bank of Jordan	164519000	2000-2016
9	Invest Bank	91000000	2000-2016
10	Jordan Ahli Bank	80467106	2000-2016
	Islamic banks		
11	SAFWA Islamic bank	67880565	2000-2016
12	Islamic International Arab Bank	86048957	2000-2016
13	Jordan Islamic Bank	67880565	2000-2016

3.4 Data Sources

The data was collected from 13 banks that are listed on the Amman Stock Exchange which are composed of 10 conventional banks and 3 Islamic banks. The data that was used is yearly data from the period 2000 to 2016 giving a total of 208 observations (see Table 3.1).

3.5 Diagnostic Tests

Foremost, Hausman test will be used to determine whether a random effect model of a fixed effect model offers the best explanation of the influence of capital structure on financial performance. The Hausman test is based on judgments that need to be

made in terms of the appropriateness of either the fixed effect model or random effect model to estimate the established model (Judge et al., 1982). Thus, the Hausman test can be said to seek to test the seeks to determine the validity of the following hypothesis and the rejection of the null hypothesis results in the use of the fixed effect model to estimate the model relationships;

- **H_0:** Random effect model is appropriate
- **H_1:** Fixed effect model is the appropriate validity of the following hypothesis;

4.CHAPTER: DATA ANALYSIS AND PRESENTATION

4.1 Introduction

Analysis of results is based on findings collected from 13 banks that are listed on the Amman Stock Exchange and these banks comprised of 3 Islamic banks and 8 conventional banks. The results are based on computations done using E-Views and panel data model estimations which include pooled regression, fixed effect,and random effects regression models.

4.2 Stationarity Test

Stationarity tests were conducted using the Levin, Lin and Chu t*, Im, Pesaran and Shin W-test, ADF Chi-squareand PP Chi-square tests and the results show that LROA, LER,and LLNS are stationary at both level and first difference at 5%. The results also show that all the variables are stationary at first differences and hence the variables can be said to be stationarity. This means that the variables will not result in spurious estimations.

Table 4.1: Stationarity test at first difference

	Levin, Lin & Chu t*		Im, Pessaran and Shin W-test		ADF Chi-square		PP Chi-square	
Variable	**Stat.**	**Prob.**	**Stat.**	**Prob.**	**Stat.**	**Prob.**	**Stat.**	**Prob.**
LROA	-13.6003	0.0000*	-12.1529	0.0000*	133.722	0.0000*	203.873	0.0000*
LBC	-10.1227	0.0000*	-6.08329	0.0000*	71.2532	0.0000*	78.2612	0.0000*
LTA	-6.37295	0.0000*	-4.41970	0.0000*	56.2955	0.0000*	73.6477	0.0000*
LER	-9.64516	0.0000*	-6.73026	0.0000*	78.1414	0.0000*	111.469	0.0000*
LCD	-9.38899	0.0000*	-5.93030	0.0000*	71.7099	0.0000*	124.359	0.0000*
LLNS	-10.6450	0.0000*	-8.13317	0.0000*	73.1245	0.0000*	98.0037	0.0000*
LTR	-10.3774	0.0000*	-8.51831	0.0000*	96.2334	0.0000*	153.986	0.0000*

4.2 Descriptive Statistics

Descriptive statistics were computed for the logarithm values of the variables and the results are presented in table 4.2.

Table 4.2: Descriptive statistics

Variable	*Mean*	*Min.*	*Max.*	*Std. Dev.*	*Kurtosis*
LROA	0.082	-2.996	1.440	0.780	4.397
LBC	19.877	17.372	24.221	1.525	3.414
LTA	22.105	19.349	45.810	2.498	45.089
LER	0.582	-3.219	3.482	2.423	1.226
LCD	20.535	0.496	32.804	5.624	10.031
LLNS	0.111	0.067	0.159	0.027	1.771
LTR	1.757	-0.430	3.301	0.616	3.234

It can be noted that means the highest ROA mean for the 13 banks stood at 0.082 which can be said to be relatively inelastic. Hence, possible improvements in bank capital will lead to insignificant improvements in bank profitability. Maximum elastic changes can be noted to be associated with total assets which have a maximum value of 22.105. This means that on average, banks in Jordan experienced a huge increase in size as denoted by total assets which can be said to have grown a lot between the years 1999 and 2016. A lot of variations can be noted to be associated with customer deposits which had a standard deviation of 5.624. This implies that customer deposits were highly volatile and assuming that they have been growing from 1999 to 2016, assumptions can be made that such changes led to an improvement in bank profitability. However, assuming that customers deposits fell during the period under consideration, then deductions can be made that bank profitability fell as a result of this highly responsive effect of changes in customer deposits.

4.3 Correlation Coefficient Test

Pearson correlation coefficient test was used to determine the nature of correlation that exists between the model variables (Magrati, 2009). Based on the established results, it can be noted that there is an insignificant negative correlation that exists between bank capital and bank profitability as denoted by ROA of -0.0137. which implies that positive improvements in bank capital are being observed at a time when bank performance is falling. The results also show that bank capital is significantly and positively correlated with bank size as denoted by total assets by 0.2301. which means that an increase in

bank size is also being witnessed at a time when bank capital is also increasing.

Table 4.3: Correlation Coefficient Test

	LROA	*LBC*	*LTA*	*LER*	*LCD*	*LLNS*	*LTR*
LROA	1						
LBC	0.0561	1					
LTA	0.2227*	0.2008*	1				
LER	-0.1157	0.4559*	0.2721*	1			
LCD	0.0694	-0.5367*	-0.1354	-0.0582	1		
LLNS	0.2401	0.6804*	0.0597	0.4054*	-0.2278*	1	
LTR	0.2894*	0.1500*	0.0471	0.3149*	-0.0622	0.3625*	1

A high and positive correlation of 0.6804 can also be said to exist between bank loans and bank capital and this correlation is significant at 1%. On the other hand, the bank can be said to be negatively and insignificantly correlated with customer deposits by –0.5367. Which possibly implies that the way the bank is using its assets is possibly bilaterally related to an increase in bank liabilities in the form of bank deposits. Negative correlations can also be said to exist between LROA and equity ratio, customer deposits and bank capital, customer deposits and total assets, turnover ratio and customer deposits, customer deposits and total loans by -0.1157, -0.5367, -0.1354, -0.0622, -0.2278 respectively.

4.4 Panel Data Model Estimations

Panel data model estimations were conducted in relation to a pooled regression model estimation, random effect model and fixed effect regression model. The results are herein presented as follows;

4.4.1 Pooled Model Estimations

Pooled regression model assumes that the cross-section of the banks is the same (Greene, 2003). In actual fact this is not true because banks are totally different in a lot of aspects which include among others size (assets), performance, liquidity etc. the results are presented in table 5.4.

Table 4.4: Pooled model estimations

Variable	*Coeff.*	*Standard error.*	*t-stat.*	*Prob.*
LBC	8.663637	2.655706	3.262273	0.0013*
LTA	-0.138780	0.024217	-5.730707	0.0000*
LER	0.027703	0.010583	2.617750	0.0096*
LCD	0.022966	0.055073	0.417015	0.6771
LLNS	0.101710	0.019975	5.091753	0.0000*
LTR	0.389208	0.086529	4.498018	0.0000*
c	-4.756893	1.174390	-4.050523	0.0001*
R-squared	0.2995		DW. stat	1.120
F-statistic	13.6071		Prob(F-statistic)	0.000005

Dependent variable LROA

* significant at 0.01, and ** Significant at 0.10

Based on the pooled regression estimation results, observations can be made that improvements in bank capital by 1% are having a positive effect on bank profitability by 8.66%. This possibly means that an increase in capital is improving bank performance possibly because an increase in capital cushions banks from risks which helps to safeguard them from profit threatening circumstances.

In addition, an increase in capital also makes it easy for banks to invest in profitable projects and assets. Increases in customer deposits, loans and turnover ratio of 1unit each can be observed to be causing positive changes in bank performance of 0.229, 0.1017, 0. and 0.3892 units respectively. Implying that their changes are causing favourable conditions for improving bank performance. Whereas an increase in total assets by 1% is causing a decrease in bank performance by 13.88%.

4.4.2 Fixed Effect Model Estimations

Fixed effects models tend to differ from random effects model in the sense that fixed effects models tend to take into account the heterogeneity of the variables (Magrati, 2003). The fixed effects results are similar with the pooled effects results in terms of the effects that are posed by customer deposits,

loans and turnover ratio which can be noted to be having positive effects on bank profitability of 7.6778, 0.1290, 0.0306, 0.0009, 0.011 and 0.0380 respectively.

The results, however, differ when it comes to the obtained results about the relationship between total assets and bank performance. This is because an increase in total assets by 1% is resulting in an increase in bank performance by 12.90%.

The results also confirm the findings made by the pooled regression model which showed that an increase in bank capital is affecting the profitability levels of the 13 banks. This is because an increase in bank capital by 1 unit is resulting in an increase in bank performance by 7.6778 units.

Table 4.5: Fixed effect model estimations

Variable	*Coeff.*	*Standard error.*	*t-stat.*	*Prob.*
LBC	7.677790	5.253801	1.461378	0.1456
LTA	0.129042	0.048318	2.670701	0.0083*
LER	0.030609	0.013869	2.206951	0.0286**
LCD	0.000917	0.051137	0.017937	0.9857
LLNS	0.038045	0.019368	1.964384	0.0510***
LTR	0.116775	0.086934	1.343261	0.1809
c	-2.538923	1.216933	-2.086329	0.0384**
R-squared	0.6206		DW. stat	1.888
F-statistic	18.507		Prob(F-statistic)	0.000000

Dependent variable LROA

* significant at 0.01, ** Significant at 0.05 and *** Significant at 0.10

The obtained R-squared value is 62.06% which implies that 37.04% of the changes in bank performance is being explained by other variables outside the model. Hence, implying that 37.04% of the changes in bank performance is explained by other variables not included in the model.

The model has an F-statistic value of 18.507 which is significant at 1% and hence conclusions can be made that the fixed effect model is correctly specified and is homogeneous.

4.5 Hausman Test

The Hausman test was applied to determine whether the random effect model or the fixed effect model is appropriate. The Hausman seeks to determine the validity of the following hypothesis;

- **H_0:** Random effect model is appropriate
- **H_1:** Fixed effect model is appropriate

Table 4.6: Test cross-section random effects

	Chi-Sq. Stat.	*Chi-Sq. df.*	*Prob.*
Cross section summary	30.1864	6	0.0000

Based on the established results, we can reject the null hypothesis and conclude that the fixed effect model is more appropriate to estimate the causal relationship between bank capital and profitability.

4.6 Granger Causality Test

Granger causality tests were applied to determine if there exist causality between bank profitability and the explanatory variables. This was accomplished by using Eagle and Granger Pairwise Granger causality test (*see appendix IV*). Pairwise granger causality tests indicate there is no causality that exists between most of the variables. The only causality that exists is between customer deposits and asset turnover.

It can be noted that total assets do granger cause bank capital and the nature of causality can be said to be one-way causality which runs from total assets do granger cause bank capital. The results also show that there is a two-way causality that exists between customer deposits and bank capital since all the hypotheses are rejected at 5%. One-way causality also exists between a bank loan and bank capital with the direction of causality running from bank capital to loans, and between asset turnover and loans with the direction of causality running from loans to asset turnover.

Table 4.7: Granger causality tests

Hypothesis			Prob	Prob.
LBC	no causality	LROA	0.9493	0.9577
LTA	←	LBC	0.8095	0.0121
LCD	←	LBC	0.0987	0.0006
LLNS	←	LBC	0.6681	0.0099
LCD	no causality	LTA	0.8739	0.0806
LLNS	→	LTA	0.0232	0.9745
LTR	←	LLNS	0.8307	0.0235

4.7 Discussion of Findings

Based on the established results, it can be noted that improvements in the banks' capital position result in unfavourable changes in bank profitability. This is similar to findings made by Ayaydin and Karakaya (2014) which showed that positive changes in bank capital do not always lead to improvements in bank profitability. This can possibly be as a result of the fact that an increase in the bank's capital position reduces the number of funds that are available for investment into profitable sectors, assets,and activities. Hence, potential increases in profitability are the opportunity cost of an increase in the banks' capital position.

The other reason can be due to the fact that central banks usually require banks to hold a certain level of capital to cater for banking risks but the problem with such a move is that bank capital represents idle funds which should have been used for other purposes which can generate more returns in the future. As a result, there is a decline in bank profitability that occurs with each successive increase in capital.

The other thing is that bank profitability has been established not to granger cause bank capital and that bank capital does not granger cause bank profitability. What this implies is that any changes in any of these two variables does not possibly cause a change in the other variable. This possibly explains or be explained by the idea that changes in either bank

profitability and bank capital are being caused by other factors which are neither capital or profitability related.

Discussions can also be made in relation to the idea that an increase in bank size as denoted by total assets results in positive changes in bank profitability. This concurs with findings made by Zafar et al. (2016) which shows that an increase in banks' total assets causes banks to earn more profits. This is because will have a greater ability to engage in the necessary service provisions to make more money. Secondly, it is an indication of an increase in the ability of the bank to service a bigger market and this translates to improved performance.

The results also showed that an increase in the equity ratio is unilaterally related to bank profitability. This possibly suggests that the more shareholders get equity returns the more they will be satisfied from investing in the business. As a result, they will continuously inject more into banking activities with expectations of making higher future returns. Banks,on the other hand, will be having more funds toinvest in profitable activities. This is also similar to an increase in the turnover ratio which probably indicates how well the banks are efficiently generating returns from the use of the company's assets. Hence, the greater the ratio, the more profits are making. The same applies to customer deposits and an increase in customer deposits means that banks will now have more money to issues more loans to customers and invest in other activities. Hence, profits will be increasing with each percentage increase in customer deposits. Moreover, the same idea can also be related to an increase in loans and an increase in loans make it possible for banks to issue more loans and invest in more activities and assets.

5.CHAPTER: CONCLUSIONS, RECOMMENDATIONS,AND SUGGESTIONS FOR FUTURE STUDIES

5.1 Conclusions

The main emphasis of this study was to examine the causal effects of capital on the profitability of banks in Jordan. The study also seeks to examine factors that determine the interaction between capital and profitability of banks in Jordan. Based on the established findings, conclusions can, therefore, be made that there is no causality that exists between bank capital and profitability. With respect to this idea, conclusions can also be made that increases in bank capital can result in an increase in bank performance on the condition that the increased capital levels do not represent funds that are being tied up and not being put to productive uses.

It can also be concluded from this study that an increase in bank size results is resulting in unfavourable operational condition that allows banks to make losses by servicing a huge market share. Such is also based on conclusions which showed that an increase in the banks; assets position does not always translate to an improvement in the ability of the banks to use the banks' assets in a profitable manner and hence causing a decrease in bank performance.

Moreover, conclusions can be made that the more shareholders of the bank will get from investing their money into the banks, the more they will be satisfied and continue to inject more funds into the banks which provides banks with a greater capacity to issue more loans and invest in more assets and activities. This conclusion can also be made in respect of increases in customer deposits and loans issued by the banks. Hence, it can be said that an increase in customer deposits and loans favours an increase in bank performance.

Lastly, conclusions can be made that the severe changes in the banking and economic environments are the key factors that are influencing the interaction that exists between bank capital and bank profitability.

5.3 Recommendations

With respect to the made conclusions, recommendations can, therefore, be given to;

Bank Managers

1. Introduce more and better customer services and improved service quality to lure more deposits.
2. Introduce better capital management strategies to improve the use of capital funds.
3. Continuously introduce better and improved asset management practices to improve asset turnover ratios.
4. Promote better ethical practices to improve their reputation and gain huge market shares.
5. Come up with sound banking practices and innovative strategies.

Monetary authorities

1. That there must come up with effective banking policies that can create a conducive atmosphere upon which banks can effectively and successfully operate.
2. Monetary authorities are also being urged to use fiscal and monetary policies to continuously stir macroeconomic elements such as spending and borrowing to promote financial sector growth and development.

5.4 Suggestions for future studies

The study undertook a successful panel analysis of Islamic and conventional banks in Jordan. However, future studies can possibly look at comparisons between liquidity and profitability elements between Islamic and conventional banks.

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LIST OF APPENDICES

Appendix I: Pooled regression model results

Dependent Variable: LROA
Method: Panel Least Squares
Date: 06/04/18 Time: 12:47
Sample: 1999 2016
Periods included: 18
Cross-sections included: 11
Total panel (balanced) observations: 198

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LLNS	8.663637	2.655706	3.262273	0.0013
LBC	0.022966	0.055073	0.417015	0.6771
LCD	0.027703	0.010583	2.617750	0.0096
LER	-0.138780	0.024217	-5.730707	0.0000
LTA	0.101710	0.019975	5.091753	0.0000
LTR	0.389208	0.086529	4.498018	0.0000
C	-4.756893	1.174390	-4.050523	0.0001

R-squared	0.299450	Mean dependent var	0.082042
Adjusted R-squared	0.277443	S.D. dependent var	0.780073
S.E. of regression	0.663088	Akaike info criterion	2.050896
Sum squared resid	83.98005	Schwarz criterion	2.167148
Log likelihood	-196.0387	Hannan-Quinn criter.	2.097951
F-statistic	13.60717	Durbin-Watson stat	1.119885
Prob(F-statistic)	0.000000		

Appendix II: Fixed effect model results

Dependent Variable: LROA
Method: Panel Least Squares
Date: 06/04/18 Time: 12:48
Sample: 1999 2016
Periods included: 18
Cross-sections included: 11
Total panel (balanced) observations: 198

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LLNS	7.677790	5.253801	1.461378	0.1456
LBC	0.000917	0.051137	0.017937	0.9857
LCD	0.030609	0.013869	2.206951	0.0286
LER	0.129042	0.048318	2.670701	0.0083
LTA	0.038045	0.019368	1.964384	0.0510
LTR	0.116775	0.086934	1.343261	0.1809
C	-2.538923	1.216933	-2.086329	0.0384

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.620630	Mean dependent var	0.082042
Adjusted R-squared	0.587095	S.D. dependent var	0.780073
S.E. of regression	0.501257	Akaike info criterion	1.538553
Sum squared resid	45.47785	Schwarz criterion	1.820879
Log likelihood	-135.3167	Hannan-Quinn criter.	1.652829
F-statistic	18.50668	Durbin-Watson stat	1.888203
Prob(F-statistic)	0.000000		

Appendix III: Hausman test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	30.186460	6	0.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
LLNS	7.677790	7.089822	14.829842	0.8786
LBC	0.000917	-0.005181	0.000228	0.6861
LCD	0.030609	0.026828	0.000051	0.5981
LER	0.129042	-0.003118	0.001169	0.0001
LTA	0.038045	0.039155	0.000043	0.8650
LTR	0.116775	0.183101	0.000961	0.0324

Cross-section random effects test equation:
Dependent Variable: LROA
Method: Panel Least Squares
Date: 06/04/18 Time: 12:50
Sample: 1999 2016
Periods included: 18
Cross-sections included: 11
Total panel (balanced) observations: 198

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.538923	1.216933	-2.086329	0.0384
LLNS	7.677790	5.253801	1.461378	0.1456
LBC	0.000917	0.051137	0.017937	0.9857
LCD	0.030609	0.013869	2.206951	0.0286
LER	0.129042	0.048318	2.670701	0.0083
LTA	0.038045	0.019368	1.964384	0.0510
LTR	0.116775	0.086934	1.343261	0.1809

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Cross-section fixed (dummy variables)

R-squared	0.620630	Mean dependent var	0.082042
Adjusted R-squared	0.587095	S.D. dependent var	0.780073
S.E. of regression	0.501257	Akaike info criterion	1.538553
Sum squared resid	45.47785	Schwarz criterion	1.820879
Log likelihood	-135.3167	Hannan-Quinn criter.	1.652829
F-statistic	18.50668	Durbin-Watson stat	1.888203
Prob(F-statistic)	0.000000		

Appendix IV: Granger causality test

Pairwise Granger Causality Tests
Date: 06/04/18 Time: 12:51
Sample: 1999 2016
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LLNS does not Granger Cause LROA	176	0.89082	0.4122
LROA does not Granger Cause LLNS		0.17056	0.8433
LBC does not Granger Cause LROA	176	0.05207	0.9493
LROA does not Granger Cause LBC		0.04321	0.9577
LCD does not Granger Cause LROA	176	0.07168	0.9309
LROA does not Granger Cause LCD		0.07676	0.9261
LER does not Granger Cause LROA	176	0.73370	0.4816
LROA does not Granger Cause LER		0.48382	0.6173
LTA does not Granger Cause LROA	176	0.34296	0.7102
LROA does not Granger Cause LTA		2.25991	0.1075
LTR does not Granger Cause LROA	176	1.66135	0.1929
LROA does not Granger Cause LTR		0.58683	0.5572
LBC does not Granger Cause LLNS	176	4.74412	0.0099
LLNS does not Granger Cause LBC		0.40430	0.6681
LCD does not Granger Cause LLNS	176	1.66000	0.1932
LLNS does not Granger Cause LCD		0.20261	0.8168
LER does not Granger Cause LLNS	176	0.39793	0.6723
LLNS does not Granger Cause LER		0.01498	0.9851
LTA does not Granger Cause LLNS	176	0.02588	0.9745
LLNS does not Granger Cause LTA		3.84835	0.0232
LTR does not Granger Cause LLNS	176	0.18566	0.8307
LLNS does not Granger Cause LTR		3.83476	0.0235
LCD does not Granger Cause LBC	176	2.34717	0.0987
LBC does not Granger Cause LCD		7.79908	0.0006
LER does not Granger Cause LBC	176	0.00337	0.9966
LBC does not Granger Cause LER		0.03912	0.9616
LTA does not Granger Cause LBC	176	0.21163	0.8095
LBC does not Granger Cause LTA		4.53111	0.0121
LTR does not Granger Cause LBC	176	0.26211	0.7697
LBC does not Granger Cause LTR		0.81448	0.4446
LER does not Granger Cause LCD	176	0.04157	0.9593
LCD does not Granger Cause LER		0.07651	0.9264
LTA does not Granger Cause LCD	176	2.55609	0.0806
LCD does not Granger Cause LTA		0.13485	0.8739

YAKIN DOĞU ÜNİVERSİTESİ

BİLİMSEL ARAŞTIRMALAR ETİK KURULU

11.06.2018

Sayın Mohammad Mo'tasem Sayel Alrfai

BilimselAraştırmalarEtikKurulu'nayapmışolduğunuz**"The Casual Relationship Between Capital And Bank Profitability Evidence From Commercial Bank İn Jordan"** başlıklıprojeönerisi, sadeceikincilkaynakkullanıldığıiçinEtikKurulurunagirmesinegerekyoktur. Bu yazıilebirliktesadeceikincilkaynakkullanmakşartıylaaraştırmayabaşlayabilirsiniz.

Doçent Doktor Direnç Kanol

Bilimsel Araştırmalar Etik Kurulu Raportör

Direnc Kanol

Not: Eğer bir kuruma resmi bir kabul yazısı sunmak istiyorsanız, Yakın Doğu Üniversitesi Bilimsel Araştırmalar Etik Kurulu'na bu yazı ile başvurup, kurulun başkanının imzasını taşıyan resmi bir yazı temin edebilirsiniz.

YAKIN DOĞU ÜNİVERSİTESİ

BİLİMSEL ARAŞTIRMALAR ETİK KURULU

11.06.2018

Dear Mohammad Mo'tasem Sayel Alrfai

Your project **"The Casual Relationship Between Capital And Bank Profitability Evidence From Commercial Bank İn Jordan"** has been evaluated. Since only secondary data will be used the project it does not need to go through the ethics committee. You can start your research on the condition that you will use only secondary data.

Assoc. Prof. Dr. Direnç Kanol

Rapporteur of the Scientific Research Ethics Committee

Direnc Kanol

Note: If you need to provide an official letter to an institution with the signature of the Head of NEU Scientific Research Ethics Committee, please apply to the secretariat of the ethics committee by showing this document

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