



13th International Conference on Industrial
Engineering and Industrial Management

XXIII Congreso de Ingeniería de Organización



**Organizational
Engineering
in Industry 4.0**

BOOK OF ABSTRACTS

Gijón, 11th-12th July 2019

Book of Abstracts

**“13th International Conference on
Industrial Engineering and
Industrial Management” and
“XXIII Congreso de Ingeniería de
Organización (CIO2019)”**

Book of Abstracts

**“13th International Conference on
Industrial Engineering and Industrial
Management” and “XXIII Congreso de
Ingeniería de Organización
(CIO2019)”**

COORDINADORES

DAVID DE LA FUENTE GARCÍA

RAÚL PINO DIEZ

PAOLO PRIORE

FCO. JAVIER PUENTE GARCÍA

ALBERTO GÓMEZ GÓMEZ

JOSÉ PARREÑO FERNANDEZ

ISABEL FERNÁNDEZ QUESADA

NAZARIO GARCÍA FERNÁNDEZ

RAFAEL ROSILLO CAMBLOR

BORJA PONTE BLANCO

© 2019 Universidad de Oviedo
© Los autores

Servicio de Publicaciones de la Universidad de Oviedo
Campus de Humanidades. Edificio de Servicios. 33011 Oviedo (Asturias)
Tel. 985 10 95 03 Fax 985 10 95 07
[http: www.uniovi.es/publicaciones](http://www.uniovi.es/publicaciones)
servipub@uniovi.es

I.S.B.N.: 978-84-17445-38-6
DL AS 1875-2019

Imprime: Servicio de Publicaciones. Universidad de Oviedo

Todos los derechos reservados. De conformidad con lo dispuesto en la legislación vigente, podrán ser castigados con penas de multa y privación de libertad quienes reproduzcan o plagien, en todo o en parte, una obra literaria, artística o científica, fijada en cualquier tipo y soporte, sin la preceptiva autorización.

Mandatory Convertibles and Shareholders Incentives

Huerga A¹, Rodríguez- Monroy C²

¹ Angel Huerga (✉e-mail: angel.huerga@gmail.com)

Dpto. de Organización, Administración de Empresas y Estadística. ETS de Ingenieros Industriales. Universidad Politécnica de Madrid (UPM), España.

² Carlos Rodríguez-Monroy (✉e-mail: crmonroy@etsii.upm.es)

Dpto. de Organización, Administración de Empresas y Estadística. ETS de Ingenieros Industriales. Universidad Politécnica de Madrid (UPM), España.

Keywords: Mandatory Convertible Bonds; Shareholder Value; Risk Shifting; Agency Dilemma; Real Options

1 Introduction

A relative large proportion of the academic literature about the agency dilemma studies corporate governance or the instruments that can balance the incentives of shareholders and debt holders. This article studies a balance sheet instrument, the mandatory convertible bond (MCB), as a means to increase the value for shareholders, without reducing the bondholders claim. Following the options valuations theories, one way to increase the value for shareholders is to increase the risk of the firm that in turn reduces the value for bondholders. MCB are equity instruments, therefore the increase in shareholders' value comes at the expense of MCB holders, not of bondholders.

2 Objectives

This research intends to study the influence of the issuance MCB in company credit perception and risk shifting. The theoretical framework predicts that companies that include MCBs as a balance sheet instrument can increase the shareholders' value by increasing the company risk, without deteriorating credit metrics.

3 Methods

Multinomial logit regression and standard multinomial regression models analysis of data from 81 MCB issued between 2010 and 2018. For the regression analyses

we have used the following ratios: Senior Credit Spread, Dividend Yield, Equity Volatility, Debt to Market Cap, Cash Ratio, and Net Debt to EBITDA.

4 Results

Despite the limited number of modern convertible bonds issued since 2010, the empirical results seem to partially confirm the hypothesis. As predicted by the model, risk shift increased in more than 1% after the issuance of MCB. The logistic regression model shows a 62% predictive power. The multivariable regression shows that volatility is, as in the hypothesis, positively correlated with the existence of a MCB in the company balance sheet.

5 Conclusion

The scientific literature about the influence of capital instruments in the agency dilemma is scarce. This research shows how on average the companies that issued MCB reduced its credit spread increasing at the same time its leverage ratios, increasing volatility, probably implying the investment in risky projects that can add value to shareholders without reducing debtholders' claims.

References

- Bharat, S. Shumway, T. (2008) Forecasting Default with the Merton Distance to Default Model. *Review of Financial Studies*. 21. 1339-1369
- Black,F; Scholes,M (1973). The Pricing of Options and Corporate Liabilities. *Journal of Political Economy*, 81 pp.637-654
- Dorion, C., Francois, P., Grass, G., Jeanneret, A. (2014). Convertible Debt and Shareholder Incentives. *Journal of Corporate Finance*, (24) 2014.
- Green, R. (1984). Investment Incentives, Debt, and Warrants. *Journal of Financial Economics* 13, 115—136
- Hart, O. (1995) Corporate Governance: Some Theory and Implications. *The Economic Journal*, Vol. 105, No. 430 (May, 1995), pp. 678-689.
- Huerga, A., Rodríguez-Monroy, C. (2019). Mandatory Convertible Notes as a Sustainable Corporate Finance Instrument. *Sustainability* 2019, 11, 897.
- Jensen, M., Meckling, W. (1976) Theory of the firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics*, Volume 3, Issue 4, October 1976, Pages 305-360
- Lewis, C.M., Rogalski R, Seward, J.K. (1998). Agency Problems, Information Asymmetries and Convertible Debt Security Design. *Journal of Financial Intermediation*, 7, 32-59.
- Merton, R., (1973). Theory of Rational Option Pricing, *The Bell Journal of Economics and Management Science* Vol. 4, No. 1 Spring 1973. 141-183.
- Stein, J. (1992) Convertible Bonds as a Backdoor Equity Financing. *Journal of Financial Economics*. 32 (1992) 3-21.