

# Accepted Manuscript

## Evaluation of Counterparty Risk for Derivatives with Early-exercise Features

Michèle Breton, Oussama Marzouk

PII: S0165-1889(18)30014-9  
DOI: [10.1016/j.jedc.2018.01.014](https://doi.org/10.1016/j.jedc.2018.01.014)  
Reference: DYNCON 3519

To appear in: *Journal of Economic Dynamics & Control*

Received date: 23 June 2017  
Revised date: 11 November 2017  
Accepted date: 6 January 2018

Please cite this article as: Michèle Breton, Oussama Marzouk, Evaluation of Counterparty Risk for Derivatives with Early-exercise Features, *Journal of Economic Dynamics & Control* (2018), doi: [10.1016/j.jedc.2018.01.014](https://doi.org/10.1016/j.jedc.2018.01.014)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



# Evaluation of Counterparty Risk for Derivatives with Early-exercise Features\*

Michèle Breton<sup>†</sup>

Oussama Marzouk<sup>‡</sup>

January 12, 2018

## Abstract

We introduce an efficient numerical approach to evaluate counterparty risk and we compute the Credit Valuation Adjustment for derivatives having early-exercise features. The approach is flexible and can account for wrong-way risk and various models for the underlying risk factor's dynamics. Numerical experiments are presented to illustrate the efficiency and versatility of the method.

**Keywords:** Finance, Credit risk, Credit valuation adjustment, Dynamic programming, computational method.

## 1 Introduction

The financial crisis of 2007–2008 highlighted a number of shortcomings in the regulation of financial institutions. One of these was the misestimation of *counterparty risk*, defined as the risk of incurring losses in over-the-counter contracts, in the event of a counterparty defaulting on its payment obligations. The *credit valuation adjustment* (CVA) is the market value of counterparty risk. It is a pricing adjustment applied to the default-free value of the contract in order to obtain a fair value

---

\* Research supported by NSERC (Canada) and IFSID (Quebec). The authors wish to thank D. Brigo for helpful comments about structural models of default.

<sup>†</sup>GERAD and Department of Decision Sciences, HEC Montréal, 3000 Chemin de la Côte Sainte-Catherine, Montréal, Qc. Canada H3T 1V7. Email: michele.breton@hec.ca.

<sup>‡</sup>Department of Decision Sciences, HEC Montréal. Email: oussama.marzouk@hec.ca

Download English Version:

<https://daneshyari.com/en/article/7358786>

Download Persian Version:

<https://daneshyari.com/article/7358786>

[Daneshyari.com](https://daneshyari.com)