Overrated credit risk: three essays on credit risk in turbulent times
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This thesis studied several phenomena and trends in credit markets during the build up and during the onset of the financial crisis of 2007-2009. While the different chapters study different trends, two conclusion are common to all chapters. The first one is that the pricing of credit risky securities depends on much more than just the exposure to credit risk. Aspects like for example liquidity and regulation drive a wedge between the theoretical price if the only risk were credit risk and the realized price. Time variation in these non credit risk related factors can also lead to extra return volatility on credit risky instruments. If regulators are unaware of these effects when designing financial regulation, they may find themselves facing unexpected adverse effects in turbulent times of the regulation that was designed during quiet times. This immediately links to the second common conclusion, which is that financial regulation, while intended to compensate the effect of externalities, is likely to lead to other frictions that in turn lead again to other externalities.

The next section will give a short summary of the main findings of the three chapters followed by implications and associated suggestions for further research.

5.1 Summary of the main findings

Chapter 2 investigates the pricing mechanism of liquidity on asset prices when there is a substantial degree of short selling in a market. This research is most relevant for derivatives markets, since derivatives are typically in zero net supply and therefore the number of short positions should be equal to the number of long positions. The theoretical results however also apply to positive net supply markets with substantial amounts of short selling. One of the main theoretical
results is that a lower risk aversion, higher wealth or shorter horizon leads to a steeper demand or supply curve, making the side with less risk aversion, more wealth or a shorter horizon more sensitive to the liquidity costs. Empirically the most important result is that for CDSs there is a strong and significant positive effect of expected liquidity costs on expected returns, suggesting that protection sellers have lower risk aversion, more wealth or a shorter trading horizon than protection buyers.

Chapter 3 aims to explain why different corporate bond issuers apply for credit ratings from different credit rating agencies. Of the three suggested explanations, information production, rating shopping and certification, only evidence is found in favor of certification. Another important result is that this observation is consistent with a setting in which a regulatory boundary coincides with a boundary that separates information sensitive and insensitive assets in equilibrium. Additional results support the validity of this setting.

Chapter 4 investigates the composition of unexpected corporate bond returns in terms of cash flow and discount rate news. On the theoretical side, there are two key results. The first one is that cash flow news for corporate bonds is equivalent to news about expected loss rates. The other theoretical result is that a finite version of the results in Campbell and Shiller (1988) holds for corporate bonds without having to resort to a boundary condition. On the empirical side, the chapter shows that a substantial part of the unexpected corporate bond return is due to discount rate news. Moreover, the return decomposition gives reasonable results, but shows problematic behavior when the exposure of returns to a persistent factor in the VAR is large. When exposure to the persistent factor is moderate, the use of short term bonds limits the disruptive effect of the persistent variable.

5.2 Implications of the findings

The findings in Chapter 2 are important in several aspects. First, the theoretical results imply that in positive net supply markets with substantial short-selling, illiquid securities can have a lower expected return than liquid securities, which goes against the traditional paradigm. The empirical results suggest that it may be worthwhile for corporations with substantial exposure to bank loans or with a substantial volume of illiquid bonds outstanding to facilitate a liquid CDS market. When investors are likely to hedge a loan they provide with a CDS, the credit spread they will charge on the loan will be linked to the CDS spread. Since the CDS spread for liquid CDSs is lower than that for illiquid CDSs, the underlying
issuer has a direct benefit from a liquid CDS market. This could also provide extra support for the initiative to institutionalize the CDS market and bring all the trading to an exchange.

On first sight, the findings in Chapter 3 would suggest that a discrete regulatory boundary leads to perverse incentives and should be abolished to be replaced with regulation that leads to a more gradual decrease in demand as credit quality worsens. However, in view of the results at the end of the chapter relating to information sensitive and insensitive securities, such a regulatory design could resolve a non-trading region. What a regulator could do to limit shopping around the boundary is to make introduce a ‘vesting period’ for a new rating. That is, with respect to regulation, a newly added rating only takes effect after a a certain vesting period. This reduces the possibility for an issuer to game the regulation substantially, while the aspirant rating can still be available to investors as a signal of research opportunities during this vesting period.

Chapter 4 shows that discount rate news is a very substantial part of unexpected corporate bond returns. Especially from a regulatory standpoint it is important to understand what the effect could be of large unexpected movements in discount rates, in particular when it is to be expected that these movements are only temporary. One of the considerations is when and for which assets capital should be held as a buffer for discount rate shocks. Taking discount rate risk into account makes sense for assets that are also used to cover liquidity risk and only for the scenarios in which no cheaper sources of freeing up liquidity are available. For assets with a buy-and-hold motive, typically only fundamentals matter, since the terminal value is what is ultimately realized. The only reason to model discount rate news for buy-and-hold securities is earnings risk management when these securities have a long maturity and are short-term funded. In that case, adverse changes in discount rates that are also common to short term funding costs can lead to a negative shock in profitability. This discussion also shows from a theoretical perspective why, when and to which extent shocks to discount rates should eat into available (Tier 1 and/or 2) capital. Only for assets that are required to free up liquidity and for earnings risk management part should shocks to discount rates affect available capital since those are the only shocks relevant to the solvency of a bank. Otherwise, volatility in capital ratios will cause unnecessary panic, dead weight losses due to fire sales required to de-lever and unnecessary dilution of equity capital.
5.3 Suggestions for future research

This dissertation has brought forward new insights to the credit markets in the turbulent times in which it was written. Moreover, it brings up new questions and highlights areas in which more research is required.

One of the major new challenges for future research is to connect the results in Chapter 2 with the research in the field of market microstructure. In the model, variations in liquidity, both cross-sectionally and over time are exogenous. Understanding how demand and supply for liquidity are formed and which players are the liquidity providers and which the liquidity consumers in an OTC market like the CDS market is the next logical step in this strand of literature.

Regarding credit ratings, a next logical step for further research would be to test the setting with information-sensitive and insensitive investors more formally. To this end, holding and trading information of both types of investors would be crucial. Incorporating the strategic behavior of CRAs more explicitly could also create more understanding on this issue.

The theoretical side result in Chapter 4 immediately gives directions for further research on present value models in credit markets. Applying one of the estimation techniques for present value models in equity markets to the credit market can allow to extract information optimally from current and past returns, prices and default loss rates in a fairly general setting with only weak assumptions. Moreover, one could, using the discussion in the previous section, derive for a bank the real and optimal funding cost for different assets.