prices over many decades was like saying the average wind in New Orleans over the last 50 years was 8 miles per hour from the southeast, without explaining that sometimes the wind goes over 100 miles per hour (which occurred during Hurricane Katrina).

With the purchase of Household International, HSBC began aggressively growing its mortgage and credit business in the United States. Household's CEO William Aldinger had touted his company's ability to assess credit risk using modeling techniques designed by 150 PhDs. The system, called the Worldwide Household International Revolving Lending System, or Whirl, helped Household underwrite credit card debt and support collection services in the United States, Mexico, the United Kingdom, and the Middle East.

Lenders such as HSBC who are analyzing applicants for credit cards, car loans, and fixed-rate mortgages use a credit rating from Fair Isaac Corp. of Minneapolis called a FICO score. However, FICO scores had not yet been proven reliable tools for predicting the performance, during a weakening housing market, of second-lien loans or of adjustable rate mortgages (ARMs) taken out by subprime borrowers. Data on subprime borrowers who made small or no down payments were scarce, and the FICO scores did not adequately distinguish between loans where borrowers had put their own money down and loans with no down payment. Nor did the models take into account what would happen if housing prices fell to the point where the amount owed on some mortgages exceeded the value of the homes they covered. By 2007, 12 percent of the total $8.4 trillion U.S. mortgage market consisted of subprime mortgages, up from just 7.5 percent near the end of 2001.

As the U.S. real estate market slowed in 2006, and then collapsed in 2008, home values fell drastically, by 30 percent in some hot markets. Subprime mortgages were all adjustable rate mortgages that started out with below-market rates, usually 4 percent, but then rose to 8 percent and even 10 percent within a few years. When interest rates rose, many borrowers were unable to make their mortgage payments and defaulted on their loans. HSBC anticipated seeing the number of delinquent and defaulted accounts grow, but not to the level that actually occurred.

In its quest for higher revenue, HSBC began buying up subprime loans from other sources. In 2005 and 2006, with the housing boom in its final stages, HSBC bought billions of dollars of subprime loans (including nearly $4 billion in second-lien loans) from as many as 250 wholesale mortgage companies, that had acquired the loans from independent brokers and banks. Second-lien loans are piggyback loans which allow home owners unable to make a down payment for a house to qualify for a mortgage by borrowing the down payment amount. The surge increased the bank's second-lien to a total of $10.24 billion.

HSBC even accepted pools that included stated-income loans. These are loans for which the borrower simply states his or her income with providing any documentation to verify it. According to Martin Eakes, CEO of the Center for Responsible Lending, 90 percent of stated-income loan applicants declare their incomes to be higher than they are in IRS records. Sixty percent of these people inflate their incomes by 50 percent or more. Many also exaggerate their employment positions to coincide with the inflated income. As a result, they receive approval for loans that are much larger than they can actually afford.

In 2005, Bobby Mehta, the top HSBC executive in the United States, described the development of the bank's mortgage portfolio as disciplined. He reported to investors, "We've done them conservatively based on analytics and based on our ability to earn a good return for the risks that we undertake." HSBC stated it had a process for forecasting how many of the loans it purchased from wholesalers were likely to default. First, the bank would tell the wholesaler what types of loans it was interested in, based on the income and credit scores of the borrowers. Once the wholesaler offered a pool of mortgages, HSBC analysts evaluated the lot to determine whether it met HSBC standards.

In early 2007, HSBC shook up Wall Street when it announced a much higher percentage of its subprime loans defaulted than it had anticipated. It would have to make provisions for $10.6 billion in bad debt stemming from loan delinquencies in 2006. The percentage of all HSBC Mortgage Services loans that were overdue by 60 days or more jumped from 2.95 to over 4 percent in 2009. In short, the subprime mortgage market was in distress, and profits from the high-risk loans were disappearing. By 2009, HSBC had taken a cumulative bad loan charge of $53 billion. It wrote off the entire $15 billion purchase price of Household, and still retained on its books over $62 billion in home mortgages, some of which surely will default.

HSBC was one of the fortunate banks that did not have to take a government bailout. But with so many mortgages originated in 2005 and 2006 and interest rate hikes in 2008 and 2009, HSBC is facing another onslaught of delinquencies and defaults over the next two years. The Center for Responsible Lending predicted that 20 percent of subprime mortgages sold during those two years will result in foreclosure.

HSBC adopted business analytics software from Experian-Scorex to help support the decision making of its credit application processing staff. The software provides users with the ability to consistently deploy scoring models and portfolio segmentation. It also