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The Capital Structure of Banking Sector in Jordan

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ABSTRACT

This study examined the capital structure of listed banking in Amman bourse (Amman Stock Exchange) in 2002. Using firm-level panel and data, the mean leverage ratios are calculated during the time period (1992-2001).

Based on the statistical analysis, it is found that the size of the bank (measured by total assets), retained earnings divided by total assets, liquidity ratio and the long and short - term debts are determinants of leverage.

Furthermore, it is found a positive relationship between bank's capital structure (leverage) and the age of the bank and the total assets associated with the retained earnings divided by total assets.

Also, this study found a negative relationship between the bank's capital structure (leverage) and the liquidity ratio associated with the long, short-term debts.

Finally, this study presented some results and recommendations that have been suggested which might lead to enhance and develop the role of banking sector in the process of developing.

KEYWORDS: Capital structure , Amman Stock Exchange , Leverage , Banking sector .

INTRODUCTION

Commercial Banks' success depends on the efficiency of their capital structure. Many studies have been conducted in order to identify the factor`s impact on the companies` capital structure. These studies emphasized that capital structure and efficiency are influenced by the company`s age and extent of depending on borrowed funds compared to owner equity and the level of liquidity.

This paper investigates the financial structure of banking sector in Jordan. Using firm - level panel data, the main purpose of this paper is to examine the determinants of the capital structure (leverage) and the debt maturity structure of the banking industry during the time period (1992-2001).

The study has been organized as follows:

The first section provides some basic information about the banks listed, and the total market capitalization of banking sector. In addition, the trading volume in Amman financial market and its stock market returns.

The second section is designed to establish the theoretical framework and the literature review of the capital structure.

The third section has presented the data being collected, and the research methodology through analyzing the financial variables.

The fourth section presents the findings of the study. And the last section covered the most important results and recommendations of the study.

Assessment of Banking Sector in Amman Stock Exchange (Bourse)

The Amman Stock Exchange (ASE) was established in 1978 with the following objectives (Market Low, 1976: 2-3):

1. Encourage savings and investments in the capital of listed companies.
2. Organize the issue of securities and dealings in shares and other financial securities.
3. Collect and publish information about listed companies.

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Table (1)
Market Capitalization of Listed Companies of Each Sector

Year	Market Capitalization As a Proporation of Capitalization of Total Market (%)				
	Banking	**Insurance**	**Services**	**Industrial**	**All Sectors**
1992	40	3	7	50	100
1993	41	2	6	51	100
1994	43	2	7	48	100
1995	50	2	7	41	100
1996	52	2	8	38	100
1997	52	2	10	36	100
1998	68	2	7	23	100
1999	57	2	11	30	100
2000	53	3	16	24	100
2001	65	3	14	27	100
Mean	**51.2**	**2.3**	**9.3**	**37.2**	**100**

Source: Various Amman Bourse Annual Reports.

Table (2)
Trading Volume of Listed Companies of Each Sector

Year	Trading Volume of Each Sector Relative to Total Trading Volume (%)				
	Banking	**Insurance**	**Services**	**Industrial**	**All Sectors**
1992	23	3	14	60	100
1993	30	3	12	55	100
1994	43	3	16	38	100
1995	41	2	23	34	100
1996	39	2	20	39	100
1997	47	1	15	37	100
1998	42	1	10	47	100
1999	33	2	13	52	100
2000	45	1	19	35	100
2001	45	1	14	40	100
Mean	**38.8**	**1.9**	**15.6**	**43.7**	**100**

Source: Various Amman Bourse Annual Reports.

ASE has been ranked as one of the best among the emerging markets according to Standard and Poors (S&P) indexes.

With a 30% growth, ASE was the fifth in term of performance among the other emerging markets included in S&P indexes during 2001.

The final outcome of the bourse activities during 2001 shows a large increase in the volume of transactions, unprecedented since the year 1994.

In the year 2001, comparing with the year of 2000, the increase reached about JD 374.6 million or 130.2% thereby yielding a transaction volume of JD 662.4 million. In view of the volume of transactions according to the economic sectors, we see that the increase has been

Table (3)
Non-Jordanian Ownership in the Listed Companies of Each Sector (%)*

Year	Sectors				
	Banking	Insurance	Services	Industrial	All Sectors
1992	45	15	3	21	29
1993	45	16	3	23	30
1994	46	16	3	24	31
1995	46	16	3	20	31
1996	48	17	7	22	33
1997	54	16	9	26	39
1998	57	15	11	28	44
1999	57	16	14	31	43
2000	55	18	21	30	42
2001	49	18	20	27	38

Source: Various Amman Bourse Annual Reports.

* As a percentage of Market Capitalization.

concentrated in the banking and industrual sectors. In the year 2001, these two sectors realized an increase of JD 171.7 million and JD 161.9 million or 160.3% and 133.5%, respectively. So, the relative importance of the volume of transactions involving these two sectors' shares rose in terms of the total volume of shares transactions during 2001 by 0.6 percentage points, and thereby reached 45.3% and 39.7%, respectively (38^{th} Annual Report for 2001, Central Bank of Jordan, pp. 36-37).

Table (1) shows the market capitalization of each secotor to the capitalization of the whole market. We remark that the market capitalization of banking sector is about half of the market capitalization of whole sector.

Table (2) reveals an increase in the volume of shares of banks within the Amman Bourse over the past ten years with a mean average amounting to about 39% of the total volume of transactions pertaining to companies altogether.

Table (3) indicates that the banking sector is attractive to foreign investors. Indeed, it shows that the number of non-Jordanian capital shareholders in the banking sector is the highest of all other sectors within the Bourse.

Thus, it is possible to say that the banking sector represents the largest market component. In fact, the market value of the banking sector exceeds that of the remaining sectors, and the volume of banking shares transactions is larger than that of other sectors' shares. Moreover, the change response in the standard figure of the banking sector share prices exceeds that of other sectors. Above all, the banking sector holds the highest attraction for foreign investors.

Theoretical Framework of Capital Structure and Literature Review :

Modern capital structure theory begins in 1958 by Professors Modigliani and Miller`s classical paper, which led to the development of a large number of theoretical and empirical papers. These papers examine the capital structure choice of listed companies. The main proposition of this work is that, under a number of restrictive assumptions, the value of a company is independent from its financial structure. These assumptions include the absence of taxes, transactions and bankruptcy costs, equality of lending and borrowing rates and finally the independence of the productive activties of the company from its financing decisions.

Following Modigliani and Miller, the theoretical analysis of capital structure has been developed further to take into consideration additional factors such as taxes and symmetric information issues. In addition, the fact that the mix of capital structure does affect the cost of capital, it is important to examine the capital structure of companies because it affects company`s real decisions about employment, production, and investment (Harris and Raviv, 1991; Pagano, 1993; Rajan and Zingales, 1995; Zwiebel, 1996; Biais and Casamatta, 1999; Yanagawa, 2000; Mira, 2001; and Sukkari, 2003).

The aim of this section is to outline some of the studies that examined the determinants of the capital structure of banks.

Many researchers have investigated the determinants of capital structure of companies within and across countries. Some of the main empirical papers include Taub (1975), Titman and Wessels (1988), Harris and Raviv (1991), Pagano (1993), Demirguc-Kunt and Maksimovic (1996), Zwiebel (1996), Boyd and Smith (1998), Bevan and Danbolt (2000), Shin and Stulz (2000), Booth et al. (2001), Mira (2001), Huang and Song (2002), among others.

The approach of the empirical literature has been to study the determinants of the observed leverage ratios in terms of a set of independent variables. However, the choice of the explanatory variables is difficult. This is why researchers considered different variables in their studies.

Most of the studies, chose the following variables as determinants of capital structure: Company size (measured by total assets) (Rajeswararo, 1991; Lasfer, 1999; and Booth et al., 2001), Age of the company (Herring and Szego, 1995; Manos and Ah-Hen, 2001; and Huang and Song, 2002), Liquidity ratio (Ozkan, 2001; and Antoniou et al., 2002), Profitability (Kester, 1986; Titman and Wessels, 1988; and Michaeles et al., 1999).

Listed industrial companies have been locally examined by Diraniyyeh (1992) whose study aimed at exploring the relationship between some accounting indexes and the relevant financial structure form of shareholding industrial companies in Jordan. The study concluded that there was a statistically significant relationship between the company's assets, profitability, and size, on the one hand, and the financial structure, on the other hand.

Omet and Nobanee`s paper (2001) examined the capital structure of the listed industrial companies in Jordan. Using firm-level panel data, the mean leverage ratios and the mean ratios of long term debt to total debt are calculated during the time period 1978 – 1998. Based on the statistical analysis, it is found that company size and retained earnings divided by total assets are significant determinants of leverage. Furthermore, it is found that fixed assets to total assets and total assets are the only significant determinant factors of the debt ratios.

Hayajneh (2001) conducted a study on the impact of capital constraints on the performance of shareholding industrial companies in Jordan in the period 1990-1999, and reached to the conclusion that industrial companies depended on two major sources of funding: internal funding and external funding. The latter type of funding consists of long-term loans. Hiajneh also concluded that the company's capital structure affected its financial performance.

Omet, Maghyereh and Al-Zubi (2002), examined the listed Jordanian companies. In this study, it is concluded that while much of capital structure theories explain the capital structure of Jordanian companies, ownership structure is not a significant factor.

Finally, Sukkari (2003) analyzed the determinants of the capital structure for Kuwait companies during the time period 1996 – 2001. Based on company – level data, the mean total leverage ratio and the mean long-term debt to total debt are calculated. Based on the empirical results, it is found that the leverage ratios are low and that company size and company profitability are the most important determinants of leverage.

Data and Methodology

The study population consists of all Jordanian commercial banks listed within the Amman Stock Exchange for 2002 amounting to 16 banks. A study sample of (12) banks that met the following conditions have been selected:

- Banks' shares have been traded in the Amman Stock Exchange in the period 1992-2001.
- Trading has not been interrupted in those banks' shares which have not been merged or liquidated throughout the period of study.
- Data have been available about those banks financial structure throughout the period of study .

The study depended on the following sources for collecting the data needed:

- Annual reports issued by Jordanian commercial banks .
- Annual report issued by Amman Stock Exchange.
- Annual reports issued by the Central Bank of Jordan.
- Some statistics issued by the Jordanian General Statistics Departments.

Study independent and dependent variables have been determined according to the results reached by previous studies and how far data have been available for measurement purposes. The two measures used to measure the dependant variable are:

The first Leverage ratio (Lev1) is the result of dividing total liabilities by total assets. This ratio

demonstrates the relationship between total liabilities and total assets. Selecting this measure is attributed to the fact that using debts for funding purposes within the financing structure constitutes an incentive and target for many financial companies to increase their return on investment. Meanwhile, the capital structure policy involves venture and returns trade offs simply because using debt extensively increases the risks faced by the bank, but amplifies total invested funds and expected return.

The second Leverage ratio (Lev2) is the result of dividing total owner equity by total assets. This ratio is intended to measure the risks to which the bank is subjected through depending on money borrowed for financing its assets. A lower index in this regard means that the bank depends on borrowed money for financing its assets, thereby exacerbating capital risks.

Independent variables of the study on which data were collected include the following：

***Bank Size (Measured by Total Assets)**

Bank size has been selected as an independent variable because banks with large total assets are capable of diversifying their investments and subsequently, are less vulnerable for bankruptcy and insolvency (Rajan and Zingales, 1995). Moreover, the cost of funding for these banks will be lower, and the debt ratio within the financing structures of major banks is expected to be larger than equity (Michaels et al., 1999).

It has been indicated by various studies that there is a positive relationship between a company's size and leverage which, therefore, reflects positively on such company's profitability (Booth et al., 2001). Some researchers also pointed out that a company's larger size in terms of total assets leads to benefiting from size advantages and outbursts of the economies of scale along with reducing the cost of information (Boyd and Runkle, 1993).

*** Bank Age**

The bank age is expected to have a positive impact on realizing a higher profitability especially as the older the bank, the larger assets and client confidence will often be. Expertise and know-how play a role in building the proper funding combination and creating wider prospects for geographical expansion on local and international levels (Herring and Szego, 1995).

An older bank will also help improve client banking services and identify the quality of those clients. This leads to increasing bank profitability and increasing bank's capability of borrowing and relying on debts which consist basically of customers' deposits (Pandey, 2001; Chittenden et al., 1996).

*** Ratio of Retained Earnings to Total Assets**

Increased bank's retained earnings will enhance bank's capability of repaying liabilities and financing assets out of its own sources. Thus, the bank will be in a better position to compete with other banks, and there will be higher expectations concerning the bank's ability to benefit from the advantages of relying on debts, thereby yielding positive impacts (Kester, 1986). This ratio will be measured as follows:

$$(RE/TA) = \frac{\text{Retained Earnings (RE)}}{\text{Total Assets (TA)}}$$

*** Liquidity**

Liquidity ratio is one of the most efficient indexes which determine banks' capabilities of repaying their current debts (Ozkan, 2001). It is necessary to stress the need for maintaining moderate levels of liquidity through efficient management of working capital. A clear connection is expected to link the bank's degree of liquidity and the extent of the bank's reliance on debt (Antoniou et al., 2002). The current ratio will be adopted as an index of liquidity according to the following equation:

$$(CA/CL) = \frac{\text{Current Assets (CA)}}{\text{Current Liabilities (CL)}}$$

*** Ratio of Long-term Debt to Total Assets**：

This ratio is intended to measure assets financed through long-term debts. There is no doubt that reliance on long-term debts to finance assets involves many risks. However, it is interesting to note that if these debts are properly used, they will generate profitability in favour of the bank and will maximize the owner equity. But in the event that these debts are not rightly invested, negative impacts will be incurred and will subsequently lend ground to the expected relationship between the volume of long-term debts and leverage (Hempel and Simonson, 1998).

This ratio will be measured as follows:

$$(LTD/TA) = \frac{\text{Long-Term Debt (LTD)}}{\text{Total Assets (TA)}}$$

*** Ratio of Short-term Debts to Total Assets**

This ratio is intended to measure the extent of using short-term debts for financing assets. These debts are usually used for financing working capital and other short-term liabilities. This relationship tends to have an impact on leverage in the sense that short-term debts should be repaid in a period not exceeding one fiscal year. It is, therefore, expected that this relationship will have a positive impact in case of the bank's capability of and compliance with repaying such debts during the relevant period. This relationship is also expected to have a negative impact in the event that the bank is not capable of repayment, nor does it comply with the period specified for repayment (Hempel and Simonson, 1998).

This ratio will be measured as follows :

$$\underline{(\ LTD/TA\ ) = \text{Short-Term Debt (STD)}}$$
$$\text{Total Assets (TA)}$$

The Empirical Results

This section demonstrates the results of empirical results including some descriptive statistics pertaining to dependent variables, all independent variables, and results of determinants of capital structure.

Table (4)
Descriptive Statistics (Dependent Variable)
(1992 – 2001)

	Lev1*	**Lev2***
Mean	0.345	0.072
Median	0.301	0.041
Maximum	0.792	0.497
Minimum	0.094	0.001
Standard Deviation	0.189	0.085

(*) Lev1 is equal to total liabilities divided by total assets.
Lev2 is equal to total equity divided by total assets.

Table (4) presents a summary of statistical results related to the two indexes used for measuring leverage. Upon reviewing this table, we can make the following comments:

* Based on the first leverage index (Lev1), i.e. result of dividing total liabilities by total assets, we find that average ratios tend to have a low mean of 0.345. This ratio is quite low compared to those of Germany (0.73), Japan (0.69), United States (0.58), United Kingdom (0.54), reported by Rajan and Zingoles (1995). Additionally, this ratio is almost similar to that of leverage in Kuwaiti companies which reached (0.327) (Sukkari, 2003).

* However, the second leverage index (Lev2), i.e. result of dividing total equity by total assets, is (0.072) which is extremely low compared to leverage in Germany that reached 0.55 (Claessens et al., 1998). This ratio is nearly the same as that scored in case of leverage in Kuwaiti companies, i.e. 0.080 (Sukkari, 2003).

* Apparently the standard deviation for both indices is extremely low, but is lower in case of the latter index than that of the first index, thereby indicating that banks' reliance on owner equity for financing assets is almost the same.

Table (5) provides a summary of statistical results related to independent variables used in this study. After reviewing data in this table, the following comment can be made:

* Commercial banks' activities have realized an acceptable profit amounting as an average to 8.4% in terms of retained earnings/ total assets.

* Liquidity ratio is low compared to that of other countries, and this is perhaps attributed to banks' keenness on investing available money and their tendency to avoid retaining any liquidity unless it is extremely necessary.

* Commercial banks' reliance on long-term debts is relatively high, and their reliance on short-term debts is high. This reliance indicates that commercial banks depend on borrowed money for financing both of their short and long-term operations.

* Commercial banks' profitability varies; retained earnings to assets ratio is negative for some banks, and this is an indication of their accumulated losses which yielded a negative minimum value of the Retained Earnings/ Total Assets Index.

* It is interesting to note that the standard deviation for all variables is low notwithstanding different deviations of variable ranging from 0.097 to 3.271 .

In order to test determinants of capital structure of commercial banks, the following models have been established :

$$Lev1 = C + X_1\ Age + X_2\ Size + X_3\ RE/TA + X_4\ CA/CL + X_5\ LTD/TA + X_6\ STD/TA + e$$

$$Lev2 = C + Y_1\ Age + Y_2\ Size + Y_3\ RE/TA + Y_4\ CA/CL + Y_5\ LTD/TA + Y_6\ STD/TA + e$$

Table (5)
Descriptive Statistics (Independent Variables)
(1992 – 2001)

	Age *	Size*	RE/TA*	CA/CL*	LTD/TA*	STD/TA*
Mean	6.721	7.782	0.084	2.183	0.312	0.254
Median	6.453	7.669	0.079	2.097	0.307	0.212
Maximum	8.236	9.275	0.198	5.384	0.792	0.674
Minimum	4.990	3.926	- 0.328	1.105	0.251	0.131
Standard Deviation	0.097	0.513	0.172	2.751	3.271	2.892

(*) Age is equal to the natural logarithm of years. Size is equal to the natural logarithm of total assets. RE/TA is equal to retained earnings divided by total assets. CA/CL is equal to Current Assets divided by Current Liabilities. LTD/TA is equal to Long-Term Debt divided by Total Assets. STD/TA is equal to Short-Term Debt divided by Total Assets.

Table (6) shows the results of regression analysis of the two models used to explain determinants of the capital structure of Jordanian commercial banks.

Table (6)
Regression Results of Lev1 & Lev2
(1992 – 2001)

		Lev1	Lev2
Constant	Coefficient	0.805	0.182
	Sig.	0.000	0.000
Age	Coefficient	0.009	0.007
	Sig.	0.061	0.063
Size	Coefficient	5.555	2.662
	Sig.	0.001	0.001
RE/TA	Coefficient	0.254	0.025
	Sig.	0.003	0.002
CA/CL	Coefficient	- 0.843	- 0.005
	Sig.	0.004	0.001
LTD/TA	Coefficient	- 0.824	- 0.142
	Sig.	0.001	0.001
STD/TA	Coefficient	- 0.032	- 0.424
	Sig.	0.003	0.002
Adjusted R^2		0.789	0.822
F-Statistic	Coefficient	6.143	11.329
	Sig.	0.000	0.000

According to this table, the following points can be made:

- There is a positive relationship between leverage (Lev1 and Lev2) and the following variables: bank's age, bank's size (in terms of total assets), and bank's profitability (measured by dividing retained profits by total assets). This is consistent with the findings of a study carried out by Berger (1995).
- There is a negative relationship between leverage (Lev1 and Lev2) and the following variables: bank liquidity (measured by dividing current assets by current liabilities), long and short-term debts compared to total assets ratio. This relationship is consistent with the conclusions reached by a study which Herring and Szego (1995) have conducted.
- There is a statistically significant relationship between the leverage (Lev1 and Lev2) and the following variables: bank's size, retained earnings to total assets ratio, ratio of liquidity, long-term debts to total assets ratio, and short-term debts to total assets ratio. This finding is consistent with the conclusions reached by the study which Prescott (2001) conducted.
- Despite the positive relationship between the leverage and the age of the bank, this relationship is not statistically significant at 5% level.
- R^2 for the first index Lev1 is around 79%, and R^2 for the second index Lev2 is around 82%. This means that independent variables that have been taken into consideration account for a high ratio of determinants of leverage and capital structure of Jordanian commercial banks.

Summary of Results and Recommendations

In this research paper, capital structure of Jordanian commercial banks listed within Amman Stock Exchange

for the period 1992-2001 along with determinants of capital structure. In view of the results of this study, the following conclusions can be made:

- Leverage ratios of commercial banks are low compared to those of banks in various other countries such as Germany, Japan, United States, etc.
- Large banks in terms of total assets depend more on leverage than small and medium size banks .
- Statistically significant determinants of capital structure at commercial banks include: bank size, bank profitability, retained earnings to total assets ratio, bank liquidity ratio, long-term debt to total assets ratio, and short-term debt to total assets ratio .
- There is a positive relationship between the bank age, which is one of capital structure determinants, and the leverage ratio. But this relationship is not statistically significant.
- Independent variables adopted in this study investigate approximately nearly 80% of financing structure determinants at Jordanian commercial banks.

In light of the results of this study, researchers recommend the following:

- There is a need for studying the causes of low leverage at commercial banks to determine whether it is deliberately desired by bank management or the banks have no other alternative.
- It is necessary to provide large-size banks which have high retained earnings with incentives to rely on long-term debts for financing purposes. These debts yield higher advantages and profitability compared to small-size banks .
- Increasing commercial banks liquidity which allows banks to depend on leverage for financing purposes.
- Banks should retain balance between owner equity and leverage for financing their needs so that banks will be in a better position to realize profitability, attain customers' trust, and provide various banking services.
- Jordanian commercial banks management are required to pay greater attention to capital structure and leverage .
- It is necessary to study other factors that may determine the capital structure of commercial banks and which researchers did not deal with them in this study.

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الهيكل المالي لقطاع البنوك فى الأردن

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ملخـص

اختبرت هذه الدراسة هيكلية رأس المال ومحدداتها للبنوك المدرجة في بورصة عمان للأوراق المالية لعام 2002م. وباستخدام البيانات المحاسبية تم استخراج بعض الإحصاءات الوصفية للمديونية في البنوك الأردنية للفترة (1992-2001).

واستنادا إلى التحليل الإحصائي توصلت الدراسة إلى أن حجم البنك (مقاسا بإجمالي الأصول)، والأرباح المحتجزة مقسومة على إجمالي الأصول، ونسبة السيولة والديون طويلة الأجل وقصيرة الأجل هي محددات ذات تأثير على الهيكل المالي للبنك (المديونية).

كما توصلت الدراسة إلى وجود علاقة موجبة بين المديونية من جهة وعمر البنك، وحجم البنك (مقاسا بإجمالي الأصول)، والأرباح المحتجزة مقسومة على إجمالي الأصول من جهة أخرى، وأثبتت أيضا أن هناك علاقة سالبة بين المديونية من جهة ونسبة السيولة والديون طويلة وقصيرة الأجل مقسومة على إجمالي الأصول من جهة أخرى.

وأخيراً، تم تقديم عدد من التوصيات التي من شأنها أن تنهض بدور البنوك نحو التطور.

الكلمات الدالة: هيكل رأس المال، سوق الأوراق المالية، المديونية، قطاع البنوك.

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