

XII Iberian-Italian Congress of  
Financial and Actuarial Mathematics

Lisbon, 7<sup>th</sup> to 9<sup>th</sup> July 2011

Program Chair:

José Luis Miralles Marcelo

Depósito Legal:

Edited by: Grupo de Investigación en Mercados y Activos Financieros (GIMAF)

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## PREFACE

The purpose of the **XII Iberian-Italian Congress of Financial and Actuarial Mathematics** is to provide a meeting point for researchers in Financial Economics from different countries and research backgrounds in universities, government or financial institutions. In fact, the Congress which is currently taking place in Lisbon has been organized to encourage communication and debate among the participants as well as to reinforce the bonds between us.

The current edition of the Congress is characterized by the quality and diversity of the papers that have been submitted with special attention to the International Financial Crisis and measures of risk in different financial markets. However, as the Congress Program indicates, there are also parallel sessions about traditional topics in finance such as asset pricing, insurance, corporate finance, etc.

Although this Congress has always been organized alternately between Spain and Italy, this year we have the great pleasure of celebrating it in Portugal which will be included as a permanent partner.

Finally, I would like to express my gratitude to the financial support received from different institutions: *Instituto Superior de Contabilidade e Administração de Lisboa* (ISCAL); the University of Extremadura and GIMAF research group; Instituto Politécnico de Lisboa; Allianz; and Delta Cafés.

I would like also to express my gratitude to all the members of the Organization Committee and especially to Irene Arraiano and Rogerio Fonseca for their help and hard work; to the invaluable help of the Universities that have preceded us in organizing the conference; to the invited speakers - Peter Smith from the University of York and Fernando Gómez-Bezares from the University of Deusto - for their availability and kindness in accepting my invitation; and to all the participants, who I hope will enjoy it and find it useful.

José Luis Miralles Marcelo

Program Chair



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## PROGRAM

### Thursday 7<sup>th</sup> July

9.30 – 10.30	Reception and registration
10.30 – 11.00	Opening of Conference
11.00 – 11.30	Coffee Break
11.30 – 13.00	<u>Session I. Bond Market</u> <u>Session II. Asset Pricing</u>
13.00 – 15.00	Lunch Break
15.00 – 16.00	Invited Speaker. Peter Smith (University of York)
16.00 – 16.30	Coffee Break
16.30 – 18.00	<u>Session III. Decision Theory</u> <u>Session IV. Insurance</u>
20.00	Welcome Cocktail

### Friday 8<sup>th</sup> July

9.30 – 11.00	<u>Session V. Financial Crisis and Default Risk</u> <u>Session VI. Market Efficiency</u>
11.00 – 11.30	Coffee Break
11.30 – 13.00	<u>Session VII. Volatility I</u> <u>Session VIII. Corporate Finance</u>
13.00 – 15.00	Lunch Break

15.00 – 16.00 Invited Speaker. Fernando Gómez-Bezares (University of Deusto)

16.00 – 16.30 Coffee Break

16.30 – 18.00 Session IX. Volatility II  
Session X Corporate Social Responsibility

21.00 Gala Dinner. “Pateo Alfacinha”

**Saturday 9<sup>th</sup> July**

8:30 Guided visit to Sintra

## DETAILED PROGRAM

### Thursday 7<sup>th</sup> July

9.30 – 10.30 Reception and registration

10.30 – 11.00 Opening of Conference

11.00 – 11.30 Coffee Break

11.30 – 13.00 Parallel Sessions

#### Session I. Bond Market

Chair: Eliseo Navarro

Papers:

##### [Some Bounds of Loss in Classical Semideterministic Immunization](#)

Amato, Pancrazio

##### [Simulation of default events in a CDX and estimation of the spread](#)

Boreiko, D.V.; Y.M. Kaniovski y G.Ch.Pflug

##### [What Drives Corporate Default Risk Premia? Evidence from the CDS Market](#)

Díaz, Antonio; J. Groba y P. Serrano

##### [The Problem of Estimating the Volatility of Zero Coupon Bond Interest Rate](#)

Díaz, Antonio; Francisco Jareño y Eliseo Navarro

#### Session II. Asset Pricing

Chair: José Luis Miralles

Papers:

##### [The Risk-Return Trade-Off In Europe: A Temporal And Cross-Sectional Analysis](#)

Aragó, Vicent y Enrique Salvador

##### [The Role of an Illiquidity Factor in the Portuguese Stock Market](#)

Miralles Marcelo, José Luis; María del Mar Miralles Quirós y Célia Oliveira

##### [Idiosyncratic risk really drives stock returns. Spanish evidence](#)

Miralles Marcelo José Luis; María del Mar Miralles Quirós y José Luis Miralles Quirós

13.00 – 15.00 Lunch Break

15.00 – 16.00 [Invited Speaker. Peter Smith \(University of York\)](#)

16.00 – 16.30 Coffee Break

16.30 – 18.00 Parallel Sessions

Session III. Decision Theory

Chair: Alejandro Balbás

Papers:

[Good Deals in Market with Frictions](#)

Balbás, Alejandro; Beatriz Balbás y Raquel Balbás

[Constructing Good Deals in Discrete Time Arbitrage-free Dynamic Pricing Models](#)

Balbás, Beatriz y Raquel Balbás

[A Comparative Study of Alternative Approaches for Common Factors Identification](#)

González Sánchez, Mariano y Juan M. Nave Pineda

Session IV. Insurance

Chair: Flavio Pressaco

Papers:

[The US Actuarial Balance Model for the Pay-as-you-go System and its Application to Spain](#)

García-García, Manuel; Juan M. Nave-Pineda y Carlos Vidal-Meliá

[Reward-Risk Efficiency In Proportional Reinsurance With Different Risk Measures](#)

Pressaco, Flavio y Laura Ziani

[From Efficiency To Optimality In Proportional Reinsurance Under Group Correlation](#)

Pressaco, Flavio y Laura Ziani

[Individual Pension Information. Recommendations for the Case of Spain based on the Experiences of other Countries](#)

Regúlez Castillo, Marta y Carlos Vidal Meliá

20.00 Welcome Cocktail

**Friday 8<sup>th</sup> July**

9.30 – 11.00      Parallel Sessions

Session V. Financial Crisis and Default Risk

Chair: Paulo Alves

Papers:

**[Interest Rate Exposure Of Spanish Banks: A Nonparametric Analysis](#)**

Ballester, Laura; Román Ferrer y Cristóbal González

**[Tools for Testing the Solvency Capital Requirement for Life Insurance](#)**

Coppola, Mariarosaria y Valeria D'Amato

**[Optimal Insurance with Counterparty Default Risk](#)**

Biffis, Enrico y Pietro Millosovich

**[Systematic and Liquidity Risk in Sub-prime Mortgage-backed Assets](#)**

Dungey, Mardi; Gerald P. Dwyer y Thomas Flavin

Session VI. Market Efficiency

Chair: Ana María Ibañez

Papers:

**[Trying to Understand All-Equity Firms](#)**

Ferrão, Joaquim

**[Information and Investor Behavior Surrounding Earnings Announcements](#)**

García, Constantino José; M.B. Herrero y A.M. Ibáñez

**[Evidence on Portuguese Stock Market Abnormal Returns](#)**

Mendes Duarte, Elisabete y Lisete Trindade Oliveira

**[Pricing Intraday Dynamics across EUAS and CERS Markets](#)**

Medina, Vicente; Angel Pardo y Roberto Pascual

11.00 – 11.30      Coffee Break

11.30 – 13.00      Parallel Sessions

Session VII. Volatility I

Chair: M<sup>a</sup> Paz Jordá

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[Open and Closed Positions and Stock Index Futures Volatility](#)

Carchano, Óscar; Julio Lucia y Ángel Pardo

[Extreme Value Theory Versus Traditional GARCH Approaches Applied To Financial Data: A Comparative Evaluation](#)

Furió, Dolores y Francisco J. Climent

[Model Risk in the Pricing of Exotic Options](#)

Marabel Romo, Jacinto y José Luis Crespo Espert

[Volatility Forecasting with Range Models. An Evaluation of New Alternatives to the CARR Model](#)

Miralles Quirós, José Luis y Julio Daza Izquierdo

Session VIII. Corporate Finance

Chair: Manuel Mendes da Cruz

Papers:

[Shareholder Wealth Creation In Response To Announcements Of Acquisitions Of Unlisted Firms: Evidence From Spain](#)

Farinós, José Emilio; Begoña Herrero y Miguel A. Latorre

[Changes In The Influence Of Board Characteristics On Corporate Results Due To The Recent Global Financial Crisis](#)

Ferrero Ferrero, Idoya; María Jesús Muñoz Torres y María Ángeles Fernández Izquierdo

[A Model to Forecast Financial Failure, In Non Financial Galician SMES](#)

Llanos Monelos, Pablo de; Carlos Piñeiro Sánchez y Manuel Rodríguez López

[The Impact of Family Control on Firm's Return](#)

Miralles Marcelo José Luis; María del Mar Miralles Quirós y Inês Lisboa

13.00 – 15.00      Lunch Break

15.00 – 16.00      [Invited Speaker. Fernando Gómez-Bezares](#)  
[\(University of Deusto\)](#)

16.00 – 16.30      Coffee Break

16.30 – 18.00      Parallel Sessions

Session IX. Volatility II

Chair: Carlos Vidal

Papers:

[Is Stock Market Volatility Persistent? A Fractionally Integrated Approach](#)

Bentes, Sonia R. y M. Mendes da Cruz

[On The Concept Of Endogenous Volatility](#)

Gomes, Orlando

[Volatility Regimes for the Vix Index](#)

Marabel Romo, Jacinto

[Industry Concentration and Market Volatility](#)

Miralles Marcelo, José Luis; José Luis Miralles Quirós y José Luis Martins

Session X Corporate Social Responsibility

Chair: M<sup>a</sup> Ángeles Fernández

Papers:

[Return Premiums of Sustainable Companies Listed on the Spanish Stock Market](#)

Alonso Mollar, Eduardo; María Ángeles Fernández Izquierdo y Luisa Nieto Soria

[A Multifactor Approach to the Social Discount Rate](#)

Cruz Rambaud, Salvador y María José Muñoz Torrecillas

[Spanish Society's Perceptions about socially Responsible Investing](#)

Escrig-Olmedo, Elena; María Jesús Muñoz-Torres y María Ángeles Fernández-Izquierdo

[Validation Of A Measurement Scale For The Relationship Between The Orientation To Corporate Social Responsibility And Other Business Strategic Variables](#)

Gallardo-Vázquez, Dolores; María Isabel Sánchez-Hernández y María Beatriz Corchuelo Martínez-Azúa

21.00 Gala Dinner. "Pateo Alfacinha"

**Saturday 9<sup>th</sup> July**

8:30 Guided visit to Sintra



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# **LONG-RUN CONSUMPTION RISK WITH DURABLE GOODS: UK EVIDENCE FOR EQUITY AND BOND MARKETS**

**PETER N SMITH**

**UNIVERSITY OF YORK**

It is a widely accepted fact that the consumption-based capital asset pricing model (CCAPM) fails to provide a good explanation of many important features of the behaviour of financial market returns in a large range of countries over a long period of time. However, within a representative consumer/investor model, it is hard to see how the basic structure of the consumption based model can be safely abandoned. As a result much effort has been put into generalisations of the model which relax some of the most extreme assumptions and introduce realistic additional sources of correlation between elements of consumer choice and asset returns. Some of the most promising generalisations are those offered by the replacement of the assumption of power utility with utility of the recursive form. Initial empirical analysis of the impact of allowing attitudes to risk to differ from attitudes to time, as this approach allows, were not very successful. However, Bansal and Yaron in a series of papers, pointed out that this distinction could be used to good effect if consumption contained a small persistent and heteroskedastic component. They also showed that this would be most effective in explaining important features of the behaviour of equity returns if the elasticity of intertemporal substitution were large enough. Empirical analysis of the long-run risk model has so far been very limited. The positive evidence presented by Bansal and Yaron and others is based mostly on calibration and moment comparisons and has been very influential. Evidence based on econometric estimation has more recently been presented by authors who are more sanguine.

A separate generalisation of the consumption-based model, initially proposed by Yogo, re-examines the role of durable and non-durable goods. Yogo shows that allowing Epstein-Zin preferences to incorporate non-separability of durable and non-durable consumption in utility provides for an Euler equation which can be shown to provide a much better explanation of equity market features than either the basic CAPM

or CCAPM. This analysis is at the level of the Euler equation and takes the rate of return on total wealth as given.

This paper reports on joint research with Na Guo on developments of the durable consumption model to allow for long-run risk in durable consumption. The analysis in the paper is for the UK. There are a number of reasons why this is of independent interest. There is thus far no evidence for the UK on the ability of either the durable consumption or long-run risk models. Moreover, the nature of the time series process that best explains non-durable consumption growth in the UK suggests that the standard non-durable long-run risk model is unlikely to fit the facts. In short, there is no evidence for the presence of a persistent, heteroskedastic component in non-durable consumption growth. However, there is some quite persuasive evidence that such a component exists in durable consumption growth. The model is examined for the case of a common stationary persistent component for dividends and durable consumption and for the case where consumption and dividends are cointegrated. This then implies that dividends and consumption cannot deviate from each other in the long run. It also means that in the short run their growth can deviate from each other, although only by a stationary amount. Model solutions and estimates are presented which provide evidence in favour of aspects of the modelling approach.

Finally, the paper presents some initial calculations on the ability of the the long-run durable consumption risk model to explain the term structure of indexed government bonds in the UK. The uniquely well-developed market for indexed government debt in the UK provides an excellent opportunity to evaluate the model. Evidence for the model in this case is more positive than has been found for the US.

## **100 AÑOS DE DESARROLLO DE LA TEORÍA FINANCIERA: SITUACIÓN ACTUAL Y PREVISIBLE EVOLUCIÓN TRAS LA CRISIS**

### **Resumen de la Ponencia**

Fernando Gómez-Bezares

Catedrático de Finanzas de la Universidad de Deusto

Las Finanzas, como disciplina académica, nacen a caballo entre los siglos XIX y XX. Sin duda el importante desarrollo industrial de la época y la necesidad de empresas de mayores dimensiones llevaron a un creciente interés por las concentraciones empresariales como fusiones y adquisiciones. También aumentó el interés por los mercados donde se financiaban estas empresas cada vez mayores. Y esto, aunque sucedía en diversas partes del mundo, estaba ocurriendo de forma especial en Estados Unidos, de manera que allí fue donde nacieron las finanzas, y donde se han seguido desarrollando. De esta manera, desde un comienzo, las finanzas tienen un claro sello anglosajón.

Las finanzas de esta primera época tenían una visión fundamentalmente descriptiva: estudiaban los instrumentos y las instituciones financieras, pero carecían de modelos adecuados para ayudarnos en la toma de decisiones, siendo esto último, precisamente, lo que caracteriza a las modernas finanzas.

Obra típica de las finanzas de esta primera época es la de Dewing (1920). En 1929 se produce una gran crisis económica que hizo replantearse muchas cosas en Finanzas; esto es importante contemplarlo hoy en día, pues la crisis que comenzó en 2007 y seguimos padeciendo, debe hacernos también repensar algunas cosas como comentaré más adelante.

En los años cincuenta, sesenta y setenta del siglo XX nace y se desarrolla el “enfoque moderno de las finanzas”. Autores clave de esta época son Markowitz, Modigliani y

Miller, Sharpe, Fama, Jensen, Roll, Ross, Black, Scholes, Merton, etc. Se buscan modelos para tomar decisiones de inversión y financiación, dando lugar a lo que he denominado “Paradigma de los setenta”, pues a finales de los setenta el paradigma financiero actual está consolidado y, desde entonces, es lo que se explica en las universidades y escuelas de negocios, se recoge en los libros de texto y se aplica en empresas y mercados.

En base a este paradigma se ha consolidado toda una filosofía basada en la “creación de valor”, se han desarrollado potentes modelos de decisión, planificación y control, sistemas de control de riesgos, nuevos instrumentos y mercados, esquemas de incentivación y control de directivos..., en un mundo cada vez más globalizado. Con todo, desde un punto de vista académico, las finanzas tienen algunos problemas: los modelos de valoración de activos (como el famoso CAPM) o la idea de la eficiencia de los mercados (los mercados valoran adecuadamente los activos que en ellos cotizan) han sido fuertemente atacados, tanto desde la investigación empírica como desde su fundamento teórico, aunque también cuentan con reconocidos defensores. Por otro lado, algunos temas como el gobierno corporativo, la influencia de los entramados jurídicos y culturales en las finanzas, las finanzas conductuales, etc. tienen que seguir siendo estudiados.

Así estaban las cosas cuando, en 2007, se desata una importante crisis financiera, que se consolida en 2008, afectando también al resto de la economía. Muchos pensamos que la forma actual de entender las finanzas ha tenido bastante que ver con el desencadenamiento y posterior evolución de la crisis. Sin pretender hacer aquí un análisis exhaustivo del tema, fijémonos en algunas de sus características: en primer lugar la crisis nace y se desarrolla en el primer mundo, en mercados desarrollados, y afecta de forma especial al corazón financiero del mundo. Efectivamente, son los mercados norteamericanos, la banca de inversión, las compañías de seguros... los primeros damnificados. He dicho anteriormente que las finanzas nacen y se desarrollan en el mundo anglosajón, y de forma especial en Estados Unidos (y en el Reino Unido si se quiere), no debe dejarnos indiferentes el que la crisis haya nacido y haya golpeado duramente precisamente allí.

Por otro lado, entre las causas de la crisis está, sin duda, el deseo de un resultado rápido y espectacular para las empresas que rápidamente se traduzca en beneficios para los directivos de esas empresas. La creación de valor y los sistemas de incentivos se llevan explicando muchos años en las aulas y practicando en los mercados; yo creo que ambas son buenas ideas, pero algo deberemos replantearnos cuando un uso irreflexivo de las mismas nos ha llevado donde nos ha llevado. Tampoco los sistemas de control de riesgos, algunos muy sofisticados, han dado los resultados apetecidos: muchas instituciones financieras han asumido, de hecho, muchos más riesgos de los convenientes. Finalmente el “alabado” modelo jurídico y financiero anglosajón, tampoco nos ha librado de padecer la primera gran crisis financiera del siglo XXI.

Yo creo que las actuales finanzas tienen mucho de positivo y de valioso, de hecho me dedico profesionalmente a su estudio, avance y divulgación. También creo que el modelo financiero anglosajón, donde mejor se han implementado, ha aportado mucho. Pero si ya teníamos dudas hace diez años sobre algunas cosas, tras el desencadenamiento de la crisis deberemos replantearnos algunos temas. Los investigadores tenemos que estar más cerca de los problemas reales para tratar de resolverlos, los profesionales deben conocer mejor el alcance y las limitaciones de los modelos para poder utilizarlos; con frecuencia se manejan instrumentos y modelos muy sofisticados que no son entendidos correctamente por sus usuarios, y creo que una máxima fundamental es tratar de entender lo que se usa o aquello en lo que se invierte. Finalmente las finanzas deben buscar el bien común, por lo que es importante apelar a la ética. La actual crisis ha tenido bastante que ver con la falta de ética en muchos comportamientos.



# **RETURN PREMIUMS OF SUSTAINABLE COMPANIES LISTED ON THE SPANISH STOCK MARKET**

**Eduardo Alonso Mollar, Universitat Jaume I and La Florida Centro de Formación**

**M<sup>a</sup> Angeles Fernández Izquierdo, [afernand@cofin.uji.es](mailto:afernand@cofin.uji.es), Universitat Jaume I**

**Luisa Nieto Soria, [nieto@cofin.uji.es](mailto:nieto@cofin.uji.es), Universitat Jaume I**

## **Abstract**

The purpose of this paper is to analyze whether companies with a greater commitment to corporate social responsibility (SRI companies) perform differently on the stock market compared to companies that disregard SRI.

Over recent years, this relationship has been taken up at both a theoretical and practical level, and has led to extensive scientific research of an empirical nature involving the examination of the relationships existing between the financial and social, environmental and corporate governance performance of a company and the relationship between SRI and investment decisions in the financial market. More specifically, this work provides empirical evidence for the Spanish market as to whether or not belonging to a group of companies the market classes as sustainable results in return premiums that set them apart from companies classed as conventional, and finds no differences in the stock market performance of companies considered to be SRI or conventional.

**Keywords:** Socially responsible investment; FTSE4GoodIbex; sustainability premium; stock market performance; discriminant analysis; cluster analysis.



## **SOME BOUNDS OF LOSS IN CLASSICAL SEMIDETERMINISTIC IMMUNIZATION**

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### **ABSTRACT**

Since Samuelson, Redington and Fisher and Weil, duration and immunization are very important topics in bond portfolio analysis from both a theoretical and a practical point of view. Many results have been established, especially in semi-deterministic framework. As regards, however, the loss may be sustained, we do not think that the subject has been investigated enough, except for the results found in the wake of the theorem of Fong and Vasicek. In this paper we present some results relating to the limitation of the loss in the case of local immunization for multiple liabilities.

Keywords: immunization, duration, term structure, dispersion.



# THE RISK-RETURN TRADE-OFF IN EUROPE: A TEMPORAL AND CROSS-SECTIONAL ANALYSIS

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## Abstract

This paper analyzes the risk-return trade-off in European equities considering both temporal and cross-sectional dimensions. In our analysis, we introduce not only the market portfolio but also 15 industry portfolios comprising the entire market. Several bivariate GARCH models are estimated to obtain the covariance matrix between excess market returns and the industrial portfolios and the existence of a risk-return trade-off is analyzed through a cross-sectional approach using the information in all portfolios. It is obtained evidence for a positive and significant risk-return trade-off in the European market. This conclusion is robust for different GARCH specifications and is even more evident after controlling for the main financial crisis during the sample period.

*Keywords: Equity risk premium, multivariate GARCH, cross-sectional analysis, ICAPM, risk aversion*

*JEL classification: G01, G12, G15*

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\* This author is grateful to the Universitat Jaume I for support through the Research Personnel Training program (PREDOC/2007/12). The authors are grateful for financial assistance from the Fundació Caixa Castelló-Bancaixa. (P11B2006-16)



## GOOD DEALS IN MARKETS WITH FRICTIONS

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### Abstract

This paper studies a portfolio choice problem such that the pricing rule may incorporate transaction costs and the risk measure is coherent and expectation bounded. We will prove the necessity of dealing with pricing rules such that there exists an essentially bounded stochastic discount factor, which must be also bounded from below by a strictly positive value. Otherwise good deals will be available to traders, i.e., depending on the selected risk measure, investors can build portfolios whose (risk, return) will be as close as desired to  $(-\underline{r}, \underline{r})$  or  $(0, \underline{r})$ . This pathologic property still holds for vector risk measures (i.e., if we minimize a vector valued function whose components are risk measures). It is worthwhile to point out that essentially bounded stochastic discount factors are not usual in financial literature. In particular, the most famous frictionless, complete and arbitrage free pricing models imply the existence of good deals for every coherent and expectation bounded (scalar or vector) measure of risk, and the incorporation of transaction costs will not guarantee the solution of this caveat.

AMS subject classification: 91G10; 91G20

JEL classification: G12; G13; G11

Keywords: Risk measure; Perfect and imperfect market; Stochastic discount factor; Portfolio choice model; Good deal.

# CONSTRUCTING GOOD DEALS IN DISCRETE TIME ARBITRAGE-FREE DYNAMIC PRICING MODELS

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April 27, 2011

## Abstract

Recent literature has proved that many classical pricing models (Black and Scholes, Heston, etc.) and risk measures (V aR, CV aR, etc.) may lead to “pathological meaningless situations”, since traders can build sequences of portfolios whose risk level tends to  $-\infty$  and whose expected return tends to  $+\infty$ , i.e., (risk =  $-\infty$ , return =  $+\infty$ ). Such a sequence of strategies may be called “good deal”. This paper focuses on the risk measures V aR and CV aR and analyzes this caveat in a discrete time complete pricing model. Under quite general conditions the explicit expression of a good deal is given, and its sensitivity with respect to some possible measurement errors is provided too. We point out that a critical property is the absence of short sales. In such a case we first construct a “shadow riskless asset” (SRA) without short sales and then the good deal is given by borrowing more and more money so as to invest in the SRA. It is also shown that the SRA is interested by itself, even if there are short selling restrictions.

Key words. Risk Measure, Discrete Time Pricing Model, Good Deal.

J.E.L. Classification. G11, G12, G14.



## **INTEREST RATE EXPOSURE OF SPANISH BANKS: A NONPARAMETRIC ANALYSIS**

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### **ABSTRACT**

Interest rate risk is one of the major financial risks faced by banks due to the very nature of the banking business. The most common approach in the literature has been to estimate the impact of interest rate risk on banks using a simple linear regression model. However, the relationship between interest rate changes and bank stock returns does not need to be exclusively linear. This article provides a comprehensive analysis of the interest rate exposure of the Spanish banking industry employing both parametric and non parametric estimation methods. Its main contribution is to use, for the first time in the context of banks' interest rate risk, a nonparametric regression technique that avoids the assumption of a specific functional form.

On the one hand, it is found that the Spanish banking sector exhibits a remarkable degree of interest rate exposure, although the impact of interest rate changes on bank stock returns has significantly declined following the introduction of the euro. Further, a pattern of positive exposure emerges during the post-euro period. On the other hand, the results corresponding to the nonparametric model support the expansion of the conventional linear model in an attempt to gain a greater insight into the actual degree of exposure.

**J.E.L. Classification:** G12, G21, C52

**Keywords:** interest rate risk, banking firms, stocks, nonparametric regression techniques.

# IS STOCK MARKET VOLATILITY PERSISTENT? A FRACTIONALLY INTEGRATED APPROACH

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## Abstract

This paper seeks to study the persistence in the G7's stock market volatility, which is carried out using the GARCH, IGARCH and FIGARCH models. The data set consists of the daily returns of the S&P/TSX 60, CAC 40, DAX 30, MIB 30, NIKKEI 225, FTSE 100 and S&P 500 indexes over the period 1999-2009. The results evidences long memory in volatility, which is more pronounced in Germany, Italy and France. On the other hand, Japan appears as the country where this phenomenon is less obvious; nevertheless, the persistence prevails but with minor intensity.

**Keywords:** long memory, volatility, persistence, IGARCH Model, FIGARCH Model



# OPTIMAL INSURANCE WITH COUNTERPARTY DEFAULT RISK<sup>\*</sup>

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This version: March 15, 2011.

## Abstract

We study the design of optimal insurance contracts when the insurer can default on its obligations. In our model default arises endogenously from the interaction of the insurance premium, the indemnity schedule and the insurer's assets. This allows us to understand the joint effect of insolvency risk and background risk on efficient contracts. The results may shed light on the aggregate risk retention schedules observed in catastrophe reinsurance markets, and can assist in the design of (re)insurance programs and guarantee funds.

Keywords: insurance demand, default risk, catastrophe risk, limited liability, incomplete markets.

JEL classification: D52, D81, G22.

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<sup>\*</sup> We benefited from suggestions by seminar participants and discussants at Tel Aviv University, LMU Munich, Imperial College London, Cass Business School, Chinese University of Hong Kong, University of New South Wales, King's College London, ISFA Lyon, MAF 2010 Ravello, IME 2010 Toronto, IWAP 2010 Madrid, WRIEC/EGRIE 2010 Singapore. Any errors are our own responsibility.

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# **SIMULATION OF DEFAULT EVENTS IN A CDX AND ESTIMATION OF THE SPREAD**

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## **Summary**

The portfolio generating the iTraxx EUR index is modeled by coupled Markov chains. Each of the industries of the portfolio evolves according to its own Markov transition matrix. Using a variant of the method of moments, the model parameters are estimated from a data set of Standard and Poor.s. Swap spreads are evaluated by Monte-Carlo simulations. Along with an actuarially fair spread, a least squares spread is considered.

Keywords: Markov transition matrix, credit risk, credit events correlation, spread, tranche, recovery rate, percentile.

JEL classification: G31, G11, C15.



# OPEN AND CLOSED POSITIONS AND STOCK INDEX FUTURES VOLATILITY

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## Abstract

In this paper we analyze the relationship between volatility in index futures markets and the number of open and closed positions. We observe that, although in general both positions are positively correlated with contemporaneous volatility, in the case of S&P 500, only the number of open positions has influence over the volatility. Additionally, we observe a stronger positive relationship on days characterized by extreme movements of these contracting movements dominating the market. Finally, our findings suggest that day-traders are not associated to an increment of volatility, whereas uninformed traders, both opening and closing their positions, have to do with it.

**Keywords:** volatility; open interest; trading volume.



## **TOOLS FOR TESTING THE SOLVENCY CAPITAL REQUIREMENT FOR LIFE INSURANCE**

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**Abstract.** Longevity risk is one of the major risks that an insurance company or a pension fund has to deal with and it is expected that its importance will grow in the near future. In agreement with these considerations, in Solvency II regulation the Standard formula furnished for calculating the Solvency Capital Requirement explicitly considers this kind of risk. According to the new European rules in our paper we suggest a multiperiod approach to evaluate the SCR for longevity risk. We propose a backtesting framework for measuring the consistency of SCR calculations for life insurance policies.

**Key words:** Longevity risk, Solvency Capital Requirements, Life annuity, Beck test.



# A MULTIFACTOR APPROACH TO THE SOCIAL DISCOUNT RATE\*

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## Abstract

This work focuses on the appraisal of public and environmental projects and, more specifically, on the calculation of the social discount rate (SDR) for this kind of very long-term investment projects. As a rule, we can state that the instantaneous discount rate must be equal to the hazard rate of the public good or to the mortality rate of the population that the project is intended to. The hazard can be due to technical failures of the system, but, in this paper, we are going to consider different independent variables that can cause the hazard. That is, we are going to consider a multivariate hazard rate. In our empirical application, the Spanish forest surface will be the system and the forest fire will be the fail that can be caused by several factors. The aim of this work is to integrate the different variables that produce the fail in the calculation of the SDR from a multivariate hazard rate approach.

*Key-words:* social discount rate, multivariate hazard rate, forest fires, public and environmental projects.

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\* The authors acknowledge financial support by AECID (*Agencia Española de Cooperación Internacional para el Desarrollo*), Project A/031368/10.



# WHAT DRIVES CORPORATE DEFAULT RISK PREMIA? EVIDENCE FROM THE CDS MARKET

Díaz, J. Groba and P. Serrano \*

April 28, 2011

## Abstract

We study the evolution of the default risk premia using Credit Default Swaps and Moody's KMV EDF default probabilities. Firstly, we perform a panel data analysis between CDS spreads and actual default probabilities. Secondly, we employ the intensity framework of Jarrow et al. (2005) to measure the theoretical effect of risk premium on expected bond returns. Thirdly, we carry out a dynamic panel data to identify the macroeconomic sources of risk premium. We report risk premia estimates higher than previous studies. Additionally, empirical evidence suggests a public-to-private risk transfer between the sovereign CDS spreads and corporate risk premia.

JEL classification: *G12, G13, G32*

KEYWORDS: *Default risk premium, CDS, EDF, risk neutral default probability, actual default probability*

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\* Correspondent author. A. Díaz acknowledges the financial support from the grant JCCM PCI08-0089-0766. P. Serrano acknowledges the financial support from the grants P08-SEJ-03917 and MEC ECO2008-03058. J. Groba and P. Serrano are from Department of Business Administration, University Carlos III, 28903 Getafe (Madrid), Spain. E-mail: jonatan.groba@uc3m.es (J. Groba) and pedrojose.serrano@uc3m.es (P. Serrano). A. Díaz is from Department of Economic Analysis and Finance, University of Castilla La-Mancha, 02071 Albacete, Spain. E-mail: antonio.diaz@uclm.es. The usual caveat applies.



# THE PROBLEM OF ESTIMATING THE VOLATILITY OF ZERO COUPON BOND INTEREST RATE

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THIS DRAFT: March 2011

Financial literature and financial industry use often zero coupon yield curves as input for testing hypotheses, pricing assets or managing risk. They assume this provided data as accurate. We analyse implications of the methodology and of the sample selection criteria used to estimate the zero coupon bond yield term structure on the resulting volatility of spot rates with different maturities. We obtain the volatility term structure using historical volatilities and Egarch volatilities. As input for these volatilities we consider our own spot rates estimation from GovPX bond data and three popular interest rates data sets: from the Federal Reserve Board, from the US Department of the Treasury (H.15), and from Bloomberg. We find strong evidence that the resulting zero coupon bond yield volatility estimates as well as the correlation coefficients among spot and forward rates depend significantly on the data set. We observe relevant differences in economic terms when volatilities are used to price derivatives.

**Keywords:** Volatility Term Structure; Term Structure of Interest Rates; EGARCH;

**JEL Classification:** E43; F31; G12; G13; G15

**Acknowledgements:** We are indebted to Zvika Afik, Manfred Frühwirth, Alois Geyer, and Christian Wagner for very detailed suggestions and to Robert Korajczyk, and Josef Zechner for helpful discussions. We also thank participants at the Conference of the Multinational Finance Society 2010, the Mathematical and Statistical Methods for Actuarial Sciences and Finance Conference 2010, and seminars in Universidad Pablo de Olavide of Seville, and Vienna University of Economics and Business for their comments on a previous version of this article.



# SYSTEMATIC AND LIQUIDITY RISK IN SUB-PRIME MORTGAGE-BACKED ASSETS\*

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## Abstract

The mis-evaluation of risk in securitized financial products is central to understanding the global financial crisis. This paper characterizes the evolution of risk factors affecting collateralized debt obligations (CDOs) based on subprime mortgages. A key feature of subprime mortgage-backed indices is that they are distinct in their vintage of issuance. Using a latent factor framework that incorporates this vintage effect, we show the increasing importance of common factors on more senior tranches during the crisis. An innovation of the paper is that we use the unbalanced panel structure of the data to identify the vintage, credit, common and idiosyncratic effects from a state-space specification.

JEL Classification: G12, G01, C32

Keywords: credit crisis, asset backed securities, factor models, Kalman filter

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## **SPANISH SOCIETY'S PERCEPTIONS ABOUT SOCIALLY RESPONSIBLE INVESTING\***

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### **ABSTRACT**

The debate surrounding the financial needs of investors and the impact on society of investment is considered to be an important research topic due to the growth of socially responsible financial markets. The objective of this research is to study the perception of the Spanish public about socially responsible investing (SRI) criteria and real-life investment needs.

To examine the Spanish perception of SRI, we conducted a field survey. The results show that SRI is in an early stage and Spanish investors need more exact information

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\* **Acknowledgments:** This work is supported by grant FPU-AP2008-01043, the University Jaume I via the P1•1B2010-13 and P1.1B2010-04 investigation projects, MTIN through the project F10289 and the Master in Sustainability and Corporate Social Responsibility offered by University Jaume I of Castellon, Spain.

regarding social, environmental, and governance criteria in order to invest in socially responsible companies and products.

**Keywords:** socially responsible investing (SRI), SRI criteria, sustainability, sustainable financial products.

**SHAREHOLDER WEALTH CREATION IN RESPONSE TO  
ANNOUNCEMENTS OF ACQUISITIONS OF UNLISTED FIRMS:  
EVIDENCE FROM SPAIN**

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**Abstract**

We investigate shareholder value creation of Spanish listed firms in response to announcements of acquisitions of unlisted companies and compare this experience to the purchase of listed firms over the period 1991–2006. Similar to foreign markets, acquirers of listed targets earn insignificant average abnormal returns, whereas acquirers of unlisted targets gain significant positive average abnormal returns. When we relate these results to company and transaction characteristics our findings diverge from those reported in the literature for other foreign markets, as our evidence suggests that the listing status effect is mainly associated with the fact that unlisted firms tend to be smaller and lesser-known firms, and thus suffer from a lack of competition in the market for corporate control. Consequently, the payment of lower premiums and the possibility of diversifying shareholders’ portfolios lead to unlisted firm acquisitions being viewed as value-orientated transactions.

**Keywords:** acquisition of unlisted firms, Spanish market, event-study.

**JEL classification:** G14, G34, L33

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## TRYING TO UNDERSTAND ALL-EQUITY FIRMS

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Version: April 2011

### **Abstract**

This paper studies all equity firms and shows which are in US firms, the main drivers of zero-debt policy. I analyze 6763 U.S. listed companies in years 1987-2009, a total of 77442 firms year. I find that financial constrained firms show a higher probability to become unlevered. In the opposite side, firms producing high cash flow levels are likely to become unlevered, paying their debt, following a pecking order style. Some firms and business characteristics creates economies of scale in the use of funds, increasing the probability of become unlevered. The industry characteristics are also important to explain the zero-debt policy. However is the high perception of risk, the most important factor influencing this extreme behavior, which is consistent with trade-off theory.

Key words: all-equity firms; low leverage; capital structure; financial constraints; logistic regression



**CHANGES IN THE INFLUENCE OF BOARD CHARACTERISTICS ON  
CORPORATE RESULTS DUE TO THE RECENT GLOBAL FINANCIAL  
CRISIS\***

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**ABSTRACT**

The main purpose of this study is to analyse the changes caused by the global financial crisis on the influence of board characteristics on corporate results, in terms of corporate performance, corporate risk-taking, and earnings management. Sample comprises S&P 500 listed firms during 2002-2008. This study reveals that the environmental conditions call for different behaviour from directors to fulfil their responsibilities and suggests changes in normative and voluntary guidelines for improving good practices in the boardroom.

**Keywords:** Global Financial Crisis, Corporate Governance, Board of Directors, Board Behaviour, Corporate Performance.

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\* The authors wish acknowledge the financial support received from grant E-2010-48 and projects P1•1B2010-13 and P1•1B2010-04 through the Universidad Jaume I.



**EXTREME VALUE THEORY VERSUS TRADITIONAL GARCH  
APPROACHES APPLIED TO FINANCIAL  
DATA: A COMPARATIVE EVALUATION\***

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***Abstract***

Although stock prices fluctuate, the variations are relatively small and are frequently assumed to be normal distributed on a large time scale. But sometimes these fluctuations can become determinant, especially when unforeseen large drops in asset prices are observed that could result in huge losses or even in market crashes. The evidence shows that these events happen far more often than would be expected under the generalized assumption of normal distributed financial returns. Thus it is crucial to properly model the distribution tails so as to be able to predict the frequency and magnitude of extreme stock price returns. In this paper we follow the approach suggested by McNeil and Frey (2000) and combine the GARCH-type models with the Extreme Value Theory (EVT) to estimate the tails of three financial index returns DJI, FTSE 100 and NIKKEI 225 representing three important financial areas in the world. Our results indicate that EVT-based conditional quantile estimates are much more

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\* Financial support from CICYT project ECO2009-14457-C04-04 and the Cátedra Finanzas Internacionales-Banco Santander is gratefully acknowledged.

accurate than those from conventional AR-GARCH models assuming normal or Student's t-distribution innovations when doing out-of-sample estimation (within the insample estimation, this is so for the right tail of the distribution of returns).

Key words: conditional extreme value theory; tails estimation; backtesting

**VALIDATION OF A MEASUREMENT SCALE FOR THE RELATIONSHIP  
BETWEEN THE ORIENTATION TO CORPORATE SOCIAL  
RESPONSIBILITY AND OTHER BUSINESS STRATEGIC VARIABLES\***

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**Abstract:**

The importance of Social Responsibility (SR) is higher if this business variable is related with other ones of strategic nature in business activity (competitive success that the company achieved, *performance* that the firms develop and innovations that they carries out). The hypothesis is that organizations that focus on SR are those who get higher outputs and innovate more, achieving greater competitive success.

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\* This paper has been funded by the Regional Research Project, PRI08A055, entitled "Diagnostic of Corporate Social Responsibility as a factor for innovation and development in Extremadura", within the framework of III PRI + D + I (2005-2008), and granted Research Group BUSINESS RESEARCH (INVE), added to the list of groups of the Autonomous Community of Extremadura with SEJ022 code. At the same time, it has been supported by Research Groups GR10041, received in 2010 under the IV Action Plan 2010-2014.

A scale for measuring the orientation to SR has defined in order to determine the degree of relationship between above elements. This instrument is original because previous scales do not exist in the literature which could measure, on the one hand, the three classics sub-constructs theoretically accepted that SR is made up and, on the other hand, the relationship between SR and the other variables.

As a result of causal relationships analysis we conclude with a scale of 21 indicators, validated scale with a sample of firms belonging to the Autonomous Community of Extremadura and it is the first empirical validation of these dimensions we know so far, in this context.

**Keywords:** Corporate Social Responsibility, measurement scale, innovation, competitive success, *performance* .

# **INFORMATION AND INVESTOR BEHAVIOR SURROUNDING EARNINGS ANNOUNCEMENTS**

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PRELIMINARY VERSION

## **ABSTRACT**

The goal of this paper is to analyze the impact of annual earnings announcements on the market through the order flow data in addition to the usual transaction data.

In this respect, examining order flow data can potentially reveal valuable information which is not available from transaction data. In fact, the data allow us to test hypotheses about asymmetric information and investor behavior and to test if the behavior varies with investor sophistication. In addition, the paper tries to identify the determinants of the impact on a firm's value using assumptions about investor behavior.



# THE US ACTUARIAL BALANCE MODEL FOR THE PAY-AS-YOU-GO SYSTEM AND ITS APPLICATION TO SPAIN\*.

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Juan M. Nave-Pineda<sup>‡</sup>  
Carlos Vidal-Meliá<sup>§</sup>

## Abstract

The aim of this paper is to formulate an approximation of the US actuarial balance model and apply it to the Spanish public retirement pension system under various scenarios in order to determine a consistent indicator of the system's financial state comparable to those used by the most advanced social security systems. This will enable us to answer the question as to whether there is any justification for reforming the pension system in Spain. This type of actuarial balance uses projections to show future challenges to the financial side of the pension system deriving basically from ageing, the projected increase in longevity and fluctuations in economic activity. If one is compiled periodically it can provide various indicators to help depoliticize the management of the pay-as-you-go system by bringing the planning horizons of politicians and the system itself closer together.

**JEL:** H55, H83, J11, J26.

**Key words:** Actuarial balance, Spain., US, pension reform, transparency,

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\* The authors very much appreciate the financial assistance received from the Ministry of Work and Immigration's Fipros 27/2010 project and the Ministry of Science and Innovation's ECO2009-13616 project. Manuel García-García would like to thank Gonzalo Rubio-Irigoyen for funding received through the Generalitat Valenciana's GV. PROMETEO 2008/106 project and Jan Wenzelburger for his kindness and consideration during the stay at Keele University while this article was being written. Thanks also go to Manuel Ventura, David Toscano, Lucia Hernández and Marta Regulez for the comments and suggestions they made at a seminar organized by the Universidad Cardenal Herrera-CEU, where a preliminary version of this paper was presented, and Peter Hall for his English support.

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## ON THE CONCEPT OF ENDOGENOUS VOLATILITY

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March 2011

### Abstract

Most financial and economic time-series display a strong volatility around their trends. The difficulty in explaining this volatility has led economists to interpret it as exogenous, i.e., as the result of forces that lie outside the scope of the assumed economic relations.

Consequently, it becomes hard or impossible to formulate short-run forecasts on asset prices or on values of macroeconomic variables. However, many random looking economic and financial series may, in fact, be subject to deterministic irregular behavior, which can be measured and modelled. We address the notion of endogenous volatility and exemplify the concept with a simple business-cycles model.

Keywords: Endogenous volatility, Volatility clustering, Nonlinear dynamics, Chartists and fundamentalists, Periodicity and chaos, Business cycles.

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## A COMPARATIVE STUDY OF ALTERNATIVE APPROACHES FOR COMMON FACTORS IDENTIFICATION\*

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**Preliminary version: May 2011**

### **ABSTRACT:**

For multivariate non-stationary time series modeling is essential to know the number of common factors that define the behavior of the series. The traditional way to approach this problem is to study the cointegration relations among data through tests of the trace or maximum eigenvalue, obtaining the number of stationary long-run relations.

Alternatively this problem can be analyzed using dynamic factor models as in Peña and Poncela (2006), estimating in this case the number of all independent common factors, stationary or not, that describe the behavior of data. In this context, we analyze empirically the power of such alternative approaches by applying them to series simulated using known factorial models. The results show that when there are stationary common factors, when the number of observations is reduced and/or when the series have involved more than one cointegration relation, the common factor test is more powerful than the usual cointegration tests. These results together with the greater flexibility of dynamic factor models for identify the load matrix of the DGP make them more suitable for use in multivariate analysis.

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\* This work was supported in part by the research project ECO-2009 13616 from the Ministry of Science and Innovation of Government of Spain and the PROMETEO Project 2008/106 from the Government of Generalitat Valenciana (Spain).

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**KEYWORDS:** multivariate analysis, common factors, cointegration, dynamic factor models, stationarity.

**JEL:** C13, C32, G11.

## **A MODEL TO FORECAST FINANCIAL FAILURE, IN NON FINANCIAL GALICIAN SMES.**

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### **ABSTRACT**

We are concerned with providing more empirical evidence on forecast failure, developing forecast models, and examining the impact of events such as audit reports. A joint consideration of classic financial ratios and relevant external indicators leads us to build a basic prediction model focused in non-financial Galician SMEs. Explanatory variables are relevant financial indicators from the viewpoint of the financial logic and financial failure theory. The paper explores three mathematical models: discriminant analysis, Logit, and linear multivariate regression. We conclude that, even though they both offer high explanatory and predictive abilities, Logit and MDA models should be used and interpreted jointly.

### **KEY WORDS**

Business failure, Prognosis, Logit, MDA, Reliability.

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\* FYSIG was created by Professor Félix R. Doldán Tíe (retired); he continues collaborating with our research group, like in this paper, and his work has continued by his disciples.



## MODEL RISK IN THE PRICING OF EXOTIC OPTIONS

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### Abstract

The growth experimented in recent years in both the variety and volume of structured products implies that banks and other financial institutions have become increasingly exposed to model risk. In this article we focus on the model risk associated with the local volatility (LV) model and with the Variance Gamma (VG) model. The results show that the LV model performs better than the VG model in terms of its ability to match the market prices of European options. Nevertheless, both models are subject to significant pricing errors when compared with the stochastic volatility framework.

**Keywords:** Model risk, exotic options, local volatility, stochastic volatility, Variance Gamma process, path dependence.

**JEL:** G12, G13.

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## VOLATILITY REGIMES FOR THE VIX INDEX

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### **Abstract:**

This article presents a Markov chain framework to characterize the behavior of the CBOE Volatility Index (VIX index). Two possible regimes are considered: high volatility and low volatility. The specification accounts for deviations from normality and the existence of persistence in the evolution of the VIX index. Since the time evolution of the VIX index seems to indicate that its conditional variance is not constant over time, I consider two different versions of the model. In the first one, the variance of the index is a function of the volatility regime, whereas the second version includes an autoregressive conditional heteroskedasticity (ARCH) specification for the conditional variance of the index.

**Keywords:** VIX index, Markov chain, realized volatility, implied volatility, volatility regimes.

**JEL:** C22, G12, G13.

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<sup>\*</sup> The content of this paper represents the author's personal opinion and does not reflect the views of BBVA.



## EVIDENCE OF PORTUGUESE STOCK MARKET ABNORMAL RETURNS

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### ABSTRACT:

According to the stock market efficiency theory, it is not possible to consistently beat the market. However, technical analysis is more and more spread as an efficient way to achieve abnormal returns. In fact there is evidence that *momentum* investing strategies provide abnormal returns in different stock markets, Jegadeesh, N. and Titman, S. (1993), George, T. and Hwang, C. (2004) and Du, D. (2009). In this work we study if like other markets, the Portuguese stock market also allows to obtain abnormal returns, using a strategy that consists in picking stocks according to their past performance. Our work confirms the results of Soares, J. and Serra, A. (2005) and Pereira, P. (2009), showing that an investor can get abnormal returns investing in *momentum* portfolios. The Portuguese stock market evidences *momentum* returns in short term, exhibiting reversal in long term.

**KEY WORDS:** *Momentum* investing, abnormal return, Portuguese stock market.



## PRICING INTRADAY DYNAMICS ACROSS EUAS AND CERS MARKETS

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\*\*Department of Business, University of the Balearic Islands, Spain

### *Abstract*

The relative contribution of European Union Allowances (EUAs) and Certified Emission Reductions (CERs) to the price discovery of their common true value has been empirically studied using daily data with inconclusive results. In this paper, we study the short-run and long-run price dynamics between EUAs and CERs future contracts using intraday data. We report a bidirectional feedback causality relationship both in the short-run and in the long-run, with the EUA's market being the leader.

**Key words:** European Union Allowance, Certified Emission Reduction, cointegration tests, intraday analysis.

**JEL Classification:** G10.

**Acknowledgements:** We would like to thank the Spanish Ministry of Science and Innovation and FEDER as part of the project CGL2009-09604, the project ECO2009-14457-C04-04, and the Cátedra Finanzas Internacionales-Banco Santander of the University of Valencia for their financial support. Roberto Pascual acknowledges the financial support of the Spanish project ECO2010-18567. We would also like to thank ECX market for giving us the necessary data to perform this study. Usual caveats apply.



## INDUSTRY CONCENTRATION AND MARKET VOLATILITY

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### **Abstract**

In this paper our aim is to gain a better understanding of the relationship between market volatility and industrial structure. As conflicting results have been documented regarding the relationship between market industry concentration and market volatility, this study investigates this relationship in the time series. We have found that this relationship is only significant and positive for Spain. Our results suggest that we cannot generalize across different countries that market industrial structure (concentration) is a significant factor in explaining market volatility.

***JEL classification:*** G11; G15.

***Keywords:*** Industry concentration; Volatility; European stock markets.

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## THE ROLE OF AN ILLIQUIDITY FACTOR IN THE PORTUGUESE STOCK MARKET

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### Abstract

This study examines the role of illiquidity (proxied by the proportion of zero returns) as an additional risk factor in asset pricing. We use Portuguese monthly data, covering the period between January 1988 and December 2008. We compute an illiquidity factor using the Fama and French [Fama, E. F., and K. R. French (1993), "Common risk factors in the returns on stocks and bonds", *Journal of Financial Economics*, Vol. 33, Nº. 1, pp. 3-56] procedure and analyze the performance of CAPM, Fama-French three-factor model and illiquidity-augmented versions of these models in explaining both the time-series and the cross-section of returns. Our results reveal that the effect of characteristic liquidity is subsumed by the models considered, but the risk of illiquidity is not priced in the Portuguese stock market.

**Keywords:** Asset Pricing, Liquidity, Portugal

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## THE IMPACT OF FAMILY CONTROL ON FIRM'S RETURN

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### **Abstract**

Family firm is a field of growing interest. The aim of this article is to understand whether CEOs identity impacts family firm's stock returns. From a sample of Portuguese and Spanish family firms findings show that who manages the firms result in significantly different risk exposure. Moreover, we find that the abnormal return found by Fahlenbrach (2009) to founder-controlled firms disappear when we use valuetype weighted portfolios and include two new factors: market aggregate illiquidity and debt intensity to the four-factor Carhart model. Finally, our results explain why the majority of family firm is controlled by its founder.

**Keywords:** *Family Firms; CEOs identity; Stocks Return; Asset Pricing Models.*

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**IDIOSYNCRATIC RISK REALLY DRIVES STOCK RETURNS.  
SPANISH EVIDENCE**

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**Abstract**

Following the theoretical model of Merton (1987), we provide a new perspective of study about the role of idiosyncratic risk in the asset pricing process. More precisely, we analyze whether the idiosyncratic risk premium depends on the idiosyncratic risk level of an asset as well as the variations in the market-wide measure of idiosyncratic risk. As expected, we obtain a net positive risk premium for the Spanish stock market over the period 1987-2007. Our results show a positive relation between returns and individual idiosyncratic risk levels and a negative but lower relation with the aggregate measure of idiosyncratic risk. These findings have important implications for portfolio and risk management and contribute to provide a unified and coherent answer for the main and still unsolved question about the idiosyncratic risk puzzle: whether or not there exists a premium associated to this kind of risk and the sign for this risk premium.

**Keywords:** Idiosyncratic risk, diversification, shadow costs, equity risk premium.

JEL Classification: G10, G12.

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**VOLATILITY FORECASTING WITH RANGE MODELS. AN EVALUATION  
OF NEW ALTERNATIVES TO THE CARR MODEL**

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**Abstract**

The aim of this paper is to analyze the forecasting ability of the CARR model proposed by Chou (2005) using the S&P 500. We extend the data sample, allowing for the analysis of different stock market circumstances and propose the use of various range estimators in order to analyze their forecasting performance. Our results show that there are two range-based models that outperform the forecasting ability of the GARCH model. The Parkinson model is better for upward trends and volatilities which are higher and lower than the mean while the CARR model is better for downward trends and mean volatilities.

*JEL Classification:* G10, G11, G14.

*Keywords:* CARR; GARCH; Range Estimators; Forecasting Performance

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## **REWARD-RISK EFFICIENCY IN PROPORTIONAL REINSURANCE WITH DIFFERENT RISK MEASURES**

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### **Abstract.**

We have studied, in particular under normality of the implied random variables, the connections between different measures of risk such as the standard deviation, the W-ruin probability and the p-V@R. We discuss conditions granting the equivalence of these measures with respect to risk preference relations and the equivalence of dominance and efficiency of risk-reward criteria involving these measures. Then more specifically we applied these concepts to rigorously face the problem of finding the efficient set of de Finetti's variable quota share proportional reinsurance.

**Keywords.** Risk measures; Reward-risk efficiency; variable quota share proportional reinsurance; group correlation.

**Acknowledgement.** We acknowledge financial support of MedioCredito Friuli Venezia Giulia through the "Bonaldo Stringher" Laboratory of Finance, Department of Finance, University of Udine.



**FROM EFFICIENCY TO OPTIMALITY IN PROPORTIONAL REINSURANCE  
UNDER GROUP CORRELATION**

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**Abstract**

Based on our recent discovery of closed form formulae of efficient Mean Variance retentions in variable quota-share proportional reinsurance under group correlation, we analyzed the influence of different combination of correlation and safety loading levels on the efficient frontier, both in a single period stylized problem and in a multiperiod one.

**Keywords.** Mean-variance efficiency; constrained quadratic optimization; proportional reinsurance; group correlation.

**Acknowledgement.** We acknowledge financial support of MedioCredito Friuli Venezia Giulia through the “Bonaldo Stringher” Laboratory of Finance, Department of Finance, University of Udine.



# **INDIVIDUAL PENSION INFORMATION. RECOMMENDATIONS FOR THE CASE OF SPAIN BASED ON THE EXPERIENCES OF OTHER COUNTRIES\*.**

**Marta Regúlez-Castillo<sup>†</sup> and Carlos Vidal-Meliá<sup>‡</sup>**

## **ABSTRACT**

The aim of this paper is to establish some basic guidelines to help draft the information letter sent to individual contributors should it be decided to use this model in the Spanish public pension system. With this end in mind and basing our work on the experiences of the most advanced countries in the field and the pioneering papers by Jackson (2005), Larsson et al. (2008) and Sunden (2009), we look into the concept of “individual pension information” and identify its most relevant characteristics. We then give a detailed description of two models, those in the United States and Sweden, and in particular look at how they are structured, what aspects could be improved and what their limitations are. Finally we make some recommendations of special interest for designing the model for Spain.

JEL: D14, D81, H55, H83, I22.

Key words: Actuarial balance, Sweden, Transparency, US, Pension Information.

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\* The authors are grateful for financial assistance received from the Ministry of Work and Immigration's Fipros 27/2010 project and the Ministry of Science and Innovation's ECO2009-13616 project. They would also like to thank Manuel Ventura, Manuel García, David Toscano, Lucia Hernández and Juan M. Nave for comments and suggestions they made at a seminar organized by the Universidad Cardenal Herrera-CEU, where a preliminary version of this paper was presented, and Ole Settergren (Sweden), Evert Hoeksma (SVB Hoofdkantoor, Kantoor Centraal/CU&S, Holland), Kunio Nakashima (NLI Research Institute, Japan), Dirka Ahl (Germany), and Kati Kalliomatti and Jenni Heikkinen (The Finnish Center for Pensions, Finland) for the help and information they provided.

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