

TECHNOLOGY ADVANCES IN MORTGAGE LENDING

CHAPTER

14

KEY TERMS AND PHRASES

Automated underwriting
Automated Valuation Model (AVM)
Automated Valuation System (AVS)
Collateral assessment
Computerized loan origination (CLO)
Credit score
Desktop Originator® (DO)
Desktop Underwriter® (DU)
EarlyCheck™

FICO
Internet loan applications
Loan Origination System (LOS)
Loan Prospector®
Manual underwriting
Online real estate service
Risk-based mortgage loan pricing
Subprime loans
Universal account

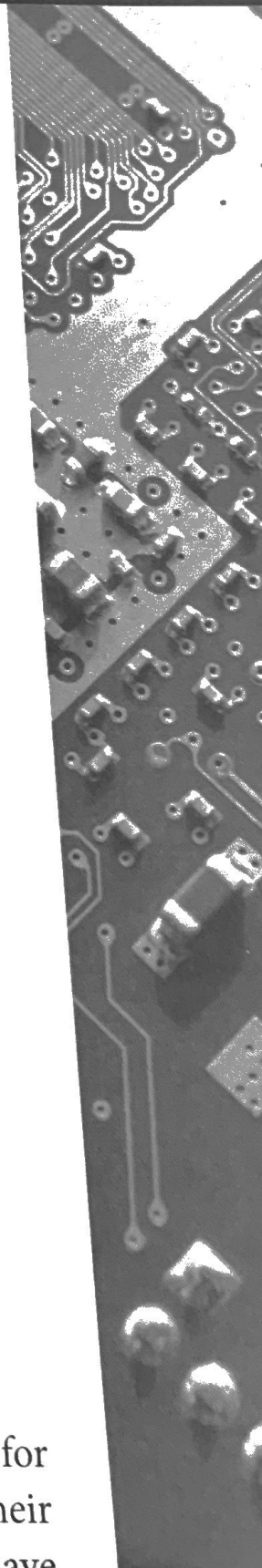
LEARNING OBJECTIVES

At the conclusion of this chapter, students will be able to:

- Describe the key supporting technology tools for residential loan origination
- Understand the origins, uses, and evolution of automated credit scoring technologies and vendors
- Describe how advanced data repositories and automated systems aided in the development of the subprime loan market, and enumerate the lessons learned from that overreliance on modeling
- Explain how Internet lending has changed the way lenders and borrowers approach the pricing, marketing, and closing of residential mortgage loans
- Describe the various online real estate services

INTRODUCTION

Advances in computer technology in the past 20 years have made it possible for financial institutions to organize and manage mortgage loan pools and their related cash flows into mortgage-backed securities. Innovative technologies have



broadened the loan market by adding many newcomers. New software has been developed to analyze loan applications and give recommendations for loan approval, if justified. With this software, decisions on loan applications can be made with much greater speed. The new technology has brought greater depth to the analysis of the creditworthiness of borrowers, giving lenders more precision in loan analysis while allowing firms to operate more efficiently and improve their bottom lines. Technological access to increasingly larger databases has allowed the development of additional loan products. The rise of the subprime loan market was made possible in large part by the perceived ability to better understand how to pass on the risk in an originate-to-distribute model. Unfortunately, computer models did not capture all the true risks of the global economy. Warning signs were ignored. As a Lehman Brothers employee commented about a year before the firm went into bankruptcy, "Events that models predicted would happen only once in 10,000 years happened every day for three days."¹ The failure to use known economic history in the calibration of many models and the failure to heed the warning signs that a crisis was approaching will likely cause a shift away from the development of forward-looking customer acquisition technologies. The changeable nature and velocity of new regulation is breathtaking, and it will require that mortgage technology development dollars be dedicated to the upgrading and development of compliance databases.

COMPUTERIZED LOAN ORIGATION (CLO)

One of the early applications of computer technology to mortgage lending was **computerized loan origination (CLO)**. Used as a method of transmitting information between computer terminals for analysis by human underwriters, this system was introduced nationally in 1986 by Citicorp, the New York bank company. Citibank's *Mortgage Power* software program was sold to loan originators across the country. Terminals were installed in the offices of companies whose employees had contact with home buyers, appraisers, lawyers, title companies, mortgage companies, and real estate agents.

Citibank expanded use of its *Mortgage Power* program through the late 1980s into over 3,000 terminals around the country, and in 1989

¹ Whitehouse, Kaja. "One Quant Sees Shakeout for the Ages – 10,000 Years." *Wall Street Journal*, Aug. 11, 2007.

Citibank became the nation's largest originator of mortgage loans, largely because of the use of this system. However, Citibank has since withdrawn from its computer network, although the company remains very active in the mortgage market.

Almost from the origin of CLO, a controversy developed between the Mortgage Bankers Association (MBA) and the National Association of REALTORS® (NAR). The MBA saw an intrusion into its specialized field of mortgage loan origination, especially by real estate agents who had first contact with a potential buyer. The MBA's position was that the Real Estate Settlement Procedures Act (RESPA) prohibited a real estate agent from making a fee for a loan, which might be considered a kickback. At the very least, it argued, such action amounted to "steering" the buyer to one lender, which is also prohibited by RESPA.

But NAR felt that a real estate agent was allowed to earn a fee because CLO was a service provided to the buyer, which is allowed by RESPA. Furthermore, NAR wanted its members to offer a "one-stop-shopping" service to property buyers that would include assistance in arranging a mortgage loan.

A decision was sought from the Department of Housing and Urban Development (HUD), the monitor of RESPA. HUD looked beyond the immediate argument and saw advantages to computerized loan systems. They made mortgage money more available to potential home buyers and they could lower the cost of loan origination. Furthermore, they offered a less-biased system, as there was a minimum of human contact.

Nevertheless, it was not until June 1996 that HUD issued a final rule covering its earlier HUD Informal Opinion Number 13, issued February 14, 1995. An earlier rule that had allowed a CLO operator to charge any fee that seemed fair so long as it was disclosed and approved in writing by the borrower was eliminated. In its place, the final rule limited the CLO operator to charging a fee that was "reasonably related to the value of the services provided." Furthermore, a listing of only one lender (which was formerly permitted) was considered to furnish "no or nominal compensable services."

As the market evolved over the years, both mortgage brokers and real estate agents found that by working together, it was possible to increase their sales by allowing both parties to earn a portion of the origination fee. Real estate professionals and lenders must be aware of the specific guidance and additional information coming from HUD Informal Opinion

Number 13 and a legal case against World Savings in 2004. These provided greater insights for real estate professionals and taught us that HUD will look at the specific facts of each case, including: (1) whether an arrangement or contract calls for certain work to be performed in order to earn a fee, (2) whether such work was actually performed, (3) whether the services are necessary for the transaction, and (4) whether they were duplicative of services performed by others. In the past, HUD generally would be satisfied that no §8 RESPA violation (no anti-kickback provision violation) had occurred if a real estate salesperson: (1) took information from the borrower and filled out the loan application, (2) performed at least five additional items on the *Loan Origination Services List* as itemized later, and (3) received a fee reasonably related to the market value of the services performed.

HUD has since expressed particular concern that lenders paying a fee for steering customers to that particular lender could be disguised as compensation for “counseling-type” activities. Therefore, if a salesperson relies on taking the application and performing only “counseling-type” services (Items [b], [c], [d], [j], and [k] on the Loan Origination Services List below) to justify a fee, HUD will also ask for proof that meaningful counseling, not steering, is provided. In this circumstance, HUD would be satisfied that no §8 RESPA violation had occurred if: (1) the counseling gives the borrower the opportunity to consider products from at least three different lenders, (2) the salesperson performing the counseling receives the same compensation regardless of which lender’s product was ultimately selected, and (3) any payment made for “counseling-type” services is reasonably related to the services performed and not based on the amount of loan business referred to the lender.

According to HUD Informal Opinion Number 13, some or all of the following services are normally performed in the origination of a loan:

- a. Taking information from a borrower and filling out an application
- b. Analyzing a borrower’s income and debt and prequalifying him or her to determine the maximum mortgage he or she can afford
- c. Educating a borrower in the home-buying and financing process, advising him or her about the different types of loan products available, and demonstrating how closing costs and monthly payments would vary under each product

- d. Collecting financial information (tax returns, bank statements) and other related documents that are part of the application process
- e. Initiating/ordering verifications of employment and verifications of deposits
- f. Initiating/ordering requests for mortgage and other loan verifications
- g. Initiating/ordering appraisals
- h. Initiating/ordering inspections or engineering reports
- i. Providing disclosures (truth in lending, Loan Estimate, others) to a borrower
- j. Assisting a borrower in understanding/clearing credit problems
- k. Maintaining regular contact with the borrower, Realtors, and the lender between application and closing to apprise them of the status of the application and to gather additional information needed
- l. Ordering legal documents
- m. Determining whether the property is located in a flood zone (or ordering such service)
- n. Participating in the loan closing

Recent changes in disclosure requirements and the updated Loan Estimate form may limit these gains. More full disclosure of fees and yield spread premiums are now required by Mortgage Disclosure Improvement Act (MDIA), enacted in July 2008, which must be disclosed on the new Loan Estimate form. The new regulator responsible for RESPA—the Consumer Financial Protection Bureau—now is responsible for lender compliance with the Loan Estimate disclosure form that deals with those requirements of the Truth-in-Lending Act as well as RESPA.

Real estate agents interested in utilizing a CLO system, now called **manual underwriting**, are generally resorting to intermediary companies that perform the loan services, via computer, of a loan broker or a mortgage company. By sending information on a potential borrower to the intermediary, the real estate agent is prompted if all necessary information has not been submitted. Furthermore, the intermediary has contacts with lenders and is able to place acceptable loans rather quickly. An origination fee split is negotiable between the intermediary and the agent, as both assist the borrower.

If there is an ownership interest of one percent or more between the parties involved with a CLO, it is considered a controlled business arrangement and must be disclosed to the consumer. Furthermore, there can be no required use of the affiliated company, and nothing of value may be given the affiliate other than a return on the ownership interest.

Larger mortgage companies either allow loan closing by agents using the mortgage company's name or buy loans from the agents. To pay the agents, mortgage companies often allow them to earn a portion of the interest rate that is charged. This is called a *yield-spread premium* or a *service-release premium*.

LOAN ORIGATION SYSTEMS (LOS)

The **loan origination system (LOS)** has been developed over the years by several vendors specifically to support the loan application processing needs of banks, financial institutions, and the mortgage brokerage community. Loan origination systems employ workflow technology to control and monitor the various work steps involved in loan processing, and use digital imaging technology to reduce the delays and inefficiencies involved in handling paper documents. LOS allows the workflow tracking of each application from the time it is entered into the system through the various work steps of credit review and loan approval process. Most LOS will allow these work steps to be performed in different locations (generally through the "cloud") while maintaining control of the flow and making sure no required steps are being missed. More will follow on LOS since many are programmed to be fully and seamlessly integrated into the business process management software applications of banks, investment banks, and the government-sponsored agencies automated underwriting systems. In the past, traditional software licenses had to be purchased for each employee's computer on a single, multiuser license for a server-based application that all employees in a firm could access. With cloud computing, there has been a significant workload shift. Software applications are no longer loaded on local computers or a network server that require maintenance and support. The network of servers that run the Internet and the software providers, such as Mortgagebot, and Calyx, that make up the cloud handle them instead. The use of the cloud will

reduce software and server utilization on the part of the bank, broker, or credit union. The only thing the user's computer needs is the cloud computing system's interface software, such as Mortgage Marvel or WebCaster, which can be accessed via a web browser. The cloud's network manages the process.

With the rapid pace of product modifications and compliance, many originators have developed their own business-process management systems that incorporate compliance tracking. Others are using third party-developed software solutions, such as Pegasystems' Smart-BPM®, that enable originators to quickly comply with changes to Fannie Mae and Freddie Mac guidelines, thus avoiding the resulting buy-backs that occur when mortgage documentation contains mistakes. Various product development enhancements to automate the lending process and avoid manual errors, lag time, and data entry will create a key competitive edge over the next few years. SaaS, cloud computing, and other hosted or outsourced tech arrangements will become popular in the near future, helping lenders manage a new load of risk management, loss mitigation, workout, and compliance responsibilities. Mortgage Builder Software, Inc., an LOS software provider based in Michigan, has introduced a SaaS-based LOS offering called Mortgage Builder®.

AUTOMATED UNDERWRITING SYSTEMS

More advanced use of the computer has been developed by larger lenders as more experience and better technology has become available. In 1995, both Freddie Mac and Fannie Mae introduced separate **automated underwriting** systems for use by their seller/servicers. Each has developed advanced software capable of analyzing a loan application and approving it for funding if qualifications are met. Other lenders produced their own systems to assist in analyzing loan applications.

At about the same time, the Federal Reserve Bank Board announced its own software system, called *Partners*, that tells a potential borrower if he or she qualifies for a mortgage loan. It is designed to help professionals assist low- and moderate-income borrowers, but is accessible to anyone seeking help.

A brief description of two automated underwriting systems, Freddie Mac's *Loan Prospector*® and Fannie Mae's *Desktop Underwriter*®, follows.

Where Are We Now?

Because of the dynamic secondary market, the services and capabilities offered by Fannie Mae change frequently. Visiting the Fannie Mae website often is highly recommended. Below are a few specific areas of interest.

- **Fannie Mae's Monthly National Housing Survey**
<http://www.fanniemae.com/portal/research-and-analysis/housing-survey.html>
- **Fannie Mae's Monthly National Housing Survey**
<http://www.fanniemae.com/portal/research-and-analysis/housing-survey.html>
- **Americans' Housing Optimism Gains More Momentum amid Reported Income Growth; Supports Forecast of Pick-up in Housing Activity This Year**
<http://www.fanniemae.com/portal/about-us/media/corporate-news/2015/6259.html>
- **HUD AND FANNIE MAE ANNOUNCE EXPANSION OF GREEN PRESERVATION PLUS that Pays for Energy-Efficient Upgrades in Affordable Apartments**
http://portal.hud.gov/hudportal/HUD?src=/press/press_releases_media_advisories/2014/HUDNo_14-043
- **The Fannie Mae Loan Lookup enables mortgage borrowers to quickly determine if Fannie Mae owns their loan**
<https://www.knowyouroptions.com/loanlookup>
- **Know Your Options: Avoid Foreclosure**
<http://www.knowyouroptions.com/avoid-foreclosure>

Freddie Mac's Loan Prospector®

Freddie Mac's automated underwriting system, called **Loan Prospector®**, was released nationally in February 1995. It is limited for use by Freddie Mac's seller/servicers, who are required to submit verification of the data submitted. The information submitted is that required by the Uniform Residential Loan Application (Freddie Mac Form 65). In earlier years, the initial charge for an analysis was \$100; now it is just \$20. Verification of the applicant's employment, income, and assets is required.

If the loan-to-value ratio is greater than 80%, the application is forwarded to a private mortgage insurer chosen by the lender. All major mortgage insurers are represented on the Freddie Mac system.

Loan Prospector® is intended to provide lenders with a quick and easy way to streamline the document-gathering process for borrowers, with two documentation levels that define required borrower documentation needs and offer helpful underwriting reminders. Loan Prospector® benefits borrowers as it allows them to know exactly what they need to gather, and users have found it easier to process more loans with less work. When a loan is submitted to the site, one of the following recommendations will be returned on the Full Feedback Certificate: (1) Accept, or (2) Caution.

If the product is an Agency loan product, Freddie Mac offers reduced representations and warranties on eligible loans that receive an "Accept" recommendation. In addition to providing a "Credit Risk" recommendation of either Accept or Caution, Loan Prospector® computer software classifies the "accepted" applications into two classifications that drive documentation requirements for the loan applicant, as follows:

- **Streamlined Accept**—Allows one to take advantage of fewer documentation requirements than traditionally underwritten loans for the Accept risk class. For example, salaried and hourly income borrowers will need just one pay stub showing year-to-date earnings for the most recent 30 days, one W-2, verbal verification, and one recent bank statement.
- **Standard**—Requires Standard Guide documentation for higher-risk loans, including some Accept risk class loans, A-minus eligible loans, and Caution risk class loans. For this level, additional documentation must be collected; for example, two bank statements and two W-2s. Note, however, that one pay stub covering the most recent 30 days and verbal verification of employment are still required.

If the classification is Caution, which is true for about 30% of those applications submitted, it, too, is returned to the lender's underwriters. The most common reason for this return is that some serious issue has been found that may disallow Freddie Mac from purchasing the loan. The computer does not reject any loan, but sends those applications that

do not meet approval/acceptance back to the lender for further human underwriting.

Credit Approval by Loan Prospector

A lender is allowed to choose among five approved credit reporting companies.² Credit reports are available that merge information from at least two of the three major databases. *Loan Prospector* also has the ability to access the credit card database to determine total credit available and the percentage of credit being used.

Collateral Assessments

Property evaluation is not called an “appraisal” by *Loan Prospector*; it is a **collateral assessment**. The program assesses whether or not the collateral is sufficient to secure the loan.

Freddie Mac’s **Automated Valuation Model (AVM)** tool simplifies the mortgage process by streamlining the collateral valuation cycle. It is called Home Value Explorer® (HVE®). This system is replacing a service called *Gold Works* that, up until November 2008, linked a lender directly with the appraiser. For over 15 years, Freddie Mac has effectively employed AVMs internally for its own risk and portfolio management. AVMs have become an integral part of today’s mortgage market, and AVM technology has advanced the world of automated valuation services from novelty to necessity.

In nationwide tests conducted by large wholesale lenders, HVE consistently performs at the top in the areas of coverage, accuracy, and reliability. HVE actually encompasses several models rolled into a single product for one low cost. Freddie Mac believes that lenders will benefit from its unique proprietary algorithm that blends multiple model estimates returned by the repeat sales model and the hedonic model.

Today, AVMs are efficient, effective, and essential tools for staying competitive. AVMs expedite processes, lower costs, and minimize risk. When choosing an AVM, it is important to consider coverage, vendor reputation, current technology, accuracy, and price. Freddie Mac claims to have a dedicated team of modeling experts that will continue to improve and enhance the HVE tool.

²Freddie Mac (2015). List of Approved Credit Reporting Companies for Loan Prospector®. Accessed on Feb. 7, 2015 at <http://www.loanprospector.com/about/crc.html>

Where Are We Now?

Visiting the Freddie Mac website frequently is essential in a rapidly changing market. Some of the resources found on the website include the following:

Media Room

Find the latest news releases, corporate facts, select officer biographies, speeches and statements, economic and housing research commentary, industry reports and publications, the results of Freddie Mac's weekly Primary Mortgage Market Survey®, and subscriptions to a variety of email alerts and RSS feeds.

- Corporate Facts
- Executive Perspectives
- Speeches and Statements
- Economic and Housing Research
- Industry Reports and Publications
- Primary Mortgage Market Survey®
- News Release Archives
- Subscription Center
- RSS Feeds

Investor Relations

Find information on Freddie Mac's common and preferred stock, corporate financials, corporate governance, corporate responsibility, securities trading, investor news and investor events, and additional investor resources such as investor presentations, credit ratings, and analyst coverage.

- FRE Stock Information
- Corporate Financials
- Corporate Governance
- Section 16 Filings, Director and Executive Officer Ownership Reporting
- Investor News Releases
- Investor Resources
- Investor Relations Contact Information

Fannie Mae's Desktop Underwriter®

In April 1995, Fannie Mae released two programs to its seller/servicers. The basic program, called **Desktop Underwriter® (DU)**, uses artificial intelligence and information from Fannie Mae's seller/servicer guide to properly analyze a loan application.

A second program, called **Desktop Originator® (DO)**, is designed to allow an agent or a mortgage broker to take an application in a potential borrower's home with a laptop computer, relaying the information to the lender who is the seller/servicer.

Information on the loan and the applicant must come from the same form as used by Freddie Mac, the Uniform Residential Loan Application (Fannie Mae Form 1003, Freddie Mac Form 65). The lender must verify the information and then submit it to Fannie Mae through its *Desktop Underwriter®*, after which a response can be provided within one minute or less on "approved" applicants. The lender is responsible for notifying the broker or agent who originated the loan, who in turn notifies the applicant. Over the past 10 years, DU has further enabled other business channels, including retail, wholesale, correspondent, Internet/call center, and point of sale, by allowing Loan Origination System (LOS) vendors to offer direct access to Desktop Originator® and/or Desktop Underwriter®. Some of these vendors, such as Point®, a Calyx Software LOS product, and Destiny Loan Origination System, an Integra Software Systems LOS product, could be found at the following website at the time of the publication of this text: <https://www.fanniemae.com/singlefamily/authorized-los-integration-vendors>.

While Fannie Mae is seeking better and faster ways to handle its appraisals, the company still uses many of the traditional methods. Still, the streamlined property valuation and reporting options available through DU can save borrowers time and money and can help lenders more efficiently manage the property valuation process.

It is expected that in the near term DU will have tie-ins with automated closing and documentation systems that meet the electronic signature and recording requirements established under the various electronic signature acts passed in the late 1990s and early 2000s. In April 2011, Oklahoma Governor Mary Fallin signed into law a bill that permits digital signatures on real estate contracts. Oklahoma had been the last state that did not have a mechanism for a virtual closing in place. Industry trade associations have

already introduced SMART Doc® Framework (Ver. 1). The following terms make up the acronym:

- Securable
- Manageable
- Achievable
- Retrievable
- Transferable

The ideal electronic document requirements include descriptive information in the form of metadata with a visual representation of that embedded data linked into the visual representation so that electronic signatures seem a natural part of the process. The system would need tamper-evident security and provide an audit trail of any changes. Figure 14-1 below illustrates how such a system might be configured.

Fannie Mae's DU-based **Automated Valuation System (AVS)** utilizes the data entered, at which point the system will recommend one of the following documentation levels for each eligible one-unit property loan with a valid property address:

- Appraisal with interior and exterior property inspection
- Appraisal with exterior-only property inspection
- An exterior-only property inspection (no appraisal required)

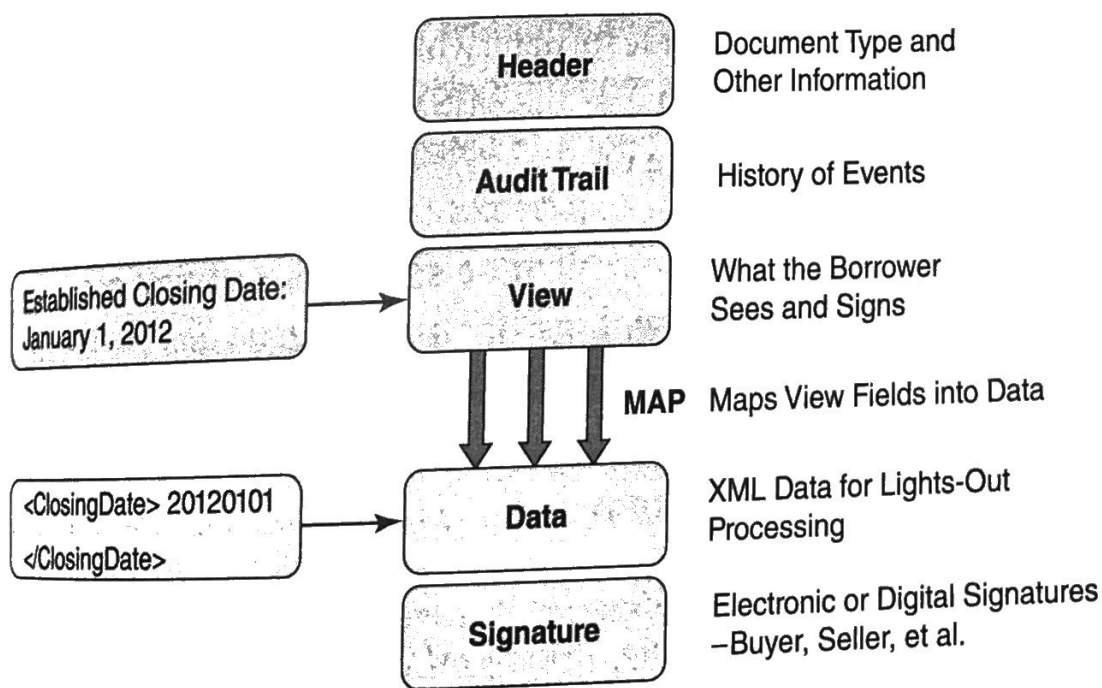


FIGURE 14-1 Smart doc® Framework

Source: © 2016 OnCourse Learning

Lenders continue to manage the property appraisal process for loans submitted through DU, including selecting the appraiser, ordering the appraisal, and reviewing the appraisal report. As a result, lenders are responsible for the traditional warranties to Fannie Mae regarding the selection of the appraiser and the quality of the appraisal. As for credit reporting, studies are seeking other ways of satisfying lender requirements, particularly in regard to property evaluations. One study uses pictures taken from satellites to determine if a building actually exists on specific property. Some firms currently use available GPS location support for many applications. For example, Environmental Systems Research Institute, Inc.'s ARCGIS Call software provides a front-end solution for anyone to use. ARCGIS ties the location to actual, current tax data found in county tax offices that can be accessed by a computer program such as the Fannie Mae AVM system.

Fannie Mae's **EarlyCheck™** service assists lenders in identifying and correcting potential eligibility and/or data issues as early in their processes as possible. The goal is to help lenders identify potential problems prior to loan delivery.

Prior to a loan closing, lenders have the following two EarlyCheck™ access options:

- **A service that can be directly integrated with a lender's LOS.** This option is a Desktop Underwriter® (DU®)-like integration solution (i.e., it takes a 1003 flat file or MISMO³ AUS 2.3.1 file as input and returns viewable results and/or a result data file).
- **A web-based user interface.** This option enables a user to import loan data in a 1003 flat file format (which can be exported from most loan origination systems) or the MISMO AUS 2.3.1 file format, run the checks, and view the results.

CREDIT SCORING

A **credit score** is a snapshot that objectively assesses a borrower's credit history and current usage at a given point in time based on credit bureau

³MISMO stands for Mortgage Industry Standards Maintenance Organization, Inc., a leading technology standards development body for the residential and commercial real estate finance industries, and a wholly owned subsidiary of the Mortgage Bankers Association. The MISMO standards are grounded in an open process to develop, promote, and maintain voluntary electronic commerce procedures and standards that allow mortgage lenders, investors in real estate and mortgages, servicers, industry vendors, borrowers, and other parties to exchange real estate finance-related information and eMortgages more securely, efficiently, and economically.

reports. An individual borrower's credit score may vary somewhat across repositories if there are differences in the amount or content of information contained in credit records. A credit score may be generated even if a repository's file includes only one tradeline, so lenders try to make sure that multiple files are included, probably at least three.

While credit scoring has recently received publicity, it is not a new phenomenon. One of the principal procedures was begun in 1956 by Fair, Isaac and Company of San Rafael, California, and is known as **FICO**. What has brought credit scoring into wider usage is its easy adaptability to computerized loan analysis. The "score" is a number that shows a person's credit history and helps in the analysis of a borrower's probability of paying off another loan. Or, as some lenders interpret, the score is indicative of the risk of foreclosure.

Today, credit scoring is offered using two major methods. Both are approved and recommended for use with either manual or automated underwriting of mortgage loans. Both have shown a good predictive power in loan analysis. One is the FICO "bureau scores" that run from about 350 to 900, with the *lower* number showing the greater risk of default. Scores over 660 will generally have credit histories acceptable to Fannie Mae, but 660 is not a cutoff point and lower scores can be approved. Freddie Mac recommends a cautious and detailed review for loan files that score less than 660 but not less than 620. The recent credit crisis has uncovered some weaknesses in employing too great a reliance on the credit score. The first of several alternatives was developed in 2011 called VantageScore 2.0[®]. VantageScore 2.0[®] has worked as it was intended, which was to have the ability to score a broad population, including those who use credit infrequently.

The VantageScore[®] was created by a joint venture with the three major credit reporting companies: 1) Experian, 2) Equifax, and 3) TransUnion. It has been widely adopted as a credit scoring engine by combining a cutting-edge, patented, and patent-pending analytic techniques to produce a model that offers more consistency across bureau platforms, along with the ability to score a broader population. This new lending ecosystem brings with it a revitalized emphasis on:

- Model governance to ensure regulatory compliance
- Consumer education, transparency, and inclusive lending practices
- Controlled growth that balances expansion with risk mitigation
- Agile and flexible operational processes without single-threaded dependencies

The credit reporting industry has begun to embrace a single model across all three credit reporting companies hoping that it will reduce credit score variances. In addition, VantageScore utilizes easier-to-understand reason codes used to indicate why a consumer's credit score is not higher. The latest new credit scoring engine is VantageScore 3.0* that will include some new features like accounts that were collected and that have been reported as paid in full will no longer factor into the VantageScore 3* calculation. Explanations and methods for resolving them are described. (See the sample credit tri-merged report in the Appendix of the text.)

Suppressed for several years by the financial crisis of the late 2000s, savings and loans, credit unions, credit card companies, and other financial institutions have seen increased demand for loans. Improvements in scoring approaches encapsulate a wider consumer population concurrent with reevaluation of credit policies to prevent past errors and provide orderly growth.

Credit scoring is used in conjunction with many other criteria, such as an applicant's income, other assets, total indebtedness, and future possibilities. It is only one criterion, and though it shows good predictive powers, it is seldom used by itself for underwriting purposes. It has been a big help in setting prices for subprime loans.

SUBPRIME LOANS

Subprime loans are those made to persons who do not have a top-grade credit record as is required to qualify for a regular mortgage loan. While subprime loans are not specifically connected to automated underwriting, the many credit details that can be handled by computer analysis provide one reason why many lenders have undertaken loans in this field. Another reason is that subprime loans command higher interest rates and discounts, which add profitable business to a lender, provided the lender is careful in analyzing the higher risks involved.

With a conforming loan, rates are posted in newspapers and elsewhere. But subprime lending uses risk-based pricing. Rates are not publicly quoted; rates are found, or negotiated, to fit the risk profile. To determine a risk profile, start with a prime loan. A prime loan is made to a good-to-excellent borrower who has perfect credit, which means no derogatories and no 30-, 60-, or 90-day delinquencies in his or her mortgage history, or few derogatories/delinquencies.

Below this level of risk are the subprime borrowers. To underwrite this type of loan, the underwriter does not examine whether or not the borrower is worthy of credit, but rather where the borrower belongs on the risk scale. Credit scoring is a helpful factor in this determination. Appraisals are also critical. It takes an astute underwriter to sort out the various risks involved and to properly evaluate the greater risk.

The borrower is matched to one of a series of risk profiles. Unfortunately, lenders differ in defining these profiles, as the process involves some gray areas. Following is an example of what may be included in determining the risk of an A, A-, B, C, D, or F mortgage borrower by a typical mortgage lender. Comparisons can be made to an "A" borrower with a delinquency rate of 7.8% as rated by many lenders.

"A" borrower: No late mortgage payments and no credit card payments over 30 days delinquent in the last year. "A" or prime borrowers have a low default rate and underwriters can allow a higher loan-to-value ratio. (The national delinquency rate, according to the Federal Reserve Bank of New York was 7.8% in the Fall of 2010⁴ and 3.18% by the Fall of 2014.⁵)

"A-" borrower: Sometimes referred to as Alternate A or Alt-A mortgages. The borrower has no late mortgage payments and one or two credit card payments 30 days late. (The current national delinquency rate, according to CoreLogic, Inc., is 26.89%.)

"B" borrower: Thirty days late on a mortgage payment and 60 days late on one or more charge account debts. Has satisfactory credit but high debt ratios. Reasons for delinquencies are important, as the record may indicate problems that can, or have been, overcome. This borrower may be self-employed and have trouble documenting income. The underwriter first looks for explainable delinquencies, then at secondary credit and revolving credit over a two-year period. (The current national delinquency rate was 36.57% in the Fall of 2010 and fell to 4.09% in the 2nd quarter of 2013.⁶)

⁴Federal Reserve of New York (2010). "U.S. Credit Conditions." Regional Outreach Research Data as of October 2010.

⁵Federal Reserve of New York (2014). "Consumer Debt Panel." Data Tables from December 2014 report.

⁶Transunion (2013). "TransUnion: National Mortgage Loan Delinquency Rate Continues Torrid Decline in Q2." Transunion press release, Aug. 6, 2013. Accessed Feb. 1, 2015 at <http://finance.yahoo.com/news/transunion-national-mortgage-loan-delinquency-100000136.html>

“C” borrower: Thirty days late two or three times on a mortgage payment and several charge accounts 60 days or more in arrears. Has only fair credit and high debt ratios. A 500 credit score is typically a “C” borrower. These borrowers may have had employment problems or health and accident problems and are over their heads in debt. They want to consolidate the indebtedness. Underwriters look for both the willingness and ability to repay. (The current national delinquency rate was 36.57% in the Fall of 2010 and fell to 6.07% in the 2nd quarter of 2013.)

“D” borrower: Has poor credit and high debt ratios. These borrowers are not likely to become “A” borrowers very soon. Such loans have a good chance of going into foreclosure and the lender must depend on the collateral to guarantee repayment. (The current national delinquency rate was 51.26% in the Fall of 2010 and fell to 9.67% in the 2nd quarter of 2013.)

“F” borrower: Currently in bankruptcy or foreclosure. With the help of state-of-the-art information-gathering systems, subprime lending was burgeoning, but recently, most lenders and investors have not been doing very well with this category of loans. Subprime “B & C” mortgage lending became a growing field leading up to 2007, but had not had enough time to develop quality experience factors.

The current mortgage crisis has shown results very different from the past. Average delinquency and foreclosure rates were useful in predicting past delinquencies and foreclosures. In 2001, “A” loans had serious delinquency rates of 1.96%, “B” loans were at 3.73%, “C” loans at 4.99%, and “D” loans at 8.07%. However, as can be seen from the current delinquency rates, the numbers from 10 years ago did not provide sufficient data to predict the current mortgage failures. The subprime mortgage market has now completely collapsed.

MORTGAGES ON THE INTERNET

The use of computers in mortgage lending has expanded so that borrowers can negotiate loans on the Internet. Most active mortgage loan companies and financial institutions have websites that offer mortgage loans directly to consumers who qualify, but there are a few caveats.

There are several reasons for the growing interest in **Internet loan applications**. Many applicants live in rural areas and want to avoid traveling

long distances to branch offices in metropolitan areas. Even though the usual time-consuming verifications are still required, people who are pressed for time look to the Internet to expedite the loan process. Another lure is anonymity. People with tarnished credit histories do not have to face a skeptical loan officer. Even people with good credit records sometimes feel more comfortable with impersonal vending devices than face-to-face encounters. Studies show that consumers shop for the best available price and terms, and that even the most sophisticated borrowers often find it difficult to effectively shop for mortgages.⁷

Mortgages negotiated through the Internet may have lower origination fees, perhaps 3/8 of a point compared to 1 to 1-1/2 points with regular mortgage brokers. But the other fees and interest rates are about the same as regular mortgages. There is also a problem in not having a real person with whom to talk through financial needs. Because anonymity works both ways, the Internet has its share of shady operators who can take advantage of unwary borrowers. However, there is no denying the growth in Internet mortgage originations. The top 22 mortgage lenders in all loan production in 1999 only reported a little over 13,000 online mortgages for a total of \$4.7 billion in mortgage production.⁸ The top online originator in the first quarter of 2010 originated double the number of mortgages originated by the top 22 online lenders in all of 1999.⁹ Some of the more innovative firms, such as CUNA Mutual Group, are using a product called "Smartphone Loan Technology." These firms originated over \$1 billion in loans via mobile devices between launch of technology in 2012 and the end of 2013.¹⁰ *Inside Mortgage Finance* reported that Quicken Loans Inc., one of the largest nonbank mortgage lenders, made \$24.3 billion of loans in the first half of 2014.

Online mortgage originators fall into three general categories:

1. **Direct lenders.** Those mortgage loan originators that actually fund the loan. They exist at the national, state, and local levels. Bank of

⁷Apgar, William, and Essene, Ren S. "Understanding Mortgage Market Behavior: Creating Good Mortgage Options for All Americans." Joint Center for Housing Studies, Harvard University, April 25, 2007, p. iv.

⁸LaCour-Little, Michael. "The Evolving Role of Technology in Mortgage Finance." *Journal of Housing Research*, Volume 11, Issue 2, Table 1, p. 197.

⁹National Mortgage News. SourceMedia, Quarterly Data Report, Q1, 2010.

¹⁰Noelck, Jess. "CUNA Mutual Group's Smartphone Loan Technology Reaches Major Milestone." CUNA Mutual Group, Aug. 22, 2013. Accessed Feb. 9, 2015 at <http://www.cunamutual.com/portal/server.pt?open=512&objID=902&PageID=951486&mode=2>

America is an example of a national lender. Southside Bancshares, Inc., in Tyler, Texas, is an example of a state lender. Local mortgage loan originators can function as online mortgage lenders just by having a website with an application form on it.

2. **Mortgage brokers.** In the past, the advantage of using a mortgage broker was that it gave customers access to a wider availability of lender programs and loan options. Most brokers have a basic online mortgage application website from which they can take mortgage loan applications.
3. **Lead generators.** Also referred to as referral websites, these tend to specialize in generating leads from borrowers and then passing those leads along to one of the direct lenders, rather than making loans themselves. Considered the most effective tool used by both direct lenders and mortgage brokers.

It has become easy for loan originators of any size to have some basic online loan origination presence. Software applications such as PG Mortgage Software are available to individual mortgage brokers who want an individualized basic online presence. This software combines features, such as LOS-application tracking, that are compatible with Calyx Point and Fannie Mae LOS, with the ability to export application forms to these well-known programs and work with them offline. Moreover, the software has site security with SSL Certification. Some of the other service providers, with software or other consulting services to help set up online mortgage origination capabilities, include the following:

- Byte Mortgage Origination Software (<http://www.bytesoftware.com>)
- MortgagebotLOS™ (<http://www.dh.com/lending/mortgage-lending>)
- Mortgage Builders Software (<http://www.mortgagebuilder.com/>)
- RK New York Web Design (<http://www.rknewyorkwebdesign.com/mortgage-web-site-design>)
- Lead Press (<http://leadpress.com/>)
- Kaleidico's Mortgage Web in a Box (<http://www.kaleidico.com/mortgage-website>)
- Calyx Software's WebCaster (<http://www.calyxsoftware.com/products/webcaster/>)
- Lender Home Page (<http://www.lenderhomepage.com/>)
- vLender (<https://www.vlender.com/>)

ONLINE REAL ESTATE SERVICE

Many companies offer an **online real estate service** that allows consumers access to information on a full range of services. In 1998, the software giant Microsoft stepped into this arena. Microsoft offers consumers a service that gives them the opportunity to search for homes, find builders, compare mortgage products, and apply for loans. In other words, the service gives consumers access to information that had previously been the special province of real estate agents and mortgage brokers. Over the years, real estate professionals have created products that allow individual real estate brokers the ability to create the image of a broad-market online real estate service. One such vendor is DwellAgent.com, which offers features such as self-publishing, attractive and effective listing websites (at the level of individual property if desired), a primary website, a blog, and other features.

Companies offering these services deny any intention to replace existing agents. All the service expects to provide is information on what is available and a comparison of prices. To close any deal, the consumer must contact an agent in that business. Technology brings rapid changes that create better and more information along with faster response times. The following websites offer an idea of just how diverse is the information offered on the Internet:

- **www.argussoftware.com** — ARGUS Software, a subsidiary of Altus Group, is the leading provider of software and solutions for analyzing and managing the value of real estate investments worldwide. ARGUS Software has a world-class user base consisting of over 9,000 users and has been focused solely on the commercial real estate segment for over 25 years. The ARGUS Software portfolio includes industry-standard products such as ARGUS Valuation - DCF, ARGUS Developer, ARGUS Asset Management and ARGUS Lease CRM, as well as the recently released flagship product, ARGUS Enterprise. ARGUS Software has affiliations with the graduate real estate programs at over 75 universities worldwide. A trial version of ARGUS Valuation - DCF has been provided with this text to allow the reader to learn how to use ARGUS Valuation-DCF to document assumptions that support financial conclusion of commercial real estate cash flows. It allows a comprehensive and standard reporting of all input data, property and portfolio level

summary reports, and detailed tenant-by-tenant supporting schedules. One of ARGUS Valuation-DCF's primary benefits is that it provides reliable transparent results that are easily understood and dissected by reviewers.

- **www.bytesoftware.com** — Byte Software, founded in 1985, is located in Kirkland, Washington. The company is a wholly owned subsidiary of CBCInnovis. Byte Software's flagship product is BytePro Standard, a comprehensive loan origination software package that allows a loan originator to prequalify, originate, process, and close loans. Byte offers six expansion versions of its mortgage LOS system to meet the needs of larger and more demanding technology platforms, including the Internet and security packages.
- **www.calyxsoftware.com** — Calyx was founded in 1991 in San Jose, California, and is most well-known for its Point loan origination platform. According to a 2010 study conducted by Access Mortgage Research & Consulting, 72.5% of mortgage brokers reported using Calyx Point. Loan origination systems (LOS) like those developed by Calyx are also utilized by community banks, credit unions, and mortgage bankers, and can be used with DU and DO along with several other vendors mentioned earlier in the chapter.
- **www.fiserv.com/resources/easylender-mortgage-brochure.aspx** — EasyLender® Mortgage from Fiserv is a scalable LOS designed for community banks and mid-tier credit unions that runs under the latest Microsoft® Windows® operating systems. EasyLender® supports originations for mortgage and home equity loans with a loan origination and processing software providing comprehensive lending automation from application through closing.
- **www.elliemae.com/encompass/encompass-overview** — Encompass® is an end-to-end solution, provided using on-demand software that functions as the core operating system for mortgage originators and spans customer relationship management, loan origination and business management. Rather than loading an LOS software onto their server or laptop, users of Encompass® connect to the web to use Encompass® and pay by the "drink." Encompass® is a software offering of Ellie Mae, a provider of on-demand automation solutions for the mortgage industry. An American Bankers Association (ABA)

Real Estate Lending Survey Report listed Encompass as the number 1 most used LOS by banks in 2014.¹¹ Ellie Mae was founded in 1997 and is based in Pleasanton, California.

- **www.ditech.com** — Ditech was founded in 1995 to address the needs of customers for faster, easier access to mortgage loans. GMAC Mortgage, a major financial services company and one of America's leading mortgage loan originators, acquired all the assets of Ditech Funding Corporation in 1999. This marked the beginning of significant growth for Ditech, enabling the company to invest further in its products, technology, and customer service, and set the stage for Ditech's emergence, and current status, as one of the larger online mortgage loan originators.
- **www.eloan.com** — Founded in Palo Alto, California, as an online mortgage brokerage firm, E-Loan, Inc., now known as E-LOAN, is a wholly owned subsidiary of Banco Popular North America. It offers prequalification and preapproval for home equity loans, as well as first mortgages and refinancing. The site has a link that helps users compare values of different homes in a given neighborhood. It even has a feature that allows the user to hold out for a particular interest rate and to receive an e-mail when the rate becomes available. There are actually awards for website media interactivity. E-Loan earned the top spot for three different categories of these awards in 2013.
- **www.hsh.com** — Offered by the financial publishing company HSH Associates of Butler, New Jersey, the site surveys 2,500 lenders across the country and provides updates daily. It does not make loans and accepts only limited consumer advertising (it makes the bulk of its revenues from lead generation), which makes it an excellent source of objective data on interest rates and terms.
- **www.dh.com/lending/mortgage-lending/mortgagebotlos** — A wholly owned subsidiary of Davis + Henderson Corporation, a leading provider of integrated solutions to customers in the financial services industry based in Toronto, Canada. A dominant player in the United States, its products are very popular in the community banking and credit union sectors. Its Powersite Suite of programs

¹¹Whiteside, Debbie. 2014 21st Annual ABA Real Estate Lending Survey Report. American Bankers Association, p. 6, Titled-Loan Production, Chart 2, Top Loan Origination Systems.

provides affordable, easy-to-use, and secure technology solutions developed to be fully integrated with most LOS software. This product is competitive because it can be deployed with surprising speed. Since it is completely Internet-based, there is no software or hardware to install or maintain. In 2007, Mortgagebot introduced its Mortgage Marvel, an Internet-based solution for smaller lenders who want to expand past their traditional base but may not have the expertise or funding to develop an Internet-based site that will appeal to customers beyond those in their traditional customer base. Mortgagebot was ranked third in its category of "Top Loan Origination Systems" in the 2014 ABA *Real Estate Lending Survey Report*, moving it ahead of Calyx Point, which was in 5th place in the survey.

- **www.mortgagebuilder.com** — Mortgage Builder, headquartered in Southfield, Michigan, has been providing a fully integrated server-based application for a wide base of possible needs in the mortgage finance business for 12 years. Mortgage Builder is an end-to-end lending solution for retail and wholesale mortgage production channels, delivering prequalification tools, processing, underwriting, closing, post-closing, final document tracking, secondary marketing, warehousing, delivery, interim servicing, and construction loan tracking. Pricing and product eligibility, electronic document management, and electronic loan delivery functionality for the GSEs are built in and available on demand, while compliant loan documents are provided at no additional cost. Third-party originator web portals such as FHA Connect, as well as consumer-facing virtual tools, are also available, thus enhancing flexibility.
- **www.phhmortgage.com** — PHH Mortgage is located in Mount Laurel, New Jersey, and is a wholly owned subsidiary of PHH Corporation. PHH Corporation is among the top five residential mortgage originators, but its online business consists of the firm's own retail online mortgage operations. PHH is also the leading provider of private label mortgage outsourcing to companies that want to have an online loan origination presence without the cost of the technology development, staff training, recruiting, and other barriers to entry for many smaller lenders.

- **www.provident.com** — Provident Funding Associates, L.P., is the largest private mortgage company in the United States and one of the top five direct online lenders for the past three years. Provident Funding has developed their own proprietary online mortgage origination software platform and it is recommended for viewing since Provident is so successful.
- **www.rcanalytics.com** — Real Capital Analytics, Inc. is a global research firm founded in 2000 based in New York City. The firm's proprietary research is focused exclusively on the investment market for commercial real estate. Real Capital Analytics offers in-depth, comprehensive and current information of activity in the industry by collecting transactional information for property sales and financings. RCA then interprets data such as capitalization rates, market trends, pricing, and sales volume. RCA also quantifies the market forces and identifies the trends that affect the pricing and liquidity of commercial real estate around the world. The firm publishes a series of *Capital Trend* reports and offers an online service that provides current transactional and troubled asset information on all markets globally.

USING COMPUTERIZED INFORMATION IN THE FUTURE

As technology advances, indications are that mortgage loans will move to a **risk-based mortgage loan pricing** system where lenders assess borrowing costs loan by loan. This will be possible with computerized loan evaluation systems capable of forecasting the default risk dictated by each applicant.

In addition, secondary-market companies are able to adjust the guarantee fees charged to lenders to more accurately reflect the risks represented by the individual mortgages within a loan pool that an originator wants to sell. As lenders pay varying guarantee fees, market forces may prompt them to pass the distinctions on to borrowers in the form of similarly varying mortgage fees. The final and full implementation of the Qualified Residential Mortgages (QRM) rule defines which loans are exempt from the risk retention requirements of the Dodd-Frank Wall Street Reform and Consumer Protection Act. Since sound and responsible underwriting plays such an important part in

making sure a loan is originated to avoid risk retention requirements, good underwriting will have to have the following general characteristics:

- Regular periodic payments that are substantially equal;
- No negative amortization, interest only, or balloon features;
- A maximum loan term of 30 years;
- Total points and fees that do not exceed 3% of the total loan amount, or the applicable amounts specified for small loans up to \$100,000;
- Payments underwritten using the maximum interest rate that may apply during the first five years after the date on which the first regular periodic payment is due;
- Consideration and verification of the consumer's income and assets, including employment status if relied upon, and current debt obligations, mortgage-related obligations, alimony and child support; and
- Total DTI (debt-to-income) ratio that does not exceed 43%

This means that the ongoing adoption of automated underwriting systems and their integration with LOS and compliance systems will provide the lending industry the ability to measure risk more quickly and accurately than ever before. Fannie Mae recently released DU Version 9.2 that reflected lower maximum LTV, CLTV, and HCLTV ratios for fixed-rate cash-out refinance transactions secured by a one-unit primary residence. Those transactions are subject to a maximum LTV/CLTV/HCLTV ratio of 80%, instead of 85%. Desktop Underwriter Release Notes issued in October of 2014 are an example of controlling risk levels.

For years, the country's main residential market, sometimes referred to as the *prime market*, has relied primarily on average cost pricing. Every mortgage interest rate includes a premium to cover the risk of default, with all prime borrowers paying the same interest rate. With risk-based pricing, the alignment of risk and reward is more closely met by giving lower interest rates to less risky borrowers. Fannie Mae has instituted the Loan-Level Price Adjustment (LLPA) Matrix and Adverse Market Delivery Charge (AMD), which mandate that higher interest rates and/or higher minimum mortgage insurance coverage will be assessed based upon certain eligibility or other loan features, such as credit score, loan purpose, occupancy, number of units, product type, and loan-to-value

ratio. A link at the end of the chapter allows access to the most current Matrix approved for use by Fannie Mae.

It is possible that future mechanically determined, more accurate risk assessment may lead to a **universal account** that could make mortgages obsolete. The idea would be a combination of loans, such as a car loan, a personal loan, or a mortgage loan, into one loan account. Multiline financial institutions, such as commercial firms and stock brokerages, are already moving in this general direction, recognizing the value of cross-selling products, a concept that is key to giving this futuristic financial instrument its universal applicability. The financial supermarket entered into by many financial services firms may become more of a reality due to current and future advances in Internet delivery systems.

Questions for Discussion

1. What is HUD's position on computerized loan origination?
2. Explain what is meant by *manual underwriting* and *automated underwriting*.
3. Describe the principal features of Freddie Mac's Loan Prospector.
4. What does Fannie Mae offer in terms of automated underwriting?
5. Explain how credit scoring operates.
6. Describe the loan risk ratings within which subprime loans fall.
7. Explain the three categories of Internet mortgage originators and how they differ in approach.
8. Describe the kinds of people who may want to arrange mortgage loans through the Internet.
9. Describe the dominant online mortgage originators and real estate online offerings, and list the key online players today.
10. Describe risk-based pricing as it applies to mortgage loans.