



ELSEVIER

Contents lists available at ScienceDirect

Journal of International Money and Finance

journal homepage: www.elsevier.com/locate/jimf



The early warnings of banking crises: Interaction of broad liquidity and demand deposits



Michael Lang ^{*}, Paul G. Schmidt

Economics Department, Frankfurt School of Finance & Management, Sonnemannstr. 9-11, 60314 Frankfurt, Germany

ARTICLE INFO

Article history:

Available online 14 November 2015

JEL classification:

F32

F34

G01

G21

O16

Keywords:

Banking crises

International capital flows

Interaction of liquid assets and deposits

Financial sector vulnerability

Early warning system

ABSTRACT

This paper explores the fundamentals in the run-up to systemic banking crises. It applies a visualisation approach that combines elements of an event study analysis and a fan chart technique. The approach helps identify potential leading indicators. A multivariate analysis follows. This paper presents a new early warning system for banking crises built upon these indicators. The interaction of liquidity ratio and loss of demand deposits is incorporated into the model and substantially improves the results. The selected factors are highly statistically significant and robust. The out-of-sample forecasts demonstrate the strong predictive power of the model.

© 2015 Published by Elsevier Ltd.

1. Motivation

Banking crises have a substantial adverse effect on the overall economy. Laeven and Valencia (2012) find that episodes of banking crises result in a 23% cumulative output loss as well as significant fiscal costs and substantial increases in public debt. Reliable leading indicators and credible early warning systems would allow policy makers to adopt preventive measures in the run-up to banking crises. This could help avoid the crises or at least limit their potential adverse effects on the economy.

^{*} Corresponding author. Tel.: +49 (0) 69 154008-770.
E-mail address: m.lang@fs.de (M. Lang).

The recent global financial meltdown reveals the risks of low liquidity buffer and high exposure to short-term funds. Short- and medium-term deposits are some of the most important funding sources of credit institutions. In tranquil periods, their volume is relatively stable providing a reliable funding source for banks. Banks undertake maturity transformation and use deposits to fund their long-term credit exposure. The latter bears certain risks in the case of a bank run. The large-scale withdrawal of deposits jeopardises the solvency of credit institutions and can drive them into bankruptcy. Banks need a sufficient liquidity buffer to meet their liquidity needs and absorb the potential loss of deposits. Thus, deposits and liquid assets are closely linked. A thorough banking sector vulnerability analysis requires the consideration of both factors and their interaction.

A banking sector that maintains a low liquidity ratio will be more vulnerable to a liquidity shortfall if depositors withdraw their funds on a large scale. The likelihood of a shortfall should be lower if the liquidity ratio is high and allows banks to absorb the loss of deposits or if banks maintain a low liquidity ratio but the loss in deposits is not substantial. Therefore, the interaction between deposits and liquidity captures aspects of liquidity risk that are not otherwise visible.

Regulators recognise the issue. The recent global financial crisis prompted policy makers to introduce new regulatory target ratios within the Basel III framework, in particular the Net Stable Funding Ratio and the Liquidity Coverage Ratio. The former sets incentives for relatively stable medium- and long-term funding sources. The latter requires banks to maintain an adequate liquidity buffer to meet their short-term liquidity needs even in a stress scenario. Regulators only accept highly secure and liquid assets such as cash holdings and marketable claims on sovereigns as a liquidity buffer.

Bank liquidity shocks have already been extensively explored by academics. The most recent contributions include [Carmona \(2007\)](#), [Calvo \(2012\)](#), [Acharya and Naqvi \(2012\)](#), as well as [Drehmann and Juselius \(2014\)](#). Both theoretical models and empirical studies have been considered in the attempt to build early warning systems for banking crises. [Bell and Pain \(2000\)](#), [Schmidt \(2001\)](#) as well as [Davis and Karim \(2008\)](#) summarise and compare the well-known early warning systems in the field. Among the most important and influential contributions to this research area are the models of [Kaminsky and Reinhart \(1999\)](#) who examine 20 countries for the period between 1970 and 1995 and [Demirgüç-Kunt and Detragiache \(1998, 2002\)](#) whose analysis builds upon 61 countries for the period between 1980 and 1997. These seminal papers form the basis for most of the subsequent research in this field, including but not limited to [Barrell et al. \(2010\)](#), [Karim et al. \(2013\)](#) as well as [Maghyereh and Awartani \(2014\)](#).

Although both liquidity shortfall and the sudden loss of deposits are well-known and widely recognised vulnerability indicators, they have not always been considered in early warning systems. Some models build upon liquidity and deposit definitions which may not be adequate for an early warning system or may even neglect one of the two variables. To the authors' knowledge, the interaction of liquidity and short-term funding has not been sufficiently addressed in earlier studies.

[Kaminsky and Reinhart \(1999\)](#), for example, do not account for liquidity, but they recognise the importance of deposits. [Kaminsky and Reinhart \(1999\)](#) illustrate the loss of bank deposits, which consist of both demand and time deposits, in the run-up to banking crises. Time deposits are redeemable at notice. Thus, their cancellation only becomes visible on the banking balance sheet with a certain time lag. Demand deposits, in contrast, can be withdrawn anytime and their decline becomes fully visible immediately. Therefore, demand deposits are very sensitive to any shift in depositors' confidence and reflect those shifts promptly. These considerations suggest that the loss of demand deposits may be a better vulnerability indicator than the sum of the overall bank deposits.

[Demirgüç-Kunt and Detragiache \(1998, 2002\)](#) consider both liquidity and deposits. They show that explicit deposit insurance creates incentives for Moral Hazard and has an adverse effect on banking stability. Their model accounts for the existence of deposit insurance but does not reflect the actual change in deposits. Their liquidity ratio is defined as the ratio of banks' claims on the central bank as a percentage of the total assets.

[Barrell et al. \(2010\)](#) and [Karim et al. \(2013\)](#) who focus on OECD countries do not consider deposits and, thus, neglect the loss of short-term funding sources. Instead they primarily account for bank liquidity on the assets side of the balance sheet. [Barrell et al. \(2010\)](#) adopt the ratio of banks' claims on the central bank following the definition of [Demirgüç-Kunt and Detragiache \(1998, 2002\)](#). [Karim et al. \(2013\)](#) extend the definition of liquid assets to bank's claims on the central bank and the general

Download English Version:

<https://daneshyari.com/en/article/963808>

Download Persian Version:

<https://daneshyari.com/article/963808>

[Daneshyari.com](https://daneshyari.com)