



Off-balance-sheet activity under adverse selection: The European experience[☆]

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ABSTRACT

In the crisis that started in 2007, banks' off-balance sheet activity has been blamed for flooding the market with low-quality assets and contributing to spreading risk throughout the economic system. Nevertheless, this view is hardly sustainable within the context of sophisticated markets. This paper puts forward an alternative interpretation of the off-balance sheet market, the so-called adverse selection hypothesis. According to this hypothesis, an adverse selection problem characterizes the relation between banks and their counterparties in off-balance sheet deals. Empirically, this implies that off-balance sheet activity is expected to be negatively related to failure risk, whereas it is expected to be positively related to the quality of the assets used for off-balance sheet operations. We test the adverse selection hypothesis for a sample of banks in the 27 member countries of the European Union during the pre-crisis period 1996–2006 and the crisis period 2007–2009. In addition, we check for possible differences between banks in the first 15 members of the European Union and those in the 12 new members.

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1. Introduction

The financial turmoil that started in 2007 has changed the view on off-balance sheet (OBS) activity. Before the crisis, paraphrasing Alan Greenspan, OBS items were thought to have reinforced the flexibility, efficiency, and resiliency of the financial system. After the crisis, securitized assets, guarantees, committed credit lines, credit default swaps, and so forth were identified as part of the financial “trap” at the very heart of the downturn. OBS activity was considered responsible for having flooded financial markets with low-quality assets in a multilayered agency problem (Ashcraft and Schuermann, 2008), with final investors suffering the corresponding loss.²

However, for this new view to hold, investors operating in the OBS market would have to be willing to take disproportionate risks by investing in assets with a default probability close to one. This widespread lack of risk aversion is hardly

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² This view of OBS activity has been endorsed by the financial authorities. By way of illustration, Bernanke (2008) pointed out that the main cause of the financial turmoil was the originate-to-distribute approach to credit extension. Particularly, the loosening of the credit standards used by financial institutions in these practices and the fact that investors took insufficient care evaluating the risks associated with OBS items. As a result of these drawbacks, losses spread throughout the financial system (see also the President's Working Group on Financial Markets, 2008; Financial Stability Forum, 2008).

acceptable as regards sophisticated investors in sophisticated markets. By contrast, if agents are assumed to be risk averse, the rapid expansion of the OBS market in the pre-crisis period cannot be explained in terms of low-quality assets systematically provided by “greedy” issuers and acquired by “innocent” investors. An alternative explanation is to look at OBS activity in terms of an adverse selection problem between banks and risk-averse investors.

Since Akerlof's (1970) pioneering work, we know that, with risk-averse investors, information asymmetries between issuers and investors can lead to an adverse selection problem that can result in a no-trade equilibrium, that is, disappearance of the market. Under the assumption that investors are risk averse, the no-trade result associated with adverse selection can be avoided in the OBS market if high-quality assets offered by high-quality issuers are predominant. The reason is that this option for quality would be a positive signal sent by the issuers of OBS items and would give investors a guarantee that their investment is relatively safe. Indeed, as Shin (2009) points out, the severity of the credit crisis lies precisely in the fact that low-quality OBS items were not passed on to final investors. The assets in the hands of investors were mostly high quality, whereas low-quality assets were sitting on the balance sheet of financial intermediaries.

This paper aims to provide an explanation of the operation of the European OBS market in terms of an adverse selection problem. Since this explanation provides an alternative view of the role of OBS activity in the current crisis, our analysis focuses on the pre-crisis period. However, the crisis period is also studied to gain an overall view of bank OBS activity.

In a more specific way, our hypothesis is that an adverse selection problem characterizes the relation between a bank and its counterparties in OBS deals. According to standard economic theory (Freixas and Rochet, 2008), we assume that issuer banks are the risk-neutral, fully informed side of that relation, whereas their counterparties are the risk-averse, uninformed side. The latter's aim is to avoid selecting “lemons,” that is, low-quality assets from low-quality banks. Note that the fact that investors pursue this goal defines the degree to which banks are able to engage in OBS activity. Therefore, if investors receive signals that the issuer is a high-quality bank providing high-quality items, this bank's chances to participate and make profits in the OBS market are enhanced.

From this perspective, banks' risk indicators define the capacity to engage in OBS activity, and we expect to find that safe banks issuing safe OBS items should engage in this activity to a larger extent. More specifically, our hypothesis entails that banks' OBS activity is expected to be negatively related to risk measures signaling a bank's probability of failure (such as measures of insolvency or portfolio risk), but it is expected to be positively related to risk measures signaling that banks are using high-quality assets for OBS activity (such as measures of credit or liquidity risk). Accordingly, the adverse selection hypothesis rejects associating OBS activity in the banking industry with “junk” assets.

The relation between OBS activity and banks' risk exposure has been thoroughly analyzed, and several hypotheses (briefly discussed in Section 2) are proposed in the literature on OBS activity to explain the relation. Nevertheless, this paper extends earlier analysis in several manners. First, it puts forward and tests the adverse selection hypothesis. This hypothesis enables us to explain the behavior of banks' counterparties in OBS activity in terms of a standard adverse selection problem. As a result, the main focus of the analysis of the OBS market is not on the decision of issuer banks, but on their counterparties in OBS deals. Even more specifically, the key of the analysis is these investors' risk aversion. Indeed, besides the contractual means that help to overcome the lemon problem in the OBS market, risk aversion would provide an additional self-regulating mechanism that controls for the quality standards acceptable in this market. Second, our analysis palliates the bias toward the US banking system in the research about the relation between OBS activity and risk. To our knowledge, this is the first study that specifically examines this relation in the European Union (EU) banking system. In addition, we separately analyze the OBS market in the first 15 members of the EU and in the countries that recently joined.

Using a sample comprised of individual banks in the 27 EU member countries, we separately study the pre-crisis period 1996–2006 and the crisis years 2007–2009. This allows us to determine whether the financial downturn that started in 2007 modified the way in which banks operate in the OBS market. Specifically, we test the adverse selection hypothesis for the entire sample for both periods. Then, to check for any possible differences between mature and in-transition economies, we test this hypothesis for two subsamples. The first subsample comprises banks in the first 15 members of the EU (EU15), and the second banks in the 12 new EU joiners (EU12).³ Our testing process examines the nature of the relation between OBS deals and risk measures that reflect the probability of banks becoming insolvent. To capture this probability, we use the Z-score (ZS) (Altman, 1968), as well as its two additive components, and the capital-to-assets ratio (EA). In addition, we analyze the relation of OBS activity with credit and liquidity risk. For this analysis, we use cross-sectional estimation based on average values and panel data techniques.

For the entire sample, in the two periods studied, and regardless of the techniques used, our results support the adverse selection hypothesis; that is, OBS activity is negatively related to proxies of failure risk and positively related to credit and liquidity risk. Nevertheless, when first and new members are separately analyzed, a significant difference arises. The adverse

³ There are two basic reasons to analyze EU15 and EU12 separately. The first is that the countries grouped in EU12 can be considered in-transition economies for most of the sample period. Recall in this regard that, except for Cyprus and Malta, the rest of EU12 states were part of the Soviet bloc up to the end of the 1980s or the beginning of the 1990s. Indeed, the average GDP per capita of EU12 is substantially lower than of EU15. According to the World Bank, in 2004, when 10 of the EU12 states joined, the average GDP per capita of EU15 (US\$36,307) was around 3.5 times higher than that of EU12 (US\$9859). Nevertheless, the most important reason to split the sample is that the EU institutions have promoted a process of integration and consolidation of the EU financial sector aimed to form a European Single Market for financial services (see, e.g., Commission, 2005). This process started in the 1980s and accelerated in the 1990s. Given that the EU12 states did not begin joining the EU until 2004, their banking systems have not participated in this integration process for most of the sample period.

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