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The Subprime Loan Machine

By LYNNLEY BROWNING

Edward N. Jones, a former NASA engineer for the Apollo and Skylab missions, looked at low-income home buyers nearly a decade ago and saw an unexplored frontier.

Through his private software company in Austin, Tex., Mr. Jones and his son, Michael, designed a program that used the Internet to screen borrowers with weak credit histories in seconds. The software was among the first of its kind. By early 1999, his company, Arc Systems, had its first big customer: First Franklin Financial, one of the biggest lenders to home buyers with weak, or subprime, credit.

The old way of processing mortgages involved a loan officer or broker collecting reams of income statements and ordering credit histories, typically over several weeks. But by retrieving real-time credit reports online, then using algorithms to gauge the risks of default, Mr. Jones's software allowed subprime lenders like First Franklin to grow at warp speed.

By 2005, at the height of the housing boom, First Franklin had increased the number of subprime loan applications it processed sevenfold, to 50,000 every month. Since 1999, Mr. Jones's software has been used to produce $450 billion in subprime loans.

The rise and fall of the subprime market has been told as a story of a flood of Wall Street money and the desire of Americans desperate to be part of a housing boom. But it was the little-noticed tool of automated underwriting software that made that boom possible.

Automated underwriting software spawned an array of subprime mortgages, like those that required no down payment or interest-only payments. The software effectively helped move what was a niche product only a decade ago into the mainstream.

Automated underwriting "replaced the ways we used to extend credit," said Prof. Nicolas P. Retsinas, director of the Joint Center for Housing Studies at Harvard.

Automated underwriting is now used to generate as much as 40 percent of all subprime loans, according to Pat McCoy, a law professor at the University of Connecticut who has written on real estate lending.

The software itself, of course, cannot be blamed for lowered lending standards or lax controls. But critics say the push for speed influenced some lenders to take shortcuts, ignore warning signs or focus entirely on credit scores.

"Used properly, automated underwriting is a wonderful thing," Professor McCoy said. The problem, she said, comes when lenders customize it to approve the wrong borrowers.

During the housing boom, speed became something of an arms race, as software makers and subprime lenders boasted of how fast they could process and generate a loan. New Century Financial, second to HSBC in subprime lending last year and now on the brink of bankruptcy, promised mortgage brokers on its Web site that with its FastQual automated underwriting system, "We'll give you loan answers in just 12 seconds!"

Dozens of little-known software companies compete with Arc Systems. They include MindBox of Greenbrae, Calif.; Metavante, in Milwaukee; Mortgage Cadence of Greenwood Village, Colo.; and Overture Technologies in Bethesda, Md.

With small staffs, the companies typically sell their software to home lenders with vast networks of call centers employing hundreds of thousands of loan officers. Some big Wall Street banks and housing lenders bought the software, then developed their own systems. First Franklin, which has been acquired by Merrill Lynch, said that it stopped using Arc Systems' software last year to create its own proprietary system.

Subprime lenders like automated underwriting because it is cheap and fast. A 2001 Fannie Mae survey found that automated underwriting reduced the average cost to lenders of closing a loan by $916. The software quickly weeds out the very riskiest of applicants and automatically approves the rest.

"You don't have to chase every lead — just greenlight 'em," Mr. Jones of Arc Systems said in an interview.

And greenlight them they did.

By mid-2004, Countrywide Financial, a major subprime lender, had used MindBox's automated underwriting system to double the number of loans it made, to 150,000 monthly.

"Without the technology, there is no way we would have been able to do the amount of business that we did and continue to do," Scott Berry, executive vice president for artificial intelligence at Countrywide Financial, told a trade publication, Bank Systems & Technology, in the summer of 2004. Countrywide now uses a proprietary system.

Early forms of automated underwriting were first developed and used in the 1970s to process car loans and credit card applications.

By the mid-1990s, software for home buyers with good credit had gone mainstream at Fannie Mae and Freddie Mac, the large government-sponsored mortgage finance companies, and big traditional lenders. But none had been developed for subprime lending, then a niche market.

There are no estimates of the sales volumes for this software niche, but companies like Arc Systems often have annual revenues in the tens of millions of dollars. Arc Systems, whose name is something of a pun — Mr. Jones's middle name is Noah — earns $10 to $30 each time a borrower submits a loan application.

Proponents say the software makes things fairer and more objective for risky borrowers.

"It takes the subjectivity out of the good ol' boy system in which Martha knows Joe, who approves the loan — then you end up with a bad decision," Mr. Jones said.

Samir Rohatgi, a vice president at MindBox, said that old system of manual underwriting actually

encouraged loan officers working on commission to grant bad loans.

“Those people were feeling pressure because of the way their company’s performing, so the decisions are sometimes biased,” he said.

Mr. Jones said that because his program, LendTech, could parse credit reports for more than 3,000 risk variables, “we had better analytics than the trading desks” on Wall Street.

But some question whether such analysis gave comfort where it was not deserved.

“Automated underwriting put the credit score on such a pedestal that it obscured the other important things, like is the income actually there,” said Professor Retsinas of Harvard. “Before there was A.U., down payment mattered a lot. Where we’ve crossed the line in recent years is to say, we don’t need down payment.”

Michael Perna, Arc Systems’ marketing director, said that income “is supposed to be verified by a person.”

Mr. Jones founded Arc Systems in 1984 to produce software for Suwannee County, Fla., which used it to track when policemen issued parking tickets and when jail wardens fed inmates. Then in 1992, a local subprime lender called Home Inc. asked Mr. Jones to develop a program to screen risky borrowers. In 1997, amid the adoption of the Internet, “we ditched that software and went Web-based,” Mr. Jones said.

Since 1999, his software has been used by major subprime lenders including HSBC and its former Household subsidiary, Deutsche Bank and the Virginia Housing Development Authority. Lehman Brothers and the Ellington Management Group, a big seller of mortgage-backed securities, have used LendTech to analyze pools of billions of dollars of subprime loans that they sold to big institutional investors.

“We’ve had clients all along the food chain,” Mr. Jones, who is 66, said.

An electrical engineer by training who worked at NASA in the 1960s and then Unisys, Mr. Jones keeps his NASA patches on a wall in his office. He likes to clear cedar and juniper brush on his 100-acre property near Austin. His wife, Gayle, a nurse by training, is the company’s executive vice president. Arc Systems has 52 employees and at one point employed seven married couples.

“We like to have picnics and play softball,” Mr. Jones said.

Since the subprime housing market began falling apart late last year, Arc Systems’ sales have dropped 30 percent. Still, Mr. Jones sees a sparkling future for automated underwriting. “The smart money on Wall Street is now looking for the gems — and they’ll use A.U. to find them.”

Then he added, “You know that old symbol of the snake eating its own tail? Well, we’ve always thought the industry was that. And that’s kind of where we’re at right now.”