

CASH vs. SYNTHETIC CDOs

Silviu Eduard Dinca

University of Craiova
silviu@dinca.biz

Abstract

During the past few years, in the recent post-crisis aftermath, global asset managers are constantly searching new ways to optimize their investment portfolios while financial and banking institutions around the world are exploring new alternatives to better secure their financing and refinancing demands altogether with the enhancement of their risk management capabilities. We will exhibit herewith a comparison between the true-sale and synthetic CDO securitizations as financial markets-based funding, investment and risks mitigation techniques, highlighting certain key structuring and implementation specifics on each of them.

Keywords

true-sale CDO securitization; synthetic CDO securitization; credit derivatives; cash asset-backed CDO securities; synthetic asset-backed CDO securities

JEL Classification

E44; F30; G15

1. CDO Securitizations

Collateralized debt obligations (CDOs) are asset-backed securities whose underlying collateral is formed of a diversified pool of cash-flow generating obligations. CDOs are part of an ongoing structured finance' evolutionary trend that is providing advanced methods of converting financial risks into freely marketable and tradeable commodities. This revolutionary process started with the short-term ABCP and longer-term ABS securitizations and it found support and further catalysts with the development of financial engineering and financial derivatives along with the expansion of the overall global securitization markets.

A) CDOs Family Tree

There are multiple types of CDO classes and structures in the marketplace today, which can be differentiated based on the various classification criteria one might use to sort them out. The main forms of CDOs can be broken down by:

a) Aim of Transaction (Initiator's Motivation)

➤ Balance sheet management (balance-sheet CDOs): they are implemented to optimize initiators' balance sheet management. They are both true-sale (cash-flow) based CDOs, credit-derivatives based (synthetic) CDOs and hybrid CDOs (combination of cash and synthetic);

➤ Arbitrage opportunities (arbitrage CDOs): they are employed to capture the various arbitrage opportunities existing in the global financial markets. They are cash-flow CDOs and market-value CDOs based on both true-sale and synthetic structures.

b) Securitization Technique

➤ True-sale CDOs: the transaction follows the true-sale implementation principles. They consist of both balance-sheet CDOs and arbitrage CDOs;

➤ Synthetic CDOs: the transaction follows the credit derivatives implementation principles. They contain balance-sheet CDOs as well as arbitrage CDOs.

c) Source of Funds for Principal and Interest Payments

- Cash-flow CDOs: the repayments are based on the ability of the cash-flows generated by the underlying assets to fully service the principal and interest payments of the newly issued CDOs. They comprise balance-sheet CDOs as well as arbitrage CDOs on both true-sale and synthetic forms;
- Market-value CDOs: the repayments are based on the ability of the marked-to-market value of the underlying assets to fully service the principal and interest payments of the newly issued CDOs. They include mostly arbitrage CDOs on both true-sale and synthetic forms;
- Hybrid CDOs: they are a combination of cash-flow and market-value CDO structures. They cover balance-sheet CDOs and arbitrage CDOs on both true-sale and synthetic forms.

d) Funding Technology (Liabilities Distribution)

- Cash-based (true sale) CDOs: the transaction is based on the true-sale securitization principles of risk transfers and funding. They contain both balance-sheet CDOs and arbitrage CDOs;
- Synthetic (credit derivatives based) CDOs: the transaction is based on the credit derivatives (synthetic) securitization principles of risk transfers and funding and can be further divided into fully-funded synthetic CDOs, partially-funded synthetic CDOs and fully-unfunded synthetic CDOs. They contain balance-sheet CDOs as well as arbitrage CDOs;
- Hybrid CDOs: the transaction is a mixture of cash and synthetic securitization. They cover balance-sheet CDOs and arbitrage CDOs.

e) Collaterals Management Style

- Actively managed (dynamic) CDOs: they are actively traded by the collateral managers. They include mostly arbitrage CDOs on both true-sale and synthetic forms;
- Passively managed (static) CDOs: they are traded under very limited conditions by the collateral managers. They include mostly balance-sheet CDOs on both true-sale and synthetic forms.

f) Composition of the Underlying Assets (the Reference Portfolio)

They can differ widely, but the majority of CDOs consist of one or a combination of the following: (a) loans (commercial, middle-market, corporate/SME, secured/unsecured junior/senior, distressed and nonperforming, emerging markets, leveraged and high-yield, leases, PIKs, trade receivables - factoring and forfeiting based, revolving credit lines, mezzanine, municipals, project finance, syndicated, bilateral); (b) bonds (corporate investment grade & high yield, sovereign investment grade & high yield, convertible, emerging markets, distressed and nonperforming, mezzanine, secured/unsecured junior/senior, municipals, project finance); (c) collateralized debt obligations (loans & bonds); (d) mortgage-backed securities (commercial & residential); (e) financial derivatives; (f) hedge funds, private equity, REITs; (g) private placements, equity, trust preferred securities; (h) asset-backed securities (various collaterals); (i) structured finance securities. They cover balance-sheet CDOs and arbitrage CDOs on both true-sale and synthetic forms.

g) Product (Deal) Types

Depending on the combination of the underlying assets and collateral types, one can find different types of CDO transaction structures, such as: collateralized debt obligations (CDOs); collateralized loan obligations (CLOs); collateralized bond obligations (CBOs); collateralized synthetic obligations (CSO), or synthetic CDOs; collateralized fund obligations (CFOs); collateralized insurance obligations (CIOs); commercial real estate CDOs (CRE CDOs); collateralized equity obligations (COEs); structured finance CDOs (SFCDOs), which includes CDOs of ABSs, MBSs, REITs, CDOs; etc. They include balance-sheet CDOs as well as arbitrage CDOs on both true-sale and synthetic forms.

B) CDOs Structuring Specifics

Any CDO securitization is carried out by means of a bankruptcy-remote special purpose vehicle (SPV), called the CDO vehicle, which issues asset-backed securities (the CDOs) to the institutional investors. The eligible collaterals mixture backs these CDOs, which are issued in several classes, each class being formed of several tranches, whereas each tranche is featuring different risk/reward profiles associated with the underlying assets pool. Hence, the CDO vehicle is able to shape its liabilities to comply with a broader range of risk/return investors' profiles.

By implementing the tranching process a CDO securitization undertakes the redistribution and reallocation of the underlying portfolio's credit risks and returns to the CDO investors. Thus, CDO vehicle's liabilities are segregated and dispersed into various tranches, each tranche having a different credit quality and a distinct return level, realizing in this way a structural subordination within the CDO transaction. Consequently, CDOs' debt servicing relies not only on the underlying collaterals' diversification and credit quality, but additionally and foremost it entrusts on the transaction's inbuilt seniority/subordination, overcollateralization and structural protection mechanisms of credit enhancement and liquidity support (either cash-flow or market-value protection and support schemes).

Following the source of funds for principal and interest repayments principles, one can divide the credit and liquidity quality of CDOs based on either cash-flow structure or market-value structure. Thus, in case of a market-value CDO structure, the protection mechanisms' quality derives from transaction's ability to liquidate its assets and repay fully and timely entire debt tranches; while in case of a cash-flow CDO structure, the quality of protection mechanisms relies on the size of subordination and the degree of overcollateralization, which must be larger enough so that the after-default cash-flows of the underlying assets to fully cover all debt tranches.

Therefore, the most important structural features of a CDO securitization could be summarized as: (a) securitization technique (true-sale or synthetic); (b) source of funds for principal and interest repayments (cash-flow or market-value); (c) funding technology (cash based or credit derivatives based); (d) collaterals management style (actively managed or passively managed); (e) transaction's cash-flow and loss allocation system (CDO securitization waterfall); (f) transaction's credit and liquidity enhancements; (g) transaction's degree of seniority/subordination, overcollateralization, reserve accounts, excess spreads; (h) transaction's hedging mechanisms (credit, currency, interest-rate hedging).

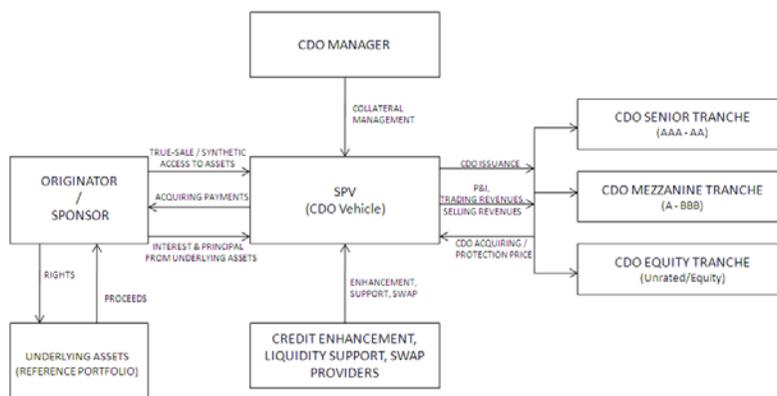


Figure 1 Simplified generic CDO Securitization transaction structure

Source: Author's representation

The CDO structuring process generates a multiple set of asset-backed securities, called tranches, each of them having different exposures to underlying assets' risks, different credit ratings, different payment seniorities and different rates of return.

Generally, a CDO structure comprises of (super) senior tranches, mezzanine tranches, subordinated tranches and equity tranches. The waterfall structure rules that the equity tranche (usually unrated) represents the first-loss position and it is the first to absorb losses in the CDO structure. If losses exceed the value of the equity tranche, they are absorbed by the subordinated (non-investment-grade credit rating) and mezzanine tranches (investment-grade credit rating). Finally, the (super) senior tranches (highest credit rating) are the last to be affected by any losses and only in the case that such losses have not been absorbed entirely by the other lower-level tranches. Nevertheless, the waterfall structure stipulates as well the rates of return for each of these tranches, which is opposed to their credit standing: equity tranches carry the highest returns, subordinated tranches and mezzanine tranches lower yields than equity tranche and the (super) senior tranches are compensated with the lowest returns in the CDO structure.

The cash-flows/losses allocation of a CDO securitization is based on a sequential distribution scheme (the waterfall principle) depending on the seniority of tranches within the capital structure of the CDO structure. The payments (both repayment of the principal and payment of the interest) are prioritized firstly to the highest tranches (highest credit rating and lowest returns), with the remaining to be paid out to tranches located progressively lower in the CDO transaction hierarchy (lower credit rating but higher returns). Hence, this subordination of the CDO structure allows, on the one hand, the investors to select the level of exposure that fits better to their risk/reward profiles/appetites and, on the other hand, the issuance of asset-backed securities with different coupons reflecting the various levels of seniorities, risks and returns according to the underlying assets (reference portfolio) structuring particulars.

C) Motivations of CDO Securitization Transactions

Originators and sponsors involved in the broader CDO securitization transactions benefit of multiple key motivations, including: (a) to secure alternative cheaper sources of funding, risks transfer and refinancing; (b) to improve the overall balance sheet management; (c) to employ an effective tool for regulatory and economic capital management; (d) to enhance further the regulatory capital relief; (e) to generate additional fee income; (f) to improve the risk management by reducing the overall credit exposures or adjusting certain risk stratification particulars; (g) to free up lending capacity with respect to certain categories of borrowers or economic sectors and industries; (h) to benefit from additional capital arbitrage returns; (i) to enhance the liquidity management; (j) to access additional means to enhance the overall capital structure arbitrage; (k) to enhance the minimum regulatory capital arbitrage; (l) to make use of an efficient tool for capital ratio management; (m) to improve return on equity and return on assets ratios; (n) to attain portfolios' risk adjusted performance; (o) to augment credit limit management; (p) to monetize illiquid on-balance sheet assets and to improve their market value; (q) to expand the volume of assets under management; (r) to raise the total valuation of a CDO issuer; (s) to increase the equity capital by means of issuing trust preferred securities; etc.

Broader CDO securitization is providing institutional investors with abundant motivations, including: (a) it provides portfolio diversification by means of multiple industries, sectors and borrowers of interest; (b) it facilitates access to different and better-quality risks adjusted returns profiles; (c) it allows the ability to tailor risk/return profiles by providing better risk/reward performances; (d) it diversifies the overall portfolio risk exposures; (e) it provides a highly versatile and comprehensive tool for portfolio investment management; (f) it upgrades the portfolio risk

management; (g) it supplies investment portfolio diversification into new asset classes; (h) it delivers portfolio diversification by investing along a wider credit spectrum; (i) it supplies considerable volume and liquidity of highly rated securities that may not be available in the markets otherwise; (j) it supplies higher yields and risk-adjusted returns relative to other instruments of comparable credit quality; (k) it is offering better perspectives to achieve portfolios' alpha returns; (l) it facilitates portfolio's arbitrage opportunities among various asset classes; (m) it provides enhanced portfolio's leverage; etc.

We will emphasize hereafter some CDO essentials from the securitization technique perspective providing a brief comparative analysis between true-sale and synthetic CDOs.

2. True-Sale CDO Securitizations

In a true-sale (or cash-funded, or traditional, or conventional) CDO securitization the ownership of the underlying assets being securitized, along with their related financial risks, is legally transferred, by means of a true-sale operation, from the transaction sponsor to the bankruptcy-remote SPV, whereas the SPV issues CDO securities backed by these (transferred) assets which are distributed to institutional investors. Hence, the acquisition of the underlying assets involved in a true-sale CDO securitization is fully cash-funded by the proceeds generated by the issuance of CDO vehicle's asset-backed securities and, conversely, the repayment of CDO securities is straightly linked to the cash-flows generated by the underlying assets.

Since the underlying assets are sold, in exchange for cash, to the CDO vehicle, they are actually completely removed from the sponsor's balance sheet, altogether with their associated financial risks, hence cash-based CDO securitizations represent both a funding tool as well as an on-balance sheet' risks transfer operation.

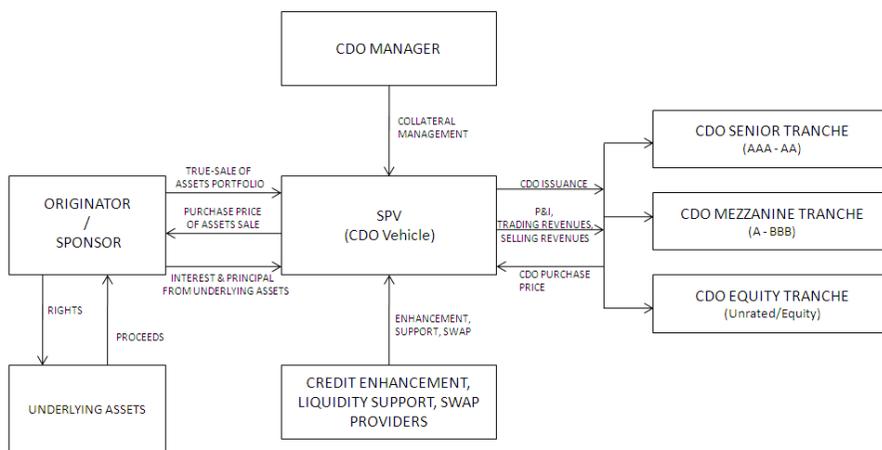


Figure 2 Simplified generic True-Sale CDO Securitization transaction structure

Source: Author's representation

From sponsors' motivation perspective, cash CDO securitizations are implemented both as balance-sheet management transactions (cash-flow balance-sheet CDOs) and as arbitrage opportunities transactions (cash-flow arbitrage CDOs). From repayments' source of funds standpoint, cash CDO securitizations are mostly cash-flow transactions whereas the assets are not usually marked-to-market, however market-

value cash CDOs are quite common transactions especially in the case of true-sale arbitrage CDOs. While the funding technology is exclusively cash-based (true-sale), the cash CDOs are featuring mostly a passively managed (static or limited-trading) collaterals management style, whereas the composition of the underlying assets consist of any assets types common in CDO transactions combined in a large variety of CDO transaction structures.

Originators and sponsors involved in true-sale CDO securitizations benefit of multiple key motivations additional to those specific to generic CDOs, including: (a) to achieve off-balance sheet treatment; (b) to enhance the liquidity management and assets valuation; (c) to improve return on equity, return on assets, return on economic/regulatory capital, risk-adjusted return on capital ratios; (d) to augment credit limit management, capital capacity and financial flexibility; (e) to allow access to new investors base; (f) to improve asset-liability management by means of a new alternative for asset/liability divestitures; (g) to improve the balance-sheet management in terms of exposures, concentration, diversification, credit spread, capital cost, balance-sheet reduction; (h) to provide access to trade the arbitrage spread opportunities; (i) to earn the spread between return on the invested assets and the costs of the CDO transaction; (j) to exploit yield mismatches and differences in funding costs between assets and liabilities; (k) to achieve funding through the issuance of debt securities and equity; (l) to capitalize on perceived discrepancies between the market-value and the theoretical-value of the risky assets; (m) to improve return on assets ratio; etc.

True-sale CDO securitizations are providing institutional investors with plentiful motivations additional to those specific to generic CDOs, including: (a) it delivers portfolio diversification through investments on a broader credit spectrum and long terms to maturity; (b) it provides exposures to the high-yield market via credit rated instruments; (c) it achieves a leveraged return between yield on assets and the financing cost of transaction; (d) it provides investment strategies in opportunistic arbitrage-based products; (e) it monetizes the diversification benefits of uncorrelated assets classes; (f) it monetizes the relative value opportunities for less liquid assets; (g) it achieves higher returns for investments in the same level of credit rated securities; etc.

3. Synthetic CDO Securitizations

A synthetic (or credit derivatives based) CDO securitization represents a financial engineered structure where the credit risks associated with an on-balance sheet assets pool (reference portfolio) are transferred by transaction's sponsor from itself, either directly or via an SPV, to the institutional investors by means of the credit derivative instruments. Consequently, the originator is considered as credit protection buyer while the investors are deemed as credit protection sellers.

Given that a synthetic CDO securitization facilitates originators to separate credit risks trading from balance sheet funding, the transfer of credit risks is achieved synthetically, by means of credit derivatives, rather than by a true-sale operation as in the case of cash CDOs. Since the synthetic CDO securitizations enable the removal of associated credit risks without any assets transfer, the underlying assets (reference assets) are not actually removed off the sponsor's balance sheet and thus synthetic CDOs are mainly employed as financial risks transferring tools rather than balance-sheet funding operations.

Hence, by means of financial derivatives replication, a synthetic CDO carries collateral's risks/returns characteristics (transferring the credit risks of a pool of reference assets, or transferring the total return profile of the reference assets) to the CDO vehicle without conveying also the actual assets to the SPV as well, the

originator remaining thus their legal and beneficial owner. Nevertheless, in a synthetic CDO the cash-flows on the reference assets are transferred to the CDO vehicle by means of credit derivatives as an alternative way of on-balance sheet asset divestiture. In turn, the SPV issues the asset-backed securities that are placed with the CDO investors. According to the funding scenario selected by the originator and to the deal structuring particulars, synthetic CDOs can be issued by means of a fully-funded, partially-funded or fully-unfunded securitization structure, whereas different types of credit derivatives (funded CLNs, unfunded CDSs/TRSs) are used to implement each type of synthetic CDOs transaction.

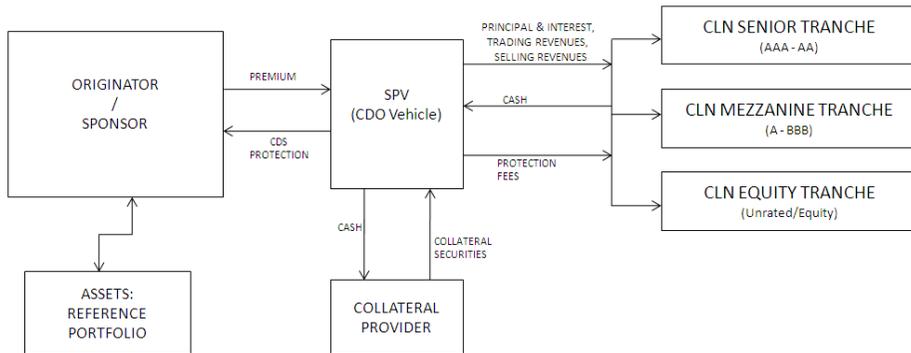


Figure 3 Simplified generic Fully-Funded CDO Synthetic Securitization transaction structure

Source: Author's representation

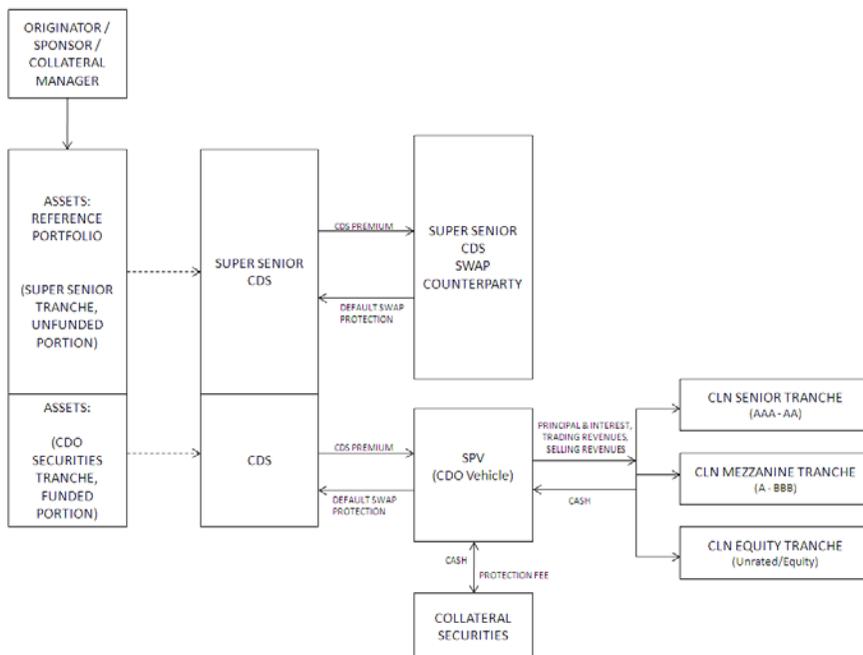


Figure 4 Simplified generic Partially-Funded CDO Synthetic Securitization transaction structure

Source: Author's representation

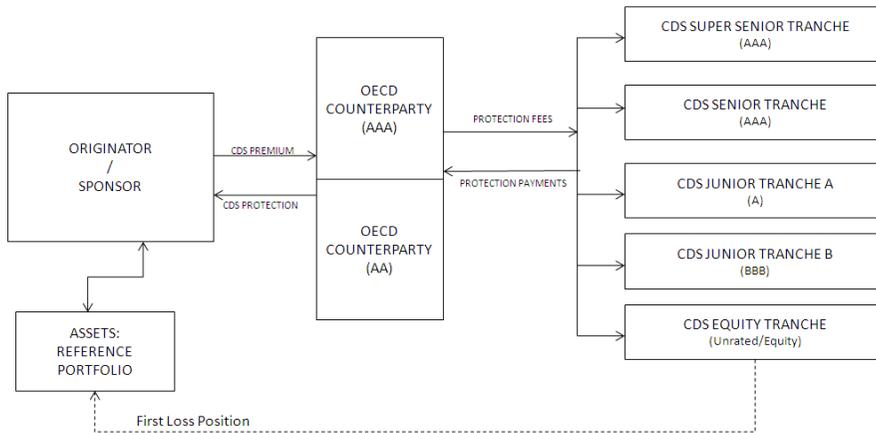


Figure 5 Simplified generic Fully-Unfunded CDO Synthetic Securitization transaction structure

Source: Author's representation

From sponsors' motivation perspective, synthetic CDO securitizations are implemented both as balance-sheet management transactions (synthetic balance-sheet CDOs) and as arbitrage opportunities transactions (synthetic arbitrage CDOs). From repayments' source of funds standpoint, synthetic CDO securitizations are both cash-flow transactions as well as market-value CDOs. While the funding technology is exclusively synthetic (credit derivatives based), from collaterals management style approach, synthetic CDOs are both actively managed (dynamic) and passively managed (static) CDOs, whereas the composition of the underlying assets consist of any assets types common in CDO transactions combined in a large variety of CDO transaction structures.

Originators and sponsors involved in synthetic CDO securitizations benefit of multiple key motivations additional to those specific to generic CDOs, including: (a) to allow the securitization of credit products (unfunded assets, guarantees, undrawn exposures, credit lines, derivative positions, loans with restrictions on assignment and transferability) that may otherwise be unsuitable for true-sale securitization or for off-balance sheet funding; (b) to allow asset managers to take both long and short views on asset classes, economic sectors/industries without removing the respective assets from the balance sheet; (c) to allow the trading of pure credit-driven views; (d) to allow the transfer of credit risks related to partial claims on a specific reference asset; (e) to exploit arbitrage opportunities between cash and synthetic products; (f) to accomplish a greater flexibility to accommodate tailor-made solutions for credit risk requirements through the use of credit derivatives; (g) to achieve lower closing costs than cash CDO securitizations; (h) to facilitate the avoidance of true sale treatments; etc.

Synthetic CDO securitizations are providing institutional investors with further motivations in addition to those specific to generic CDOs, including: (a) it allows investors to take synthetically long and short positions over the market; (b) it allows investors to gain exposure to otherwise inaccessible assets classes; etc.

4. True-Sale vs. Synthetic CDO Securitizations

The interplay between True-Sale and Synthetic CDO Securitizations is inspiring for the particular opportunities that each type of transactions provides to both sponsors

and investors alike. As per above details, one can note that equally cash and synthetic CDOs are featuring meaningful funding, refinancing, investing and risks management advantages to all transactions' participants, however each category of CDOs is providing some particularities which can be optimally engaged following specific originators' motivations and objectives.

We will sketch herewith further distinctive features of cash vs. synthetic CDOs from the practical transaction's perspective:

Table 1 Comparison synopsis between True-Sale and Synthetic CDO Securitizations outlining the main attributes of Cash vs. Synthetic CDOs

FEATURES	TRUE-SALE CDO SECURITIZATION	SYNTHETIC CDO SECURITIZATION
Transaction objectives	Funding and transfer of the financial risks (in all cases). Both true-sale and synthetic securitizations enable the same volume of credit risks to be transferred to the CDO investors	Transfer of the financial risks (in all cases) and funding (just in case of funded and partially funded transactions). Both true-sale and synthetic securitizations enable the same volume of credit risks to be transferred to the CDO investors
Underlying assets and related risks treatment	Assets are sold to the SPV and all related risks are hence transferred to the SPV. The SPV becomes assets' owner	Only financial risks are transferred via credit derivatives to the SPV, or directly to the investors (in case of non-SPV transactions). Originator remains assets' owner
Underlying assets regime	Become off-balance sheet assets related to the originator. Transaction reduces the originator's balance-sheet size (i.e. the volume of total on-balance sheet assets)	Remain on-balance sheet assets related to the originator. Transaction does not reduce the originator's balance-sheet size (i.e. the volume of total on-balance sheet assets)
Carrying out transaction objectives	Originator acts as seller of the on-balance sheet assets	Originator acts as protection buyer for the on-balance sheet assets
Ramp-up period	1-6 months	1-2 months
Aim of transaction	Balance sheet management; arbitrage opportunities	Balance sheet management; arbitrage opportunities
Securitization technique	True-sale	Synthetic
Source of funds for principal and interest payments	Cash-flow structures; market-value structures	Cash-flow structures; market-value structures
Funding technology (liabilities distribution)	Cash-based (true sale)	Synthetic (credit derivatives based): fully-funded, partially-funded, fully-unfunded
Collaterals management style	Actively managed (dynamic); passively managed (static)	Actively managed (dynamic); passively managed (static)

Source: Author's representation

5. Conclusions

Both true-sale and synthetic CDO securitizations constitute the most efficient secured funding and investment alternatives available to asset managers, banking and financial institutions in the global capital markets. The ability to raise more stable medium and long-term funding at very competitive terms, to access a broader pool of global investors, to increase the supply of liquidity to financial institutions, to diversify anyone investment portfolios and to enhance the risk-adjusted returns of assets portfolios are the main advantages to sponsors, originators and investors involved in asset-backed securities programs.

In order to capture all the benefits emerging from true-sale and synthetic CDO securitizations, financial institutions should run in parallel, simultaneously both true-sale and synthetic securitization programs since they are complementing all together, allowing originators and investors to effectively manage the investments, fundraising and risks management aspects by optimally interconnecting local asset markets with global financial and capital markets.

References

- Bank of America Securities (1999), Collateralized Bond Obligations: ABS Research.
- Bank of America Securities (2007), Introduction to Structured Finance.
- Barclays Capital (2009), Introduction to CDO Securitisation.
- Citi Global Markets (2009), New Trends in Structured Finance.
- Commerzbank Capital Markets (2009), Introduction to CDO Securitisation.
- Credit Suisse Securities (2007), Introduction to CDO Securitisation.
- De Vries Robbe, J., Paul, A. U. (2005), Securitisation of Derivatives and Alternative Asset Classes, *Kluwer Law International*.
- De Vries Robbe, J., Paul, A. U. (2006), Innovations in Securitisation, *Kluwer Law International*.
- De Vries Robbe, J., Paul, A. U. (2007), Expansion and Diversification of Securitization, *Kluwer Law International*.
- Dinca, S. E. (2015), Balance-Sheet vs Arbitrage CDOs.
- Dinca, S. E. (2015), Cash vs Synthetic ABCPs.
- Dinca, S. E. (2015), Cash vs Synthetic ABSs.
- Dinca, S. E. (2015), Cash-Flow vs. Market-Value CDOs.
- Dinca, S. E. (2015), Structured Finance & Assets Securitisation: Participants' Motivations and Competitive Advantages, *Annals UCV - Economic Sciences Series*, 43(2).
- Ernst & Young (2007), CDO Securitisation: A Valuation Guide.
- European Central Bank (2008), The Incentive Structure of the Originate and Distribute Model.
- European Central Bank (2011), Recent Developments in Securitization.
- Goldman Sachs Securitisation Group (2009), Insights on Asset Securitisation Deals.
- HSBC Securities (2008), CDO Securitisation Guidelines.
- J. P. Morgan Securities (1999), Guide to Credit Derivatives.
- J. P. Morgan Securities (2003), Credit Derivatives Research.
- KPMG (2009), New Trends in CDO Securitisation.
- Lloyds Banking & Markets (2007), CDO Securitisations.
- Merrill Lynch Structured Finance (2005), Cash and Synthetic CLOs.
- RBS Capital Markets (2008), New Developments in CDO Securitisation.
- Standard & Poor's Structured Finance (1999), Global CBO/CLO Rating Criteria.
- Standard & Poor's Structured Finance (2001), Cash Flow CDOs: Continued Growth.
- UBS Securities (2008), Asset Securitisation Techniques.
- Wachovia Capital Markets (2009), Introduction to Asset Securitisation.

Watson, R., Carter, J. (2006), *Asset Securitisation and Synthetic Structures: Innovations in the European Credit Markets*, Euromoney Books.