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The pricing of subprime mortgage risk in good times and bad: evidence from the ABX.HE indices

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This arti ... r the ABX.HE ... during the recent fi ... ved pricing patte ... bserved index ... various pricing f ... d concerns about m ... ve provided a sizeab ... while fundame ... ert an importar ... posures have ter ... ket environment. This provides further support for the inappropriateness of pricing models

that do not account sufficiently for factors such as risk appetite and liquidity risk, particularly in periods of stress. In addition, as related risk premia can be captured by unconstrained investors, these findings lend support to government measures aimed at taking troubled assets off banks' balance sheets (e.g. the Troubled Asset Relief Program).

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Notes

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[3] Instead, on 10 September 2008, Markit announced the launch of a new ABX.HE 05-2 index series, to be based on qualifying MBS deals issued in the first half of 2005.

[4] Ashcraft and Schuermann (2008) offer a detailed description of the subprime US mortgage market and of the factors contributing to its performance over time. See also Kiff and Mills (2007).

[5] Overall, the structure of the ABX indices of subprime mortgage-based CDS shows a number of similarities with the iTraxx and CDX credit index families, which are based on baskets of corporate CDS. Some of the more important differences include the securitized nature of the ABX underlyings and the fact that there can be multiple credit events whereas corporate CDS contracts tend to terminate after one single event.

[6] Supplementary indices, called ABX.HE.PENAAA, were introduced in May 2008 to provide additional pricing information for all four existing index vintages.

[7] FICO scores measure the credit risk of individual borrowers based on a statistical analysis of their credit files. FICO scores range between 300 and 850, and subprime loans are often defined as those to borrowers with limited income and/or a score of 620 or below. See Frankel (2006) for details.

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writedowns and interest rate shortfalls, but is irrelevant for our purposes here and thus

ignored through the remainder of this article.

14 The 2006-1 AAA index is quoted with a coupon of 18 basis points, whereas the corresponding BBB− index has a coupon of 267 basis points. The respective coupons for the 2006-2 vintage are 11 basis points at the AAA and 242 basis points at the BBB− level.

15 See, for example, Lehman Brothers (2005).

16 See Markit (2007).

17 See UBS (2007); calculation of writedowns requires deal-level knowledge about the effective attachment and detachment points of the various tranches of ABX constituent deals, which will depend on the amount of overcollateralization and accumulated excess spread.

18 See Box 1 in Fender and Hoerdahl (2007).

19 See UBS (2008) for details.

20 It took until June 2008 for the first ABX index, the 06-2 BBB−, to actually suffer its first principal writedown event (an amount of 1.278 cents per dollar traded); further writedowns on the lower-rated ABX 06-2 and ABX 07-1 indices followed in July and in subsequ

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[24] Asset pricing theory suggests that current prices fully reflect the publicly available information about the state of the economy. Therefore, it is not the published level of a macroeconomic variable that affects the prices of securities or derivatives, but the unexpected component of the new information.

[25] Nonfarm payrolls are known to be the single most important macroeconomic news release in the US, with well documented effects for a variety of financial assets; see Fleming and Remolona (1997). The other variables are suggested by authors such as Calomiris et al. (2008), who employ a panel VAR model to investigate the interaction of foreclosure rates, house prices and other economic variables. They find that employment shocks explain some 7–9% of the forecast variance of foreclosure rates at horizons of 8 and 20 quarters. Similar effects are found for (existing) home sales and building permits, whereas shocks to house price growth explain some 25% of the 20-quarter forecast variance of foreclosure rates.

[26] The resulting downgrade counts, aggregated into vintage-specific indices covering all five rating categories (RAT061 and RAT062) and an overall index (RAT06X), identify 48 days with downgrades on at least one underlying instrument over the period through end-June 2008. The maximum count for the 06-1 and 06-2 vintages is 14 and 51 downgrades/day, respectively, on 8 April 2008 and 30 January 2008. With 100 MBS bonds re... ratings indices c... owngraded.

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[31] First ... alk model (along with the surprise components of economic data announcements), which justifies

regression setups without lagged variables.

[32] This setup extends Fender and Scheicher (2008), who estimate a very similar model based only on ABX 06-1 returns.

[33] A key empirical finding from the ratings literature is that spread changes tend to anticipate negative rating announcements, especially when extreme deterioration in credit quality materializes within a short time period; see Hull et al. (2004). Nevertheless, negative rating events (i.e. downgrades and announcements of reviews for possible downgrade) are generally found to give rise to statistically significant contemporaneous price or spread movements. However, the changes are often economically insignificant and much smaller than would be suggested by the magnitude of the rating change itself; see Cantor (2004).

[34] Across CDS index tranches, Scheicher (2008) finds R^2 values ranging from 0.11 (most senior tranche) to 0.55 (mezzanine tranche).

[35] Alternatively, the regression setup may be inappropriately specified.

[36] This is in line with Danis and Pennington-Cross (2005), who examine the performance of subprime mortgage loans on the basis of a set of logit models to find, among other things, that changes in interest rates affect prepayments, defaults and delinquencies. Changes subprime mortgag

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