



# Mandatory Convertibles: An Efficient Form of Capital Issuance

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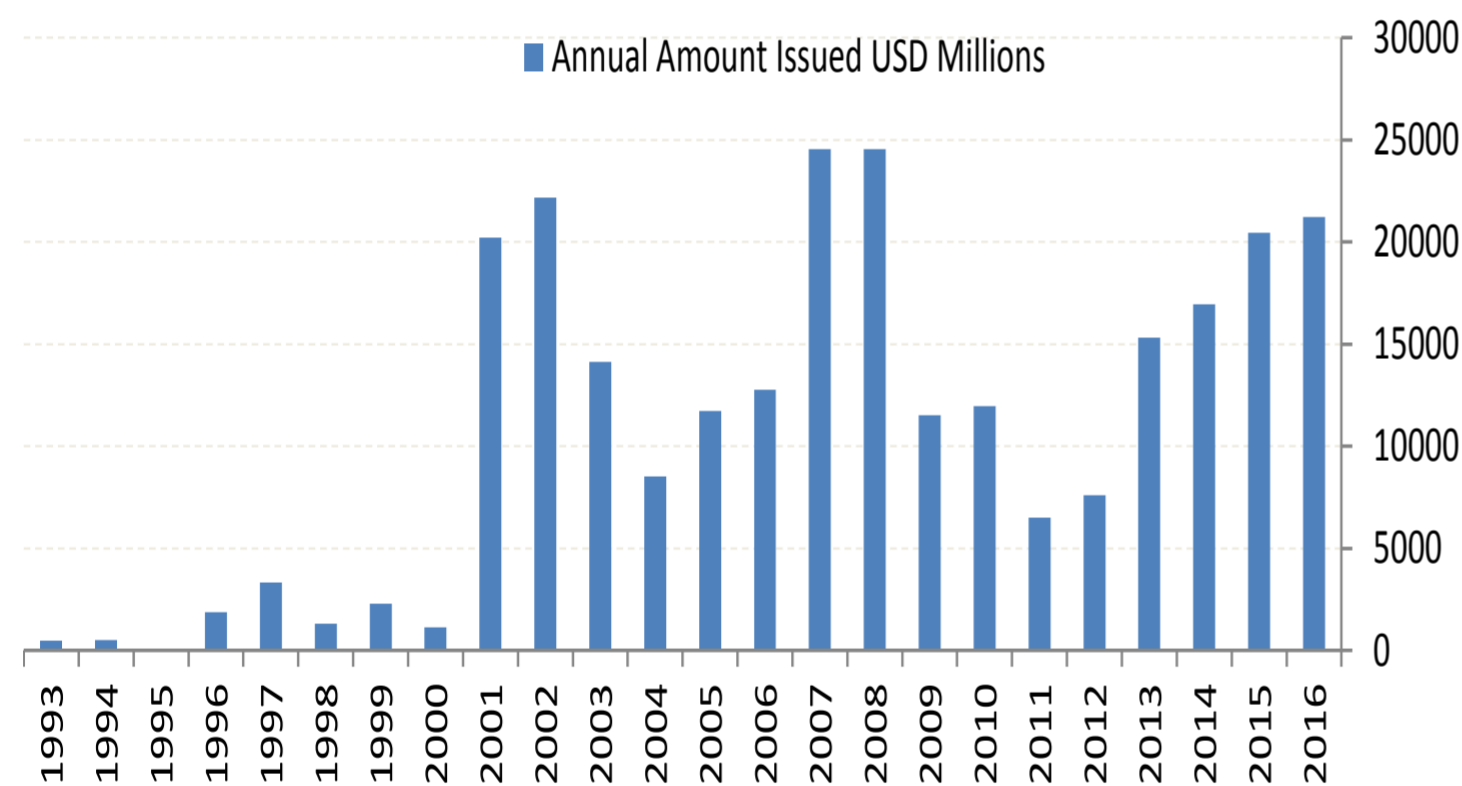
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## Abstract

Mandatory Convertibles represent only a small fraction of all the securities issued by corporate or financial institutions, however, they reach nearly a 30% in volume of all the convertible securities issued every year and its popularity increases steadily over time. Mandatory convertibles can reduce the shareholder dilution compared to a straight capital increase. Mandatory convertibles were commonly issued by financial institutions amid the global crisis as a means to increase capital and could be considered as an antecessor of some types of AT1 (Additional Tier One Capital Instruments) and Contingent Convertible Bonds. This research examines the scarce academic literature that studies this very particular security.

## Size of the Market

The market of mandatory convertible bonds peaked to its higher recorded level at USD24.5billion in 2008. The issuance of mandatory convertibles represented globally USD1.8billion in 1996 and the market growth steadily until 2008. The market started its recovery in 2013 and in 2016 the USD volume issued reached USD21billion. Both corporates and Financial Institutions use mandatory convertible as an efficient means to increase capital. The issuance of mandatory convertible bonds represents on average 29% of all the convertible bonds issued annually (USD392billion annual average from 2013 to 2016). Nevertheless, the academic literature related to standard convertible bonds is disproportionately larger than the one studying mandatory convertibles.



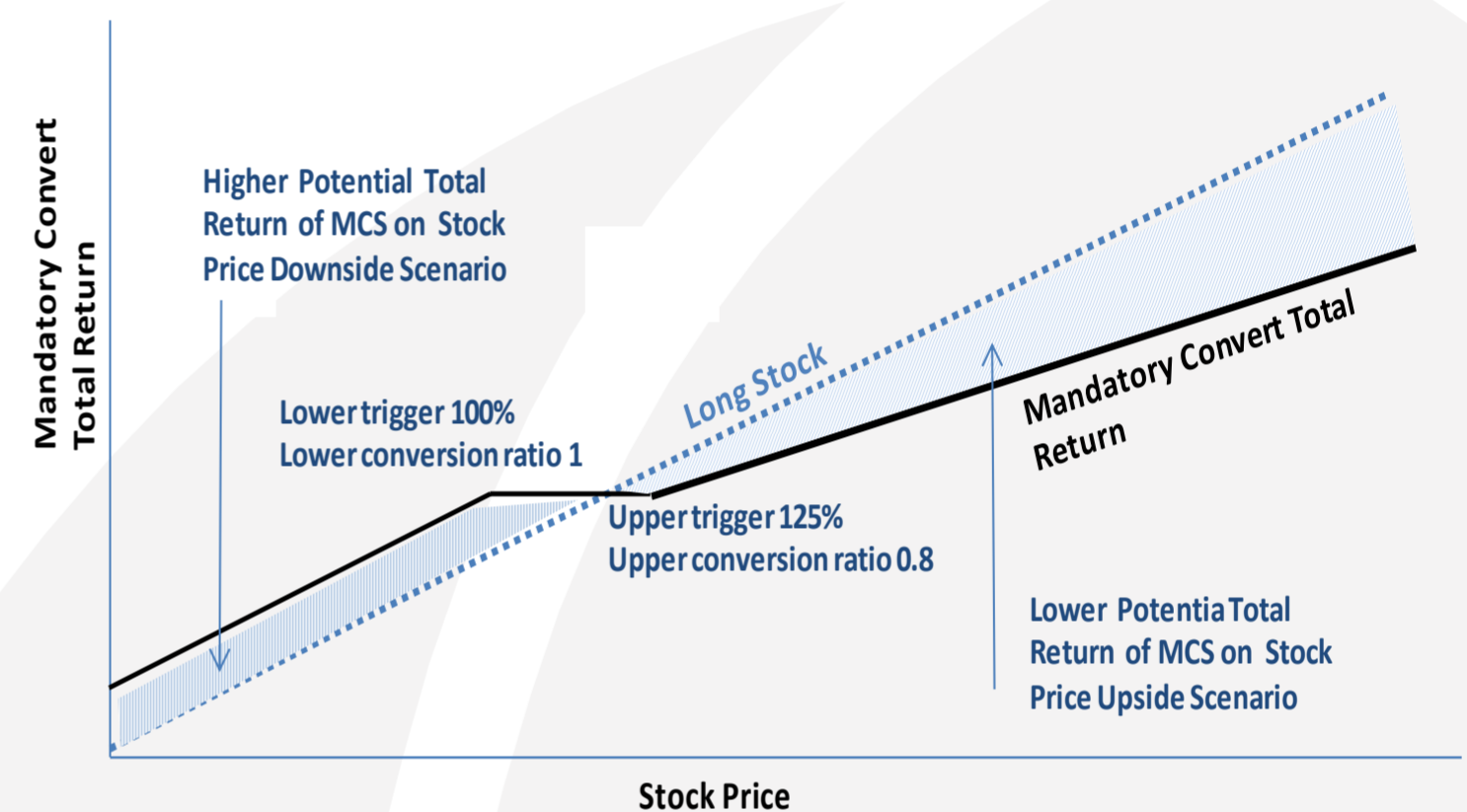
## Potential Advantages of Mandatory Convertibles

Only a few studies research the motivations of the issuers, to access the mandatory convertible market and the effects of the announcement of mandatory convertible on the stock prices (Chemmanur et al 2014), other studies (Wang, 2017) apply the asymmetry information theories to the issuance of convertible bonds. Our research shows that:

- Firms issue mandatory convertible because of its beneficial rating agencies treatment. Despite the fact that some mandatory convertible securities are accounted partially or totally as a liability, rating agencies treat them as capital.
- Huckins (Huckins 1999) shows that mandatory convertibles allow companies to increase capital delaying the equity dilution to redemption.
- Private placements or accelerated book building stock sales imply a substantial price discount that can be avoided by mandatory convertible issuance.
- Issuers of mandatory convertibles tap an investor base that is different to straight debt or equities investor base.
- The lower slope of the mandatory convertible ratio at higher stock prices can represent a lower dilution and lower cost for the issuer compared to straight equity.

## Pricing of Mandatory Convertibles

The payoff for an investor in a mandatory convertible is substantially different to the payoff of a standard convertible since there is no downside protection, and it is also different to the total return of the common stock. Conversely issuers can enjoy lower dilution at higher stock prices.



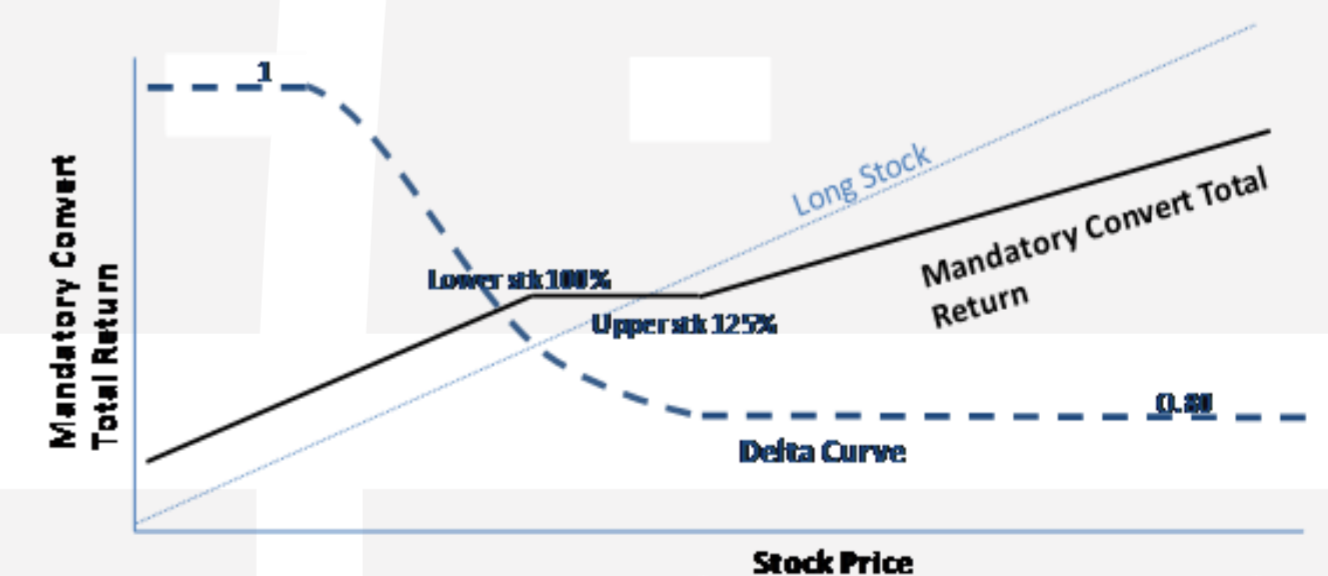
## Price Replication

A mandatory convertible can be synthetically replicated as a prepaid forward share sale agreement plus a strip of fixed coupons, plus a sold equity call option and a purchased equity call option at a higher strike on a lower notional:

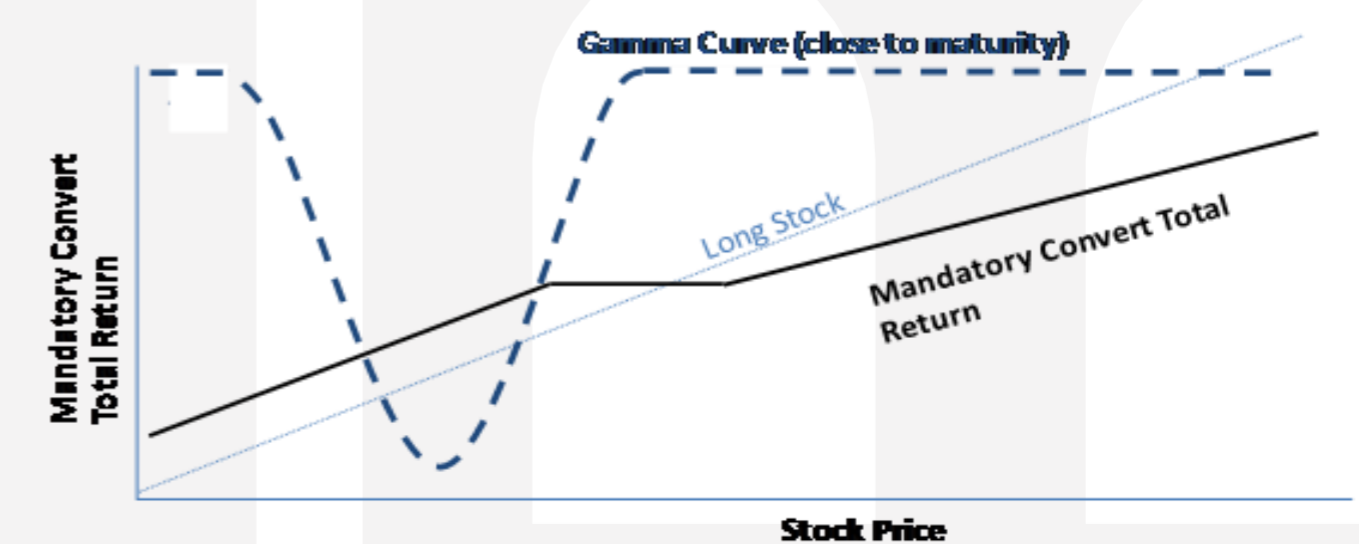
$$\begin{aligned} \text{Price} &= PV_{\text{riskfree}}(\text{Notional}) + PV_{\text{risky}}(\text{Coupons}) \\ &\quad - \text{Conversion Ratio}_{\text{Lower}} \cdot \text{Call}_{\text{Lower stk}} \\ &\quad + \text{Conversion Ratio}_{\text{Upper}} \cdot \text{Call}_{\text{Upper stk}} \end{aligned}$$

This simple decomposition allows the utilization of Black Scholes formulae, binomial trees or numerical methods to approximate the market prices of mandatory convertible bonds.

## Hedging Mandatory Convertibles



Delta of a Mandatory Convertible



Gamma of a Mandatory Convertible Close to Maturity