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The manipulation of basel risk-weights

Mike Mariathasan [a,*], Ouarda Merrouche [b,c,*]

[a] University of Vienna, Oskar-Morgenstern-Platz 1, 1090 Vienna, Austria
[b] Graduate Institute Geneva IHEID, Ch. Eugéne-Rigot 2, Case Postale 13, 1211 Genéve 21, Switzerland
[c] CEPR, London, United Kingdom

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ABSTRACT

In this paper, we examine the relationship between banks' approval for the internal ratings-based (IRB) approaches of Basel II and the ratio of risk-weighted assets to total assets. Analysing a panel of 115 banks from 21 OECD countries that were eventually approved for applying the IRB to their credit portfolio, we find that risk-weight density becomes lower once regulatory approval is granted. The effect persists when we control for asset structure, and we provide evidence showing that this phenomenon cannot be explained by modelling choices, or improved risk-measurement alone. Consistent with theories of risk-weight manipulation, we find the decline in risk-weights to be particularly pronounced among weakly capitalised banks, where the legal framework for supervision is weak, and in countries where supervisors are overseeing many IRB banks. We conclude that part of the decline in reported riskiness under the IRB results from banks' strategic risk-modelling.

1. Introduction

We analyse a cross-sectional panel of 115 banks from 21 OECD countries to better understand the relationship between the regulatory shift from Basel I to Basel II and changes in the ratio of

* Corresponding authors at: Graduate Institute Geneva IHEID, Ch. Eugéne-Rigot 2, Case Postale 13, 1211 Genéve 21, Switzerland.
E-mail addresses: mike.mariathasan@univie.ac.at (M. Mariathasan), ouarda.merrouche@graduateinstitute.ch (O. Merrouche).

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risk-weighted assets to total assets.[1] Using annual balance sheet information from Bankscope, we focus on the role of the internal ratings-based approach (IRB) and investigate to what extent its impact can be attributed to strategic risk-modelling.[2]

We find that reported riskiness declines upon IRB approval, and that the effect is stronger among weakly capitalised banks. The latter result, in particular, is consistent with theoretical work suggesting that: (a) the IRB introduces an opportunity for banks to under-report the riskiness of their assets, and thus to overstate regulatory capital; and (b) low levels of capital strengthen the incentives to exploit this opportunity (Blum, 2008). Additional support for the hypothesis of systematic bias under the IRB is derived from observing a less marked decline in risk-weights when supervisory scrutiny is high, and from showing that reported riskiness tends to increase prior to bank failure if banks had not adopted the IRB. In cases where they had adopted it, we find no increase, and if banks were also weakly capitalised, reported riskiness declined prior to resolution. Weakly capitalised banks also appear to raise dividend payments more upon IRB approval, and their risk models do not appear to be less precise. Consistent with the regulatory arbitrage identified in Huizinga and Laeven (2012), these findings suggest that more fragile banks generally behave less prudently, and that their risk-weights are not just accidentally biased.

The regulation of bank capital constitutes the core of microprudential bank regulation and the global framework known as the Basel standards. This reflects a consensus that higher levels of capital are associated with improved stability, and the duality of its effect: *ex-post*, equity acts as a buffer against adverse conditions, protecting banks from defaulting on their payment obligations; *ex-ante*, it serves to discipline shareholders and managers by obliging them to share the banks' losses (e.g. Perotti et al., 2011).

Despite this general agreement, opinions differ regarding the details of efficient regulation in practice – especially with respect to the correct level of required capital and the valuation of banks' portfolios. Whilst some commentators fear that too little capital may lead to excessive risk-taking and instability, others worry that requiring too much capital provides incentives for banks to curtail lending.[3] As a result, global regulatory standards have changed substantially over the years. When the first Basel accord (Basel I) was adopted in 1988, it defined five risk-weights for the banks' assets and required a capital adequacy ratio (CAR; the ratio of regulatory capital over risk-weighted assets) of 8% for a bank to be considered "sufficiently capitalised."[4] Under the second Basel accord (Basel II), the Basel Committee on Banking Supervision (BCBS) extended the number of possible risk-weights, and, more importantly, changed the rules for assigning weights to assets. What mattered was no longer simply the loan's counterparty, but rather the asset's external credit rating (under the standardised approach, SA), or the bank's internal risk model (under the Foundational Internal Ratings-Based approach, F-IRB, or the Advanced Internal Ratings-Based approach, A-IRB).

[1] Throughout the paper we will refer to the ratio of risk-weighted assets to total assets, either as "reported riskiness" (because banks effectively self-report risk-weights under the IRB), "risk-weight density" (as in Le Lesle and Avramova, 2012), or "average risk-weights".

[2] The Economist (2012), among many others, provides narrative evidence of strategic risk-modelling, and refers to the capital adequacy ratio (CAR) under the IRB as *Do-It-Yourself (DIY) capital*.

[3] The view that high capital levels are costly is not undisputed: Admati and Hellwig (2013), for example, have argued that higher equity levels should not impair banks' activities because they would also reduce borrowing costs. In the presence of deposit insurance and taxation-related advantages for debt over equity, however, the monitoring incentives for depositors and the effect of equity on borrowing costs remain unclear. We interpret banks' lobbying for lower capital requirements as evidence in support of an existing cost advantage of debt over equity, and conduct our analysis under the premise that banks, on average, prefer high leverage ratios.

[4] The "Basel accords" are an international set of rules for banking regulation, proposed by the supranational Basel Committee on Banking Supervision (BCBS) at the Bank of International Settlements (BIS) in Basel. The four initial risk weight categories were 0% (e.g. for cash), 20% (e.g. for assets involving banks located in OECD countries), 50% (e.g. for loans secured by mortgage on owner-occupied or rented residential property) and 100% (e.g. for personal consumer loans). In addition, there was also an option for a 10% charge that the national supervisor could assign to claims on domestic public sector entities. The percentages reflect the weights that the corresponding assets were assigned in the calculation of the banks' RWAs, implying that higher risk-weights (i.e. riskier assets) correspond to higher equity requirements. The 8% requirement refers to the CAR that was required from banks. For more detail, see: http://www.bis.org/bcbs/index.htm.