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Market-oriented banking, financial stability and macro-prudential indicators of leverage☆

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ABSTRACT

In order to complement the macro-prudential framework introduced in Basel III, we propose a new breed of indicators based on the degree of leverage which helps track the time-varying dimension of bank systemic risk—a key aspect of financial stability. Given the new sources of liquidity generated by off-balance-sheet activities, time-varying indicators of leverage become more informative of the leverage dynamics. We introduce a Kalman filter procedure to study such elasticity-based measures of broad leverage. This approach enables the detection of the build-up of financial imbalances—as measured by the increase in bank risk—years before what the traditional assets to equity ratio predicts. Most elasticity measures we propose appear in line with the historical episodes, well tracking the cyclical pattern of leverage. Importantly, the degree of total leverage suggests that market-oriented banking exerts a stronger influence on leverage during expansion periods.

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1. Introduction

Since banks were allowed to conduct off-balance-sheet (OBS) activities, their financial results have become more volatile (Stiroh, 2004, 2006a,b; Stiroh and Rumble, 2006; Calmès and Liu, 2009; Calmès and Théoret, 2009, 2010). Following the emergence of market-oriented banking,[1] the fluctuations in Canadian banks net operating income growth have increased *pari passu* with the volatility of noninterest income (Fig. 1). This volatility trend relates to bank market-oriented business lines, in particular the trading and capital markets activities generating trading and fee income[2] (Fig. 2). There is also evidence that the higher risk-taking associated with OBS banking results in greater levels of bank leverage. Diversification in OBS activities thus leads to increased systemic risk,[3] which runs counter to financial stability.

Being based on micro-prudential policies, the Basel I and II framework does not properly address the systemic risk related to bank diversification in OBS activities. Basel I and II rather contribute to increase it because the capital rules they impose increase procyclicality in the banking system.[4] For example, banks may get involved in regulatory capital arbitrage to dodge the regulatory capital constraints—an obvious source of procyclicality (Calomiris and Mason, 2004; Ambrose et al., 2005; Brunnermeier, 2009; Kling, 2009; Cardone Riportella et al., 2010; Nijskens and Wagner, 2011). To maintain financial stability in the new banking context, a macro-prudential framework must be set-up (Allen et al., 2011; Shoenmaker and Wierts, 2011; Schoenmaker and Wagner, 2011). In this respect, Basel III[5] introduces macro-prudential rules to tackle the procyclicality[6] generated by Basel I and II capital rules. The main device put in place to control procyclicality is a capital buffer.[7] When the economy is improving—i.e., when credit growth is above its trend—the buffer increases (and it decreases in a downturns). Basel III also launches a compulsory leverage ratio (*LRR*)—an unweighted risk ratio defined as Tier 1 capital to total assets—to constrain the build-up of leverage in the banking sector, to avoid excessive deleveraging, and to reinforce the risk-based requirements with a simple non-risk based backstop measure.

Apart from credit growth, indicators tracking bank systemic risk are seriously missing.[8] However, credit growth and leveraging are two sides of the same coin, since financial leverage is the main driver of credit growth (e.g., Stein, 2010; Brunnermeier and Sannikov, 2011; Shleifer and Vishny, 2011).[9]

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[1] In this paper, we use the expressions "OBS activities", "market-oriented banking" and "non-traditional activities" interchangeably, even if some market-oriented activities are included on-balance-sheet. As usually done in the literature, we measure these activities by the share of noninterest income in bank operating revenues since there is no direct asset measure of off-balance-sheet components (Boyd and Gertler, 1994).

[2] Trading income is volatile because it comoves with the stock market. Fee income is volatile because the demand for the products generating such income is strongly conditioned by the phase of the business cycle. For example, credit commitments surge during expansion periods and recede during recessions.

[3] According to the teachings of traditional finance, portfolio diversification should lead to a decrease in return volatility (Markowitz, 1952). Many hypotheses have been advanced in the literature to account for this apparent puzzle related to bank diversification in OBS activities. First, diversified banks may use their diversification benefits to pursue riskier activities, for instance more levered activities (Demsetz and Strahan, 1997). Second, at the aggregate level, diversification makes banks quite similar and exposes them to the same risks (Wagner, 2010a,b; Schoenmaker, 2013). Finally, systemic risk may be related to inappropriate public policies (Schoenmaker, 2011, 2013).

[4] The Schoenmaker's (2011, 2013) trilemma can be used to explain the link between increased OBS activities and financial stability. Indeed, under the Basel I and II capital rules, an increase in bank diversification decreases financial stability. Being based on a micro-prudential framework, Basel I and II policies are not suited to tackle financial instability (systemic risk). Note that Basel II launched some measures to address procyclicality, like the requirement to use long-term data horizons to estimate probabilities of default. But these measures were insufficient and not integrated in a macro-prudential setting.

[5] Basel III, *A global regulatory framework for more resilient banks and banking systems*, Banking Committee on Banking Supervision, Bank for International Settlements.

[6] In terms of Basel III's document: "The Committee is introducing a number of macro-prudential elements into the capital framework to help contain systemic risks arising from procyclicality and from the interconnectedness of financial institutions (Basel III, opt. cit., p. 2).

[7] Other measures are also launched by Basel III to strengthen the capital and liquidities of banks (Basel III, opt. cit.).

[8] According to Schoenmaker (2013), in econometric research, only credit growth has predictive power for financial stress in most countries.

[9] See also Maddaloni and Peydro (2011). The link between securitization and credit growth is less clear. But there is some evidence that an increase in securitization is accompanied with an increase in credit growth.