



Bank loan loss provisions research: A review

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Abstract

We review the recent academic and policy literature on bank loan loss provisioning (LLP) to identify several advances in the literature, to highlight some challenges in LLP research and suggest possible directions for future research with some concluding remarks. Among other things, we observe some major advancement in country-specific and cross-country analyses and substantial interaction between LLPs and existing prudential, accounting, institutional firm characteristic, cultural, religious, tax and fiscal framework. We observe that managerial discretion in provisioning does not necessarily generate LLP estimates that reflect the true and underlying economic reality of banks' credit risk exposure but rather managerial discretion in provisioning is strongly linked to income smoothing, capital management, signalling and other objectives. We also address several issues including the ethical dimensions of income smoothing, motivations and constraints to income smoothing, methodological issues in the bank loan loss provisions literature and the dynamic loan loss provisioning experiment. Moreover, we suggest several avenues for further research such as: finding a balance between sufficient LLPs which regulators want versus transparent LLPs which standard setters want; the sensitivity of abnormal (specific and general) LLPs to changes in equity; the persistence of abnormal LLPs following CEO exit; country-specific interventions that induce LLP procyclicality in emerging countries; investigating LLP behaviour in the post-financial crisis sample period; the impact of Basel III on banks' provisioning discretion; LLP behaviour among systemic and non-systemic financial institutions; etc. We conclude that, because provisioning models are only as good as the assumptions underlying such models as well as the accuracy of the inputs included in such models, regulators need to pay attention to how much discretion banks and lending institutions should have in determining reported provision estimates, and this has been a long standing issue.

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1. Introduction

Banks are financial institutions that primarily collect deposits and issue loan to individuals, firms and governments to finance consumption, investment and capital expenditure; thereby contributing to economic growth. Bank lending to borrowers often give rise to credit risk if borrowers are unable

to repay the principal and/or interest on the loan facility due to unfavourable economic conditions and related factors. To mitigate credit risk, in principle, banks will set aside a specific amount as a cushion to absorb expected loss on banks' loan portfolio and this amount is referred to as loan loss provisions (LLPs) or provisions for bad debts; therefore, loan loss provision estimate is a credit risk management tool used by banks to mitigate expected losses on bank loan portfolio.

Bank LLP continue to receive much attention from bank regulators/supervisors and accounting standard setters because (i) banks' large amount of loan on their balance sheet makes them vulnerable to loan default arising from deteriorating

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economic conditions which affects borrowers' ability to repay, requiring banks to keep sufficient LLPs in anticipation of expected loan losses (Laeven & Majnoni, 2003), (ii) LLPs are often procyclical and could worsen an existing recession if unanticipated, and this was evident at the peak of the 2008 global financial crisis as many US and European banks significantly increased their LLP estimates which further eroded bank profit and led to losses that depleted bank capital, requiring Central Bank intervention in the form of bailouts, (iii) bank LLP is a significant accrual and bank managers have significant discretion in the determination of LLP estimates and such discretion can be exploited to meet opportunistic financial reporting objectives rather than solely for credit risk purposes (Wahlen, 1994), (iv) bank LLP estimate is a crucial micro-prudential surveillance tool that bank supervisors use to assess the quality of banks' loan portfolio, (v) bank LLP is also a crucial indicator of the informativeness of bank accruals from an accounting standard-setting perspective, and (vi) bank LLP has become the most debated accounting number in bank financial reporting after bank profitability and derivatives since the 2008 global financial crisis.

Bank LLPs play a crucial role for bank stability and soundness while fulfilling their lending function to individuals, firms and governments; therefore, bank regulators require banks to keep adequate (or sufficient) LLPs to mitigate expected losses although there is no agreement among banks for what constitutes 'adequate' or 'sufficient' loan loss provisioning. Moreover, despite the growing concern that bank managers can opportunistically exploit their discretion to overstate LLPs when expected credit risks are actually low, bank supervisors still require banks to maintain higher LLPs persistently as a safety net for present or future loan losses.

In the literature, we commend Wall and Koch (2000)'s early review that present a broad overview on bank loan loss provisions for over a decade now. Since Wall and Koch (2000), emerging studies have examined several issues in the loan loss provisioning literature including: provisioning behaviour during fluctuating business cycles and crisis periods (Laeven & Majnoni, 2003; El Sood, 2012; Agenor and Zilberman, 2015), how procyclical LLPs contribute to systemic risk and financial system instability (Borio, Furfine, & Lowe, 2001, pp. 1–57; Wong, Fong, & Choi, 2011), dynamic provisioning to mitigate LLP procyclicality (Saurina, 2009; Perez et al., 2011), the role of LLP in bank earnings management, regulatory capital management, signalling and tax management (Lobo & Yang, 2001; Kanagaretnam, Lobo, & Yang, 2005; Anandarajan, Hasan, & McCarthy, 2007; Perez, Salas-Fumas, & Saurina, 2008; Ozili, 2015, 2017a,b; Andries, Gallemore, & Jacob, 2017), bank manager's provisioning discretion under different accounting and regulatory regimes (Alali and Jaggi, 2011; Hamadi, Heinen, Linder, & Porumb, 2016; Kilic, Lobo, Ranasinghe, & Sivaramakrishnan, 2012; Leventis, Dimitropoulos, & Anandarajan, 2011; Marton & Runesson, 2017; Ryan & Keeley, 2013; Wezel, Lau, & Columba, 2012), provisioning and competition (Dou, Ryan, & Zou, 2016), provisioning under different auditor type, reputation and specialism (Dahl, 2013; Kanagaretnam, Lim, &

Lobo, 2010; Ozili, 2017a), provisioning discretion under strong corporate governance mechanism and institutional controls (Fonseca and Gonzalez, 2008; Bouvatier, Lepetit, & Strobel, 2014; Curcio & Hasan, 2015) and provisioning behaviour in several country, regional and international contexts (Pain, 2003; Bryce et al., 2015; Ozili, 2017a,b, etc.).

To complement Wall and Koch (2000), we identify the need to bring together in one article the most recent developments in LLP research to provide a comprehensive understanding of the role of bank LLPs for accounting information quality, micro-prudential regulation and macro-financial stability. To do this, we explore several strand of literature in LLP research to identify recent advances and challenges in the literature, and suggest possible directions for future research with some concluding remarks.

Our analysis in this review article contributes to the extant LLP literature in the following way. One, our review contribute to the literature that examine the link between bank provisioning and capital regulation as well as other counter-cyclical policy designs aimed at ensuring banking soundness and solvency during stressed periods. Two, by relating LLPs to income smoothing, our survey contribute to the literature that examine how LLP estimates are manipulated by bank managers to influence the level of reported earnings which reduces the informativeness of LLP estimates. Three, our survey contribute to the LLP literature that examine how institutional monitoring and corporate governance mechanisms limit bank managers' ability to distort LLP estimates to meet opportunistic financial reporting objectives. Four, our study contribute to the policy debate about how the current incurred-loss provisioning model contribute to bank instability. The incurred-loss provisioning model is criticised for its backward-looking characteristic and its potential to reinforce the current state of the economy because it delay provisioning until it is too late which makes bank provisioning procyclical with fluctuations in the economy.

Furthermore, we did not elaborate extensively on some issues, the most important ones being the following two. First, we did not elaborate extensively on bank loan loss provisioning among Islamic banks because the distinction between Islamic and conventional banks is often unclear and the provisioning rules for both Islamic and conventional banks are the same. Second, we did not elaborate extensively on dynamic provisioning because research on dynamic provisioning to date appears to be biased towards single country analyses, notably Spain, Chile, Peru and Uruguay. Likewise, we did not elaborate on the relationship between discretionary provisions and stock returns because changes in stock prices may be driven strongly by other unobservable factors rather than discretionary loan loss provisions. Therefore, our remarks on the challenges and prospects of LLP research in this review article are limited to issues in the literature that we find to be particularly significant. Finally, while we note that the value of a research review is measured by its success to inspire researchers to produce new ideas to this line of research, our aim in this review is to elicit comments and stimulate debates that can potentially advance LLP research in the broader banking literature.

The remainder of the study is organised as follows. Section 2 discusses the key prudential regulatory changes in loan loss provisioning under Basel I, II, III and their salient features focussing on LLP and capital adequacy requirements. Section 3 discusses several advances in the LLP literature. Section 4 highlights the major research areas and future direction. Section 5 discusses ethical income smoothing and factors influencing income smoothing behaviour. Section 6 discusses methodological advances and issues in the literature. Section 7 presents some challenges in LLP research. Section 8 suggests some directions for future research. Section 9 provides some comments and concluding remarks.

2. Basel regulation and loan loss provisions

2.1. Basel I

Basel I require banks to keep regulatory capital equal to at least 8% of risk-weighted assets (BCBS, 2001).^{1,2} More precisely, loan loss provisions (or reserves) account for 1.25% of risk-weighted assets in Tier 2 capital under Basel I. Under Basel I, provisions (or reserves) for US banks are about 1.25% of risk-weighted assets and bank regulators in other countries can exercise their own discretion to exceed the 1.25% limit to meet the perceived regulatory needs of the banking system in each country. The inclusion of provisions (or reserves) in the computation of regulatory capital allow banks with low regulatory capital to increase LLP estimates to compensate for low regulatory capital ratios which constitutes regulatory capital management (Ahmed, Takeda, & Thomas, 1999). Basel I was criticised because capital requirements were mainly determined by fixed risk-weights attached to categories of borrowers such as individuals, businesses, government or banks, and it disregard any changes in the creditworthiness of a borrower category over the life span of the loan facility, implying that LLP estimates for each credit risk category was not continuously risk-adjusted to reflect changes in the credit worthiness of borrowers; consequently, banks had inadequate

LLPs and lower regulatory capital requirements, making LLP estimates backward-looking and procyclical (Bikker & Hu, 2002; Danielsson et al., 2001). Furthermore, Basel I was also criticised for being procyclical with changing economic conditions (Jackson et al., 1999) because during bad times banks would avoid risky activities and reduce lending in an attempt to keep fewer regulatory capital, and this behaviour is unacceptable to regulators who want banks to keep higher capital buffers during bad times. Consequently, banks would overstate their specific provisions (or reserves) to compensate for their low regulatory capital ratio, thereby transmitting additional procyclicality to the financial system, as excessive increase in provisions further decreases bank profit (Ahmed et al., 1999; Borio et al., 2001, pp. 1–57; Cavallo & Majnoni, 2002, pp. 319–342). If a recession sets in and is prolonged, additional increase in LLPs would further decrease bank profits, depleting bank capital and reinforce the existing recession (Bikker & Metzmakers, 2005); hence, the need for a revised Basel I capital standard.

2.2. Basel II

Basel I was revised and became Basel II and was implemented by bank supervisors across several countries in 2007 (BCBS, 2004). The main purpose of Basel II was to introduce a more risk-sensitive methodology to determine the minimum capital required to absorb losses, especially credit losses. According to BCBS (2004), Basel II is based on three pillars: minimum capital requirements, supervisory review and market discipline.³ Pillar 1 describes the methodology for calculating minimum capital requirements. Pillar I maintained minimum capital requirement at 8% of risk-weighted assets. Under Pillar 1, the determination of the minimum capital requirement for banks is based on three approaches: the internal risk-based (IRB) approach, the standardised approach and the advanced measurement approach. The internal risk-based (IRB) approach requires banks to rely on their own risk assessment of borrowers' credit risk to determine their risk weights. Under the IRB approach, banks should ensure that expected losses are fully covered via LLPs. When expected losses are greater than provisions, banks have to deduct the difference from capital on the basis of 50% deduction from Tier 1 capital and 50% from Tier 2 capital. If expected losses are less than provisions, banks should recognise the difference in Tier 2 capital up to a maximum of 0.6 percent of risk-weighted assets. The standardised approach requires banks to determine risk weights based on external credit ratings. Under the standardised approach, banks should include loan loss reserves up to a maximum of 1.25% risk-weighted assets. The

¹ The 1988 Basel I Accord was the first attempt to establish international standards for bank capital adequacy. Since 1988, bank capital regulation has evolved as new Basel regulations modify and replace previous Basel capital regulations.

² The Basel Committee for Banking Supervision (BCBS) report in 2004 require banks to set aside capital for three types of risk: credit risk, market risk and operational risk. Credit risk is the risk that counterparties to a loan or derivative transaction may default in fulfilling their obligations. Credit risk requires the highest regulatory capital because it is the biggest risk banks face due to their lending activities. Market risk is the risk arising from banks' trading operations; it is the risk that a sudden change in price would lead to a significant loss on the market value of its trading securities. Operational risk is the risk a bank faces arising from failed systems, people, internal processes and other external factors (BCBS, 2004). Bank regulatory capital has two components: Tier 1 capital and Tier 2 capital. Tier 1 capital consists of equity (goodwill is subtracted from equity) and non-cumulative perpetual preferred stock. Tier 2 capital includes instruments such as cumulative perpetual preferred stock and subordinated debt. Basel I accord requires at least 50% of regulatory capital (that is, 4% of risk-weighted assets) to be Tier 1 capital, and also require 2% of risk weighted assets to be common equity (Hull, 2012).

³ Pillar 2 'supervisory review' involves the supervision of banks to ensure that bank capital is commensurate with the level of risk banks take. Pillar 3 'market discipline' aims to foster market transparency so that market participants and bank counterparties can better assess bank capital adequacy and bank risks. Under Pillar 3, the Central Bank or bank regulators/supervisors have full responsibility to ensure that all banks disclose sufficient information about the way they allocate capital for the risks they take.

advanced measurement (AMA) approach require banks to choose their own methodology for assessing risk provided it is thoroughly comprehensive and systemic. Overall, Basel II Pillar 1 was designed to ensure that bank capital covers unexpected losses while loan loss provisions cover expected loan losses (Majnoni, Miller, & Powell, 2004).⁴ Basel II was also criticised for being procyclical with fluctuating economic conditions (see Turner, 2000; Borio et al., 2001, pp. 1–57; Danielsson et al., 2001; Segoviano and Lowe, 2002; Repullo, Saurina, & Trucharte, 2010).

2.3. Basel III

Basel III capital accord proposes the expected ‘through-the-cycle’ loan loss provisioning system to be fully introduced in June 2018. This provisioning system is similar to Basel II because it also anticipates loan losses before it materialises. However, the main criticism of Basel II’s loan loss provisioning system was that it allows provisioning only at one point in time, say, at the beginning of the reporting year or quarterly or semi-annually (Hull, 2012; Wezel et al., 2012). Basel III improves on Basel II by introducing a loan loss provisioning system that require banks and financial institutions to set aside specific provisions on newly-originated loans based on individual borrower characteristics that drives the performance of the loan (Wezel et al., 2012).⁵ This means that the level of LLPs associated with a specific loan will be determined from the outset based on a set of bank-specific and borrower-specific criteria even though the loan impairment has not occurred yet, or is unlikely to occur in the near future (Wezel et al., 2012). Under Basel III, banks will increase the quality of LLP estimates by (i) improving the quality of the underlying data that generates provisions buffers, and (ii) introduce through-the-cycle LLP estimates. The former will allow banks to eliminate flaws in current LLP models and processes especially the inaccuracies that typically generate unnecessarily high (or low) and insufficient buffers and to ensure that data quality on collateral are optimal rather than suboptimal. This ensures that subsequent discretionary increases in provisions for each credit risk category would bring provisioning closer to expected loss on each credit risk category. The latter ensures that banks that adopt a through-the-cycle approach for probability of default (PD) estimates and

expected losses (EL) can increase the accuracy of LLP estimates and reduce volatility in their estimates.

Banks will retain significant discretion in the determination of LLP estimates and bank managers must ensure that the application of Basel III provisioning standards are driven by sound credit risk management considerations (Wezel et al., 2012). Some policy researchers argue that the expected through-the-cycle provisioning system is a purer method to anticipate loan losses and that it has the merits of being in line with Basel II principles (Angelini et al., 2015; Blundell-Wignall & Atkinson, 2010), keeping in mind that the number and type of applicable levers would vary from bank to bank based on each bank’s initial asset composition taking into account their trading versus banking book, the proportion of securitised assets in each bank’s trading book, etc., as well as whether they have already successfully implemented the new Basel III measures ahead of the implementation date; therefore, a one-size-fits-all approach to implementing the new provisioning model may not be ideal for all banks. Table 1 summarises the evolution of Basel I, II and III regulations, and their salient features focussing on LLP and capital adequacy requirements.

3. Loan loss provisions research: advances in the literature

3.1. Importance of LLP research

LLP research remains a fruitful area in banking research for four main reasons. One, LLP is a significant discretionary accrual at the disposal of bank managers. Two, LLP has a direct impact on bank interest margin, and consequently affects bank overall earnings. Three, LLP is linked to bank regulators’ micro-prudential surveillance and is linked to the informativeness of accounting disclosures in financial reports required by accounting standard-setters. Four, the availability of bank-year data on LLP estimates makes LLP research is fruitful area. Moreover, while LLP research may be complicated by: (i) the process that determine LLP estimates (including the assumptions, methodology and other unobservable managerial choices taken into consideration) and (ii) the cross-country differences in the accounting for LLPs across countries, researchers continue to exploit the variation in LLP practices to deepen our understanding of the factors that influence the level of discretionary LLPs.

3.2. Classification by contextual studies

3.2.1. Country-specific studies: evidence

Emerging country-specific studies since Wall and Koch (2000) show that the value relevance of reported LLP estimates as well as the determinants of the level of discretionary LLPs are influenced by unique national characteristics. Norden and Stoian (2013) examine how bank earnings management relate to bank risk management. They examine 85 Dutch banks from 1998–2012 and find that (i) Dutch banks use LLPs to lower earnings volatility, and (ii) increase LLPs

⁴ The distinction between loan losses covered by bank capital and loan losses covered by LLPs is sometimes blurred because (i) bank capital is derived partly from loan loss provisions (or reserves), and also because (ii) general provision is included in Basel’s definition of bank capital (Hull, 2012); therefore, regulatory capital requirements should include sufficient loan loss provisions due to the close relationship between loan loss provisions and capital (Banque de France, 2001; Cavallo & Majnoni, 2002, pp. 319–342).

⁵ One major distinction between the ‘expected through-the-cycle provisioning system’ and ‘dynamic loan loss provisioning system’ is that dynamic provisioning gradually builds a pool of general provisions (not specific provisions) to cover eventual losses while the expected through-the-cycle provisioning systems makes specific provisions on each loan made to individuals or corporations.

Table 1
Basel regulation, LLP treatment and capital adequacy under Basel Accord.

	Basel I	Basel II	Basel III
Basel Evolution	An agreement was reached to develop an international risk-based standard for bank capital regulation in 1988.	Basel II emerged from the proposal to correct the weaknesses of Basel I in 1999, which later became known as Basel II.	Following the 2007/2008 financial crisis and the criticism against Basel II, the Basel committee's proposal for a major change to Basel II led to Basel III. Basel III has 6 key regulations: capital definition and requirement; capital conservation buffer; countercyclical buffer; leverage ratio; liquidity ratio; countercyclical credit risk.
Proposed or adoption date	1988	Basel II proposal was revised in 2001 & 2003; published in 2004; implemented in 2007	Basel III was first published in 2009 and a final version was published in 2010.
Amended date	Proposal to amend Basel I was issued in 1995. Final amendment in 1996 became known as the 1996 amendment, and was implemented in 1998.	Basel II was amended in 2011 after the 2007–2009 financial crisis. Amended Basel II became Basel 2.5	Currently, there are unofficial speculations suggesting the need to amend Basel III to give way for Basel IV
Reason for amendment	In 1995, Basel I was amended to incorporate netting. In 1996, Basel I was amended to allocate capital for market risk associated with trading activities.	Basel II gave banks significant discretion in calculating regulatory capital, which was later criticised as a move towards bank self-regulation. Additionally, the 2007/2008 financial crisis occurred just after implementing Basel II, and further increased the criticism against Basel II. Notably, there was the need to change the way capital for market risk was calculated. Amended Basel 2.5 increased capital for market risk	Basel III: (i) increased capital for credit risk, (ii) tightened the definition of capital, and (iii) addressed the issue of liquidity risk. To date, there is no official reason for any major amendment to Basel III, because Basel III has not been fully implemented yet and its full effect is yet to be known.
LLP treatment	Loan loss reserves (or provisions) account for 1.25% of risk-weighted assets in Tier 2 capital, although bank regulators in each country can exercise their own discretion to exceed the 1.25 per cent limit to meet the regulatory needs of the banking industry in each country.	Under Basel II, the provisioning model anticipates loan losses before they materialise. Under the IRB approach, expected losses are fully covered via LLPs, and the difference between LLPs and expected losses are charged against capital. Under the standardised approach, banks include loan loss reserves up to a maximum of 1.25% risk-weighted assets. The advanced measurement (AMA) approach require banks to choose their own methodology for assessing risk (and provisions) provided it is thoroughly comprehensive and systemic.	LLPs are determined based on the 'expected through-the-cycle loan loss provisioning system'. This provisioning system anticipates expected losses and require banks and financial institutions to set aside specific provisions on newly-originated loans based on individual borrower characteristics that drives the performance of the loan. Managers have significant discretion in determination of loan loss provision estimates under Basel III.
Capital adequacy requirement	Bank regulatory capital is set at 8% of risk-weighted assets. At least 50% of required capital (i.e. 4% of risk-weight assets) is included as Tier 1 capital, while 2% of risk-weight assets is required to be common equity.	Regulatory capital is set at 8% of risk-weighted assets Under Pillar 1, banks must use robust credit risk management techniques to allocate capital for credit risk, market risk and operational risk. Pillar 2&3 includes supervisory oversight and market discipline	Tier 1 equity capital must be at least 4.5% of risk-weighted assets at all times, and total tier 1 capital (which is tier 1 capital plus additional Tier 1 capital) must be at 6% of risk-weighted assets at all times. Tier 1 and Tier 2 requirement is the same as under Basel 1 and 2.
Weaknesses	(i) All loans by a bank to a corporation had the same risk-weight; and (ii) there was no model for default correlation.	Basel II or 2.5 had a loose definition of bank capital, allocated insufficient capital for credit risks, and did not have a robust solution to address liquidity risk	Yet to be fully implemented and its weakness are yet to be known.

when earnings are high and lower LLPs when they have low regulatory capital ratios. In Italy, [Caporale et al. \(2015\)](#) examine 400 Italian banks during the 2001–2012 period and find that bank provisioning is driven by its non-discretionary components especially during the 2008–2012 recession compared to its discretionary component. They did not find evidence for income smoothing among Italian banks.

In Spain, [Perez et al. \(2008\)](#) investigate whether the dynamic (or statistical) provisioning system adopted by Spanish banks had an impact on the earnings smoothing and capital management behaviour of Spanish banks. They find that Spanish banks use LLPs to smooth earnings but not to manage capital during the period of analysis. [Anandarajan, Hasan, and Lozano-Vivas \(2003\)](#) examine the behaviour of LLPs among Spanish banks after the implementation of Basel I capital adequacy regulations in the Spanish banking industry in 1992, and find that Spanish commercial banks use LLPs to manage reported earnings but not to manage regulatory capital; implying that the 1992 capital adequacy regulation removed any capital constraint that discouraged income smoothing.

In China, [Wu et al. \(2015\)](#) examine the impact of foreign investor ownership on the use of LLPs to smooth reported earnings. They claim that in 2004 the Chinese government required local banks to invite foreign financial institutions to become shareholders in the local banks, and referred to these foreign financial institutions as the ‘foreign strategic investors (FSIs)’. They investigate whether Chinese banks with zero, one or two FSIs have more or less incentive to use LLPs to smooth reported earnings. They examine 102 Chinese banks during the 2006–2011 period, and find that banks with more foreign strategic investors use LLPs to smooth reported earnings. [Curcio, Dyer, Gallo, and Gianfrancesco \(2014\)](#) test the income smoothing hypothesis and capital management hypothesis for Chinese banks during the financial crisis, and find that Chinese banks use discretionary LLPs to smooth bank earnings but not to manage capital levels. They also observe that listed Chinese banks exhibit less income smoothing behaviour compared unlisted banks.

In Nigeria, [Ozili \(2015\)](#) investigate listed banks in Nigeria during the 2004–2013 period, and find that LLPs are used for earnings smoothing and capital management purposes during the voluntary IFRS adoption but find weak evidence for the use of LLPs for signalling purposes. In UK, [Pain \(2003\)](#) shows that macroeconomic factors particularly real GDP growth, real interest rates and lagged aggregate lending growth, are key drivers of LLP estimates of UK banks. In Philippines, [Floro \(2010\)](#) examines how banks' capital position influences the management of LLPs, and find that Philippine banks use LLPs for capital management purposes; also, they find that both low-capitalized and well-capitalized banks keep fewer (higher) LLPs during an economic expansion (downturn).

In Vietnam, [Bryce et al. \(2015\)](#) test the income smoothing, capital management and the cyclical hypotheses and did not find evidence for the use of LLPs to smooth income among Vietnamese banks. In Turkey, [Acar and Ipci \(2015\)](#) investigate the role of LLPs in capital and earnings management in the Turkish banking sector during the 2005–2011 period. They

examine 28 commercial banks and find evidence for income smoothing but this behaviour is reduced during the global financial crisis (2007–2009 period). They also find that LLPs are used to signal private information about Turkish banks' future prospects. In Hong Kong, [Abdul Adzis et al. \(2016\)](#) find that banks in Hong Kong use LLPs to smooth income but this behaviour is reduced after the adoption of IAS 39. Taken together, these studies show that the use of LLPs to meet managerial or prudential expectations is widespread across several countries depending on unique country characteristics and unique conditions that banks face.

3.2.2. US studies

US studies, for instance, [El Sood \(2012\)](#) investigates the use of LLPs to smooth reported earnings during the recent financial crisis period by 878 US banks over the 2001–2009 period and find that US banks accelerate LLPs to smooth earnings when (i) they hit the regulatory minimum target, (ii) are in non-recessionary periods, and (iii) are more profitable, and (iv) to smooth income upwards during the financial crisis. [Balboa et al. \(2013\)](#) argue that the incentive for US banks to smooth reported earnings and the practical way of doing so partly depends on the size of pre-provision earnings. They examine 15,268 US banks during 1996–2011 period, and find that US banks use LLPs to smooth reported earnings when earnings are positive and substantial. Using dynamic panel estimation, they also observe that LLPs have a non-linear relationship with reported earnings. [Kilic et al. \(2012\)](#) investigate whether the strict recognition and classification requirements of SFAS 133 that reduced US banks' ability to use derivatives to smooth earnings encouraged the affected banks to rely more on LLPs to smooth reported earnings rather than relying on derivatives. They find evidence that US banks use LLPs to smooth earnings when accounting disclosure regulation made it difficult to use derivatives to smooth bank earnings. Other US studies include: [Balla and Rose \(2015\)](#), [Dou et al. \(2016\)](#), [Morris, Kang, and Jie \(2016\)](#), etc. To sum up, above studies suggest that the propensity for banks to use LLPs for income smoothing purposes depends on (i) the size of earning or the earnings distribution, (ii) the state of economy particularly during recessions or crisis periods, (iii) strict accounting disclosure rules intended to discourage the manipulation of bank accruals, as well as (iv) regulatory capital requirements.

3.2.3. Middle East and North African (MENA) region

Several studies examine the LLP practices of banks in the Middle East and North African (MENA) region by comparing the LLP practices of Islamic banks to conventional banks. [Elnahass et al. \(2014\)](#) investigate the use of reported LLPs by investors in their valuation of banks in the MENA region during the 2006–2011 period, and find that LLP has positive value relevance to investors in the conventional and Islamic banking sectors, while investors in Islamic banks value the discretionary component relatively lower than their conventional counterparts. [Othman and Mersni \(2014\)](#) examine the provisioning practices of banks in the Middle East, making a

distinction between (i) Islamic banks, (ii) conventional banks and (iii) conventional banks with Islamic windows. They find that Islamic banks use discretionary LLP for both earnings and capital management. Similarly, [Taktak et al. \(2010\)](#) find that Islamic banks use LLPs to smooth income. [Quttainah, Song, and Wu \(2013\)](#) find that Islamic banks are less likely to conduct earnings management as measured by both earnings loss avoidance and abnormal LLPs; they did not find a significant difference in the earnings management behaviour of Islamic banks with and without Shariah Supervisory Boards. [Farook, Hassan, and Clinch \(2014\)](#) investigate the differences in the LLP behaviour of Islamic banks compared to conventional banks and find that Islamic banks have lower LLPs compared to conventional banks. [Soedarmono, Pramono, and Tarazi \(2017\)](#) find that the LLPs of Islamic banks are procyclical, as higher economic growth leads to a decline in reported LLP estimates; also, they observe that the use of LLPs for capital management can overcome LLP procyclicality. Taken together, these studies suggest that managerial discretion in determining LLPs, and the value-relevance of reported LLPs are influenced by religiosity considerations among other factors, although some studies report conflicting evidence.

3.2.4. African region

Few regional studies examine the provisioning behaviour of African banks. [Ozili \(2017a\)](#) investigates whether the way African banks use LLPs to smooth earnings is influenced by capital market incentives and auditor-type after controlling for non-discretionary LLP determinants and business cycle fluctuations, and find that (i) African banks use LLPs to smooth earnings; (ii) listed African banks use LLPs to smooth earnings to a greater extent compared to non-listed African banks; (iii) income smoothing via LLPs is not reduced among African banks with Big 4 auditor; and (iv) bank provisioning is procyclical with fluctuations in the business cycle. [Amidu and Kuipo \(2015\)](#) investigate earnings management behaviour among African banks, and find that African banks manage earnings, and earnings quality among African banks is influenced by bank activity mix and the mode of bank funding. To sum up, the few findings for Africa suggests that African banks have unique incentives that influence them to use LLPs to meet financial reporting outcomes.

3.2.5. European region

Some studies examine the LLP practices of European banks. [Leventis et al. \(2011\)](#) investigate the use of LLPs for earnings and capital management and signalling purposes among 91 listed European banks that adopt IFRS standards, and find evidence that both early and late-adopters of IFRS both use LLPs to smooth their earnings but this behaviour is reduced after IFRS adoption. [Curcio and Hasan \(2015\)](#) examine the case of Euro and non-Euro Area credit during the 1996–2006 period, and find that non-Euro Area credit institutions use LLPs to smooth reported earnings but did not find similar evidence for Euro Area credit institutions. [Skala \(2015\)](#) investigates the context of Central European banks. After building upon [Greenawalt and Sinkey \(1988\)](#)'s idea of

saving for the rainy day, [Skala \(2015\)](#) finds that Central European banks use LLPs to smooth earnings when they have high earnings possibly to save for the rainy day. [Bouvatier et al. \(2014\)](#) find that European commercial banks with concentrated ownership use LLPs to smooth reported earnings. [Ozili \(2017b\)](#) finds that the LLPs of European banks are driven by both credit risk and income smoothing considerations. [Bonin and Kosak \(2013\)](#) investigate the procyclical behaviour of LLPs among banks in 11 emerging European countries and find evidence that banks in the emerging European region use LLPs to smooth reported earnings. [Curcio, De Simone, and Gallo \(2017\)](#) examine the use of discretionary LLPs during the recent financial crisis, when Euro Area banks experienced deteriorating loan quality and significant reduction in profitability but were also subject to a new form of stricter supervision, namely the EBA 2010 and 2011 stress test exercises. They find evidence for income smoothing via LLPs implying that banks subject to EBA stress tests had higher incentives to smooth income only for the 2011 EBA exercise, when a larger and more detailed set of information was released. Taken together, these studies suggest that the propensity for European banks to manipulate LLP estimates is influenced by (i) procyclical macroeconomic conditions (ii) strict accounting disclosure rules, and (iii) bank regulation and supervision in the region.

3.2.6. Asian and Australian region

Other studies examine the provisioning of banks in Australia and Asia. For instance, [Anandarajan et al. \(2007\)](#) examine whether Australian banks use LLPs to smooth reported earnings, manage regulatory capital or to signal private information. They find that evidence for aggressive earnings smoothing in the post-Basel period among publicly traded banks. [Cummings and Durrani \(2016\)](#) investigate the effect of Basel capital requirements on the LLP practices of Australian banks. They show that Australia follows two provisioning regimes: a forward-looking model for regulatory purposes (regulatory provisions) and an incurred loss model for financial reporting (accounting provisions), and find that regulatory provisions reflect the default risk of banks' loan portfolios and banks allocate surplus capital above Basel minimum requirements to pre-fund future credit losses through LLPs, implying that Australian bank managers use their discretion in setting LLPs to dampen the impact of fluctuations in credit market conditions on their lending activities. [Eng and Nabar \(2007\)](#) investigate LLPs for three Asian countries: Hong Kong, Malaysia and Singapore during the 1993–2000 period, and find that abnormal (or unexpected) LLPs are positively related to bank stock returns and future cash flows indicating that Asian bank managers increase LLPs to signal favourable cash flow prospects. [Packer and Zhu \(2012\)](#) examine the provisioning practices of Asian banks while controlling for income smoothing incentives. They examine 240 banks from 12 countries: Australia, China, Hong Kong, India, Indonesia, Japan, Korea, Malaysia, New Zealand, the Philippines, Singapore and Thailand during the 2000–2009 period. Their sample period of analysis was intended to capture the effect of

the Asian debt crisis. They find evidence that LLPs were used for income smoothing purposes as well as evidence for countercyclical loan loss provisioning among Asian countries particularly in India. Taken together, the studies suggest that LLPs are used to smooth income and to dampen the procyclical impact of fluctuating credit market conditions.

3.2.7. *International/cross-regional studies*

Cavallo and Majnoni (2002), concerned about the procyclical effect of LLPs on bank capital regulation, investigate whether banks provision for bad loans in good times while controlling for banks' incentive to use LLPs to smooth reported earnings. They examine 1176 commercial banks divided into 804 banks from G10 countries and 372 from non-G10 over the 1988–1999 period. After controlling for different country-specific macroeconomic and institutional factors, they find evidence for income smoothing among G10 banks but not for non-G10 banks. Fonseca and González (2008) examine an international bank sample from 41 countries including Brazil, Chile, Denmark, Egypt, Italy, Kenya, Korea, Peru, Philippines, Portugal, Spain, Sweden, USA and Venezuela, Colombia, Greece, Malaysia, Pakistan, Thailand, United Kingdom. They find evidence for bank income smoothing via LLPs after controlling for unobservable bank effects and for the endogeneity of explanatory variables. Also, Kar (2015) undertook a cross-country analysis to investigate the use of LLPs to smooth reported earnings among 1294 microfinance institutions (MFIs) from 103 countries during the 1996–2013 period. The study finds that microfinance institutions use LLPs to smooth reported earnings. The study also observes that the LLP behaviour of microfinance institutions is procyclical with business cycle fluctuations. Bushman and Williams (2012) investigate the case of forward-looking loan loss provisioning among banks across 27 countries and find that banks exploit their discretion in forward-looking provisioning to smooth bank earnings. To sum up, the findings from the cross-country studies suggest that the propensity for banks to use LLPs to influence financial reporting outcomes such as income smoothing is influenced by cross-country differences mainly macroeconomic differences and banking supervision differences across countries, amongst other factors; although cross-country analysis is often criticised for underestimating unique country-specific factors that drives the level of bank LLPs.

3.3. *Classification by three major arguments*

3.3.1. *LLP and capital management hypothesis*

A major argument in the literature focus on whether (and how) banks use LLPs to manage regulatory capital requirements. The literature argue that, because bank regulators require banks to keep minimum regulatory capital for the risk they take, bank managers have some incentive to influence the level of LLP estimates in a way that allow them to meet minimum regulatory capital requirements if LLPs are included in the computation of minimum regulatory capital ratios (Ahmed et al., 1999; Moyer, 1990). When this is the case, the

capital management hypothesis states that the inclusion of (general) loan loss provisions in the computation of regulatory capital ratios will motivate bank managers to manipulate LLP estimates in order to influence the level of regulatory capital above the minimum limit (Ahmed et al., 1999; Scholes, Wilson, & Wolfson, 1990). Further still, bank managers' awareness of the costs associated with violating minimum regulatory capital requirements is argued to create strong incentives for bank managers to use their discretion to lower LLPs estimates to increase the bank's regulatory capital ratio above the minimum limit (Ahmed et al., 1999). This is the capital management hypothesis. On the other hand, Kilic et al. (2012) and Bonin and Kosak (2013) suggest an alternative view to the capital management hypothesis. They argue that, in the absence of minimum regulatory capital ratios, banks will view LLPs as a form of bank capital. They argue that, when bank equity capital is low banks will overstate LLPs to compensate for their low capital level and will understate LLPs when they have sufficient equity capital, reflecting banks' use of LLPs for capital management purposes. Empirical studies that test the capital management hypothesis focus on the negative relationship between discretionary LLP and Tier 1 capital before LLPs or equity capital (see, Kim and Kross, 1998; Collins, Shackelford, & Wahlen, 1995; Ahmed et al., 1999; Lobo & Yang, 2001; Anandarajan et al., 2007; Leventis et al., 2011; Curcio & Hasan, 2015; Ozili, 2015; etc).

3.3.2. *LLP and signalling hypothesis*

Another argument in the literature focus on whether (and how) banks use LLPs to signal private information to firm outsiders about the quality of bank loan portfolio (e.g. Ahmed et al., 1999; Beaver & Engel, 1996; Beaver, Eger, Ryan, & Wolfson, 1989; Griffin & Wallach, 1991; Kanagaretnam et al., 2005; Liu & Ryan, 1995; Wahlen, 1994). Abnormal LLP estimate is often considered to signal some information about bank non-performing loans or to signal information about a firm's future earnings prospect. Studies that test the signalling hypothesis examine the statistical relationship between discretionary LLPs and one-year ahead earnings while conclusions to support the signalling hypothesis derives from the positive (and significant) relationship between discretionary LLPs and one-year ahead (future) earnings after controlling for non-discretionary LLPs determinants and other external influences. For instance, Kanagaretnam, Lobo, and Mathieu (2003) find that managers of undervalued banks use LLPs to increase the level of earnings to signal banks' future earnings prospects. Eng and Nabar (2007) investigate LLPs for three Asian countries: Hong Kong, Malaysia and Singapore during the 1993–2000 period, and find that abnormal (or unexpected) LLPs are positively related to bank stock returns and future cash flows indicating that Asian bank managers increase LLPs to signal favourable cash flow prospects. Also, they find that bank investors bid stock prices up when unexpected LLPs are positive. Wahlen (1994) finds similar results for US banks. Kanagaretnam et al. (2005) examine the determinants of signalling among banks and document evidence that banks use LLPs to signal future earnings prospects of

banks. In contrast, [Ahmed et al. \(1999\)](#) did not find evidence to support the signalling hypothesis. Overall, the use of LLPs to signal firm future prospects may depend on: the degree of information asymmetry, differences in managerial incentive to signal, the different conditions banks face and the extent to which investors interpret high LLPs as a signal for improved loan quality or as a signal in anticipation of large non-performing loans ([Beaver & Engel, 1996](#); [Kanagaretnam et al., 2005](#); [Liu, Ryan, & Wahlen, 1997](#)).

3.3.3. LLP and income smoothing

Another major argument in the literature focus on banks' incentive to use LLPs to smooth banks' reported earnings over time ([Greenawalt & Sinkey, 1988](#)), and this argument is commonly referred to as the income smoothing hypothesis which predicts that banks will use LLPs to smooth reported earnings to make reported earnings appear stable over time to meet some defined prudential regulatory objectives or opportunistic financial reporting objectives ([Greenawalt & Sinkey, 1988](#); [Wahlen, 1994](#)). Also, some argue that when bank earnings are high, it makes sense to regulators for banks to set aside some of those earnings as provisions in anticipation of loan losses during bad years – the notion of saving for a rainy day. They argue that when earnings are low, banks will keep fewer LLPs in the current period and draw up from the loan loss provisions or reserve accumulated in the previous period to cover for actual loan losses in the current period ([Greenawalt & Sinkey, 1988](#); [Skała, 2015](#)). Empirical studies that investigate the income smoothing hypothesis examine the statistical relationship between discretionary LLPs and pre-provision and pre-tax earnings (e.g. [Ahmed et al., 1999](#); [Laeven & Majnoni, 2003](#); [Kanagaretnam, Lobo, & Yang, 2004](#); [Bikker & Metzmakers, 2005](#); [Liu & Ryan, 2006](#); [Anandarajan et al., 2007](#); [Perez et al., 2008](#); [Fonseca and Gonzalez, 2008](#); [Leventis et al., 2011](#); [El Sood, 2012](#); [Curcio & Hasan, 2015](#); [Skała, 2015](#); [Ozili, 2017a,b](#)).

3.4. Classification by other emerging trends

3.4.1. LLP and procyclicality

A growing literature focus on the behaviour of LLPs during fluctuating economic conditions, and argue that LLPs are procyclical because it reinforces the current state of the economy ([Bikker & Hu, 2002](#); [Laeven & Majnoni, 2003](#); [Bikker & Metzmakers, 2005](#); [Bouvatier and Lepetit, 2008](#)). By procyclical, they mean that when banks enter a recessionary period, the rational response of bank managers is to decrease lending and increase LLPs. An increase in bank provisioning during recessionary periods will further reduce bank net interest margin and decrease bank overall profit and worsen the state of banks during the recession. If the recession is prolonged, bank capital can be completely wiped out. This is the argument for procyclical LLP behaviour or the cyclicity hypothesis. To support this argument, [Borio et al. \(2001, pp. 1–57\)](#) find a strong negative relationship between LLPs and the business cycle for 10 OECD countries while [Beatty](#)

and [Liao \(2009\)](#) observe that banks delay the timing of LLPs until recessionary periods set in, reinforcing the current state of the economy. [Agenor and Zilberman \(2015\)](#) show that, under a backward-looking provisioning model, LLPs are procyclical because provisions are triggered by past due payments (or nonperforming loans), which depends on the current economic conditions and the loan-loss reserves-loan ratio. [Olszak, Pipień, Kowalska, and Roszkowska \(2016\)](#) find that LLPs in large, publicly-traded and commercial banks as well as in banks reporting consolidated statements, are more procyclical while stringent capital standards and better investor protection are associated with weakened procyclicality of LLP. Conclusions to support the cyclicity hypothesis derives from the negative (and significant) relationship between discretionary LLPs and real gross domestic product growth rate after controlling for non-discretionary LLP and other factors, and is well documented in the literature (e.g. [Greenawalt & Sinkey, 1988](#); [Arpa, Giuliani, Ittner, & Pauer, 2001](#); [Borio et al., 2001, pp. 1–57](#); [Bikker & Hu, 2002](#); [Pain, 2003](#); [Beatty & Liao, 2009](#); [Floro, 2010](#); [Packer & Zhu, 2012](#); [Agénor and Zilberman, 2015, etc.](#)).

3.4.2. Dynamic loan loss provisioning

The growing evidence that bank LLPs are procyclical with fluctuating economic conditions particularly in Europe and US has led policy researchers to advocate the need for a countercyclical or dynamic loan loss provisioning system to mitigate LLP procyclicality. A dynamic loan loss provisioning system is a loan loss provisioning system where banks report higher LLPs during good economic times and report fewer LLPs during economic downturns so that the surplus LLPs accumulated during good economic times are used to mitigate bank losses during economic downturns ([Saurina, 2009](#)). In principle, the objective of a dynamic provisioning model is to enhance the safety and soundness of banks by building up a stock of loan loss provisions (or reserves) in good times so that banks will not face insolvency due to rising loan losses when a recession sets in, and banks can use the accumulated stock of provisions to smooth out loan losses during bad times ([Balla and Mckenna, 2009](#)).

Few countries including Spain, Peru, Columbia and Chile have adopted a dynamic provisioning system. Bank regulators in Spain compelled Spanish banks to adopt a dynamic LLP system in year 2000 ([Saurina, 2009](#)). Since the adoption of a dynamic LLP system in Spain, Spanish banks have become the laboratory for academic and policy researchers to test the effectiveness of a dynamic provisioning model as a solution to eliminate or reduce LLPs' procyclical behaviour. Studies emerging from Spanish banks show that, after adopting a dynamic provisioning system, bank provisioning is driven more by credit risk considerations rather than by income smoothing and capital management considerations (see [De Lis et al., 2001](#); [Perez et al., 2008](#); [Saurina, 2009](#); [Fillat & Montoriol-Garriga, 2010](#); [Jiménez, Ongena, Peydró, & Saurina Salas, 2012, etc.](#)). For banks in Chile, [Chan-Lau \(2012\)](#) finds that the adoption of dynamic provisions can enhance bank solvency for Chilean banks but it would not help to

reduce the procyclicality of LLPs, implying the need to consider other countercyclical alternative measures other than dynamic provisions such as Basel III's proposed countercyclical capital buffers or the countercyclical provision rule which Peru implemented in 2008. [Wezel \(2010\)](#) examines the dynamic provisioning in Uruguay using a stress test methodology and find that the stock of dynamic provisions accumulated since 2001 help to fully absorb medium-sized shocks which consequently offsets the additional costs caused by rising specific provisions during bad times.

To sum up, some argue that a robust dynamic provisioning model should be clear about how the level of provisions buffer is determined – whether rules-based or discretionary ([de Lis and Garcia-Herrero, 2010](#)), and should include the stress testing of internal loan loss models, the occurrence of fat-tails in realised loan losses, the estimation of long-run expected losses and the tax and accounting treatment of loan loss reserves (see [Mann and Michael, 2002](#); [Balla and McKenna, 2009](#); [Chan-Lau, 2012](#)).

3.4.3. Criticism of dynamic provisioning

Nonetheless, there are strong criticisms against a dynamic loan loss provisioning system. One, dynamic loan loss provisioning research so far is considered to be biased towards a few single country contexts – Spain, Chile, Peru and Uruguay. Two, the ability of a dynamic loan loss provisioning system to generate sufficient provision buffers in anticipation of stressed periods depends on the severity and the time lag of the existing crisis or recession ([Fillat & Montoriol-Garriga, 2010](#)), therefore, a dynamic provisioning system is unlikely to be sustainable if the recession is prolonged. Three, there are concerns that dynamic loan loss provisioning is only workable if the transition from a recession into an economic boom, and vice versa, is easy for policy makers to detect ([Bikker & Metzmakers, 2005](#)); in practice, it is difficult to detect this transition because ‘business cycle developments are hard to foresee, given their erratic duration and amplitude’ ([Bikker & Metzmakers, 2005](#), p. 144). Four, dynamic provisions permit income and profit smoothing which work against financial statement transparency ([FASB-IASB, 2009](#)). Finally, some key issues in adopting dynamic provisioning globally still abound ([De Lis and Garcia-Herrero 2010](#); [Wezel, 2010](#)), and these issues raise more questions than answers. One, should dynamic provisions buffer be rule-based or discretionary, keeping in mind that accounting standard setters are more inclined to favour a rule-based dynamic provisions process while bank regulators are more likely to support a discretionary approach with clearly defined methodology for determining dynamic provisions estimates. Two, should GDP or credit supply or loan-to-value ratio be the key variable to determine the volume of dynamic provisions keeping in mind that GDP is a more systemic measure while the use of credit supply is institution-specific and the use of loan-to-value ratio is bank-specific. Three, to what extent should dynamic provisions be applied differently to developed countries versus emerging countries?

4. Research areas and future direction

4.1. Sensitivity of equity capital to specific and general provisions

The literature that test the capital management hypothesis examine whether banks increase LLPs when they have insufficient equity capital to compensate for their low equity capital levels ([Bonin & Kosak, 2013](#); [Kilic et al., 2012](#)) or whether banks influence LLP estimates to meet minimum regulatory capital requirements ([Ahmed et al., 1999](#); [Moyer, 1990](#)). Notably, the work of [Ahmed et al. \(1999\)](#) is core to this strand of literature. [Ahmed et al. \(1999\)](#) examine 113 US banks during the 1986–1995 period and find that banks use LLPs to manage minimum regulatory capital levels. Nonetheless, evidence to support the capital management hypothesis is rather mixed in the literature ([Collins et al., 1995](#); [Curcio & Hasan, 2015](#); [Leventis et al., 2011](#)).

Going forward, it is not clear whether the change in LLP (in response to changes in equity capital) is driven by incremental changes in ‘specific’ or ‘general’ provisions. In other words, while banks can overstate (understate) LLPs when they are undercapitalised (overcapitalised), it is not clear whether the incremental increase (decrease) in LLPs is targeted at specific provisions or general provisions or both. Future research is needed to shed more light on whether abnormal changes in LLPs in response to changes in bank equity level are significantly associated with specific or general provisions.

4.2. Abnormal LLPs and CEO exit

The literature that test the signalling hypothesis examine whether banks use abnormal changes in LLPs to signal information about firms' future prospects, implying that bank managers possibly report abnormal LLP estimates in anticipation of high future earnings or in anticipation of high non-performing loans ([Kanagaretnam et al., 2005](#); [Liu & Ryan, 1995](#); [Liu et al., 1997](#)). To extend the signalling debate, banks can report abnormal LLPs to mitigate losses arising from the loss of customer loyalty or loss of profitable business deals following the departure of a CEO whose influence is tied to greater customer loyalty and greater business deals for the bank. Future research investigating the LLP-signalling hypothesis could provide insights on whether abnormal LLPs are used by bank managers to signal the consequence of the sudden departure of a CEO that brings good business deals for the bank or to signal the removal of a bad CEO. The future researcher can empirically examine the association between abnormal LLPs in the quarter(s) before the announcement of CEO exit compared to abnormal LLPs in the immediate quarter(s) after CEO exit.

4.3. Other interventions that induce LLP procyclicality

The literature that test the cyclicity hypothesis arguing that bank provisioning behaviour is procyclical with business cycle developments and reinforces the current state of the

economy (Beatty & Liao, 2009; Bikker & Hu, 2002; Bikker & Metzmakers, 2005), can be extended to provide some insight on whether provisioning under Basel capital rule imparts procyclicality to fluctuating credit markets, and comparison should be made between emerging and developed countries due to differences in Basel enforcement and supervision, as some emerging countries tend to adopt less-stringent or modified Basel standards. More so, there might be a weak link between non-discretionary LLPs and deteriorating economic conditions (as opposed to theory) in economies where there are government guarantees on bank lending to several high-risk sectors, where the government guarantee to cover potential losses arising from lending to those sectors, thereby temporarily inducing LLP procyclicality when loan losses materialise. In addition to government guarantees on bank loan, future research should provide some insight on other unique intervention or national characteristics that may temporarily induce LLP procyclicality in emerging countries where it might be difficult to implement a dynamic provisioning system.

4.4. *Dynamic LLPs versus transparent LLPs*

In the dynamic provisioning literature, researchers and policy makers advocate the need for a counter-cyclical or dynamic provisioning system. Following our discussion in Sections 3.4.2 and 3.4.3, there is the need for more clarity on whether provisions or capital should be used as a counter-cyclical measure by banks in response to economic shocks or shocks in credit markets, keeping in mind that provisions are intended for expected losses, not for abnormal/unexpected shocks. Of course, some would argue that both capital and provisions should be used simultaneously as counter-cyclical measures but we need evidence to support this hypothesis or claim; therefore, future research should provide insights in this direction. Finally, assuming dynamic provisioning is considered to be the only practical solution that mitigates LLP procyclicality, future research should suggest ways to maintain some equilibrium between designing a sound countercyclical provisioning system and at the same time ensuring the reported dynamic LLP estimates are transparent, keeping in mind that dynamic provisions, which is speculative, can dampen the reliability and informativeness of reported loan loss provision estimates to users of bank financial statements.

4.5. *Political cost*

The literature that test the income smoothing hypothesis, to date, report mixed evidence among developed and developing country studies depending on the time-period examined. Going forward, the recent empirical income smoothing literature that examine large banks/firms has not paid much attention to ‘political costs’ that may influence managers’ accounting choice to smooth income. For instance, the mainstream understanding of why banks smooth income among banking researchers is presumably to save up some profit in good times to act as buffers to smooth out losses in bad times

while accounting researchers think banks smooth income to influence financial reporting outcomes that depend on reported earning numbers. Further still, there is a third idea which is – could it be that banks use LLPs to smooth income to avoid (regulatory, political and media) scrutiny that follows reporting excessive profits or huge losses? This is the political cost argument. However, the ‘political cost’ and the ‘income smoothing’ arguments are not mutually exclusive because banks could smooth earnings to avoid the associated political cost of reporting too high earnings; therefore, political cost is one explanation for income smoothing but it is not the only explanation. On the other hand, income smoothing can explain the political cost argument because banks can smooth losses by increasing earnings upward when they expect losses to avoid sending a signal to bank regulators that the bank might fail if such signal could attract scrutiny of the bank’s earnings by regulators and political commentators; in this case, the income smoothing hypothesis explains why banks seek to avoid political scrutiny. Additionally, banks can use income smoothing as a method which achieves both objectives, that is, to reduce earnings in good years and increase earnings in bad years so that reported earnings never seem to be too high or too low to attract regulatory or political scrutiny. Future research should incorporate the political cost argument in their inquiry into income smoothing as an alternative explanation for the use of LLPs to smooth income, as this is currently lacking in the recent LLP literature.

4.6. *Reconciling accounting and prudential LLP requirements*

Another emerging theme in the LLP literature is the conflict between prudential regulatory objectives and accounting standard setting objectives (Gaston & Song, 2014). After the 2008 financial crisis, bank regulators require banks to take pro-active or forward-looking measures towards provisioning which includes keeping sufficient (or high) LLPs even when expected credit risk is apparently low so that banks can have enough loan loss reserves/provisions to act as buffers to absorb loan losses that materialise during bad times (FSF, 2009; Adrian & Shin, 2010; Balla, Rose, & Romero, 2012). The practice of keeping LLP at an amount above the level that is commensurate with banks’ expected credit risk is consistent with the bank safety and stability objective of bank supervisors from a prudential regulation perspective but is criticised by accounting standard setters because such practice constitute manipulation of accounting numbers which reduces the reliability of reported LLP estimates in financial reports and can mislead bank stakeholders and analysts. Furthermore, international accounting standards (IFRS and FASB) oppose the provisioning for loan losses that are unlikely to occur, and only approve of bank provisioning for loan losses that are highly probable if the amount of the loss can be reasonably estimated, they follow this approach to prevent banks from using loan loss provisions (or reserves) as a tool to manipulate/manage reported earnings – a common practice where bank managers could shift income from good quarters to bad

quarters by taking large LLPs when earnings are high and small provisions when income are low (Balla et al., 2012), and accounting standard-setters maintain that this kind of manipulation of provisions (and reserves) reduces the reliability and informativeness of LLP estimates and the transparency of bank financial report.

Going forward, future research should provide solutions or suggestions on how to reconcile these differences. Some ideas from several commentators suggest that financial statements should report two LLP estimates which are 'IFRS provisions' and 'regulatory provisions' with the latter being higher than the former, as a way to avoid misleading financial statement users. Other commentators disagree with the idea of two provisions estimates and rather want standard setters to completely replace the incurred loss provisioning model with a forward-looking model (such as the expected credit loss provisioning model) in the new IFRS rules which would substantially increase LLP estimates, which of course eliminates the need to report two LLP estimates for IFRS and Basel. More suggestions are needed and future studies could provide actionable policy direction in this area. Finally, any solution reached between prudential regulators and standard setters should be one that maintains a reasonable balance or equilibrium between sufficient provisioning which regulators want and the reliability of LLP estimates which accounting standard setters want.

4.7. LLP behaviour in emerging regional blocs

Finally, the LLP practices of banks in some emerging regional contexts remain unexplored in the literature, and there are opportunities for future research to examine these regional and other cross-country contexts. For instance, regional economic blocs can collectively provide solutions that minimises bank losses in anticipation of bad times and/or provide rescue packages to rescue the failing financial system of any member country; thereby, reducing procyclicality at least temporarily. It would be interesting to see whether financial stability guarantees to member countries in regional economic blocs can reduce LLP procyclicality in member countries experiencing rising loan losses due bad economic times. For instance, some regional economic blocs contexts include banks in OPEC countries, OECD countries, NAFTA countries, G8 countries, Eurozone, EU, BRIC, ASEAN, G20 and Latin American and Caribbean (LAC) region, etc. More so, future research could provide some insight about the behaviour of bank LLPs in response to changing economic conditions, comparing countries in regional economic blocs with countries in other regional economic blocs.

5. Ethics and factors influencing income smoothing

Income smoothing is one of most debated issues in the LLP literature; therefore, this section focus on the ethical dimensions of income smoothing and also highlights several factors that influence income smoothing behaviour among

banks. We understand that it is almost impossible to provide an exhaustive list of all factors that influence the income smoothing behaviour of every bank; however, we have identify some notable factors in the literature that can influence the income smoothing behaviour of banks. We now begin with ethics in smoothing income.

5.1. Is income smoothing ethical?

The question above seems easy but is quite difficult to answer. Whatever answer we postulate depends on what we mean by 'ethical' while noting that the meaning of the term 'ethics' depend on the context and circumstance of the social agent(s) facing an ethical dilemma. Bank income smoothing behaviour itself does not constitute an outright violation of bank regulatory/supervisory rules and does not constitute an outright violation of accounting standards whether rule-based or principles-based because income smoothing practices arise from exercising managerial discretion in financial reporting and in meeting prudential regulatory requirements, and both regulatory frameworks permit managerial discretion in bank financial reporting. This, therefore, leave academics, policy researchers, regulators and accounting standard-setters with the question: is it ethical for firms (and banks) to smooth reported earnings?

Whether income smoothing is ethical or unethical should depend on the motive for doing so. Income smoothing by bank managers may be considered 'ethical' if they do so to: save for a rainy day (Greenawalt & Sinkey, 1988), to protect their jobs (DeFond & Park, 1997; Fudenberg & Tirole, 1995), to reduce information asymmetry between owners and managers (Tucker & Zarowin, 2006), to improve bank stability by smoothing out abnormal fluctuations in reported earnings (Wall & Koch, 2000), and to improve the risk perception of bondholders and regulators/supervisors about the bank (El Sood, 2012).

On the other hand, bank income smoothing may be considered 'unethical' if they do so: to opportunistically receive bonuses (Healy, 1985), to reduce the informativeness of reported earnings (Leventis et al., 2011), to increase the opacity of bank financial reporting (Bhattacharya, Daouk, & Welker, 2003), to lower the quality of reported earnings (Ahmed, Neel, & Wang, 2013), and to avoid shareholder interference or to avoid tax and improve terms of trade and pursue a fixed dividend pay-out ratio (Vander Bauwhede, 1998).

5.2. Factors influencing income smoothing

5.2.1. Motivation to smooth income

One, capital markets create incentives for banks to smooth reported earnings. This view argue that if smoothed earnings reduces earnings variability then lower earnings variability would translate to lower stock price fluctuations which reduces the volatility of stock return and investors prefer lower stock return volatility. Anandarajan et al. (2007) and Leventis et al. (2011) find evidence to support this claim.

Two, the need to avoid excessive scrutiny of firm profit by regulators and political commentators also create incentive for firms to smooth their profit particularly for larger firms that report excessive profits (Burgstahler & Dichev, 1997). Similarly, banks can smooth reported earnings to avoid excessive scrutiny of banks' profit by bank regulators/supervisors.

Three, regulatory arbitrage can create incentives to smooth income as banks can take advantage of existing weaknesses or loopholes in regulation as an opportunity to smooth reported earnings, given their opportunity. For instance, Kilic et al. (2012) show that US banks use LLPs to smooth earnings when accounting disclosure regulation made it difficult to use derivatives to smooth bank earnings.

Four, the trade-off between rule-based vs principles-based accounting standards also create incentives for banks to smooth income. Ashraf, Hassan, and Putnam (2014) investigate whether changes in accounting standards and prudential regulatory regimes influence the use of LLPs to smooth earnings among 7343 banks from 118 countries during the 1999–2010 period. They find that banks under a rule-based accounting regime exhibit higher levels of income smoothing compared to banks under a principles-based accounting regime.

Five, corruption can increase the extent of bank income smoothing because corruption in banks manifest through non-transparent reporting, and greater income smoothing decreases the transparency of bank financial reporting (Bhattacharya et al., 2003; Riahi-Belkaoui, 2003).

Six, competition also create incentives for firms (including banks) to smooth income because earnings smoothing in competitive environments may help firms prosper in the short-run but at the same time can reduce firms' ability to compete in the long-run (Marciukaityte & Park, 2009). Francis, LaFond, Olsson, and Schipper (2004) observe that income smoothing help firms to reduce the cost of capital by reducing information asymmetry between managers and investors and increases firms' ability to compete while Marciukaityte and Park (2009) find that firms report higher income smoothing ratios and conclude that firms in competitive environments are more likely to engage in earnings smoothing practices.

Seven, transient economic events can create additional incentives for banks to smooth income. Liu and Ryan (2006) find that US banks use LLPs to smooth income during the 1990 economic boom. El Sood (2012) finds that US banks accelerate LLPs to smooth earnings when they are more profitable and during non-recessionary periods while Balboa et al. (2013) find that US banks use LLPs to smooth earnings when earnings are more profitable.

Eight, national culture can encourage income smoothing behaviour among banks because banks in societies that encourage high risk-taking, implicitly as a culture, may record relatively lower LLPs in good times and higher LLPs in bad times which allow banks to smooth income. Kanagaretnam, Lim, and Lobo (2011) in a cross-country study examine the relationship between four dimensions of national culture and earnings quality during the pre-financial crisis period and find that banks in high individualism, high power distance and low

uncertainty-avoidance societies report smoother earnings via LLPs. They also observe that cultures that encourage high risk-taking experience more bank troubles in the form of larger losses or larger provisions during the global financial crisis.

5.2.2. Constraint to smooth income

One, strict accounting disclosure regulation can reduce the opportunities for bank managers to manipulate LLP estimates to smooth reported earnings. Leventis et al. (2011) show that income smoothing via LLP is reduced after IFRS adoption. Balla and Rose (2015) examine whether accounting constraints introduced by the US SEC in 1998 limit LLP-based income smoothing among US banks and find that shortly after the SEC enforced the accounting constraint the relationship between LLPs and earnings weakened for publicly-held banks but not for privately-held banks, implying reduced income smoothing. Abdul Adzis et al. (2016) investigate the impact of IAS 39 among banks in Hong Kong and find that bank income smoothing via LLP is reduced after the adoption and compliance with IAS 39. Two, strong religiosity can discourage the use of LLP estimates to manipulate reported earnings. Kanagaretnam, Lobo, and Wang (2015) investigate the impact of religiosity on bank earning quality and find that religiosity is negatively related to earnings smoothing. Taktak, Zouari, and Boudriga (2010) did not find evidence for bank income smoothing via LLPs for Islamic banks. Three, higher audit quality can constrain the extent of income smoothing because the presence of a Big-4 auditor is often considered to reflect superior audit quality and their presence should discourage opportunistic earnings manipulation (DeAngelo, 1981). Consistently, Kanagaretnam et al. (2010) find less aggressive income smoothing behaviour among banks that have a Big-4 auditor. Four, strong investor protection should discourage bank income smoothing. Fonseca and Gonzalez (2008) in a cross country study find that bank earnings smoothing behaviour decreases with stronger investor protection while Shen and Chih (2005) find that strong protection of minority shareholders rights discourage bank earnings management behaviour but legal enforcement quality had no impact on bank earnings management. Five, certain bank ownership structure can also provide additional monitoring to discourage the use of LLPs for income smoothing. Fan and Wong (2002) investigate the relationship between earnings informativeness and ownership structure for 977 companies in seven East Asian economies and find that concentrated ownership is associated with low earnings informativeness. Leuz, Nanda, and Wysocki (2003) find that industrial firms with dispersed ownership structure engage in less earnings management. Gebhardt and Novotny-Farkas (2011) investigate the implication of mandatory IFRS adoption for accounting quality among EU banks and find that income smoothing is pronounced among listed European banks that are widely held (disperse ownership) while Bouvatier et al. (2014) find that income smoothing is reduced among EU banks with disperse ownership. Six, strict banking supervision can also reduce the extent of bank income smoothing. Cavallo and Majnoni (2002, pp. 319–342) and Bouvatier et al. (2014)

show that bank income smoothing is reduced among banks in countries with strong banking supervision.

6. Methodological: advances and issues

The baseline model often employed to investigate the determinants of bank provisioning (Ahmed et al., 1999; Laeven & Majnoni, 2003; Wahlen, 1994), and is expressed as:

Discretionary Provisions = f (non-discretionary provisions, relevant bank-specific factors, institutional factors, country and/or regional factors).

Depending on the objective of the researcher, the regression model is specified to obtain the functional form of the relationship the researcher is investigating. For this reason, it is difficult to criticise the LLP regression model employed by a researcher without understanding the research objective and the underlying assumptions taken into consideration by the researcher.

In estimating LLP models, several econometric adjustments are made to the model such as pooled/panel adjustments, fixed/random effects, static/dynamic panel adjustments, system/difference GMM model adjustments (see Cavallo & Majnoni, 2002, pp. 319–342; Laeven & Majnoni, 2003; Packer & Zhu, 2012; Floro, 2010; Leventis et al., 2011; El Sood, 2012; Bouvatier et al., 2014; Curcio & Hasan, 2015; Ozili, 2017a), while other studies combine regression models with other methods in their analyses with only few studies employing qualitative approach while examining bank LLPs (see Balasubramanian, Zaman, & Thomson, 2013).

One major progress in LLP modelling has been the reduction in construct validity problems. Unlike construct validity issues commonly associated with estimating accruals (DeFond, 2010),⁶ the measures (or proxies) used to measure discretionary LLPs and its determinants in most LLP models have low construct validity problems because there have been some serious commitment among academics and researchers to ensure that each LLP construct and the explanatory variables measure what it intends to measure; therefore, there appear to be a high degree of confidence that the proxies used in LLP research (published in peer-reviewed journal) actually measure the underlying theoretical construct they intend to measure.

Furthermore, several studies have identified a number of factors that explain changes in the level of bank provisions in an attempt to reduce the size of the error term, such as commission and fee income, amongst others. For instance, commission and fee income reflects bank income diversity and measures banks' willingness to engage in non-depository activities; and when this is the case, banks will keep more LLPs to remain safe while it offer multiple services that are unrelated to its core deposit-taking activities (Anandarajan et al., 2007; Leventis et al., 2011).

Regarding sample period, some studies use pre-crisis data (Anandarajan et al., 2007; Leventis et al., 2011; Bushman & Williams, 2012; Jin et al., 2016), while many studies' sample period span through the pre-crisis, during-crisis and post-crisis period to enable comparison before, during and after the global financial crisis (Cummings and Durrani, 2016; Soedarmono et al., 2017; Andries et al., 2017; Ozili, 2017a,b; Andries et al., 2017) while very few LLP studies examine a longer time period in post-crisis years and such studies, if present, can capture new regulatory changes affecting provisions in the post-crisis period to date. Therefore, there is need for more post-crisis studies keeping in mind that post-crisis sample period might be too narrow.

Regarding sample data, a combination of several data source and/or database have also been employed in the literature, notably data from Bankscope database (now discontinued), Fitch, Compustat, bank financial statements, confidential databases, data from bank regulators, Datastream, Thomson One Banker, World Bank etc.

Finally, several country control variables have been used in much cross-country studies to capture institutional and macroeconomic factors that influence the level of bank provisions, and these variables include real gross domestic product growth rate (reflecting business cycle fluctuation), minority shareholder rights protection (reflecting investor protection), religiosity, legal systems, banking supervision, inflation, accounting disclosure regulation, monetary policy rate, political economy (see, Fonseca and Gonzalez, 2008; Floro, 2010; Bushman & Williams, 2012; Pool, De Haan, & Jacobs, 2015). However, using these control variables depend on whether institutional data is publicly available and accessible for the country-context examined.

One major methodology issue in the empirical literature is the choice of deflator for LLP (dependent) variable and the explanatory variables. Commonly used deflators include: total assets (see, Cavallo & Majnoni, 2002, pp. 319–342; El Sood, 2012; Bouvatier et al., 2014; Curcio & Hasan, 2015; Ozili, 2015), beginning total assets (see, Kanagaretnam et al., 2010; Kilic et al., 2012), beginning total loans (see, Bushman & Williams, 2012), gross or average loan (see, Anandarajan et al., 2007; Leventis et al., 2011). For instance, using average loan as a deflator for the earnings variable takes into account banks' business model for banks that have a large loan portfolio while using beginning total asset deflator takes into account banks' actual size without reference to future investments in bank assets while using total asset as a deflator takes into account future investments in bank assets. To date, the literature shows no consensus about the choice of deflator. Furthermore, the pooling together of the LLP and total asset values of large and small banks may give rise to concerns that the LLP and total asset distributions will be skewed due to substantial differences in bank size and provisioning levels. One way to address this issue would be to normalise the LLP and total asset variables by taking the natural logarithm of LLP and total assets.

⁶ Dechow, Ge, and Schrand (2010) present an extensive literature review on earnings quality.

7. Challenges in LLP research

7.1. Comparability of LLP estimates – a critique

LLP research may be complicated by the process, assumptions, methods and other unobservable factors that bank managers take into consideration to determine LLP estimates. This means that LLP is a function of the accounting system that generates the estimate, the assumptions made and the decisions of the bank manager and other considerations that remain unknown or unobservable to the empirical researcher at the time of investigation. Because researchers are not privy to full information regarding the determination of LLP estimates, the comparability of LLP estimates from one bank to another bank can be difficult and even more difficult when comparing LLP estimates among banks across countries, making it difficult to compare the findings of several empirical studies.

7.2. Two conflicting LLP estimates

International accounting standards (IFRS) propose the incurred loss provisioning model while the Basel Committee for Banking Supervision (BCBS) proposes the expected credit loss provisioning model.⁷ The expected credit loss model generates higher LLP estimates while the incurred loss model generates a lower LLP estimates. These two models yield two different LLP estimates and therefore pose an issue. For instance, if banks are not required to strictly adopt one of the two models, bank managers can choose to adopt the expected credit loss provisioning model when they want to reduce high profit because the expected credit loss model generates high LLPs; alternatively, bank managers can choose to adopt the incurred loss provisioning model to increase low earnings since the incurred loss model generates lower LLP estimate. While there is no definitive solution to reconcile the conflict between these two LLPs estimates (Balla et al., 2012; Bushman & Landsman, 2010), one possible attempt to reconcile this conflict would be to persuade accounting standard-setters to replace the incurred loss model with a forward-looking provisioning model which is also in line with the expected credit loss provisioning model (Gaston & Song, 2014). Nevertheless, any attempt to reconcile these conflicts should take into account (i) the role of the complex interaction between the accounting, macroeconomic and prudential framework of a country; (ii) the fact that the level of LLPs (in

the income statement) and the adequacy of loan loss reserve (in the balance sheet) is only as good as the methodology used to determine such estimates (Angklomkiew, George, & Packer, 2009), and that forward-looking provisioning gives bank managers a licence to engage in speculative provisioning practices (Bushman & Williams, 2012).

7.3. Paucity of critical studies

A fourth concern is the paucity of critical studies in the LLP literature. By critical studies, we do not mean critical studies that invalidate prior findings; rather, we mean studies that challenge the proxies used and assumptions underlying current LLP models in order to increase the commitment of researchers to ensure that existing and new proxies continue to measure what they are intended to measure. The need for such critical studies is paramount. However, we are aware that the lack of critical studies in LLP research may be attributed to the fact that policy makers, financial economists and academic researchers are more interested in LLP research that is result-driven, mainly the need to see results. As long as academic researchers interested in LLP research continue to take a positivist (quantitative) approach to LLP research, it could take a long time for a considerable number of critical LLP studies to emerge. Also, the fewer the number of academics interested in LLP research, the more difficult it is for critical studies to emerge.

7.4. Qualitative studies

The final concern is that LLP research is dominated by quantitative methods while there are little or no qualitative studies on LLP research. A look at the first fifty peer-reviewed LLP articles chosen at random in Google scholar search engine from 2012 to 2016 confirm that LLP studies that use qualitative or non-regression models are unpopular among empirical LLP studies at least for now; and there is at least one study that use qualitative research methods (see Balasubramanian et al., 2013). One explanation for this in our view is that LLP research appears to be of little of interest to the qualitative or non-empirical researcher. We need to find a way to attract non-empirical researchers to LLP research because there are interesting research questions that regression models cannot provide answer to. Also, we need qualitative studies to verify or check whether the findings of qualitative LLP research are consistent with the theory underlying the findings of most empirical LLP studies.

8. Additional future direction

One, continuous revision to Basel capital accord provide new opportunities for future LLP research. Changes in Basel capital regulation may require a change in the LLP component of regulatory capital, and such changes may take years for its full effect to be felt. While prior studies investigate the impact of Basel I on bank provisioning decisions (e.g. Ahmed et al., 1999), much studies that examine the impact of Basel II and

⁷ There are two provisioning models: the incurred loss model and the expected credit loss model introduced by accounting standard setters and Basel regulation, respectively. Basel II regulation employ the 'expected credit loss provisioning' model which emphasizes the recognition of credit risk based on the borrower's economic and financial conditions even if the loss has not been incurred (see, Gaston & Song, 2014; BCBS, 2015). The objective of this model is to build sufficient provisions in addition to bank capital to cover the risk banks take. The incurred loss provisioning model, on the other hand, requires banks to increase loan loss reserves (provisions) only when it becomes highly probable that a loss is imminent, and if the amount of that loss can be reasonably estimated.

III on discretionary bank provisioning are yet to emerge. Future studies could investigate the impact of Basel III regulation on banks' provisioning discretion to shed some insight on how changes in capital regulation rules affects banks' provisioning discretion and its implication for banking stability and financial reporting transparency.

Two, the literature do not provide insight on the provisioning practices of banks that are classified as 'systemic important financial institutions' (SIFIs) compared to bank that are classified as 'non-systemic important financial institutions' (non-SIFIs). This classification of banks and other financial institutions as 'systemic' is recent and there is little knowledge in the literature about the financial reporting characteristics of systemic firms. So far, we are aware that the LLPs of large SIFI banks are more procyclical than the LLPs of small (and non-SIFI) banks (Olszak et al., 2016). Additional insight is needed to fully understand the behaviour of LLPs among SIFIs and non-SIFIs. For example, it is interesting to investigate whether SIFIs use LLPs differently than non-SIFIs and whether SIFIs collectively use LLPs to report competitive earnings and to manage capital levels.

Three, regarding income smoothing, capital management and the signalling hypotheses, prior studies pay little attention to whether there are overlapping motivations to distort LLP estimates and the factors that influence the choice for one over the other. By overlapping motivations, we mean that bank managers may feel the pressure to signal information to investors and to smooth income at the same time but they can only achieve one at a time not both. Future research can provide insights to improve our understanding of banks' decision regarding the use of LLPs when they face conflicting motivations.

Four, regarding dynamic loan loss provisioning, there is the argument that increased scrutiny and supervision should guide the implementation of dynamic provisioning process (Bikker & Metzmakers, 2005; Saurina, 2009). Future research is needed to demonstrate how several monitoring and supervisory models would guide regulators in a dynamic loan loss provisioning system while bearing in mind that the willingness of bank regulators/supervisors to supervise bank provisioning decisions may also depend on (i) whether regulators believe they should supervise banks' accounting practices; (ii) the extent to which regulators believe auditors should perform the supervisory role; and (iii) whether an independent supervisory body should be created to perform this role even if doing so further complicates the already complex accounting, fiscal and prudential bank regulatory network. Future research could clarify how supervision will guide the dynamic provisioning process and not interfere with the accounting and audit role.

9. Comments and concluding remark

Looking forward, counter-cyclical or dynamic loan loss provisioning is a policy experiment and just like every experiment caution must be taken. Bank supervisors in many countries are reluctant to enforce a dynamic loan loss provisioning system for banks because it is a policy experiment and,

of course, experiments can go wrong. However, many countries may eventually adopt this system of provisioning in the near future as more country-specific success stories emerge, such as Spain. The usual caveat apply that the best solution is not always implemented if the perceived cost outweighs its benefits. If the perceived cost of implementing and monitoring a dynamic loan loss provisioning system is greater than its intended benefit, then dynamic provisioning may not be implemented in some countries at least for now even if it solves the problem of LLP procyclicality. While the on-going debate seem to converge towards the need for national bank supervisors to adopt a dynamic loan loss provisioning system, the process of determining the exact time to trigger dynamic provisions during business cycle developments remain an inexact science and cannot be predicted by static models.

Another issue worth noting is that accounting standard-setters face political pressure to replace the incurred loss provisioning model with the expected credit loss provisioning model. From legitimacy theory, we understand that accounting (and accounting rules) is socially constructed and exist within a context that supports it (Guthrie and Parker; 1989; Deegan, 2006), therefore it is easy to predict that accounting standard setters will bow to the pressure of bank regulators in order to maintain their legitimacy in the banking industry. The IASB and IASC will adjust their provisioning models to reflect forward-looking LLP discretion to retain their legitimacy in the wider regulatory framework for financial system stability. For instance, the IASB's IFRS 9 'expected credit loss provisioning model' to be implemented in 2018 could replace the incurred-loss model,⁸ although the new model does not specify a particular measurement methodology to estimate LLPs rather it permits significant managerial discretion in determining what LLP estimates should be and such discretion is permitted to allow banks meet the needs of bank regulators/supervisors although it remain critical that banks can exploit such discretion to smooth or manipulate reported earnings.

To conclude, our survey provides some notable insights to extend LLP literature since the work of Wall and Koch (2000). First, our survey show that LLP studies in recent times have made a significant transition from narrow country-specific studies towards studies that examine how LLP interacts with the larger macroeconomic, accounting, cultural, prudential and institutional factors across several countries. Second, we observe that the association between LLPs and economic fluctuation for micro prudential regulation depends crucially on the regulatory treatment of LLPs either as a buffer against expected (and unexpected) losses or as a forward-looking

⁸ The new IFRS provisioning model, the 'expected credit loss model' will replace the incurred loss model in 2018. The model requires credit loss recognition to be forward-looking rather than when an actual loss event occurs. Under this model, "credit losses are measured at different stages, marked by 12-month and life-time expected credit loss recognitions. In the so called first stage, 12-months' expected credit losses are recognized. When assets experience significant increase of credit risk, they enter the second stage and life-time expected losses are to be assessed and measured." (Gaston & Song, 2014, p. 11).

mechanism because endowing banks with more discretion in the build-up and release of LLPs can have countercyclical effects, which is desirable by bank regulators. Third, regarding the debate between sufficient LLPs versus transparent LLPs, we suggest that a compromise can be reached between accounting standard setters and bank regulators that allows for sufficient bank provisioning while at the same time reducing opportunities for banks to manipulate LLP estimates; thereby, improving LLPs' transparency. Four, our survey findings show that banks across countries use their discretion for purposes that do not reflect the underlying economic reality of banks or their true financial condition. Finally, we note that several provisioning models have been designed to ensure that bank provisions are adequate and such models are only as good as the assumptions underlying such models and the inputs included in such models. Regardless of the novelty of any provisioning system imposed on banks by regulators, there is the need to actively limit bank managers' discretion in determining LLP estimates. If bank managers continue to retain significant control on what inputs to include in (or exclude from) LLP models, such models may not yield the intended level of provisioning bank supervisors expect. Furthermore, if standard setters, bank supervisors and policy makers do not pay attention to specific accounting judgements made by bank managers in relation to LLPs, the issue of opportunistic income smoothing is likely to remain. From a standard setting perspective, there should be a limit to managerial discretion in provisioning because it seems rather illogical for standard-setters to have evidence that bank managers manipulate LLPs to smooth income, to receive bonus,⁹ to manage regulatory capital and to signal future prospects, and then blame a methodology for such practice without putting the blame on managers who make provisioning decisions themselves keeping in mind that managers also control the input of such models.

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