

“Lazy banks” and “Safe asset” Hypothesis: Is it the answer to Public Debt and Financial Development Indicators Puzzle in Emerging Markets?

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Abstract. *This paper investigates the role of public debt in financial development in an emerging market namely, Jordan. Based on previous empirical research, we test the empirical prediction of two hypotheses for the role of public debt: “safe asset” vs “lazy banks”. Using annual data throughout 2008 to 2018 and using the Fixed Effect (FE) and Bias Correction Fixed Effects (BCFE) methodologies that control for both unobservable banks specific and time-specific variables. We find that public debt has a positive impact on financial development after controlling for Banks size, and Banks risk. ROA, Capital Adequacy, and Banks Capitalization. The results provide weak evidence consistent with the “Safe Asset” hypothesis that banks choose to invest in treasury securities as safe assets.*

Keywords: Safe Asset, Lazy Banks, Bias Correction Fixed Effects, Financial Development.

JEL Codes: G - Financial Economics

1. Introduction

Large public sector borrowing from the domestic banks is related to a high level of profitability, but depressed efficiency and deepening of the banking sector; this resembles the “lazy bank” view in the literature (Hauner, 2009). The effect of public debt in financial development has been thought of in terms of a positive effect it can play in developing financial sectors by providing a relatively safe asset; called the “safe asset” view. Notwithstanding, the other view called a “lazy banks” view reveals that: developing banking sectors holding large public debt may progress more gradually because banks that primarily lend to the public sector could become too satisfied to have the initiative to develop the banking market under the difficult conditions in developing countries. Note that “lazy” does not suggest a value judgment here, as it reveals rational behavior on the part of the banks. Whereas often quoted in policy circles, this view has been absent from the academic literature (Hauner, 2009).

Furthermore, this paper will address the case of which financial development impacted when the Banks system became the main lender for the government by employing panel data methodologies for the banking sector financial development and efficiency indicators. Thus, the proposed paper will be guided by the following questions: What is the impact of a bank’s holdings of treasury debt instruments on the financial development indicators in the Jordanian banking industry? Which theory applies in the Jordanian banking industry “lazy banks” or “safe assets”?

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The outcomes of this paper will help policymakers to answer the following concern: determine the degree of banking sector efficiency by examining the theory of “lazy banks” or “safe assets”. Lastly, the findings of the proposed study will act as preliminary guidance for further examination of the subject.

This paper investigates the validity of the two contrasting views of the role of public debt in financial development based on bank-level data for 13 banks in Jordan. Our results are overall more favorable to the “Safe Assets” view. Greater public debt holding by domestic banks raises their efficiency.

2. Literature Review and Hypotheses Development

Previous studies have comprehensively investigated government debt's impact on financial development and how financial development impacts economic growth and its volatility, mainly in developing countries. The above concepts generate many research interests due to their conflicting and long-lasting state in economic theory.

For these reasons, this section reviews the theories and empirical investigations conducted on these topics. Principally, if there is an impact of Banks holding treasury debt instruments on bank lending behavior and financial development indicators.

2.1. Financial Development and Bank Lending Behavior

There is some research evidence to suggest that Banks play a vital role in economic development since they are considered one of the key sources of firms' financing in many developing countries (Beck et al., 2000).

Bank lending commonly donates to the financial deepening of an economy, which has a positive effect on aggregate output and economic activity (King and Levine, 1993). Moreover, understanding bank lending behavior is critical for bank management in preserving the soundness of a banking system. Nevertheless, bank lending behavior is neither unchanging in the cross-section nor overtime. Instead, it is mainly driven by the business model chosen by bank owners. Privately-owned banks classically follow business models that purpose to profit maximization, while state-owned banks tend to follow social welfare-oriented purposes and deviate from strict profit maximization (Behr et al. 2013).

Over the last several decades, developing countries considerably infuse an enormous amount of money into state-controlled banks to improve economic growth. This results in substantial credit growth by the banking system in emerging economies. The bank credits help to feed economic growth in these countries. Moreover, numerous problems exist in the banking system in developing countries where bank lending is mostly affected by the government (Qian et al., 2015).

Knowing that bank lending behavior is significant in emerging markets where the problem of non-performing loans is considered a key problem for economic growth. (Vo, 2018) found an interesting outcome of the mechanism that identifies the bank lending behavior in an emerging market. First, is a low degree of bank lending constancy. Secondly, bank lending is relying on both bank-specific and macroeconomic factors. lastly, there is a statistically significant effect of bank market structure on bank lending behavior. This could offer several vital implications for the policymaking process, particularly if foreign banks tend to be tighter lending supply dynamics (Albertazzi and Bottero, 2014; Popov and Van Horen, 2015). On the other hand, (Mishra et al., 2014) suggested that monetary policy may be a highly unreliable tool with which to follow macroeconomic stabilization in countries that are considered by a poor institutional environment and an uncompetitive banking sector, both of which are common properties in low-income countries.

Mainly, minor, less liquid, poorly capitalized and high credit-risk banks face a greater decrease in lending after limiting the monetary policy. Unlike developed countries, empirical evidence from developing economies delivers more decisive outcomes about the existence of the bank lending channel. Notwithstanding that the bank lending channel is more applicable in developing economies, its intensity varies across countries. Given that the bank lending channel goes through the financial system, the level of financial development might well affect its effectiveness. In very poorly developed financial systems, monetary policy variations might be less effective and take longer to affect the bank's lending supply (Carranza et al., 2010). At the early stage of development, banks' lending might well be restricted because capital is rare. As financial development proceeds, monetary policy might affect banks' lending to a greater extent.

2.2. Financial Development and Government Debt

There is little research that investigates the effect of public debt on financial development. Public debt can have a positive effect on the profit of financial institutions (Hauner, 2009); nevertheless, huge public debt can also harm bank efficiency and crowd out private investments. The relationship leftover is questionable so far, several studies demonstrated it is hurtful to financial development, for instance, (Hauner, 2009; Ismihan & Ozkan, 2012), etc. The impact is particularly severe when the government is unsuccessful to repay and selects to default on the debt.

Besides, studies suggest that public debts (government treasury bills and bonds) provide security, high liquidity, and a steady flow of profits that can strengthen the stability of the financial sector. Bank lending to the government (as government bonds) can be deemed as comparatively predictable debt management and thus, can protect the banks' assets (Hauner, 2009; Dungey et al., 2019). Once banks have loaned a big amount of savings to the government, they are likely to have a good opportunity to protect their assets and be comparatively more profitable¹, and this shows a tendency to make banks raise the holding of government bonds. The government bonds holding permitted banks to offset the highly risky lending to the private sector lending and similarly weak legal and institutional structure, particularly in developing countries. Government borrowing also helps the banks to get over the legal and institutional weakness by helping banks to use public debt as an obvious guarantee in repurchase agreements (Kumhof and Tanner, 2005). collateral plays the main role in developing a country's derivatives markets along with payment and settlement systems (Hauner, 2009). Subsequently, remaining government debt is considered a safe investment for banks and is important in additional enhancements in financial development in developing countries.

Public debt allows additional savings to be used since government bonds can rise the depositors' willingness to intermediate their savings into investment in a commonly risky market (Kumhof & Tanner, 2005). Absent a benchmark yield curve in the weak bond markets in developing countries causes some difficulties for the market at pricing the credit risks and equities (Kumhof & Tanner, 2005), and drivers to difficulty in the variation of risk exposures due to the derivative markets are also weak. Government bonds in these countries can enable development by providing a good benchmark yield curve to enable the pricing of corporate bonds and equities (Hauner, 2009).

On the other hand, when banks are required to hold huge public debt, this can result in a negative outcome. Banks are usually weak to reject the government's borrowing under such circumstances. This has no motivation in developing deposit and private credit markets. Protected and reliable profits from government borrowings could decrease the banks' motivations to improve efficiency and become too satisfied to actively develop the banking market. Furthermore, the government's effects on the pricing and loanable funds of banks could reduce real interest rates and cause inadequate savings. Financial organizations' high

government debt holdings are usually proposed to offset the credit risk in private credit. Nevertheless, legal and institutional limitations are vital too. No one can enforce the government if it is imperfect institutional. (Kumhof and Tanner, 2005) found that the size of government debt held in financial organizations has a strong negative relation to the quality of law and organizations. The security of the public debt portfolio is a prerequisite for banks and hence, a country's public debt management prudence is critical for the strength of its financial system. Additional concerns relating to this issue are when public debt is high; the repayment of debt is a subject of debate. The market holds no information admission to the decision of the government and the market may act on their expectation.

Once more, the role of public debt on financial development which was investigated by (Hauner,2009), reveals that public sector credit has a negative impact on financial development when conducting both country level and banking level analysis. These results are in parallel with the “Lazy Bank” view which shows that banks earn a profit when making loans to the government but this mitigates the efficiency of the banking sector.

The results of large public sector borrowing from the domestic banking sector are also appropriate policy issues, given the continuing discussion on optimal debt structures. Numerous developing country governments have mitigated their external obligation over recent years and increasingly depend on domestic funding. Whereas this mitigates macroeconomic risks, the rapid rise in the share of domestic credit absorbed by the public sector in several developing countries raises questions about the impacts on the development of the financial sector. Many previous studies investigating the determinants of financial development did not include an indicator of public sector financing, and those that did found insignificant results (Boyd et al., 2001).

The role of public debt in financial development has been allied with what is called the “safe asset” view. It stresses the positive role public debt can present in developing financial sectors by giving a comparatively safe asset. Therefore, the “safe asset” view holds, that without the availability of public debt, fewer savings would be utilized, and borrowers would face higher borrowing costs and shorter maturities. “safe asset” and “lazy banks” views do not need to be mutually exclusive: the impacts of public debt on financial development may well be non-linear, with positive effects raise to a threshold of the share of credit allocated to public debt, and negative effects above it, also greater public debt holdings by domestic banks increase their profitability but reduces their efficiency if public debt surpasses a certain threshold or if it linked with financial repression. (Hauner,2009).

Hauner, (2009) proposed the lazy bank's hypothesis that suggests that more public debt holdings by domestic banks increase their profitability but decrease their efficiency and reduce financial deepening over time. Additionally, (Hauner, 2009) found that public debt holding by banks only has a negative effect when it interacts with financial repression. Inspired by the fact that most emerging economies tend to finance economic growth by bank lending, thus the first hypothesis was conducted relying on the nature of the Jordanian structure of the financial system which tends to behave like the previous studies' results, and this led to anticipate that there is a negative relationship between bank lending to the government and bank efficiency which commonly used as a financial development indicator.

Ho: Bank lending to the government has no significant impact on financial development.

3. The Empirical Model

In most models, the degree of financial development is expected to be exogenous. But understanding what determines the importance of financial markets or their degree of development is at least as important as

measuring their effects on growth. For if indeed financial intermediation affects growth, it raises the question of what gets financial markets off the bottom, whether it expects them to develop during a particular sequence, and what explains their relative development. as an example, bank lending to firms has generally appeared first, followed by stock and bond markets, and eventually credit.

The theoretical papers that dealt with the determinants of financial development for instant banks' lending behavior have led to the publication of many empirical papers. These papers rely on cross-sectional data and, on average, to explore the bank lending behavior of financial development, this paper uses the below model to examine the impact of government borrowing from the Banks sector on bank lending behavior and financial development indicators as explained by many lines of literature to provide a complete picture of the role of banks' lending behavior, and also to determine the degree of banking sector efficiency by examining theory "lazy banks" or "safe assets" which will be examined for the first time on the context of Jordan market. According to the safe assets view, public debt has a positive impact on financial development, however, the lazy bank theory claims that public debt has a negative impact on financial development (Hauner,2009). Therefore, the impact of government lending on profitability and efficiency is examined in standard models of efficiency, as measured by its lending-deposits spread ratio (**Spread**), and profitability, as measured by a bank's return on equity (**ROE**). Specifically, two equations are estimated by using static and dynamic panel estimation approaches using the following models' equations:

$$Spread_{i,t} = \alpha + \beta_1 GovLend_{i,t} + \beta_2 ROA_{i,t} + \beta_3 Size_{i,t} + \beta_4 CPTL_{i,t} + \beta_5 Liqy_{i,t} + \beta_6 Risk_{i,t} + \beta_7 CADI_{i,t} + \varepsilon_{i,t} \dots\dots\dots (1)$$

And

$$ROE_{i,t} = \alpha + \beta_1 GovLend_{i,t} + \beta_2 Size_{i,t} + \beta_3 CPTL_{i,t} + \beta_4 Liqy_{i,t} + \beta_5 Risk_{i,t} + \beta_6 CADI_{i,t} + \varepsilon_{i,t} \dots\dots\dots (2)$$

i = 1 ,..., n

t = 1, ..., T

$\varepsilon_{i,t}$: Identically independently distributed error term

β : matrix of regression coefficients.

where **Spread** is the lending-deposits spread ratio, which is equal [(interest income / earning assets) – (interest expense/interest-bearing liabilities)] for bank i at time t, with i = 1,, T, α is the constant term. This variable captures the efficiency of the banking system. This variable will be used as a measure of financial development (Abedifar et al. 2018). Besides, other efficiency measures that could be used for institutions include indicators such as bank net interest margin (Čihák et al. 2013 and Sanfilippo-Azofra et al. 2018), overhead costs to total assets, non-interest income to total income, and cost to income ratio (Levine, 2002; Čihák et al. 2013). The results of previous studies reveal that the financial structure is not a particularly useful way to differentiate financial systems (Levine, 2002) and not a good anticipator of growth in a cross-country growth framework: neither bank-based nor market-based financial systems are related to economic growth (Levine, 2002). Also, Low bank efficiency increases the deadweight loss created by financial intermediation, which is also detrimental to financial development (Fry, 1995). **ROE** is a measure of bank profitability, which is calculated as the return on equity, (Čihák et al. 2013).

This study also employs several variables that hypothetically explain the bank lending behavior of Jordanian commercial banks. These include numerous bank-specific, market structure, and macroeconomic variables as follows:

GovLend is the proxy for bank lending behavior, measured by bank government lending to total assets ratio. This indicator also reflects the financial strength and soundness of the bank since the local authority determines the lending growth rate by relying on the evaluation of commercial bank soundness (Vo, 2018).

Size is a measure of bank size, calculated as the logarithm of the total assets at the end of the year (Vo, 2018; Sanfilippo-Azofra et al. 2018). **Risk** is a proxy for bank risk, which is measured by the provisions for credit risk divided by total assets at the end of the year (Vo, 2018). **ROA** is a measure of bank productivity, which is calculated as the return on assets (Vo, 2018). **Liqy** is the ratio of securities, cash, and due from banks to total assets. More liquid banks can usually grant more (Kashyap and Stein, 2000; Sanfilippo-Azofra et al. 2018). **CPTL** is the ratio of total equity to total assets. Higher capitalized banks tend to have higher loan growth rates (Kishan and Opiela, 2006; Sanfilippo-Azofra et al. 2018, Vo, 2018). **CADI** is a measure of capital adequacy, which is measured by the common capital asset ratio at the end of the year (Vo, 2018).

3.1 Methodological Framework

The several ways to estimate parameters of Eq. (1) and (2), or some modification thereof, each has its own set of pros and cons. The lack of a single or dominating 'optimal' methodology in the context of cross-bank panel data is evidenced by a large number of specifications and models previously used. The advantages of removing a lagged dependent variable are largely reliant on the nature of the data formation process, which can be explained through theory. Exclusion may be justified where the lag is used as an empirical tool to address weak persistence (Auto-Correlation) in the error terms.

At this stage of the analysis, the Breush-Pagan Lagrange Multiplier (LM) test was performed to determine whether or not there are Bank-specific unobservable variables by employing the LM test. Furthermore, this paper tested whether there was a relationship between the individual effects and the explanatory variables or not by the Hausman test method, and here it is worth knowing that the Hausman test is not an alternative for the LM test. But it functions to check the decision by LM test.

On the other hand, the data-gathering process is fundamentally dynamic – i.e., past realizations of the outcome have a significant impact on the marginal effect of other factors – failure to appropriately account for these dynamics is likely to introduce significant bias.

Since the error term picks up unobserved effects, the pooled ordinary least squares (POLS) estimator is biased and inconsistent; thus, the error term is associated with the model's lagged dependent variable (Blundell et al. 2001). Because of this positive association, the POLS estimator is biased upwards. By degrading the equation, the fixed effects (FE) estimator resolves this type of inconsistency. Individual effects are eliminated with this estimator (Bond 2002).

Demeaning, on the other hand, may cause the so-called Nickell bias, which eventually causes the FE estimator to be biased and inconsistent when dealing with dynamic models if T is finite (Nickell 1981). The Nickell bias arises because, regardless of the size of N, the demeaned error term is related to the lagged dependent variable. As a result of these findings, FE estimations are biased downward. When employing the fixed effects estimator, one way to address the Nickell bias is to apply a bias-correction technique. This is exactly what Everaert and Pozzi (2007) and De Vos et al. (2015) implement with their bootstrap-based bias correction fixed effects (BCFE) estimator. Furthermore, Bun and Carree (2005) developed a simple asymptotic approximation depending on a first stage fixed effects dynamic panel model, which is used in the BCFE model.

Compared to the ordinary FE estimator and the generalized method of moments (GMM) estimator, the Bootstrapped based bias-corrected FE estimator has several advantages. First: the FE estimator, for instance, has lower standard deviations than the GMM estimator (Kiviet 1995). Second, because the FE estimator does not require a judgment on which instruments to use and how many, the FE estimates are more stable than the GMM estimates (Roodman 2009). Third, unlike the ordinary FE estimator, the Bias corrected FE estimator does not have the same limitations.

The Nickell bias is addressed in the coefficients, resulting in estimates that are aligned for fixed T (De Vos et al. 2015). Forth, unlike the Instrumental Variables (IV)/GM estimators, it does not necessitate the specification of ideal, valid instruments, which the IV/GMM estimator's attributes are heavily reliant on. Fifth, unlike analytical techniques (e.g., Bias-corrected Least-squares Dummy Variable (LSDVC)), BCFE

uses non-parametric bootstrapping to perform bias correction and so does not rely on stringent parametric distributional assumptions. In short panels, BCFE surpasses GMM in terms of bias reduction and efficiency, while also producing superior inferences than LSDVC.

3.2 Data and Sample

Data of bank efficiency (lending-deposits spread) and the other variables as (bank government lending, total assets, provisions for credit risk, operation costs, return on assets ratio, the ratio of securities, cash, and due from banks, and the ratio of total equity to total assets), used from the financial statements data for all Jordanian commercial banks to cover the period 2008-2018. On the other hand, the Non-Jordanian Banks and the Islamic Banks' data are excluded because the data of government lending (core variable) is not available and it's mostly covered by Jordanian commercial Banks on its data. Noting that the years 2020 and 2019 are not included in the sample period to avoid the effect of COVID-19.

4. Results and Discussions

Table 1: Descriptive Statistics

Spread is the lending-deposits spread ratio, which is equal [(interest income / earning assets) – (interest expense/interest-bearing liabilities)]. ROE is the return on equity calculated as net income divided by total equity. GovLend is Banks government lending to total assets ratio. Size is the logarithm of the total assets at the end of the year. Risk is the provisions for credit risk divided by total assets at the end of the year. ROA is the return on assets. Liqy is the ratio of securities, cash, and due from banks to total assets. CPTL is the ratio of total equity to total assets. CADI is a measure of capital adequacy, which is measured by the common capital asset ratio at the end of the year.

Stats	Mean	Median	St. Div	Min	Max
Spread	0.079	0.076	0.019	-0.016	0.123
ROE	0.103	0.093	0.098	-0.014	1.043
GovLend	0.208	0.196	0.088	0.000	0.459
Size	9.306	9.288	0.428	8.441	10.413
Risk	0.005	0.004	0.004	0.000	0.022
ROA	0.013	0.013	0.005	-0.002	0.025
Liqy	0.229	0.218	0.060	0.126	0.367
CPTL	0.136	0.138	0.030	0.011	0.220
CADI	0.176	0.164	0.047	0.107	0.367

(Source: Authors based on data from financial statements data for all Jordanian commercial banks)

Table 2: Regression Results

This table shows the results for the association between financial development indicators: efficiency and profitability (Spread and ROE), and government lending. The dependent variables in all specifications are Spread and ROE. All other variables are as defined earlier except for L. Spread which is defined as the lagged of the lending-deposits spread ratio and L.ROE which is defined as the lagged return on equity. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively.

Variables	Spread (Efficiency)		ROE (Profitability)	
	FE	BCFE	FE	BCFE
L.Spread		0.35***		

Variables	Spread (Efficiency)		ROE (Profitability)	
	FE	BCFE	FE	BCFE
L.ROE				0.205***
GovLend	0.097***	0.081**	-0.061	-0.108
Size	-0.014	-0.020	-0.283***	-0.502***
Risk	0.065*	0.492	-2.786*	-1.421
ROA	0.899**	0.566*		
Liqy	0.021	0.045	-0.186	0.152
CPTL	-0.051	-0.046	-3.428***	-3.879***
CADI	0.0139**	0.077	1.004***	1.030***
R ²	0.16		0.08	
Lagrange multiplier (LM) test	9.63	(0.001)	24.67	(0.000)
Hausman test	24.77	(0.001)	30.82	(0.000)

Denote that (BCFE) is referring to Bias Correction Fixed Effects and FE is referring to Fixed Effects.

(Source: Authors based on data from financial statements data for all Jordanian commercial banks)

This paper implements the Breush-Pagan Lagrange Multiplier (LM) test to examine whether or not there are Bank specific unobservable variables and as table (2) results show that individual effects, time effects, and individual and time effects aren't random. According to the LM test result, the estimation was made using the fixed effect model.

Hausman test was conducted for the Efficiency model and shows the following results: (Chi²) $\chi^2=24.77$, probability value =0.001 and for the Profitability model (Chi²) $\chi^2=30.82$, probability value =0.000. Since these values were smaller than 0.05, it was decided that there was an endogeneity problem in the model. In this case, it is necessary to analyze with the fixed effects model and this result supports the LM test results.

Results are presented in table (2). The FE test to examine the effect of our focus variable GovLend on Profitability and Efficiency. We also use the BCFE model, which is known to be more efficient under "well-behaved conditions". Table (2) regression findings demonstrate the influence of the independent variables on Profitability and Efficiency after carefully using the FE test following the model used by Hauner (2009). Besides Size, CPTL, CADI, and Risk none of the other variables are significant for the regression with Profitability specification. In the case of the regression for Efficiency, the variables Size, ROA, CADI, and Risk are seen to be significant. The positive coefficient on GovLend is significant in both Profitability and Efficiency using the FE model.

Following Hauner (2009), who finds a significant and positive relationship for GovLend on Profitability and Efficiency. Therefore, the "safe asset" view holds with strong evidence because both results for Profitability and Efficiency have a significant and positive relationship with government lending, but if one of them has a significant and positive relationship and the other has just a positive but not significant relationship this may lead to weak evidence of holding "safe asset" theory as our analysis results shows. We checked for the effect on BCFE models and noticed that similar results are obtained for the main variables GovLend as was obtained for the FE model and so we conclude that even after testing for the effect of GovLend on Profitability and Efficiency with the BCFE model, the outcome remains significant.

5. Conclusions

In this paper, the effect of government lending on financial development indicators (efficiency and profitability) was investigated using the panel data analysis method to test the "Lazy banks" and "Safe asset" views for a sample of 13 banks at one of the emerging market countries which is the Jordanian market.

At the LM tests result conducted to define the applicable panel data analysis method, it was found that individual and time effects weren't random, for that reason an analysis with the fixed-effect model was

carried out. According to the analysis results, it was determined that government lending has a positive effect on financial development. The analysis results also show weak evidence of the “Safe Asset” view as found by Hauner (2009).

Thus, the findings have important policy implications as they show that Jordanian government borrowing is expected to crowd out private sector credit by banks and this will not be beneficial to the financial development and the economy as a whole if the borrowed funds are channeled to the productive sector of the economy. In addition, the study shows that a consequence of the borrowing is the increase in domestic credit particularly from the banking sector to the government. This study has therefore provided researchers with an incentive for further work in this evolving research area.

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