Journal of Financial Stability 11 (2014) 13–31

Contents lists available at ScienceDirect

Journal of Financial Stability

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

Impact of the subprime crisis on bank ratings: The effect of the hardening of rating policies and worsening of solvency

Carlos Salvador[a,*], Jose Manuel Pastor[b], Juan Fernández de Guevara[a]

[a] CUNEF, Madrid, Spain
[b] Universitat de València and Ivie, Spain

ARTICLE INFO

Article history:
Received 3 February 2013
Received in revised form 1 June 2013
Accepted 17 October 2013
Available online 6 November 2013

JEL classification:
G21
G24
G32

Keywords:
Bank ratings
Subprime crisis effect
Financial and environmental risk factors
Ordered probit models

ABSTRACT

This paper studies the impact of the subprime crisis on the ratings issued by the rating agencies in evaluating the solvency of banks. After ascertaining a significant worsening of ratings after the crisis, the paper hypothesises the possibility that this worsening is due not exclusively to a deterioration in the banks' credit quality, but also to a change in the behaviour of the rating agencies. The study designs a methodology to separate the observed change in ratings into two multiplicative components: one associated with the deterioration of the banks' solvency itself and another associated with the change in the agencies' valuation criteria. The methodology is applied to the Spanish Banking System during the period 2000–2009. The results obtained show that the observed lowering of ratings (10.88%) is explained (75%) by the deterioration in the solvency of the banks, but also (25%) by the hardening of the valuation criteria adopted by the agencies. This shows the procyclical character of ratings.

1. Introduction

The outbreak of the subprime crisis in the summer of 2007 and the continued falls in the ratings of structured products and sovereign bonds have reopened the debate on the quality of ratings and the role of the Credit Rating Agencies (CRAs) in the financial markets. As mentioned in the Financial Crisis Inquiry Report (2011) the rating agencies used wrong models before the crisis to rate the structured products issued by banks with the aim of increasing market share and profits. This is not the first time that the CRAs have been under scrutiny. As pointed out by Duff and Einig (2009), the debate began as a result of the rating agencies' inability to value correctly the risks in the Asian financial crisis of 1997 and in the bankruptcies of Enron and Parmalat at the beginning of this century.[1] As the IMF's Global Financial Stability Report (2010) indicates, the rating agencies undertook a review of the ratings issued, as well as updating the rating criteria and models in response to the criticisms received. Specifically, as pointed out in Deprés (2011), after having relaxed their criteria in the year prior to the crisis, the rating agencies hardened their criteria, thus causing a general fall of ratings. This fall aggravated the economic situation even more, since for many governments and firms that presented economic difficulties it meant a significant hardening in conditions of access to the capital markets.

At the same time, since 2007, financial institutions, especially in Europe and in the United States, have suffered the effects of a financial crisis without precedent since the crash of '29. According to the Financial Stability Report of the European Central Bank (2008a,b), profitability has reduced, and problems of solvency and liquidity have arisen. The fall in profits has made internal generation of capital more difficult, thus increasing dependence on external financing. There has also been an increase in the cost of financing and a loss of credit quality. In these circumstances, together with an increase of general uncertainty in banking activity, the solvency levels of banks have deteriorated, particularly in those with greater need for short term liquidity, with excessive dependence on wholesale markets, with a below-average level of reserves, and/or heavy exposure to structured products such as Asset-Backed Securities (ABS). In this sense, as pointed out in Higgins et al. (2010) the downgrade that occurred in ABS

* Corresponding author at: CUNEF, Serrano Anguita 13, 28004 Madrid, Spain. Tel.: +34 91 448 08 92; fax: +34 91 594 13 66.
E-mail addresses: Carlos.Salvador@cunef.edu (C. Salvador), jmpastor@uv.es (J.M. Pastor), radoselo@uv.es (J. Fernández de Guevara).

[1] For example, Enron in the days before its bankruptcy presented an investment-grade rating, which according to Moody's, Standard and Poor's and Fitch, reflected a good credit quality.

1572-3089/$ – see front matter
http://dx.doi.org/10.1016/j.jfs.2013.10.005

had an impact on the performance of the originating bank's parent.

The consequence of these processes has been a significant worsening of ratings. The adjustment has been so severe that doubts arise as to whether this is totally justified by the worsening of banks' solvency, or on the contrary there has also been a change in the rating policies of the agencies, which following the criticisms received are much more scrupulous and prudent when issuing their ratings. It is consequently hypothesised that the adjustment in the ratings is not justified in its entirety by the worsening of the solvency of the banks, but also in large part is due to the hardening of the agencies' valuation criteria. In this context, the aim of this paper is to design a methodology that will permit this hypothesis to be tested, separating the adjustment observed in the ratings into two additive components: one associated with the deterioration of the banks' solvency and future perspectives, and another associated with the change in the agencies' valuation criteria.

To analyse this question we use as our laboratory the Spanish Banking System (SBS), during the period 2000–2009.[2] This period permits us to analyse the impact that the subprime crisis has had, both on the solvency of banks and on the behaviour of the rating agencies. The SBS is an especially suitable market for analysing this question because from the mid-1990s to the year 2007 it experienced very strong economic growth. Specifically, as shown in chapter 4 of the Bank of Spain's Statistical Bulletin (2011), between 1997 and 2007 the Spanish Banking Sector grew by 11.94% annually in terms of assets. This growth was grounded on the concentration of activities in credit and especially on activities related with construction and property development. In 2007, credit for construction (construction, real estate and purchase of dwellings) represented 61.3% of the total credit, nearly 20% more than 1997. This strong growth in credit was accompanied by high levels of profitability (ROA above the European average), low levels of doubtful assets and unlimited access to international markets. Responding to this reality, the rating obtained by the banks was high. However as shown by several Financial Stability Reports of the Bank of Spain (2009, 2010), with the outbreak of the subprime crisis, the assets of the credit institutions deteriorated rapidly. Profitability, liquidity and coverage by provisions were drastically reduced. At the same time doubtful assets grew exponentially and greater capital resources were needed. As a consequence there was a restructuring process characterised by the merging of several savings banks and adjustment in the branch network. Thus the SBS allows us to study how the CRAs adjust their rating policy in a country that experienced a global crisis and a national crisis marked by a housing bubble.

Among the different types of rating, in this study we use the banks' long term issuer ratings issued by the agencies Fitch, Standard and Poor's, and Moody's. This choice is fundamentally for three reasons. First, the ratings play an important role in the banking industry, because as affirmed by Morgan (2002), traditionally this sector has been described as non-transparent and with problems of asymmetrical information, due to the uncertainty associated with the principal assets constituting the balance sheets of the banks (loans and other financial assets).[3] In this sense, the ratings resolve part of the problem, allowing the banks to access the capital markets and the interbank markets on better terms, paying credit differentials more fitting to their credit risk profile. Second, the literature on identification of the determinants and prediction of banks' ratings is limited, most of it focussing on sovereign risk and on other industries. In this sense, the studies by Morgan (2002), Godlewski (2007), Iannotta et al. (2008), Peresetsky and Karminsky (2008), Bellotti et al. (2010), Caporale et al. (2011) must be highlighted. Except Morgan (2002) and Iannotta et al. (2008), the rest of the studies use exclusively the individual ratings from Fitch or Moody's. In this way, only the intrinsic financial situation of the banks is being measured, without taking into account the external support that these entities have from their proprietors and/or the economic authorities. This is important, because as observed in the subprime crisis, the economic authorities came to the rescue of the banks with difficulties with the aim of preventing their failure (Packer and Tarashev, 2011).[4] Therefore, as indicated by the methodological reports of the rating agencies, Fitch (2003, 2009, 2010, 2011), Moody's (2007a,b),[5] and Standard and Poor's (2010, 2011), individual ratings measure neither the probability of failure nor the total credit quality of the banks, but are the first step in evaluating the credit quality of financial institutions. Consequently, this study uses issuer ratings since we aim to analyse the impact of the subprime crisis on the behaviour of the banks' ratings taking into account the support that they have from the authorities and from their proprietors. Furthermore these ratings are used because the objective is to carry out a homogeneous analysis of ratings among the three rating agencies considered (Fitch, Standard and Poor's, and Moody's).[6]

To test the starting hypothesis we design a two-stage methodology. In the first stage we estimate the determinants of the probability that a bank will be allotted a particular rating. On the basis of these determinants we test whether the importance assigned to each of these determinants explaining the agencies' rating policy has changed with the start of the financial crisis. From the results of this first stage, in a second stage the variation undergone by the banks' ratings is decomposed into two components: one part due to the change in the creditworthiness of the banks and the other part deriving from the hardening of rating policies. To perform these analyses we use the long term issuer ratings of Fitch's, Standard and Poor's and Moody's. Furthermore we use Fitch's ratings with lags, and the individual ratings of this agency and Moody's.

The results obtained show that with the subprime crisis there is an average fall in ratings of 10.88%. Of the total change in ratings, 74.85% is due to the worsening solvency of the banks, and 25.15% to the hardening of the rating policy of the CRAs (Credit Rating Agencies). This hardening of the rating criteria confirms the procyclical character of the rating agencies, amply demonstrated

[2] The last year is 2009, because we have no more recent data from the database used.

[3] Morgan (2002) describes loans as opaque, illiquid and a source of uncertainty, because loans granted to retail customers are difficult to monitor. He also considers that negotiable assets present high uncertainty given the ease with which positions can change and the difficulty of monitoring them. According to this author, the dominance of these assets in the balance sheet, together with the banks' high degree of leverage, create uncertainty for investors and analysts. This explains the discrepancy existing among the rating agencies when issuing a rating of these firms.

[4] An example of these interventions was that performed in Spain on Caja Castilla La Mancha and Caja de Ahorros del Mediterráneo. In other countries the intervention of Royal Bank of Scotland, UBS, Goldman Sachs, Morgan Stanley and Bank of Ireland stand out. It should also be noted that some large institutions were compelled to merge with strong banks and to accept support from the authorities to prevent their failure. Among these entities are Caja Sur, Fortis, Merrill Lynch, Wachovia, Dresdner Bank and Bear Stearns.

[5] This report is considered because according to Moody's (2007a) in the introduction on how to construct a bank rating, the first thing taken into account is the rating that evaluates only the bank's intrinsic financial solidity (BFRS) and then after its conversion to the "Baseline Credit Assessment" scale (BCA) the external support (JDA) that the banks receive from their owners and/or from the economic authorities is incorporated.

[6] Most of the banks evaluated by the rating agencies considered in this study (Fitch, Moody's and/or Standard and Poor's) use the issuer ratings in their annual reports to show their credit quality at corporate level.