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Credit policy in small Polish banks – is there room for income smoothing?

Summary

We study credit policy in a unique sample of c.360 Polish cooperative banks between 2007–2012. We find evidence for income smoothing through loan loss provisions, indicating that cooperative banks take advantage of higher earnings to make reserves for periods when their profitability might decrease. Similarly to commercial banks, provisions of cooperative banks are procyclical towards the macroeconomic cycle. When regional economic conditions deteriorate, cooperative banks increase their provisioning and this is especially visible when the economic slumps are severe. These results indicate that the different shareholder structure of cooperative banks does not affect managerial incentives for income smoothing. Thus, problems of cyclicality in the cooperative sector should be addressed by local policymakers in the same extent as that of cyclicality in the commercial banking sector.

1. Introduction

The importance of an adequate credit policy in banks has been demonstrated by the US subprime crisis of 2007–2009. A lax policy of aggressive loan growth, partially spurred by strong demand, has led to a spectacular rise in non-performing housing loans. A lack of adequate loan loss reserves that would – at least partially – cover forthcoming losses provided a bitter lesson to bankers worldwide. Post-crisis policies have started to underline the cyclical nature of credit risk that persists despite modern risk management tools. Acting in an anticyclical manner is one of the remedies offered to banks by regulators and policymakers.

The aim of this paper is to study credit policy cyclicality in Polish cooperative banks between 2007–2012. We analyse income smoothing behaviour, in order to

verify if cooperative banks use periods of higher profitability to make savings "for a rainy day". In addition, we check if reserves made in these banks are anticyclical towards the macroeconomic cycles of the regions, in which they operate. We also study periods of regional economic downturns, to verify if during these 'crises' bank credit policy is different.

Our paper bases on the broad literature on income smoothing, but extends this to a special case of cooperative banks. Due to their shareholder structure, cooperative bank managers have very different incentive schemes and their behaviour is likely to diverge from their commercial banking peers'. In addition, we supplement the scarce empirical literature on risk policies of cooperative banks in the region.

2. Literature review

The problem of procyclicality in banking continues to present a challenge for policymakers and regulators. Procyclicality is particularly underlined in discussions on capital requirements, where higher capital is required during economic downturns and this exacerbates a credit rationing policy of banks, which leads to a credit crunch[1]. Some regulators have taken steps in order to mitigate procyclicality problems, through introducing mandatory anticyclical tools. One of these tools, adopted by the Bank of Spain, is the so-called dynamic provisioning. This process uses bank reserve policy to create reserves during macroeconomic upheavals, while economic downturns are periods when the stock of reserves is used up, in order to ease the pressure on the – already strained – profitability[2]. Dynamic provisioning is in effect an income smoothing tool, which results in diminished

[1] See e.g. Financial Stability Forum, *Report of the Financial Stability Forum on Addressing Procyclicality in the Financial System*, 2009, http://www.financialstabilityboard.org/publications/r_0904a.pdf; Financial Stability Board, IMF and BIS, *Macroprudential Policy Tools and Frameworks, Progress Report to G20*, 2011, http://www.imf.org/external/np/g20/pdf/102711.pdf; J.L. Fillat, J. Montoriol-Garriga, *Addressing the pro-cyclicality of capital requirements with a dynamic loan loss provisions system*, Federal Reserve Bank of Boston, Quantitative Analysis Unit Working Paper, QAU 10-4, 2010.

[2] See e.g. E. Balla, A. McKenna, *Dynamic Provisioning: A Countercyclical Tool for Loan Loss Reserves*, "Economic Quarterly" 2009, vol. 95(4), pp. 383–418; J. Saurina, *Dynamic Provisioning – the Experience of Spain*, Crisis Response: Public Policy for the Private Sector, World Bank, no. 7, 2009; S. De Lis, A. Herrero, *Dynamic provisioning: Some lessons from existing experiences'*, BBVA Research Working Paper, 2010.

profit fluctuations of banks and lower pressure on bank capital during recessions. In this respect, income smoothing is a useful tool that decreases bank risk exposure in the medium term and is referred to as "saving for a rainy day"[3].

The level of loan loss provisions created in a given year should theoretically be driven by the quality of a bank's loan portfolio. However, banks may create reserves not only for the materialised losses in their loanbooks, but also for the expected losses that are possible to predict. As a result, loan loss provisions include a non-discretionary portion, driven purely by the materialised risk part, and a discretionary portion that is affected by managerial decision-making[4]. The non-discretionary portion is strongly related to a bank's operating environment and materialised losses, in the form of non-performing loans. The discretionary part reflects managerial judgment.

In opposition to the rationale underlying dynamic provisioning introduced by the Bank of Spain, some studies underline the negative aspect of income smoothing. This opposing view is may be included into a broader context of earnings management[5]. Income smoothing in such a framework may be linked to a managerial propensity towards earnings smoothing, seen as window dressing, which maximises company value in the eyes of investors and also brings private benefits to managers. Investors view companies with smooth profits as more stable and thus their market valuation is higher[6]. Shareholders appreciate managers that are capable of delivering consistent earnings throughout the business cycle and such managers may be rewarded by shareholders through higher job stability, reputation and remuneration.

Taking into account the positive and negative aspects of income smoothing and the incentives of managers that have discretion over the final level of loan loss reserves, it is particularly interesting to verify income smoothing in a cooperative bank context. Cooperative banks are exposed to economic cycles in

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[3] M.B. Greenawalt, J.F. Sinkey, *Bank Loan-Loss Provisions and the Income-Smoothing Hypothesis: An Empirical Analysis, 1976–1984*, "Journal of Financial Services Research" 1988, vol. 1, pp. 301–318.

[4] A. Compare Beatty, S. Chamberlain, J. Magliolo, *Managing Financial Reports of Commercial Banks: The Influence of Taxes, Regulatory Capital, and Earnings*, "Journal of Accounting Research" 1995, vol. 33(2), pp. 231–261; A.S. Ahmed, C. Takeda, S. Thomas, *Bank loan loss provisions: a reexamination of capital management, earnings management and signalling effects*, "Journal of Accounting and Economics" 1999, vol. 28, pp. 1–25; K. Kanagaretnam, C.Y. Lim, G.J. Lobo, *Auditor reputation and earnings management: International evidence from the banking industry*, "Journal of Banking and Finance" 2010, vol. 34, pp. 2318–2327.

[5] C. Leuz, D. Nanda, P. Wysocki, *Earnings management and investor protection: an international comparison*, "Journal of Financial Economics" 2003, vol. 69, pp. 505–527.

[6] M.B. Greenawalt, J.F. Sinkey, op.cit.

their regions and capital requirements in their case also carry a certain level of procyclicality. As a result, cooperative bank managers could be prone to engage in income smoothing in order to 'save for a rainy day'. On the other hand, cooperative bank managers are not exposed to market valuation in a similar level as commercial banks. In addition, shareholder pressure to maintain stable income streams does not exist in these institutions. The recent, broad analysis of Bouvatier et al. underlines the crucial role of shareholder structure in income smoothing[7]. Concentrated ownership encourages income smoothing in commercial banks, while Polish cooperative banks have a highly dispersed ownership structure, with the standard cooperative rule of "one member one vote". This restricts shareholder pressure on potential income smoothing.

Remuneration of cooperative bank managers is not as closely linked to fluctuations in bank profitability. The turnover of managers in cooperative banks is very low, so the argument of job stability also does not play such a prominent role. In consequence, cooperative bank managers have stronger incentives to smooth earnings for prudential reasons, while the private benefit argument does not seem crucial. The analysis of income smoothing in the cooperative bank context adds an important argument in the discussion on whether banks should or should not be encouraged to use reserves in order to smooth earnings.

Empirical analyses of income smoothing are numerous, but largely exclude Central European (CE) banks. Leaven and Majnoni prove income smoothing for banks in 45 countries without CE[8], Fonseca and Gonzalez demonstrate it on banks from 40 non-US countries, but without CE[9]. European studies prove income smoothing for Italian banks between 1985–2002[10], Spanish banks 1986–2002[11] and Western European banks with concentrated ownership[12]. Skala provides evidence for income smoothing in commercial banks in 11 Central European countries (including Poland)[13].

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[7] V. Bouvatier, L. Lepetit, F. Strobel, *Bank income smoothing, ownership concentration and the regulatory environment*, "Journal of Banking and Finance" 2014, vol. 41, pp. 253–270.

[8] L. Laeven, G. Majnoni, *Loan loss provisioning and economic slowdowns: too much, too late?*, "Journal of Financial Intermediation" 2003, vol. 12(2), pp. 178–197.

[9] A. Fonseca, F. Gonzalez, *Cross-country determinants of bank income smoothing by managing loan-loss provisions*, "Journal of Banking and Finance" 2008, vol. 32, pp. 217–228.

[10] M. Quagliariello, *Banks' riskiness over the business cycle: a panel analysis on Italian intermediaries*, "Applied Financial Economics" 2007, vol. 17, pp. 119–138.

[11] D. Perez, V. Salas, J. Saurina, *Earnings and Capital Management in Alternative Loan Loss Provision Regulatory Regimes*, "European Accounting Review" 2008, vol. 17(3), pp. 423–445.

[12] V. Bouvatier, L. Lepetit, F. Strobel, op.cit.

[13] D. Skala, *Income Smoothing and Procyclicality of Loan Loss Provisions in Central European Banks*, 2013, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2426144.

We have not found income smoothing analyses including cooperative banks from Central Europe and most income smoothing studies for international samples, including Western Europe and the US, comprise commercial banks only. Generally, there are few empirical analyses regarding risk policies of cooperative banks in the region, while specific work on the Polish cooperative sector is even more limited. There is a well-developed descriptive literature on the Polish cooperative bank sector, with an in-depth analysis and excellent literature review provided by Szambelańczyk[14]. In the same work, the author also studies cooperative bank efficiency, using the DEA methodology and important aspects of human resource management. An extension of the efficiency analysis is shown in a parallel work[15]. Further descriptive studies of the Polish cooperative sector may also be found in the literature[16].

3. Methodology and data

Income smoothing is most frequently studied in the context of cyclicality of loan loss provisions (LLP) in relation to cyclicality in bank income before provisions[17]. This traditional approach, put forward by Greenawalt and Sinkey[18] has been modified in subsequent work, usually by accounting for additional control variables[19]. The main relation defining income smoothing, being a positive relation between provisions and pre-provisioning income, has not changed in recent work. The existence of such a link implies that banks use times of better

[14] J. Szambelańczyk, *Banki spółdzielcze w Polsce w procesach zmian systemowych*, Wydawnictwo Akademii Ekonomicznej w Poznaniu, Poznań 2006.

[15] M. Mielnik, J. Szambelańczyk, *Ocena efektywności banków spółdzielczych w Polsce w latach 1997–2003*, "Bezpieczny Bank" 2006, nr 1, pp. 3–27.

[16] A. Szelągowska, *Współczesna bankowość centralna*, CeDeWu, Warszawa 2012; S. Czopur, *Kapitał finansowy banków spółdzielczych*, CeDeWu, Warszawa 2012.

[17] A second direction of analyses demonstrates irregularities in bank earnings across time and around specific benchmarks, such as zero profitability, or previous year earnings (eg. S. Bornemann, T. Kick, C. Memmel, A. Pfingsten, *Are banks using hidden reserves to beat earnings benchmarks? Evidence from Germany*, Deutsche Bundesbank Discussion Paper, Series 2: Banking and Financial Studies, no. 13, 2010).

[18] M.B. Greenawalt, J.F. Sinkey, *Bank Loan-Loss Provisions and the Income-Smoothing Hypothesis: An Empirical Analysis, 1976–1984*, "Journal of Financial Services Research" 1988, vol. 1, pp. 301–318.

[19] See L. Laeven, G. Majnoni, op.cit.; A. Fonseca, F. Gonzalez, op.cit.; J.A. Bikker, P.A.J. Metzemakers, *Bank provisioning behaviour and procyclicality*, "Journal of International Financial Markets, Institutions and Money" 2005, vol. 15, pp. 141–157.

profitability to stock up on their reserves, while when income decreases, the amount of reserves made also declines, as banks use reserves made during more prosperous times.

We use the same approach and apply a methodology put forward by Laeven and Majnoni[20], Fonseca and Gonzalez[21], Bikker and Metzemakers[22] and Perez et al.[23] In order to assess income smoothing in Polish cooperative banks, we estimate the following equation:

$$LLP_{i,t} = \alpha + \beta_1 Income_{i,t} + \beta_2 NPL_{i,t} + \beta_3 Loan\ growth + \beta_4 Bank\ control\ variables_{i,t} + \beta_5 Macroeconomic\ control\ variables_{j,t} + v_i + \varepsilon_{i,t} \quad (1)$$

Equation (1) is a static model with individual bank fixed effects (v_i). Bank fixed effects account for existence of relatively stable factors, such as bank corporate culture and risk appetite that are not fluctuating through time.

The dependent variable, *LLP*, denotes annual loan loss provisions that are created by banks. Pre-provisioning income (*Income*) is the primary variable of interest and denotes the level of bank operating income before loan loss provisions are made. Due to potential problems with endogeneity, both the dependent variable LLP and pre-provisioning income are scaled by assets lagged by one period[24]. NPL are non-performing loans, which are shown as a share of non-performing loans in total customer loans. *Loan growth* is an additional control for credit policy cyclicality. If banks behave in a prudent maner, an aggressive growth in loan portfolios should be accompanied by increased provisions that would cover expected losses. As discussed in the literature, it is during the economic upheavals that most bad loans are granted. Bank control variables include ratios conventionally used in income smoothing models, such as the share of loans in total assets (*Loans/Assets*), level of equity (*Equity/Assets*) and bank size (*Size*) in the form of logarithm of total assets. Due to potential capital management issues, pointed out by Perez et al.[25], we use equity to assets ratios lagged by one year.

Macroeconomic variables are used in order to control for the local environment of the regions (*powiats*), in which banks operate. They include the rate

[20] L. Laeven, G. Majnoni, op.cit.
[21] A. Fonseca, F. Gonzalez, op.cit.
[22] J.A. Bikker, P.A.J. Metzemakers, op.cit.
[23] D. Perez, V. Salas, J. Saurina, op.cit.
[24] See L. Laeven, G. Majnoni, op.cit.
[25] D. Perez, V. Salas, J. Saurina, op.cit.

of unemployment (*Unemployment*), the level of average salary and bankruptcy ratio.

We use year-end data on c.360 Polish cooperative banks, over the period 2007–2012[26] We have merged this dataset with macroeconomic data on regions ("*powiaty*"), stemming from the Local Data Bank of the Polish Central Statistical Office (GUS). Table 1 presents descriptive statistics of the most important variables used in our estimation.

Descriptive statistics indicates the specific character of cooperative banks that are strongly loan-oriented, with a mean loan to asset ratio of c. 90%. We see a relatively high diversity of banks in our sample, with high discrepancies in equity levels and non-performing loan portfolios.

Table 1. Descriptive statistics

Variable	Number of observations	Mean	Std. Dev.	Min	Max
Bank variables					
Loan loss provisions (%)	1568	0.244	0.322	–0.409	1.839
Pre-provisioning income(%)	1568	2.092	0.703	0.702	4.552
Loan growth(%)	1568	13.419	15.967	–18.064	121.487
Non-performing loans(%)	1568	3.805	4.030	0.000	33.086
Loans to assets(%)	1568	89.002	10.376	17.535	97.977
Equity(%)	1568	13.185	4.750	4.291	41.468
Assets (log)	1568	18.223	0.819	16.282	21.528
Macroeconomic variables on regions					
Unemployment (%)	1568	14.241	5.137	2.8	33.8
Unemployment growth (%)	1548	0.525	1.733	–7.1	7.8
Average salary (PLN)	1568	2903.3	417.4	2083.5	6324.8
Bankruptcy ratio (%)	1568	8.204	2.857	2.559	31.827

Source: own calculations.

In parallel, regions in which cooperative banks operate, are also strongly diversified. Mean unemployment of 14% fluctuates strongly between regions and years (unemployment growth). We include average salary to additionally control for local macroeconomic conditions and we also observe high heterogeneity in

[26] The datasetstems from Bank Polskiej Spółdzielczosci (BPS). The author would like to express deep gratititude to the BPS team for their help in compiling the dataset.

this context. In order to control for the local credit risk, we construct a bankruptcy indicator. It is a year-end relation of liquidated firms to total registered firms in the region and includes all entities, from micro enterprises to large firms.

4. Results

The results of estimating Equation (1) are shown in Table 2. Results presented in Table 2 provide strong evidence for income smoothing in cooperative banks. The relation between pre-provisioning income and LLP is positive and strongly significant in various specifications, demonstrating that an increase in income is linked with a higher level of reserves made.

On the other hand, it is questionable if these reserves are made for prudential reasons. A negative relation between loan growth and provisions indicates that during strong credit expansions cooperative bank *diminish* their reserve making. As a result, they do not account for the fact that a part of rapidly growing portfolios will certainly deteriorate and do not put some reserves aside "for the rainy day". In addition, the income smoothing trend is proven despite controlling for the level of non-performing loans. This indicates that regardless of the level of irregular loans, an increase in income results in a hike in loan loss provisions. The relation between non-performing loans and reserves is positive, which expectedly confirms that reserves increase when loan portfolios deteriorate.

Macroeconomic conditions in the operating area of a cooperative bank prove significant for its credit policy. Banks active in regions with higher unemployment create higher provisions and a hike in local unemployment rates is also positively related with the level of LLP. Similarly, reserves are augmented in regions with a higher bankruptcy ratio, although this result is only weakly significant in one specification. In consequence, reserves in cooperative banks are not made in an anticyclical manner in relation to the local macroeconomic conditions. An economic upheaval, experienced through a decrease in unemployment and local credit risk does not prompt banks to make savings for the potential economic downturns. Conversely, a healthier economic surrounding is used to decrease the level of reserve making and thus demonstrate a better bottomline. The result of such policy, equally common among commercial banks is the need for higher reserves when the economic conditions deteriorate.

Table 2. Regression results on Equation (1)

Variable	Specification 1	Specification 2
Pre-Provisions Income	0.2970***	0.3096***
	0.017	*0.018*
Loan growth	–0.0010**	–0.0010**
	0.000	*0.000*
Non-performing loans	0.0320***	0.0316***
	0.003	*0.003*
Loan share	–0.0012	–0.0012
	0.001	*0.001*
Equity	0.0057	0.0033
	0.005	*0.005*
Size	0.2277***	0.2785***
	0.078	*0.077*
Unemployment	0.0253***	
	0.006	
Average salary PLN	0.0002***	0.0003***
	0.000	*0.000*
Bankruptcy ratio	0.0046*	0.0037
	0.002	*0.002*
Unemployment growth		0.0151***
		0.004
Constant	–5.4957***	–6.3062***
	1.319	1.299
No. of obs.	1568	1548
No. of banks	356	356
R-squared	0.3165	0.3244

Notes: *Pre-Provisions Income* is the income before provisions in year *t* scaled by total assets in year *t*–1, *Loan growth* is the annual growth of total loans in %, *Non-performing loans* is the relation of non-performing loans to total loans in year *t*, *Loan share* is total loans to total assets in year *t*, *Equity* is the share of bank capital in total assets in year *t*–1, *Size* is the natural logarithm of total assets, *Unemployment* is the ratio of registered unemployment, *Average salary* shows the nominal value of mean salary and *Bankruptcy ratio* is the relation of liquidated firms to registered firms in year t. unemployment, average salary and bankruptcy ratio relate to the *powiat* where a bank is headquartered. *, ** and *** note significance levels of respectively 10%, 5% and 1%.

Source: own calculations.

On the other hand, the level of average salary does not prove a good proxy for local credit conditions. Banks in areas with a higher average salary are making higher provisions. This may reflect the fact that average salaries are only salaries of workers employed by larger firms (from 9 employees upwards) and they do not account for small entrepreneurs, farmers and salaries of short-term employees and part-time contracts. Cooperative bank clients are largely part of these groups that are excluded from the average salary calculations.

In order to assess the stability of the income smoothing phenomenon and check the procyclicality of cooperative banks' credit policy, we expand Equation (1). We aim to verify the reserve creation behaviour of bank managers during a crisis. A crisis may be identified either through time dummy variables or through dummies linked to low GDP growth. In the case of Polish cooperative banks, neither of these approaches applies, as most institutions are closely linked to their regional economies rather than to national output changes. Thus we introduce crisis variables that are linked to local economies. The new income smoothing equation takes the following form:

$$LLP_{i,t} = \alpha + \beta_1 Income_{i,t} + \beta_2 NPL_{i,t} + \beta_3 Loan\ growth + \beta_4 Bank\ control\ variables_{i,t} + \beta_5 Macroeconomic\ control\ variables_{j,t} + \beta_6 Crisis_{j,t} + \beta_7 Crisis\ smoothing_{j,t} + v_i + \varepsilon_{i,t} \quad (2)$$

Equation (2) is an expanded version of Equation (1), where we additionally account for the credit reserves created during a crisis and crisis period income smoothing. *Crisis* is a dummy variable, with two possible variations. The first version defines a crisis as a period, where annual unemployment growth exceeded 2 p.p. (*Crisis)*. In order to identify more severe downturns, we also introduce a second version of crisis, where annual unemployment growth exceeds 3 p.p. (*Extreme crisis*). For both of these variations, we create interaction terms of crisis dummies with the main independent variable, pre-provisioning income. The interaction terms are included as *Crisis smoothing* and *Extreme crisis smoothing*, respectively. The results of estimating Equation (2) are presented in Table 3.

The results in Table 3 document important trends in credit policy of cooperative banks that may be observed during a downturn in their regional economies. Specification 2 displays a bank reserve policy under a 2p.p. deterioration in unemployment, while Specification 3 – a 3 p.p. increase. The income smoothing trends, as well as signs and significance of all relations proven in Equation 1 (Specification 1) are largely sustained in both crisis specifications.

Under medium economic stress, the level of loan loss provisions does not change – the relation is positive, but significant only at 14%. However, the smoothing behaviour changes. The interaction term (*Crisis smoothing*) is significant and negative, which indicates that during local downturns cooperative banks are less engaged in adjusting their reserve levels to the income streams. In line with ur previous findings on procyclicality of reserves towards the economic variables, this implies that macroeconomic stress forces banks to create higher reserves, despite earlier smoothing. This is partly proven by the positive coefficient by the crisis variable.

Table 3. Results of estimating Equation (2)

Variable	Specification 1	Specification 2	Specification 3
Pre-provisions Income	0.2970***	0.3024***	0.3041***
	0.017	*0.018*	*0.018*
Loan growth	–0.0010**	–0.0009*	–0.0009*
	0.000	*0.000*	*0.000*
Non-performing loans	0.0320***	0.0317***	0.0318***
	0.003	*0.003*	*0.003*
Loan share	–0.0012	–0.0012	–0.0012
	0.001	*0.001*	*0.001*
Equity	0.0057	0.0053	0.0055
	0.005	*0.005*	*0.005*
Size	0.2277***	0.2095***	0.2146***
	0.078	*0.079*	*0.079*
Unemployment	0.0253***	0.0282***	0.0269***
	0.006	*0.006*	*0.006*
Average salary	0.0002***	0.0002**	0.0002***
	0.000	*0.000*	*0.000*
Bankrupcty ratio	0.0046*	0.0049**	0.0047*
	0.002	*0.002*	*0.002*
Crisis		0.0805	
		0.054	
Crisis smoothing		–0.0541**	
		0.026	
Extreme crisis			0.1411**
			0.066
Extreme crisis smoothing			–0.0813***
			0.030
Constant	–5.4957***	–5.1769***	–5.2848***
	1.319	*1.334*	*1.329*
No. of obs.	1568	1568	1568
No. of banks	356	356	356
R squared	0.3165	0.3199	0.3210

Notes: *Pre-Provisions Income* is the income before provisions in year *t* scaled by total assets in year *t*–1, *Loan growth* is the annual growth of total loans in %, *Non-performing loans* is the relation of non-performing loans to total loans in year *t*, *Loan share* is total loans to total assets in year *t*, *Equity* is the share of bank capital in total assets in year *t*–1, *Size* is the natural logarithm of total assets, *Unemployment* is the ratio of registered unemployment, *Average salary* shows the nominal value of mean salary and *Bankruptcy ratio* is the relation of liquidated firms to registered firms in year t. unemployment, average salary and bankruptcy ratio relate to the *powiat* where a bank is headquartered. *, ** and *** note significance levels of respectively 10%, 5% and 1%.

Source: own calculations.

A visible and highly significant hike in loan loss provisions is seen during more severe economic downturns, where unemployment decreases by over 3 p.p. (Specification 3). In such a case, banks up their provisions, as the reserves created during better times prove insufficient. The equally observed cut in income smoothing is more elevated here than under smaller stress, and also of a higher statistical significance. In consequence, the procyclicality of cooperative banks credit policy versus macroeconomic developments is again confirmed.

5. Conclusion

We have studied credit policy of c.360 Polish cooperative banks in the context of income smoothing behaviour. In line with results of studies on commercial banks, the small cooperative banks equally engage in income smoothing through loan loss provisions. They create higher reserves during periods of better profitability and use these provision buffers when earnings deteriorate. However, their approach is not purely prudency driven, as periods of aggressive loan expansions are not accompanied by more conservative reserve policies. On the contrary, loan growth is related to lower reserve making.

The specific shareholder structure of cooperative banks does not seem to make them operate more anticyclically than their commercial bank peers, in the context of economic conditions. Cooperative banks make higher reserves when the economy slumps and this trend is particularly visible when the economic downfall is severe. During such periods, the tendency towards income smoothing weakens, which implies that the stock of reserves created on the back of past sound profitability is not sufficient. In consequence, despite a different incentive structure of cooperative bank managers, the cyclicality of their credit policies largely resembles that of their commercial bank counterparts. Thus, local policymakers should account for this when defining potential anticyclical tools for the Polish banking sector.

References

1. Ahmed A.S., Takeda C., Thomas S., *Bank loan loss provisions: a reexamination of capital management, earnings management and signalling effects*, "Journal of Accounting and Economics" 1999, vol. 28, pp. 1–25.
2. Balla E., McKenna A., *Dynamic Provisioning: A Countercyclical Tool for Loan Loss Reserves*, "Economic Quarterly" 2009, vol. 95(4), pp. 383–418.
3. Beatty A., Chamberlain S., Magliolo J., *Managing Financial Reports of Commercial Banks: The Influence of Taxes, Regulatory Capital, and Earnings*, "Journal of Accounting Research" 1995, vol. 33(2), pp. 231–261.
4. Bikker J.A., Metzemakers P.A.J., *Bank provisioning behaviour and procyclicality*, "Journal of International Financial Markets, Institutions and Money" 2005, vol. 15, pp. 141–157.
5. Bornemann S., Kick T., Memmel C., Pfingsten A., *Are banks using hidden reserves to beat earnings benchmarks? Evidence from Germany*, Deutsche Bundesbank Discussion Paper, Series 2: Banking and Financial Studies, no. 13, 2010.
6. Bouvatier V., Lepetit L., Strobel F., *Bank income smoothing, ownership concentration and the regulatory environment*, "Journal of Banking and Finance" 2014, vol. 41, pp. 253–270.
7. Czopur S., *Kapitał finansowy banków spółdzielczych*, CeDeWu, Warszawa 2012.
8. De Lis S., Herrero A., *Dynamic provisioning: Some lessons from existing experiences'*, BBVA Research Working Paper, 2010.
9. Fillat J.L., Montoriol-Garriga J., *Addressing the pro-cyclicality of capital requirements with a dynamic loan loss provisions system*, Federal Reserve Bank of Boston, Quantitative Analysis Unit Working Paper, QAU 10-4, 2010.
10. Financial Stability Board, IMF and BIS, *Macroprudential Policy Tools and Frameworks, Progress Report to G20*, 2011, http://www.imf.org/external/np/g20/pdf/102711.pdf.
11. Financial Stability Forum, *Report of the Financial Stability Forum on Addressing Procyclicality in the Financial System*, 2009, http://www.financialstabilityboard.org/publications/r_0904a.pdf.
12. Fonseca A., Gonzalez F., *Cross-country determinants of bank income smoothing by managing loan-loss provisions*, "Journal of Banking and Finance" 2008, vol. 32, pp. 217–228.
13. Greenawalt M.B., Sinkey J.F., *Bank Loan-Loss Provisions and the Income--Smoothing Hypothesis: An Empirical Analysis, 1976–1984*, "Journal of Financial Services Research" 1988, vol. 1, pp. 301–318.
14. Kanagaretnam K., Lim C.Y., Lobo G.J., *Auditor reputation and earnings management: International evidence from the banking industry*, "Journal of Banking and Finance" 2010, vol. 34, pp. 2318–2327.

15. Laeven L., Majnoni G., *Loan loss provisioning and economic slowdowns: too much, too late?*, "Journal of Financial Intermediation" 2003, vol. 12(2), pp. 178–197.
16. Leuz C., Nanda D., Wysocki P., *Earnings management and investor protection: an international comparison*, "Journal of Financial Economics" 2003, vol. 69, pp. 505–527.
17. Mielnik M., Szambelańczyk J., *Ocena efektywności banków spółdzielczych w Polsce w latach 1997–2003*, "Bezpieczny Bank" 2006, nr 1, pp. 3–27.
18. Perez D., Salas V., Saurina J., *Earnings and Capital Management in Alternative Loan Loss Provision Regulatory Regimes*, "European Accounting Review" 2008, vol. 17(3), pp. 423–445.
19. Quagliariello M., *Banks' riskiness over the business cycle: a panel analysis on Italian intermediaries*, "Applied Financial Economics" 2007, vol. 17, pp. 119–138.
20. Saurina J., *Dynamic Provisioning – the Experience of Spain*, Crisis Response: Public Policy for the Private Sector, World Bank, no. 7, 2009.
21. Skala D., *Income Smoothing and Procyclicality of Loan Loss Provisions in Central European Banks*, 2013, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2426144.
22. Szambelańczyk J., *Banki spółdzielcze w Polsce w procesach zmian systemowych*, Wydawnictwo Akademii Ekonomicznej w Poznaniu, Poznań 2006.
23. Szelągowska A., *Współczesna bankowość centralna*, CeDeWu, Warszawa 2012.