

João Garcia

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Resume of Major Achievements

Managing Director Head of Quantitative Analytics - Fitch Solutions

Based in London João Garcia is responsible for the quantitative financial research of the group as well as the management and development of its credit based products, which span areas such as credit risk, interest rate risk and market risk.

Front Office (Treasury and Financial Markets)

João Garcia is known for combining an out of the box strategic thinking with hands on approach for solving complex problems. In his past position (Jun 2006 - Feb 2010) as Head of Credit Quant in the Treasury and Financial Markets of Dexia Group he has put in place from the scratch the team that developed algorithms, trading and hedging strategies for portfolios of credit derivatives and securitization instruments. The team had been responsible for **350 million euros** in profits in Q3 of 2008 for Dexia front office.

Global Risk Management Division

In this position (from Jun 2002 to May 2006) he had detected the *correlation* issues with securitization instruments already during the *systemic* crisis of 2002 when pricing distressed CDOs in the portfolio of (the monoliner) FSA. As a solution for the problem he created a framework based on *stress test* and *scenario analysis* for dynamic credit portfolio management of the whole group (a portfolio that was larger than **600 bi euros**). The framework involves understanding well macro-economic trends for long term strategic positioning while using micro-economic views for taking mid to short term investment / trading positions. His approach to portfolio management uses a rare blend of *economics* with quant models. It has been described in a presentation made in London in *Dec 2006 (Integrating Stress Tests and Scenario Analysis for Strategic Management of a Financial Institution)* when the issue of correlation and mortgages in the US had been explicitly mentioned. His solutions became standard in the industry.

Book: *The Art of Credit Derivatives – Demystifying the Black Swan*

Published by Wiley Finance it describes João's framework for the solution for the securitization business model for financial institutions. He has given many speeches around the world on structured finance, credit derivatives, credit risk and securitization.

Formation

- Electronic Engineer from Institute Technologic of Aeronautics (ITA-Brazil)
- M.Sc. Physics University Federal of Pernambuco (Brazil)
 - Dynamics of non-equilibrium and neural networks
- Ph.D. Physics University of Antwerp (Belgium)
 - Patern Recognition and mathematical finance

Professional Experience

Fitch Solutions - Managing Director Head of Quantitative Analytics (Oct 2010 - Present)

- Responsible for quantitative financial research of the group
- Management and development of credit based products for pricing and risk management (credit and market risk) purposes

Sacred Heart University – Independent Consultant (Mar 2010 – Sept 2010)

- Part time professor at the Professional Master in Business and Administration (MBA) at Sacred Heart University, in Luxembourg.
- Developing financing strategies / opportunities for Emerging Market deals (specially linked to Brazil and Africa).
- Advising on securitization for Emerging Market assets (Brazilian deals).
- Independent consultant on Risk Management, pricing of exotic derivatives products and a framework for Credit Portfolio management of securitization instruments.

Dexia Group – Treasury and Financial Markets (Jun 2006 – Feb 2010)

- Identifying, judging / advising traders and portfolio managers on investment and trading strategies for credit portfolio management purposes.
- Building and managing a team for developing algorithms for: a) trading standardized indices and their tranches, and b) pricing complex structured credit portfolios. Build a TA (technical analysis) tool for generating trading signals between credit indices and their tranches (iTraxx and CDX).
- Initiated quant trading algo's for indices and their components (non-finished work).
- Generating pricing approaches for hard to price toxic credit instruments. Developing approaches for restructuring the capital structure of very large credit portfolios containing those instruments.
- Proposing strategies involving credit indices for credit portfolio management purposes (strategies involved iTraxx / CDX, LevX / LCDX, ABX/ TABX).
- Liaison with a Basel regulator (since 2003) for his understanding of the coming credit crunch and the necessity of the active portfolio management approach (put in place by João between Jun 2002 and May 2006) as a solution of the securitization business model for financial institutions.
- Build key easy to use models for pricing distressed ABS assets.
- Build algorithms for evaluating Counterparty Risk Adjustment (CVA) for CDS intermediation business.
- **Benefit for the Institution:** in May-Jun 2007 avoided a key 2 bi euro exposure to Lehman Brothers. In Sep-Oct 2008 brought a realized profit of **350 million euro** in Q3 2008

Dexia Group – Global Risk Management (Jun 2002 – May 2006)

- In Sep 2002 priced distressed CDOs in the portfolio of monoliner FSA. By then understanding the problems of systemic risk in senior tranches of asset backed securities. This exercise was crucial for putting in place the whole framework for managing portfolios of asset backed securities.
- The above exercise was key to the building from the scratch the centralized unit responsible for Basel Internal Rating Based approach, CDO rating and pricing, credit risk management. This centralized organization is now seen by the industry as key to manage systemic risk in credit portfolios.
- Team leader and main strategist / proponent of the integrated framework for the dynamic credit management of a very large and complex credit portfolio (larger than 600 bi euros).

Artesia Banking Corporation (Jun 1998 – May 2002)

- Worked (since 2000) close to the trading desk on the pricing and trading of credit derivatives models for Credit Default Swaps (CDSs), baskets of credit derivatives and Credit Spread Options.
- Developed pricing algorithms for exotic interest rates derivatives for Asset and Liability Management (ALM) purposes of large portfolios of mortgages and mortgages backed securities (MBSs).
- Developed Option adjusted spread (OAS) approaches for mortgage related securities and portfolios.

Personal Data

- Nationality: Brazilian and Belgian
- Language skills:
 - Portuguese: mother language
 - English: fluent
 - Dutch:
 - Reading and listening: reasonably good
 - Writing and speaking: good
 - German: 3 year course Goethe-Institut (1990-1992)

Relevant Publications

See below how I use publications for describing the solutions of very practical problems.

- *Integrating Stress Tests and Scenario Analysis for Strategic Management of a Financial Institution* (cf. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1342206 see slides 14, 18, 19, 21 and 22 for a proof that João foresaw the credit crunch)
 - Presentation of Dec 2006 it shows that stress tests and scenario analysis within a dynamic credit management framework is the solution for the problem of portfolios of securitization. It shows that I foresaw the credit

crunch (see slides 14, 18, 19, 21 and 22) and had put in place a framework for it.

- Garcia, J. and Goossens, S., *The Art of Credit Derivatives – Demytifying the Black Swan*, Wiley & Sons
 - It puts securitization as a core activity for the economy and the dynamic credit portfolio management framework as the solution for moving forward. It discusses the policy issues and contains all the algorithms necessary for supporting the activity. The standardized credit indices are put as core ingredients. The industry may continue using the Gaussian VaR but it needs to adapt it. It shows how.
- Garcia, J. and Goossens, S., *Explaining the Lévy base correlation smile*, Risk Magazine, Jul 2008: 84-88
 - Describes the expected loss concept (much more intuitive than standard base correlation). This concept was used to generate trading signals for inter tranche positions. Also used for pricing bespoke tranches.
- Garcia, J. and Goossens, S., *Let's jump together: pricing credit derivatives*, Risk Magazine, Sep 2008: 130-133
 - First written in mid 2007: very important practical example of the *think out the box* approach for quant modeling. We used it to show the hidden problems with CPDOs (the gap risk was much higher than the market was pricing)..
- Garcia, J., Goossens, S., Vika, M. and Schoutens, W., *Lévy Base Correlation*, Wilmott Journal, April 2009: 1(2)
 - It shows how to use jump algorithms as an alternative to gaussian copulas. Important e.g. for pricing CDX index when the Gaussian algorithm fails (e.g. gaussian correlation is higher than 100%).
- Garcia, J. and Goossens, S., *Lévy Base Correlation Explained*, working paper Jun 2003, available at www.sergeandjoao.com.
 - It compares historical tests for alternative pricing algorithms using Gaussian and Levy algorithm. Used for trading (and hedging) purposes.
- Garcia, J. and Goossens, S., *One Factor Models for TABX*, working paper, Jun 2007, cf. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1274808
 - It shows that ABX / TABX had the information on the deterioration of the housing market. It shows in practice what is necessary to bring transparency (in terms of pricing parameters) to that market (see last two sections of the paper). We used to generate hedging ideas for the portfolio.
- Garcia, J., Goossens, S. and Lamoot, J., *Dynamic Credit Portfolio Management: Linking Credit Risk Systems, Securitization and Standardised Credit Indices*, working paper, Feb 2007, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1274774
 - Paper addressing the organization of a banking activity having securitization as a core and important driving force.
- Garcia, J. and Goossens, S., *Lévy Base Correlation Mapping*, working paper, Sep 2008, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1274446
 - It discusses the pricing and hedging bespoke tranches using standardized credit indices. Important for credit portfolio management.

- Garcia, J. and Goossens, S., Correlation from Collateral to ABS Tranches, working paper, Nov 2008, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1305397
 - It discusses the very practical issues of trading book against buy and hold as an alternative for low cost of capital for securitization instruments. It shows that mtm of securitization instruments plus the trading of standardized credit indices is the solution for the securitization business model.

Invited Presentations to European Institutions

- European Investment Bank (EIB) – Eurandom Conference (Oct 23rd 2008):
 - Applying Best Practices for Portfolio Management and Dynamic Exposures
- European Central Bank (ECB) (Apr 30th 2009)
 - Managing Portfolios of ABSs under Distressed Market Conditions
- European Investment Fund (EIF) (Sept 28th 2009)
 - Rating, Pricing and Managing Portfolios of SMEs
- European Investment Bank (EIB) – Eurandom Conference (Oct 2009):
 - Securitization, Distressed Assets and Dynamic Credit Portfolio Management

Other Relevant International Presentations

- Risk Training: Effective Structuring and Pricing of CDOs (London Jun 7 2006)
 - On Cash Flow CDOs
- Risk Training (London Dec 4 2006)
 - Integrating Stress Tests and Scenario Analysis for Strategic Management of a Financial Institution (available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1342206, see slides 14, 18, 19, 21 and 22 for a proof that João foresaw the credit crunch)
- Risk: Advanced Techniques for Pricing and Hedging Credit Derivatives and Credit Hybrids (New York, Apr 16-18, 2007)
 - Single Name Credit Modeling (with S. Goossens)
 - Building Models for Pricing CDOs using the Standard Market Approach and Lévy Models
- Risk: Correlation Trading and Risk Management (London, Jun 1, 2007)
 - Lévy vs Gaussian for CPPI
- Marcus Evans: Pricing and Valuation of Structured Credit (London, Jun 21, 2007)
 - Lévy Base Correlation (with S. Goossens)
 - Lévy Models for CPPI & CPDO (with S. Goossens)
- Risk: Pricing and Modeling of CDOs & Structured Credit Products (London, Sept 4, 2007)
 - Dynamic Models for Spreads (with S. Goossens)

- Development of the ABS and Loan Markets: ABX and LevX/LCDX (with S. Goossens)
- Risk: Pricing and Risk Management of Synthetic ABS (London, Oct 30, 2007)
 - Single Name Credit Modeling (with S. Goossens)
 - Synthetic Indices: comparing Gaussian versus Lévy for ABX and TABX (with S. Goossens)
 - Investing on Synthetic Indices: ABX, CMBX and TABX (with S. Goossens)
- Risk: USA Conference (NY, Nov 5, 2007)
 - Lévy Models for Credit Derivatives: Dynamic Models for Credit CPPI and CPDO
 - Lévy Base Correlation for CDOs and TABX
- Risk: Credit Risk Modeling for Tomorrow's Market (London, Mar 11, 2008)
 - From Credit Risk Systems to Stress Tests and Credit ALM: On the heart of the Credit Crunch (with S. Goossens)
 - Implying Market Correlations from Credit Derivatives Indices (with S. Goossens)
- WBS: Latest Developments: After the Credit Crunch: Credit Derivatives Pricing, Hedging, Modelling Trading Techniques (London, Mar 18, 2008)
 - One-factor models for Credit Derivatives: from iTraxx to TABX
- Risk: Europe Conference (Stockholm, Apr 22, 2008)
 - Credit ALM and Standard Credit Indices: the Missing Link between Securitization activity and activity and the credit crunch (*a 1-day presentation*) (with S. Goossens)
 - Standard Gaussian vs. Lvy models for Credit Derivatives from iTraxx to TABX (with S. Goossens)
- ICBI: Global Derivatives Conference (Paris, May 22, 2008)
 - Pricing TABX for the ABS Correlation Market (with S. Goossens)
- Risk: Effective Pricing and Structuring of Loan CDS (Jun 16, 2008)
 - Investing and trading in LevX and LCDX indices (with S. Goossens)
- Marcus Evans: 2nd Annual Pricing and Valuation of Structured Credit (Jun 17, 2008)
 - Insights in Correlation implied from Standard Credit Indices (with S. Goossens)
- Risk: Quant Congress USA (New York, Jul 08, 2008)
 - Lévy Base Correlation smiling from iTraxx to TABX (with S. Goossens)
- Risk: Valuing Mortgage Backed Securities (London, Jul 18, 2008)
 - ABX, TABX and portfolios of MBS's (with S. Goossens)
- Marcus Evans: 12th Annual Capital Allocation Conference (London, Sept 09 2008)
 - Active Credit Portfolio Management and the Securitisation Business Model (with S. Goossens)
- WBS: 5th Fixed Income Conference (Budapest, Sept 25, 2008)
 - Elements for a Successful Securitization Business Model (with S. Goossens)

- Marcus Evans: 4th Annual Structured Products in Private Banking Industry (London, Oct 10 2008)
 - Dynamic Credit Exposure and Portfolio Management (with S. Goossens)
- Jacob Fleming: 2nd Annual Collateral Management Conference (London, Oct 10,2008)
 - Dynamic Credit Exposure and Portfolio Management (with S. Goossens)
- Risk: Credit Risk 2008 (London, Oct 28, 2008)
 - Dynamic Credit Exposure and Portfolio Management (with S. Goossens)
- Marcus Evans: Mitigating Pricing Model Risk (London, Nov 28 2008)
 - Lévy Models for Credit Derivatives (with S. Goossens)
- GARP: Annual Risk Management Convention (New York, Feb 10, 2009)
 - The Future and Risks of the Banking Model (with S. Goossens)
- Jacob Fleming: 5th Annual CEE Credit Risk Management & Debt Collection (Vienna, Mar 20 2009)
 - Dynamic Credit Portfolio Management and the Securitization Business Model (with S. Goossens)
- GARP: European Risk Congress (May 05, 2009)
 - Super Models? The changing role of quantitative techniques in the new financial world.(with S. Goossens) (*a 1-day presentation*)
- Risk: Europe Conference (Frankfurt, Jun 4 2009)
 - Standardised Credit Indices and Credit Derivatives for Corporates (with S. Goossens)
- Marcus Evans: 2nd Annual Credit Risk Portfolio Management (London, Jun 26 2009)
 - Credit risk models: Practical implementation (with S. Goossens)
- ICBI: Ri\$Capital 2009 (Brussels, Jul 01 and Jul 3 2009)
 - Counterparty Risk (with S. Goossens)
 - Dynamic Credit Portfolio Management (*half a day course*, with S. Goossens)
- Risk: Measuring and Mitigating Counterparty Credit Risk (London, Jul 13, 2009)
 - Calculating economic and regulatory capital (with S. Goossens)
 - Using Credit Default Swaps to hedge counterparty risk (with S. Goossens)
- Risk: Quant Congress USA (New York, Jul 15 2009)
 - Pricing distressed CDOs and portfolios (with S. Goossens)
- Marcus Evans: Capital Management and Allocation (London, Sept 09, 2009)
 - Dynamic Credit Portfolio Management (with S. Goossens)
- Risk: Valuing Assets in Illiquid Markets (London, Sept 25, 2009)
 - Market overview: challenges faced by institutions in Europe (with S. Goossens)
- Risk: Credit Risk Summit (London, Oct 15th 2009)
 - Pricing Counterparty Risk (with Serge Goossens)
- Risk: Credit Risk 2009 (London, Nov 14-16, 2009)
 - Correlation from Collateral to Tranches (with S. Goossens)
- Marcus Evans: Practical Credit Risk Management (London, Feb 11th, 2010)
 - Correlation from Collateral to Capital Charges (with S. Goossens)

- World Business Strategy: Counterparty Credit Risk (London, Mar 22nd-24th 2010)
 - Counterparty Credit Risk (with S. Goossens)
- Brazil Means Business (Amsterdam, Mar 29th 2010)
 - Investing in Brazilian Securitization Instruments (with S. Goossens, H. Kimura, L. Neto and J. Perera)