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Do European banks manipulate risk weights?

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ABSTRACT

Exploiting the information provided by the 2014 Comprehensive Assessment of the European Central Bank and the European Banking Authority, we provide new evidence on the manipulation of risk weights by banks. Concentrating our attention on credit risk density (non-defaulted risk weighted loans over non-defaulted loans), we confirm that the internal rate based approach (mostly the advanced) is used by banks to manipulate risk weights. Moreover, we find that risk weights are mostly underestimated in case of loans in the domestic market and in case of loans to the corporate and retail sectors—i.e. when asymmetric information is significant. We also show that the attitude to underestimation of risk weights is not due to incorrect assumptions of banks' models. Our evidence supports the hypothesis that national supervisory authorities are captured by local banks.

1. Introduction

The answer to the question posed in the title is yes, and it doesn't come as a surprise.

The financial crisis showed that regulation of the banking sector and its supervision were not able to prevent a systemic financial crisis. Two main lessons can be learned: the Basel micro-prudential approach based on risk weighted capital ratios is not able to guarantee the solidity of a bank standalone; and the classical supervisory approach is not well suited to cope with systemic risk. In this paper, we provide new insights into the first issue. Exploiting the information provided by the 2014 Comprehensive Assessment (CA) of the European Central Bank (ECB) and the European Banking Authority (EBA), we provide new evidence on manipulation of risk weights by banks. Concentrating our attention on credit risk density (non-defaulted risk weighted loans over non-defaulted loans), we confirm that the internal rate based (IRB) approach is used by banks to manipulate risk weights. Furthermore, we find that risk weights are mostly underestimated in case of loans to the corporate and the retail sectors and in case of loans in the domestic market, highlighting the possibility of a benevolent approach by the supervisory authority towards domestic banks.

The debate generated from the financial crisis highlighted that the classical risk weighted capital ratio was not a good/exhaustive indicator of financial solidity—see, for example, Laeven and Valencia (2010), European Banking Authority (2011) and Haldane (2012). Several contributions showed that a high risk weighted capital ratio was not correlated with the solidity of the bank (e.g. default, state aids or bail out); in particular, bank soundness was much more related to the leverage ratio than to the Tier 1 capital ratio. Scepticism was reinforced by the fact that the large variation observed in risk weighted assets was not driven by banks' business models and risk profiles: there is room for supervisory and managerial practices (see Basel Committee on Banking Supervision, 2013a, 2013b; Cannata, Casellina, & Guidi, 2012; European Banking Authority, 2013; Haldane, 2011; Le Leslé & Avramova, 2012). There is also evidence showing that banks use the discretion of Basel II agreements (mostly the internal rate based approach) to reduce the risk weighted assets (see Behn, Haselmann, & Vig, 2014; Beltratti & Paladino, 2013; Mariathasan & Merrouche, 2014; Vallascas & Hagendorff, 2013). According to this interpretation, banks exploit the flexibility of the Basel II internal model to underestimate their risks (see also Das & Sy, 2012; Le Leslé & Avramova, 2012). Note that the Basel III system allows for country-specific discretionary measures during the “phase-in period”: this may introduce a further ‘manipulation’ at the country level (Visco, 2014).

The above analysis is mostly descriptive/qualitative. In what follows, we adopt a more structured approach and we investigate the possibility of risk weight manipulation, controlling for several factors including portfolio riskiness, risk attitude, and business specialization. Our starting point is the analysis by Mariathasan and Merrouche (2014), who analyse a sample of 115 OECD banks during 2007–2010. They concentrate their attention on the effect of the adoption of the IRB model, analysing the risk density of a bank before and after the adoption of the internal model. After the adoption of the IRB model, they observe a reduction which may refer to four different hypotheses:

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portfolio reallocation (towards safer assets); improved risk measurement (more refined risk weights); faulty risk modelling; and risk weight manipulation (regulatory arbitrage). Due to the limitations of the data set and of the pre-post analysis, they are not able to completely disentangle the different hypotheses. They conclude that there is evidence of risk modelling mistakes and of regulatory arbitrage. Behn et al. (2014) also provide evidence of risk manipulation through IRB models by German banks: probability of defaults and risk weights are significantly lower for portfolios managed through the IRB approach compared with portfolios handled through the standardized approach, while ex-post default rates go in the opposite direction. Barakova and Palvia (2014) provide different evidence showing that the risk weights computed according to an advanced IRB model by US banks are highly correlated with the loan performance, and conclude that risk weights are not largely driven by non-risk base factors.

Differently from Mariathasan and Merrouche (2014), we concentrate our attention on the risk density of the credit activity. This allows us a more refined analysis; for example, we control adequately for portfolio reallocation and business models that may drive the risk density, as suggested in Cannata et al. (2012). Another important point is that our analysis consists of a static cross-section analysis of 2013 balance sheet data that are far enough from the financial crisis, whereas the above analysis refers to turbulent years and the time dimension may introduce a bias due to the procyclicality in the measurement of risk weights (Cannata et al., 2012). Furthermore, banks could have reduced portfolio risks (de-risking) in the more turbulent period as an immediate response to the crisis. Moreover, by restricting our attention to European banks, we control for the accounting regimes that may affect the analysis when the sample includes US and European banks (Cannata et al., 2012; Le Leslé & Avramova, 2012).

Our main results show that the IRB approach is used by banks to manipulate risk weights and that risk weights are mostly underestimated in case of loans in the domestic market and in case of loans to the corporate and retail sectors rather than to the institutional sector.

The result for the domestic market suggests that risk manipulation may also be due to the weak role played by national supervisory authorities in relation to local banks. The fact that there is evidence of manipulation in case of loans to the corporate and the retail sector rather than to the institutional sector reinforces this interpretation, because the first two sectors are characterized by a higher degree of information asymmetry. Manipulation mainly occurs through the advanced rather than the foundation IRB approach. Finally, we find evidence that the attitude to underestimating riskiness is not due to incorrect assumptions of banks' models.

The paper is organized as follows. In Section 2, we present our data set and the empirical model. In Section 3, we present our main results. In Section 4, we provide a further analysis on business sectors, markets and supervision. Section 5 concludes.

2. The data set and the empirical model

We analyse bank level data using the dataset collected by the EBA and by the ECB during the CA in 2014 (see European Central Bank (2014) for the complete list of banks).[1] Our sample is made up of 121 banks operating in the euro area (Table 1). Data at country level are 2013 values from the World Bank database.

We concentrate our attention on the risk density of the credit business. The risk density is defined as the ratio between non-defaulted risk weighted loans and the total (risk unweighted) non-defaulted credit exposure. The risk density of the credit business is a measure of non-defaulted loan riskiness evaluated by banks using the standard and/or the IRB approach. In order to explore the potential effect of bank counterparties, we consider three different customer segments: i) institutional (banks, insurance companies, pension funds, hedge funds); ii) corporate, which includes loans to firms with a total amount larger than €1 million; and iii) retail, which includes loans up to €1 million to small and medium firms (turnover or balance sheet up to €50 million) and to households (mortgages and other loans). Our choice of the risk density of the credit activity allows us to refine previous analyses. Limiting our attention to loans, we control for portfolio asset allocation (market/credit risk) that may affect the analysis. Taking into account the counterparty of the loans, we refine the analysis, addressing the business specialization of the bank, which is one of the main sources of risk density dispersion in the banking sector (Cannata et al., 2012).

Table 1
Sample by country.
Source: Authors' computation

	Number of banks	Average number of credit markets (domestic + foreigners)
Austria	6	8.0
Belgium	5	7.0
Cyprus	3	3.7
Denmark	4	4.0
Finland	1	6.0
France	11	5.0
Germany	24	7.3
Greece	4	4.0
Hungary	1	4.0
Iceland	3	4.0
Italy	15	2.4
Latvia	1	6.0
Luxembourg	2	8.5
Malta	1	5.0
Netherlands	6	5.0
Norway	1	9.0
Poland	6	1.3
Portugal	3	4.7
Slovenia	3	3.3
Spain	13	1.7
Sweden	4	7.0
United Kingdom	4	3.8
Total	121	4.8

We consider the bank's credit portfolio at country level. As shown in Table 1, the banks in our sample are active, on average, in 4.8 credit markets, including their domestic country, through their branches or subsidiaries. Taking into account the credit market, we consider a source of risk density interbank dispersion linked to the country and supervisory standards (Cannata et al., 2012; European Banking Authority, 2013).

We estimate the following model[2]:

$$\begin{aligned} riskdensityBS_{i,c} = {} & k + \gamma_1 \cdot irbBS_{i,c} + \gamma_2 \cdot defrateBS_{i,c} + \delta_1 \cdot provision_i + \delta_2 \cdot levratio_i + \\ & \delta_3 \cdot lasset_i + \delta_4 \cdot lasset_i^2 + \delta_5 \cdot cet1gov_i + \delta_6 \cdot markrisk_i + \delta_7 \cdot roe_i + \beta_1 \cdot gdp_c + \\ & \beta_2 \cdot marketcap_c + \beta_3 \cdot capstring_c + \beta_4 \cdot supind_c + \beta_5 \cdot extaudit_c + \rho \cdot Ddom_{i,c} + \varepsilon_{i,c} \end{aligned} \quad (1)$$

where the dependent variable, *riskdensityBS*, is the risk density for non-defaulted loans in the business sector *BS* for bank *i* operating in country *c*.[3] The business sectors (*BS*) considered in our analysis are institutional (*INST*), corporate (*COR*) and retail (*RET*), as well as three sectors

[1] Unfortunately, the EBA and the ECB did not implement the CA before 2014, therefore we cannot compare our results with previous analyses, and in particular with pre-crisis evaluations. The 2014 CA was a unique event in Europe and was related to the change of the supervision from National Competent Authorities to the Single Supervisory Mechanism for the largest banks in the area.

[2] The correlation matrix for the exogenous variables is reported in Table 3, part B.

[3] We also considered as a dependent variable the risk density based on the overall credit portfolio and not only on non-defaulted loans. Results are robust for this test and are available upon request.