Systematic Risk Effects on Consumer Lending Products

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In years past, lenders failed to focus sufficiently on systematic risk factors as the economy was booming; our lending policies and most of our modeling focused in understanding the impact of idiosyncratic risk factors (credit history, debt capacity and the like) on losses. We built scorecards that are well-able to rank-order customers and compare their relative odds at a point in time. But we failed to take adequate account of the risk of changes in the economic environment either through our models or our lending polices.

Most banks, at least those in the U.S., have only started to store detailed loan level data in the last eight to nine years. Aside from the rather mild recession of 2001-2002, we've had little opportunity to observe which customers are most subject to systematic risk, other than perhaps to analyze how consumer default varies by geographic region. The current economic environment provides a laboratory to analyze which consumers are most affected by economic stress. Using data across a variety of consumer lending products, we provide evidence on the degree to which low score and high score customers are affected by swings in economic variables.

We look at the effects of systematic risk factors on all major consumer lending products in the US including mortgages, credit cards, auto loans, and small business loans. Importantly, in addition to analyzing systematic risk for each product class overall, we examine subpopulations of varying idiosyncratic risk classes within each portfolio.

We'll examine results across all the lending products listed above in two different ways:

First we'll examine some simple plots of log-odds versus score for auto loans and credit cards of older vintages (2005 and 2006) compared to the 2007 and early 2008 vintages which were more heavily impacted by the downturn. We'll see that that "subprime" customers have fared better in this downturn in terms of having less of a relative shift in bad odds than the prime customers. That is, subprime customers as a group experience less volatility than prime customers.

Next we evaluate empirical results from a set of newly-developed economic capital models. These models predict PD as a function of idiosyncratic risk factors (largely FICO score and LTV) and systematic risk factors (mainly HPA (home price appreciation) and unemployment changes). After separating portfolios into "high", "medium" and "low" idiosyncratic risk segments, we find that the "high" idiosyncratic risk segment is less volatile than the medium and low idiosyncratic risk group. This holds true consistently across lending products.

Lower volatility of losses for populations with a high likelihood of default is not a new premise, as it is consistent with the bank supervisors' selection of high AVCs for lower PD products in the Basel Pillar I framework. This may be the first time however, that empirical results on this point have been shown across a variety of lending products.[1]

In summary, we in the banking industry need to focus much more on systematic risk than we have done in the past. In doing so we find that it is important to separately model risk subpopulations as they have varying exposures to changes in the economic environment. In fact, low-scoring customers are in a sense less "risky" than high-scoring customers if we define risk as volatility of losses over the cycle.

[1] Joe Breeden discusses findings indicating the same type of result in his "Universal Laws" paper in the RMA Journal (March 2006), but is not able to detail the empirical results due to confidentiality reasons.