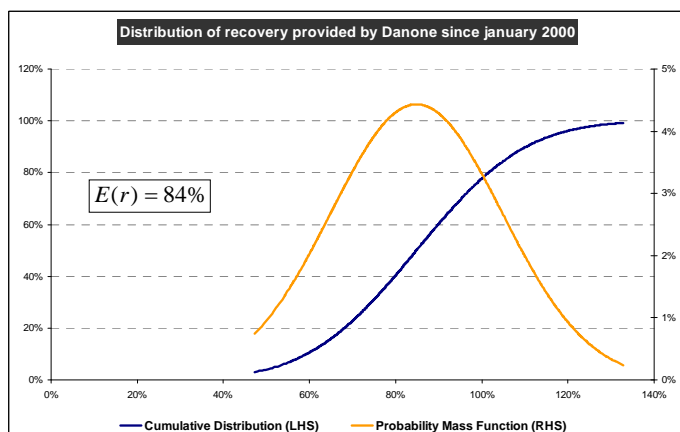


# CB Focus

## Convertible Bond Research

October 30<sup>th</sup> 2009

All data in this document as of Thursday October 29 2009. All issuer-specific data and figures are provided for illustrative purpose only and do not constitute a recommendation.



Source: Calyon.

### Authors:

**Benoît Le Pape,**

**Convertible Bonds Analyst**

33 1 41 89 44 09

**Thierry Cantet,**

**Head of Equity Derivatives Research**

33 1 41 89 44 38

**Raphael Hasson,**

**Equity Derivatives Analyst**

33 1 41 89 66 79

E-mail: [research.calyon-cb@calyon.com](mailto:research.calyon-cb@calyon.com)

Calyon EQD Research and Information on  
Bloomberg: CACC

Disclosures are available on [www.cheuvreux.com](http://www.cheuvreux.com)  
Calyon is regulated by AMF "Autorité des Marchés Financiers"

## All you need is pledge...

With the bonds Eurazéo-Danone and Artémis-Vinci, Calyon has managed to launch a new type of financial product: the bonds exchangeable for pledged shares offering a clause of automatic and compulsory acceleration.

The purpose of this paper is to explain why this product could put issuer and investors into a "win-win situation", and to provide its legal and quantitative backgrounds.

Our conviction is that convertible bonds have the potential to offer refinancing solutions for high-yield issuers, and that this asset class has a real competitive advantage that is not purely effective in regime of high credit spreads.

The exchangeable bondholder is structurally long volatility when the issuer has a low probability to make default. But, we have to understand that, remaining long delta, he becomes short volatility on underlying shares when the holding makes default. Resilience comes from the parity. An exogenous event (issuer default) inverts the vega & gamma of bondholders. Investors should then avoid stocks presenting a left-skewed distribution function of the recovery with an important kurtosis.

We wish to thank B. Vignoles from Calyon, P. Ferreira & P. Henrotte from Ito 33 for their precious suggestions during the elaboration of this paper.

## Exchangeable bonds: “Rumors of my death have been greatly exaggerated”.

After having called for the death of Convertible bonds as a financial asset class, many participants have declared that **exchangeable bonds were just History**.

This widespread thesis has been based sequentially on 1) **regulation** and 2) **risk aversion** of asset managers.

- 1) The **IFRS norms** put indeed a massive constraint on the issue of exchangeable bond by corporate, as this financial instrument introduces too much volatility in earnings by taking into account the “fair value” of the option sold. Exchangeable bonds have been dedicated to financial players that were not sensible to **earnings volatility** and have been mainly issued by holdings.
- 2) The second and massive argument that has been raised by market players hostile to exchangeable bonds is their structural inability to respect the **founding pact** of every exchangeable bond: “upside participation, downside protection”. These detractors explained indeed that every innovation of ECM-teams to provide a **real bond-floor** to investors have been a complete failure during markets fall. No need to over-collateralized the bond (hedging the par, and not only the parity), no need to diversify the collateral with T-bonds, no need to put shares or dividends under escrow, to create “credit linked” exchangeable bonds... All these innovations were perceived as useless during markets fall and never offered a real protection of owners. Holdings, perceived as opaque structures, suffered from important market mistrust.

Market players were convinced that the **Future** of convertible bonds relied in 2 categories:

- **Plain vanilla** convertible bonds issued by corporate.
- Exchangeable bonds issued by **public agencies** or state-owned holdings (the German KfW, the Portuguese Parpublica, the Hungarian MNV, or the French CDC in a couple of years ?...)

The issue of the bond Arcandor-Thomas Cook in June 2008 appeared to be the **Swan Song** for exchangeable bonds issued by high-yield holdings. Indeed, besides refinancing a distressed issuer, this bond aimed to offer a real guaranty to bondholders thanks to a **pledge** on a highly valuable and **non-correlated** asset (Thomas Cook shares). This bond tried to overcome a structural weakness of exchangeable bonds: these bonds could trade **below parity** as underlying shares did not use to be pledged for the whole benefit of exchangeable bondholders.

In a case of bankruptcy, exchangeable bondholders feared to receive the “average recovery” of all loan & bonds holders, which use to be much lower than the parity.

With the bonds Eurazéo-Danone and Artémis-Vinci, Calyon has managed to launch a new type of financial product: **the bonds exchangeable for pledged shares offering a clause of automatic and compulsory acceleration**.

Our conviction is that convertible bonds have the potential to offer refinancing solutions for high-yield issuers, that are much more complex than the simple capacity to reduce coupons via the call option-sold.

We believe that this asset class has a **real competitive advantage** that is not purely effective in regime of high credit spreads, but could face the competition with straight bonds by offering **innovative structures**.

The purpose of this paper is to explain why this product could put issuer and investors into a “**win-win situation**”, and to provide its legal and quantitative backgrounds.

## An optimized refinancing solution for high-yield shareholders:

The European convertible bonds have been frequently perceived as an asset class trusted by high-yield issuers offering a **poor downside protection** during market fall.

Many participants think that the whole property of a convertible is to reduce coupons, and that the dilution is either a) no more explainable when credit spreads are low, or b) completely opportunistic and launched when insiders estimate that the share price has exhausted its upside potential.

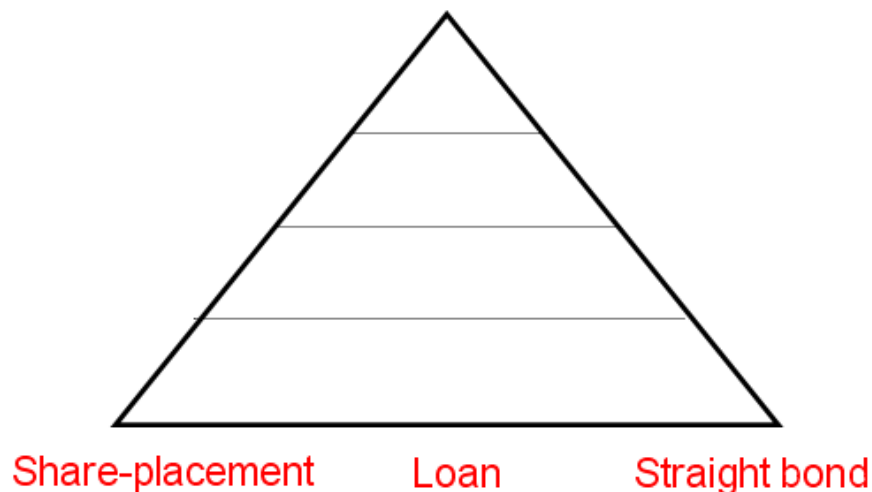
A massive wave of CB-Issue could then be viewed as a) temporary and linked to a recovery phase of credit markets, or b) doubtful as CBs tend to be issued by purely opportunistic players.

This **cynical** perception of convertible bonds seems to be **biased**.

The bonds exchangeable for pledged shares prove indeed that this asset class is able to provide a real **refinancing solution** that is **optimized** and not purely opportunistic.

### Optimized refinancing solution for high-yield shareholders.

**Bonds exchangeable for pledged shares offering a clause of automatic and compulsory acceleration**



Source: Calyon.

1) Firstly, the issue of a bond exchangeable for pledged shares is more interesting than a public or private **share-placement** for the following reasons:

- The issuer benefit from an **issue premium**, contrary to a **discount placement**. The cash raised could then correspond to 125% (if the premium is 25%) of the value of the underlying shares.
- A **subsidized coupon**: the issuer keeps the whole benefit of the **dividends** coming from the underlying shares. Thanks to these defensive shares paying a comfortable dividend yield, an issuer could then reduce by a huge amount its contribution to the coupon-payment. For example, Eurazéo has calculated that, for a bond-coupon of 6.25%, given a dividend-yield of 3% on Danone Shares, the cost **after tax** of this “exotic” debt is only 2%... Please note that the distribution of exceptional dividends will lead to an adjustment of the exchange ratio.
- The issuer keeps its **voting rights**.

2) Secondly, the issue of a bond exchangeable for pledged shares is more interesting than a new **loan**. **Desintermediation** of balance sheets has been a key driver for news issues of CBs. Eurazéo has for example explained that the exchangeable bond allowed him to exit from **margin call mechanism** and to release some cash collateral.

3) Last but not least, a bond exchangeable for pledged shares is much more interesting than a **straight bond**.

- A bond exchangeable for pledged shares allows an high-yield investor to **decrease substantially its coupons** via two effects:
  - Traditional & well-known effect: the issuer **sells an option** and decreases its coupon.
  - Specific effect of the pledge: the **probability of default remains unchanged**, but, the **recovery is increased**. Recovery will equal, at least, to the parity and not to the average recovery. The issuer credit spread then automatically decreases. We will discuss it later.

$$s = p \times (1 - r)$$

Where

$s$  = credit spread

$p$  = probability of default

$r$  = recovery rate

- Contrary to many high-yield bonds, the bond exchangeable for pledged shares does not include **coupon step-up** clause (for example, if the issuer is downgraded to junk).

## Why should I buy a bond exchangeable for pledged shares?

For **risk-adverse** investors, the interest of the pledge seems obvious: it boosts the recovery.

Launching a bond exchangeable for pledged shares has been **iconoclast**.

Indeed, many asset managers pretended that the “**downside protection**” comes from a **strong bond floor**. We think that such protection is frequently very **expensive** during market fall, and that the **resilience** of an exchangeable bond could come from its **parity**.

Some exchangeable bonds issued by holdings have traded **below parity** for two reasons:

- a) In a case of default, the bondholders will get the **average recovery** offered to every common creditor and could then receive less than the parity as the benefit of the liquidation of the shares would be shared between all creditors.
- b) This parity could be worthless if there is a strong **equity-credit correlation**.

These new exchangeable bonds offer to the bond-holders a recovery (equaling at least to the parity) that is:

- **Safe**: mechanism of the pledge. Bondholders are benefiting from a pledge, and **contrary to an escrow**, the pledged shares won't benefit to every creditors (see the graph on next page).
- **Resilient**: The bonds Eurazéo-Danone and Artémis-Vinci offer an exposure on defensive stocks and provide a complete **de-correlation** between the credit (the probability of default of the issuer) and the equity (the upside participation & the recovery equaling at least to the parity).
- **Non-expensive**: thanks to the clause of automatic and compulsory acceleration of the bonds and the nomination of a Representative, the bond-holders (being theta negative) optimize their “**agency costs**” and the protection of their own interests.
- **Exhaustive**: following an event of default, the bond-holder will of course receive the **parity**, and he will keep a **claim** (equaling to the difference of the par and the parity, if the parity is lower than the par) on the **whole structure**. For example, the exchangeable bond issued by Eurazéo is the only debt that has a recourse on the “mother-holding”.

Please find below the differences for a bondholders when shares are **pledged** or **under escrow**:

Exchangeable bonds: Difference between pledged shares and shares under escrow.	
Pledge of Artémis & Eurazéo	Shares under escrow
<p>Holders receive automatically the underlying shares in defined events of default. They keep a claim on the whole structure (equaling to the difference of the par and the parity, if the parity is lower than the par).</p> <p>Their recovery equals at least to the parity.</p> <p>Ex: Eurazéo / Danone, Artémis / Vinci...</p> <p>PS: Arcandor did not put in place a clause of automatic and compulsory acceleration of bonds.</p>	<p>Underlying shares could not be sold by Issuer shareholders, but in an event of judicial liquidation, the proceed of their disposal will benefit to every creditor of the issuer. Bondholders will only receive an « average recovery ».</p> <p>The escrow aims to facilitate the exchange of the bonds.</p> <p>Ex: Artémis / PPR, Wendel / CAP Gemini...</p>

Source: Calyon.

For investors dedicated to **CB-arbitrage**, these bonds exchangeable for pledged shares offer many advantages:

- The **hedging is optimized**. As the recovery is boosted, the loss in the event of default is decreased, and the necessary hedging is mechanically lowered. Through the pledge, a “**structural hedge**” is **embedded** in these exchangeable bonds, and the arbitragers do not have to spend capital in hedging their bets.
- However, it's true that if the hedging is optimized, its **concrete realization is not obvious** as there are limited financial assets that could offer a satisfying hedge in a case of issuer default.
- The bonds exchangeable for pledged shares are typically dedicated to high-yield issuers who **do not have CDS or bonds**. One could say that buying CDS on PPR could offer an interesting hedge in a case of default of Artémis as both are highly correlated. However, on Eurazéo, selling some Europcar bonds would not be a perfect hedge as all Eurazéo-debt (except the exchangeable bond) do not have recourse on the whole structure.
- Traditional volatility arbitrage strategies are easy to implement. The exchangeable bond offers a **cheap Call option** on a **liquid stock**, and arbitragers could easily **sell liquid equity derivatives volatility**.

Analyzing the pledge through the eyes of **Agency Theory**:

- It's true that an exchangeable bond is **free of covenant**. However, we think that the clause of automatic and compulsory acceleration of the bond (as discussed later) provides the same guarantee to a bondholder as a covenant did for a loan-holder. The Representative of the Masse shall indeed "compulsorily and without other consideration" notify the immediate eligibility of the Bonds outstanding at par, in pre-determined "major" events of default.
- This delegation given to the Representative of the Masse could be analyzed as a rebalancing of powers that compensate the **initial "nudity" of bond-holders**, destitute from any covenant allowing them to review the terms protecting their stakes in the capital.
- Analyzed through the paradigms of the **Agency Theory**, the bonds exchangeable for pledged shares decrease the **agency costs**.
- The representative (the "agent") will grant to the Masse ("the Principal") that their interests will be protected **without Masse Meeting to be convened**.
- The pledge allows the bondholders to decrease the negative effect of **information asymmetry** (well-known in unlisted and opaque holding) by preventing shareholders to act to the detriment of creditors (ex: interdiction of sell-off of the assets in place → ex: Artémis has to hold at least 34% of PPR...).
- Please note that the representative ("the agent") is frequently not a bondholders but an impartial trustee, preventing the Masse from any situation of **interest-conflict** and different **attitudes toward risk**.

## Analyzing the pledge through the eyes of a lawyer....

Following discussions with our lawyers, we think that is important to analyze the juridical part of this new kind of exchangeable bond and to underline the work that has been done to protect the holders in an event of default.

An issue coming from the **alignment of interests of all stakeholders of the firm**:

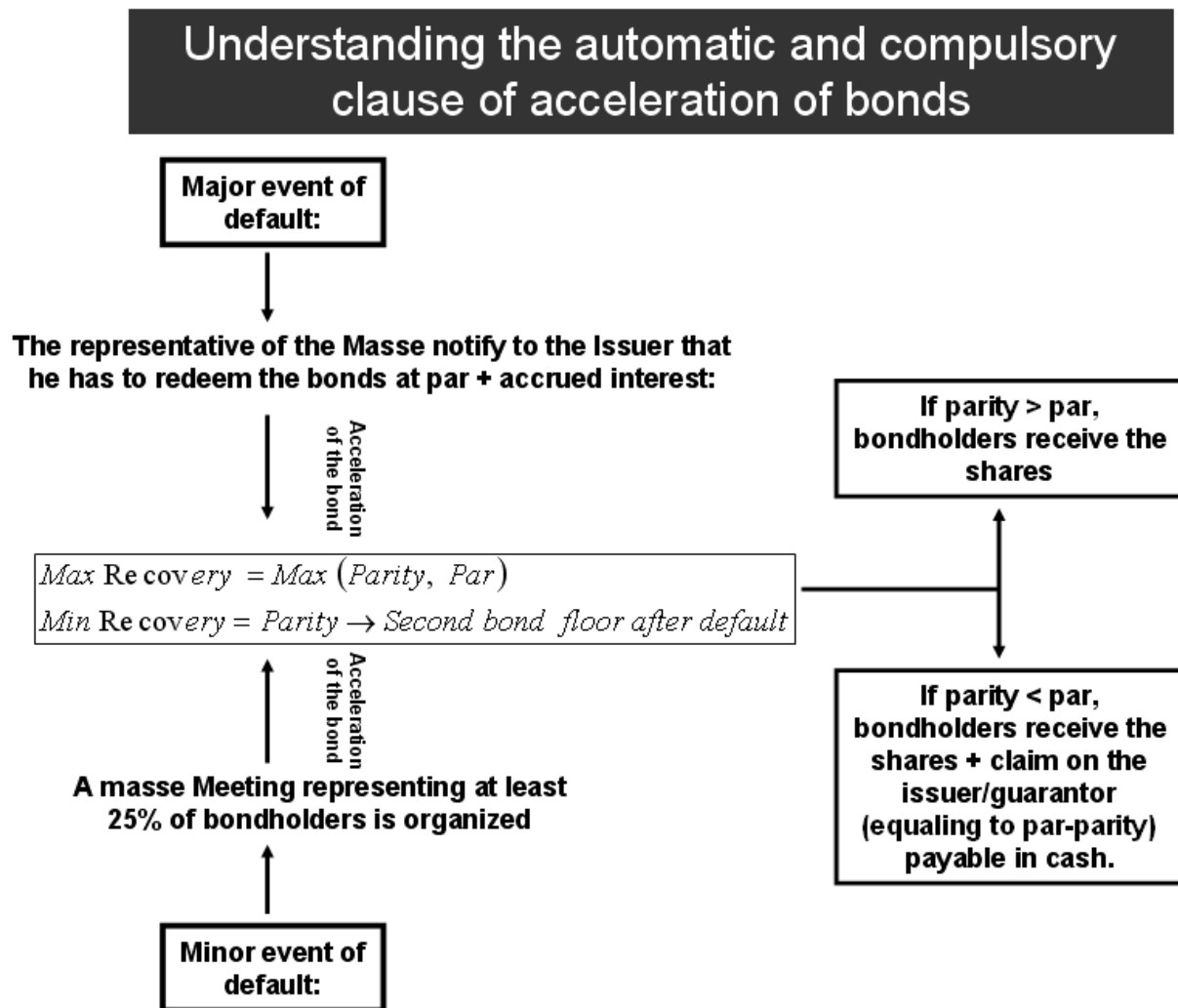
- It's widely known that the issue of a convertible bond requires the agreement of shareholders.
- The specificity of the issue of a bond exchangeable for pledged shares is that it could also require the **agreement of other creditors**.
- Few market participants assess the challenge for the issuer to offer them a pledge. Bondholders can enjoy the security given by a pledge only because the issuer has made the necessary work with its other creditors. Indeed, thanks to the clause of "**negative pledge**", the existing creditors could prevent the issuer to issue a bond backed by a pledge.
- The issue of a bond backed by a pledge should then be viewed as a **refinancing move** that is all but common. This kind of bond requires a **constructive consensus of every stakeholder** to lower the probability of default by increasing the recovery of some of new-comers that will in return put fresh cash on the structure.
- Having received, if necessary, the consent of all stakeholders, the issuer could create an **SPV** that will receive the shares and issue the bonds. The SPV is created so that the bondholders will be the only one who enjoy the benefit of the pledge and receive the shares in an event of default. The "mother-holding" then gives it guarantee to the SPV so that the bondholders will keep a claim if the parity is below the par.

Some market participants have been surprised by the prospectus of these exchangeable bonds which say that these bonds are not "**secured**".

- In certain bonds "**secured**" by a pledge, if the issuer makes default on its coupon obligation payment, the trustee, protecting the interest of the Masse, will **sell the necessary underlying shares** placed on the pledge in order to pay these coupons, without the acceleration of the bonds.
- In a case of a bond exchangeable for pledged shares, if the issuer makes default on the payment of a coupon, the clause of acceleration of the bond will be activated and the **whole shares** will be delivered to bondholders.
- Please note that this treatment is the same as a **pledged-backed loan** where a syndicate of banks will decide to take the control of the pledged shares if an event of default occurs.

One of the most important innovations brought by the Eurazéo/Danone & Artémis/Vinci exchangeable bonds is the clause of automatic and compulsory “**acceleration of bonds**”.

- The bond Arcandor-Thomas Cook could be seen as an unsatisfying experimentation of the bonds exchangeable for pledged shares. The default of the Issuer has been observed at the beginning of August but underlying shares have been delivered to bondholders only at the **beginning of October**... On top of that, the underlying shares have been delivered **after the placement of shares owned by banks**. It seems obvious that the prospectus did not precise what the Trustee had to do in an event of default. Last but not least, the liquidation-process to deliver the underlying shares has been very long and painful.
- Eurazéo/Danone & Artémis/Vinci exchangeable bonds have been designed in order to **accelerate** at the maximum the process of delivery of the shares to the bondholders. Under defined events of default, there will be **no need to organize a Masse-Meeting**, reach the necessary quorum and notify to the Issuer its obligation to deliver the shares. With these bonds, if some defined events of default occur, the **Representative** of the Masse will “compulsorily and without other consideration” notify to the Issuer its obligation to redeem the bonds at par. No need of Masse Meeting. **No later than 4 Business days**, the underlying shares will be on the hand of the holders.



Source: Calyon.

These bonds exchangeable for pledged shares can offer an **expected recovery** above the average recovery offered by the issuer to every creditor as the clause of acceleration make a **segregation** between “**major**” and “**minor**” **events of default** and do not rely systematically on a long and costly process of Masse-meeting.

As illustrated in the graph below, the issuer has of course some latitudes to define the gravity of the event of default and how many days he has to correct the situation.

## Hierarchy of events of default & methodology of acceleration

<b>Major Event of Default</b>	→ No meeting of the Masse. The representative notifies the issuer of its obligation to redeem the bonds.
<b>Minor Event of Default</b>	→ A Meeting of the Masse is organized and a quorum of 25% of holders is required.

Event of Default	Artémis / TEM	Eurazéo / Legendre Holding 22
Default on Interest payment.	<b>Major</b> Event of Default 10 Business days to correct it	<b>Major</b> Event of Default 5 Business days to correct it
Non-performance by the <b>Issuer</b> of obligation of T&C.	<b>Major</b> Event of Default 30 days to correct it	<b>Minor</b> Event of Default 15 Business days to correct it
Non-performance by the <b>Guarantor</b> of obligation of T&C or pledge agreement.	<b>Major</b> Event of Default 30 days to correct it	<b>Major</b> Event of Default 10 Business days to correct it
Cross default.	<b>Minor</b> Event of Default Trigger: € 50 M	<b>Minor</b> Event of Default Trigger: € 30 M
Judicial liquidation.	<b>Major</b> Event of Default	<b>Major</b> Event of Default
If the guarantee or the share pledge agreement is declared null or void.	<b>Major</b> Event of Default 5 Trading days to correct it	<b>Minor</b> Event of Default 5 Business days to correct it
If the mother does not hold the SPV (named « issuer » or « pledgor »).	<b>Minor</b> Event of Default Trigger: 90% of the share capital or voting rights	<b>Minor</b> Event of Default Trigger: 51% of the share capital or voting rights
Disposal of core-assets.	<b>Minor</b> Event of Default Trigger: 34% of share capital or voting rights of PPR	Not defined as an Event of Default
The underlying shares are no longer listed.	<b>Minor</b> Event of Default	Not defined as an Event of Default, but activates the change of Control and the bondholders Put
Not enough shares to satisfy the conversion of all bonds.	<b>Major</b> Event of Default 5 Trading days to correct it	<b>Major</b> Event of Default 10 Business days to correct it

Source: Calyon.

## The Impact of the pledge on exchangeable bond pricing:

Selling a convertible bond is a way for an issuer to decrease the **cost of its capital**. This impact is well-known among markets participants.

We have to underline that selling a bond exchangeable for pledged shares is **another way** to decrease substantially the cost of capital for high-yield issuers.

The pledge won't have any consequence on the **probability of default** of the issuer.

But it will boost the **recovery** of the bondholders as they will get, at least, the parity and not an average recovery like every creditor.

The pledge could then be seen as a **second bond-floor** whose value will be **activated after an event of default**.

When the value of the Issuer crosses the value of the debt (leading to a default), this will activate the value of the pledge and will lead to the **exchange** of the bonds.

The pledge will then modify the **optimal moment of exchange** and transforms, **like a ratchet**, the exchangeable bond into **an American Option**.

The exchange date will no more be defined as being either the date of the Issuer call or the maturity of the bond, but could also be an **exogenous** Event of Default.

The impact of a boosted recovery on the implied credit spreads is given by the well-known formula:

$$s = p \times (1 - r)$$

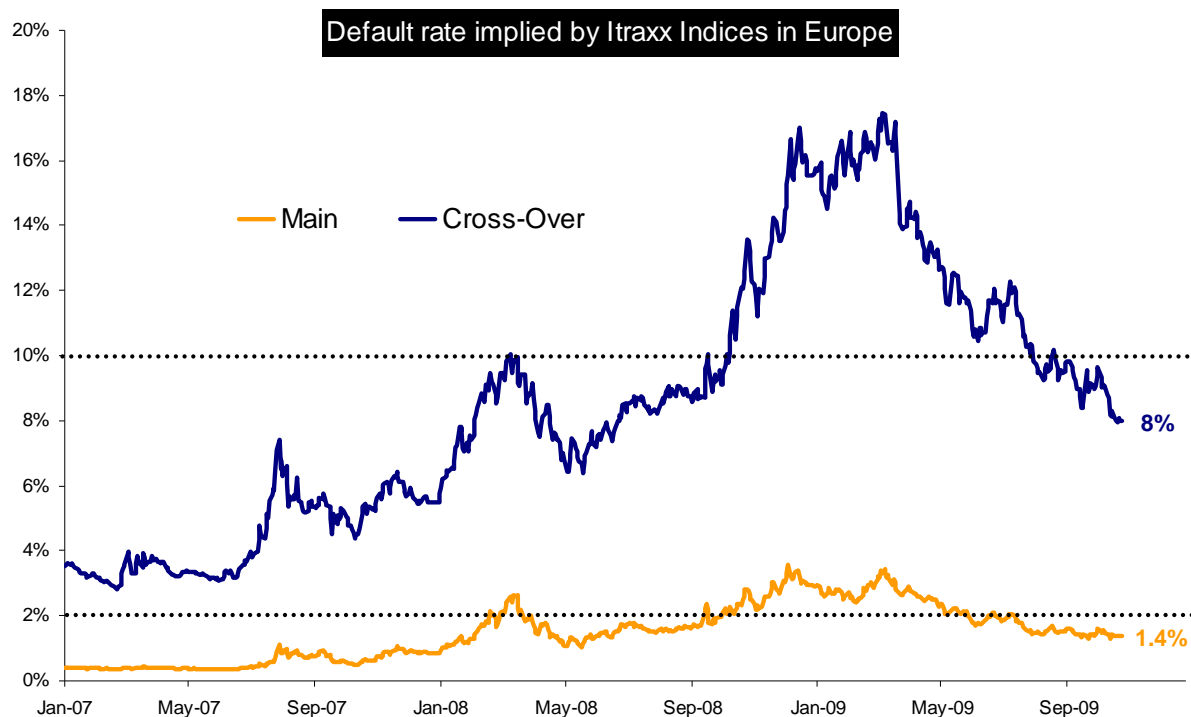
*Where*

*s = credit spread*

*p = probability of default*

*r = recovery rate*

If we take into account the credit spread of the Artémis-PPR 2011 the day before the issue of Artémis-Vinci (650 bp), and we assume a 30% recovery at the holding level, we would get a probability of default of 9%. Please note that is in line with the actual probability of default implied by the level of Itraxx Cross-over indices.



Source: Calyon.

Please note that we have assumed a constant and identical recovery of 40% for both the Itraxx Main and the Cross-Over indices. By taking into account the recovery given by the current share price of Vinci, we would have an implied credit spread of only **257bp**. This scenario appears to be too optimistic and we prefer to **substitute this “marked to market recovery” by an “expected recovery”** calculated since January 2000.

**By selling an expected recovery of 54.7%, the issuer would decrease its cost of capital of 230 bp.**

Scenarii	Risk at the holding level - without pledge	With Pledge - Recovery given by Current Share Price	With Pledge - with expected recovery
Credit Spread	6.5%	2.57%	4.21%
Probability of default	9%	9%	9%
Recovery Rate	30%	72%	54.7%
Credit Spread Economy		3.9%	2.3%

**Assumptions:**

Expected recovery	54.7%
Actual recovery Rate	72%
Vinci Share price (€)	37.0
Par of the bond (€)	51.1
Exchange Ratio	1

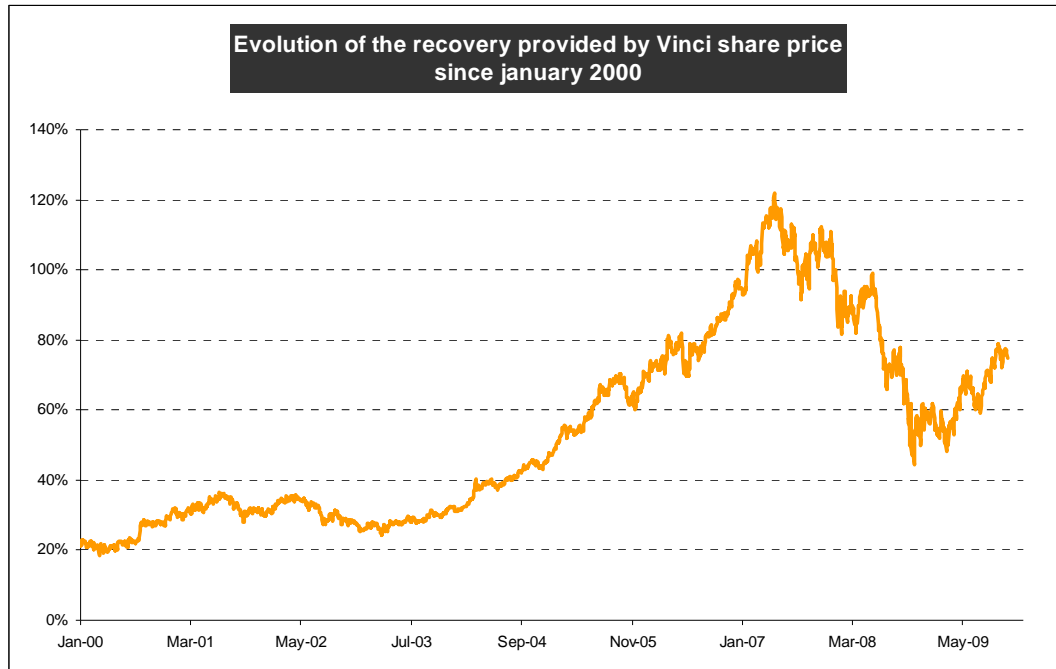
Source: Calyon.

Please note that we cautiously assume that the recourse claim on the mother holding (equaling to par – parity, if par > parity) is worthless.

The expected recovery is of course dependant on the level of the stock and on the conversion premium, but it depends mainly of its **volatility** of the stock.

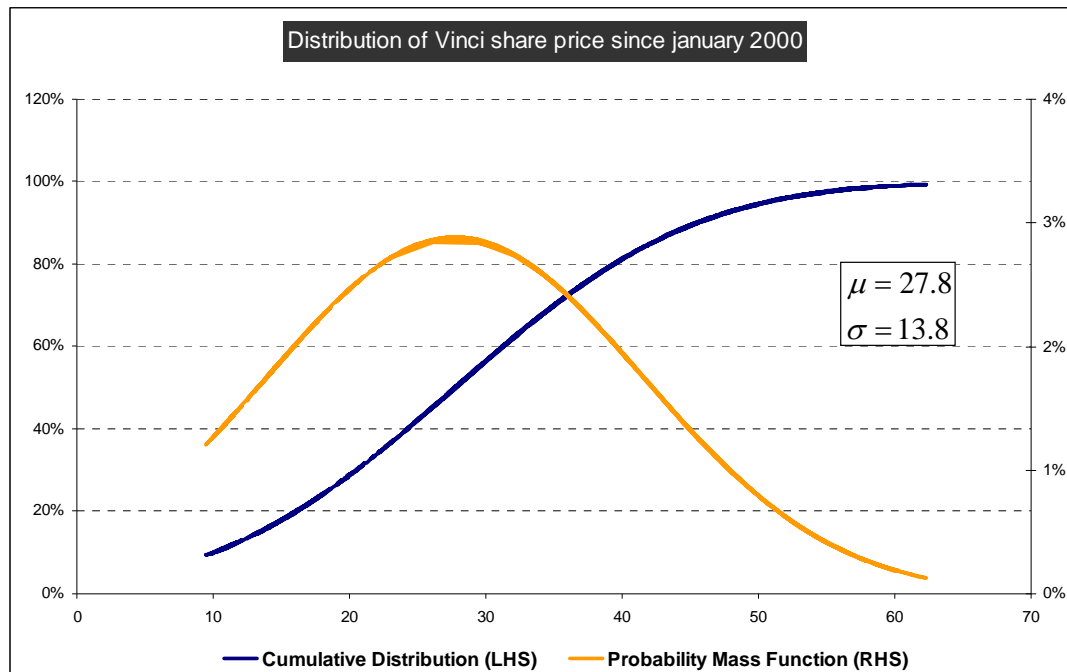
In other words, when the value of the issuer crosses the value of its debt, the bondholders are **short-volatility** on the underlying shares.

The graph below illustrates the evolution of the recovery provided by Vinci since January 2000 for a par value of 51.12 €



Source: Calyon.

The graph below illustrates the distribution of Vinci share price since January 2000.



Source: Calyon.

Being long call, the exchangeable bondholder is structurally **long volatility** when the issuer has a **low** probability to make default.

But, we have to understand that he becomes **short volatility** on underlying shares when the **holding makes default**.

Bondholders should then avoid stocks presenting a **left-skewed** distribution function of the recovery with an important **kurtosis**.

The expected recovery is calculated via the following formula:

$$E(r) = \sum_{i=1}^n r_i \times p_i$$

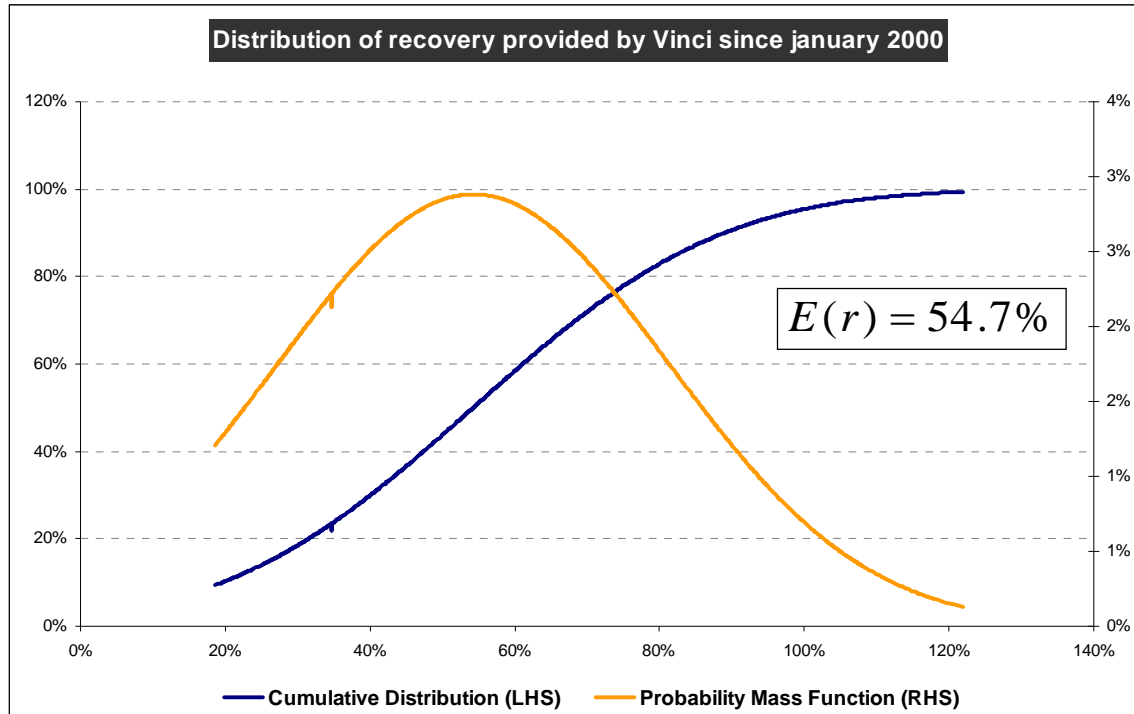
Where

$E(r)$  = expected recovery

$r_i$  = potential recovery  $\rightarrow$  Parity  $\div$  Par

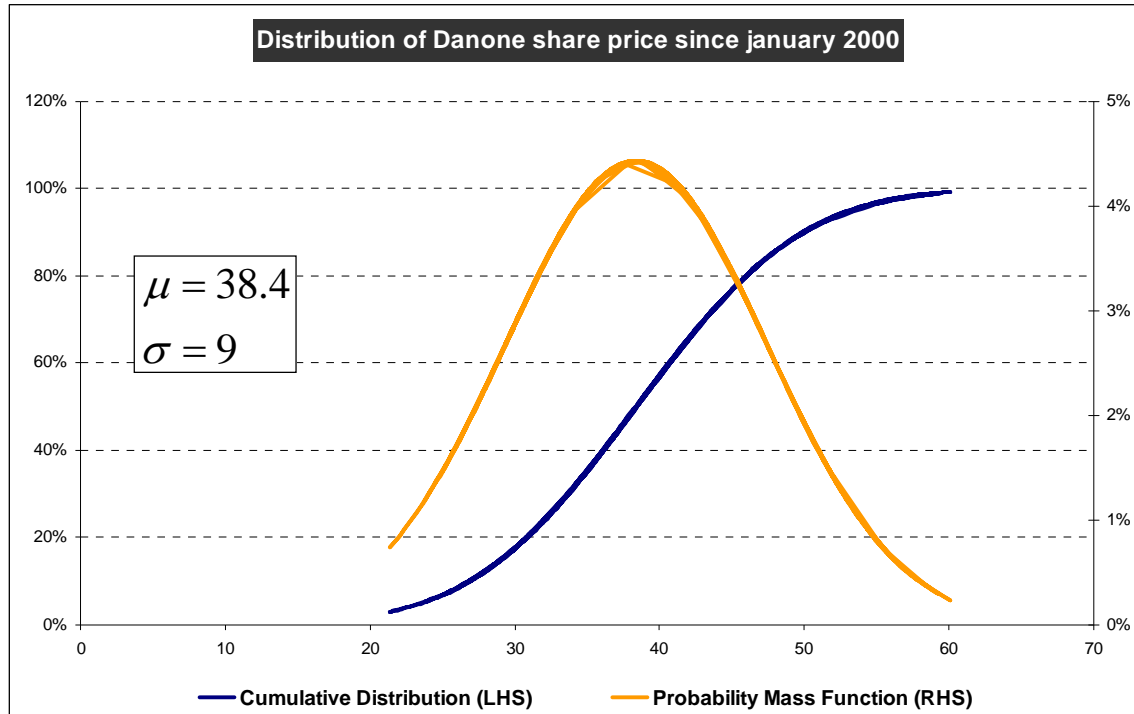
$p_i$  = probability

We think that investors should calibrate their pricer with this **expected recovery**, and not with the **marked to market recovery**, to get the new implied credit spread offered by the bond exchangeable for pledged shares.

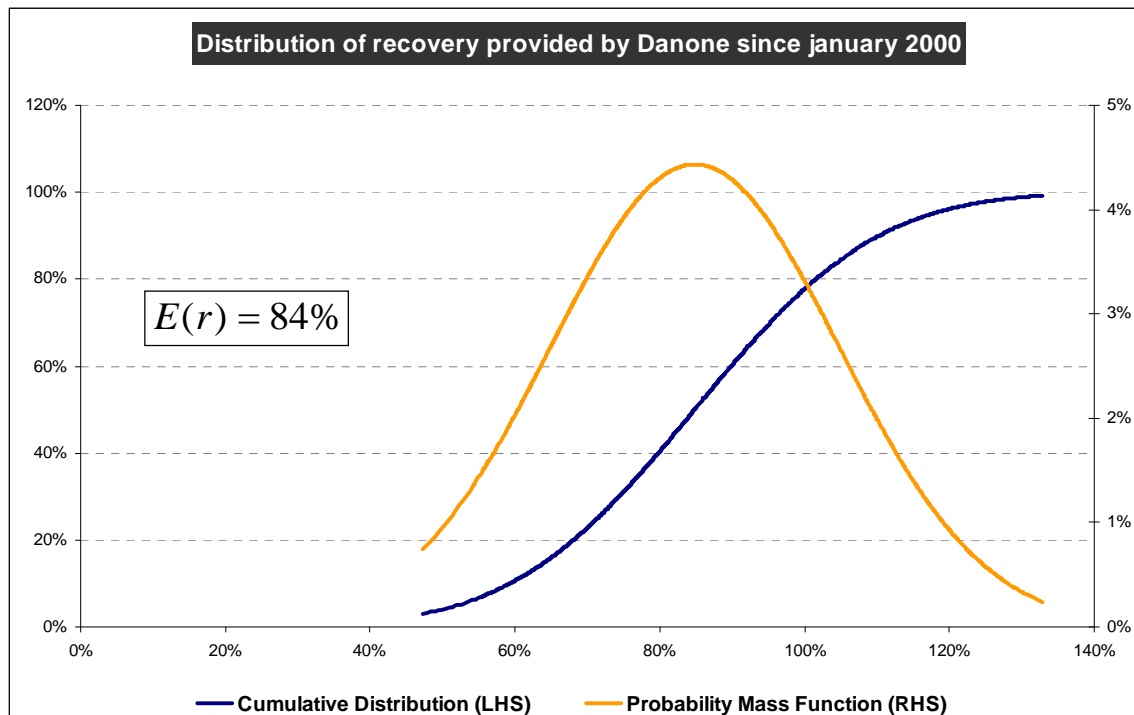


Source: Calyon.

Danone offers the profile a very resilient stock, with a function of distribution of its share price tending to cluster around its mean, and an expected recovery of 84%...

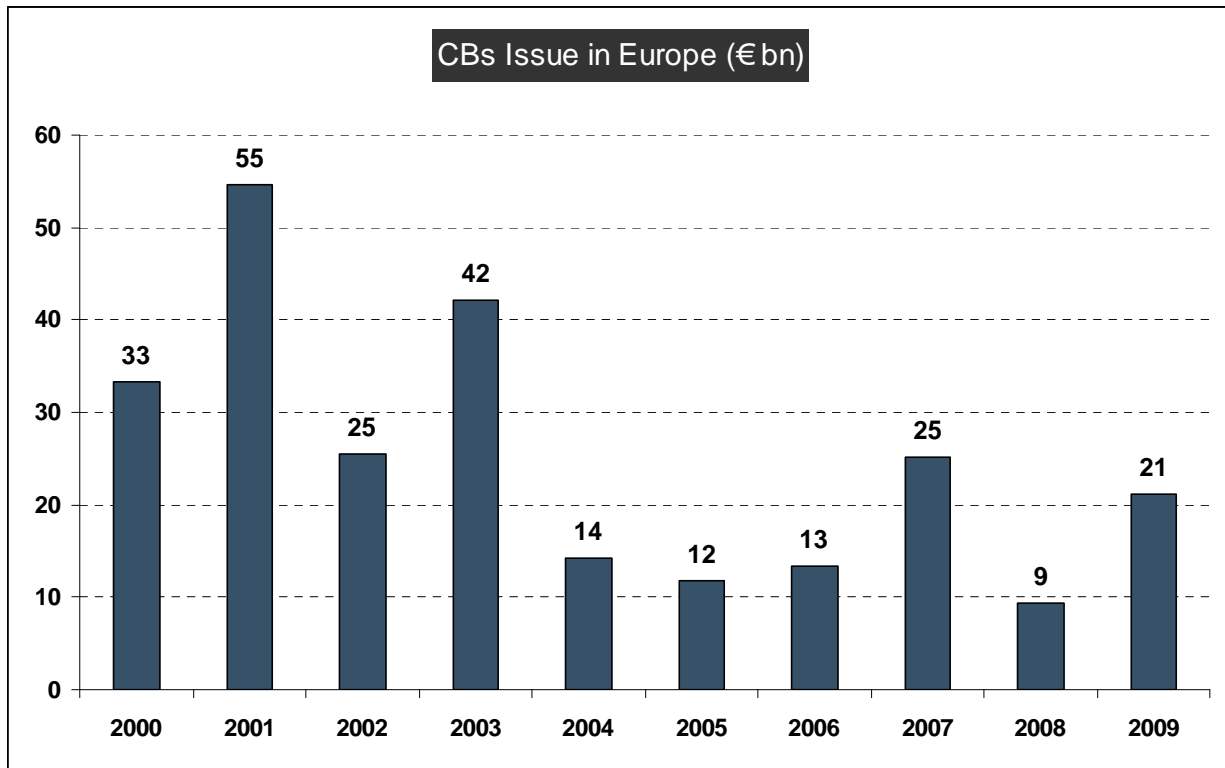


Source: Calyon.

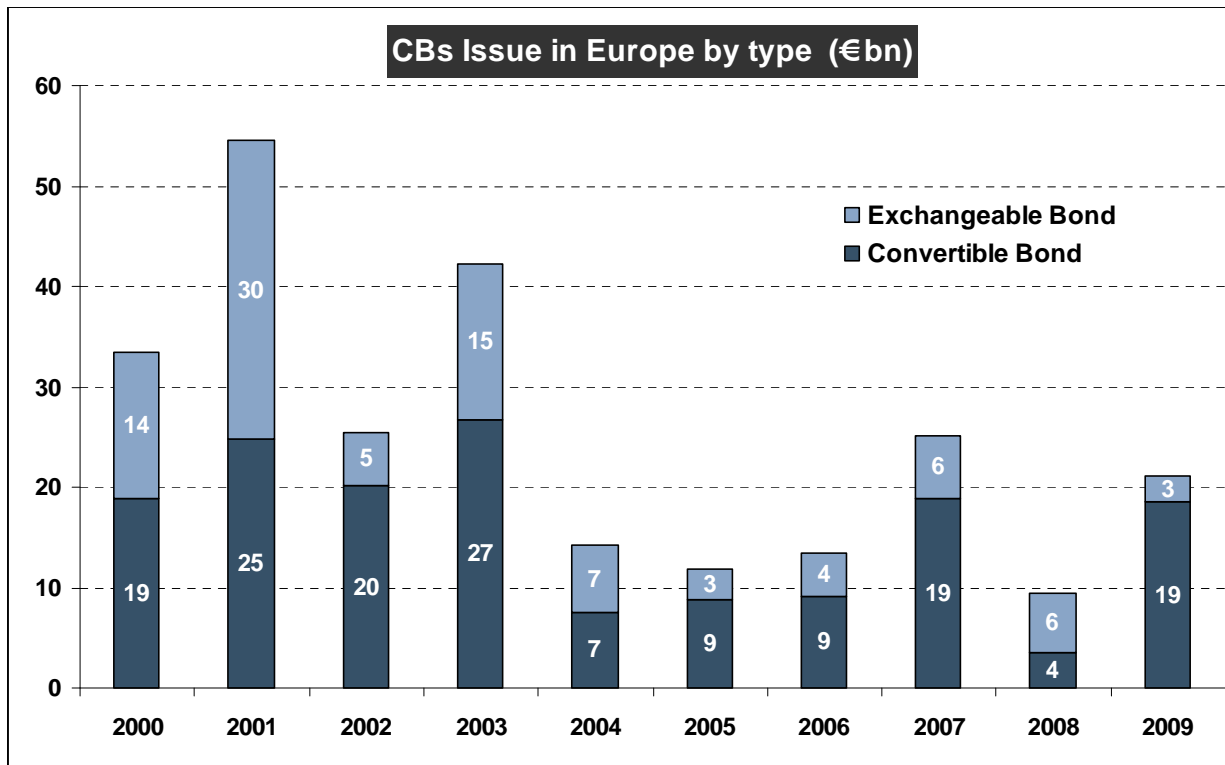


Source: Calyon.

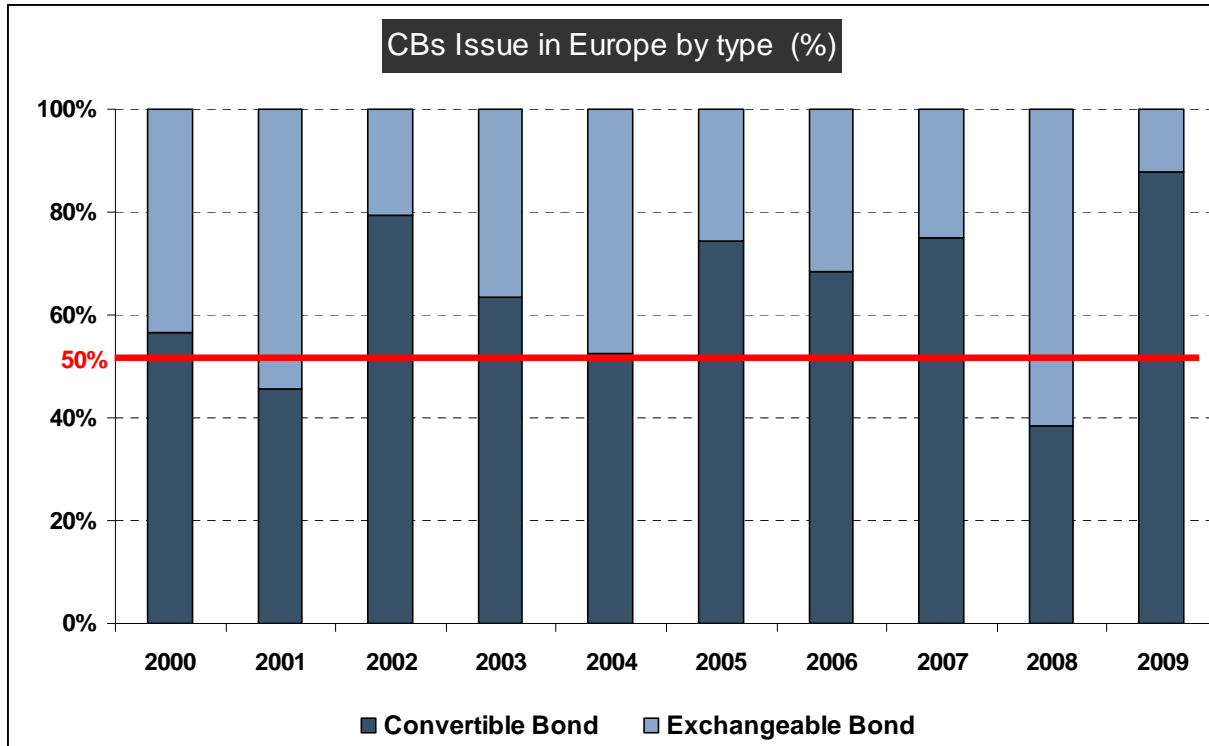
**Annex:**



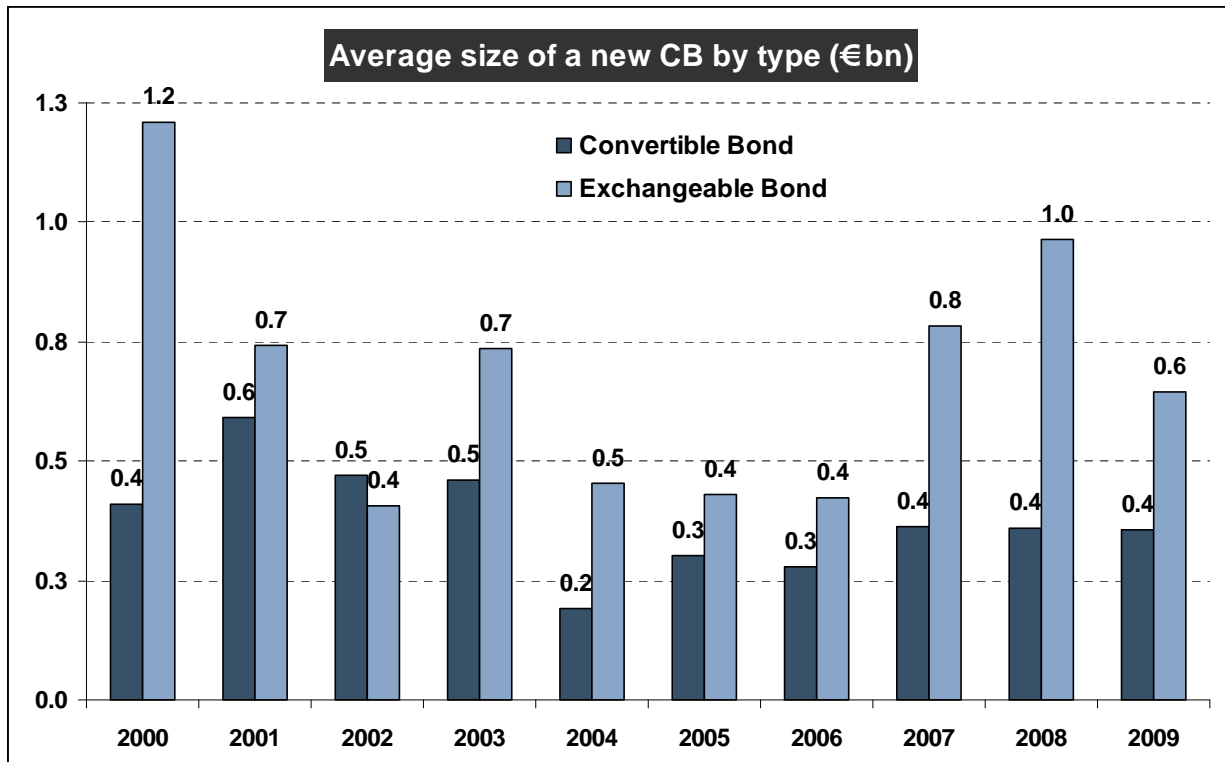
Source: Calyon.



Source: Calyon.



Source: Calyon.



Source: Calyon.

## Disclosures

### Applicable disclosures for the following quoted stocks

COMPANY NAME	DISCLOSURE
PPR	E
VINCI	A, E, G
EURAZEO	A, B, E, J
DANONE	/

- A** One or more companies in the Crédit Agricole S.A. group owned more than 1% of the total issued share capital of the Company as of the end of the second most recent month preceding the publication date of this report.
- B** One or more companies in the Crédit Agricole S.A. group owned more than 5 % of the total issued share capital of the Company as of the end of the second most recent month preceding the publication date of this report.
- C** The Company owned more than 5% of the total issued share capital of Crédit Agricole SA as of the end of the second most recent month preceding the publication date of this report.
- D** One or more companies in the Crédit Agricole S.A. group held as of the end of the second most recent trading day, a net sales position higher than 1% of the total issued share capital of the Company.
- E** The trading portfolio of one or more companies in the Crédit Agricole S.A. group contained shares of the Company as of the end of the second most recent trading day.
- F** Crédit Agricole Cheuvreux and/or a company in the Crédit Agricole S.A. group is a market maker or a liquidity provider for the financial instruments of the Company.
- G** CALYON and/or a company of the Crédit Agricole S.A. group has been involved within the last three years in a publicly disclosed offer of or on financial instruments of the Company.
- H** CALYON and/or a company in the Crédit Agricole S.A. group has concluded or is party to a non confidential agreement relating to the provision of investment banking services (except publicly disclosed offers mentioned under G) to the Company during the past 12 months or that has given rise during the same period to the payment of compensation or to the promise to get a compensation paid.
- I** This research has been communicated to the Company and following this communication, its conclusions has been amended before its dissemination.
- J** A director or a board member of the Crédit Agricole S.A. group is an officer, director, or board member of the Company.

## Disclaimer

© 2009, CALYON All rights reserved.

This research report or summary has been prepared by CALYON or one of its affiliates (collectively "CALYON") from information believed to be reliable. Such information has not been independently verified and no guarantee, representation or warranty, express or implied, is made as to its accuracy, completeness or correctness.

This report is not a commercial communication and is provided for information purposes only. Nothing in this report should be considered to constitute investment, legal, accounting or taxation advice and you are advised to contact independent advisors in order to evaluate this report. It is not intended, and should not be considered, as an offer, invitation, solicitation or personal recommendation to buy, subscribe for or sell any of the financial instruments described herein, nor is it intended to form the basis for any credit, advice, personal recommendation or other evaluation with respect to such financial instruments, directly or indirectly. It is intended for use only by those investors to whom it is made directly available by CALYON. CALYON does not act in a fiduciary capacity to you in respect of this report.

CALYON may at any time stop producing or updating this report. Not all strategies are appropriate at all times. Past performance is not necessarily a guide to future performance. Any opinions or estimates expressed herein reflect the judgment of Calyon at this date and are subject to change at any time without notice. The price, value of and income from any of the financial instruments mentioned in this report can fall as well as rise and you may make losses if you invest in them. Independent advice should be sought. In any case, investors are invited to make their own independent decision as to whether a financial instrument or investment in the financial instruments described herein is proper, suitable or appropriate based on their own judgement and upon the advice of any relevant advisors they have consulted. CALYON has not taken any steps to ensure that any financial instruments referred to in this report are suitable for any investor. CALYON will not treat recipients of this report as its clients by virtue of their receiving this report.

CALYON, its directors, officers and employees may effect transactions (whether long or short) in the financial instruments described herein for their own accounts or for the account of others, may have positions relating to other financial instruments of the issuer thereof, or any of its affiliates, or may perform or seek to perform securities, investment banking or other services for such issuer or its affiliates. CALYON may have issued, and may in the future issue, other reports that are inconsistent with, and reach different conclusions from, the information presented in this report. CALYON is under no obligation to ensure that such other reports are brought to the attention of any recipient of this report. Calyon has established a "Policy for Managing Conflicts of Interest in relation to Investment Research" which is available upon request (a summary of this Policy is published on the Calyon website: [www.calyon.com](http://www.calyon.com)). This Policy applies to its Investment Research activity."

None of the material, nor its content, nor any copy of it, may be altered in any way, transmitted to, copied or distributed to any other party without the prior express written permission of CALYON. To the extent permitted by applicable securities laws and regulations, CALYON accepts no liability whatsoever for any direct or consequential loss arising from the use of this report or its contents.

**Austria:** This research report may only be distributed to institutional investors.

**Belgium:** This research report may only be distributed to, and circulated among, qualified investors as defined in article 10 of the Law of 16 June 2006 concerning public offers of investment instruments and admission of investment instruments for trading on regulated markets.

**Denmark:** This research report can only be distributed to and circulated among Danish investors who are professional investors or eligible counterparties as defined in the Danish executive order no 809 of 29 June 2007 implementing the MiFiD Directive.

**Finland:** This research report can only be distributed to qualified investors, as defined by the Finnish Securities Markets Act. This research report must not be distributed to Finnish public.

**Germany:** Distributed by CALYON, Frankfurt branch and may only be distributed to institutional investors.

**Hong Kong:** Distributed by CALYON, Hong Kong branch. This research report is intended for, and can only be distributed to professional investors within the meaning of the Securities and Futures Ordinance (Cap.571) and any rule made thereunder. It is not intended for and should not be distributed to the public in Hong Kong.

**Italy:** This research report can only be distributed to, and circulated among, professional investors (*operatori qualificati*), as defined by the relevant Italian securities legislation.

**Japan:** Distributed by Calyon Capital Markets Asia B.V. which is registered for securities business in Japan pursuant to the Financial Instruments and Exchange Law, and is not intended, and should not be considered, as an offer, invitation, solicitation or recommendation to buy or sell any of the financial instruments described herein. This report is not intended, and should not be considered, as advice on investments in securities which is subject to the Securities Investment Advisory Business Law (Law n°74 of 1986, as amended).

**Liechtenstein:** In accordance with Article 23 of the Law on Investment undertakings, the report can be distributed only to institutional investors ("*qualifizierte Anleger*").

**Luxembourg:** Distributed by CALYON, Luxembourg branch. It is only intended for circulation and/or distribution to institutional investors and investments mentioned in this report will not be available to the public but only to professional investors.

**Norway:** approved and/or distributed by CALYON authorised by the Comité des Etablissements de Crédit et des Entreprises d'Investissement (CECEI) to carry out its services in Norway under the freedom to provide services. This research report can only be distributed to, and circulated among, professional investors, as defined by the Norwegian Securities Trading Act 2007.

**Singapore:** Distributed by CALYON, Singapore branch, Co. Reg. No. F 02397G. It is not intended for distribution to any persons other than accredited investors, expert investors, or institutional investors, as defined in the Securities and Futures Act (Chapter 289 of Singapore), and persons whose business involves the acquisition or disposal of, or the holding of capital markets products (as defined in the Securities and Futures Act (Chapter 289 of Singapore)).

**Spain:** Distributed by CALYON, Madrid branch and may only be distributed to institutional investors (as defined in article 39 of Royal Decree 1310/2005 November 4<sup>th</sup>, whereby Law 24/1988 of July 28<sup>th</sup> on Spanish Markets Securities Law is partially developed, concerning listing of securities in official secondary markets, public selling or subscription offers and the necessary prospectus for this purpose, on Issues and Public Offers of Securities) and cannot be distributed to other investors that do not fall within the category of institutional investors.

**Sweden:** This research report will be distributed to institutional investors in Sweden and it will not be distributed to the "public" as defined in Swedish Financial Instruments Trading Act (Sw: lagen (1991:1980) om handel med finansiella instrument) in Sweden.

**Switzerland:** Distributed by Crédit Agricole (Suisse) S.A. This document emanates from Calyon. It is not the result of financial research of Crédit Agricole (Suisse) SA.

**The Netherlands:** This research report may only be distributed to and circulated among qualified investors (*gekwalificeerde beleggers*) who are professional investors and/or eligible counterparties within the meaning of the Act on Financial Supervision (*Wet op het financieel toezicht*).

**United Kingdom:** Approved and/or distributed by CALYON, London branch. CALYON is authorised by the Comité des Etablissements de Crédit et des Entreprises d'Investissement (CECEI) and supervised by the Commission Bancaire in France and subject to limited regulation by the Financial Services Authority. Details of Calyon's regulation by the Financial Services Authority are available from Calyon's London branch on request.

**United States of America:** This research report is distributed solely to persons who qualify as "Major U.S. Institutional Investors" as defined in Rule 15a-6 under the Securities and Exchange Act of 1934 and who deal with CALYON. Recipients of this research report in the United States wishing to effect a transaction in any security mentioned herein should do so by contacting Calyon Securities (USA), Inc. (a broker-dealer registered with the Securities and Exchange Commission). The delivery of this research report to any person in the United States shall not be deemed a recommendation of Calyon Securities (USA), Inc. to effect any transactions in the securities discussed herein or an endorsement of any opinion expressed herein.

**United Arab Emirates:** The information set out in the research report(s) has been compiled for the benefit of sophisticated investors and does not in any way constitute an offer for the issue, sale or purchase of any securities in the UAE, or any recommendation in relation to investing in assets in the UAE.

**Kingdom of Bahrain:** The information set out in the research report(s) has been compiled for the benefit of sophisticated investors and does not in any way constitute an offer for the issue, sale or purchase of any securities in the Kingdom of Bahrain, or any recommendation in relation to investing in assets in the Kingdom of Bahrain.

**Kuwait:** The information set out in the research report(s) has been compiled for the benefit of sophisticated investors and does not in any way constitute an offer for the issue, sale or purchase of any securities in Kuwait, or any recommendation in relation to investing in assets in Kuwait.

**Qatar:** The information set out in the research report(s) has been compiled for the benefit of sophisticated investors and does not in any way constitute an offer for the issue, sale or purchase of any securities in Qatar, or any recommendation in relation to investing in assets in Qatar.

**Oman:** The information set out in the research report(s) has been compiled for the benefit of sophisticated investors and does not in any way constitute an offer for the issue, sale or purchase of any securities in Oman, or any recommendation in relation to investing in assets in Oman.

THE DISTRIBUTION OF THIS REPORT IN OTHER JURISDICTIONS MAY BE RESTRICTED BY LAW, AND PERSONS INTO WHOSE POSSESSION THIS REPORT COMES SHOULD INFORM THEMSELVES ABOUT, AND OBSERVE, ANY SUCH RESTRICTIONS. BY ACCEPTING OR RECEIVING THIS REPORT YOU AGREE TO BE BOUND BY THE FOREGOING.