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The subprime asset-backed securities market and the equity prices of large complex financial institutions☆

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A B S T R A C T

In this paper, we investigate the relationship between the subprime asset-backed collateralized debt obligations (CDO) market and Large Complex Financial Institutions (LCFIs). We attempt to account for the dynamics between the ABX index returns and the banks' equity returns through conditioning our analysis on the historical correlation between the variables. Three key results emerge from the analysis. First, we find a positive correlation between movements of the ABX index and the equity returns for all the LCFIs. Second, the volatility of ABX index returns tend to be transmitted to the volatilities of the equity returns of the financial institutions. Third, ABX prices changes lead equity returns changes of the European-based LCFIs. For the US LCFIs a two-way linkage emerges.

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1. Introduction

An emerging consensus in the literature is that the financial crisis of 2008 was caused by an unprecedented high level of default of subprime mortgages which largely affected the value of mortgage-backed securities (MBS), asset-backed securities (ABS) and collateralized debt obligations (CDOs) positions held by various financial institutions across the world (Hildebrand, 2008; Mishkin, 2008; Dwyer and Tkac, 2009; Brunnermeier, 2010).

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The introduction of MBSs and ABSs satisfied the need for large capital flows into the US in the early years of the last decade. The transformation of the US banking sector from the traditional role of originator and holder of loans to the new role of 'originating to distribute' severed the link between lenders and borrowers leading to laxity in lending criteria and deterioration in the credit quality of borrowers (Brunnermeier, 2010). In addition, banks and their off-balance sheet vehicles packaged and tranched MBSs and ABSs and sold them off in form of CDOs to investors eager to take on riskier assets. These off-balance sheet vehicles served to fund their long-term investments in MBSs and ABSs by short-term borrowing in the commercial paper (CP) market. This inevitably exposed the sponsoring banks to liquidity risk, which in hindsight, was a trigger of the financial crisis of 2008.

A subprime mortgage backed credit derivative (CD) index, the ABX.HE index, was used by financial institutions as a benchmark to write down their subprime-mortgage investments following marking-to-market practices. The purpose of the index is to allow investors to trade exposures to the subprime market without holding the actual ABSs. The ABX.HE (ABX, henceforth) went through four series, each a list of 20 subprime RMBS transactions issued during a six-month period of time beginning in 2006. Each series was in turn divided into lists of specified securities grouped by their initial credit rating, e.g. ABX.HE.BBB.06-1.

The primary objective of this study is to investigate the dynamic relation between changes in the level of the ABX index and equity prices movements of Large Complex Financial Institutions (LCFIs) and evaluate whether, during the subprime crisis, the ABX index functioned as a prime vector of shocks propagation to these institutions.

The global financial system comprises thousands of banks and other financial institutions of various sizes and types. To better capture its complexity, this paper focuses on a defined group of the very largest institutions. Accordingly, the sample of banking organizations used here includes firms that have been identified by the Bank of England as LCFIs[1]. This allows us to adopt a homogeneous set of LCFIs: *ABN Amro*[2], *Bank of America, Barclays, BNP Paribas, Citigroup, Credit Suisse, Deutsche Bank, Goldman Sachs, HSBC, JP Morgan Chase, Lehman Brothers, Merrill Lynch, Morgan Stanley, Societe Generale* and *UBS* as representatives of the global banking sector. The main reason we focus our analysis on this specific category of institutions is that the resilience and stability of LCFIs is at present the major concern to central banks and regulatory authorities[3]. LCFIs play a pivotal role in the international financial system as intermediators of risk and as providers of liquidity to capital markets. LCFIs can be considered as institutions whose size and nature of business is such that their failure and inability to operate would most likely spread and have adverse implications for the smooth functioning of financial markets or other financial institutions operating within the system. If the disturbance were large enough to threaten financial system stability it could be transmitted through various channels–including payment systems and markets–but would most likely originate from an institution being unable to meet its payment and settlement obligations (ECB, 2006). Consequently, knowledge of the extent to which LCFIs are interrelated–and exposed - to other financial markets is important for the assessment of risks to financial stability emanating from these institutions. Borio (2003), for example, suggests that, when compared with institution-specific factors, systemic risks arising through 'common exposures to macroeconomic risk factors across institutions' carry the 'more significant and longer-lasting real costs' to the financial system. This emphasises the relevance for financial stability of monitoring LCFIs as a special class of financial institutions. Thus, understanding the nature and the effects of financial innovation in financial markets on major financial institutions is of fundamental importance.

[1] According to the Bank of England (2001), these financial institutions are ranked in the top ten in at least two of the following six categories: (a) bookrunners of international bond issues (Thomson Financial), (b) bookrunners of international equity issues (Thomson Financial), (c) bookrunners of global syndicated loans (Thomson Financial), (d) notional interest-rate derivatives outstanding (Swapsmonitor), (e) foreign exchange revenue (FX Week based on 2000 data), and (f) world-wide custody assets (Globalcustody.net).

[2] Since ABN Amro was acquired by a RBS (Royal Bank of Scotland)-led consortium in 2007, RBS is included in the sample of LCFIs instead of ABN Amro.

[3] In response to the financial crisis, the Basel Committee on Banking Supervision (BCBS) set forth to update their guidelines for capital and banking regulations (commonly referred to as Basel III). Additionally, the Financial Stability Board (FSB) is working towards strengthened prudential oversight of capital, liquidity and risk management and special resolution procedures applicable to LCFIs.

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