Credit Analytics in Commercial Banking
Operationalizing Advanced Analytics to Understand Risk across the Value Chain, And the Enterprise, for Better Decision Making

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Credit risk (uncertainty associated with borrower’s loan repayment) is one of the most significant risks that commercial banks face. Nearly 40% of the total revenue of a typical commercial bank is generated by credit-related assets. Credit management, including provisions and write-offs, also account for a significant portion of a bank’s expenses.

The financial crisis of 2008 exposed the inter-linkages between credit risk, market risk, and liquidity. From January 1, 2008 to April 15, 2011, the FDIC closed 356 banks1 that failed to manage the risks building up in their residential and commercial mortgage exposures. This unleashed a wave of new and stricter regulations, such as Basel II/III, Dodd-Frank Wall Street Reform, and Consumer Protection Act. The Dodd-Frank Act, for instance, requires companies that sell products, such as mortgage-backed securities, to retain at least 5% of the credit risk, unless the underlying loans meet standards that reduce riskiness. Stress testing is also required now to ensure credit policy adherence.

Beyond the need to be compliant, effective credit risk management can also lead to significant business advantage. It helps establish a framework that defines corporate priorities, loan approval process, credit risk rating system, lead to significant business advantage. It helps establish a framework that defines corporate priorities, loan approval process, credit risk rating system, credit risk, unless the underlying loans meet standards that reduce riskiness. Stress testing is also required now to ensure credit policy adherence.

Figure below summarises the drivers for effective credit risk management.

Figure 1: Why important

1. Significant risk component
   - Credit-related assets account for ~40% revenue
   - Provisions and write-offs are significant expenses

2. New regulatory demands
   - Risk-based pricing, concentration limits setting,RAROC, portfolio-return profile, setting loss reserves, and economic capital

3. Informed business decisions
   - New and stricter regulations, such as Basel II/III, Dodd-Frank Wall Street Reform, and Consumer Protection Act

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1 FDIC Failed Bank List: www.fdic.gov
Credit risk management includes both preventive and curative measures. Preventive measures comprise risk assessment, risk measurement, and risk pricing, early warning system to pick signals of future defaults in advance and undertake better credit portfolio diversification. The curative measures aim at minimizing post-sanction loan losses through steps such as securitization, derivative trading, risk sharing, and legal enforcement. Post the financial crisis, most regulators and banks are focused on strengthening preventive credit risk measures. Such preventive analytics enable banks to make better business decisions by providing timely and actionable information and increasing visibility of risks across the organization.

Credit analytics assigns a probability to the likelihood of default based on quantitative and qualitative factors. It focuses on three components of credit risk:

1. Transaction risk focuses on the volatility in credit quality and earnings resulting from selection, underwriting, and operations.

2. Intrinsic risk is inherent in certain lines of business and loans to certain industries. For example, commercial real estate construction loans are inherently more risky than consumer loans. Intrinsic risk addresses the susceptibility to historic, predictive, and lending risk factors that characterize an industry or line of business.

3. Concentration or portfolio risk is the aggregation of transaction and intrinsic risk within the portfolio and may result from loans to one borrower or one industry, geographic area, or lines of business.

Effective credit risk management solution spans views risks across the entire lending value chain and encompasses reporting, descriptive, predictive, and prescriptive analytics (see Figure below).

Impact of leveraging credit analytics

The strong demand for higher yielding assets, in turn, supported the rapid growth of the “originate- and-distribute” model of credit intermediation... This apparent disconnect between the true credit quality of the underlying assets and the promised performance proved eventually to be a major flaw.


Increasing predictive power of current models by including new macro-economic factors (downturn, industry etc.) reduced the average portfolio LGD by 6%.

– Major U.S. bank

Increasing business impact:

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Variable capital requirements (post financial crisis)

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Successfully operationalizing credit analytics

Credit analytics are required to be compliant and make sound business decisions but banks typically face several challenges while operationalizing advanced credit analytics.

1. **Lack of data infrastructure.** Unlike market risk, there is scarcity and reliability of credit risk data to be one of the key impediments to the sound design and predictive capability of credit risk models. Credit risk models are influenced by constant shifts in market variables, economic environment, business line products and services, and credit quality.

2. **Legacy and outdated IT systems.** Pace of regulatory reforms is outpacing systems availability at banks resulting in development of ‘workarounds’ until technology catches up. Mergers and acquisitions make the systems landscape even more complicated.

3. **Large talent gap.** Specialized skills, such as model development and model governance, are scarce and expensive resulting in large budgets for consulting projects. Stress testing, ALLL, E-Cap require large investments.

Several best practices are now emerging to help overcome some of these challenges:

- **Assessment of credit risk across the lending value chain.** Effective credit risk management solution spans views risks across the entire lending value chain – origination, underwriting, portfolio monitoring, regulatory reporting, and collections.

- **Integrated enterprise view of risk.** Data governance should be centralized across different risk categories including LoB risks (market risks, regulatory risks, fraud and AML/KYC risks) and finance/treasury risks (credit risk and liquidity risk).

- **Single view of customer.** Functional silos prevent banks from calculating concentration risks, as single view of customer is hard to create.

- **Resource centralization and use of third-party providers.** Centralization allows banks to break functional silos. Such a model also improves overall utilization of these scarce and expensive resources. Shared services and Global In-house Centers (GICs) are also increasingly leveraged to build such a team. Third-party BPO service providers can also be utilized for risk analytics, data management, testing of systems, and validation of models to quickly scale-up given the severe talent crunch in risk analytics.

Following a merger, we faced the challenge of integrating two vastly different credit platforms. Inefficient credit processes were contributing to high operating expenses and we had to ensure compliance with Basel II/III requirements.

– European bank

We have 22 different definitions of what is a customer.

– top 5 U.S. retail bank

We are integrating the IT systems that govern all credit processes, from origination to early collection.

– European Bank
Conclusion

Credit risk management is one of the biggest risks faced by commercial banks and is assuming even greater importance in a changing regulatory regime and volatile market conditions. Advanced credit analytics are now required to be compliant and to make sound business decisions. However, to successfully operationalize credit analytics, banks need to assess credit risks across the entire lending value chain and build an integrated risk management layer that uncovers interlinkages between credit risk and other risk categories (market risk, fraud, and liquidity risks).

This study was funded, in part, by support from Genpact

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