



ON THE BID-SPREAD IN THE JORDANIAN BANKING SECTOR: WHAT ARE THE IMPLICATIONS?

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JEL Classification

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ABSTRACT

This paper measures the bid-ask spread for all listed Jordanian banks and examines its' determinants. Based on a total of 15 banks and the time period 2012-2014, the results show that Jordanian banks' stocks suffer from relatively high liquidity cost. This finding has a number of implications to the banks' cost of capital, and the behavior of their stocks' return. In addition, unless the management of the capital market takes the issue of stock liquidity more seriously, it is argued that such listed firms (banks) might choose to cross-list their stocks or leave the local market altogether and list their stocks abroad. As expected, the objective of such a move is to improve their stocks' liquidity and hence, realize the envisaged benefits.

1. INTRODUCTION

The subject matter of financial development has for long been a topic of interest to researchers as well as international organizations. In addition, this issue has always been a controversial one. For example, while Bagehot (1873), Hicks (1969), and Schumpeter (1912) argued for the positive economic role of financial systems, Robison (1952) argued that finance follows economic growth. To make matters even more controversial, Lucas (1988) argued that the finance-growth nexus is over-stressed.

Relative to the contrasting viewpoints about the role of financial systems, however, one can argue that they provide economies with a number of useful functions. Financial systems facilitate the trading and diversifying risk, allocate scarce resources, monitor managers, mobilize savings, and facilitate the exchange of goods and services (Levine, 1997).

The empirical literature, following the early, and much-referred to, papers by King and Levine (1993), and Levine and Zervos (1996), involves so much effort that examines the economic implications of financial development per se. Indeed, using various econometric techniques that rely on cross-sectional and time series data, this literature is large enough

to warrant numerous literature review papers. Some of the early review papers include Levine (2004), FitzGerald (2006), Ang (2008), and Zhuang et al. (2009). More recent papers are published by Panizza (2013), Pasali (2013), and Nyasha and Odhiambo (2014).

On average, as more developed financial systems promote growth, the literature has also considered the issue of what determines financial development itself. Again, this literature is too large to review in a single paper. However, some of these papers include Ito (2006), Kubo (2008), and Andrianaivo and Yartey (2009). In addition, the determinants of financial development in the MENA region and the Middle East and Central Asia are examined by Ben Naceur et al (2007) and Billmeier and Massa (2009) respectively. Also, recent papers that examine this subject matter include Cherif and Dregre (2014), Raza et al. (2014) and Elsherif (2015).

Within the context of the economic role of financial development, and as a component of financial systems, the literature, based on two arguments, support the role of stock markets. First, when secondary markets allow investors to get their orders executed immediately and at a minimum cost or bid-ask spread (liquidity), such a facility or service encourages them to invest in long-term projects (Levine, 1991). Second, in liquid secondary markets, investors do not mind investing in riskier projects, that promise higher returns, because such (liquid) markets, enable them to diversify their investment portfolios and hence optimize the risk-return relationship (Greenwood and Jovanovic, 1990). Due to these (and others) benefits of liquid secondary markets, researchers have dealt with the measurement of liquidity cost and what determines it. In actual fact, this effort is due to the early papers by Demsetz (1968), Tinic (1972), and Tinic and West (1974).

Following the early papers, more recent research effort examines other related issues like the impact of introducing specialists, reduction in the minimum tick, cross listing, and reverse stock splits on liquidity cost. Again, whilst numerous papers examine these issues, some of them include Heibatollah and Zhou (2008), Fang et al. (2009), Asciglu et al. (2010), Berkman and Nguyen (2010), and Hansen and SungSuk (2013).

As far as the liquidity cost of financial securities per se is concerned, the literature relies on a number of variables to model their behaviour. Some of the most common variables that enter the econometric analysis are trading volume, firm size, stock price, and stock volatility (risk). More recent papers include Kuo et al. (2010) Chekili and Abaoub (2013), Ding et al. (2013), and Madyan et al. (2013), Yaseen et al. (2015).

On average, and based on the results of the empirical literature, liquidity cost in developing markets is relatively high, and markets that have market-makers tend to have lower cost of trading. For example, based on a total number of 108 listed stocks and daily data during the years 2007 and 2009, the empirical results indicate that liquidity cost on the Jordanian capital market is high" (Yaseen et al., 2015).

To realize the benefits of financial development, the Amman Securities Exchange (ASE) was established in 1978. By the end of the year 1978, the market had a total of 66 listed firms. This number has increased to 236 by the end of 2014. In Jordan, all national banks are listed on the ASE. Their total number is 15. However, this sector (banking) has always been dominant in the market. For example, during the last three years (2012-2014), their

market capitalization accounted for about 50 percent of the capitalization of the whole market. Similarly, the total assets of all 15 banks accounted for about 82 percent of the total assets of all listed firms. In addition, the mean annual net income realized by the listed banks accounted for about 70 percent of all listed firms' profits.

Relative to the above-mentioned observations about the relative weight of all listed Jordanian banks in the ASE, it would be interesting to examine the liquidity cost of their stocks. Indeed, if they suffer from high liquidity cost, this may encourage them "to cross-list their stock in more liquid, developed markets, thereby hindering domestic market development (Domowitz, 2001).

Relative to the issue of cross-listing, it must be mentioned that a large body of literature examines this specific (why firm cross-list?) issue. For example, it is stated by Dodd (2013), in her review of the literature which examines the motives for cross-listing, that "traditional wisdom has been that cross-listing is a way to overcome investment barriers (market segmentation theory) and to improve stock liquidity (liquidity theory)".

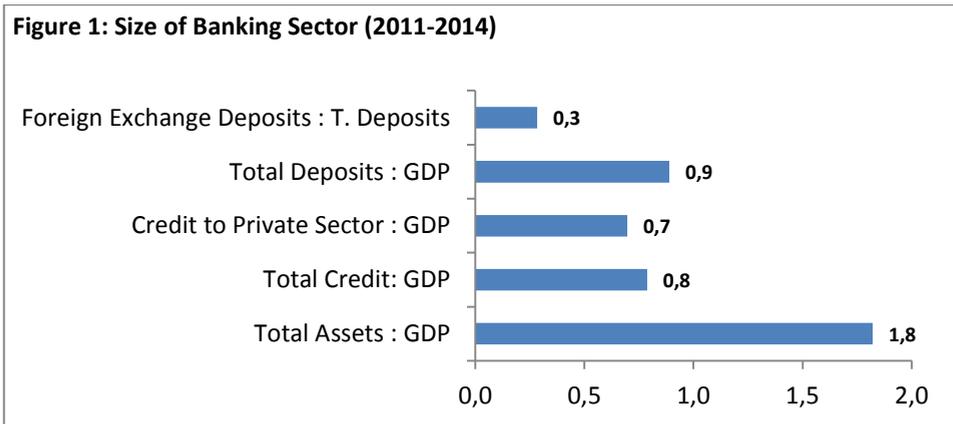
The rest of the paper is organized as follows. In section 2, a brief outline of the banking sector in Jordan is presented. The data and methodology, and empirical results are presented and discussed in section 3. Section 4 is left for a summary and conclusions.

2. THE BANKING SECTOR IN JORDAN

It is only natural that with time, most if not all, financial systems would grow in not only size, but also in the provided diversity of financial services and securities. The Jordanian financial (banking) system is not an exception. The Jordanian licensed banks are composed of banks that deal with interest, Islamic banks that deal according to the Islamic Sharia Law, and foreign banks.

Currently, there are 13 Jordanian licensed banks and 2 Jordanian Islamic banks, and 10 foreign banks (9 commercial and 1 Islamic) with branches in Jordan. Relative to the number of banks which operate in Jordan, it is important to note that the Islamic and foreign banks are still small. Indeed, based on various measures like total assets, total deposits, and total credit, these banks account for about 10 percent of the total banking sector.

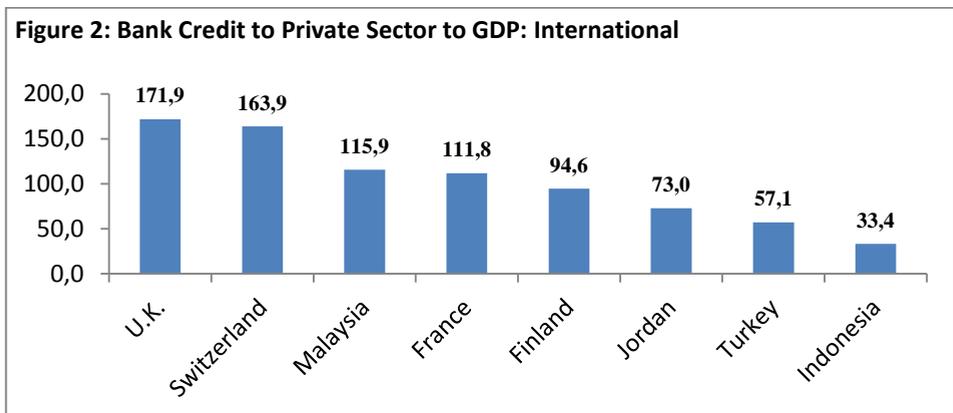
Relative to the national economy, licensed banks in Jordan are large. For example, during the period 2011-2014, their mean annual total assets to GDP ratio was equal to 180 percent (Figure 1). Similarly, total credit and credit to the private sector to GDP ratios were equal to 80 percent and 70 percent respectively. In addition, it is interesting to note that while the mean ratio of total deposits to GDP was equal to 90 percent, 30 percent of bank deposits are in the form of foreign exchange. In other words, one can state that the banking sector in Jordan is partially dollarized. This observation is understood given the fact that the national economy receives annually the equivalent of about 12 percent of its Gross Domestic Product (GDP) in the form of official remittances.



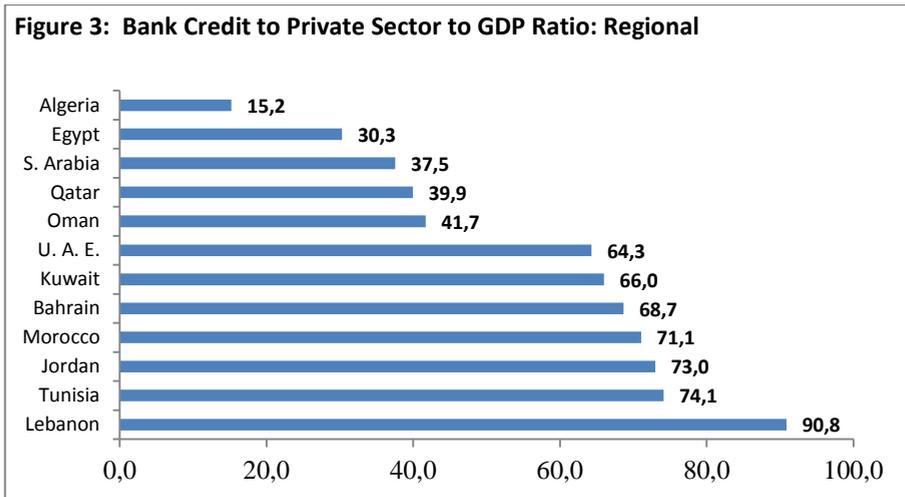
Source: Central Bank of Jordan Annual Reports.

To put the size of the Jordanian banking sector into its international and regional perspective, we report in Figure 2 and Figure 3, the 2013 ratios of bank credit to the private sector to GDP for a number of advanced and emerging economies, and a group of Arab economies.

Based on the reported values, we can see that while the Jordanian banking sector is relatively small if we compare it with advanced economies' banking sectors, it is one of the largest in the Arab region. For example, bank credit to the private sector to GDP ratio in Jordan is equal to 73 percent, and this is much lower than that in the U.K. (171.9 percent). However, the 73 percent ratio is higher than the Kuwaiti ratio (66 percent), Saudi Arabian ratio (37.5 percent), and the Algerian ratio (15.2 percent).



Source: World Bank Database.



Source: World Bank Database.

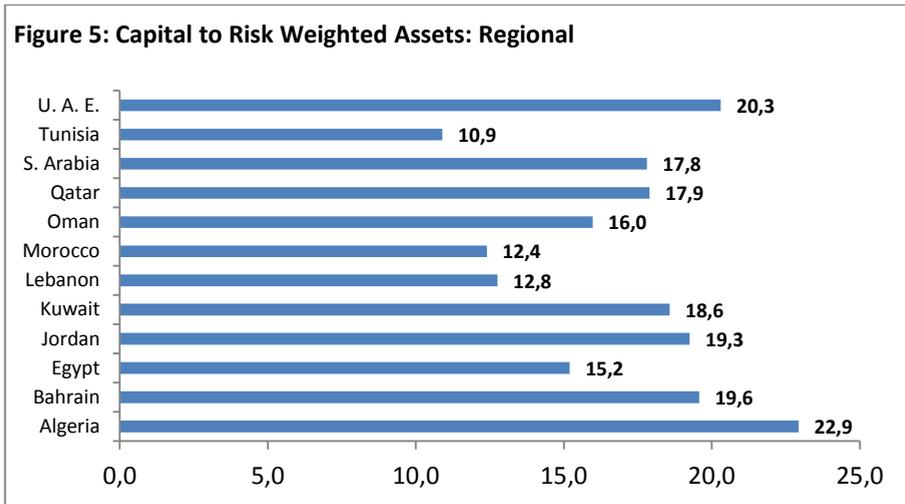
In Figures 4-5, we report the capital to risk weighted assets for the Jordanian banks as well as banks in other countries. Again, one can see that Jordanians banks are relatively well capitalized. For example, their ratio (19.3 percent) is greater than that which prevails in, for example, Finland (15.4 percent), Tunisia (10.9 percent), and in Egypt (15.2 percent).

Finally, and notwithstanding the fact that the Jordanian sector is large relative to the Arab banking sectors, it is interesting to note that the degree of financial inclusion is low.

Indeed, the reported values in Table 1 show that the proportion of adult Jordanians with a bank account is equal to 24.6 percent and this is much lower than in, not only Finland (100 percent), but also in the United Arab Emirates (83.7 percent) and Tunisia (27.4 percent). In actual fact, it is only Egypt that has a lower proportion (14.1 percent). Based on these figures, we can probably argue that Jordanian banks have a lot of local retail business which is not tapped.



Source: World Development Indicators, World Bank.



Source: World Development Indicators, World Bank.

Table 1: Proportion of Adult Proportion with Bank Account

Country	Proportion	Country	Proportion
Finland	100.0	Bahrain	81.9
France	96.6	Kuwait	72.9
Switzerland	98.0	S. Arabia	69.4
U.K.	98.9	Algeria	50.5
Turkey	56.7	Lebanon	46.9
Indonesia	36.1	Tunisia	27.4
Malaysia	80.7	Jordan	24.6
U. A. E.	83.7	Egypt	14.1

The Little Data Book on Financial Inclusion, 2014, World Bank.

3. THE DATA, METHODOLOGY AND EMPIRICAL RESULTS

As mentioned in the introduction, the aim of this paper is to examine all listed Jordanian banks (15) in terms of their stocks' liquidity cost. To carry-out this analysis, the researchers collected the daily closing bid and ask prices for each bank and for each of the years 2011, 2012, 2013, and 2014.

Based on the collected data, the mean annual bid ask spread is calculated for each bank. It is important to note that the ASE does not allow the daily price for any stock to increase or decrease by more than 10 percent of the previous day's closing price. To take this institutional regulation into consideration, any closing bid or closing ask which was outside the 10 percent level, was excluded from the analysis.

In common with many published papers, and based on the relevant data for the analysis, the econometric model looks as follows:

$$BAS_{i,t} = \alpha_0 + \beta_1 \ln(\text{Price}_{i,t}) + \beta_2 \ln(\text{Volume}_{i,t}) + \beta_3 \ln(\text{Risk}_{i,t}) + \beta_4 \ln(\text{Size}_{i,t}) + \epsilon_{i,t}$$

where BAS is the mean annual bid-ask spread for stock *i* and year *t*, and this is measured by the following expression: $[(AskP_{i,t} - BidP_{i,t}) / ((AskP_{i,t} - BidP_{i,t}) / 2)] * 100$.

The independent variables are Price (the natural logarithm of the mean annual closing prices), Volume (natural logarithm of the mean annual trading volume), Risk (the mean annual value of the daily dummy variable which is equal to 0 if the highest and lowest prices are equal and 1 otherwise), and Size (a dummy variable which is equal to 1 if the bank's total assets is greater than the mean of all bank's assets and zero otherwise). In other words, our data that enters the statistical analysis is balanced panel with a total of 60 observations (15 banks and 4 years).

In Table 2, we report the main descriptive statistics about the dependent variable (liquidity cost) and the dependent variables. The overall mean value of liquidity cost (2012-2014) is high (3.7 percent). In addition, the overall mean annual values of this measure (liquidity cost) are equal to 3.1 percent (2011), 3.2 percent (2012), 4.0 percent (2013), and 4.6 percent (2014).

Table 2: Liquidity Cost- Descriptive Statistics

	BAS	Price	Volume	Risk	Size
Mean	0.037	0.733	6.125	0.356	0.250
Median	0.036	0.544	6.065	0.279	0.000
Maximum	0.046	2.208	6.706	0.640	1.000
Minimum	0.031	-0.174	5.665	0.227	0.000
Std. Deviation	0.006	0.717	0.447	0.167	0.437
No. of Observations	60	60	60	60	60

The overall mean value of liquidity cost is high. For example, using the same measure, Jiang et al. (2011) reports a mean value of 0.02 percent for stocks listed on the NYSE and 0.04 percent for stocks listed on the NASDAQ. Similarly, Gagnon and Gimet (2013) measure liquidity cost for listed European and Canadian exchanges and the reported cost values are equal to 0.3 percent and 0.2 percent respectively. Finally, the mean value of liquidity cost for listed Chinese firms is equal to 0.2 percent (Ding et al. 2013).

As far as the independent variables are concerned, it is useful to note that our group of 15 banks reflect some large differences between their stock prices. For example, the prices of 4 banks are greater than 3 Dinars, and 7 banks less than 2 Dinars. The prices of the rest of the banks (4) lie between 2 Dinars and 3 Dinars. Naturally, when such differences in prices exist, they tend to exacerbate liquidity cost. For example, with the existing minimum tick of one pence, the liquidity cost of a stock whose price is greater than 3 Dinars would more likely than not, be lower than a stock whose price is equal to 1 or 1.5 Dinars. This argument implies that stock price is expected to negatively impact liquidity cost.

In Table 3, we report the estimation results (Fixed-Effect Model) of the determinants of liquidity cost. The estimated results are as expected. For example, when we estimate the impact of stock price alone on liquidity cost, we find that its coefficient is negative (-0.116) and statistically significant. This implies that higher-priced stocks tend to have, on average, lower liquidity cost. In addition, when we control for bank size, the sign and significance of the coefficient of price remains the same (-0.185). Finally, the coefficient of stock price

remains negative and significant when we add the remaining independent variables to the model (-0.170). These results indicate that stock price does impact liquidity cost in a negative manner.

Table 3: Estimation Results

Variable	Coefficient	Coefficient	
Price	-0.116*	-0.185*	-0.170*
Volume	---	---	-0.022*
Risk	---	---	0.264*
Size	---	-0.129*	-0.142*
Adjusted R ²	0.325	0.474	0.582
D-W Statistic	1.522	1.396	1.449
F-Statistic	29.880*	51.545*	69.641*
*Significant at the 99 percent level.			

The remaining independent variables have the expected signs as well. First, the coefficient of trading volume is negative (-0.022) and significant at conventional levels. This implies that stocks which are more actively traded tend to have lower liquidity cost. The impact of risk, on the other hand, is positive indicating that stocks whose risk is higher tend to suffer from higher liquidity cost. Finally, as far as the impact of bank size is concerned, the negative and significant sign of its coefficient (-0.142) is, again, expected. Indeed, one can argue that larger banks tend to be more well-established and more known by the general public, and hence tend to have lower liquidity cost.

4. SUMMARY AND CONCLUSIONS

As stated in the introduction, the subject matter of financial development and its impact on real economic growth has always been controversial. However, based on the empirical literature, one can state that finance, on average, does impact economic growth in a positive manner. Indeed, this is why the performances of banks as well as stock markets in terms of numerous research issues have caught the imagination and effort of so many researchers all over the world. One of these issues is the liquidity costs of listed firms' stocks. Thus is expected as the literature points out a number of implications of high liquidity costs including the motivation of firms to cross-list their financial securities.

This paper has investigated all listed Jordanian banks (15) in terms of the liquidity cost of their stocks. Based on the time period 2012-2014, the results clearly indicated that these banks from suffer from relatively high transaction cost. This finding is disappointing and needs remedy.

The fact that the sheer size of the ASE is heavily dependent on the listed banks, it would be unfortunate if those banks decide to cross-list their stocks or leave the local market altogether and list their stocks abroad. Naturally, the objective of such a move would be to improve their stocks' liquidity and hence realize the envisaged benefits. In other words, if the listed banks leave the local market altogether, and list their stocks on a more liquid market, the ASE would become extremely small relative to the size of the national economy. This is why, it is recommended that the ASE must consider the introduction of market-makers to provide liquidity and hence, reduce liquidity cost.

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