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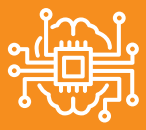


Artificial Intelligence

Big Data, AI and the life of a corporate loan

From credit approval to covenant testing, the flow of information between borrower and creditor is fundamental to any lending arrangement. Here we explore how the Big Data revolution is affecting corporate lending and what future market practices may look like.

Who needs credit?

Whether for the purposes of providing debt finance, deposit facilities or hedging, corporate banking has traditionally relied upon relationship management and close ties between bank sector teams and industry. Increasingly however, new lenders are using the availability of alternative data to identify opportunities.

While peer-to-peer platforms use lender-borrower matching algorithms, the SME lending market in particular is seeing challengers using accumulated alternative datasets to identify lending opportunities. Examples of this include Amazon Lending, PayPal Working Capital and Ali Baba affiliate Ant Financial which leverage accumulated data from ecommerce to offer credit to businesses selling through related retail platforms. These platforms and others obtain extensive information on the operations of their merchants through daily transactions including inventory levels, granular sales data, seasonality of market trends, returns etc. By analysing and applying algorithms to this data, traditional ecommerce retailers are able to match merchant cash flow demands to tailored credit facility offerings.

Credit approval

Will a borrower repay a loan? This is the fundamental question for any credit approval decision. Lenders have always looked to invest in processes that improve their ability to predict a given counterparty's risk of default, or from a balance sheet perspective, a particular loan portfolio's aggregate credit risk.

Traditionally, banks have produced internal credit scores, which reflect quantitative data points (namely financial ratios) as well as subjective factors (market forecasts, reputation and so on) in order to evaluate a borrower's credit risk. The last decade however has seen significant changes in how lenders grant and manage credit risk. This is in part by a regulatory push, namely the Basel accords, which oblige financial institutions to produce sophisticated risk analysis. Another factor is market pull as a function of technology advances, namely increases in data storage capacity and improvements in processing power.

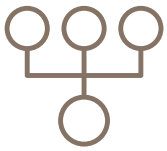
In particular, the application of artificial neural networks in modelling credit risk has seen significant investment. Information that flows through the network changes it as it effectively learns based on that input and output. Traditional lending processes use linear statistical methods to model a given borrower's credit risk within the context of qualitative market and structural analysis. With the required data and processing power, non-linear statistical models deployed in artificial neural networks provide creditors the opportunity to consider disparate information points in order to identify complex relationships and patterns. These are revised over time to support the model's learning.

While increasing a lender's predictive power in relation to default risk has obvious benefits for loan credit approval, this application of artificial intelligence will also allow lenders to more accurately price loans for risk and will support decisions on customer and market lending strategy. There are of course downsides to automated credit approval, particularly within the consumer context. Bias in source data can yield biased credit outcomes, and similarly, algorithms designed to increase the weighting of certain data features (university education for example), may instead inadvertently amplify pre-existing structural biases. The risk that large groups of borrowers are unintentionally, yet systematically denied credit should be assessed and mitigated.

Covenant monitoring

Leaving aside the question of whether loan terms are recorded on paper or coded into smart contracts, using live datasets and technologies to automate corporate loan obligations has potential efficiency gains for both lender and borrower, in particular with respect to covenant monitoring. A typical loan agreement contains several information undertakings, which require a borrower to report on various information points to the lender. The responsibility usually falls on a borrower's finance director to ensure that periodic financial statements, internal accounts, budgets and financial covenant compliance certificates are delivered to the lender at designated times, so that the lender can verify that agreed financial covenants are being complied with.

Third-party providers currently offer software products which, using APIs, plug into a borrower's internal accounting software to automatically extract relevant data in a form which may be provided to a lender. With the adoption of financial information sharing practices, such as the Open Banking movement in the UK, it is likely that this information flow and subsequent data analysis will move to a system where a lender is able to verify financial covenant compliance at any given moment in time. Whether borrowers will agree to such continuous monitoring remains to be seen. However, it is reasonable to assume that loan agreements will in future contemplate transmission of data over proprietary (or third-party) data aggregation or obligation management platforms. They should at the very least remove the requirement for transmission of information by fax!



What's next?

In this article we have sought to describe how Big Data and AI is being applied to certain distinct "stages" of a traditional corporate loan lifecycle. As lenders continue to innovate, and the digital financial ecosystem develops further through Open Banking and other data sharing initiatives, we will begin to see the distinct loan stages of customer acquisition, credit approval and monitoring take place simultaneously, or at the very least in parallel.

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