Jurnal Keuangan dan Perbankan, 23(2):270–282, 2019
http://jurnal.unmer.ac.id/index.php/jkdp

Jurnal Keuangan dan Perbankan
UNIVERSITY OF MERDEKA MALANG

Bank loan loss provisions research: A review of the empirical literature

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Article history:
Received: 2019-01-14
Revised: 2019-02-25
Accepted: 2019-04-06

Keywords:
Capital management; Income smoothing; Loan loss provisions; *Procyclicality* signaling

JEL Classification: G1, G2, G4

Kata kunci:
Manajemen modal; Perataan laba; Cadangan kerugian penurunan nilai; Procyclicality, *signaling*

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Abstract

This paper aims to provide an overview of the literature on Loan loss provisions in the Banking industry. This research was conducted by reviewing some literature. LLP is a solution for banks to deal with risks that will be faced by banks or as a prudent banking principle. We have reviewed and mapped the literature in several sections, developments in the Basel Regulations, mapping LLP literature based on the research area, and LLP and hypothesis mapping. The main fact that we reveal is that most banks use LLP regulations for various purposes. This paper relies on the literature and highlights information as well as important issues related to LLP in the research field, this study highlights several important issues related to the banking industry in various countries. This study observed the role of LLP during the application of Basel III regulation which tended to provide flexibility to bank managers in determining provision reserves. We have reviewed the specific LLP literature in one country and cross-country research. This study identifies gaps and provides direction that can be used as a research contribution in the future.

Abstrak

Artikel ini bertujuan untuk memberikan tinjauan literatur tentang Cadangan Kerugian Penurunan Nilai (CKPN) di industri perbankan. CKPN merupakan solusi perbankan dalam menghadapi risiko atau sebagai wujud dari prudent banking principles. Penelitian ini dilakukan dengan meninjau beberapa literatur. Kami telah meninjau dan memetakan literatur dalam beberapa bagian, perkembangan dalam Peraturan Basel, pemetaan literatur CKPN berdasarkan area penelitian, dan CKPN dan pemetaan hipotesis. Fakta utama yang kami ungkapkan adalah bahwa sebagian besar bank menggunakan peraturan CKPN untuk berbagai tujuan. Makalah ini bergantung pada literatur dan menyoroti informasi serta isu-isu penting yang terkait dengan CKPN di bidang penelitian. Studi ini menyoroti beberapa masalah penting terkait industri perbankan di berbagai negara. Penelitian ini mengamati peran CKPN selama penerapan regulasi Basel III yang cenderung memberikan keleluasaan kepada pihak manajer bank dalam menentukan cadangan provisi. Kami telah meninjau literatur CKPN secara spesifik di satu negara dan penelitian lintas negara. Penelitian ini mengidentifikasi gaps dan memberikan arahan yang dapat digunakan sebagai kontribusi penelitian di masa depan.

How to Cite: Heningtyas, O. S., & Widagdo, A. K. (2019). Bank loan loss provisions research: A review of the empirical literature. *Jurnal Keuangan dan Perbankan, 23*(2), 270-282. https://doi.org/10.26905/jkdp.v23i2.2835

ISSN: **2443-2687** (Online)
ISSN: **1410-8089** (Print)

1. Introduction

Banking activities play an important role in the growth and progress of a country. Distribution of funds from banks can be the main support when the country faces an economic crisis. The importance of the banking industry for the growth of the country's economy so that there is a need for an assessment of banking health.

The Basel regulation contains rules for the formation of Loan Loss Provisions (LLP) and minimum capital limits. Basel regulations have some evolution based on the conditions of the world economy. Basel I adoption has been carried out in relation to capital allocation for market risk in 1995. Capital regulations in Basel I are calculated by 8 percent of weighted asset risk. In 1999 practitioners made a proposal to correct Basel I weaknesses, the result of an amendment from Basel I called Basel II. The application of Basel II has drawn various criticisms related to the financial crisis that occurred in 2007/2008.

Application of Basel II regulations related to minimum capital provisions capital is considered unable to handle credit risk if a financial crisis occurs. The Basel Committee is advised to turn Basel II into Basel III. Basel III was first published in 2009 and the final version was published in 2010. LLP determination in Basel III is based on "expected through a cycle of bad loan terms". This system anticipates estimated losses and requires institutions to set aside specific provisions regarding loans based on the characteristics of the borrower (the creditor) to describe credit performance.

Research on effectiveness and risk management was examined by (Hudson & Hudson, 2013; Lastra, 2014) regarding the effectiveness of Basel I, II and III regulations applied in the period before, after and during the 2008 crisis period. This review states that policy evolution is intended to strengthen sensitivity to risk, on the other hand, policy changes produce significant expenditure on system infrastructure, policy interpretation, implementation of solutions and efforts to develop creativity.

Elleuch & Taktak, (2015) argue that in the last two decades research in accounting has focused on earnings management practices. Some literature examines related earnings management and LLP in the banking industry. The decrease in LLP can affect the capital adequacy ratio and have an impact on decreasing income (Abu-serdaneh, 2018). Othman & Mersni, (2014) research that shows that banks use current income with the motivation to minimize income volatility over time.

There are several articles that focus on income smoothing and LLP in banking industry (Taktak, Zouari., & Boudriga, 2010; Taktak & Taktak, 2011; Leventis, Dimitropoulos, & Anandarajan, 2013; Beatty & Liao, 2014; Adzis, Tripe, & Dunmore, 2016; Cummings & Durrani, 2016; Wijayanti & Diyanty, 2017; Ozili & Outa, 2018; Pinto & Picoto, 2018; Isa & Rashid et al., 2018), another topic focus on signaling activities and LLP examine by (Sood, 2012; Othman & Mersni, 2014; Fitriana & Arfianto, 2015; Abu-serdaneh, 2018; Ozili & Outa, 2018; Isa & Rashid, 2018).

The relationship between LLP and economic conditions is also the concern of researchers. research on procyclicality and LLP was conducted by several researchers (Taktak, 2011; Beatty & Liao, 2014; Adzis, Tripe, & Dunmore, 2016; Soedarmono, Pramono & Tarazi, 2017; Abu-serdaneh, 2018). Akins, Dou, & Ng (2017), Marton & Runesson (2017), and Jin et al. (2018) examined the relationship of corruption and LLP, incentives and social capital. Other studies were reviewed dynamic loan loss provisions and LLP (Bryce et al., 2015; Aristei & Gallo, 2019; Haan & Oordt, 2018).

The literature studies related to LLP are conducted by (Beatty & Liao, 2014; Ozili & Outa, 2017). The topic of the literature study conducted Beatty & Liao, (2014) is divided into seven main sections. First, Beatty & Liao (2014) convey banking theory, the second part contains the background, regulation of capital and basic rules of banking balance sheets, the third part looks at the study and relevance of information risk in banking accounting, the fourth part about financial statement policy related to capital management and income smoothing, the fifth section discusses the impact of accounting on economic behavior banking, banking the sixth part of the future and accounting regulations. (Beatty & Liao, 2014). Optimal transparency and bank disclosure will provide important insights. They emphasize that research that addresses the interaction between transparency and bank disclosure will provide important insights. They also suggest several questions that can be solved in future research: (1) is there evidence of a relationship between LLP and capital ratio policies during the implementation period of Basel regulation? (2) Whether managers use financial statements opportunistically or to provide financial information to stakeholders? (3) How to disclose income smoothing and capital management behavior with LLP? (4) What is the impact of earnings management and capital management on credit and market depositors? Beatty & Liao (2014) addressed the question regarding the impact of regulatory changes and accounting quality for economic behavior in the banking industry. (1) Does the accounting regime change in capital regulation have an impact on the efficiency and behavior of the banking economy? (2) Does the establishment of LLP increase loan efficiency and risk assessment? (3) What is the relationship between capital ratio regulation and procyclicality?

Ozili & Outa (2017) conducted a study of literature relating to LLP. They observe the progress of LLP research in one country and across countries. Ozili & Outa (2017) highlights the strong relationship between LLP and income smoothing, capital management, signaling, ethical dimensions of income smoothing behavior, motivation in making income smoothing, and adding literature related to procyclicality and dynamic loan loss provisions. They suggest several research topics related to LLP that can be used for future research, (1) find synergistic regulations for LLP and LLP regulators, (2) LLP abnormal sensitivity to quality change, (3) research in developing countries, (4) LLP policy investigations, (5) systemic and non-systemic LLP behavior in financial institutions.

This study was referred to as research Ozili & Outa (2017). This study adds some of the latest literature related to LLP on several topics including LLP research and corruption, providing incentives and social capital. We added the challenges in LLP research related to the implementation of the expected loan loss model (E-LLM) and I-LLM which caused the model to lose credit. We also review the progress of the application of the suggestions submitted by previous researchers. This study aims to provide information about the development of LLP research, changes in regulations, and macro-financial stability. We explored several research articles and literature to identify progress and challenges in LLP research and suggested a number of directives for future research. This research is mapped based on the scope of research and research maps based on the relationship between LLP and main topics such as income smoothing, capital management, signaling, and several other topics in LLP research procyclicality, dynamic loan loss provisions, corruption, incentives, and social capital.

There are a number of objectives in this literature study. First, to provide additional scientific studies and provide new research ideas about LLP for researchers. Second, providing information to policymakers and shareholders about the behavior of bank managers in various countries. LLP is a reserve formed to deal with the risk of loss or as a principle of banking prudence. If LLP is used for inappropriate activities, it can have a material impact on stakeholders. On the other hand, misuse of LLP can show that the adoption of Basel III regulations for the formation of LLP is not in accordance with the intended purpose. So that the literature studies we conducted can be considered by the Basel council in reviewing Basel III regulations.

This study consists of several sections. First, we explain the background of the bank, the importance of LLP, regulations related to LLP, several LLP research gaps, and research objectives. The second section we map literature discussions based on the location of the study, the third section discusses some of the progress of the research related to LLP. The fourth section presents the challenges in LLP research. the fifth section we discuss some directions for future research from (Beatty & Liao, 2014; Ozili & Outa, 2017). The sixth section provides direction for future research. The seventh section concludes the article.

2. Classification of specific research based on the State

LLP research in the Middle East region

Research into earnings management practices using LLP is very interesting. Othman & Mersni (2014) compared 21 Islamic banks and 33 conventional banks from Middle Eastern countries from 2000 to 2008. Islamic banks use LLP for earnings management and capital management, party funding external is also one of the determinants of LLP's formation, and there is no significant difference between Islamic banks in the treatment of LLP. Abuserdaneh (2018) from different research results of LLP, the results of the banks are listed in Jordan from 2005-2014. This research argues that there is no evidence to support income smoothing and capital management activities or activities that cause procyclicality. This research proves that LLP in year t+1 can be used by banks as a positive signal in changes of earnings. This study also states that there is a relationship between credit ratios with LLP. Other research supports the statement that there is signaling activity through LLP on the value and stability of banks to investors (Cho & Chung, 2016).

LLP research in the African region

St-Hilaire & Boisseline (2018) states that LLP research is important because the formation of LLP influences decision making. The study also states that there are other important factors that should be considered by banks in Africa, such as credit inclusion, market risk, and operations. Ozili & Outa (2018) conducts research that addresses risks in the banking industry. the results of the study state that banks that have high financial growth have low losses, on the other hand, banks that have high financial growth can increase credit by ensuring stronger investor protection. Research related to income smoothing which is influenced by capital market motivation is also a concern of researchers in Africa.

The topic of procyclical research was also examined using financial reports from 1990 in 2015. (Akins, Dou & Ng (2017) stated that banks in southern Africa tended to cycle, banks in South Africa has a tendency to change progress and decline, as long as the business cycle of fluctuations can affect credit growth in Africa. Elleuch & Taktak (2015) examined the practice of earnings management in Tunisian banks after the publication of the first IMF report published in the 1998-2007 research period. The results of the study of Tunisian banks in less profit management through LLP, on the contrary, earnings management of investment tendencies, are often carried out on investment sales and debt collection agencies.

LLP research in Europe

Research on factors related to LLP formation was also carried out in Europe. Ozili (2017) conducts research on banks in Western Europe. This study aims to investigate the drivers of LLP formation, in a study that produced three arguments (1) researchers found evidence that LLP formation in European countries was driven by income smoothing activities in the pre-crisis period, (2) other factors that influence formation LLP is a credit risk factor, especially the number of non-performing loans or NPLs and credit growth factors and (3) this study also proves that there is procyclicality between the provision of LLP and a fluctuating business cycle.

Signaling is also a concern for researchers in Europe. Leventis, Dimitropoulos, & Anandarajan (2013) states that there is not enough evidence to conclude the health of bank finances in Europe related to signaling behavior. Signaling behavior is seen more clearly in banks experiencing financial difficulties after the IFRS regime. This study also calls on regulators to tighten regulations so that strict regulation can solve signaling behavior problems.

More specific research related to LLP was conducted in Italy during the period 2006-2013. Aristei & Gallo (2019) compared regional banks with local credit banks, it can be concluded that regional banks tend to have larger LLPs with higher loan concentrations with lower levels of competition compared to local credit banks. This study also proves that the increase in LLP is not only used to deal with high risk but also has a tendency in earnings management practices to stabilize their income streams over time.

LLP research in the Asian region

Another study that tested LLP was conducted in Malaysia. For example, Isa & Rashid (2018) examined the factors that influence the formation of LLP in banks in Malaysia. They found that the formation of LLP was influenced by bad credit, interest income loans and income, net income and gross domestic product (GDP). The next study analyzed 13 banks in Hong Kong during the period 2000-2009. The results of this test stated that after the application of IAS 39 there was no evidence that banks in Hong Kong carried out income smoothing activities, this study stated that banks tended to process after adopting IAS 39 (Adzis, Tripe, & Dunmore, 2016). Wijayanti & Diyanty (2017) examined the impact of Corporate Governance (CG) on earnings quality in Islamic banking and conventional banking in Indonesia during the period 2007-2014. The test results state that the quality of Islamic sharia earnings are not affected by volatility but is influenced by income smoothing using LLP and the quality of income of conventional banks is influenced by volatility and income smoothing using LLP.

LLP cross country research

Bushman & Williams (2012) conducted LLP research in 27 countries, in this study, it was concluded that forward-looking methods in LLP formation could facilitate income smoothing behavior and reduce transparency. On the other hand, forward-looking methods reflect the recognition of future losses in a timely manner, besides that forward-looking methods, are considered to reduce the effects of procyclicality. Cross-country research examining the differences between Islamic and conventional banks has been analyzed by Farook, Hassan, & Clinch (2014) using a sample of 248 Islamic banks and 2,258 conventional banks during the period 1992 - 2005. The results of this study indicate that banks consistently record LLP lower than with conventional banks, this study reveals that there is a relationship between earnings management and LLP. The researcher states that differential effects depend on earnings management activities that benefit or harm the customer. LLP research related to procyclicality with samples of all Islamic banks in the world during the period 1997 - 2012 stated that Islamic banking is procyclical (Soedarmono, Pramono, & Tarazi, 2017).

3. LLP Research

LLP and income smoothing

Some researchers have focused on income smoothing practices using LLP. This research is considered important because agency problems arise due to information asymmetry between banks, investors, policymakers and the impact of policies on financial statements (Beatty & Liao, 2014). Aristei & Gallo (2019) states that the increase in LLP is not only influenced by the large credit risks faced by banks but also has a tendency in earnings management practices to stabilize income over time. Cummings & Durrani (2016) conducted research related to income smoothing in Australia which states that banks increase reserves to anticipate future credit growth, banks allocate a portion of profits from capital management to reserve future credit losses, and banks allocate high income for smoothing.

Skala (2015) analyzes income smoothing and the cycle of Loan Loss Provision (LLP) in central European banks. This research proves that banks in Europe use LLP to accelerate income flows and banking procyclicality with the national business cycle. The study also concluded that banks not only use the high income for smoothing, but they also build reserves to anticipate large losses. Jin, Kanagaretnam, & Lobo (2015) studied whether bank managers use their wisdom in forming Loan Loss Allowances (LLA) for efficiency and opportunistic reasons. This study proves that banks that have a high LLA during the pre-crisis period of 2007-2009 have a tendency to take fewer risks during the pre-crisis period and have a lower risk of bankruptcy during the crisis period. This study also states that bank managers use their wisdom for efficiency purposes rather than opportunistic purposes.

Research related to income smoothing was also carried out by (Pinto & Picoto, 2018). This study analyzes the impact of the financial crisis in 2008 on European banks by investigating earnings management and capital management behavior. This study concludes that there is an impact of the financial crisis in several European countries using fuzzy-set qualitative analysis (fsQCA) there are indications of reducing earnings management and capital management practices. Some research articles state that banks use LLP as a tool to carry out long-term income management (Anandarajan, Hasan, & Lozano-vivas, 2003; Laeven & Majnoni, 2003; Taktak, Zouari., & Boudriga, 2010; Taktak, 2011; Othman & Mersni, 2014; Shawtari et al., 2015; Wijayanti & Diyanty, 2017; Ozili, 2017; Curcio, Simone, & Gallo, 2017; Abu-serdaneh, 2018; Isa & Rashid, 2018; Ozili & Outa, 2018) On the other hand there is research which states that bank managers do not use LLP as a tool to practice earnings management (Ahmed, Takeda & Thomas, 1999; Leventis, Dimitropoulos, & Anandarajan, 2013; Adzis, Tripe, & Dunmore, 2016)

LLP and capital management

Research on capital management has been conducted in the US with a sample of 878 banks, the results of which state that the company has increased the number of losses to facilitate income if there are some indications banks achieve minimum regulatory targets, banks in non-recession period, and profits more (Sood, 2012). The research sample is banks in several European countries (Britain, Denmark, Finland, Ireland, Greece, Portugal, Belgium, Austria, Italy, France, Luxembourg, Spain, Netherlands, Germany, Sweden, and Norway) stating that the determinants of formation reserve loss is not only a consideration of credit risk but also driven by income smoothing (Ozili, 2017).

Several studies have shown that the behavior of management capital does not only occur in conventional banks but also in Islamic banks. Comparative research between Islamic banks and conventional banks on income manipulation activities is carried out in the Middle East, the results of this study prove that Islamic banks do earnings management and capital management (Othman & Mersni, 2014). Comparative research in the Middle East countries in the period 2000-2008 also states that Islamic banks use LLP for earnings management and capital management, there is no significant difference between Islamic banking and conventional banking in manipulating financial statements and external funding is also stated as one of the determinants of LLP formation (Othman & Mersni, 2014). Isa & Rashid (2018) conducts research on Islamic banks in Malaysia related to regulations governing capital and risk. The results of the research are regulators are advised to improve specifications in regulations, for example in regulation of capital and risk. The researcher states that management is insulate more motivated to be involved in risk transfer behavior. Risk transfer is found to have a high relationship with foreign ownership compared to domestic ownership in Islamic banks.

LLP and signaling

Signaling theory definitions are theories that show how companies must provide signals to users of financial statements. Companies must provide information that is complete, accurate, and timely and presented fairly and relevantly because financial statements are presented as material for consideration by investors in decision making. Companies that provide positive signals can attract investors and outsiders to invest in companies (Fitriana & Arfianto, 2015). Management tends to increase LLP to show that bank finance is strong enough to face future losses (Isa & Rashid, 2018). research Abu-serdaneh (2018) shows significant evidence that LLP is used by managers to signal positive changes in future income.

Eng & Nabar (2007) studied the disclosure of loan losses in banks in Hong Kong, Malaysia, and Singapore in the period 1993 to 2000. The results of this study prove that unexpected loan loss provisions are positively related to stock returns and future cash flows. This proves that bank managers in Asia increase the provision of loan losses to signify a profitable prospect for flows. The study also stated that the provision of unexpected loan losses from banks in Asia was lower in the pre-crisis years.

LLP and procyclicality

Procyclicality occurs when banks increase their LLP when economic conditions deteriorate and reduce LLP when the economy improves (Adzis, Tripe, & Dunmore, 2016). The hypothesis related to the negative relationship between GDP and LLP is expressed by Taktak (2011), Soedarmono, Pramono, & Tarazi (2017), and Abu-serdaneh (2018). They show that GDP can reflect the business cycle, the negative relationship between LLP and GDP proves the existence of anti-business cyclical behavior by the bank. Beatty & Liao (2014) argue that banks delay the provision for the specified period of recession. They argued that the increase in LLP during the recession period further strengthened the impact of the recession.

Keys et al. (2016) conducted a study to confirm whether banks imposed loan restrictions in the subprime crisis. The results of this study prove that banks in America limit lending. In the subprime crisis, information about borrowers determines their creditworthiness. This study proves that the practice of securitization can influence incentives for screening subprime lenders.

LLP and corruption, incentive, social capital

Akins, Dou & Ng, (2017) examined the level of timely recognition of bank loan losses against corruption in loans, this study involved 3,600 companies in 44 countries. The results of this test are as fast as a time to recognize loan losses can reduce corruption and increase discipline in loans because of possible loan problems revealed earlier. Further research comparing IFRS with GAAP, in the test there is evidence that IFRS predicts future credit losses at a lower level than local GAAP. This study also examines the standard interaction with the reliability of financial statements and incentive preparation, this study proves that local performance using GAAP is relatively better than IFRS applied in large banks (Marton & Runesson, 2017). Other research uses a sample of public and private banks that use two measures of social capital, this study examines the strategy of expansion and quality of bank loans. The results of this study are that social capital has a negative effect on bank credit expansion strategies (which are proxies by loan growth). This study also reveals that social capital is negatively related to LLP, changes in LLP and the ratio of bad loans. The results of these studies are consistent with the idea that social capital is associated with higher credit quality (Jin et al., 2018).

Gambacorta & Ibanez (2014) conducted research in the crisis period of 2007-2010 in Europe and America. The results of the study indicate that there were structural changes carried out by banks in Europe and America in the crisis period. Banks with low core capital have a large dependence on market funding, non-interest income and limit the distribution of loans in the crisis period.

LLP and dynamic loan loss provisions

Aristei & Gallo (2019) investigating the formation of LLP of banks in Italy During the period 2006 - 2013, the empirical results of this study revealed that the formation of LLP in banks in Italy was supported by non-discretionary factors related to credit risk expectations. They also revealed that local credit banks have lower LLP levels, on the other hand, that regional banks have higher LLP levels with higher loan concentrations and lower competition. Other evidence generated in this study is that banks facing increased risk are not only characterized by an increase in LLP but also have a higher tendency in earnings management practices to stabilize their income streams.

Research related to the formation of LLP was also carried out in 25 banks in the Netherlands during the period after the 2008 crisis, research shows that banks are targeting to fill 49% of loans that experience risk or decline in value. However, in the adjustment of short-term reserves, only 29% of loans experienced a decline in value. This study reveals several factors that underlie this deviation (i) differences from reserves can be used as an addition in the following quarter, (ii) smaller reserve reversals when losses do not occur (Haan & Oordt, 2018). Gatev, Schuermann, & Strahan (2005) stated that unused commitments that are not used make banks face systematic liquidity risk, but this exposure can decrease by combining loan commitments and transaction deposits. The study proves that the volatility of bank equity increases with unused commitments.

Bryce et al. (2015) investigated the behavior of LLP by Vietnamese banks from the period 2006-2012, this study examined capital, income smoothing, and management cycle hypotheses. This study also examined the effect of X-efficiency variables and used risk as a control variable in providing behavior. This study proves that incorporating X-efficiency and risk control variables into the research model shows counter-cycle manipulation or capital management and earnings management. Krüger, Rösch & Scheule, (2018) examine policies relating to the formation of LLP in the United States that are revised based on International Financial Reporting Standards (IFRS) and US General Acceptable Accounting Principles (GAAP) which have an impact on the capital level 1 reduction. They found the results of counterfactual analysis that regulatory changes can have adverse consequences during economic downturns, for low-quality credit portfolios, for banks that do not tighten capital standards during economic downturns, under a comprehensive definition about Significant Credit Risk (SICR) in IFRS. The study also concluded that the rule for the formation of LLP was to increase the procyclicality of bank capital requirements.

LLP research challenges

Comparison estimates of LLP

Bank managers have various considerations and assumptions in determining LLP. LLP is an account that can be used for various interests between the bank and the user regarding the responsibilities of the financial statements. The use of LLP can produce material effects for users of financial statements. Every bank manager has its own considerations and conditions that cannot be detected in research. Because researchers do not have complete information about the factors facing managers, comparative research between banks is quite difficult. So far researchers have only used general hypotheses related to income smoothing, capital management, signaling, procyclicality, dynamic loan loss provisions, and several other general topics.

E-LLM and I-LLM

Islamic banks have policies related to the system of providing dynamic loan losses. Islamic banks have implemented the expected loan loss model (E-LLM) in lieu of the loan loss model (I-LLM) (Soedarmono, Pramono, & Tarazi 2017). Several countries participating in AAOIFI (Accounting and Audit Organizations for Islamic Financial Institutions) have implemented E-LLM in 2010 while the implementation of E-LLM is a conventional bank that was postponed until 2018 (Soedarmono, Pramono, & Tarazi 2017). Applications between the two models in the banking industry receive various criticisms. There are fundamental differences between E-LLM and I-LLM. E-LLM reserves losses before losses occur, while I-LLM reserves losses that have occurred. E-LLM is compared with I-LLM, this has an impact on the quality of financial statements related to future credit losses and cash flows. The difference in the adoption of policies related to the system of providing dynamic loan losses has resulted in cross-country research in conducting research. (PSAK 55 (Revised 2014) - Financial Instruments, Recognition, and Measurement) Indonesia still applies the I-LLM method to conventional banks and Islamic banks, which will be used for the study.

4. Discussion

Before we give some directives for future research, we discuss suggestions and directives that have been debated in (Beatty & Liao, 2014; Ozili & Outa, 2017) about LLP literature research. Beatty & Liao (2014)provide several questions for future research related to LLP. The first research question is, "Is there evidence of a relationship between LLP and capital ratio policies during the period of implementation of Basel regulations?", This question has been addressed by several studies such as (Schwerter & Schwerter, 2015; Cummings & Durrani, 2016; Chockalingam, 2018) The second question, "Do managers use opportunistic financial statements or to provide personal information to users of financial statements?", The question has been addressed by several studies related to management behavior. To answer the second question, several studies use different samples, and examine the relationship of several topics such as smoothing income, capital management, signaling towards LLP (Anandarajan, Hasan & Lozano-vivas, (2003); Ahmed, Takeda & Thomas, 1999; Taktak, Zouari., & Boudriga, 2010; Sood, 2012; Bushman & Williams, 2012; Othman & Mersni, 2014; Bryce et al., 2015; Cummings & Durrani, 2016; Ozili & Outa, 2017; Ozili, 2017; Abuserdaneh, 2018; Pinto & Picoto, 2018; Isa & Rashid, 2018; Jin et al., 2018; Aristei & Gallo, 2019). Beatty & Liao, (2014) also asked questions about how to prove the use of LLP as a means of income smoothing and capital management activity tools, so far we have only found studies that examine income smoothing and the relationship of capital management and LLP using regression analysis.

Ozili & Outa, (2017) suggests several topics that can be used as a reference for future research. First, in Ozili & Outa, (2017) research suggest an investigation into procyclicality and LLP in developing countries, this suggestion has been carried out by several researchers such as Adzis, Tripe, & Dunmore (2016) examining the impact of implementing IAS 39 on income smoothing and procyclicality behavior in Hong Kong during the period 2000-2009. Similar research was also conducted by (Bryce et al., 2015; Adzis, Tripe, & Dunmore, 2016; Ozili, 2017; Abu-serdaneh, 2018; Isa & Rashid, 2018). Secondly, the suggestion for further research is to conduct LLP behavior investigations during the period after the financial crisis, the suggestion of this research was only responded by several researchers such as (Schwerter & Schwerter, 2015; Cummings & Durrani, 2016; Chockalingam, 2018). Third suggested further research would be more focused on regulatory proposals that can solve several problems about LLP and asymmetry information between agent and principles. So far, we have not found research that focuses on making regulatory proposals related to LLP.

Research direction

First, research related to Basel regulation can be an opportunity for further research. some researchers conducted research related to Basel II regulations (Tschemernjak, 2011; Hudson & Hudson, 2013; Hamadi *et al.*, 2016) Basel III regulations were also the center of attention of several researchers (Lastra, 2014; Schwerter and Schwerter, 2015; Chockalingam, 2018). Based on the directions from the research review (Ozili & Outa, 2017), the research that investigates the impact of loan loss provisions regulation in Basel III and examines whether changes in capital regulation have an impact on the formation of LLP that has been studied (Chockalingam, 2018). Researchers can review Basel III amendment proposals to Basel IV related to (i) increasing capital standards to deal with credit risk, (ii) capital definition specifications and (iii) handling liquidity risk issues (Ozili & Outa, 2017).

Second, Islamic banks have various types of contracts. The financing contract and receivables have different principles and types of risk. Researchers can investigate related to the formation of LLP with different levels of risk on each type of contract in Islamic banks.

5. Conclusion, Limitations, and Suggestions

Conclusion

The conclusions from the literature study we conducted provide some important information related to LLP care in the banking industry. Our study proves that most developed countries have conducted LLP research. First, LLP studies have developed significantly from studies that used a sample of one country to sample banks throughout the world. Development is not only measured from the scope of the research area, but also from the development of hypotheses such as income smoothing, capital management, signaling, procyclicality, corruption, and others. The development of LLP research can also be reflected in various literature that criticizes regulations, as well as linking the formation of LLP with impacts on macroeconomics, the quality of financial reports, culture and banking prudential principles. Second, the decision of the Basel Committee gives freedom managers to determine LLP according to the characteristics of each bank creditor can provide a gap in income smoothing activities which results in a decrease in the quality of financial statements. Third, in relation to differences in the model of the formation of loss reserves between E-LLM and I-LLM, we suggest that there is an official agreement to decide on the use of the model in determining the reserve reserves.

Fourth, most of the literature we review states that banks use LLP for various purposes so that the financial statements produced do not reflect the real conditions of economic reality. Fifth, we advise policymakers to tighten regulations, especially regulations regarding the formation of LLP. Tightening of regulation is very important because the main function of forming LLP is as an embodiment of the principle of caution in overcoming risks, but due to loosening of regulations, managers use this gap for various purposes.

Limitations and suggestions

Fourth, most of the literature we review states that banks use LLP for various purposes so that the financial statements produced do not reflect the real conditions of economic reality. Fifth, we advise policymakers to tighten regulations, especially regulations regarding the formation of LLP. Tightening of regulation is very important because the main function of forming LLP is as an embodiment of the principle of caution in overcoming risks, but due to loosening of regulations, managers use this gap for various purposes.

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