Enhanced Credit Data and Scoring: Deeper Insight into Mortgage Applicants

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Executive Summary

Credit, collateral, and other risk management issues in recent years revealed a number of data, analytical, and technological changes that lenders need to make to restore long-term sustainability to their mortgage finance businesses.

Business conditions in the US mortgage finance sector continue to challenge lenders to achieve new lending growth objectives while doing a better job of identifying and managing borrower credit, property collateral, and other risks during the loan origination process. CEB TowerGroup believes that the new lending volume, portfolio risk management, and profitability challenges that lenders currently face will continue for a number of years. Moreover, even as conditions improve institutional reforms both within and outside the lending institution will require transformation of current risk assessment practices.

Despite the availability of new credit scoring data and analytics, loan underwriting has become more manual and costly because lenders have been focused on new regulatory compliance requirements that consume information technology (IT) spending resources. Lenders need to add enhanced credit scoring technology to their IT roadmaps and find solutions that are relatively easy to operationalize.

This report examines the current state of credit scoring technology, the strengths and weaknesses of current credit data and credit reports, and describes new consumer and property data and risk analytics that dramatically improve loan underwriting. CEB TowerGroup believes that lenders need to enhance existing credit bureau data and collateral data, models, and credit scores with new information to support analysis of more complex and layered loan applicant, property, and loan product risks. This can be achieved by the following three components:

1. Supplemental consumer, loan, and property data (e.g., additional mortgage trades, tax obligations, subject property value, down payment, etc.)

2. An enhanced credit score using the supplemental consumer data along with traditional credit data
3. An enhanced credit score using additional loan-level characteristics (e.g., down payment and property value)

These new data and scoring analytics will help lending institutions refine their new portfolio risk management techniques, provide additional predictive lift to credit scoring operations, and enable them to grow their lending portfolios more safely and profitably.

**Issues, Challenges, Tools, and Adoption Summary**

Consumer credit scoring technology has performed well for decades, even as consumer credit profiles and mortgage markets changed during economic cycles. Studies since the 1990s by credit rating agencies, lenders, and government-sponsored enterprises (GSEs) demonstrated a strong correlation between consumer credit scores and the incidence of mortgage default. Lenders use credit scores as one component of mortgage underwriting, along with human underwriter review, automated loan eligibility systems, statistically derived automated underwriting systems (AUS), and appraisals.

Some industry observers questioned the effectiveness of credit scores after subprime mortgage defaults increased sharply beginning in 2007 when it became more broadly known that some subprime lenders used credit scores as the primary mortgage underwriting tool. Other issues associated with credit scoring also emerged including:

- Credit reports may have missing or incorrect applicant and property data
- New or updated credit information sometimes does not appear on credit reports
- Credit bureaus do not collect all available types or instances of data that would improve credit scoring, loan underwriting, and loan pricing
- Lenders still use older scoring models that have less predictive power than newer scoring models

Although these issues are important, credit scores continue to rank order risk and default very well. More broadly, where lenders failed was in the lack of integrated underwriting and supporting analytics that incorporated consumer credit, collateral, and loan product risk. Mortgage underwriting was fragmented, with excessive reliance on credit evaluation and less emphasis on layered product and collateral risks. Nevertheless, improvements can be made to credit scoring analytics that can dramatically improve mortgage risk assessment.

Exhibit 1 outlines these internal lender, external market, and customer issues that are driving the need for improvements in credit scoring technology.
Exhibit 1

Market Developments Impacting Credit Scoring Data, Analytics, and Performance

External Industry Issues
Rising delinquencies caused mortgage-backed security (MBS) investors to improve monitoring of their securities and MBS purchase agreements. MBS investors used missing credit and property data and documents as justification to demand that lenders repurchase loans. CEB TowerGroup estimates that lender repurchase costs totaled an estimated US$53 billion from 2010–2011 and these costs continue to rise. MBS investors are now requiring greater information transparency in the form of new data, analytics, and reporting requirements to determine whether they, or the lenders that originated the loans, should be responsible for credit losses. This has increased pressure on lenders to properly identify all credit, collateral, and other risks during the loan underwriting process as well as in existing loan portfolios.

Credit rating agencies, criticized for weaknesses in their own business model, have improved their loan originator reviews, loan level risk assessments, and MBS surveillance work. As a result of these changes, lenders will need to improve their loan data collection and credit assessment to achieve better rating agency ratings and reviews on new MBSs.

Federal and state regulatory changes resulting from the Dodd–Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) are putting intense pressure on lender risk assessment, compliance, and loan processing. With respect to credit analysis, the need to fix weaknesses in consumer protection and to improve the safety and soundness of financial institutions has led to the review of existing credit reporting and scoring information that will change lender credit assessment requirements.
**Mortgage Customer Issues**

Traditional consumer credit profiles and payment behaviors have changed dramatically as a result of declining home prices, the recession, and lost jobs. Demand for new mortgage and home equity loans have declined as consumers deleverage their personal balance sheets. Many consumers have more difficulty qualifying for credit because their credit scores have declined following missed mortgage and other consumer loan payments.

Perhaps most importantly for lenders and their reliance on credit scores is the fact that consumer priorities regarding which loans they pay, and when they choose to pay them, have changed. Mortgage lenders once relied on consumers to pay their mortgage debt first among all types of consumer credit. This is no longer the case, even for consumers who are able to pay. Now, strategic default (the intentional nonpayment of a mortgage by mortgagors that have the ability to pay) and the desire by consumers to maintain liquidity using credit cards and home equity lines of credit are requiring lenders to scrutinize mortgage applications differently when underwriting and pricing mortgage risk. In this new lending environment, new data sources and scoring analytics are an essential new ingredient for more comprehensive and automated mortgage loan underwriting.

**Internal Lender Issues**

Although many lenders have tightened their underwriting guidelines and processes in response to the new risk environment, they have also increased the amount of manual, paper-driven risk assessment while continuing to rely on legacy credit scoring tools. These manual processes and older scoring tools continue to add pressure to lender operating costs, risk management, and profits. At the same time, required compliance-driven system changes are absorbing IT budgets so lenders need to enhance credit scoring systems quickly, efficiently, and at low cost.

**New Mandates for Credit Scoring Data and Analytics**

The “new normal” in mortgage loan underwriting requires more data, better underwriting analysis, additional documentation, and enhanced quality control and audit. Lenders thus have a new mandate to:

- Uncover previously unavailable consumer credit information
- Update credit analytics with new data and new scoring models
- Upgrade credit assessment systems quickly and easily

Improvements in these three areas will enable lenders to have a more comprehensive view of consumers, improve standardized measures of consumer, property, and loan risks, reduce loan repurchase risk, and originate more loans at the right price.
Exhibit 2 categorizes established (standard) and newer (supplemental) types of consumer payment, debt obligation, credit, loan, and property data available for mortgage loan underwriting. There are numerous types and sources of loan applicant, credit, and property data available that most lenders do not yet use in mortgage underwriting. These newer supplemental data sources are not typically available from traditional data sources such as the three major credit bureaus—Equifax, Experian, and TransUnion—since consumer data reporting is voluntary, subject to minimum annual volumes, and the number of available data elements has remained relatively static. Newer data is available from individual firms or aggregated for ease of consumption by a "supplemental credit bureau" such as CoreLogic Credco.

### Exhibit 2

**Standard and Supplemental Data Sources for Credit Reporting and Scoring**

**Standard Data Types**
- Bank
- Retailer
- Finance Company
- Income
- Assets
- Liabilities
- Property Data
- Mortgage
- Demographics

**Supplemental Data Sources**
- Mobile Payments
- Utility Payments
- Child Care
- payday Lending
- Rent
- Rental Payments
- Checking
- Identity Check
- Eviction Data
- Delinquent Taxes
- Property Data

**Consumer Data.** Standard consumer data sources come from banks, retailers, and finance companies. Types of data include outstanding and prior debt obligations, periodic loan payments, and consumer income, employment, and asset data. Supplemental data sources typically come from nonbank financial providers that may not report to the major credit bureaus, except on a "negative history" only basis. These firms include utility companies, payday lenders, landlords, phone companies, and government entities. These debt obligations and payment histories can add insight for credit risk assessment, decisioning, and pricing for all consumers, and especially for those with recently established and/or thinner standard bureau credit files.

**Loan Data.** Current and prior loans and payments have traditionally been the core component of credit scores. The primary loan types include automobile, credit card, consumer, home equity, mortgage, personal, and student loans. However, many information sources that can have a large impact on mortgage underwriting decisions and pricing are not collected by the standard bureaus. Newer, supplemental loan data includes all outstanding and prior first and second
mortgages, some of which may be missing from one or more of the three major bureaus. (Supplemental data is often proactively collected yielding incremental debt obligations beyond those voluntarily reported.) This data also enables lenders to estimate a combined loan-to-value (CLTV) ratio for all outstanding home equity and mortgage loans.

**Property Collateral Data.** Missing property lien, tax, and title data not captured by the major credit bureaus can expose lenders to greater risk of loss. Examples of this include public records, ownership history transactions, open property liens, likely occupant assessments, estimated asset values, tax bill amounts, and property rental applications.

**New and Updated Scoring Models**

Exhibit 3 depicts a conceptual framework for how enhancing credit scoring data and analytics can maximize the predictive life of a credit score and the lender’s ability to make optimal loan underwriting and pricing decisions. The sequential addition of consumer, loan and property scoring analytics incrementally increases the predictive lift available.

**Exhibit 3**

![Predictive Lift from Credit Data and Scoring Increases As Enhancements Are Added](chart)

Lenders, loan guarantors, ABS investors, and other industry participants consider the classic FICO score to be the de-facto standard and required, consumer lending industry credit score. Its near universal use has benefitted the growth of lending and securitization. In cases when a lender uses a supplemental, custom, or other credit scores, the lender typically uses the scores in addition to, not instead of, the classic FICO score.

The addition of supplemental consumer data provides additional predictive analysis above that of standard scores. An example is the FICO Mortgage Score Powered by CoreLogic, which was launched in July 2012. Similarly, the addition
of loan and property data, which can be modeled separately from consumer data, can maximize potential increased lift available from credit scoring.

**Predictive Lift: Empirical Results**

As with any IT investment, lenders should evaluate the benefits of adding supplemental credit reporting and scoring against its costs. A full return on investment (ROI) analysis would include the discounted net present value (NPV) of quantifiable revenues and expenses associated with the project. Qualitatively, improved predictive lift in mortgage underwriting decisions results in loan performance linked more closely to expected default rates, loan pricing, and portfolio profitability. Lenders can translate this into quantitative changes in loan approval, delinquency, and loss rates. Supplemental credit scoring may also increase lender revenue when the lender sells loans to secondary market investors, and reduce subsequent loan repurchases. Operationally, supplemental credit scoring delivers faster information collection and analysis that reduces labor expenses and pipeline hedging expenses.

Exhibit 4 shows empirical results from a study conducted jointly by CoreLogic and FICO. The study compares the cumulative number of defaults for FICO scores used by most lenders today (prior FICO score version) with a new supplemental mortgage credit score (FICO Mortgage Score Powered by CoreLogic). This new score developed by CoreLogic and FICO is a mortgage score built using traditional and supplemental consumer information to provide more transparency into a borrower's credit history and a more predictive result. It is delivered to lenders as part of a new CoreScore credit report.

**Exhibit 4**

![Cumulative Percentage of 90+ Days Delinquent Loans, with and without Supplemental Scores](image-url)
The vertical axis graphs the cumulative percent of mortgages 90 or more days delinquent. The horizontal axis depicts the cumulative percent of total loan applications, ordered (by each score) from highest risk to lowest risk as measured by the credit score. The results show that each score rank orders credit risk very well. The majority of loans that eventually default are among the riskiest loans identified by the credit scores in this dataset. For example, 49.7% of bads (loans 90 or more days delinquent) were within the riskiest 10% of loans identified by the prior FICO score version. Similarly, 54.7% of bads were within the riskiest 10% of loans identified by the FICO Mortgage Score Powered by CoreLogic.

This ability to better target credit risk allows lenders to improve their bottom line by:

- Approving applications that might otherwise be declined, adding incremental revenue
- Further verifying or declining applications that might otherwise be approved, which reduces mortgage defaults, credit loses, and servicing expenses

Further performance analysis quantified the credit score migration for specific population sizes. Large increases and decreases within the total population confirm that lenders can use the enhanced score to make more optimal loan application and denial decisions. For example:

- Twenty-four percent of the total population had credit scores improve by 50 points or more
- Seventy percent of the total population had scores improve
- In the 580-619 score range (the range below the 620 GSE credit score minimum required for the loan to be eligible for sale to the GSEs), the scores for 44.9% of the population moved into the 620 and above range where they could qualify for a GSE loan

These examples indicate the ability of the FICO Mortgage Score Powered by CoreLogic to give lenders and GSEs a more powerful tool with which to approve and securitize more mortgages.

Lenders can incorporate the results of this analysis as one input into their internal ROI analysis and weigh them against the people, processes, and technology costs discussed previously.
Implementation Across People, Processes, and Technology

Implementing new loan underwriting and scoring information requires a supporting infrastructure that optimizes people, process, and technology resources across the institution. However, the strategies and tactics required to provide best-in-class mortgage risk evaluation in a single line of business need not be overly complex. Although there are a number of policies, processes, and technologies affected, enhancing existing credit scoring systems is simpler than replacing them.

Exhibit 5 depicts the major steps that lenders need to complete to enhance their credit scoring.

**Exhibit 5**

*Straightforward Implementation Steps Required to Enhance Credit Scoring Technology*

**People**

The successful implementation of new scoring systems and underwriting policies profoundly depend on the participation and buy-in of a firm’s employees. Prior to implementation, credit policy and risk analysts perform analytic product testing to determine the efficacy, frequency of occurrence, and likely underwriting and risk impacts. Analytic product testing for a standard credit score or developing a custom credit score can be a lengthy task and take 6 to 12 months or more. Testing a supplemental score takes far less time. Once the lender decides to implement, loan processors, underwriters, and loan officers need to know what additional information is available and how it may impact a loan applicant’s ability to qualify for a loan. It may improve loan eligibility, reduce it, or change loan pricing. The operational impact of supplemental credit data, reports, and analytics is generally positive: more complete loan applicant information reduces the manual work a loan processor and underwriter need to do and identifies underwriting issues earlier in the loan origination process. This helps identify
Potential issues sooner, so the loan officer can address issues with the loan applicant and rectify them to increase the probability of obtaining financing.

**Process**
The procedural impacts of adding supplemental credit reporting and score are relatively small and fold into existing credit report ordering, loan processing, and underwriting processes, as shown in Exhibit 6. Lenders don't need to decide whether or not to order the additional information. They can simply request that the vendor deliver the supplemental information each time it is available for any loan applicant, or for specific loan applicants in specific situations. Vendors can also deliver supplemental credit reports in the same credit reporting formats lenders already use, making the reports easy to interpret and implement. By obtaining supplemental credit information automatically, loan underwriters can spend more time focusing on underwriting the applicant and assessing risk.

**Exhibit 6**

![Supplemental Credit Report Integrates with Existing Loan Origination Processes](image)

Although changes to lending processes are by no means trivial, most of the changes required to use the supplemental data and scores will be in the area of credit policy. The analytic product testing results will provide the information needed for credit policy changes. In the case of the FICO Mortgage Score Powered by CoreLogic, the existing FICO score range and calibration are used. The same reason code set is also used and simply expanded to accommodate CoreScore credit data. The addition of new consumer-level data and scores enables lenders to easily segment and refine underwriting guidelines and pricing for loan applicants.

**Technology**
In today's increasingly complex credit and compliance risk management environment, lenders are already inundated with IT projects to collect new data
and documents, integrate ancillary systems into their core loan origination system (LOS), and implement new risk management calculations and processes. Fortunately, systems changes to order, obtain, and process supplemental credit bureau information can be straightforward.

Many leading LOS vendors have already modified their systems to store and utilize supplemental bureau information. Minor modifications are required, such as new data field definitions, screen/web page view, storage, and a new document type to incorporate the supplemental credit report. Next, lenders can modify an existing interface used to order credit reports from the three primary credit bureaus or credit reporting companies. Organizations using a standardized, merged format for their credit reports today may be able to incorporate supplemental data with minimal IT effort if the data is incorporated into the standardized format as it is in the CoreScore solution.

**Conclusions**

Lenders cannot revert back to their prior mortgage underwriting policies, guidelines, technology and analytics. Too much damage has already been done to the market, consumers, shareholders and mortgage investors.

Complete loan applicant, property, and related information will bring greater transparency, reduce errors as well as increase efficiency, and liquidity to mortgage lending markets. Lenders can refine loan decisioning, limit costly manual underwriting on applications not worth pursuing, and lower underwriting costs on applications they do pursue. Supplemental credit bureau information will also support a lender’s new loan growth objectives and improve customer segmentation of first-time home buyers, loan applicants with young files but good credit, those with thin files but with good alternative rental/utility payment credit histories, and long-time renters.

Traditional credit and collateral data and analytics are necessary, but not sufficient, to satisfy the consumer credit reformation of today. The use of enhanced risk data and analytics enables lenders to focus simultaneously on customer needs, internal growth/profit objectives, and external lending market (investor, guarantor, and regulator) requirements.

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CoreLogic commissioned CEB TowerGroup to conduct research and analysis of consumer credit data, reporting and scoring practices and trends in financial services. The content of this report is the product of CEB TowerGroup. Although every effort has been taken to verify the accuracy of this information, neither CEB TowerGroup nor the sponsor of this report can accept any responsibility or liability for reliance by any person on this research or any of the information, opinions, or conclusions set out in the report.