

ADFJ ISSN 2522 - 3186.

African Development Finance Journal

VOLUME 4 (II)

*Bank Provisioning Behavior, Ownership Structure and
Financial Crisis: Evidence from a Developing Economy*

Peter W. Muriu (PhD)

Date Received: October, 4, 2022

Date Published: November, 22,2022

Bank Provisioning Behaviour, Ownership Structure and Financial Crisis: Evidence from a Developing Economy

By: Peter W. Muriu (PhD)¹

Abstract

Existing literature shows that several factors drive loan loss provisioning among banks. However, little is known on this topic in the African banking “context” and specifically Kenya's banking industry. Using hand-collected annual bank-level data for the period 2002 to 2018, this paper investigates whether provisioning behaviour depends on banks' idiosyncratic or systematic factors. The study also investigates whether provisioning is pro or counter-cyclical through business and credit cycles and whether provisioning behaviour is heterogeneous for different bank groups. Estimation results reveal that provisions are used for capital and earnings management but the findings are sensitive to bank size and ownership status. Further, the evidence suggests that provisioning reflects changes in asset quality and is counter-cyclical to the business cycle.

Keywords: *Capital Management, Loan Provisioning, Income-Smoothing, Procyclicality, Signalling*

JEL Classification: G21; G28; M41

ORCID iD 0000-0001-8783-4312

Acknowledgments

This paper was supported by African Economic Research Consortium (AERC) under the thematic research grant no. RT19523, to the author. All errors and omissions are the author's sole responsibilities.

Introduction

Banks play a significant role in financial intermediation. They mobilize savings and channel funds to borrowers to finance consumption and investments. In this process, banks bear the burden of credit risk when borrowers default. To address this risk, banks set aside provisions that act as revenue buffers against anticipated loan losses, also known as loan loss provisions (Caporale et al., 2018). Notwithstanding, loan loss provisions (LLPs) negatively affect banks' profitability and capital as they are treated as cost items and therefore reduce a bank's asset position.

¹ Senior Lecturer, Department of Economics and Development Studies, University of Nairobi, Kenya, email: pmuriu@gmail.com

Provisioning may be exacerbated by business cycles, thereby generating negative macroeconomic shocks. This translates to increased systemic risk since credit risk tends to rise during economic downturns (Olszak et al., 2016). During economic expansion, banks' profits tend to rise, triggering the demand for loanable funds. Banks tend to underestimate their exposure to credit risk, as they often relax the screening and monitoring of borrowers. As a result, LLPs tend to be lower. As the economy cools, the borrower's profitability declines and the effect is two-fold. First, asset quality deteriorates. Second, equity positions decline (Murcia and Kohlscheen 2016). To address asset deterioration, banks increase provisions but may also cut lending which amplifies economic downturns (Caporale et al., 2018).

This paper extends previous studies in several ways. First, using a country-specific investigation, we explicitly model how differences in bank characteristics and ownership structure affect LLPs. Second, we extend the foreign vs domestic banks dichotomy on loan loss provisions by examining the differences between Pan-African and non-Pan-African banks. The paper therefore extends the literature, given the proliferation of foreign banks on the African continent. The paper also goes beyond the literature on bank provisioning behaviour and financial crisis by examining the impact of ownership structure on loan loss provision. Thus, the empirical strategy exploits the heterogeneity in provisioning behaviour arising from the structure of the banking industry in Kenya.

This study contributes to a growing literature on financial stability three-fold. First, non-performing loans (NPLs) and LLPs are the main channels for the transmission of macroeconomic shocks to a bank's revenue. Therefore, uncovering the determinants and behaviour of LLPs is important for designing provisioning policies. Second, the study findings will shed more light on the policy debate regarding IFRS provisioning whose drawback is the procyclical pattern and more so with the coming into force of IFRS 9. Third, the paper contributes to the policy debate on how to design appropriate macro-prudential regulation for the whole financial system. For example, should the study findings reveal that the business cycle influences provisioning behaviour, bank supervision may need to be enhanced during an economic downturn. However, should the banks' reaction to macroeconomic shocks worsen the effects of the recession, central banks may have to establish regulations that would reduce the pro-cyclicality of the banks' operations. Thus, we will translate our empirical findings into instruments for policy reform and decision-making.

Research Problem

Provisioning policies have important implications on banks' stability and overall financial stability in Kenya. The banking sector is ranked fourth in sub-Saharan Africa in terms of size, after South Africa, Nigeria and Mauritius and therefore the main financial hub for East and Central Africa. It is also the source of cross-border banking in East and Central Africa which exposes the entire region to possible systemic/contagion effects in the event of a bank collapse (Atellu, Muriu and Sule). Although cross-border banking may boost access to finance in the host nation (Beck et al., 2014), enhance competition as well as financial stability (Léon, 2016; Bremus, 2015), the converse is also true. Unfavorable economic conditions in the regional countries may hamper funding from the parent banks. These factors may necessitate higher provisioning. The financial system is bank-oriented and deeply entrenched within the economy so that developments within the banking industry may have severe macroeconomic effects (Mwega, 2014). Although a vast literature exists at the global level (See Ozili and Outa 2017), less attention has been paid to the banking industry in emerging economies, especially those in Sub Sahara Africa.

Banking industry in low income countries such as Kenya have unique challenges. First, due to high inflationary pressure and interest rates, credit risk is equally high. Second, the industry is highly concentrated and dominated by foreign banks in terms of deposits, assets and loans (Beck, Cull and Valenzuela 2019). It may as well be the case that estimation results of low income countries significantly differ with existing studies from emerging and developed countries.

Despite provisioning being important in mitigating credit risk, LLPs are not necessarily driven by credit risk (Murcia and Kohlscheen, 2016). First, banks have discretion in the determination of LLPs. This can lead to opportunistic financial reporting. Second, banks may influence or manipulate LLPs to signal loan quality, manage capital and reduce the variability of income. Third, banks' high leverage implies that their assets are vulnerable to volatility, prompting sufficient LLPs, which becomes banks' main accrual. The expectation is that high leverage and provisions should insulate the industry from contagion in the event of a bank collapse. But very high LLPs reduce reported earnings. On the contrary, low provisions boost profit but the bank must deplete capital to ameliorate losses. This translates to a trade-off where LLPs simultaneously influence both profitability and risk.

The 2007-2009 global financial crisis demonstrates the importance of countercyclical regulation. The effect of the financial shock on banks and financial markets was very destabilizing. Thus, keeping aside sufficient reserves to cover for potential impairment of loans, should be countercyclical to enable banks with less access to liquidity facilities stay solvent during bursts (Ng et al., 2020). The impact of the crisis has however brought to the fore concerns regarding International Financial Reporting Standards (IFRS). LLPs can be forward-looking, contingent on expected loan losses also known as dynamic provisioning, or backward-looking, contingent on losses incurred during operations (Bouvatier & Lepetit, 2012). Forward-looking provisioning is countercyclical and hence earnings management is significantly reduced (Leventis, et al., 2011). Despite the Basel Committee advocating for the adoption of a forward-looking framework, Kenya is still using a backward-looking framework hence underestimating loan losses during economic expansions.

Research Objective

This study sought to achieve three objectives. First, we investigate whether provisioning behaviour depends on idiosyncratic or systematic factors. Second, we investigate whether provisioning is pro or countercyclical through business and credit cycles. Third, we investigate whether provisioning behaviour is sensitive to bank type (i.e. foreign vs. domestic) and size (large vs. small).

Literature Review

This research is related to five strands in the banking literature. The first strand examines the relationship between earnings and loan loss provisions commonly referred to as the income-smoothing hypothesis. The focus is on whether banks overstate (or understate) provisions so that the reported earnings are neither too high nor too low. Managers can manipulate earnings to influence external investors' information set (Amihud and Lev 1981). Banks, therefore, use provisions to smooth earnings and to meet prudential regulatory objectives (Andries, et al., 2017).

Evidence on the use of LLPs for earning management particularly among Kenyan banks is scarce. Fwamba, et al., (2020) investigate the role of income smoothing on the financial performance of tier 2 banks in Kenya. Their focus is however not on provisioning behaviour but ROA and ROE. Closely related to our paper is unpublished MBA theses by Mbithi (2018) who examines the relationship between LLPs and income smoothing among banks in Kenya. Their work however suffers from methodological weakness. Using OLS,

the study estimates a linear equation consisting of non-performing loans and audited big 4 banks as a dichotomous variable. First, the model is poorly specified. Second, the dynamic nature of LLPs renders OLS estimation inconsistent and biased upwards. The results are therefore unreliable for policy inference.

In Africa, banks use provisions to manage earnings but this is more pronounced among listed banks (Ozili, 2017) and this declines after the use of IAS 19 (Abdul et al., 2016). Similar findings have been documented by Bryce et al., (2015) in Vietnam, Packer et al., (2014) in the Asian economies and El Sood (2012) in the US. Leventis et al., (2012; 2011) shows that earnings management is more common among banks with high-risk appetite but this behaviour declines after implementation of IFRS. In Netherlands, Norden and Stoian (2013) finds that banks raise LLPs when revenue is high and scale down when regulatory capital is low. These studies therefore, suggest that when bank's actual losses exceed the expected, they draw from loan loss reserves hence reducing the volatility of incomes. On the contrary, Caporale et al., (2018) do not find significant evidence of earnings management in Italy.

The second strand of literature examines the effect of capital management in influencing LLPs. Basel III requires banks to boost capital as a buffer against expected losses to curtail risk appetite. Since central banks require banks to maintain a certain minimum capital as a cushion against risk-taking behaviour, managers therefore have an incentive to influence its level (Leventis et al., 2011). As such provisions tend to be higher when a bank's capital is low. Thus, LLPs and capital are substitutes for potential losses. Existing literature remains inconclusive. Using annual bank level data for the period 1996–2011, Ghosh, (2015) finds evidence of capital management but this is more pronounced among non-Islamic banks. Although some studies have established a positive impact of capital on risk (Lee and Hsieh, 2013), others have documented a negative relationship where banks raise their risk profile with a decline in capital (Guidara et al. 2013). The converse has also been established where banks increase LLPs when capital is inadequate (Kilic et al., 2012) or for the purpose of regulatory requirements (Leventis et al., 2011).

The third strand of the literature is on the pro or countercyclical nature of LLPs. If LLPs are procyclical, capital is negatively affected during periods of economic contraction. Countercyclical LLPs are higher during periods of economic boom. Procyclicality of LLPs is undesirable as it reflects an unstable financial system. For a panel of Italian banks Caporale et al., (2018) finds that provisioning is less cyclical among domestic banks, since they are strongly affected by banking supervision. Ozili and Outa (2017) provide an

excellent survey of literature on the pro or counter-cyclicality of LLPs. They conclude that the evidence remains mixed. Using a sample of 554 banks from developing countries, Murcia and Kohlscheen (2016) conclude that provisions are procyclical. Olszak et al., (2016) analyze the drivers of LLPs and finds that provisions among large banks are procyclical with the business cycle. In the microfinance literature, Hessou et al., (2019) show that LLPs and business cycles are negatively related. Bouvatier and Lepetit (2012) reveals that backward-looking LLPs tend to enhance the procyclicality of credit growth. Previous studies are however based on a single bank's performance indicator and small datasets. Although several cross-country studies have been documented, country-specific investigations are scant.

The fourth strand in the literature evaluates how a bank's financial performance is affected by its risk-taking decisions. The empirical evidence however remains inconclusive. Credit expansion does not necessarily translate to higher NPLs, especially if the credit is extended to solvent firms with viable projects and a positive net present value. However, if during an economic expansion, managers relax their lending standards so that insolvent firms receive credit, this would trigger higher defaults in the loans when the economic cycle is in a trough. Among Colombian banks, Amador et al., (2013) established that higher credit expansion is positively associated with rising NPLs but negatively related to bank solvency. On a sample of developed economies, Foos et al., (2010) established that credit expansion leads to higher LLPs in the subsequent three years.

The fifth strand in the literature tests the signalling hypothesis. The seminal work on signalling theory in the banking literature is due to Beaver et al., (1989). They contend that the market value of a bank is correlated with provisioning behaviour. The hypothesis that LLPs are used to signal a bank's future growth is motivated by the need to address adverse selection problems and costs related to a signal's credibility. The cost of a wrong signal should be very high if a bank's prospects are low. This holds if current bank earnings are low. Thus, higher LLPs signal a bank's lower future earnings. Investors, therefore, perceive an unexpected rise in provisions to signal financial strength of a bank. Managers may report higher LLPs when they anticipate high earnings or high NPLs (Kanagaretnam et al., 2005). LLPs have also been used to signal bank's prospects in Turkey (Acar and Ipci 2015).

Whether a bank engages in earnings management through LLPs largely depends on ownership concentration (Bouvatier et al., 2014). In Jordan, AlQudah et al., (2020), examines the role played by

different types of owners in constraining earnings management. They conclude that foreign ownership concentration deters income smoothing behaviour. This is consistent with Alrabba et al., (2018). In a study of Chinese banks, Meng et al., (2018) established that foreign investors are more skilful in the appointment of board members which constrains income smoothing behaviour. But on the contrary, Wu et al., (2015) finds that banks with higher concentration of foreign investors use LLPs for earnings management in China. In the Malaysian context, foreign owners are very effective in obstructing income smoothing behaviour (Shayan-Nia et al., 2017: Al-Jaifi 2017). The reviewed studies shows that ownership concentration may increase or decrease the incentive to manipulate earnings.

These previous findings suggest that provisioning is used to achieve different objectives which range from income smoothing, as compensation policy, as a tool of signalling manager's expectations, a capital management technique and that LLPs can be pro or countercyclical. The evidence is however mixed. Factors influencing the provisioning behaviour of banks in some regional contexts such as the Kenyan banking industry remains unexplored. This study seeks to fill this gap.

Research Methodology

Model Specification

We assume that banks set their LLPs target *a priori* and gradually adjust it based on the previous period realized loan loss. The empirical model follows closely Murcia and Kohlscheen (2016) and Dushku (2016).

We assume that provisioning behaviour follows a dynamic adjustment framework specified as follows;

$$\Delta LLP_{i,t} = \lambda(LLP_{i,t}^* - LLP_{i,t-1}) + \eta_{i,t} \quad (1)$$

Where i and t indexes banks and time respectively. From equation (1), during period t a bank adjusts its loan loss provisions by λ of the target LLPs ($LLP_{i,t}^*$) and the previous period ($LLP_{i,t-1}$). The inclusion of $LLP_{i,t-1}$ is to capture the adjustment costs towards the target $LLP_{i,t}^*$. In adjusting to $LLP_{i,t}^*$, we assume that $LLP_{i,t}^*$ is a function of bank's idiosyncratic attributes and the business cycles. The estimation equation is therefore specified as;

$$LLP_{i,t} = \alpha_0 + \alpha_1 LLP_{i,t-1} + \alpha_2 CAP_{i,t} + \alpha_3 Sign_{i,t} + \alpha_4 EBIT_{i,t} + \alpha_5 Size_{i,t} + \alpha_6 LIQ_{i,t} + \alpha_7 LG_{i,t} \\ + \alpha_8 AQ_{i,t} + \alpha_9 AQ_{i,t-1} + \alpha_{10} rGDP_t + \alpha_{11} Ownership_{i,t} + \varepsilon_{i,t} \quad (2)$$

Where $LLP_{i,t}$ is loan loss provision at time t , $LLP_{i,t-1}$ is a one-period lag of $LLP_{i,t}$. $CAP_{i,t}$ is capital to risk-weighted asset ratio. $EBIT_{i,t}$ represents earnings before interest and taxes. $Sign_{i,t}$ is one-year ahead

percentage change in $EBIT_{i,t}$. $Size_{i,t}$ captures the size of the bank, $LIQ_{i,t}$ is bank liquidity, $LG_{i,t}$ is loan growth. $AQ_{i,t}$ is asset quality, and $AQ_{i,t-1}$ is the lagged asset quality. $rGDP$ is real GDP growth, $Ownership_i$ is the structure of a bank's ownership.

Adequate capital ensures a stable and resilient banking system. Banks use provisions to achieve regulatory capital requirements and to avoid the cost of non-compliance. As such provisions tend to be higher when capital is low. Therefore, LLPs and capital are considered substitutes for potential losses (Bouvatier and Lepetit 2012). Although some studies have established a positive association between capital and risk (Lee and Hsieh 2013), others have documented a negative association (Guidara et al. 2013). The relationship between capital and LLPs is therefore indeterminate.

To test earnings management, we use $EBIT_{i,t}$. The hypothesis holds if the coefficient is positive, suggesting that banks with lower than the targeted value of income reduce LLPs (Dushku 2016). When losses exceed the targeted values banks draw from LLPs thereby reducing the volatility of incomes. We predict a positive relationship between bank earnings and LLPs.

According to signalling hypothesis, LLPs contain some information that signal loan quality if positive (Wahlen 1994). Amidst policy uncertainty, banks convey information to investors about loan portfolios (Ng et al., 2020). After controlling for NPLs, the excess provisions contain good news. Banks perceive revenue as sufficiently strong to withstand charge-offs on earnings by additional LLPs (Beaver et al. 1989). We expect a positive relationship between signalling and LLPs.

Credit expansion ($LG_{i,t}$) does not necessarily translate to higher future NPLs. Loan expansion should be positively associated with LLPs if credit growth prompts banks to set aside LLPs (Leventis et al., 2011). Existing literature shows that credit expansion is positively associated with rising non-performing loans which has implications on LLPs (Amador et al., 2013; Foos et al., 2010). We expect a positive association between LLPs and loan growth.

Bank size controls for economies and diseconomies of scale. Due to the benefit that accrue to the managers, large banks have more incentives to raise earnings (Lobo and Zhou 2006). Further, large banks are under more pressure to meet analysts' expectations, have higher discretionary accruals (Chen, et al., 2007),

diversified business activities, and therefore can afford larger LLPs (Anandarajan, et al, 2007). We, therefore, predict a positive relationship between size and LLPs.

Illiquid banks may turn to credit risk management tools to manipulate LLPs. Yang et al., (2008) and Chen et al., (2007), show that a bank's liquidity negatively influences discretionary accruals which implies that liquid banks are less likely to manipulate LLPs. We, therefore, expect a negative relationship between LLPs and bank liquidity.

NPLs represent banks' risk profile and therefore controls for credit risk (Radivojevic and Jovovic, 2017). The variable accounts for a non-discretionary component of LLPs which rises during economic prosperity and is drawn during a downturn. When banks issue more loans the risk of loan default increases which prompts banks to increase their LLPs (Othman and Mersni 2014). We predict a positive association between changes in NPLs and LLPs.

Banks with local ownership concentration could use discretionary provisions for income smoothing, to conceal private benefits (Bouvatier 2014). Empirical evidence shows that the ability of banks to manage earnings through LLPs is constrained when the bank has more foreign investors (AlQudah et al., 2020; Meng et al., 2018). We, therefore, predict less LLPs manipulation in banks with higher foreign shareholding.

Loan loss provision is countercyclical if a bank's LLP is positively related to GDP growth (Bouvatier and Lepetit 2012) or procyclical when negatively related (Hessou, et al., 2019). We, therefore, predict an indeterminate relationship. For robustness we use credit-to-GDP growth (credit gap) which is expected to provide an early warning signal for an upcoming crisis. In this regard, loan loss provision will be countercyclical if positively related to the credit-to-GDP gap. Credit gap variable is robust and points to a build-up of financial vulnerabilities (Borio and Lowe 2002). We also use output gap as a proxy for business cycle. The study also considers business climate variable to examine the role of business environment on LLPs.

Definition and Measurement of Variables

LLP is measured as the ratio of loan loss provisions to lagged total assets. The lagged LLP over lagged total assets is an autoregressive term capturing the adjustment costs. While LLPs are either discretionary or non-discretionary, our dataset does not allow us to disentangle them into their respective components. Asset quality (AQ) is the ratio of NPL to lagged total loans and captures the bank's overall credit risk exposure in its intermediation activities. *Ownership* is measured in percentage terms i.e. the proportion of foreign shareholding to the total shares of the bank. $EBIT_{i,t}$ is computed as the ratio of earnings before interest and taxes to total assets.

The Capital-asset ratio is computed as the ratio of total capital to risk-weighted assets. Bank size is the natural logarithm of total assets for each bank. Bank liquidity (LIQ) is computed as the ratio of liquid assets to total assets. To test for the signalling hypothesis, $Sign_{i,t}$ we use the one-year ahead percentage change in $EBIT_{i,t}$ computed as follows;

$$Sign_{i,t} = \frac{(EBIT_{i,t+1} - EBIT_{i,t})}{EBIT_{i,t}} \quad (3)$$

Annual growth of GDP ($rGDP_t$) at constant prices captures pro or counter-cyclicity of LLPs. A negative coefficient supports procyclicality while a positive coefficient supports counter-cyclicity of loan loss provisions. Output gap (OUTGAP) is the cyclical component of real GDP growth which is obtained by applying the Hodrick-Prescott filter (1997). Cyclical output gap is more appropriate relative to real GDP growth since it removes the time series trend. Credit gap is the deviation of credit to the private sector as a % of GDP from its long-term trend which is also calculated using the time series filter suggested by Hodrick and Prescott. There are however measurement problems associated with these two variables. First is the stability of the filter's outcome as more recent data becomes available. Second is the structural breaks associated with the underlying series. The estimated results should therefore be interpreted in light of this caveat. The business freedom score ranges from 0 to 100 with 100 indicating the most free business climate.

Data source

The analysis is based on hand-collected annual audited data for 38 banks (out of 43 banks) that spans from 2002 to 2018. The data is obtained from the published balance sheet and income statement while macroeconomic data was obtained from the central bank of Kenya. The choice of the study period was

informed by data availability at the bank level. Table 1 presents the definition and measurement of the variables, the predicted effects *a priori* based on theory and empirical literature as well as sources of data.

Table 1: Variable Description and Hypothesis

Variable Name	Notation	Description and Measurement	Hypothesis Tested	Apriori Sign
Loan Loss Provision	$LLP_{i,t}$	The ratio of Loan Loss provision to lagged total assets	-	
Capital ratio	$CAP_{i,t}$	The ratio of capital to risk-weighted assets	Capital management	+/-
One-year ahead growth rate in $EBIT_{i,t}$	$SIGN_{i,t}$	One-year ahead growth rate in $EBIT_{i,t}$	Signalling	-
Earnings before interest and taxes	$EBIT_{i,t}$	The ratio of Earnings before interest and taxes to total assets	Income smoothing	+
Bank Size	$SIZE_{i,t}$	Natural Logarithm of total assets	-	+
Liquidity ratio	$LIQ_{i,t}$	The ratio of liquid assets to total assets	-	+
Loan growth	$LG_{i,t}$	Growth in the total loans of a bank	-	+
Asset Quality	$AQ_{i,t}$	The ratio of non-performing loans to lagged total loans	-	+
Bank Ownership	$Ownership_{i,t}$	Foreign shareholding of a bank as a share of the total outstanding shares	-	-/+
GDP	GDP_t	Real annual GDP growth	Cyclicality of LLPs	-/+
Output gap	$OUTGAP_t$	Deviation of GDP growth from its long-term trend	Cyclicality of LLPs	-/+
Credit gap	$Credit_t$	Deviation of credit to the private sector as a % of GDP from its long-term trend	Cyclicality of LLPs	-/+
Business environment	BF	Business freedom score ranges from 0 to 100	Business climate	+

Estimation and Testing

The dynamic nature of equation (2) makes OLS estimation inconsistent and biased upwards. This is because lagged LLP is correlated with the error term (Hsiao, 2014). The within-group (random effects) short-panel estimator is biased downwards (Nickell, 1981). We, therefore, turn to the Generalized Methods of Moments (GMM) estimator. GMM estimation is designed to circumvent several econometric issues: (1) the autoregressive behaviour of loan loss provisions; (2) the unobserved bank-specific effects and (3) the potential endogeneity of the regressors which we control using lagged values as instruments. The standard Arellano and Bond (1991) estimator suffer from downward finite-sample bias (Blundell and Bond, 2000). This estimator has been criticized when applied to small T panels since it is inefficient if the instruments are weak (Baltagi, 2021). System GMM by Blundell and Bond (1998) enables us to use lagged differences and lagged levels. The extra instruments and equations in levels render system GMM more efficient since it's able to overcome the weak instrument problem associated with the first-differenced GMM estimator. To determine the most appropriate estimator, we compare the coefficient of the lagged LLP obtained from the different estimators. We perform Hansen's or Sargan's test of over-identifying restrictions to establish the validity of the instruments. We also confirm if Arellano-Bond orthogonality conditions hold.

Results and Discussions

Table 2 presents summary statistics. The mean of loan loss provision stands at 9.1%, implying that banks set aside 9.1% of their gross loan portfolio to cover the incurred losses. The average capital to risk-weighted assets ratio stands at 28.3%. The industry average earnings before interest and taxes is 6.9% with the average for the one-year ahead growth in earnings before interest and taxes being 12.2%. The natural logarithm of total assets is 9.66 and the liquidity ratio is 38.4% while the average loan growth stands at 12.8%. The average non-performing loan portfolio is 17.2%. For the study period, the average economic growth is 4.9%. The ownership structure reveals that 26.5% of shares are held by foreign investors.

Table 2. Descriptive Statistics

Variable Name	Obs	Mean	Std. Dev.	Min	Max
Loan Loss Provision	646	0.091	0.167	0.001	1.677
Capital ratio	646	0.283	0.149	0.000	1.072
Earnings before interest and taxes	646	0.069	0.070	-0.119	1.020
One-year ahead growth in EBIT	646	0.122	2.582	-54.333	13.277
Bank Size	646	9.666	1.451	6.672	13.158
Liquidity ratio	646	0.384	0.136	0.033	0.777
Loan growth	646	0.128	0.227	-3.694	0.616
Asset Quality	646	0.172	0.180	0.000	0.872
Ownership (% foreign ownership)	646	0.265	0.441	0.000	1.000
GDP Growth	646	4.893	2.175	0.232	8.406
Output Gap	646	4.947	0.772	2.900	5.628
Credit Gap	646	0.246	1.603	-3.219	2.494
Business freedom	646	67.46	3.002	60.5	70.4

Table 3 presents the correlation matrix. The bivariate correlations are not high to warrant a series of separate regressions. The analysis has focused on the relationship between LLP and explanatory variables. First, we observe that LLPs and the lag are positively and significantly correlated, implying that banks adjust their provisions slowly consistent with the past default history. Provisions are positively correlated with EBIT. This implies that banks that are unable to meet their target income values reduce provisions which supports the income-smoothing hypothesis. On the other hand, provisions are negatively correlated with the capital ratio. This suggests that when capital is low banks raise provisions that support the capital management hypothesis.

Table 3. Pearson Correlation Matrix

Variables	<i>LLP</i>	<i>lag LLP</i>	<i>CAP</i>	<i>SIGN</i>	<i>EBIT</i>	<i>SIZE</i>	<i>LIQ</i>	<i>LG</i>	<i>AQ</i>	<i>lag AQ</i>	<i>Ownership</i>	<i>GDP</i>	<i>OUTGap</i>	<i>Credit</i>	<i>BF</i>
<i>LLP</i>	1														
<i>Lag LLP</i>	0.9010*	1													
<i>CAP</i>	-0.1060*	-0.0500	1												
<i>SIGN</i>	-0.0500	-0.0500	0.0086	1											
<i>EBIT</i>	0.0960*	0.0923*	-0.0004	0.0132	1										
<i>SIZE</i>	0.2656*	0.2820*	-0.3274*	0.0570	-0.0564	1									
<i>LIQ</i>	-0.2664*	-0.2390*	0.3239*	0.0317	-0.0238	-0.0331	1								
<i>LG</i>	0.1101*	0.3159*	0.1311*	0.0746	0.0315	0.0589	-0.0775	1							
<i>AQ</i>	0.6301*	0.6200*	0.0574	-0.0320	-0.1031*	-0.4134*	-0.2913*	-0.1255*	1						
<i>lag AQ</i>	0.5828*	0.7121*	0.0997*	-0.0055	-0.1077*	-0.4416*	-0.2489*	-0.2369*	0.8743*	1					
<i>Ownership</i>	-0.2186*	-0.2292*	0.0868*	-0.0843*	-0.0634	0.1899*	0.5562*	-0.0052	-0.2359*	-0.2361*	1				
<i>GDP</i>	0.0859*	-0.0400	-0.0391	0.0405	-0.0041	0.1972*	0.0414	0.0288	-0.1931*	-0.0981*	-0.0030	1			
<i>OUTGap</i>	0.2020*	-0.2239*	-0.0694	0.0688	0.0055	0.4327*	-0.0034	0.0915*	-0.4064*	-0.4113*	0.0004	0.6616*	1		
<i>Credit</i>	0.0300	-0.0310	0.0358	-0.0615	0.0255	0.0166	-0.0083	0.0683*	0.0682	0.0020	-0.0009	0.0685*	-0.1274*	1	
<i>BF</i>	0.0070	0.0370	0.0330	0.1140	0.1670	0.0500	0.0990	0.1200	0.0190	0.0270	0.0320	0.1490*	0.1680*	0.0340	1

*Coefficients are statistically significant at the 5% level

Provisions and loan growth are positively correlated which suggests that loan expansions trigger banks to set aside higher provisions. The significant positive correlation between bank size and provisions implies that large banks have higher loan growth and therefore set aside higher provision. Asset quality and asset quality lag are positively associated with provisions. Intuitively, higher NPLs prompts banks to set aside higher LLPs. Finally, economic growth is positively correlated with provisioning. This is an indication of the countercyclical nature of provisioning behaviour. Overall, the correlations between the other variables are low, hence no multicollinearity. Since the asset quality variable is highly correlated with its lag the study dropped the lagged variable from the estimation model.

To determine the suitability of standard or system GMM estimator, we compare the coefficient of the lagged LLP obtained from the different estimators. System GMM yields a higher coefficient than the standard GMM estimator. We, therefore, estimate equation (2) using the one-step system GMM. To control for time effects, we do not use time dummies, as their inclusion would net out the cyclical properties that the macroeconomic variables are meant to test. In addition, bank and macroeconomic factors are treated as strictly exogenous. Whether they should be treated as exogenous or endogenous remains inconclusive in the literature (Skala, 2015). The study adopts the "collapse option" and the finite sample correction approach of Windmeijer (2005). The system GMM method employed fits well with the data. The lagged LLP is restricted to a maximum lag of three to avoid instrument proliferation (Roodman, 2009) and one lag for the other bank-level characteristics.

Table 4 presents estimation results. The findings reveal that provisions are higher when capital is low and vice versa which supports the capital management hypothesis. This finding is consistent with Ghosh (2015) but contrary to Lee and Hsieh (2013). Earnings before interest and tax are positive and statistically significant which suggests that managers use their discretion for income smoothing, either because they want to portray income stability or because it is prudent to provision higher when earnings are high. This lends support to Dushku (2016). The conjecture that managers engage in signalling to portray positive information to investors is not supported here. Therefore, managers cannot use the opportunity to disclose information to signal loan quality.

Estimation results show that large banks set aside higher LLPs than smaller banks perhaps due to the scale of intermediation (Anandarajan, et al., 2007). Study findings further reveal a positive association between

loan growth and LLPs suggesting that credit expansion may prompt banks to raise LLPs (Leventis et al. 2011). The interaction term between bank size and loan growth is positive. Thus an extra unit of loan growth translates to higher provisioning in large banks relative to small banks. This implies that large banks grow their loan portfolios better than small banks which necessitate higher provisioning.

Higher NPLs are associated with higher provisions, which points to prudent risk management. This is also consistent with accounting requirements for higher provisions as asset quality deteriorates. This finding lends credence to Othman and Mersni (2014). The hypothesis that banks with higher liquidity are associated with lower provisions is not supported here.

Contrary to AlQudah et al., (2020) and Meng et al., (2018), estimation results reveal that higher foreign shareholding translates to higher provisions. Therefore, foreign ownership concentration is not effective in constraining income smoothing behaviour. This finding is however consistent with Wu et al., (2015) in China. Higher economic growth enhances LLPs suggesting a counter-cyclicality in provisioning. LLPs are therefore higher during the economic boom but become a buffer during economic contraction.

This paper also analyzed the sensitivity of the estimates to the inclusion of alternative indicators of economic cycle namely credit gap, output gap, business climate and the 2008-2009 global financial crisis. Estimation results reveal significant variation in the provisioning behaviour during the financial crisis. Thus, the crisis may have triggered higher LLPs where banks provisioned more during the crisis. Study findings further reveals that output gap significantly influences bank provisioning. This suggests that banks raise provisions during economic expansion and reduce during economic contraction. Credit gap is however not significant. Estimation results further reveals that business climate doesn't matter for provisioning perhaps due to low variability of data.

Table 4. Estimation results for loan loss provisions

Variable Name	Notation	(1) System GMM	(2) System GMM
Constant	<i>Con</i>	-0.241*** (-4.08)	-0.237*** (-3.44)
Lagged Loan Loss Provision	<i>LLP_{i,t-1}</i>	0.749*** (3.44)	0.735*** (3.41)
Capital	<i>CAP_{i,t}</i>	-0.089*** (-3.01)	-0.084*** (-3.06)
Earnings before interest and taxes	<i>EBIT_{i,t}</i>	0.036*** (3.10)	0.034*** (2.99)
1-year ahead growth rate in <i>EBIT_{i,t}</i>	<i>SIGN_{i,t}</i>	-0.001 (-0.08)	0.001 (0.02)
Size	<i>SIZE_{i,t}</i>	0.019** (2.74)	0.018*** (2.81)
Liquidity	<i>LIQ_{i,t}</i>	-0.008 (-0.19)	-0.010 (-0.18)
Loan growth	<i>LG_{i,t}</i>	0.147*** (3.48)	0.051 (0.29)
Asset Quality	<i>AQ_{i,t}</i>	0.244** (2.19)	0.249** (2.25)
Foreign Shareholding (%)	<i>Ownership_{i,t}</i>	0.026** (2.34)	0.029** (2.38)
Loan growth X Bank size	<i>LG_{i,t}. SIZE_{i,t}</i>		0.019** (2.21)
Real GDP Growth	<i>GDP_t</i>	0.029** (2.63)	0.027** (2.61)
Output Gap	OUTGAP	0.049** (2.50)	0.029** (2.40)
Credit Gap	CREDIT	0.001 (0.86)	0.003 (0.94)
Business Freedom	BF	-0.001 (-0.39)	-0.003 (-0.43)
GFC Crisis (=1 2008-2009, 0 otherwise)	<i>Crisis_t</i>		0.017** (2.50)
Number of Observations		646	646
Number of Banks		38	38
Number of Instruments		15	16
AR (1) (P-values)		0.000	0.000
AR (2) (P-values)		0.410	0.370
Sargan Test		0.201	0.213

This Table presents one-step system GMM estimation using Windmeijer's (2005) finite sample correction regression. T-Statistics are in parentheses and the level of significance at 10%, 5%, and 1% is denoted by *, ** and *** respectively. A detailed description and measurement of the variables is provided in Table 1

For robustness, we estimate a battery of models to test for heterogeneity across the banks as reflected by size, ownership, sensitivity to different business cycle indicators, and business climate. We, therefore, examined provisioning behaviour on large versus small banks, Pan-African versus the rest of the banks. For the purpose of estimation, bank size is split into two subgroups: small and large banks. The large-small bank dichotomy is constructed based on the median bank size (with size measured as the logarithm of the total assets of the bank). A bank whose total assets are below the median size is considered small. The estimation results are reported in Table 5. Overall, the study findings are similar to those reported in Table 4. However, several novel findings emerge. Unlike large banks, small banks do not use LLPs for capital or earnings management. Loan growth is significant and positive but only in large banks. This suggests that higher loan growth is associated with higher provisioning among large banks which confirms the results in Table 4.

Higher NPLs are associated with higher provisions but the magnitude is higher among smaller banks. It is the same narrative with ownership. Pan-African banks do not use LLPs for capital or earnings management. Although bank size significantly influences provisioning behaviour among domestic banks, it does not matter for Pan Africa banks. Contrary to most countries in Africa, banking in Kenya is dominated by indigenous banks some of which have extended their operations into several countries. This perhaps explains the insignificant loan growth coefficient. Consistent with the baseline regressions, we do not find significant results that would support the signalling hypothesis. Finally, we find evidence for provisions counter-cyclicality but which is more pronounced among the small and non-Pan-African banks. This is contrary to Caporale et al., (2018) who find provisioning to be less cyclical among domestic banks. Procyclicality among Pan-African banks is not supported by the study findings.

Table 5. Sensitivity of provisioning behaviour to bank size and ownership status

Variable Name	Notation	(1)	(2)	(3)	(4)
		Small Banks	Large Banks	Pan-African Banks	Non-Pan-African Banks
Constant	<i>Con</i>	-0.252 (-0.77)	-0.112*** (-2.84)	-0.033 (-0.24)	-0.254*** (-3.64)
Lagged Loan Loss Provision	<i>LLP_{i,t-1}</i>	0.574 (1.51)	0.921*** (9.49)	0.401 (2.23)	0.722*** (3.33)
Capital	<i>CAP_{i,t}</i>	-0.070 (-1.16)	-0.071*** (-3.15)	-0.023 (-0.65)	-0.085** (-2.62)
Earnings before interest and taxes	<i>EBIT_{i,t}</i>	0.055 (1.16)	0.021** (2.10)	0.013 (0.94)	0.035*** (2.74)
1-year ahead growth rate in <i>EBIT_{i,t}</i>	<i>SIGN_{i,t}</i>	0.001 (0.31)	0.001 (0.17)	-0.000 (-1.88)	0.003 (1.22)
Bank Size	<i>SIZE_{i,t}</i>			0.015 (1.25)	0.019** (2.31)
Liquidity ratio	<i>LIQ_{i,t}</i>	-0.044 (-0.51)	0.017 (0.81)	0.037 (0.61)	-0.024 (-0.36)
Loan growth	<i>LG_{i,t}</i>	0.087 (1.10)	0.150*** (4.38)	0.055 (0.76)	0.138*** (3.17)
Asset Quality	<i>AQ_{i,t}</i>	0.288* (1.92)	0.135* (1.76)	0.225** (5.01)	0.268** (2.24)
Real GDP Growth Rate	<i>GDP_t</i>	0.035*** (2.98)	0.010*** (3.90)	-0.008 (-0.98)	0.026** (2.49)
Foreign Shareholding (%)	<i>Ownership_{i,t}</i>	0.049** (2.16)	0.019** (2.25)		
Number of Observations		510	136	68	578
Number of Banks		30	8	4	34
Number of Instruments		11	11	12	12
AR (1) (P-values)		0.010	0.102	0.118	0.000
AR (2) (P-values)		0.031	0.297	0.243	0.055
Sargan Test		0.161	0.114	0.111	0.188

T-Statistics are in parentheses and the level of significance at 10%, 5%, and 1% is denoted by *, ** and *** respectively. The estimator adopted is the one-step system GMM with the Windmeijer's (2005) finite sample correction.

Conclusions

Existing literature shows that excessive credit growth is particularly prevalent in emerging economies. At the onset, this study sought to uncover the determinants of LLPs amongst banks in Kenya for the period 2002–2018. To achieve this objective, the study used system GMM estimator. Overall, we find evidence that; (i) banks use provisions for capital management but this finding is sensitive to bank size and ownership status; (ii) Earnings management influences provisioning decision but this is sensitive to bank size. Unlike small banks, large banks use provisions to smooth income; (iii) Higher foreign shareholding of banks is positively associated with higher provisions; (iv) Provisioning reflects variation in the quality of assets; (v) Provisioning is countercyclical but this is more pronounced among small and domestic banks; (vi) More importantly, pan-African banks do not use LLPs for capital or earnings management.

These study findings have important and far reaching policy implications for financial institutions as well as banks supervision in Kenya and East Africa in general. First, it is evident that there exists considerable heterogeneity in the discretionary use of provisions by banks. Therefore the application of the incurred loan loss model IAS 39 implies that even post-transition as envisaged by IFRS 9, significant discretionary may prevail. This requires considerable efforts by the regulator to ensure uniformity in the application of the provisioning framework. Further, these findings ignite new directions for future research on income smoothing and capital management. For instance, the policy debate is about whether the benefits of income smoothing outweigh costs (Goel and Thakor, 2003). That notwithstanding, income smoothing lowers quality of accounting data. The empirical evidence uncovered in this paper points to the need for a sound accounting framework.

References

- Abdul A.A., Tripe, D. W., & Dunmore, P. (2016). IAS 39, Income Smoothing, and Procyclicality: Evidence from Hong Kong Banks. *Journal of Financial Economic Policy*, 8(1), 80-94.
- Acar, M., & Ipci, M. O. (2015). Loan Loss Provisions and Income-Smoothing Hypothesis: Experience from the Turkish Banking Sector. *Journal of Accounting*, 5(1), 118-135.
- Al-Jaifi, H. A. (2017). Ownership Concentration, Earnings Management and Stock Market Liquidity: Evidence from Malaysia. *Corporate Governance: The International Journal of Business in Society*, 17(3), 490–510

- AlQudah, A.M., Azzam, M.J., Haija, A.A & AlSmadi, S.A (2020). The Role of Ownership Map in Constraining Discretionary Loan Loss-Provisions Decisions in Jordanian Banks. *Cogent Business & Management*, 7(1), 1752604
- Alrabba, H. M., Haija, A. A., AlQudah, A. M., & Azzam, M. J. (2018). The Mediating Role of Foreign Ownership in the Relationship between Board Characteristics and Voluntary Disclosures of Jordanian Banks. *Academy of Accounting and Financial Studies Journal*, 22(16), 1–15.
- Amador, J., Gómez-Gonzalez, J and A. Murcia (2013). Loan Growth and Bank Risk: New Evidence. *Financial Markets and Portfolio Management*, 27, 365-79.
- Amihud, Y., Lev, B., (1981). Risk Reduction as a Managerial Motive for Conglomerate Mergers. *Bell Journal of Economics*, 12, 605–617.
- Anandarajan, A., Hasan, I and McCarthy, C (2007). Use of Loan Loss Provisions for Capital, Earnings Management and Signalling by Australian Banks. *Accounting and Finance*, 47(3), 357–379.
- Andries, K., Gallemore, J., & Jacob, M. (2017). The Effect of Corporate Taxation on Bank Transparency: Evidence from Loan Loss Provisions. *Journal of Accounting and Economics*, 63(2-3), 307-328.
- Arellano, M., & Bond, S. (1991). Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *The Review of Economic Studies*, 58(2), 277-297.
- Atellu, A. R., Muriu, P & Sule, O (2021). Do bank regulations matter for financial stability? Evidence from a developing economy, *Journal of Financial Regulation and Compliance* ISSN: 1358-1988
- Baltagi, H (2021). *Econometric analysis of panel data*, 6th Ed. John Wiley & Sons.
- Beaver, W., Eger, C., Ryan, S. and Wolfson, M. (1989). Financial Reporting and the Structure of Bank Share Prices. *Journal of Accounting Research*, 27, 157-178.
- Beck, T., Cull, R & Valenzuela, P (2019). *The Oxford Handbook of Banking*, 3rd edn, Oxford Handbooks Online
- Beck, T., Fuchs, M., Singer, D. and Witte, M. (2014). *Making Cross-Border Banking Work for Africa*. Technical report, The World Bank.
- Blundell, R., & Bond, S. (1998). Initial Conditions and Moment Restrictions in Dynamic Panel Data Models. *Journal of Econometrics*, 87(1), 115-143.
- Blundell, R., & Bond, S. (2000). GMM Estimation with Persistent Panel Data: An Application to Production Functions. *Econometric Reviews*, 19(3), 321-340.
- Borio, C and Lowe, P (2002). Assessing the Risk of Banking Crises, *BIS Quarterly Review*, pp 43-54.

- Bouvatier, V., & Lepetit, L. (2012). Provisioning Rules and Bank Lending: A Theoretical Model. *Journal of Financial Stability*, 8(2), 25-31.
- Bouvatier, V., Lepetit, L and Strobel, F (2014). Bank Income Smoothing, Ownership Concentration And The Regulatory Environment. *Journal of Banking and Finance*, 41, 253-270.
- Bremus, F. M. (2015). Cross-Border Banking, Bank Market Structures and Market Power: Theory and Cross-Country Evidence. *Journal of Banking & Finance*, 50, 242-259.
- Bryce, C., Dadoukis, A., Hall, M., Nguyen, L., & Simper, R. (2015). An Analysis of Loan Loss Provisioning Behaviour in Vietnamese Banking. *Finance Research Letters*, 14, 69-75.
- Caporale, G.M., Alessi, M., Di Colli, S and Lopez, J.S (2018). Loan Loss Provisions and Macroeconomic Shocks: Some Empirical Evidence for Italian Banks during the Crisis. *Finance Research Letters* 25:239-243
- Chen, KY., Elder, R.J., & Hsieh, Y.M (2007). Corporate Governance and Earnings Management: The Implications of Corporate Governance Best-Practice Principles for Taiwanese Listed Companies. *Journal of Contemporary Accounting & Economics*, 3 (2), 73-105.
- Dushku, E. (2016). Some Empirical Evidence of Loan Loss Provisions for Albanian Banks. *Journal of Central Banking Theory and Practice*, 5(2), 157-173.
- El Sood, H. A. (2012). Loan Loss Provisioning and Income Smoothing in US Banks Pre and Post the Financial Crisis. *International Review of Financial Analysis*, 25, 64-72.
- Foos, D., Norden, L and Weber, M (2010). Loan Growth and Riskiness of Banks. *Journal of Banking and Finance*, 34, 2929-40.
- Fwamba, R.S., Nasimiyu, C & Toroitich, C (2020). *European Journal of Accounting, Auditing and Finance Research*, 8(10), 70-86
- Goel, A. and A. Thakor. (2003). Why Do Firms Smooth Earnings? *Journal of Business*, 76(1), 151-192.
- Ghosh, S. (2015). Provisioning, bank behaviour and financial crisis: Evidence from GCC banks. *Review of Middle East Economics and Finance*, 11(3), 249-275.
- Guidara, A., Lai, V. S., Soumaré, I., & Tchana, F. T. (2013). Banks' Capital Buffer, Risk and Performance in the Canadian Banking System: Impact of Business Cycles and Regulatory Changes. *Journal of Banking & Finance*, 37(9), 3373–3387.
- Hessou, H. T., Lensink, R., Soumaré, I., & Tchuigoua, H. T. (2019). What Drives Provisioning Behaviour in Microfinance Institutions? Working Paper, Kedge Business School.

- Hodrick, R and Prescott, E (1997). Post-War US Business Cycles: An Empirical Investigation. *Journal of Money, Credit and Banking*, 29, (1), 1-16
- Hsiao, C. (2014). *Analysis of Panel Data* (No. 54). Cambridge university press.
- Kanagaretnam, K., Lobo, G. J., & Yang, D. H. (2005). Determinants of Signalling by Banks through Loan Loss Provisions. *Journal of Business Research*, 58(3), 312-320.
- Kilic, E., Lobo, G. J., Ranasinghe, T., & Sivaramakrishnan, K. (2012). The Impact of SFAS 133 on Income Smoothing by Banks through Loan Loss Provisions. *The Accounting Review*, 88(1), 233-260.
- Lee, C.C., & Hsieh, M.F. (2013). The Impact of Bank Capital on Profitability and Risk in Asian Banking. *Journal of International Money and Finance*, 32, 251–281.
- Léon, F. (2016). Does The Expansion of Regional Cross-Border Banks Affect Competition in Africa? Indirect Evidence. *Research in International Business and Finance*, 37, 66–77.
- Leventis, S., Dimitropoulos, P. E and Anandarajan, A. (2012). Signalling by Banks Using Loan Loss Provisions: The Case of the European Union. *Journal of Economic Studies*, 39 (5), 604-618.
- Leventis, S., Dimitropoulos, P. E., & Anandarajan, A. (2011). Loan Loss Provisions, Earnings Management and Capital Management under IFRS: The Case of EU Commercial Banks. *Journal of Financial Services Research*, 40(1-2), 103-122.
- Lobo, G. J & Zhou, J (2006). Did Conservation in Financial Reporting increase after Sarbanes-Oxley Act? Initial Evidence. *Accounting Horizons*, 20 (1),57-73.
- Mbithi E. I (2018). Loan Loss Provisions and Income Smoothing-evidence from commercial banks in Kenya, unpublished MBA thesis, University of Nairobi
- Meng, Y., Clements, M. P., & Padgett, C. (2018). Independent Directors, Information Costs and Foreign Ownership in Chinese Companies. *Journal of International Financial Markets, Institutions and Money*, 53(1), 139–157.
- Murcia, A., & Kohlscheen, E. (2016). Moving in Tandem: Bank Provisioning in Emerging Market Economies. Bank for International Settlements, Monetary and Economic Department.
- Mwega, F.M (2014). Financial Regulation in Kenya: Balancing Inclusive Growth With Financial Stability, Overseas Development Institute, Working paper 407
- Ng, J., Saffar, W. & Zhang, J.J. (2020). Policy Uncertainty and Loan Loss Provisions in the Banking Industry. *Review of Accounting Studies* 25, 726–777
- Nickell, S. (1981). Biases in Dynamic Models with Fixed Effects. *Econometrica: Journal of the Econometric Society*, 1417-1426.

- Norden, L., & Stoian, A. (2013). Bank Earnings Management through Loan Loss Provisions: A Double-Edged Sword? DNB Working Paper, No. 404
- Olszak, M., Pipien', M., Kowalska, I. and Roszkowska, S. (2016). What Drives Heterogeneity of Cyclicity of Loan Loss Provisions in the EU? *Journal of Financial Services Research*, 1-42.
- Othman, B.K. and Mersni, H. (2014). The Use of Discretionary Loan Loss Provisions by Islamic Banks and Conventional Banks in the Middle East Region: A Comparative Study. *Studies in Economics and Finance*, 31(1), 106-128
- Ozili P. K. & Outa, E (2017). Bank Loan Loss Provisions Research: A review. *Borsa Istanbul Review*, 17(3), 144-163
- Ozili P. K. (2017). Discretionary Provisioning Practices among Western European Banks. *Journal of Financial Economic Policy*, 9 (1).
- Packer, F., Shek, J and Zhu, H (2014). Counter-Cyclical Loan Loss Provisions in Asia. *SEACEN Financial Stability Journal* 3, 25-58.
- Radivojevic N & Jovovic, J (2017). Examining of Determinants of Non-Performing Loans. *Prague Economic Papers*, 26 (3), 300-316
- Roodman, D. (2009). How to Do Xtabond2: An Introduction to Difference and System GMM in Stata. *Stata Journal*, 9(1), 86-136.
- Shayan-Nia, M., Sinnadurai, P., Mohd-Sanusi, Z., & Hermawan, A.N. A. (2017). How Efficient Ownership Structure Monitors Income Manipulation? Evidence of Real Earnings Management among Malaysian Firms. *Research in International Business and Finance*, 41(1), 54–66.
- Skala, D. (2015). Saving on a Rainy Day? Income Smoothing and Procyclicality of Loan- Loss Provisions in Central European Banks. *International Finance*, 18(1), 25-46.
- Wahlen, J. (1994). The Nature of Information in Commercial Bank Loan Loss Disclosures. *The Accounting Review*, 69, 455–478.
- Windmeijer, F. (2005). A Finite Sample Correction for the Variance of Linear Efficient Two-Step GMM Estimators. *Journal of Econometrics*, 126(1), 25-51.
- Wu, M. W., Shen, C. H., & Lu, C. H. (2015). Do More Foreign Strategic Investors and More Directors Improve the Earnings Smoothing? The Case of China. *International Review of Economics & Finance*, 36:3-16.
- Yang, C.Y., Lai, H.N & Tan, B.L (2008). Managerial Ownership Structure and Earnings Management. *Journal of Financial Reporting & Accounting*, 6(1), 35-53.