Determinants Of Commercial Banks Performance In Jordan

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الملخص

محددات أداء البنوك التجارية فى الأردن

هدفت هذه الدراسة إلى تحليل وفحص طبيعة العلاقة ما بين أداء البنوك الأردنية والمعبر عنه بالربحية مع خصائص تلك البنوك، آخذين بعين الاعتبار بعض العوامل الاقتصادية الكلية. حيث جاءت هذه الدراسة إجابة على بعض التساؤلات وأهمها: ما أسباب نجاح بنوك أكثر من غيرها؟ أو بمعنى آخر: إلى أى حد قد تؤثر الاختلافات فى خصائص تلك البنوك على أداءها؟ وما مدى تأثير التغيرات الاقتصادية عليها؟

وخلصت هذه الدراسة إلى أن حجم البنوك ونسبة كفاية رأس المال ونسبة السيولة هى من أهم العوامل التى تؤثر إيجابيا على أداء وربحية البنوك الأردنية، فى حين أن ارتفاع الهامش فى أسعار الفائدة خلال تلك الفترة لم يكن من مصلحة البنوك الأردنية.

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1. Introduction

The Relationship Between Financial Development And Economic Growth Was Analyzed More Than Two Decades Ago By A Number Of Researchers. These Include Goldsmith (1969), Mckinnon (1973) And Shaw (1973). More Recently, King And Levine (1993a), Islam (1995), Darlauf And Quah (1998), Allen And Nadikumana (1998) And Others Have Presented Evidence That Showed The Existence Of A Systematic Relationship Between Financial Development And Economic Growth.

As A Major Part Of Any Financial System, The Banking Sector Is Expected To Play A Major Role In Economic Growth. Indeed This Role Is Achieved Through The Sector's Importance In Mobilizing Savings And Channeling Them To The Most Efficient Investment Projects. This, In Turn, Leads To More Capital Accumulation And Higher Productivity, Which Is Necessary To The Economy To Reach Its Maximum Level Of Output. Moreover, The Banking Sector Plays An Important Role In The Transmission Of Monetary Policy. Finally, It Should Be Pointed Out That Any Failure (Bank) In This Sector Has A Much Greater Impact On The Rest Of The Economy Than Those Of Other Types Of Businesses.

Due To The Above And Other Reasons, The Performance Of Depository Institutions In Major Economies Like The USA, Japan And Britain Has Attracted A Large Number Of Theoretical And Empirical Papers. These Studies Can Be Classified As Efficiency And Performance Studies.

The Efficiency Of The Financial Services Industry Has Long Been A Major Focus Of Banking Research. This Research Examines Scale And Scope Economies And X-efficiency. Berger Et Al. (1999) Review The International Comparison Literature About Banking Efficiency. In Short, The Published Studies Indicate That X-efficiency In The Banking Sector Is Large And Accounts For About Twenty Percent Of Costs And Dominates Scale And Scope Efficiencies.

Some Of The Well - Known Studies That Examined The Performance Of Banks Include Brewer And Garcia (1987), Berger Et Al. (1991), Thomson (1992), Cole (1993), Berger (1995, A), Demirguc - Kunt And Huizinga

(1997), Genay (1999) And Others. In These Studies, The Typical Estimated Model Regressed The Performance Of Banks (Return On Equity) On A Number Of Explanatory Variables That Reflect Bank Characteristics And Macroeconomic Variables. The Vector Of Bank Characteristics Includes Measures Like Bank Size, Asset Quality, Capital Ratios, Operational Efficiency As Well As The Variables That Reflect Macroeconomic Conditions Such As Inflation Rate, Interest Rate, Growth Rate In GDP, And Banking Sector Development.

Based On The Available Empirical Evidence, It Is Found That, For Example By Genay (1999), Bank Size Is A Significant (Positive) Determinant Of Profitability. Moreover, Net Loans To Total Assets, Loan Loss Provisions To Total Assets And Equity Investments To Total Assets Are Significant (Negative) Determinants Of Profitability.

Relative To This Type Of Empirical Work, It Is Probably Safe To State, "Banking Systems Around The World Differ Widely In Size And Operation. Across Countries, Commercial Banks Have To Deal With Different Macroeconomic Environments, Different Explicit And Implicit Tax Policies, Deposit Insurance Regimes, Financial Market Conditions, And Legal And Institutional Realities". (Demirguc - Kunt And Huizinga, 1997, PP.28-29). This Is Why The Empirical Results Are Not Expected To Be The Same Across All Countries.

This Paper Intends To Analyze And Examine The Relationship Between The Performance Of Jordanian Banks And Their Characteristics After Controlling Macroeconomic Variables. Specifically, The Purpose Of This Paper Is To Provide Answers To The Following Questions:

1. Why Are Some Jordanian Banks More Successful Than Others? In Other Words, To What Extent Is The Disparity In Their Performance Due To Variations In Their Characteristics?

2. To What Extent Do Environment-related Macroeconomic Variables Influence The Profitability Performance Of Jordanian Banks?

The Subject Matter Of This Paper Is Thought To Be Important For A Number Of Reasons. First, Banks Are Considered A Primary Source Of

King And Levine, 1993, B; Bencivenga Et Al., 1995). Moreover, While Some Theories Provided Various Predictions About The Relative Importance Of Banks And Stock Markets In The Performance Of Economies (Stiglitz, 1985; Boyd And Prescott, 1986; Bhide, 1993), Others Examined The Importance Of Both Banks And Markets In Economic Growth (Levine, 1997; Boyd And Smith, 1998; Huybens And Smith, 1999; And Demirguckunt And Levine, 2001)[(1)].

The Burgeoning Empirical Works, Which Examined The Importance Of Banks In Economic Growth, Are Provided By King And Levine (1993 A, B). Based On A Bank Development Proxy Measure (Total Liquid Liabilities Of Financial Intermediaries Divided By Gross Domestic Product GDP) And Other Variables, They Showed The Importance Of Bank Development In The Economic Growth In Of About 80 Countries. Moreover, Using Instrumental Variable Procedures And Credit To The Private Sector As A Proxy Measure Of Bank Development, Levine (1998, 1999) And Levine Et Al. (2000) Confirmed This Finding. Finally, Watchel And Rousseau (1995) And Rousseau (1998) Used Time-series Data To Confirm The Positive Impact Of Financial Intermediary Development On Economic Growth.

More Recently, A Number Of Empirical Papers Considered The Impact Of Both Bank And Stock Market Development On Economic Growth. These Include, Among Others, Atje And Jovanovic (1993), Jappelli And Pagano (1994), Levine And Zervos (1998), Levine (2001), Bekaert Et Al. (2001) And Beck And Levine (2002). This Empirical Literature Supports The Hypothesis That There Is A Relationship Between Stock Markets And Banks And Economic Growth.

Due To The Economic Importance Of Banks, A Number Of Studies Have Examined The Performance Of Depository Institutions In Major Economies Like The USA, Japan And Britain. Indeed, The Performance Of The Financial Services Industry Has Long Been A Focus Of Banking Research. Relative To The Subject Matter Of This Research Proposal, The Literature Can Be Classified Under Three Main Streams: (I) Operating Performance Of Commercial Banks, (II) Interest Rate Spreads (Margins) In Commercial Banks And (III) Efficiency Of Commercial Banks.

A Number Of Studies Have Examined The Profitability And Solvency (Operating Performance) Of Depository Institutions. While It Is Not The Objective Of This Proposal To Review The Available Literature, Some Of The Well - Known Studies Include Berger (1995), Demirguc - Kunt And Huizinga (1997), Genay (1999), Barth Et Al. (2000), And Others. Typically, These Studies Regress Performance (Return On Assets Or Return On Equity) On A Number Of Variables Including Bank Size, Asset Quality, Capital Ratio And Operational Efficiency.

In A Comprehensive Study, Demirguc-kunt And Huizinga (1999) Investigated The Determinants Of Bank Interest Margins (Spreads) Using Bank-level Data For 80 Countries. The Set Of Regressors Include Variables That Account For Bank Characteristics, Macroeconomic Conditions, Bank Taxation And Underlying Legal And Institutional Indicators. In Addition, Another Branch Of The Literature Is Concerned With The Determinants Of Bank Interest Margins In Individual Countries. Some Of These Studies Include Angbazo (1997), Berger Et Al. (2000), Abreu And Mendes (2001), And Many Others. Finally, The Determinants Of Bank Interest Margin In Developing Countries Have Attracted A Growing Number Of Research Papers. Typically, It Is Found That Financial Systems In Developing Countries Show High And Persistent Spreads (See, For Example, Fry, 1995; Randall, 1998; Barajas Et Al., 2000). The Reported High Interest Rate Margins Have Persisted Even Though Most Developing Countries Have Undertaken Financial Liberalization Measures Over The Last Fifteen Years Or So. Gelbard And Leite (1999), For Example, Observe That In Many Sub-Saharan African Countries Interest Rate Spreads Remained Wide. Similarly, Brock And Rojas-suarez (2000) Show That Spreads In Latin America Failed To Converge To International Levels.

Several Arguments Have Been Advanced To Explain The Failure Of Interest Spreads In Developing Countries To Converge Towards Those Observed In Developed Economies. These Include Market Power (Barajas Et Al., 1999 And 2000), The Absence Of Bank Deposit Insurance And High Reserve Requirements (Saunders And Schumacher, 2000), High Non-financial Costs (Brock And Rojas-suarez, 2000), The Low Significance Of

Capital To Asset Ratio Due To Inadequate Accounting Standards And Inappropriate Classification Of The Riskiness On Loans (Brock And Rojas-Suarez, 2000), And Macroeconomic Instability (Claessens Et Al., 2001).

In Banking Research, There Is A Large And Growing Body Of Literature That Examines The Efficiency Of Financial Institutions Using Data Envelopment Analysis (DEA) And Malmquist Indices[2]. The DEA Is A Non-parametric Linear Programming Method Which Does Not Require Input Or Output Prices In Order For A Best Practice Production Frontier To Be Identified. The Best Practice Frontier Is Identified As A Piece-wise Linear Composite Of Observed Best Practices, Given The Specification Of Inputs And Outputs. The Outcome Is To Produce A Convex Production Frontier For Output Oriented DEA, While Input Oriented DEA Produces A Concave Production Frontier. Some Of The Papers That Used The DEA Approach Include Leightner (1999), Okuda (2000), And Darrat Et Al. (2002).

Relative To The Above, It Is Probably Safe To State, "Banking Systems Around The World Differ Widely In Size And Cooperation. Across Countries, Commercial Banks Have To Deal With Different Macroeconomic Environments, Different Explicit And Implicit Tax Policies, Deposit Insurance Regimes, Financial Market Conditions, And Legal And Institutional Realities" (Demirguc - Kunt And Huizinga, 1997, PP.28-29). This Is Why The Empirical Results Are Not Expected To Be The Same Across All Countries. Moreover, It Is Useful To Analyze The Jordanian Banking Sector In Terms Of The Above.

2.2 The Jordanian Banking Sector

Like All Central Banks, The Central Bank Of Jordan (CBJ) Regulates The Banking Sector In Jordan. This Sector Is Made Up Of Licensed Banks (Commercial Banks, Investment Banks And Islamic Banks), Specialized Credit Institutions And Financial Corporations.

At The End Of 2001, The Banking Sector In Jordan Comprised Twenty-eight Banks Of Which Fifteen Are Commercial, Five Foreign, Two Islamic And Six Financial Corporations. In Table 1, We Report Some Of The Main Items Included In The Consolidated Balance Sheet Of All Jordanian Banks.

Based On These Figures, We Can Make A Number Of Observations. First, The Size Of The Jordanian Banking Sector Is Relatively Large. On Average, The Ratio Of Their Total Assets To Nominal GDP Is Equal To About 198%. This Ratio Is Much Higher Than The 52% In The USA And The 157% In Japan (Genay, 1999, P.15). Second, The Average Ratio Of Cash To Total Assets 20% Is Much Higher Than In Japan 1.57% And In The USA 6.6%. This Reflects The Conservative Nature Of Managing Jordanian Banks. In Addition, It Must Be Noted That Most Of The Cash Assets Are Held In Foreign Currencies

Table 1

Consolidated Balance Sheet Of Jordanian Banks (Percent Unless Indicated)

	1995	1996	1997	1998	1999	2000
Total Assets (JD Million)	8430	8858	9679	10460	11551	12913
Total Assets / Nominal GDP	185	188	196	202	200	216
Cash / Assets	19.7	20.5	19.4	20.7	21.4	20.1
Cash In Foreign Banks/Assets	19.0	19.7	18.6	19.9	20.4	23.3
Private Sector Debt / Assets	39.8	39.6	38.0	38.3	36.5	33.2
Public Debt / Assets	7.1	7.3	6.1	7.5	8.0	8.0

Source: Central Bank Of Jordan, Monthly Statistical Report Bulletin, March 2000, P.20.

It Is Also Interesting To Note That Since The Early 1990's, The Jordanian Government Has Been Applying A Number Of Structural Reforms In The Economy In General And In The Banking Sector In Particular. Relative To The Banking Sector, The Government, Since The Early 1990's, Started To Rely On Indirect Instruments In Managing Its Monetary Policy And Influences Domestic Liquidity, Credit And Interest Rates Through The Legal Reserve Ratio, Discount Rate And Open Market Operations. The Government Realized That Direct Intervention Through Policies Like Credit Ceilings, And Administrative Determination Of Interest Rates Are Ineffective In Mobilizing Resources And Their Efficient Allocation.

3. Data And Methodology

Annual Time Series Data Over The Period 1990 - 2000 Is Used For 13 Jordanian Licensed Banks (7 Commercial Banks, 5 Investment Banks, And 1 Islamic Bank). Other Banks Are Excluded From This Sample. The Exclusion Of These Banks Is Due To The Unavailability Of All Their Financial Statements Over The Examined Period. As A Result, Our Sample Of 13 Banks Enabled Us To Form 143 Observations. This Number Of Observations Is Felt To Be Large Enough To Provide Us With Meaningful Statistical Results. Moreover, The Fact That In 2000 The Total Number Of Licensed Banks (National And Foreign) Was Equal To 21, It Can Be Argued That The Sample Is A Good Representation Of The Banking Sector. Specifically, The Total Assets Of The Banks Included In Our Sample Represent Approximately 83 Percent Of The Total Assets Of Overall Licensed Banks In Jordan. The Names Of The Banks Which Are Included In The Statistical Analysis Are Reported In Table 2 Below.

Table2

The Names Of Banks Included In The Analysis

1. Arab Bank **ARBK**
2. The Housing Bank **THBK**
3. Jordan National Bank **JONB**
4. Cairo Amman Bank **CABK**
5. Jordan Kuwait Bank **JOKB**
6. Jordan Investment And Finance Bank **JIFB**
7. Arab Investment Bank **AJIB**
8. Union Bank **UBSI**
9. Jordan Islamic Bank **JOIB**
10. Jordan Bank **BOJX**
11. Arab Bank Corporation **ABCO**
12. Middle East Investment Bank **MEIB**
13. Philadelphia Bank **PHIB**

The Data That Is Related To The Financial Characteristics Of Banks Is Obtained From The Annual Reports And Consolidated Financial Statements. Taking Into Consideration The Extreme Size Of Arab Bank As A Multinational Corporation, The Financial Statement Of Arab Bank (Jordanian Branches) Is Used Here To Make Some Sense Of Comparison. In Addition, The Data Related To The External Determinants Of Banks (Macroeconomic Conditions) Including Inflation Rate, Real GDP, And Claims On Private Sector Were Obtained From IMF International Financial Statistics Yearbook. Other Data Such As Interest Rate Were Provided From Annual Report Of Central Bank Of Jordan CBJ. The Measurements Of All The Variables That Are Included In The Analysis Are Reported In Table 3.

In Line With Earlier Studies On Bank Performance, Profitability Ratios Such As ROA And ROE Will Be Used As A Proxy Measure For Bank Performance. The Choice Of The Profitability Ratio Will Depend On The Objective Of The Profitability Measure. The ROA (Ratio Of Net Income To Total Assets) Measures How Profitable And Efficient Bank Management Is In Utilizing And Allocating Its Assets To Generate Net Income. Many Regulators Believe ROA Is The Best Measure Of Bank's Efficiency. ROE, On The Other Hand; Which Is The Ratio Of Net Income To Book Value Of Shareholders' Equity; Reflects Bank Management's Ability In Using Shareholders' Equity To Generate Net Income. Also, It Is An Indication Of Earnings Per Dollar Of Invested Equity Or Equivalently, The Return To Shareholders On The Book Value Of Their Investment. Since ROA Is Lower For Financial Intermediaries, Most Banks Utilize Financial Leverage Heavily To Increase ROE. In This Thesis, We Use Only ROE As A Measure Of Financial Performance.

Table 3

Summary Of Variable Measurements

ROE	Return on Equity	$\frac{\text{Net Income Before Tax}}{\text{Shareholders' Equity}}$
OVR	Overhead Ratio	$\frac{\text{General and Administrative Expenses}}{\text{Total Assets}}$
LQR	Liquidity Ratio	$\frac{\text{Cash} + \text{Funds at Banks} + \text{Securities}}{\text{Total Assets}}$
TA	Size	Log of Total Assets
NCTA	Credit Risk	$\frac{\text{Net Credit Facilities}}{\text{Total Assets}}$
CAR	Capital Adequacy Ratio	$\frac{\text{Primary Capital}}{\text{Risky Assets}}$
INF	Inflation Rate	$\frac{CPI_t - CPI_{t-1}}{CPI_{t-1}}$
INT	Interest Rate	Average Lending Rate – Average Depositing Rate
GRGDP	Growth Rate in Real GDP	$\frac{Real\ GDP_t - Real\ GDP_{t-1}}{Real\ GDP_{t-1}}$
BD	Banking Development	$\frac{\text{Credit to Private Sector}}{\text{GDP}}$
ROE	Return on Equity	$\frac{\text{Net Income Before Tax}}{\text{Shareholders' Equity}}$
OVR	Overhead Ratio	$\frac{\text{General and Administrative Expenses}}{\text{Total Assets}}$
LQR	Liquidity Ratio	$\frac{\text{Cash} + \text{Funds at Banks} + \text{Securities}}{\text{Total Assets}}$
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CAR	Capital Adequacy Ratio	$\frac{\text{Primary Capital}}{\text{Risky Assets}}$
INF	Inflation Rate	$\frac{CPI_t - CPI_{t-1}}{CPI_{t-1}}$
INT	Interest Rate	Average Lending Rate – Average Depositing Rate
GRGDP	Growth Rate in Real GDP	$\frac{Real\ GDP_t - Real\ GDP_{t-1}}{Real\ GDP_{t-1}}$
BD	Banking Development	$\frac{\text{Credit to Private Sector}}{\text{GDP}}$

In A Study Such As This, Which Is Confined To The Boundaries Of One Country, The Choice Between Before Tax Income And After Tax Income May Not Seem To Be Very Important Since All Banks Would Be Subjected To The Same Corporation Tax Rate. Since The Net Income After Tax; As An Important Number; Are Not Disclosed Obviously In The Financial Statements For The Most Of Jordanian Banks, We Can Rely On Net Income Before Tax To Measure ROE.

As Far As The Independent Variables Are Concerned, Five Financial Bank Characteristics Or Bank-specific Variables Are Used As Internal Determinants Of Bank Performance. These Characteristics Are:

1. Size

The Size Of Banks Is Included As An Explanatory Variable To Account For Size Related Economies And Diseconomies Of Scale. Previous Studies Such As Genay (1999) Considered Bank Size In Their Profitability Model To Take Into Account The Possibility Of Greater Loan And Product Diversification And Accessibility Of Larger Banks To Capital Markets Which Are Not Available For Small Banks. In General, Previous Studies Found That Large Banks Perform Better Than Small Banks.

It Would Not Be Appropriate To Include Total Assets In Its Absolute Number As A Proxy For Bank Size. Rather, The Logarithm Of The Total Assets Must Be Included In The Model. This Is Necessary To Obtain More Meaningful Coefficient For Bank Size In The Regression Analysis Since The Other Independent Variables Are All Entered As Ratios.

2. Operational Efficiency

This Variable Is Measured By The Overhead Ratio. Overhead Ratio Is Equal To General And Administrative Expenses Divided By Total Assets. Also, It Can Be Measured By Dividing The General And Administrative Expenses Over Net Income Before Tax. This Variable Is Used To Provide Information Or Variation In Bank Operating Costs Across Banking Sector. Thus, It Reflects The Bank Management Ability To Control Operating Costs Or Expenses. Other Thing Being Equal, The Smaller The Overhead

Ratio, The Greater The Operational Efficiency And Thereafter, Better Bank Performance. This Implies A Negative Relationship Between Overhead Ratio And Bank Performance. In Line With Steinherr And Hureneers (1994), The Bank's Total Expenditure Would Be Deflated By Total Assets To Measure The Cost Incurred Per Monetary Unit Of Assets.

3. Liquidity

In Terms Of Liquidity Management, Since Banks Are Involved In The Business Of Transforming Short-term Deposits Into Long-term Credit, They Would Be Constantly Faced With The Risk Associated With The Maturity Mismatch. In Order To Hedge Against Liquidity Risk, Which Might Lead To Insolvency Problems, Banks Often Hold Liquid Assets To Meet Adverse Shocks And Are Likely To Face Lower Cost Of Funds In Imperfect Capital Markets, To Increase Their Profitability. On The Other Hand, Liquid Assets Are Often Associated With Lower Expected Returns. Hence, Holdings More Amounts Of Cash Have A High Opportunity Cost Represented By The Interest Earned On An Alternative Investments. This Variable Can Be Measured By Divided Cash, Funds At Banks, And Securities Over Total Deposits And Borrowed Funds. In Other Words, This Measure Is The Ratio Of Liquid Assets To Interest-bearing Liabilities. Other Things Being Equal, The Higher The Ratio, The Lower The Liquidity Risk, And The Lower Will Be The Profitability Or Performance. Other Measure For Liquidity Ratio Is Equal To Cash, Funds At Banks, And Securities Divided By Total Assets. Total Deposits Divided By Total Assets And Net Credit Facilities Divided By Total Deposits Also Reflect The Liquidity Risk.

Consistent With The Foregoing Argument, Molyneux And Thornton (1992) Had Also Found A Weak Inverse Relationship Between Liquidity And Bank Profitability. However, Bourke (1989) Results Had Indicated A Significant Positive Relationship Between Liquidity And Profitability. One Possible Reason For The Conflicting Findings May Be Different Elasticity Of Demand For Loans.In Two Samples.

4. Credit Risk

Credit Risk Is Associated With Quality Of Assets, And The Likelihood

That Borrowers Will Not Repay Their Loans As Promised. There Are Two Alternative Measure Of Credit Risk Or Asset Quality. First, The Ratio Of Loan Loss Allowance To Total Credit Facilities Can Be Positively Or Negatively Correlated With Performance. If Banks With Riskier Assets Provision More Than Other Bank, Then Loan Loss Allowances Measure Credit Risk, And Are Likely To Be Negatively Correlated With Profitability. On The Other Hand, If Banks That Performs Better, Or Banks With More Conservative Credit Policy, Provision More For Loan Losses, Then One Would Expect A Positive Relationship. Second, The Ratio Of Total Credit Facilities Less Loan Loss Allowance To Total Assets Measures The Banks' Credit Risk.

Bank Loans Are Expected To Be The Main Source Of Revenues, But At The Same Time It Considered A Largest Source Of Credit Risk. If Borrowers Are Able To Repay Their Debt And Interests (Debt Service), One Would Expect Bank With Higher Ratios Of Loans To Total Assets May Have Better Performance Than Other. Total Credit Facilities Represent The Direct Credit Facilities That Include Advances And Loans, Bills Discounted, And Overdraft Account Or Line Of Credit. Whereas, The Contra Accounts Or Indirect Credit Facilities Such As Guarantees, Letters Of Credit Are Not Included.

5. Capital Risk

We Can Define The Capital Risk As The Potential Decrease In The Market Value Of Assets Below The Market Value Of Liabilities Indicating A Zero Net Worth. Previous Studies In The USA Found A Strongly Significant Relationship Between Capitalization And Bank Performance. For Example, Bourke (1989) And Berger (1995). This Supports The View That Profitable Banks Well Capitalized. These Capitalized Banks Face Lower Costs Of Going Bankrupt And Thus Their Cost Of Funding Is Reduced. Banks With High Capital Ratios Would Be Considered Relatively Safer In The Event Of Loss Or Liquidation. Thus, High Capital Ratios Are Assumed To Be Indicator Of Low Financial Leverage And Hence Low Risk.

The Traditional Risk-return Trade-off Implies A Negative Relationship Between Capital Ratio And Bank Performance. However, Other Factors May Lead To A Positive Relationship. Because Banks Retain A Portion Of Their Earnings Over Time, More Profitable Banks Would Have Higher Retained Earnings And More Capital.

Regulators Concerned Primarily With Safety, Soundness And Confidence Of Banking System By Imposing Minimum Capital Requirements. Therefore, The Better Measure Of Capital Adequacy Ratio (Basle Committee) Is Regulatory Capital (Primary And Supplementary) Divided By Risk-weighted Assets. As This Ratio Is Not Available And Not Disclosed In Financial Statements Of Jordanian Banks Except The Arab Bank, We Have To Rely On Primary Capital To Risky Asset Ratio As A Proxy For Capital Risk.

To Isolate The Effects Of Bank Characteristics On Bank Performance, It Is Necessary To Control For Other Factors That Have Been Proposed In The Literature As Possible Determinants Of Bank Performance. Four Macroeconomics Variables Are Used: Inflation Rate, Interest Rate, Growth Rate In GDP And Banking Sector Development.

1. Inflation Rate

An Important Environmental Condition Which May Affect Both The Costs And Revenues Of Any Organization Including Banking Firms Is Changes In The General Price Level In The Economy. The Impact Of Inflation Rates On Bank Profitability Will Depend On Its Effect On Bank Costs And Revenues. For Example, Perry (1992) Argued That, If The Inflation Is Fully Anticipated And Interest Rates Are Adjusted Accordingly Resulting In Revenues Which Increase More Than Costs, Then It May Have A Positive Impact On Profitability. However, If The Inflation Is Not Anticipated, The Bank Costs Increase More Than Revenues. This Adversely Affects Bank Performance. The Percentage Change In The Consumer Price Index CPI Or Percentage Change In GDP-deflator Is Estimated To Increase Bank Performance.

2. Interest Rate

Changing Market Conditions Would Also Have An Impact On The Market Interest Rates, Which Would Certainly Have A Direct Impact On Bank Profitability [3]. The Difficulty Is In Determining The Appropriate Measure Of Interest Rate Prevailing At The Market. Since 1991, All Banks In Jordan Were Allowed To Freely Set Their Own Deposit Rates. Then In 1994, The Floating Would Be In Lending Rate. However, Because These Rates Are Not Reported In The Annual Reports For Each Bank, We Use The Average Annual Interest Rates Between Lending And Borrowing Rate For All Banks That Reported In The CBJ Annual Report.

3. Growth Rate In Real GDP

The GDP Is A General Index Of Economic Development. It Reflects Differences In Banking Technology, The Mix Of Banking Opportunities, And Any Aspects Of Banking Regulations Omitted From The Model. The Growth Rate In GDP Is Expected To Have Positive Impact On Performance. The Association Between Economic Growth And The Financial Sector Performance Is Well Documented In Demirguc-Kunt And Maksimovic (1996).

4. Banking Sector Development

Private Credit Equals The Value Of Credits By Banks To The Private Sector Divided By GDP. This Measure Of Banking Development Is More Than A Simple Measure Of Banking Sector Size. It Used To Measure The Importance Of Bank Financing In The Economy. Private Credit Isolate Credit Issued To The Private Sector, As Opposed To Credit Issued To Government And Public Sector. Furthermore, It Excludes Credits Issued By The Central Bank And Other Financial Institutions. Private Credit Is Our Preferred Indicator Because It Improves On Other Measures Of Financial Development Used In The Literature. For Example, King And Levine (1993) Use A Measure Of Gross Claims On The Private Sector Divided By GDP. Nevertheless, This Measure Includes Credits Issued By The Monetary Authority And Government Agencies, Whereas Private Credit Includes Only Credits Issued By Banks. Also, Levine And Zervos (1998) Use A Measure Of Deposit Money Bank Credits To The Private

Sector Divided By GDP. However, That Measure Does Not Include Credits To The Private Sector By Non-deposit Money Banks. Finally, This Variable Is Expected To Impact Performance Positively (Bashir, 2000).

Based On The Above, The Performance Of The Thirteen Banks (ROE) During The Period (1990-2000) Is Related To A Number Of Variables That Describe Their Characteristics And To Some Measure Of Aggregate Economic Activity. Specifically, The Following Model Is Estimated:

$$ROE_{I,t} = a + B\,X_{I,t} + \phi\,Z_T + \mu_i + E_{I,t} \quad \ldots\ldots\ldots\ldots (1)$$

Where:

$ROE_{i,t}$ = Return On Equity For Bank (I) In Year (T)

$X_{i,t}$ = Vector Of Characteristics Of Bank (I) In Year (T)

Z_t = Vector Of Characteristics That Describe Macroeconomic Variabes.

$E_{i,t}$ = The Error Term, Which Represents Measurement Errors In The Independent Variables, And Any Other Explanatory Variables That Have Been Omitted, And All Other Variables As Defined Above. The Term μ_i Is Used To Capture The Unobserved Individual Effects (Either Fixed Or Random).

To Estimate The Above Panel Regression Model, We Use Three Alternative Methods: Pooled Ordinary Least Squares, The Fixed Effects Model, And The Random Effects Model. It Must Be Noted That The Advantage Of Using Panel Data (Combining Inter-individual Differences With Intra-individual Dynamics) Or (Cross-sectional Over Time Series Data) Lies In The Fact That It Usually Gives A Large Number Of Observations, Which Increases The Degrees Of Freedom And Hence, Improving The Efficiency Of The Econometric Estimates. Furthermore, The Most Important Advantage Of Using The Panel Data Approach Is That It Accounts For The Unobserved Heterogeneity Among The Cross-sectional Firms Over Time In The Form Of Unobserved Individuals Effects. Moreover, As The Sample Includes Multi-year Observations, We Utilize The Correction Techniques For Unknown Heteroskedasticity Of White (1980) To Ensure That The Coefficients Are Not Heteroskedastic.

4. Empirical Results

As Stated In The Introduction, The Purpose Of This Paper Is To Examine The Performance Of The Thirteen Jordanian Banks ROE During The Period

1990-2000. This Is Done By Relating Their Performance To A Number Of Variables That Describe Their Characteristics And To Some Measures Of Aggregate Economic Activity.

In Tables 4 And 5 Below, We Report Some Basic Descriptive Statistics About The Performance Measure (ROE), The Variables That Describe Banks' Characteristics, The Macroeconomic Measures Used In The Analysis And The Correlation Matrix For All The Variables.

Based On These Results, We Can Make A Number Of Observations. First, The Mean Return On Equity ROE Is Relatively Large 9.78% And Varies Greatly Across Banks. It Ranges From A Minimum Of -87.83% To A Maximum Of 47.45% And This Indicates That While Some Banks Performed Poorly, Others Achieved Very Large Profits. Second, The Mean Overhead Ratio Is Relatively High 2.09%. This Compares With 1.32% In Japan.

Table 4

Variables: Some Descriptive Statistics

	Mean	Median	Max.	Min.	Std. Dev	Jarque-Bera
ROE	0.0978	0.1127	0.4745	-0.8783	0.1784	653.36*
OVR	0.0209	0.0216	0.0402	0.0046	0.0079	2.15
LQR	0.5329	0.5429	0.7737	0.2363	0.1198	3.03
CAR	0.1873	0.1661	0.4884	-0.0030	0.0928	24.70*
NCTA	0.4039	0.4022	0.6193	0.2112	0.0981	4.33
TA	3.63	2.98	8.55	0.60	2.28	2.90
INT	0.0716	0.0688	0.0839	0.0590	0.0080	11.30*
INF	0.0480	0.0350	0.1616	0.0061	0.0389	137.80*
BD	0.6762	0.7000	0.7555	0.5693	0.0559	9.67*
GRGDP	0.0108	0.0192	0.1846	-0.3425	0.1229	142.46*

Notes: * Indicate That Normality Is Significant At The 5 Percent Level. The Descriptive Statistics Are Based On The Final Sample Of 143 Observations For 13 Cross-sections Over The Period 1990-2000. ROE Is Return On Equity, OVR Is Overhead Ratio, LQR Is Liquidity Ratio, CAR Is Capital Adequacy Ratio, NCTA Net Credit Facilities To Total Assets, TA Is Total Assets, INT Is Interest Rate, Inf Is Inflation Rate, BD Is Banking Sector Development And GRGDP Is The Growth Rate In Real Gross Domestic Product.

Third, The Mean Liquidity Ratio Is Very High 53.29%. Moreover, Its Standard Deviation 11.98% Is Low And This Indicates The Conservative Nature In Managing Jordanian Banks. Fourth, The Overhead Ratio Is Negatively Correlated With Banks' Performance. This Indicates That Banks With Lower Overhead Ratio Or Higher Operational Efficiency Performed Better Than Others. Fifth, In Contrast To The Negative Significant Relationship Between Liquidity And Profitability In Other Studies, The Liquidity Ratio In Our Case Has A Positive And Statistically Significant Relationship With ROE. This Is Probably Due To The Fact That Interest Margin In Jordanian Banks Are Much Wider. Sixth, The Positive And Statistically Significant Relationship Between CAR And ROE Supports The View That Profitable Banks Are Well Capitalized. These Capitalized Banks Retain A Portion Of Their Earnings Over Time And Therefore, Face Lower Cost Of Funding And Also Lower Cost Of Going Bankrupt. Furthermore, Banks With A Higher Ratio Of NCTA Or Banks With A More Conservative Credit Policy And Provision For Loan Losses Have Better Performance Than Others Do. The Data Also Reveals That The Size Has A Positive Impact On Performance.

Table 5

Variables: Correlation Matrix

	Roe	Ovr	Lqr	Car	Ncta	Ta	Int	Inf	Bd	Grgdp
Roe	1.000									
Ovr	-0.404	1.000								
Lqr	0.361	-0.510	1.000							
Car	-0.114	-0.061	0.197	1.000						
Ncta	-0.319	0.524	-0.875	-0.261	1.000					
Ta	0.529	-0.223	0.217	-0.430	-0.267	1.000				
Int	-0.159	0.073	0.035	0.194	-0.124	0.264	1.000			
Inf	0.113	-0.031	-0.015	0.009	0.077	-0.202	-0.607	1.000		
Bd	-0.170	0.144	-0.127	0.194	0.022	0.223	0.723	-0.302	1.000	
Grgdp	-0.003	-0.038	-0.048	-0.098	0.126	-0.185	-0.310	0.135	-0.265	1.000

Notes: The Descriptive Statistics Are Based On The Final Sample Of 143 Observations For 13 Cross-sections Over The Period 1990-2000. ROE Is Return On Equity, Ovr Is Overhead Ratio, LQR Is Liquidity Ratio, CAR Is Capital Adequacy Ratio, NCTA Net Credit Facilities To Total Assets, TA Is Total Assets, INT Is Interest Rate, INF Is Inflation Rate, BD Is Banking Sector Development And GRGDP Is The Growth Rate In Real Gross Domestic Product.

In Table 6, We Present The Estimation Results Of Model (1). Several Characteristics Of These Results Merit Some Comments. First, As Expected, The Coefficient Of The Overhead Ratio Is Negative. In Other Words, Banks With Greater Overheads Tend To Perform Worse Than Other Banks. Second, Liquidity Is Expected To Have A Negative Coefficient Because Of The Opportunity Cost Of Idle Money. Having Said That, It Must Be Realized That The Positive Coefficient Of This Variable Is Due To The Fact That A Large Proportion Of The Cash Holdings Are Deposited In Foreign Banks. In Other Words, The Higher Returns On This Investment Are Probably The Reason Behind The Positive Coefficient. Third, Capital Adequacy Ratio Has A Significant Positive Impact On Bank Performance. This Result Is Probably Due To The Fact That Banks' Investments In Local Securities Have Performed Poorly. Indeed, The Return On The ASA Index; Which Is Inefficient Market; Reflected Some Serious Decreases During The Period 1990-2000. Fourth, The Coefficient Of Net Credit To Total Assets NCTA Is Not A Significant Determinant Factor Of Performance. This Result, It Can Be Argued, Is Due To The Fact That Interest Margins In The Jordanian Banking Sector Are Relatively Large. Fifth, The Coefficient Of Size Is Consistently Positive And Strongly Significant. This Indicates The Fact That Larger Banks Perform Better Than Smaller Banks And This Is Probably Due To Economies Of Scale. Sixth, The Coefficient Of Interest Rate Is Consistently Negative And Significant At Either The 0.01 Or 0.05 Levels. This Is A Clear Indication That Rising Interest Rates Is Not In The Interest Of Jordanian Banks. Indeed, Credit To The Private Sector As A Proportion Of Total Assets Reflected Some Decrease During The 1990's (Table 2.1). This Is Opposed To The Increase In The Banks' Public Debt. Finally, It Seems That The Inflation Rate And Growth Rate In Real GDP Are Not Significant In Affecting Banks' Performance. Again, This Result, It Can Be Argued, Is Probably Due To The High Interest Margins That Banks Earn.

Table 6

Regression Estimations

The Model $ROE_{i,t} = a + \beta X_{i,t} + \emptyset Z_t + \mu_i + \pounds_{i,t}$ Where: $X_{i,t}$ Is The Vector Of Characteristics Of Bank (I) In Year (T) And These Are Overhead Ratio OUR, Liquidity Ratio LQR, Capital Adequacy CAR, Net Credit To Total Assets NCTA, LOG Of Total Assets TA. Z_t Is The Vector Of Characteristics That Describe Macroeconomic Variables. These Are Interest Rate INT, Inflation Rate INF, Credit To Private Sector Divided By GDP BD, And Growth Rate In Real Gross Domestic Product GRGDP. μ_i Is Used To Capture The Unobserved Individual Effects (Fixed Or Random). Numbers In Parentheses Appearing Below The Coefficient Are White (1980) Heteroskedasticity-constant T-statistics. ***, **, And * Indicate Coefficients Is Significant At The 10%, 5%, And 1% Levels Respectively.

	Ols	Fixed-effect	Random-effect
Constant	-2.027	-	-1.770
	(-3.735**)	-	(-4.197*)
OVR	-3.934	-1.617	-3.506
	(-2.285**)	(-0.701)	(-2.242**)
LQR	0.359	0.225	0.345
	(2.576*)	(1.679***)	(1.809***)
CAR	0.521	1.238	0.369
	(1.973**)	(4.676*)	(2.362*)
NCTA	0.399	1.126	0.232
	(2.003**)	(5.618*)	(0.936)
TA	0.262	0.563	0.243
	(4.610*)	(3.550*)	(8.476*)
INT	-5.806	-7.148	-5.493
	(-2.119**)	(-2.808*)	(-1.902**)
INF	0.849	1.403	0.775
	(0.889)	(1.811***)	(0.875)
BD	-0.183	-0.784	-0.175
	(-0.464)	(-2.137**)	(-0.361)
GRGDP	0.252	0.424	0.185
	(0.794)	(1.756***)	(0.611)
Adjusted R^2	0.457	0.631	0.386
F-Statistic	13.669*	31.502*	-

5. Summary And Conclusions

Given The Importance Of Stock Markets And Banks In Providing Listed Companies With Long Term Finance, Promoting The Role Of The Private Sector In Stimulating Growth, Enhancing The International Risk Process And Improving The Resource Allocation, It Is Felt Useful To Examine The Jordanian Capital Market In Terms Of One Of Its Institutions (Banks) That Provide Their Services (Financing) To Its Customers. Indeed, The Financial Economics Literature Provides Us With Numerous Theoretical Issues And Empirical Studies That Can Guide Interested Researchers In Evaluating The Performance Of Capital Markets. Among Others, These Include The Performance And Efficiency Of Commercial Banks.

Due To The Economic Importance Of Banks, A Number Of Studies Have Examined The Performance Of Depository Institutions In Major Economies Like The USA, Japan And Britain. Indeed, The Performance Of The Financial Services Industry Has Long Been A Focus Of Banking Research. Relative To The Subject Matter Of This Research Proposal, The Literature Can Be Classified Under Three Main Streams: (I) Operating Performance Of Commercial Banks, (II) Interest Rate Spreads In Commercial Banks And (III) Efficiency Of Commercial Banks.

This Paper Examined The Relationship Between The Performance Of Jordanian Banks And Their Characteristics After Controlling Macroeconomic Variables. Specifically, The Purpose Of This Thesis Is To Provide Answers To The Following Questions:

1. Why Are Some Jordanian Banks More Successful Than Others? In Other Words, To What Extent Is The Disparity In Their Performance Due To Variations In Their Characteristics?

2. To What Extent Do Environment-related Macroeconomic Variables Influence The Profitability Performance Of Jordanian Banks?

Based On The Empirical Results, It Is Concluded That The Most Significant Factor In Determining The Performance Of Jordanian Banks Is Total Assets (Bank Size). This Is Indeed Expected And The Possible Rationale For This Conclusion Is Economies Of Scale. As Expected, The Results

Point Out To The Fact That Factors Like Overhead Ratio And Liquidity Are Also Significant Factors In Determining Banks' Performance. Moreover, The Results Indicate That Mean Interest Rate Has A Negative Impact On Performance. In Other Words, Rising Interest Rates Are Not In The Interest Of Jordanian Banks. Finally, Based On The Results Of This Thesis, It Is Felt Useful To Make The Following Recommendations. First, Given The Importance Of Bank Size In Its Impact On Performance, It Would Be Useful To Examine The Merger And Acquisition Activities That Have Occurred In The Jordanian Banking Sector And To Recommend Some Policy Measures That Encourage These Financial Activities. Second, It Would Be Most Useful To Examine In Details The Determinants Of Liquidity. This Is Based On The Fact That Jordanian Banks Hold Relatively Large Proportions Of Their Assets In The Form Of Cash And Foreign Currency Deposits.

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Foot Notes:

(1) For. a non-technical survey of the literature that examines the relationship berween financial structure and economic growth, see dolar and meh (2002).

(2) For, A Survey Of Alternative Methods Of Measuring Bank Efficiency, See Berger Et Al. (1993), Berger And Mester (1997), Coelli Et Al. (1998).

(3) Funding Gap Model Measures The Impact Of Interest Rate Change On The Net Interest Income, Whereas Duration Gap Model Measures The Impact. Of Interest Rate Change On The ShareholIders' Equity Or Net Worth.