THE RELATIONSHIP BETWEEN DCF, PD/LGD AND LOAN PRICING



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DISCOUNTED CASH FLOW (DCF) METHOD AND ITS RELEVANCE TO CECL

Notwithstanding the 2023 effective date, financial institutions are already working to have systems and procedures in place to implement the Current Expected Credit Losses (CECL)

standard. Developing a technique for calculating the allowance for expected credit losses is one of the most important aspects of adhering to CECL. Financial institutions can choose from a variety of methods, some of which are better suited to specific products than others. Methods range from the Weighted-Average Remaining Maturity (WARM) method, which is preferred by smaller institutions, to more complicated ones, like the Discounted Cash Flow (DCF) method. The number of resources and data available to an institution will most likely determine which method the management chooses while calculating their CECL allowance. While the DCF method is widely regarded as complex and data-intensive, it is still considered by many institutions to be best suited for estimating their credit loss allowance.



How do contractual cash flows compare to discounted cash flows?

DCF is the most comprehensive of the CECL methods, and it is typically utilized by larger organizations that require more information and control. Before we explore DCF, it would help to understand the similarities and differences between discounted cash flows and contractual cash flows. An institution's core system contains data for factors such as:

- > Payment amount
- Payment frequency
- > Maturity date
- > Amortization

These factors typically come together to give us contractual cash flows. The cash flows for a loan can be projected using this data. Contractual cash flows can be converted to expected cash flows by making a few assumptions, which have been explained below.

> Payment type

The annual proportion of a loan's outstanding balance projected to be paid off early is known as the prepayment rate. Prepayment can be of several different types, such as refinance, partial, or full. The effective duration of a loan reduces as the prepayment rate and, consequently, prepayments increase. This means less interest for the lender and is considered a prepayment risk. This can impact the timing of cash flows and also an institution's CECL estimate.

Probability of Default (PD)

The chance that a borrower is going to default is the probability of default. It is expressed as an annual percentage and is adjusted on a period-by-period basis. The credit quality of the borrower determines this metric. An institution that follows the DCF method can change how it deals with its borrowers if it senses that their ability to repay loans is challenged. This is because the DCF approach brings with it a vectored default rate forecast.

Loss Given Default (LGD)

The loss given default shows us how much the institution will lose if the borrower defaults. This assumption is expressed as a percentage. When it is combined with the PD, we get a measure of the expected loss. The LGD percentage is influenced by factors such as collateral, foreclosure, repossession principal costs, paydowns, etc. The LGD needs historical information, which can be hard to track. To prevent this in the future, institutions can document credit quality characteristics to understand which loans are actually entering loss-making status.

During the estimation process, institutions should use a DCF or non-DCF technique regularly. If a non-DCF approach is used, it has to be applied uniformly to a portfolio. Historically, there has been a lack of consensus on whether LGD should be partially discounted, discounted, or not discounted at all. While implementing CECL, institutions using a DCF methodology should apply a discounted LGD while institutions using a non-DCF-based estimation should apply a non-discounted LGD. For both DCF and non-DCF methods, partial discounting should be avoided.

Recovery delay

Institutions face a delay in recoveries when a loan goes into default. In DCF models, timing is crucial since the delay time has variable effects on the CECL calculation. Based on loan classes, this is often applied across the board.

Discount rate

The discount rate, also known as the effective interest rate, is the contractual interest rate that has been adjusted for any net deferred fees, expenses, premiums, or discounts that existed at the time of origination.

CECL forecasting

CECL's technique needs forward-looking projections. Because of its timing abilities, the DCF approach is best suited for forecasting. While running various scenarios for different forecasts, an institution can include them in a discounted cash flow. Projections would also consider current conditions, the standard historical experience, and reasonable and supportable forecasts.

DCF advantages

- By considering all cash flows and modifying them for behavioral and credit-related elements, the DCF method then calculates contractual life.
- DCF can incorporate supportable and reasonable forecasts based on volatility and timing.
- > DCF depends more on facts and less on subjective opinion, making it more defensible.

DCF disadvantages

- > The method is highly complex
- It needs a lot of data, both historical and current
- It needs software and related resources to run effectively

CECL Express can help...

CECL Express is a turnkey solution that fully satisfies all elements of the new CECL accounting standard. The system provides all non-loan data, including:

- > Yield curves and Fed data
- Linked reports on losses from the FFIEC and NCUA
- > PD and LGD curves
- > Macroeconomic data

Banks and credit unions need to only provide the underlying loan details for the system to provide fully auditable ECL results for multiple calculation methods, including:

- > Vintage
- > Roll Rate
- > Discounted Cashflow
- > WARM
- > PD/LGD



CECL Express provides more than valid ECL results. The system computes results for all methods and all loan pools, allowing the bank to optimize its CECL configuration and avoid the worst impacts of the new standard. Visit ceclexpress.com for more information about the most efficient route to optimal CECL compliance.



ABOUT CECL EXPRESS

- CECL Express is a turnkey, cloud-based solution, designed to provide banks and credit unions with optimized results and reporting that fully meet the 'Current Expected Credit Loss' accounting standards.
- CECL represents a major change in what is expected from financial institutions in their reporting of, and provisioning against potential credit losses.
- Smaller financial institutions are expected to implement forward-looking credit models to estimate losses they may experience.
- Selecting inappropriate 'Expected Credit Loss' (ECL) models will create a need to hold far more capital than is required, directly causing a loss of Profit and Loss (P&L). Data used within these models must also be reported for audit purposes.
- January 2023 will see the first official reporting period for the beginning of CECL. Banks and credit unions must have a framework in place, which is fully tested and reports results based on that data. In practice, this means selecting, implementing, and testing the system in the first half of 2022.
- For Finastra core systems, the integration has already been built. For customers with these systems, their CECL results are ready to be calculated and reported.

GreenPoint> Financial

ABOUT GREENPOINT FINANCIAL

- GreenPoint Financial is a division of GreenPoint Global, which provides software-enabled services, content, process and technology services, to financial institutions and related industry segments.
- GreenPoint is partnering with Finastra across multiple technology and services platforms.
- Founded in 2006, GreenPoint has grown to over 500 employees with a global footprint. Our production and management teams are in the US, India, and Israel with access to subject matter experts.
- GreenPoint has a stable client base that ranges from small and medium-sized organizations to Fortune 1000 companies worldwide. We serve our clients through our deep resource pool of subject matter experts and process specialists across several domains.
- As an ISO certified company by TÜV Nord, GreenPoint rigorously complies with ISO 9001:2015, ISO 27001:2013, and ISO 27701:2019 standards.



Marcus Cree

MANAGING DIRECTOR AND HEAD OF FINANCIAL TECHNOLOGY AND SERVICES

Marcus has spent 25 years in financial risk management, working on both the buy and sell side of the industry. He has also worked on risk management projects in over 50 countries, gaining a unique perspective on the nuances and differences across regulatory regimes around the world.

As Managing Director, Marcus co-heads GreenPoint Financial Technology and Services and has been central in the initial design of GreenPoint products in the loan book risk area, including CECL and sustainability risk. This follows his extensive experience in the Finastra Risk Practice and as US Head of Risk Solutions for FIS. Marcus has also been a prolific conference speaker and writer on risk management, principally market, credit and liquidity risk. More recently, he has written and published papers on sustainability and green finance.

Marcus graduated from Leicester University in the UK, after studing Pure Mathematics, Phycology and Astronomy. Since graduation, Marcus has continually gained risk specific qualifications including the FRM (GARP's Financial Risk Manager) and the SCR(GARP's Sustainability and Climate Risk). Marcus's latest academic initiative is creating and teaching a course on Green Finance and Risk Management at NYU Tandon School of Engineering.



Sanjay Sharma, PhD FOUNDER AND CHAIRMAN

Sanjay provides strategic and tactical guidance to GreenPoint senior management and serves as client ombudsman. His career in the financial services industry spans three decades during which he has held investment banking and C-level risk management positions at Royal Bank of Canada (RBC) Goldman Sachs, Merrill Lynch, Citigroup, Moody's, and Natixis. Sanjay is the author of "Risk Transparency" (Risk Books, 2013), Data Privacy and GDPR Handbook (Wiley, 2019), and co-author of "The Fundamental Review of Trading Book (or FRTB) - Impact and Implementation" (Risk Books, 2018).

Sanjay was the Founding Director of the RBC/Hass Fellowship Program at the University of California at Berkeley and has served as an advisor and a member of the Board of Directors of UPS Capital (a Division of UPS). He has also served on the Global Board of Directors for Professional Risk International Association (PRMIA).

Sanjay holds a PhD in Finance and International Business from New York University and an MBA from the Wharton School of Business and has undergraduate degrees in Physics and Marine Engineering. As well as being a regular speaker at conferences, Sanjay actively teaches postgraduate level courses in business and quantitative finance at EDHEC (NICE, France), Fordham, and Columbia Universities.