Bank income smoothing during the COVID-19 pandemic: Evidence from UK Banks

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2022

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Abstract

This paper examines the association between bank loan loss provisions and the pre-provisions earnings of UK banks during the first-wave of the COVID-19 pandemic. A positive co-movement between the two variables indicates evidence of income smoothing. The findings show that loan loss provision has an inverted V-shaped property during the first-wave COVID-19 pandemic. Loan loss provisions reached its highest level at the peak of the pandemic in the second quarter of 2020 and declined in the subsequent quarters. The regression results show a positive relationship between loan loss provisions and pre-provisions earnings during the pandemic quarters and in the pre-pandemic quarters. The positive relationship is stronger in the pandemic quarters and indicates evidence of higher income smoothing in the pandemic quarters. The correlation results also show a strong positive correlation between bank provisions and pre-provisions earnings in the pandemic period. In the individual bank analysis, three of the four systemic banks exhibit higher income smoothing during the pandemic quarters. The implication of the findings is that UK systemic banks engaged in earnings management as a coping mechanism to mitigate the effect of the pandemic on their profits.

Keywords: banks, systemic risk, income smoothing, loan loss provisions, COVID-19, pandemic, earnings management, United Kingdom, Britain.

JEL code: G21, G28.

This version: January 2022

1. Introduction

This paper examines the association between bank loan loss provisions and the pre-provisions earnings of UK banks during the first-wave of the COVID-19 pandemic.

A financial crisis and a pandemic have one thing in common which is that they force banks to reduce lending due to uncertainty and concerns about rising nonperforming loans. As loan default increases during a crisis or pandemic, such loan default will give rise to nonperforming loans which will negatively affect the interest income of banks and ultimately affect bank profit. Banks can respond to a pandemic in several ways: by shutting down some business operations, increase interest rate on new loans, reduce the size of loan portfolio, write-off bad loans, increase loan loss provisions, seek regulatory forbearance, reduce interest paid on deposits and suspend dividend payment. Among these options, loan loss provision has a more direct and immediate effect on bank profit during bad times. Loan loss provisions is the amount of money that banks must set aside to mitigate expected credit losses (Ozili and Outa, 2017). Several studies show evidence that banks may use loan loss provisions to minimize the variation in income under several contexts (see, for example, Caporale et al, 2018; Dolar, 2016; Kim et al, 2019; Morris et al, 2016; Peterson and Arun, 2018). In this paper, I show that a pandemic can influence banks to increase loan loss provisions in anticipation of rising loan default from bank customers.

An emerging literature have examined the nexus between COVID-19 pandemic and finance such as Ashraf (2020), Ozili and Arun (2020), Albulescu (2021) and Akhtaruzzaman et al (2021). However, no studies have investigated the impact of the COVID-19 pandemic on bank earning management and income smoothing behavior. There are few COVID-19 studies on banks but none of these studies have investigated bank income smoothing during the COVID-19 pandemic. This paper fills this gap in the literature by investigating the income smoothing behavior of selected systemic banks in the UK using data obtained from the publicly available income statement of four systemic UK banks.

The study focused on systemic banks in the UK for three reasons. One, the four selected systemic banks (i.e., Barclays, NatWest, HSBC and Lloyds) are the dominant banks in the UK banking industry. Other challenger banks, such as Tesco and Virgin Money, continue to struggle to compete with the dominant banks and in particular the four systemic banks. The regulatory authorities have done little to break the dominance of the four systemic banks. Two, the four systemic UK banks have been designated as 'too-big-to-fail' banks by the UK authorities. They are considered to be a source of systemic risk to the UK financial system. Therefore, the survival and performance of these systemic banks is of utmost importance

to bank regulators in the UK. Three, systemic banks may have incentives to smooth income to avoid attracting regulatory or political scrutiny when they report too low profit or significant losses due to the pandemic.

Using bank data from Q1:2019 to Q4 2020, the findings reveal that bank provisions has a positive relationship with pre-provisions earnings, and the relationship is stronger in the pandemic and pre-pandemic quarters. This indicates evidence for earnings management in the form of income smoothing during the pandemic quarters. The correlation result also shows a positive correlation between bank provisions and pre-provisions earnings in the pandemic quarters.

The analysis in this paper contributes to the existing literature in several ways. One, it contributes to the emerging literature on pandemic finance (see Goodell, 2020; Carpinelli et al, 2020; Korzeb and Niedziółka, 2020; Altavilla et al, 2020; Demirguc-Kunt et al, 2021; Ozili and Arun, 2020). It extends this literature by showing how banks respond to income shocks caused by risk events such as the COVID-19 pandemic. Secondly, this study contributes to the bank income smoothing literature. It extends this literature by investigating whether systemic banks smooth income during the pandemic. Thirdly, this study contributes to the literature that investigate bank behaviour in bad times (see, Rossi and Malavasi, 2016; Le, 2016; Puddu and Waelchli, 2015, etc.). These studies show that banks adjust their fundamentals in response to bad economic events. The present study extends this literature by showing how the first-wave COVID-19 pandemic led to changes in the size of bank provisions and pre-provisions earnings particularly for large systemic banks. This paper is the first to provide a preliminary analysis of bank income smoothing during the early stages of the COVID-19 pandemic.

The remainder of this paper is structured in the following way. Section 2 presents a theoretical overview of income smoothing. Section 3 presents the literature review and hypothesis development. Section 4 describes the research design used for the analysis. Section 5 reports the graphical results while Section 6 discuss the empirical results and Section 7 concludes.

2. Theory

Beidleman (1973) defines income smoothing as the intentional reduction in the fluctuation of reported earnings. Early studies show that firm-specific factors – such as firm size, the existence of bonus compensation plans and the need to avoid reporting abnormal earnings – can provide incentives for managers to smooth their earnings or income (Moses, 1987). Income smoothing is achieved using accounting choices. For instance, managers can overstate or understate specific accounting numbers. They can delay or accelerate the recognition of accounting transactions to ensure that reported income is never too high or too low (Beidleman, 1973; Lambert, 1984; Moses, 1987). The extent of income smoothing depends on the cost to firms. Greater income smoothing occurs when the cost of income smoothing is lower while less income smoothing occurs when the cost of income smoothing is higher (Koch, 1981).

3. Review of the Existing Literature

3.1. Impact of COVID-19 on the banking sector

Few studies examine the impact of COVID-19 on bank performance. Demirgüç-Kunt et al (2021) show that the pandemic severely affected banks. They observe that the value of bank stocks declined during the pandemic. Dursun-de Neef and Schandlbauer (2020) observe that some banks witnessed a significant increase in bank deposits due to a fall in overall consumer spending during the pandemic. Rizwan et al (2020) investigate the effect of COVID-19 on systemic risk in eight countries. They find a significant increase in systemic risk among the countries. Laeven and Valencia (2020) show that crises last longer in high-income countries. Li et al (2021) examine the impact of COVID-19 on the association between noninterest income, bank profit and risk. They find that noninterest income increases bank performance and reduces risk. Ozili and Arun (2020) show that the COVID-19 pandemic had spillover effects to the banking sector. They show that banks reduced lending due to heightened uncertainty and bank regulators relaxed supervisory rules to help banks cope with the negative effect of the pandemic on their balance sheet.

3.2. Income smoothing literature

Recent studies examine income smoothing behavior among firms. Baik et al (2020) investigate whether income smoothing increases the informativeness of earnings. They find that high ability managers incorporate forward-looking information about cash flows into current earnings through income smoothing, thereby enhancing earnings informativeness. Hamm et al (2018) show that a strong labor union is a determinant of income smoothing. Pappas et al (2020) examine the effect of government subsidies on income smoothing among U.S. listed firms, and find that subsidized firms smooth their earnings more aggressively than their unsubsidized peers. Kjærland et al (2020) examine the earnings management behaviour of listed firms in the Oslo Stock Exchange in 2014. The results show an increase in earnings management.

Other studies examine bank income smoothing. For instance, Caporale et al (2018) investigate examine the predictors of loan loss provisions for banks in Italy from 2001 to 2015. They observe that macroeconomic shocks affect the cyclicality of the provisions of Italian banks. Ozili (2019a) show that provisions were used extensively to smooth income in election years. Peterson and Arun (2018) compare the income smoothing characteristics of two bank categories, namely, the European systemic banks and European non-systemic banks. They use a sample of 231 European banks and find evidence of greater income smoothing among European systemic banks. Ozili (2021) analyzes income smoothing in the Fintech era and observe that banks use provisions to smooth income and this behavior was greater in the second-wave Fintech era. Ozili (2019b) investigates the impact of corruption on bank earnings management focusing on African banks. The study finds that African banks in corrupt environments exhibit greater income smoothing.

Taken together, these studies did not examine bank income smoothing or bank earnings management during a pandemic. There are no studies that investigate the income smoothing behavior of systemic banks during the COVID-19 pandemic. This paper provides the first preliminary evidence for bank income smoothing using loan loss provision during the first-wave of the COVID-19 pandemic.

3.3. Hypothesis

Few studies such as Kim et al (2019), Dolar (2016) and Danisman et al (2021) examine bank income smoothing during extreme events. Kim et al (2019), in a U.S. study, investigate the effect of the troubled asset relief program (TARP) on the changes in provisions just after the 2008 global financial crisis. The study shows that banks with low earnings significantly increase their discretionary provisions. Dolar (2016)

investigates the income smoothing behaviour of US commercial banks and thrifts during the 2008 crisis. The study shows that US banking institutions understated provisions to offset the shortfall in earnings in the post-crisis period. Danisman et al (2021) examine the impact of economic policy uncertainty on bank provisions. They analyse 6384 US banks from 2009 to 2019. They find that loan loss provisions were used to smooth income during times of high economic policy uncertainty and private banks engaged in greater income smoothing in uncertain times. Consistent with Kim et al (2019), Dolar (2016) and Danisman et al (2021), I predict a positive association between bank provisions and pre-provisions earnings among large UK banks during the first-wave of the COVID-19 pandemic. This is because banks will decrease loan loss provisions because they expect declining earnings during the pandemic.

H1: There is a positive association between provisions and pre-provisions earnings among large UK banks during the COVID-19 crisis.

4. Research design

Financial data on bank loan loss provisions (LLP) and profit before tax (PBT) were extracted directly from the quarterly income statement of four systemic banks in the United Kingdom. The four systemic banks are Barclays Bank, HSBC Bank, Lloyds Bank and NatWest Bank. The sample period is from Q1: 2019 to Q4: 2020. Only two variables were used in the analysis. This is because LLP and EBTP are the two main variables used to detect the presence of income smoothing by banks. A positive relationship between provisions and pre-provisions earnings indicates the presence of income smoothing as shown in Bushman and Williams (2012), Curcio and Hasan (2015) and Ozili and Outa (2017). The pre-provisions earnings variable (EBTP) is not directly observable from the income statement of the four systemic UK banks. The EBTP was derived by adding back 'provisions' (LLP) to the 'profit before tax' (PBT) data for each bank. After deriving the EBTP variable, I perform some graphical analysis, correlation analysis and regression analysis to determine the association or relationship between LLP and EBTP. The expectation is that a positive association or relationship between the two variables indicates evidence for income smoothing. A negative association or relationship between the two variables indicates that there is no income smoothing. This expectation is consistent with the literature (see Bushman and William, 2012; Ozili and Outa, 2017; Ozili, 2021). Furthermore, I did not take into account the other LLP determinants for two main reasons. One, there is need to isolate the effect of other factors so that the direct effect of pre-provisions earnings on loan loss provisions can be observed. The second reason is because quarterly data for LLP

determinants such as nonperforming loans, loan charge-offs, regulatory capital ratio and real GDP are not readily available on a quarterly basis. Finally, Pearson correlation statistic and ordinary least square univariate regression methods are the statistical techniques used to analyse the data.

5. Graphical representation of data

This section presents the data in graphs. The data represent financial data on bank loan loss provisions (LLP) and pre-provisions earnings (EBTP) for the four systemic banks: NatWest, Barclays, Lloyds and HSBC.

5.1. Trend in earnings before provisions and tax (EBTP)

Figure 1 shows that EBTP is positive (i.e. above zero) for all banks in the four quarters of the first-wave COVID-19 pandemic. In the pre-pandemic quarter, especially in Q3 2019, EBTP is negative which indicates a loss. NatWest reported high EBTP during the pandemic period. In contrast, Barclays reported a much lower EBTP in the pandemic quarters.
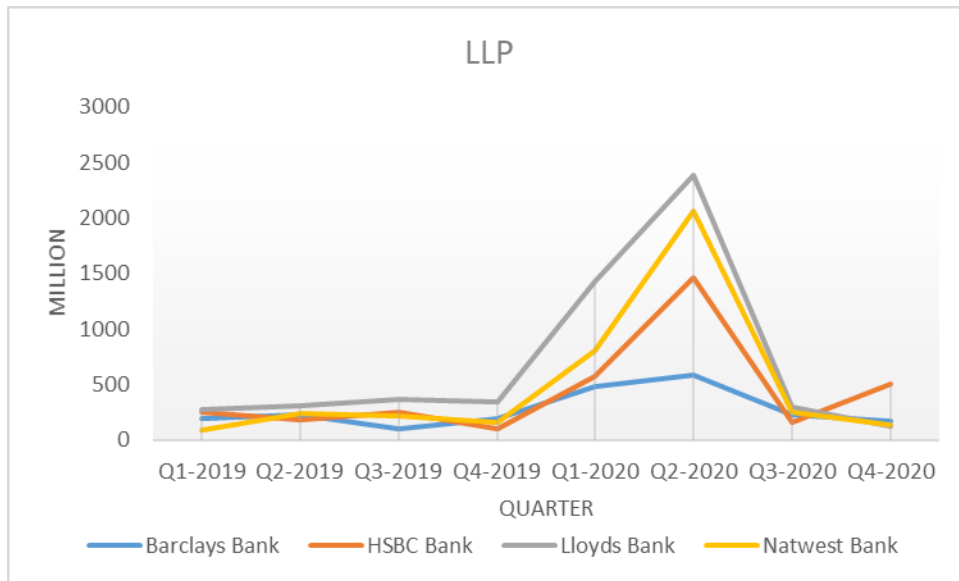
(Figure 1)
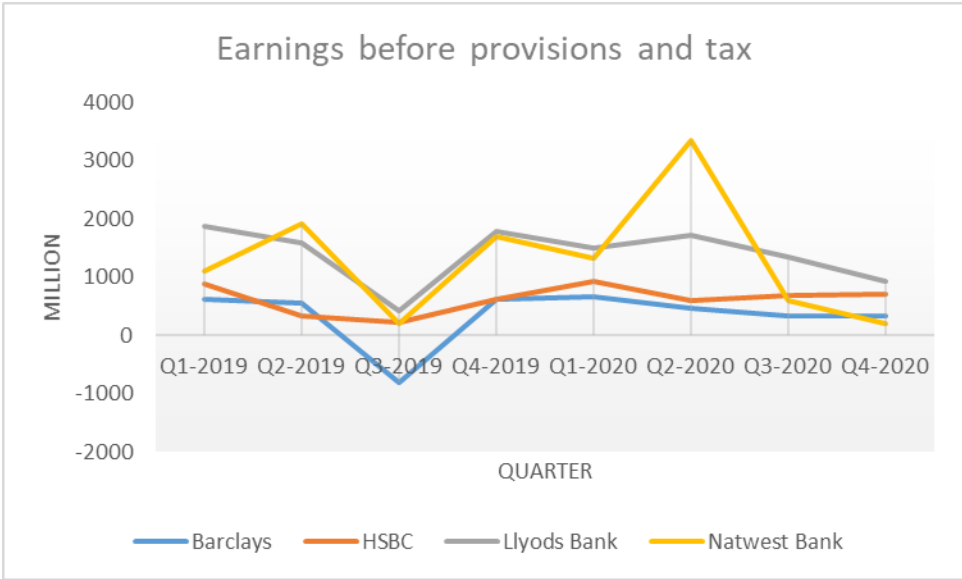
5.2. Trend in loan loss provisions (LLP)

Figure 2 shows that bank loan loss provisions have an inverted V-shaped property during the first-wave COVID-19 pandemic. This shows that the LLPs of the four banks increased sharply in Q1 2020 and then declined sharply in Q3 of 2020. The highest provisions were recorded in Q2 2020 followed by a decrease in provisions in Q3 2020.
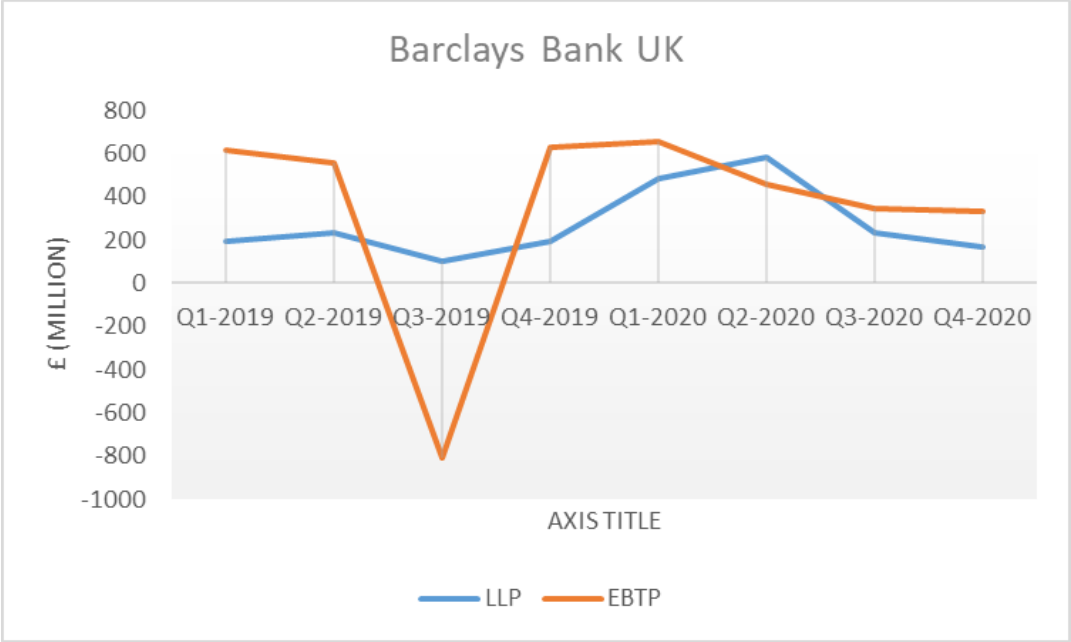
(Figure 2)

5.3. The Co-movement between LLP and EBTP

Barclays: Figure 3 shows an inverse co-movement between LLP and EBTP from Q1 to Q2 of 2019. A similar trend is observed from Q1 to Q2 of 2020. Also, a positive co-movement between LLP and EBTP can be observed in Q2, Q3 and Q4 of 2020. This indicates that as EBTP decreases LLPs also decreases. This indicates evidence for income smoothing in the pandemic quarters.
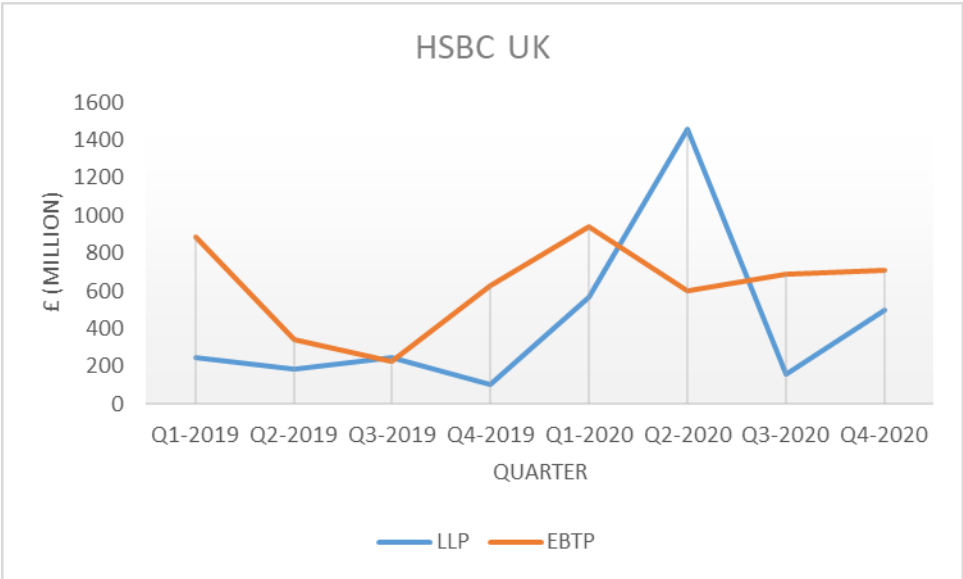
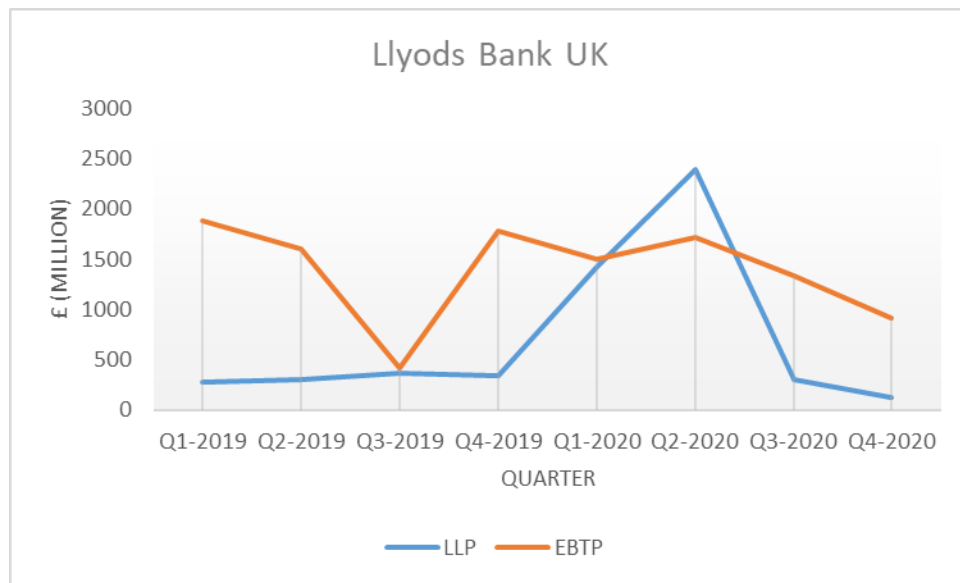(Figure 3)

Barclays Bank UK

5.4. Bank specific data

HSBC: Figure 4 shows a positive co-movement between LLP and EBTP from Q1 to Q2 of 2019. This indicates income smoothing in the pre-pandemic quarters. An inverse co-movement between LLP and EBTP is observed between Q2, Q3 and Q4 of 2019. In 2020, an inverse association between LLP and EBTP is observed between Q1 to Q3 for HSBC. This indicates that as EBTP decreases LLPs also increases.

(Figure 4)

HSBC UK

Lloyds Bank: Figure 5 shows an inverse co-movement between LLP and EBTP from Q1 to Q4 of 2019. Also, a positive co-movement between LLP and EBTP is observed between Q1 and Q4 of 2020. This indicates that as EBTP increases (decreases), LLPs also increases (decreases). This indicates evidence for income smoothing in the pandemic quarters for Lloyds Bank.

(Figure 5)

NatWest Bank: Figure 6 shows a positive co-movement between LLP and EBTP from Q1 to Q2 of 2019. This indicates evidence of income smoothing in the pre-pandemic quarters. Also, a negative co-movement between LLP and EBTP is observed between Q2 to Q4 of 2019. In 2020, a positive co-movement between LLP and EBTP is observed from Q1 to Q4 of 2020. This means that NatWest bank exhibit income smoothing both in the pre-pandemic and the pandemic quarters.

(Figure 6)

NatWest Bank UK
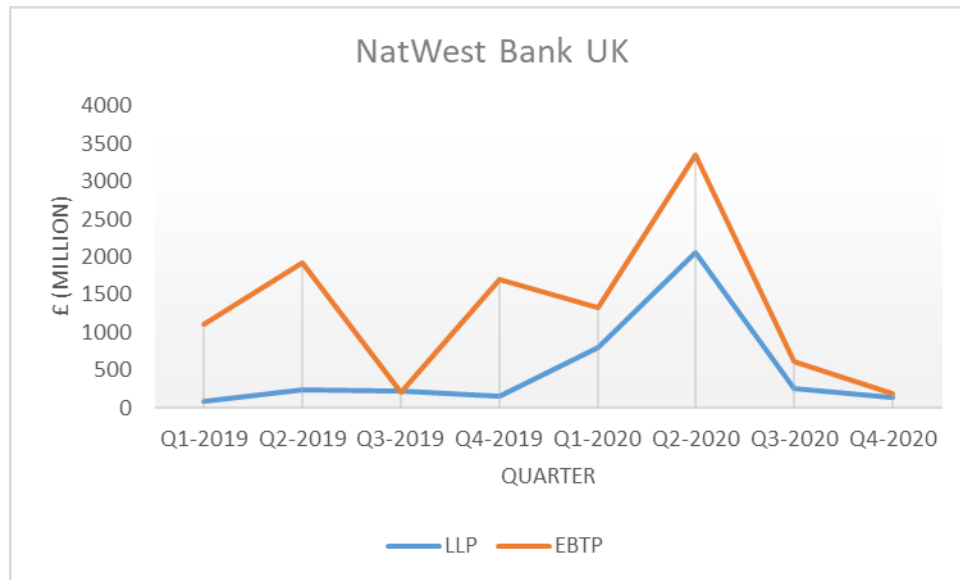
6. Correlation and regression analysis

6.1. Correlation of LLP and EBTP

There is a significant positive correlation between EBTP and LLP in the pandemic quarters as shown in the group analysis in table 1. The significant positive correlation suggests that high pre-provisions earnings is correlated with high loan loss provisions in the pandemic quarters. Meanwhile, during pre-pandemic period, the EBTP correlation coefficient is low and statistically insignificant.

In the individual bank analysis, Barclays, Lloyds and NatWest have a high positive EBTP correlation coefficient of 71.2%, 89.1% and 99.8% respectively in the pandemic period. The positive correlation is stronger for Lloyds and NatWest while HSBC report a negative correlation during the pandemic quarters. Meanwhile, Barclays report a strong positive correlation in the pre-pandemic quarters.

Table 1: Pearson Correlation Analyses of LLP and EBTP (Group and Individual Analyses)

	Pre-pandemic period			Pandemic period		
	coefficient	t-statistic	p-value	coefficient	t-statistic	p-value
Group analysis:						
All Four Banks	0.363	1.46	0.17	0.732***	4.02	0.001
Individual analysis:						
Barclays Bank	0.925*	3.44	0.08	0.712	1.43	0.29
HSBC Bank	-0.090	-0.13	0.91	-0.401	-0.62	0.59
Lloyds Bank	-0.782	-1.77	0.21	0.891	2.78	0.11
NatWest Bank	0.053	0.08	0.95	0.998***	21.45	0.00

6.2. Univariate regression analysis

Table 2 reports the group regression analysis. The result shows that the EBTP coefficient (0.166) is significant and positive both in the pre-pandemic and pandemic quarters. The statistical significance of the EBTP coefficient is stronger in the pandemic quarter than in the pre-pandemic quarter. The positive relationship suggests that systemic UK banks, on average, use provisions for income smoothing purposes particularly in the pandemic quarters. In the individual bank analysis, the EBTP coefficient is positively related to LLP for most of the banks. However, the EBTP coefficient is significant for NatWest, Barclays and Lloyds during the pandemic period. Also, the EBTP coefficient is significant for NatWest, HSBC and Lloyds in the pre-pandemic period. The result confirms the findings in prior studies which show that banks use provisions to smooth income during extreme events. Bushman and William (2012), Bouvatier et al (2014) and Danisman et al (2021) show a positive association between LLPs and EBTP.

Table 2: Univariate Regression (Group and Individual Analyses)

		Pre-pandemic period			Pandemic period		
		LLP = Dependent variable			LLP = Dependent variable		
		coefficient	t-statistic	p-value	coefficient	t-statistic	p-value
Group analysis:							
Full sample	EBTP	0.162***	5.046	0.000	0.720***	7.235	0.000
Individual analysis:							
Barclays Bank	EBTP	0.164	1.25	0.30	0.827**	5.54	0.01
HSBC Bank	EBTP	0.297*	2.74	0.07	0.847	2.04	0.13
Lloyds Bank	EBTP	0.187*	3.29	0.05	0.864*	2.95	0.06
NatWest Bank	EBTP	0.110*	2.71	0.07	0.608***	32.344	0.00

7. Conclusion

This paper presented a preliminary analysis of income smoothing by banks during the first-wave of the COVID-19 pandemic. Four systemic banks in the UK were analysed. The pandemic period was compared with the immediate pre-pandemic period. The findings showed that loan loss provision has an inverted V-shaped property during the first-wave COVID-19 pandemic. Loan loss provisions reached its highest level at the peak of the pandemic in the second quarter of 2020 and declined in the subsequent quarters. The regression results showed a positive relationship between bank loan loss provisions and pre-provisions earnings both in the pre-pandemic and pandemic quarters and the relationship is stronger during the pandemic quarters. In the individual bank analysis, three of the four systemic banks exhibit greater income smoothing during the pandemic quarters. The correlation results also showed a strong positive correlation between bank provisions and pre-provisions earnings during pandemic quarters.

The implication of the findings is that income smoothing is greater during crisis periods such as during the first-wave COVID-19 pandemic. Bank regulatory and supervisory rules in the UK were relaxed during the pandemic to help banks cope with the negative effect of the pandemic on their balance sheet. Lowering supervisory rules can reduce the quality of bank earnings during the crisis. This is because investors and external users can see through bank earnings manipulation during crisis years and they expect earnings

to be of low quality during a crisis. Bank regulators need to find a balance between lowering prudential standards to help banks cope with a pandemic.

A limitation of the study is that the study did not use longer bank data for the pandemic period. The short data is attributed to the fact that the pandemic is still on-going at the time of writing this paper. Secondly, the study did not take into account other determinants of LLP in the study. The major reason for omitting other LLP determinants is to isolate the effect of other factors so that the direct effect of pre-provisions earnings on loan loss provisions can be observed. Another reason is because quarterly data for LLP determinants such as nonperforming loans, loan charge-offs, regulatory capital ratio and real GDP are not readily available on a quarterly basis.

Future studies on UK banks can take into account other loan loss provisions determinants when analyzing income smoothing among UK banks when such data is available. Future studies can also examine bank income smoothing in a cross-country context by comparing the pandemic years with the non-pandemic years.

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