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2017

working paper series

**THE IMPACT OF OWNERSHIP ON CORPORATE
PERFORMANCE: THE CASE OF THE UAE**

Magda Kandil and Minko Markovski

Working Paper No. 1142

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October 2017

The views expressed in this paper are those of the authors and should not be interpreted as those of the Central Bank of the United Arab Emirates.

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First published in 2017 by
The Economic Research Forum (ERF)
21 Al-Sad Al-Aaly Street
Dokki, Giza
Egypt
www.erf.org.eg

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Abstract

This study attempts to identify whether government ownership has an effect on corporate performance, such as Return on Assets (ROA), Price to Book value, and Profits for a sample of 102 listed companies on the UAE stock exchanges and a subsample of 17 banks listed on the same bourses over a period of 31 quarters. In the case of the sample of 102 companies, government ownership has a positive impact on some of the corporate performance indicators, as well in the banking subsample. In addition, the analysis evaluates the impact of state ownership on debt accumulated across the two samples. The results indicate that state ownership reduced the need to accumulate debt in general across the larger sample. However, focusing on banks, state ownership facilitates borrowing and accumulating debt. The results point to the positive effect of state ownership on corporate performance. Further, state ownership eases constraints on banks' borrowing as it boosts confidence in the outlook facilitating higher ratings and cheaper sources of funding.

JEL Classification: G30, G32 and G39

Keywords: state ownership, firm performance, United Arab Emirates, emerging market

ملخص

تحاول هذه الدراسة تحديد ما إذا كانت الملكية الحكومية لها تأثير على أداء الشركات مثل العائد على الأصول والسعر إلى القيمة الدفترية وأرباح لعينة من 102 شركة مدرجة في البورصات الإماراتية وعينة فرعية من 17 مصرفاً مدرجة على نفس البورصات على مدى 31 سنة. وفي حالة عينة 102 شركة، كان للملكية الحكومية تأثير إيجابي على بعض مؤشرات أداء الشركات، وكذلك في العينة الفرعية المصرفية. وبالإضافة إلى ذلك، يقيم التحليل تأثير ملكية الدولة على الديون المتراكمة عبر العينة. وتشير النتائج إلى أن ملكية الدولة قللت الحاجة إلى تراكم الديون بشكل عام عبر العينة الأكبر حجماً. ومع ذلك، فإن التركيز على البنوك، وملكية الدولة يسهل الاقتراض وتراكم الديون. وتشير النتائج إلى التأثير الإيجابي لملكية الدولة على أداء الشركات. وعلاوة على ذلك، تخفف ملكية الدولة القيود المفروضة على اقتراض المصارف لأنها تعزز الثقة في التوقعات التي تسهل تقييمات أعلى ومصادر تمويل أرخص.

1. Introduction

In the past two decades, attention has increased regarding firm ownership in relation to performance, an issue that took the fore following a series of recent financial and economic shocks occurring around the world. There has been much debate on the effect of government ownership on firms' performance. On the one hand, state ownership brings a 'helping hand', which assumes that the higher the proportion of state ownership in a firm, the more capital subsidy is provided by the government. On the other hand, state ownership is supposed to bring a 'grabbing hand', which assumes that the government will extract more of the firm's profit as a result of its ownership to the benefit of politicians and bureaucrats (Tian and Estrin, 2008).

Douma, George and Kabir (2006) state that the ownership structure affects firm performance. Usually, there are different owners with different objectives, i.e., some owners are trying to benefit in the short to medium term, which is the case of the most privately-owned companies. In contrast, the state owners are focusing on a more long-term development and performance of the enterprises.

Supporting the above argument, Konijn, Kräussl and Lucas (2011) conduct a study on the relationship between the ownership structure and firm value and find that the results are different using data from the U.S., Europe, and Asia. This implies that the relationship may vary from region to region. For instance, the evidence suggests that in the U.S. government ownership has had a negative impact on firms' performance in general, while in Western Europe and Asia it is the opposite.

These results imply that state ownership in the UAE could have different influence on the corporate performance compared to other transition or emerging economies. Indeed, empirical studies show mixed results of the relationship between state ownership and firm performance.

Research often shows a negative relationship between state ownership and firm performance. Thomsen, Pedersen and Kvist (2006) find that there are two types of systems, including market-based systems and control-based systems. The market-based systems have a dispersion of share ownership among institutions, individual and other investors. In contrast, the control-based systems have high concentration of family, corporate, or state ownership. The study interestingly finds that while the block-holder ownership has no impact on firm value in the market-based systems, there is negative relationship between the block-holder ownership and firm value in the control-based systems.

Andres (2008) finds evidence that state ownership has a negative effect on firm performance (approximated by accounting measures). The paper suggests that representatives of state ownership at firms may act for their own benefits, not for the state's benefits.

On the other hand, state ownership may have a positive effect on firm performance due to its advantages. Borisova et al. (2012) argue that state ownership has plenty of advantages, such as resources and power, compared to other types of ownership. For example, the government may raise fund easily, can establish regulations that target specific firms, and has informational advantage. Thus, firms with state ownership may have better performance compared to other firms. In addition, Kang (2012) find that Chinese state-owned firms improve firms' performance. This result reveals that state ownership in listed firms may play an active role in emerging markets.

In the context of the UAE, state-owned enterprises (SOEs) are a major contributor to GDP and employment (around 80% for the GDP, as well as for the employment according to Abu Dhabi Company for Onshore Oil Operations (ADCO) study dated 2014). There are many reasons why the country has decided to have SOEs. SOEs, such as Etisalat (a telecommunication operator), are prominent forces in strategic sectors of the economy where the government wants to play a key role. When it comes to the long-term success of the country, the government is a patient

investor that does not look for quick wins. Instead, the government usually couples commercial objectives with social objectives that do not pay return on investment in the short-term, but they ensure the country's longevity, especially in meeting the ever-increasing energy demand. SOEs such as Emirates Aluminum and Emirates Steel are major forces behind the government's steps to diversify the economy away from hydrocarbons.

Against this backdrop, the analysis will evaluate the impact of state ownership on the corporate performance indicators for companies listed on the two stock exchanges in the UAE, Abu Dhabi Securities Exchange and Dubai Financial Market.

The potential for state ownership to serve as an effective monitor has flourished by the capacity and strategic objectives of state ownership, which has helped progress in developing capital markets in the UAE. As such, the markets are not mature and deep enough and therefore information problems could arise in the absence of market signals that usually work more effectively in a well-functioning capital market. As potentially dominant shareholder, the state is in a position to monitor management, or as Lin et al. (1998) suggests they may prevent “the expansion of managerial autonomy of SOEs which will worsen agency problems.”

The structure of the paper is as follows. Section 2 provides data description and sources. Section 3 provides the empirical framework, while Section 4 delivers a summary and policy implications.

2. Data Description and Sources

The firm data under consideration are for the period Q3 2008 to Q1 2016, with listings on one of the UAE's stock markets, the ADX (Abu Dhabi Securities Exchange) and the DFM (Dubai Financial Market). Our panel data consist of 102 listed firms, out of which 17 local commercial banks, with quarterly observations. The data are from the Bloomberg database -which contains financial performance and accounting data for nearly all of the listed firms in the UAE. The variables of interest are mainly government ownership, total debt, profits, price to book value, firm revenue, firm net cash flow, total assets, time listed since 2008 Q2 (in number of quarters), a variable indicating whether the company is listed on the DFM or not, leverage and return on assets.

The analysis will test whether and how state ownership impacts debt and the other indicators of firm performance in the UAE for the whole sample of companies and for the subsample of the 17 UAE commercial banks.

Table 1 shows a representation of the state ownership per stock exchange and for the two samples: all 102 companies and for the 17-listed local commercial banks.

The total market capitalization of all companies as at the end of Q1 2016 for all listed companies in the UAE is USD 209.6bn. For the 102 listed companies for which data are available to use in this paper market capitalization is more than USD 190bn and for the local commercial banks, it is USD 81.7bn. Hence, by studying the 102 companies, the analysis captures more than 90% of the current market capitalization on the stock markets of the U.A.E.

In total, we have 3162 firm-quarter observations for all the listed companies included in the study and 527 firm-quarter observations for the listed local banks.

Graphical illustration establishes that return on assets (ROA) and price to book value have different characteristics based on whether they are state owned or not (data as of March 31, 2016).

Figures 1-4 show a difference in the levels, distribution and dispersion of the state-owned entities and those with less than 50% government ownership. For instance, the mean and standard deviation are different for the subsamples with majority state ownership and those where the government has less than 50% of the share. More descriptive statistics and

distribution charts could be found in the Appendix (Figures Ai.1, for $i=2, \dots, 17$) In order to remove outliers, all data in the interval $[m-2\sigma, m+2\sigma]$ were kept and outside the interval observations were dropped for all variables¹. On average, the subsample with predominant state ownership has higher mean for the different indicators, with exception for the price to book value, for all listed companies/local banks. Hence, is the motivation to further investigate whether there is a difference in entities' performance according to their state ownership status?

3. Assumptions and Empirical models

The UAE stock markets have relatively high state ownership (see Table 1). Thus, state ownership represents large shareholders with high concentration.

Therefore, it is interesting to investigate the effect of state ownership on the firm performance and level of debt in listed companies and local commercial banks in the UAE. Specifically, the analysis will focus on the following hypotheses:

H1: Ceteris paribus, state ownership has a positive relationship with profit of listed firms/banks in the UAE.

H2: Ceteris paribus, state ownership has a positive relationship with price to book value of listed firms/banks in the UAE.

H3: Ceteris paribus, state ownership has a positive relationship with return on assets of listed firms/banks in the UAE.

In addition, we would like to test whether the government ownership has an impact on the amount of outstanding debt for the different companies/banks. As seen in the Selected Issues paper, IMF UAE Staff Report, August 2016, in the case of government owned enterprises debt tends to be less than in the case of privately owned companies. The need for borrowing decreases due to financing by the majority owners, i.e., the Government. Hence, the following assumption is under consideration for the overall sample:

H4₁: Ceteris paribus, state ownership has a negative relationship with the outstanding debt of listed firms in the UAE.

On the other hand, in the case of banks in the UAE, as a fact, rating agencies include in their assessment the government support to banks as a major positive factor. High ratings of the majority owned banks by the local governments boost sources of funding for banks, enabling them to access cheaper funds on the interbank market or through issuance of bonds in the international market. For illustration, please see below Table 2 with percentage ownership as of 31 March 2016 and their corresponding ratings for banks in the Emirates of Abu Dhabi and Dubai.

The percentage ownership by the Government, in general, reflects positively on banks' ratings, which increases the prospects of securing outside funding. Hence, the following assumption is under consideration for the banks' sample:

H4₂: Ceteris paribus, state ownership has a positive relationship with the outstanding debt of listed banks in the UAE.

¹ m represents the variable arithmetic mean and σ its standard deviation across the sample.

3.1 Analysis of the variables

All the variables used in the analysis are stationary, based on the Unit Root Test results². Correlation matrix reveals small and insignificant correlations across variables, implying no multi-collinearity in the regressions³.

3.2 Empirical models

3.2.1 Overall sample

To test the hypotheses under investigation, the econometric models follow the specifications below.

For **H1 for the overall sample**, the equation for profit is as follows:

$$Profit_{it} = \alpha + \beta_1 State\ Ownership_{it} + \beta_2 Cashflow_{it} + \beta_3 Debt_to_equity_{it} + \beta_4 Assets_{it} + \beta_5 Time_listed_{it} + \beta_6 Break_{it} + \beta_7 Sales_{it} + \beta_8 DFM_{it} + \varepsilon_{it}$$

State ownership is a variable that takes the values of 0, if the state ownership is below 50%, 1 if it is between 50% and 75%, and 2 if it is above 75%, Cash flow is the net income for the company, Debt to equity is a measure of leverage, time listed is the number of quarters the company has been listed on the stock exchange since 2008. The structural break dummy takes the value of 0 for the period 2008 Q3 to 2009 Q2 and 1 otherwise, as the Chow tests (structural break test) prove there is a regime shift in 2009 Q3 which coincides with the severity of the financial crisis in the UAE. DFM is a dummy variable that takes the value 1 if the firm is listed on the DFM and 0 if it is listed on the ADX. ε_{it} is the error term. More details on the definition of the variables are in Table A1 in the Appendix.

After a verification with Hausman test⁴, we use a Random effect regression and the output is as shown in Table 3:

The results of the test for normality and cross section dependence of the residuals confirms the quality of the specification of the regression equation⁵.

The results are consistent with expectations. Profits increase with the company's cash flow, sales and assets. Moreover, government ownership differentiates profits across companies as the amount earned increases with the Government's ownership share. Higher leverage decreases profits as evident by the negative and significant coefficient. In addition, if the company is listed on the ADX it would be more profitable than if it is listed on the DFM, differentiating firms' performance between the Emirates of Abu Dhabi and Dubai.

Hence, *we do not reject H1 in the case of the overall sample, i.e., ceteris paribus, state ownership has a positive effect, increasing profits of listed firms in the UAE.*

To test **H2 across the full sample** of companies, the equation for price to book value is as follows:

$$\frac{Price}{Book}_{it} = \alpha + \beta_1 State\ Ownership_{it} + \beta_2 Cashflow_{it} + \beta_3 Debt_to_equity_{it} + \beta_4 Assets_{it} + \beta_5 Time_listed_{it} + \beta_6 Break_{it} + \beta_7 Sales_{it} + \beta_8 DFM_{it} + \varepsilon_{it}$$

² More details could be found in the Appendix, Tables Ai.2 for i=2,...,17.

³ Please refer to Tables A18 and A19 in the Appendix.

⁴ Details of the test are in Table A20 in the Appendix.

⁵ For more details, please see Fig. A24.1 and Table A24.2 in the Appendix.

Following a verification of the specification using Hausman test⁶, the results of the Random effect regression are as shown in Table 4. Test results for normality and cross section dependence test of the residuals confirm the quality of the regression equation⁷.

Price to Book value increases across companies over time with the company's sales and cash flow. Price to book value decreases with size as evident by the negative and significant coefficient on assets. The coefficient on the structural break dummy indicates reduction in price to book value following the financial crisis. Further, price to book value decreases the longer the company has been listed on the stock exchange. However, government ownership does not have an impact, as evident by the insignificant variable (P-value higher than 5%), on the dependent variable in the panel sample.

Hence, we do reject H2 in the case of the overall sample, i.e. ceteris paribus, state ownership does not have a positive relationship with price to book value for listed firms in the UAE.

To test **H3 for the overall sample**, the equation for ROA value is as follows:

$$ROA_{it} = \alpha + \beta_1 State\ Ownership_{it} + \beta_2 Cashflow_{it} + \beta_3 Debt_to_equity_{it} + \beta_4 Assets_{it} + \beta_5 Time_listed_{it} + \beta_6 Break_{it} + \beta_7 Sales_{it} + \beta_8 DFM_{it} + \epsilon_{it}$$

The estimation method used for the regression is pooled data. The output of the regression is as shown in Table 5. Test results for normality and cross section dependence test of the residuals confirm the quality of the specification for the regression equation⁸.

The results indicate that return on assets increase with sales but decrease with leverage, i.e., the ratio of debt relative to the company's equity. In addition, the size of the company, as measured by its assets, has a negative effect on return to assets. The results are robust regarding the impact of government ownership on indicators of performance, as measured by return on assets in this regression. Similar to the evidence of the price to book value, return on assets decreases with the time since listing. As there is evidence of structural break around the financial crisis, return on assets has not fully recovered since, resulting in a negative effect of time listed on return on assets across companies over time. Moreover, companies listed on the Abu Dhabi exchange market are better performers compared to those listed on the Dubai exchange.

Hence, we do not reject H3 in the case of the overall sample, i.e., ceteris paribus, state ownership has a positive relationship with return on assets of listed firms in the UAE.

To test **H4₁ for the overall sample**, the equation for the debt is represented as follows:

$$Debt_{it} = \alpha + \beta_1 State\ Ownership_{it} + \beta_2 Cashflow_{it} + \beta_3 Debt_to_equity_{it} + \beta_4 Assets_{it} + \beta_5 Time_listed_{it} + \beta_6 Break_{it} + \beta_7 Sales_{it} + \beta_8 DFM_{it} + \epsilon_{it}$$

The estimation method used for the regression is pooled data. The output of the regression is as shown in Table 6. The results of the tests for normality and cross section dependence test of the residuals confirm the quality of the specification of the regression equation⁹.

The results confirm expectations. Government ownership has a negative and significant effect on the amount of debt the companies acquire over time. However, the debt value increases with the size of assets, sales and leverage. Companies in Dubai, i.e., on DFM are more indebted compared to those listed on the Abu Dhabi exchange market. The collective evidence indicates

⁶ For more details, please see table A21 in the Appendix.

⁷ For more details, please see Fig.A25.1 and Table A25.2 in the Appendix.

⁸ For more details, please see Fig.A26.1 and Table A26.2 in the Appendix.

⁹ For more details, please see Fig.A27.1 and Table A27.2 in the Appendix.

that higher sales and assets have positive effects on ratings and the ability to finance companies by issuing debt.

Hence, *we do not reject H4₁ in the case of the overall sample, i.e. ceteris paribus, state ownership has a negative relationship with the outstanding debt of listed firms in the UAE.*

3.2.2 Banks' sample

To test the hypotheses under investigation across the sample of listed banks, the econometric models are as follows:

To test **H1 for the banks sample**, the equation for profit is as follows:

$$Profit_{it} = \alpha + \beta_1 State\ Ownership_{it} + \beta_2 Cashflow_{it} + \beta_3 Debt_to_equity_{it} + \beta_4 Assets_{it} + \beta_5 Time_listed_{it} + \beta_6 Break_{it} + \beta_7 Sales_{it} + \beta_8 DFM_{it} + \epsilon_{it}$$

To verify the model estimation, the Hausman test¹⁰ results confirm the Random effect regression specification. The evidence is shown in Table 7.

Test results for normality and cross section dependence of the residuals confirm the quality of the specification of the regression equation¹¹.

The more cash flow and revenues banks have, the higher is their profit. If banks are listed on the ADX, they are more likely to have higher profit than if they are listed on the DFM. In the smaller sample of banks, the coefficient for the government ownership is significant. However, the sign of the assets is negative and significant¹². Higher leverage decreases banks' profitability. In addition, the longer banks have been listed on the stock exchange the higher their profitability is.

Hence, *we do not reject H1 in the case of the banks sample, i.e. ceteris paribus, state ownership has a positive relationship with profit of listed banks in the UAE.*

To test **H2 for the banks' sample**, the equation for price to book value is as follows:

$$\frac{Price}{Book}_{it} = \alpha + \beta_1 State\ Ownership_{it} + \beta_2 Cashflow_{it} + \beta_3 Debt_to_equity_{it} + \beta_4 Assets_{it} + \beta_5 Time_listed_{it} + \beta_6 Break_{it} + \beta_7 Sales_{it} + \beta_8 DFM_{it} + \epsilon_{it}$$

The estimation method used for the regression is pooled data. The output of the regression is shown in Table 8. The test for normality and cross section dependence test of the residuals confirm the specification of the regression equation¹³.

The results indicate that the Price to Book value decreases with the size of assets across banks over time. There is significant evidence of structural break, implying that the price to book value has decreased significantly for banks post the financial crisis. Banks listed on the ADX tend to have higher Price per Book value than if they are listed on the DFM.

However, the coefficient for the variable government ownership remains insignificant. The implication being the share of government ownership across the banks under investigation does not provide significant evidence that differentiates the Price to Book value over time.

¹⁰ For more details please look at table A22 in the Appendix.

¹¹ For more details please look at Fig.A28.1 and Table A28.2 in the Appendix.

¹² Analysis was done of the same regression excluding State ownership and the results indicate that assets had a positive and significant sign. Hence, government ownership serves as a proxy for higher assets.

¹³ For more details, please see Fig.A29.1 and Table A29.2 in the Appendix.

Hence, *we reject H2 in the case of the banks' sample, i.e., ceteris paribus, state ownership does not have a positive relationship with the price to book value of listed banks in the UAE.*

To test **H3 across the banks sample**, the equation for ROA value is represented as follows:

$$ROA_{it} = \alpha + \beta_1 State\ Ownership_{it} + \beta_2 Cashflow_{it} + \beta_3 Debt_to_equity_{it} + \beta_4 Assets_{it} + \beta_5 Time_listed_{it} + \beta_6 Break_{it} + \beta_7 Sales_{it} + \beta_8 DFM_{it} + \varepsilon_{it}$$

After verification of the estimation model using the Hausman test¹⁴, the estimation results of the Random effect regression are shown in Table 9.

Tests for normality and cross section dependence test of the residuals confirm that the quality of the specification of the regression equation¹⁵.

The results indicate that higher leverage, higher debt to the bank's equity, has a negative and significant effect on return on assets across banks over time. Return on assets decreases with the banks' assets, but increases with sales. Time listed since 2008 matters to increase return on assets across banks, an evidence of the positive effect of banks' maturity on performance. The structural break dummy indicates significant reduction in return on assets across banks over time post the financial crisis. Dubai listed banks have lower returns on assets compared to those listed in Abu Dhabi.

The coefficient for the variable Government ownership is positive and significant, providing further evidence that the share of government ownership is significant to improve performance across banks over time in the sample under consideration.

Hence, *we do not reject H3 in the case of the banks sample, i.e. ceteris paribus, state ownership has a positive relationship on the return on assets of listed banks in the UAE.*

To test **H4₂ across the banks' sample**, the equation for the debt is represented as follows:

$$Debt_{it} = \alpha + \beta_1 State\ Ownership_{it} + \beta_2 Cashflow_{it} + \beta_3 Debt_to_equity_{it} + \beta_4 Assets_{it} + \beta_5 Time_listed_{it} + \beta_6 Break_{it} + \beta_7 Sales_{it} + \beta_8 DFM_{it} + \varepsilon_{it}$$

The estimation method used for the regression is pooled data. The output of the regression is shown in Table 10. Tests for normality and cross section dependence test of the residuals confirm the quality of the specification of the regression equation¹⁶.

The evidence indicates that the amount of debt increases across banks over time with cash flow, leverage, and sales Hence, stronger banking fundamentals increase ratings and solidify the ability to borrow to raise funds by banks. This ability decreases over time the longer the bank has been listed. In this connection, it is interesting to note that government ownership improves banks' ratings and therefore solidifies fundamentals that enable banks to raise funds by borrowing, as evident by the positive effect of the share of government ownership on the size of debt banks hold over time. The amount of debt increased significantly across all banks post the financial crisis, an evidence that supports improved management and efforts to clean up bad loans post the crisis.

Hence, *we do not reject H4₂ in the case of the banks' sample, i.e., ceteris paribus, state ownership has a positive relationship on the outstanding debt of listed banks in the UAE.*

¹⁴ For more details, please see Table A23 in the Appendix.

¹⁵ For more details please look at Fig.A30.1 and Table A30.2 in the Appendix.

¹⁶ For more details, please see Fig.A31.1 and Table A31.2 in the Appendix.

4. Summary and Policy Implications

As publicly owned shareholders increase, state owned enterprises have better insider information about the firm that is not widely available. Since the state usually holds shares over long periods of time they have the authority to engage in extensive and ongoing information gathering that matter for the firm's operations thus further reducing information problems and improving the corporate performance.

The evidence across listed companies under investigation confirms the positive effects of government ownership on most of the indicators of performance, as measured by return on assets, profit earned and price to book value, with the effect being confirmed for ROA and profits earned and non-affirmative for price to book value. Consistently, better performance indicators have reduced the need for financing by companies the higher the share of government in ownership.

The evidence across banks presents an identical scenario. It appears that Government ownership plays also an important role in solidifying better performance of the listed banks. In addition, ownership matters as it has increased confidence in the stability of banks, enabling them to increase borrowing to raise funds and therefore increasing debt across these banks, compared to other banks where government ownership does not constitute a dominant share.

At the macro level, it is important to evaluate the optimal ownership structure in order to judge the prospects of growing economic activity and inducing better indicators of performance by resorting to restructuring of existing corporates, if necessary. This assessment is important for the UAE economy that has surpassed its regional comparators in terms of economic diversification and positioned itself on the path for further diversification to celebrate the last barrel of oil.

At the core of growing non-energy sectors is establishing the right structure of corporate ownership to achieve the most results. The results attest that the role of government ownership has improved companies' performance with less need for borrowing. Across banks, government ownership has solidified confidence in the stability of the banks, enabling them to reduce the cost of borrowing to enlarge the pool of funding for their intermediation and credit support for the non-energy sector of the economy.

In addition, the analysis sheds light on what is missing to improve corporate performance at the aggregate level. If state ownership helps performance, advantages may include improved management, support, and accountability, which have reflected positively on performance indicators. Future research should complement this evidence by evaluating the impact of government ownership on productivity and contributions of the corporate sector, including banks, to the macro economy.

The results will shed further light on the UAE's experience and inform economic management in similar economies of the MENA region, particularly resource-rich countries. Ownership structure, structural reforms and improved regulations should lead the process to attain a higher degree of diversification going forward as oil-rich countries adjust to the new norm of the oil price and focus their attention on the best formula of private/public partnership and corporate ownership.

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Figure 1: Price to Book Value for all Listed Companies

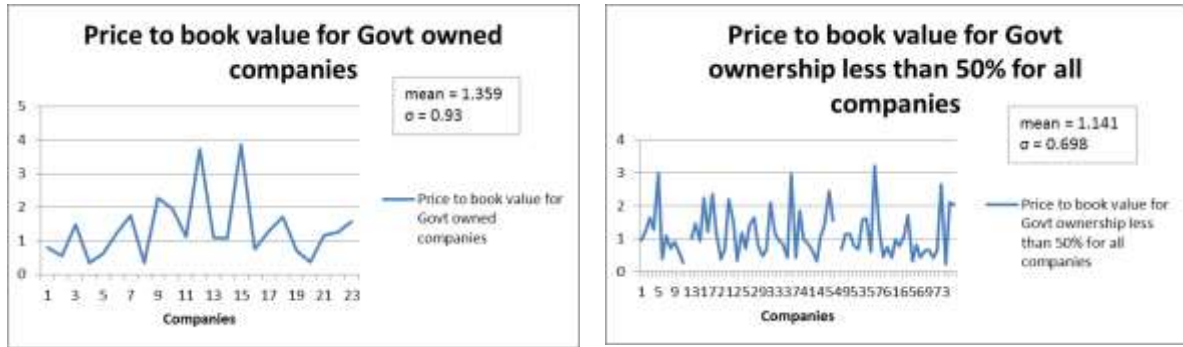


Figure 2: Price to Book Value for All Listed Local Banks

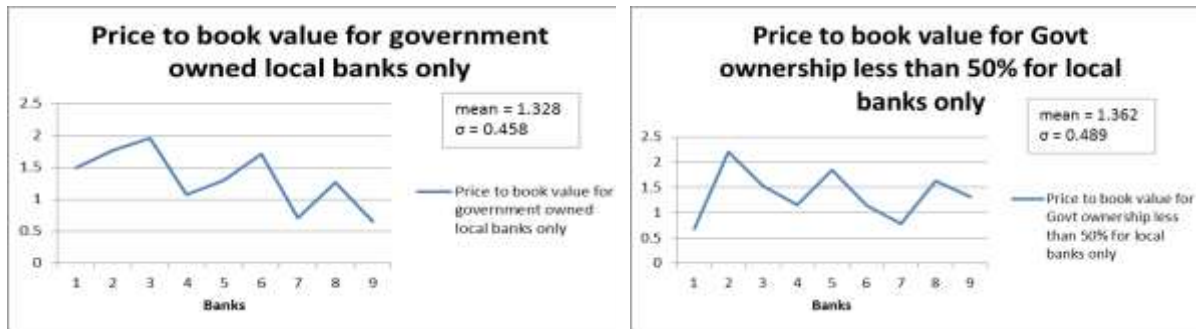


Figure 3: ROA for all Listed Companies

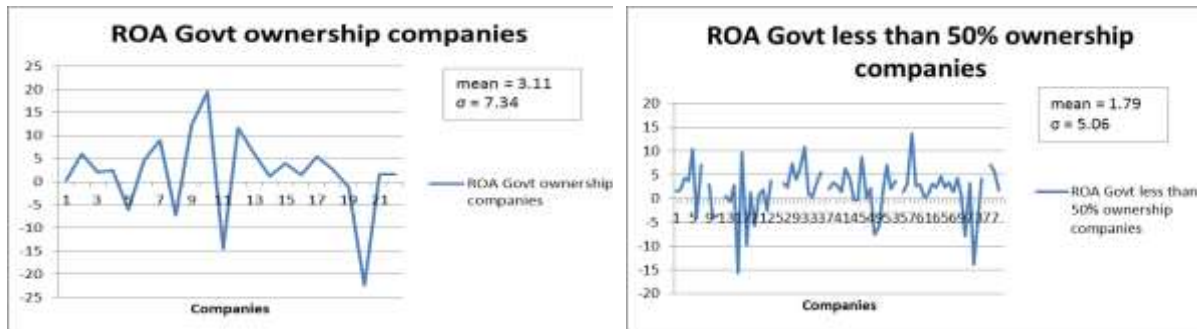


Figure 4: ROA for all Listed Local Banks

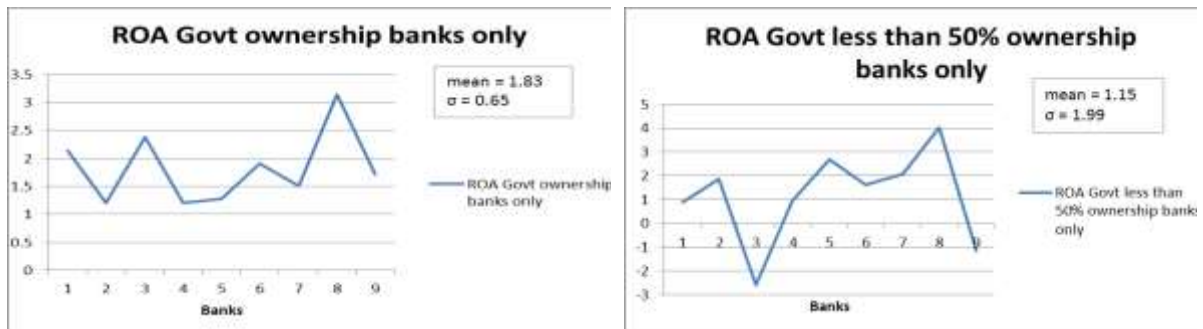


Table 1: State Ownership Per Stock Exchange

Stock exchange	Total number of companies	Government owned at 50% or more	Number of UAE national commercial banks	Number of local banks with majority government ownership
DFM	43	11	4	1
ADX	59	16	13	3
Total	102	27	17	4

Table 2: Percentage Ownership as of 31 March 2016 and their Corresponding Ratings for Banks in the Emirates of Abu Dhabi and Dubai

Bank number	Emirate of Establishment	Percentage of Government ownership	Long Term Rating according to Fitch ratings	Corresponding Outlook by Fitch ratings	Viability Rating
Bank 1	Abu Dhabi	83.5%	A+	Stable	bb+
Bank 2	Abu Dhabi	15.8%	A+	Stable	bb
Bank 3	Dubai	31.5%	A-	Stable	bb+
Bank 4	Dubai	71.7%	A	Stable	bb
Bank 5	Abu Dhabi	98.3%	AA-	Stable	a-

Source: Bloomberg and Fitch Ratings

Table 3: Output for the Regression Equation with Dependent Variable Profit for all the companies

Variable	Coefficient	Prob.
C	0.003036	0.5887
ASSETS	0.000660	0.0000
BREAK	0.003583	0.5274
DFM	-0.023408	0.0000
GOV_OWNERSHIP	0.009961	0.0003
SALES	0.184920	0.0000
CASHFLOW	0.045953	0.0000
DEBT_TO_EQUITY	-0.000220	0.0000
TIME_LISTED	0.000116	0.5066
R-squared	0.532677	
Adjusted R-squared	0.531307	
Prob(F-statistic)	0.000000	
Durbin-Watson stat	1.844080	

Table 4: Output of the Regression Equation with the Dependent Variable Price Per Book Value for All the Companies

Variable	Coefficient	Prob.
C	1.914744	0.0000
ASSETS	-0.001701	0.0671
BREAK	-0.312174	0.0000
DFM	-0.148621	0.0001
GOV_OWNERSHIP	0.004020	0.8895
SALES	0.087688	0.0168
CASHFLOW	0.047503	0.2946
DEBT_TO_EQUITY	0.000532	0.1629
TIME_LISTED	-0.012269	0.0000
R-squared	0.451823	
Adjusted R-squared	0.449077	
Prob(F-statistic)	0.000000	
Durbin-Watson stat	1.925035	

Table 5: Output for the Regression Equation with the Dependent Variable ROA Across All the Companies

Variable	Coefficient	Prob.
C	5.933745	0.0000
ASSETS	-0.022591	0.0000
BREAK	-1.493759	0.0000
DFM	-1.107201	0.0000
GOV_OWNERSHIP	0.301568	0.0254
SALES	1.858102	0.0000
CASHFLOW	0.248909	0.2156
DEBT_TO_EQUITY	-0.021388	0.0000
TIME_LISTED	-0.031883	0.0001
R-squared	0.425863	
Adjusted R-squared	0.423172	
Prob(F-statistic)	0.000000	
Durbin-Watson stat	1.865466	

Table 6: Output of the Regression Equation with the Dependent Variable Debt Across All the Companies

Variable	Coefficient	Prob.
C	-73.38336	0.0000
ASSETS	0.604538	0.0001
BREAK	-12.06683	0.2268
DFM	30.60438	0.0000
GOV_OWNERSHIP	-2.853925	0.0426
SALES	230.5211	0.0000
CASHFLOW	-8.511040	0.2809
DEBT_TO_EQUITY	2.568976	0.0000
TIME_LISTED	0.377431	0.2171
R-squared	0.580699	
Adjusted R-squared	0.579478	
Prob(F-statistic)	0.000000	
Durbin-Watson stat	1.873696	

Table 7: Output for the Regression Equation with the Dependent Variable Profit Across the Banking Sample

Variable	Coefficient	Prob.
C	0.022632	0.2102
ASSETS	-0.000750	0.0005
BREAK	-0.027605	0.1400
CASHFLOW	0.009312	0.0063
DEBT_TO_EQUITY	-0.000825	0.0000
DFM	-0.060012	0.0000
GOV_OWNERSHIP	0.095059	0.0000
SALES	0.378399	0.0000
TIME_LISTED	0.002044	0.0012
R-squared	0.789198	
Adjusted R-squared	0.785105	
Prob(F-statistic)	0.000000	
Durbin-Watson stat	1.864233	

Table 8: Output for the Regression Equation with the Dependent Variable Price Per Book Value Across *the Banking Sample*

Variable	Coefficient	Prob.
C	1.440325	0.0000
ASSETS	-0.002250	0.0597
BREAK	-0.197765	0.0821
CASHFLOW	0.017094	0.3523
DEBT_TO_EQUITY	0.001289	0.1193
DFM	-0.235342	0.0017
GOV_OWNERSHIP	-0.047521	0.4930
SALES	0.020893	0.7100
TIME_LISTED	0.004846	0.1908
R-squared	0.456521	
Adjusted R-squared	0.437509	
Prob(F-statistic)	0.003033	
Durbin-Watson stat	1.765572	

Table 9: Output for The Regression Equation with the Dependent Variable ROA Across *the Banking Sample*

Variable	Coefficient	Prob.
C	2.470140	0.0000
ASSETS	-0.010456	0.0000
BREAK	-0.442333	0.0089
CASHFLOW	0.021254	0.4576
DEBT_TO_EQUITY	-0.007043	0.0000
DFM	-0.277583	0.0175
GOV_OWNERSHIP	0.379744	0.0006
SALES	0.446775	0.0000
TIME_LISTED	0.017107	0.0028
R-squared	0.488988	
Adjusted R-squared	0.472266	
Prob(F-statistic)	0.000000	
Durbin-Watson stat	1.821211	

Table 10: Output for the Regression Equation with the Dependent Variable Debt Across *the Banking Sample*

Variable	Coefficient	Prob.
C	-111.9968	0.0000
ASSETS	-0.225521	0.4709
BREAK	99.42108	0.0004
CASHFLOW	12.18550	0.0139
DEBT_TO_EQUITY	4.670603	0.0000
DFM	2.609420	0.8938
GOV_OWNERSHIP	48.61847	0.0087
SALES	413.1059	0.0000
TIME_LISTED	-9.385040	0.0000
R-squared	0.851631	
Adjusted R-squared	0.848777	
Prob(F-statistic)	0.000000	
Durbin-Watson stat	1.725578	

Appendix

Table A1: Variables' Definition

Variable	Definition	Source
Assets	Total Assets in AED mn	Bloomberg
Cashflow	Net Cashflow in AED mn	Bloomberg
Debt	Total Outstanding Debt in AED mn	Bloomberg
Debt/Equity	This is the Debt in AED divided by the Equity in AED and is a measure of leverage	Bloomberg
Profits	The Total Amount of net profits in AED mn	Bloomberg
DFM	The variable takes the value 1 if it is listed on DFM and 0 if it is listed on ADX	Bloomberg
Gov_ownership	This is a dummy variable taking the value 0 if the Government ownership is below 50%, 1 if it is between 50% and 75% and 2 if it is above 75%	Bloomberg
P/B value	Price per Book Value	Bloomberg
ROA	Return on Assets	Bloomberg
Sales	Total Revenue in AED	Bloomberg
Time_listed	The number of Quarters the Company/Bank is listed	Bloomberg

Figure A2.1: Distribution and Descriptive Statistics of the Assets Series for the Overall Sample

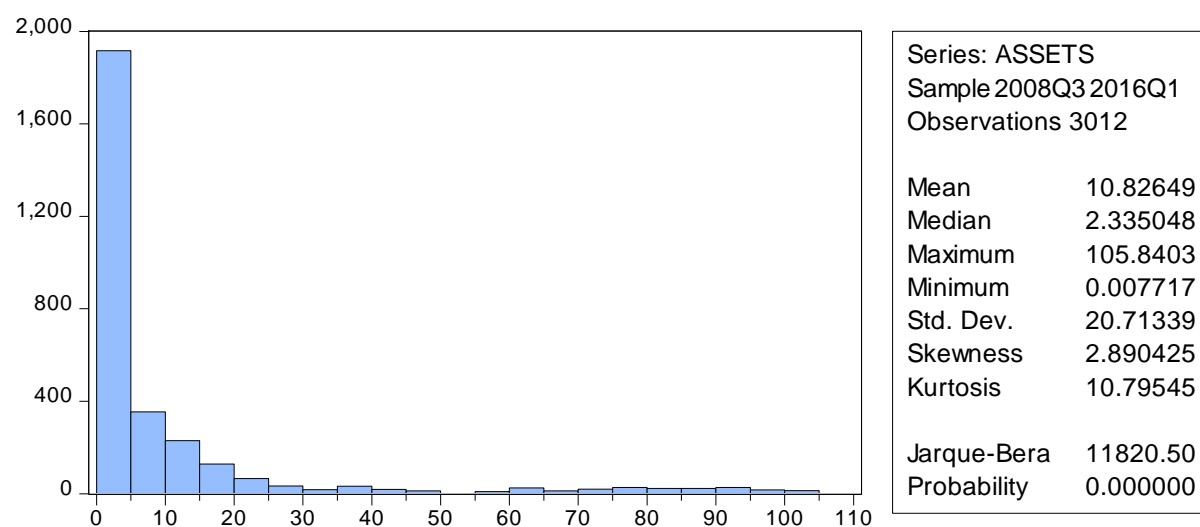


Table A2.2: Unit Root Test of the Assets Series for the Overall Sample

Panel unit root test: Summary					
Series: ASSETS					
Sample: 2008Q3 2016Q1					
Newey-West automatic bandwidth selection and Bartlett kernel					
Method	Statistic	Prob.**	Cross-sections	Obs	
Null: Unit root (assumes common unit root process)					
Levin, Lin & Chu t*	-3.02791	0.0012	99	2911	

→ **Stationary series**

Figure A3.1: Distribution and Descriptive Statistics of The Cashflow Series for the Overall Sample

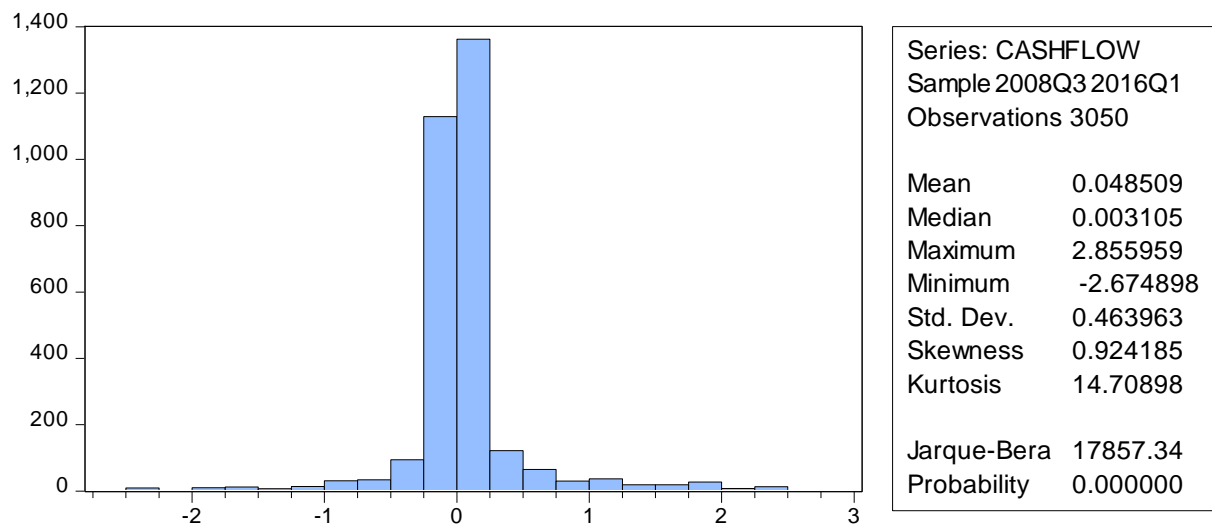


Table A3.2: Unit Root Test of the Cashflow Series for the Overall Sample

Panel unit root test: Summary				
Series: CASHFLOW				
Sample: 2008Q3 2016Q1				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-39.6192	0.0000	102	2906

→ **Stationary series**

Figure A4.1: Distribution and Descriptive Statistics of The Debt Series for The Overall Sample

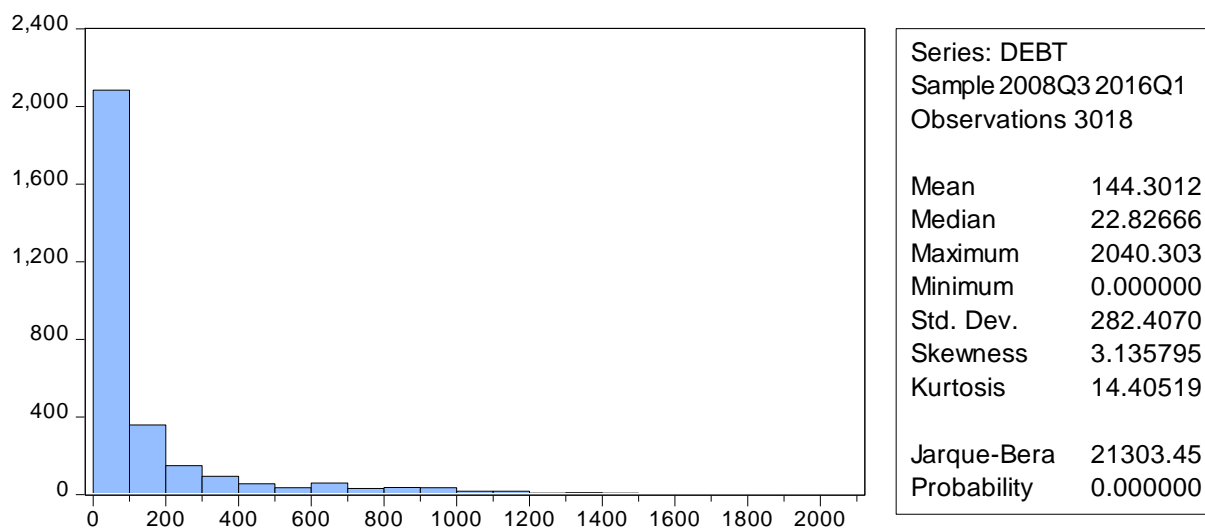


Table A4.2: Unit Root Test of the Debt Series for the Overall Sample

Panel unit root test: Summary					
Series: DEBT					
Sample: 2008Q3 2016Q1					
Newey-West automatic bandwidth selection and Bartlett kernel					
Method	Statistic	Prob.**	Cross-sections	Obs	
Null: Unit root (assumes common unit root process)					
Levin, Lin & Chu t*	-6.54087	0.0000	89	2648	

→ **Stationary series**

Figure A5.1: Graphical Representation of The Debt to Equity Series for the Overall Sample

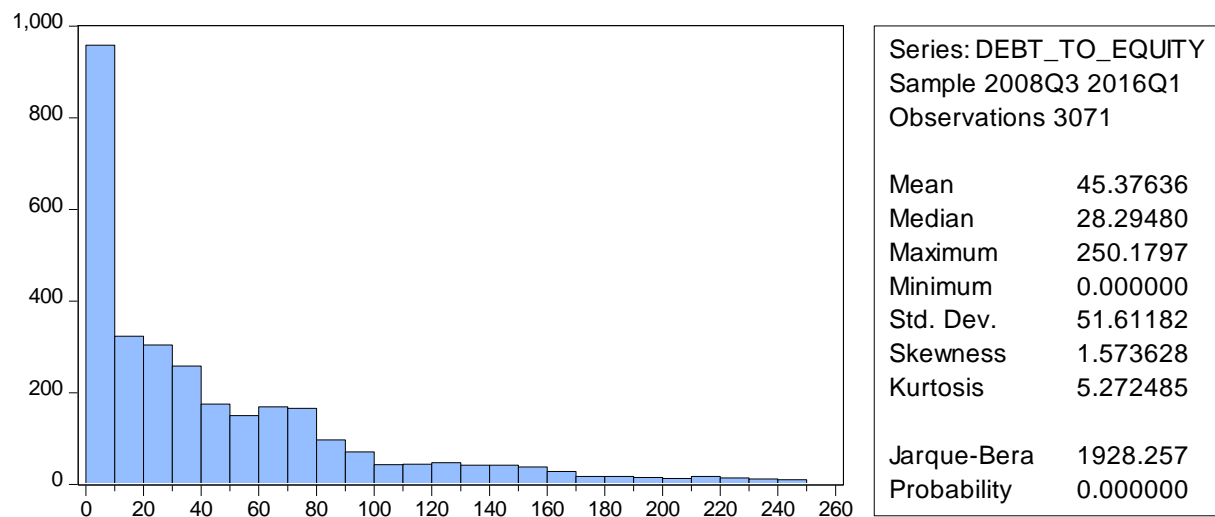


Table A5.2: Unit Root Test of the Debt to Equity Series for the Overall Sample

Panel unit root test: Summary
 Series: DEBT_TO_EQUITY
 Sample: 2008Q3 2016Q1
 Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-6.85407	0.0000	92	2688

→ **Stationary series**

Figure A6.1: Distribution and Descriptive Statistics of the Profit Series for the Overall Sample

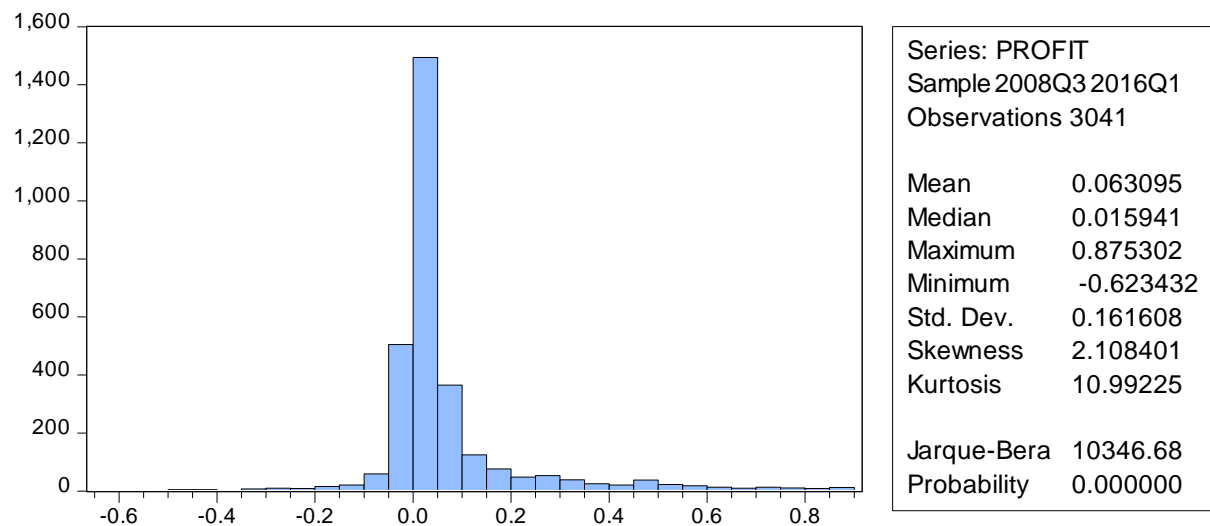


Table A6.2: Unit Root Test of the Profit Series for the Overall Sample

Panel unit root test: Summary				
Series: PROFIT				
Sample: 2008Q3 2016Q1				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-30.7416	0.0000	100	2902
→ Stationary series				

Figure A7.1: Distribution and Descriptive Statistics of the Price Per Book Value Series for the Overall Sample

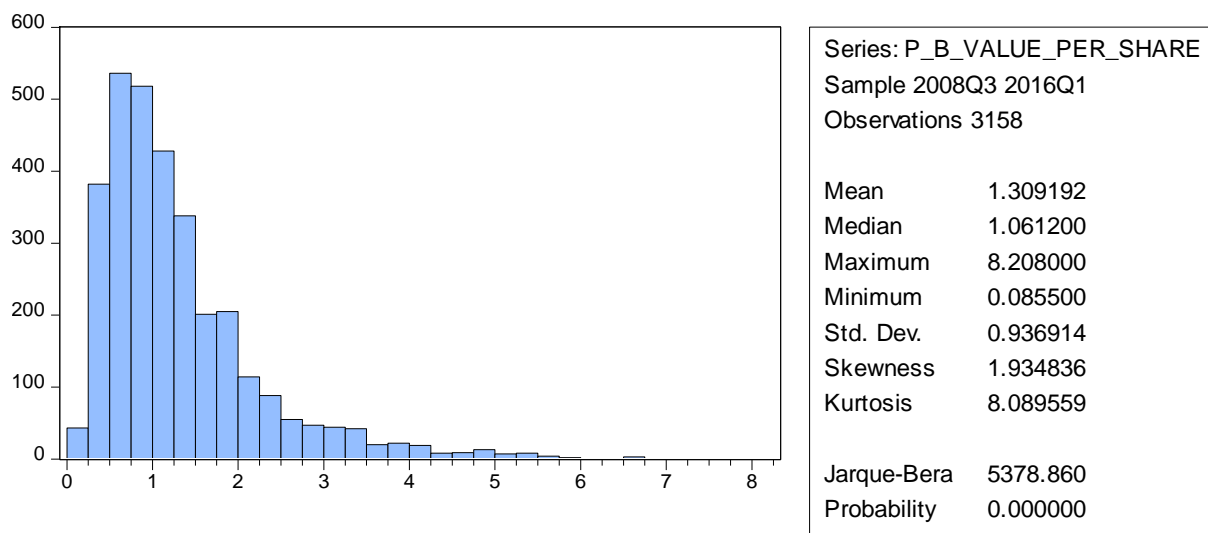


Table A7.2: Unit Root Test of the Price per Book Value Series for The Overall Sample

Panel unit root test: Summary				
Series: P_B_VALUE_PER_SHARE				
Sample: 2008Q3 2016Q1				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-12.1462	0.0000	102	3056
→ Stationary series				

Figure A8.1: Distribution and Descriptive Statistics of the ROA Series for the Overall Sample

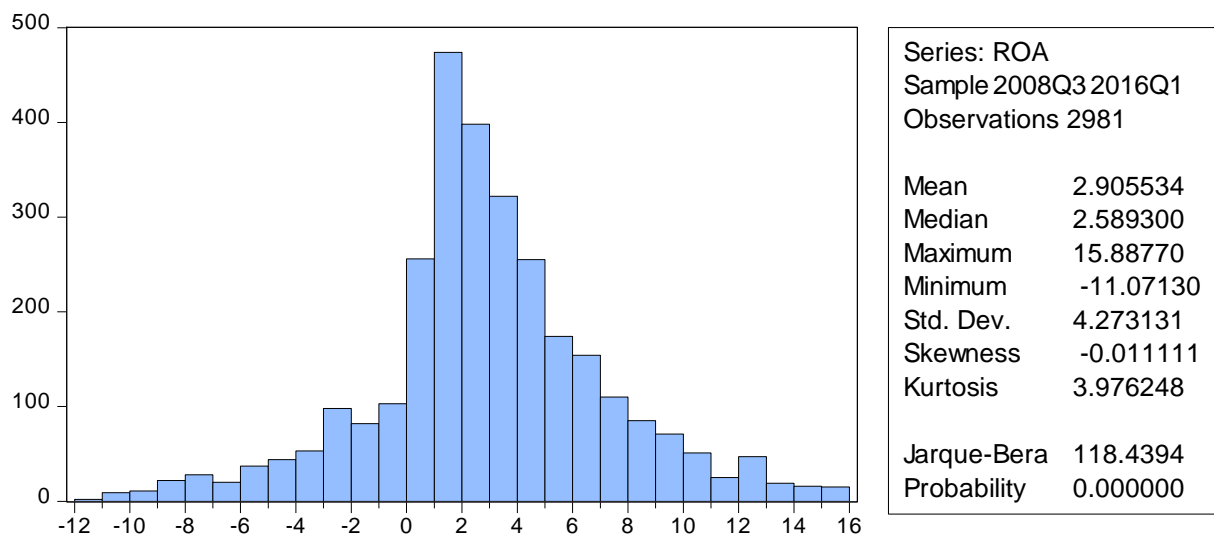


Table A8.2: Unit Root Test of the ROA Series for the Overall Sample

Panel unit root test: Summary				
Series: ROA				
Sample: 2008Q3 2016Q1				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-11.5349	0.0000	102	2844

→ **Stationary series**

Figure A9.1: Distribution and Descriptive Statistics of The Sales Series for the Overall Sample

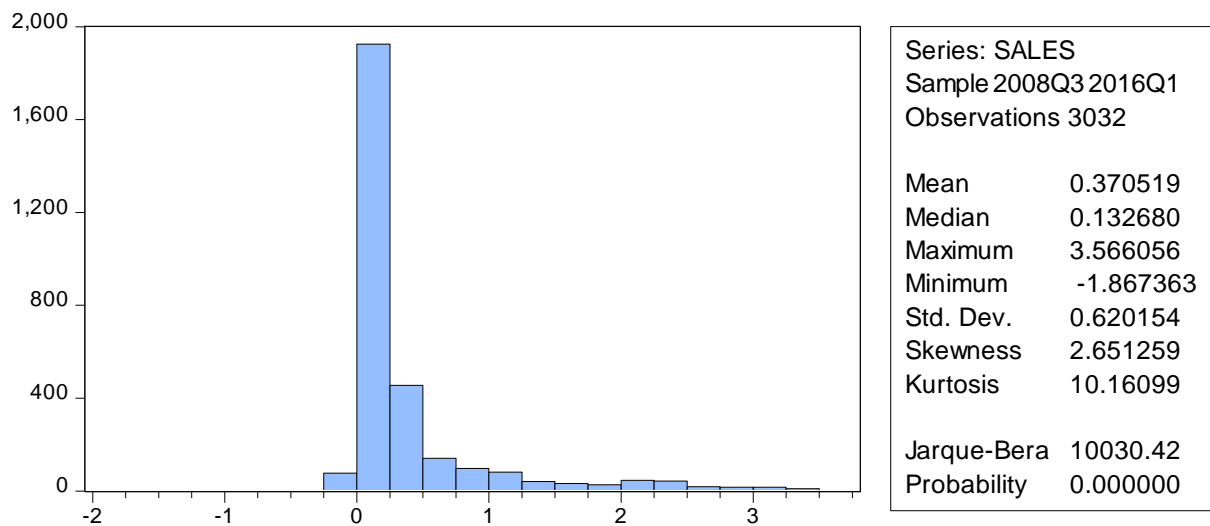


Table A9.2: Unit Root Test of the Sales Series for the Overall Sample

Panel unit root test: Summary				
Series: SALES				
Sample: 2008Q3 2016Q1				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-12.6675	0.0000	98	2931

→ **Stationary series**

Figure A10.1: Distribution and Descriptive Statistics of the Assets Series for the Banks Sample

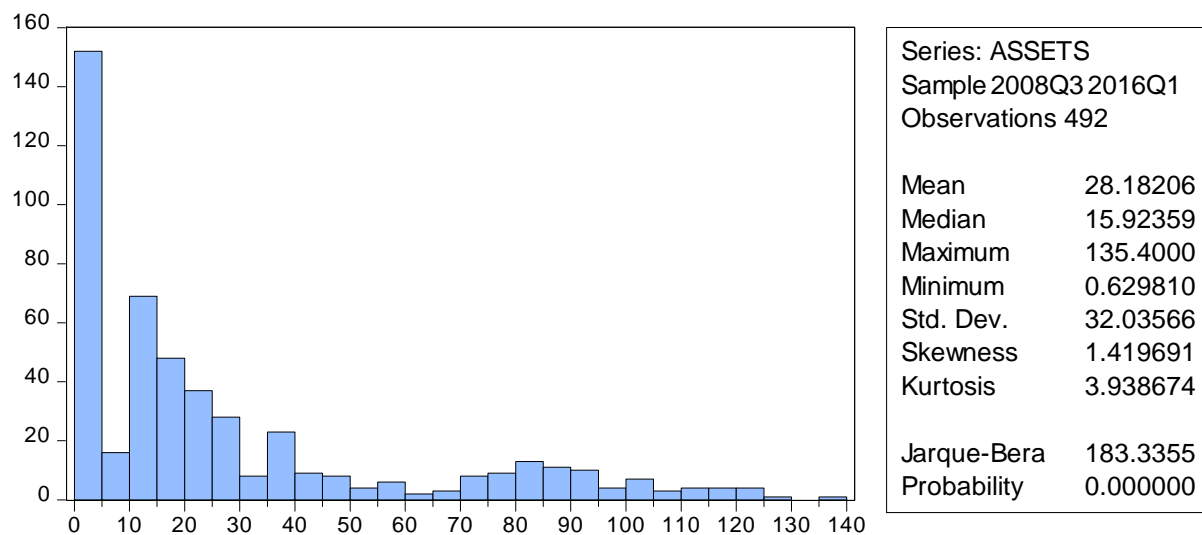


Table A10.2: Unit Root Test of the Assets Series for the Banks Sample

Panel unit root test: Summary					
Series: ASSETS					
Sample: 2008Q3 2016Q1					
Newey-West automatic bandwidth selection and Bartlett kernel					
Method	Statistic	Prob.**	Cross-sections	Obs	
Null: Unit root (assumes common unit root process)					
Levin, Lin & Chu t*	3.34635	0.9996	16	475	
→ Stationary series					

Figure A11.1: Distribution and Descriptive Statistics of the Cashflow Series for the Banks Sample

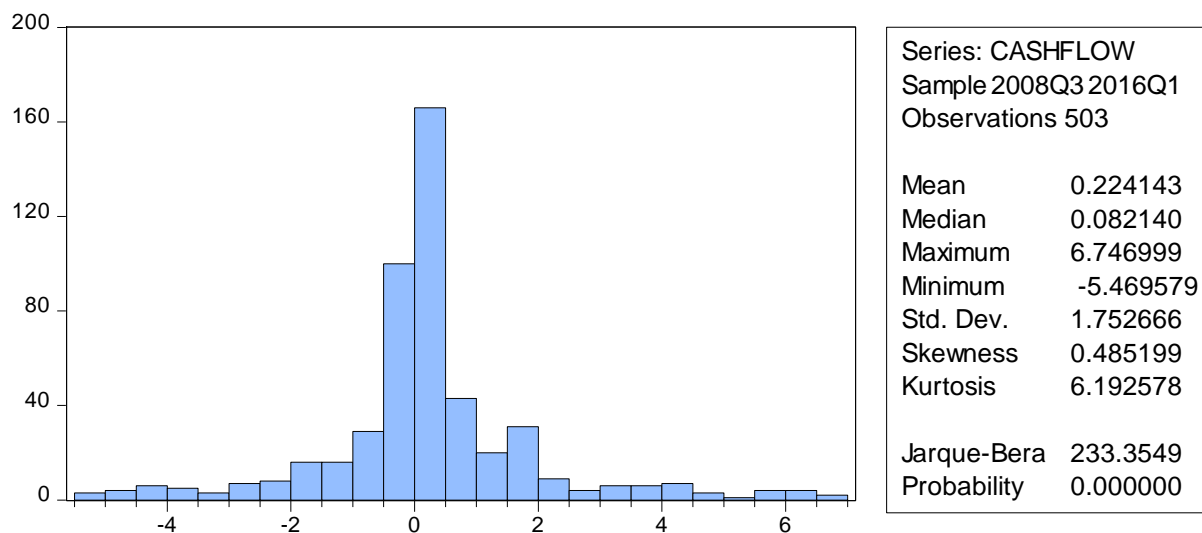


Table A11.2: Unit Root Test of the Cash Flow Series for the Banks Sample

Panel unit root test: Summary				
Series: CASHFLOW				
Sample: 2008Q3 2016Q1				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-19.0362	0.0000	17	473
→ Stationary series				

Figure A12.1: Distribution and Descriptive Statistics of the Debt Series for the Banks Sample

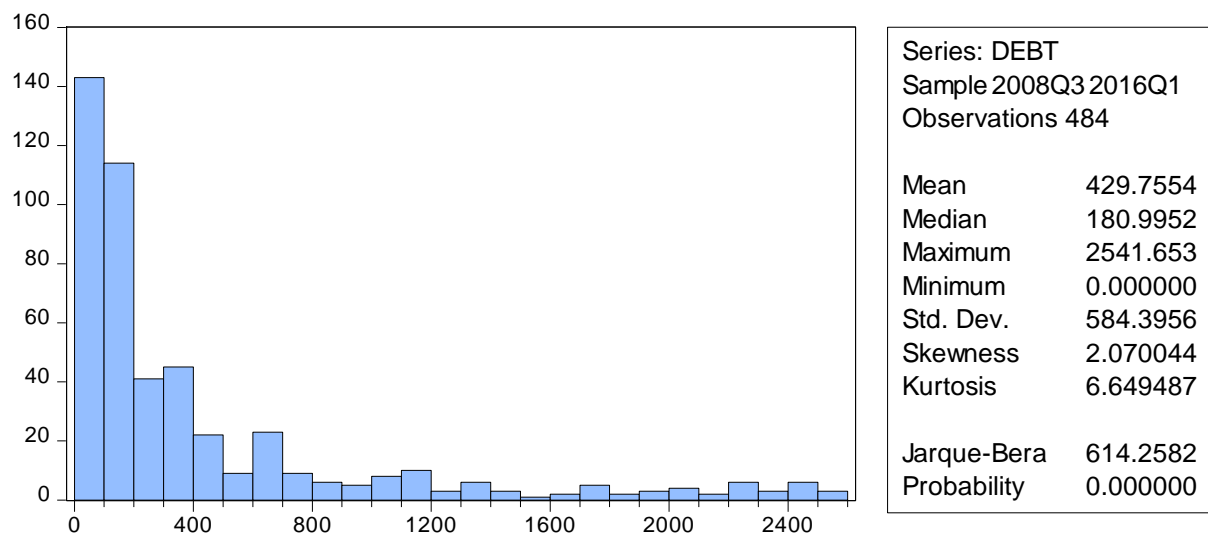


Table A12.2: Unit Root Test of the Debt Series for the Banks Sample

Panel unit root test: Summary				
Series: DEBT				
Sample: 2008Q3 2016Q1				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-4.25912	0.0000	16	461
→ Stationary series				

Figure A13.1: Distribution and Descriptive Statistics of the Debt To Equity Series for The Banks Sample

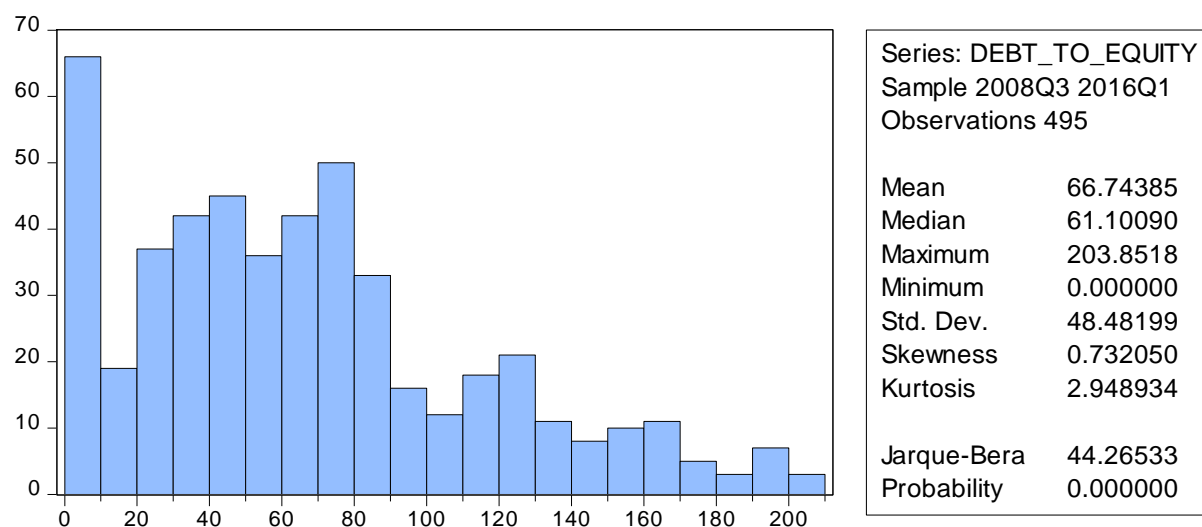


Table A13.2: Unit Root Test of the Debt to Equity Series for the Banks Sample

Panel unit root test: Summary					
Series: DEBT_TO_EQUITY					
Sample: 2008Q3 2016Q1					
Newey-West automatic bandwidth selection and Bartlett kernel					
Method	Statistic	Prob.**	Cross-sections	Obs	
Null: Unit root (assumes common unit root process)					
Levin, Lin & Chu t*	-3.35591	0.0004	17	470	

→ **Stationary series**

Figure. A14.1: Distribution and Descriptive Statistics of the Profit Series for the Banks Sample

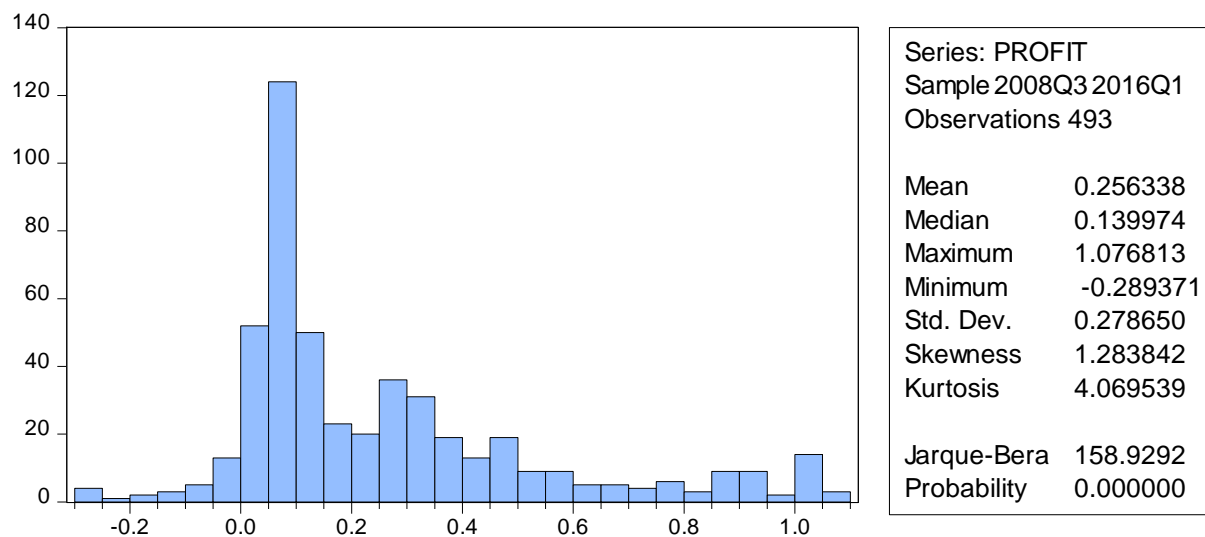


Table A14.2: Unit Root Test of the Profit Series for the Banks Sample

Panel unit root test: Summary				
Series: PROFIT				
Sample: 2008Q3 2016Q1				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-8.15974	0.0000	17	467

→ **Stationary series**

Figure A15.1: Distribution and Descriptive Statistics of The Price to Book Value Series for the Banks Sample

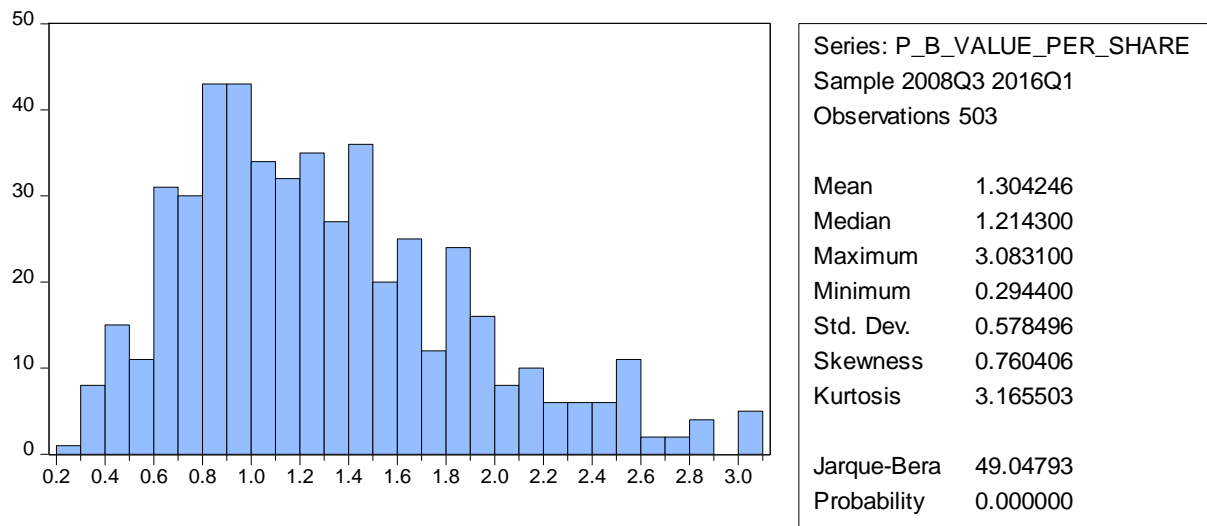


Table A15.2: Unit Root Test of the Price to Book Value Series for the Banks Sample

Panel unit root test: Summary					
Series: P_B_VALUE_PER_SHARE					
Sample: 2008Q3 2016Q1					
Newey-West automatic bandwidth selection and Bartlett kernel					
Method	Statistic	Prob.**	Cross-sections	Obs	
Null: Unit root (assumes common unit root process)					
Levin, Lin & Chu t*	-4.70700	0.0000	17	482	
→ Stationary series					

Figure. A16.1: Distribution and Descriptive Statistics of the ROA Series for the Banks Sample

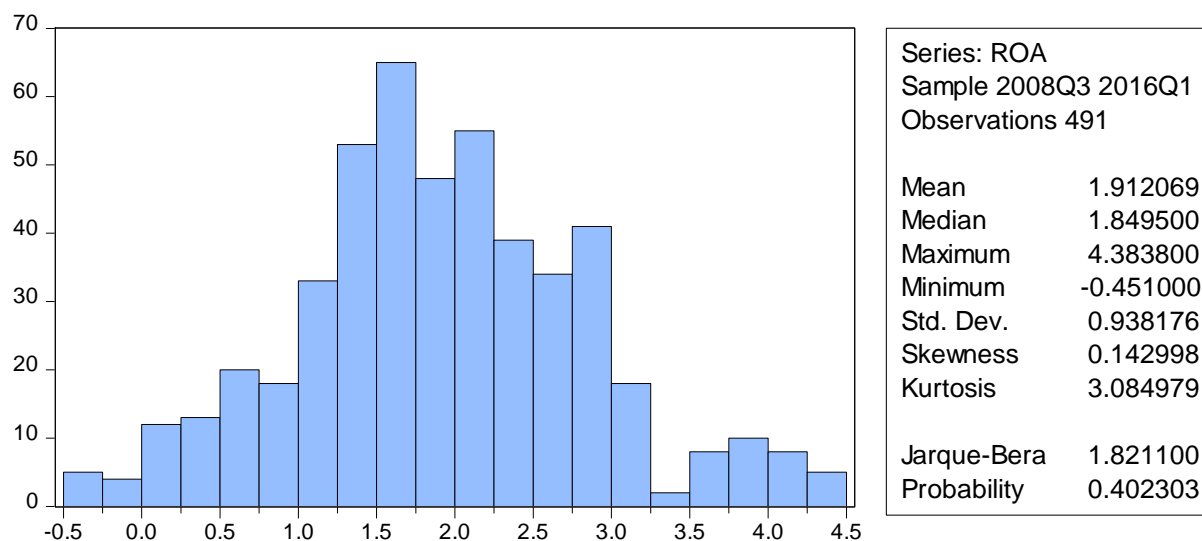


Table A16.2: Unit Root Test of the ROA Series for the Banks Sample

Panel unit root test: Summary				
Series: ROA				
Sample: 2008Q3 2016Q1				
Newey-West automatic bandwidth selection and Bartlett kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-5.89461	0.0000	17	470

→ **Stationary series**

Figure A17.1: Distribution and Descriptive Statistics of the Sales Series for the Banks Sample

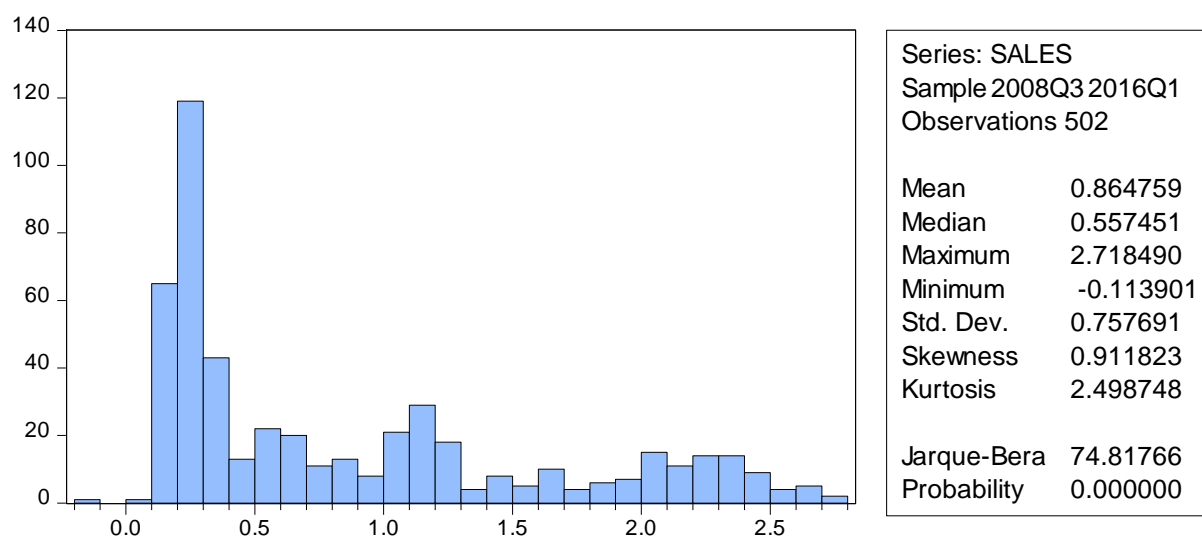


Table A17.2: Unit Root Test of the Sales Series for the Banks Sample

Panel unit root test: Summary					
Series: SALES					
Sample: 2008Q3 2016Q1					
Newey-West automatic bandwidth selection and Bartlett kernel					
Method	Statistic	Prob.**	Cross-sections	Obs	
Null: Unit root (assumes common unit root process)					
Levin, Lin & Chu t*	-3.21145	0.0007	17	483	

→ **Stationary series**

Table A18: Matrix of Correlations of the Variables for the Overall Sample

	ASSETS	BREAK	CASHFLOW	DEBT	DEBT_TO_EQUITY	DFM	GOV_OWNERSHIP	P_B_VALUE	PROFIT	ROA	SALES	TIME_LISTED
ASSETS	100%											
BREAK	0%	100%										
CASHFLOW	12%	6%	100%									
DEBT	17%	-2%	9%	100%								
DEBT_TO_EQUITY	5%	-2%	-2%	58%	100%							
DFM	0%	-1%	-2%	21%	9%	100%						
GOV_OWNERSHIP	17%	1%	-5%	-4%	-12%	-2%	100%					
P_B_VALUE	-2%	-18%	2%	2%	6%	-3%	-2%	100%				
PROFIT	25%	4%	29%	44%	5%	2%	-4%	4%	100%			
ROA	-8%	-14%	4%	-12%	-20%	-10%	3%	8%	19%	100%		
SALES	19%	1%	21%	55%	14%	17%	0%	5%	73%	16%	100%	
TIME_LISTED	6%	46%	6%	4%	3%	-16%	4%	-20%	6%	-12%	2%	100%

→ **No multicollinearity in the regression equations, as very low correlation between the different variables.**

Table A19: Matrix of Correlations of the Variables for the Banks Sample

	ASSETS	BREAK	CASHFLOW	DEBT	DEBT TO EQUITY	DFM	GOV_OWNERSHIP	P_B_VALUE	PROFIT	ROA	SALES	TIME_LISTED
ASSETS	100%											
BREAK	0%	100%										
CASHFLOW	3%	-4%	100%									
DEBT	11%	-8%	12%	100%								
DEBT TO EQUITY	12%	-13%	3%	63%	100%							
DFM	19%	-4%	6%	36%	35%	100%						
GOV_OWNERSHIP	-30%	3%	5%	44%	33%	34%	100%					
P_B_VALUE	-9%	-9%	2%	-5%	9%	-15%	0%	100%				
PROFIT	26%	5%	16%	56%	12%	10%	14%	6%	100%			
ROA	-17%	3%	3%	-12%	-27%	-23%	-10%	23%	27%	100%		
SALES	30%	1%	11%	81%	35%	35%	41%	-1%	83%	2%	100%	
TIME_LISTED	31%	39%	6%	-1%	33%	12%	21%	1%	8%	-6%	12%	100%

→ No multicollinearity in the regression equations, as evident by very low correlation between the different variables except Government ownership and Assets, however the levels are acceptable (-30% of correlation).

Table A20: Profit Equation for the Overall Sample – Hausman Test

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

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	186.126350	6	0.0000

→ Random effect

Table A21: Price to Book Value Equation for the Overall Sample – Hausman Test

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

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	75.696847	6	0.0000

→ Random effect

Table A22: Profit Equation for the Banks Sample – Hausman Test

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

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	16.527618	6	0.0112

→ Random effect

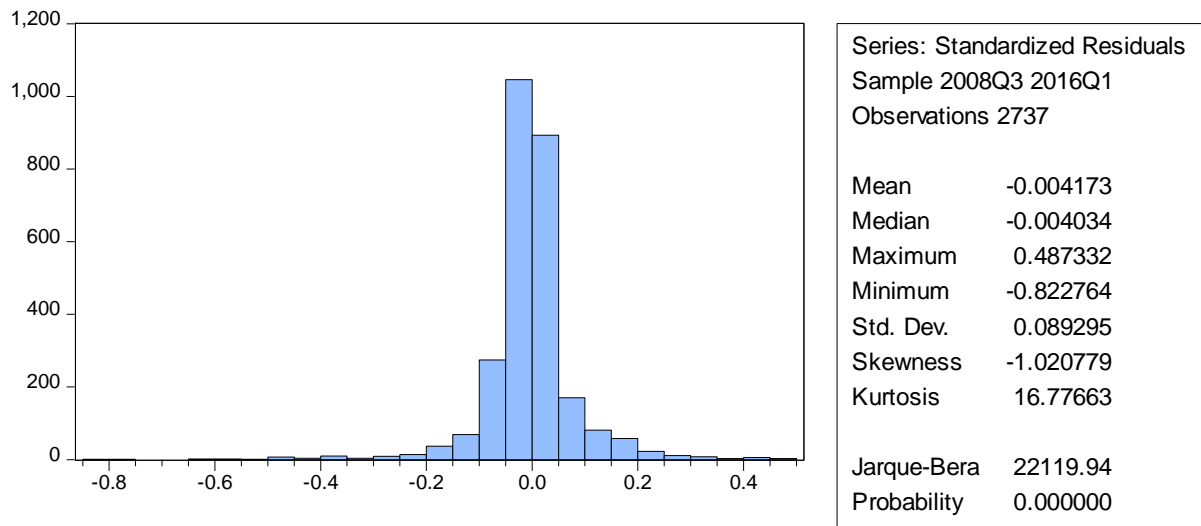
Table A23: ROA Equation for the Banks Sample – Hausman Test

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

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	87.342857	6	0.0000

→ **Random effect**

Figure A24.1: Test for Normality of the Residuals for the Equation of Profits for the overall sample



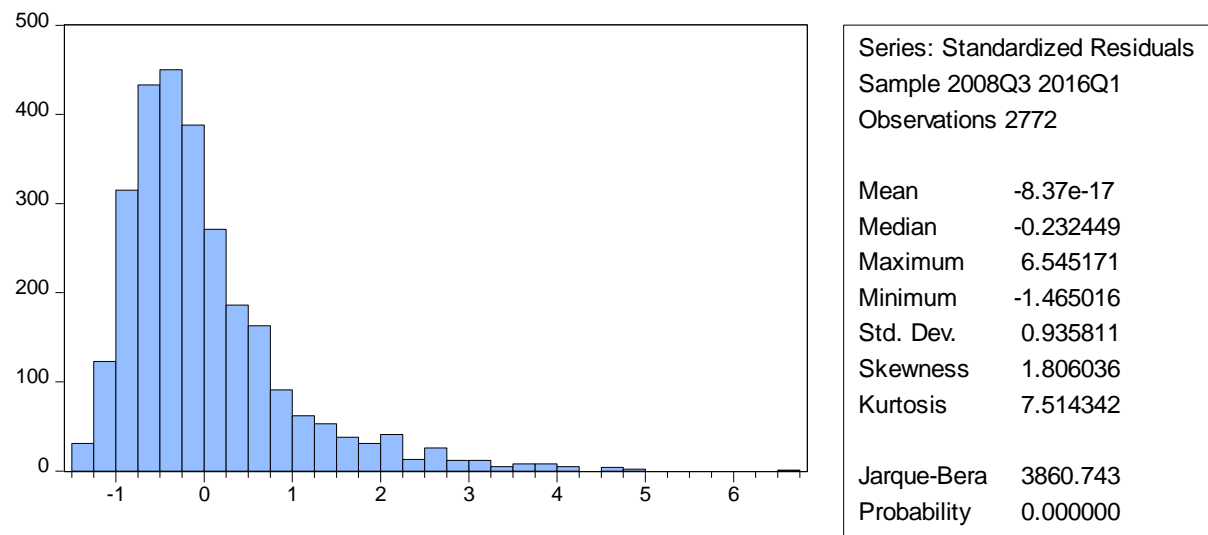
→ **Normally distributed**

Table A24.2: Cross Section Dependence Test of the Residuals for the Equation of Profits for the Overall Sample

Test	Prob.
Breusch-Pagan LM	0.3841
Pesaran scaled LM	0.3974
Pesaran CD	0.7712

→ **Residuals not correlated**

Figure A25.1: Test for Normality of the Residuals for the Equation of Price to Book Value for the Overall Sample



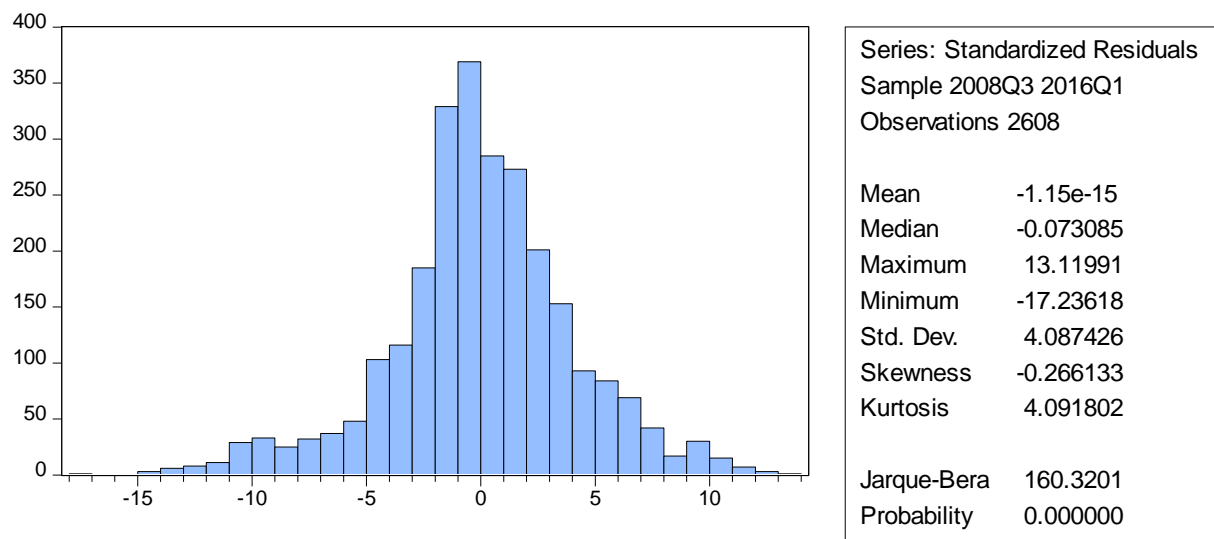
→ **Normally distributed**

Table A25.2: Cross Section Dependence Test of the Residuals for the Equation of Price to Book Value for the Overall Sample

Test	Prob.
Breusch-Pagan LM	0.6431
Pesaran scaled LM	0.6714
Pesaran CD	0.7745

→ **Residuals not correlated**

Figure A26.1: Test for Normality of the Residuals for the Equation of ROA for the Overall Sample



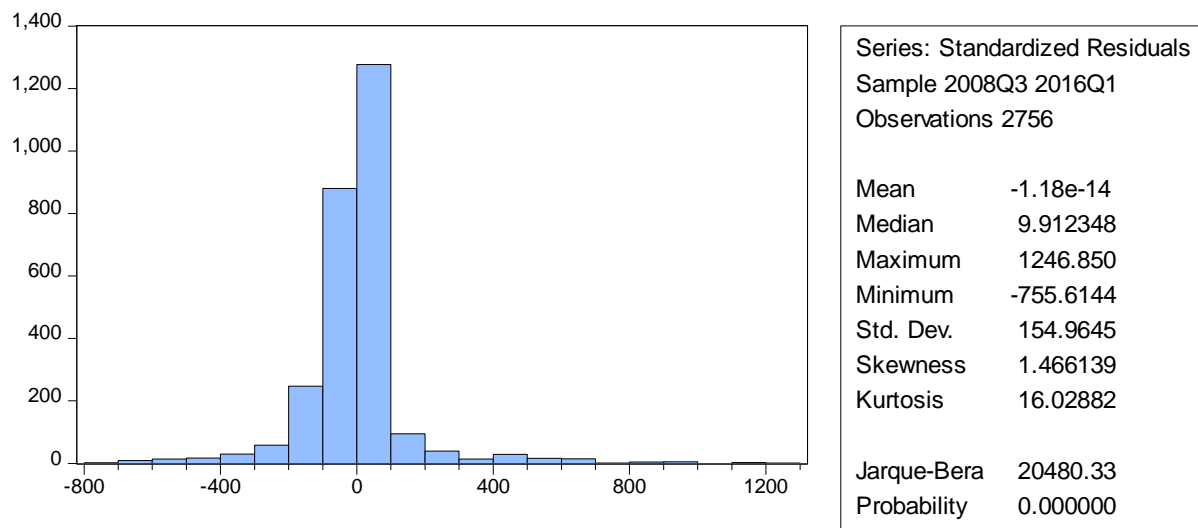
→ **Normally distributed**

Table A26.2: Cross Section Dependence Test of the Residuals for the Equation of ROA for the Overall Sample

Test	Prob.
Breusch-Pagan LM	0.6754
Pesaran scaled LM	0.5134
Pesaran CD	0.4213

→ **Residuals not correlated**

Figure A27.1: Test for Normality of the Residuals for the Equation of Debt for the Overall Sample



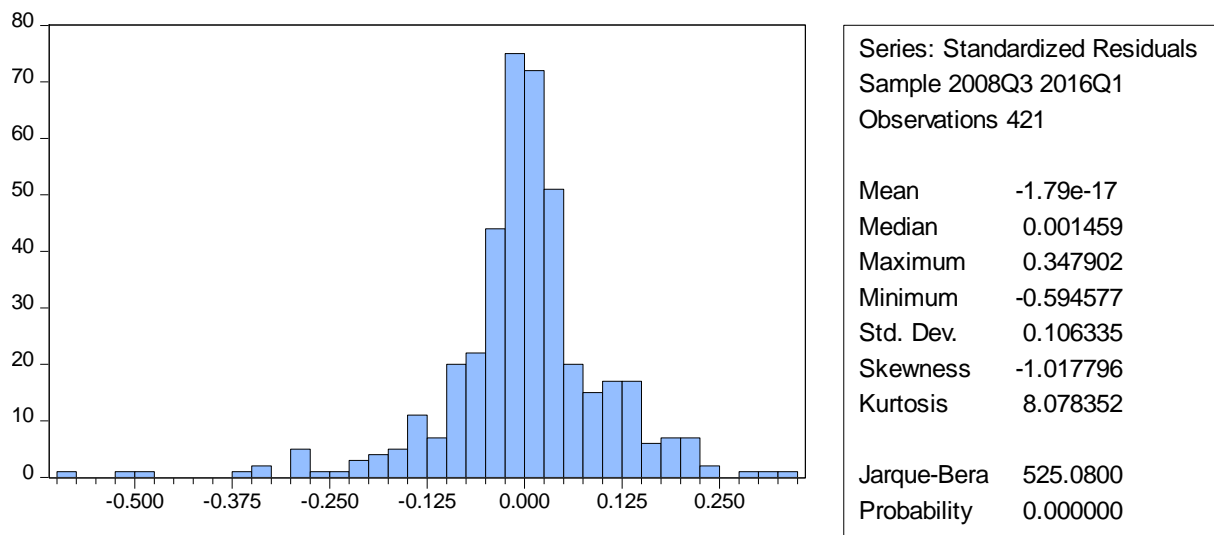
→ **Normally distributed**

Table A27.2: Cross Section Dependence Test of the Residuals for the Equation of Debt for the Overall Sample

Test	Prob.
Breusch-Pagan LM	0.6054
Pesaran scaled LM	0.3485
Pesaran CD	0.4761

→ **Residuals not correlated**

Figure A28.1: Test for Normality of the Residuals for the Equation of Profit for the Banks Sample



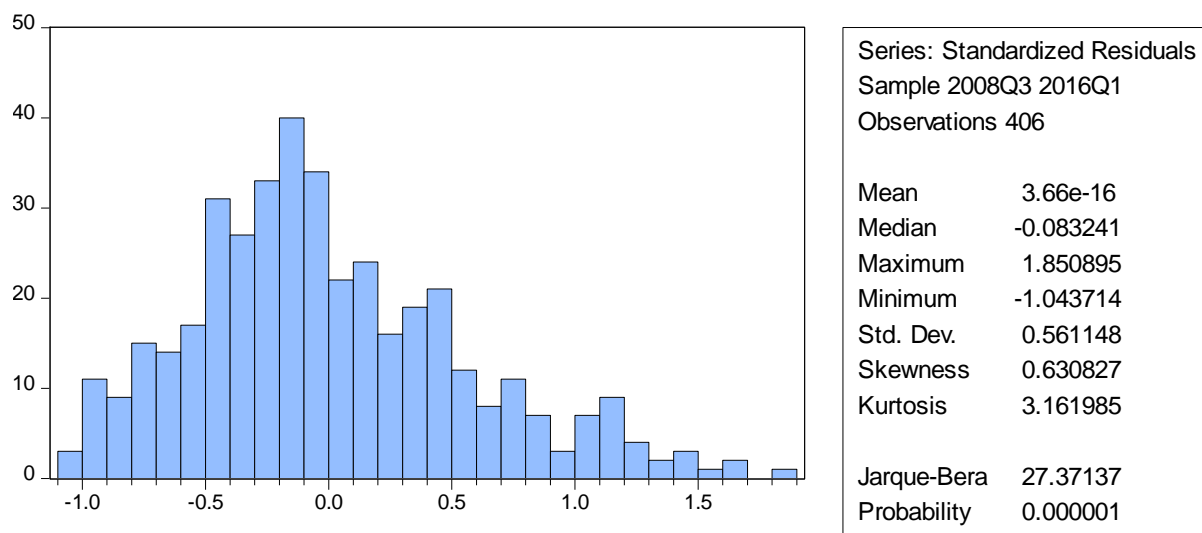
→ **Normally distributed**

Table A28.2: Cross Section Dependence Test of The Residuals for the Equation of Profit for the Banks Sample

Test	Prob.
Breusch-Pagan LM	0.6978
Pesaran scaled LM	0.7154
Pesaran CD	0.4579

→ **Residuals not correlated**

Figure A29.1: Test for Normality of the Residuals for the Equation of Price To Book Value for the Banks Sample



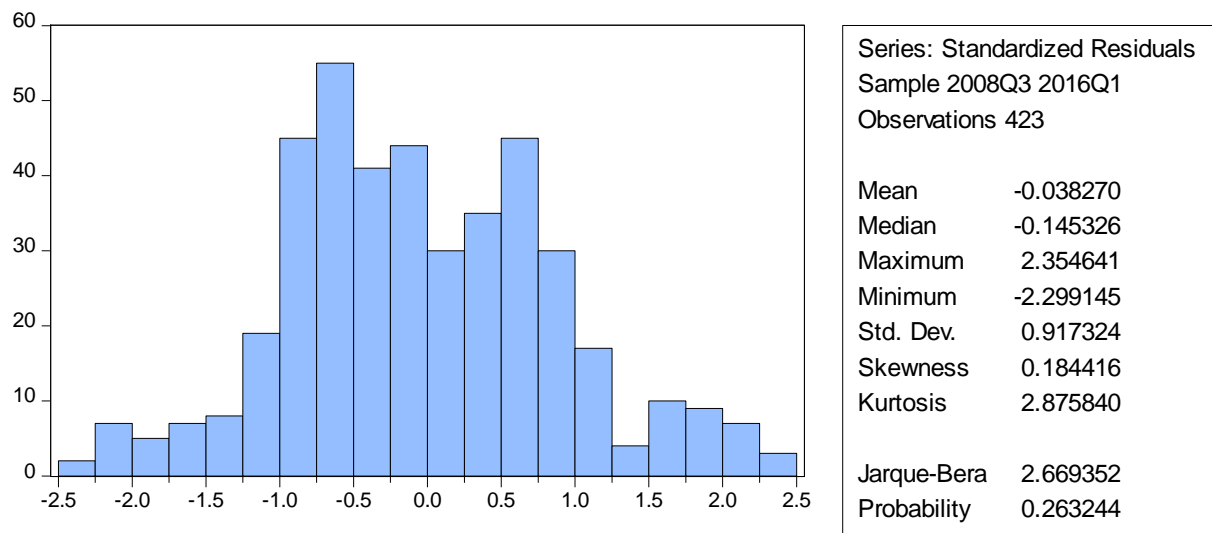
→ **Normally distributed**

Table A29.2: Cross Section Dependence Test of The Residuals for the Equation of Price to Book Value for The Banks Sample

Test	Prob.
Breusch-Pagan LM	0.6317
Pesaran scaled LM	0.6124
Pesaran CD	0.6277

→ **Residuals not correlated**

Figure A30.1: Test for Normality of the Residuals for the Equation of ROA for the Banks Sample



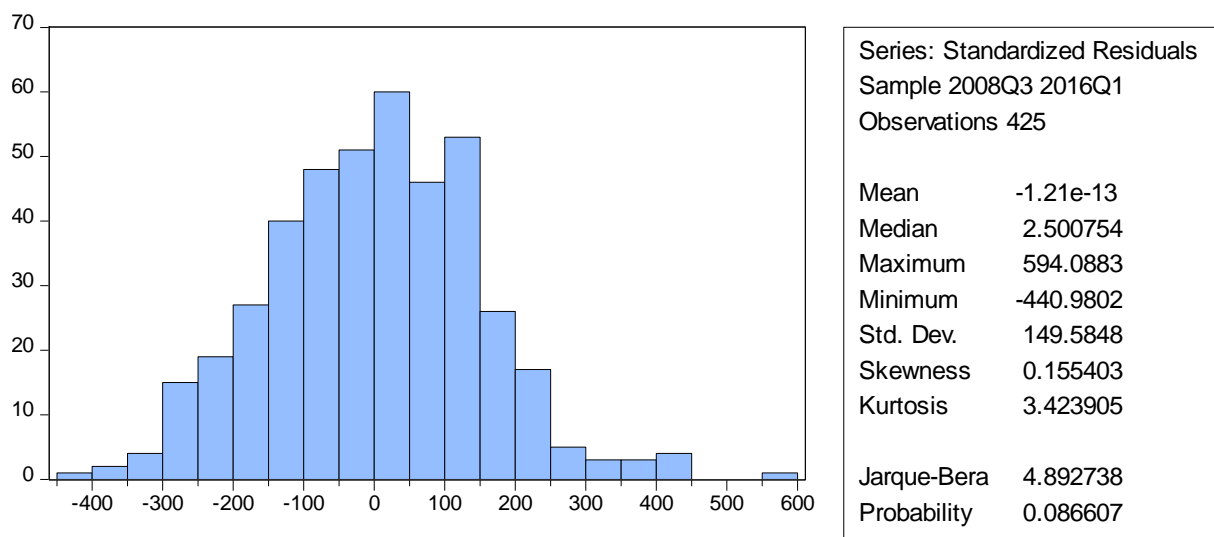
→ **Normally distributed**

Table A30.2: Cross Section Dependence Test of the Residuals for the Equation of ROA for the Banks Sample

Test	Prob.
Breusch-Pagan LM	0.5417
Pesaran scaled LM	0.4864
Pesaran CD	0.5234

→ **Residuals not correlated**

Figure A31.1: Test for Normality of the Residuals for the Equation of Debt for the Banks Sample



→ **Normally distributed**

Table A31.2: Cross Section Dependence Test of the Residuals for the Equation of ROA for the Banks Sample

Test	Prob.
Breusch-Pagan LM	0.7715
Pesaran scaled LM	0.6955
Pesaran CD	0.4897

→ **Residuals not correlated**