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BALANCE-SHEET vs. ARBITRAGE CDOs

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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 balance-sheet and arbitrage CDO securitizations as financial markets-based funding, investment and risks mitigation techniques, highlighting certain key structuring and implementation specifics on each of them.

Keywords: balance-sheet CDO securitization, arbitrage CDO securitization, credit derivatives, cash CDO securities, synthetic CDO securities

JEL Classification: E44, F30, G15

1. Introduction

The main objective pursued throughout herewith research-paper is to grasp a few particular insights concerning capital markets-based funding, investment and risks mitigation instruments and techniques by means of balance-sheet and arbitrage CDO securitization toolbox analysis. We will feature some key design, structuring and performing attributes by the use of individual assessments and similarity resemblances linking these two distinctive financing and risk management devices.

The research methodology employed within the research-paper is based upon qualitative research method, in order to gain the understanding of the underlying reasons and motivations, along with quantitative research method, in order to quantify the data and to generalize the sampling results. The undertaken research methodology is providing its concluding findings by means of individual assessments and similarity resemblances linking balance-sheet and arbitrage CDO securitization funding techniques.

The theoretical and, especially, the applied contributions of this research-paper come in the form of emphasizing the main distinctiveness features of each type of CDO securitization methods, both from their theoretical and applied nature, and to provide meaningful guidance in terms of their individual implementations on the real-life financial markets' asset securitization transactions.

2. 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 criterions one might use to sort them out. The main forms of CDOs can be broken down by: [12], [13]

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).

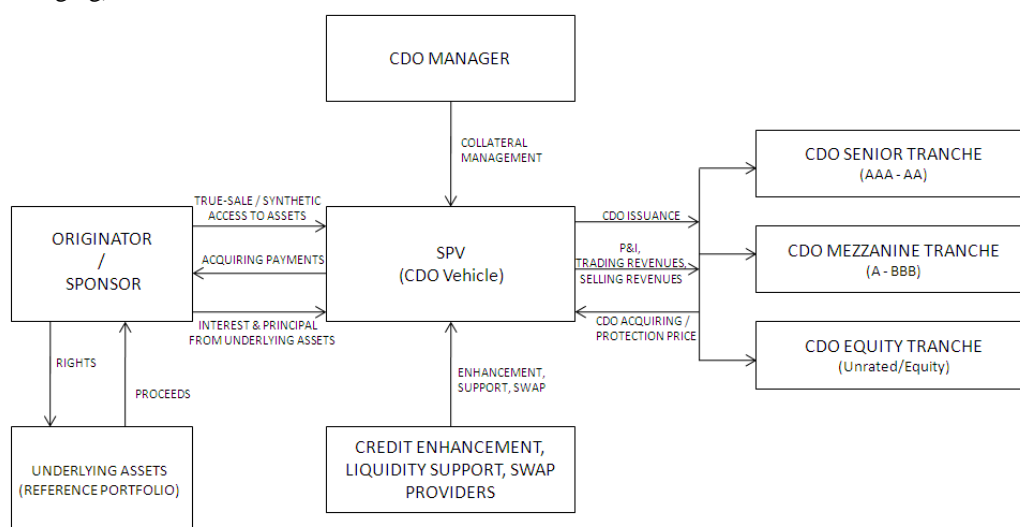


Figure 1. Simplified generic CDO Securitization transaction structure

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. [12], [13], [14]

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. [12], [13], [14]

We will emphasize hereafter some CDO essentials from the aim of transaction (initiator's motivation) perspective providing a brief comparative analysis between balance-sheet and arbitrage CDOs.

3. Balance-Sheet CDO Securitizations

CDO securitizations that are built up using assets that are already present on the initiator's balance sheet are called balance-sheet CDOs. In this case, the initiator seeks to deconsolidate its balance-sheet, or its investment portfolio, of some assets that are no longer suitable to its capital and/or balance sheet management considerations and therefore it is employing the balance sheet CDO technique to transfer these assets, or just their associated financial risks, off the balance sheet. In this way, originators are able to spin-off some of the on-balance sheet assets using CDO technology as an alternative to more conventional assets divestiture methods.

From sponsors' securitization technique perspective, balance-sheet CDOs are implemented as true-sale (cash-flow) based, credit-derivatives based (synthetic) CDOs and hybrid transactions. From repayments' source of funds standpoint, balance-sheet CDO securitizations are mostly cash-flow transactions whereas the assets are not usually marked-to-market, however some market-value and hybrid balance-sheet CDOs are also present in the marketplace today. While the funding technology is both cash-based (true sale) and synthetic (credit derivatives based), the balance-sheet 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 balance-sheet CDO securitization transactions 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; etc. [12], [13], [14]

Furthermore, originators and sponsors involved in balance-sheet synthetic CDO securitization transactions benefit of several add-on motivations, 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. Balance-sheet synthetic CDO securitization is 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. [12], [13], [14]

Generally, balance-sheet CDOs can be further broken down into two categories: cash-flow balance-sheet CDOs and synthetic balance-sheet CDOs.

A) Cash-Flow Balance-Sheet CDOs

In a cash-flow (or true-sale, or cash-based, or traditional, or conventional) balance-sheet CDO securitization the underlying on-balance sheet assets are sold, in exchange for cash, to a bankruptcy-remote special purpose vehicle (SPV), whereas the SPV (or CDO vehicle) issues CDO securities, that are backed by this transferred collateral, to the institutional investors.

Thus, the underlying on-balance sheet assets are transferred to the SPV where they are pooled together and repackaged to collateralize CDO vehicle's liabilities and are redistributed to the CDO investors, hence, these assets are actually being removed, along with their associated credit risks, from the originator's balance-sheet.

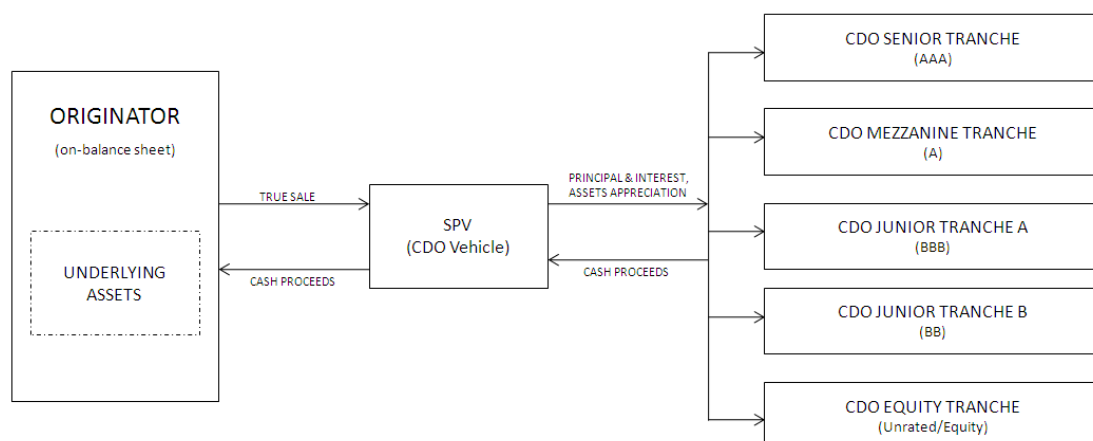


Figure 2. Simplified generic Cash-Flow Balance-Sheet CDO Securitization transaction structure

*Source: Author's representation***B) Synthetic Balance-Sheet CDOs**

In a synthetic (or credit derivatives based) balance-sheet CDO securitization the underlying assets are not physically transferred off the originator's balance sheet, but instead a financial derivative instrument is used to transfer from the sponsor to the CDO vehicle just the credit risks associated with these balance-sheet assets. Hence, the sponsor will retain on its balance sheet the underlying reference assets and in order to achieve their credit risks mitigation synthetically the originator will act as a credit protection buyer while the CDO investors are in fact the actual credit protection sellers, whereas the underlying assets, i.e. the reference portfolio, represent transaction's specific collateral pool.

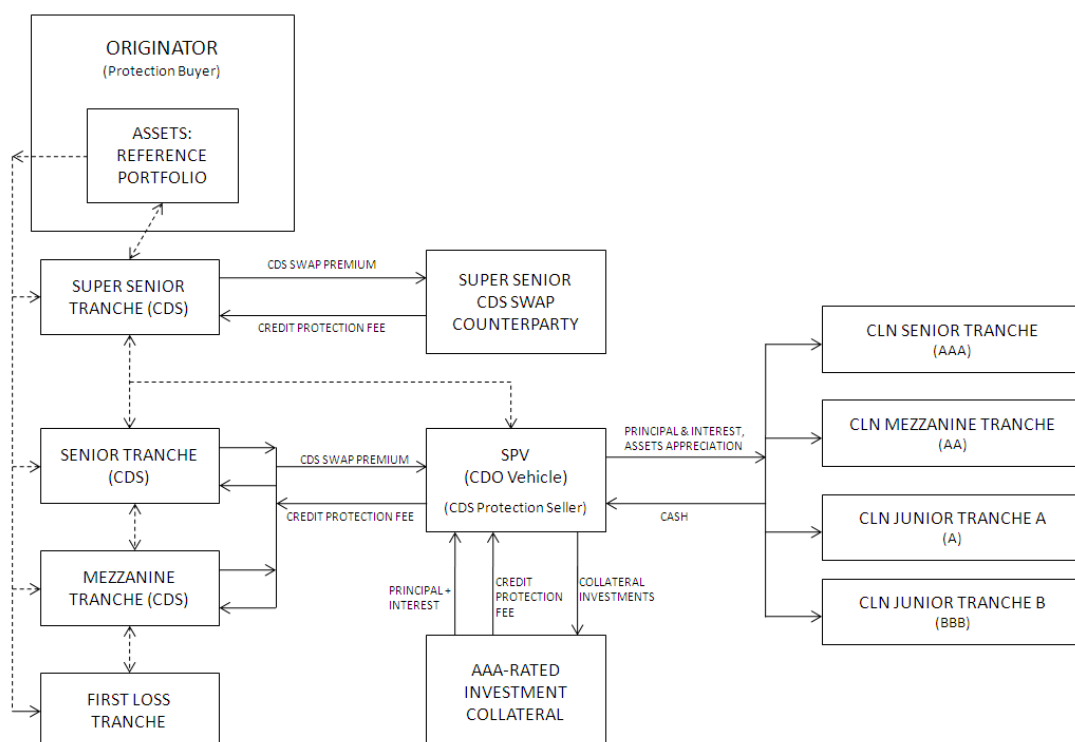


Figure 3. Simplified generic Partially-Funded Synthetic Balance-Sheet CDO Securitization transaction structure

Source: Author's representation

In the case of a synthetic balance-sheet CDO, the cash-flows on the reference assets are transferred to the CDO vehicle by means of credit derivatives and, 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 balance-sheet 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.

4. Arbitrage CDO Securitizations

CDO securitizations that are built up by purchasing transaction's underlying assets straight away from the financial marketplace are called arbitrage CDOs. In an arbitrage CDO securitization, the initiator seeks to capture any

positive spread that might be marked between the prevalent pricing of the underlying assets (i.e. transaction's collateral) in the secondary capital markets and the yield on the transaction's liabilities (i.e. CDO securities placed with the investors). Consequently, the aim of any arbitrage CDO transaction is to carry out a market arbitrage opportunity.

In other words, an arbitrage CDO securitization represents a structured investment vehicle that redistributes the risk/return profiles of the collateral assets into different CDO tranches while it is preserving transaction's total risk/return profile. Whenever the secondary market value of a pool of assets is less than their perceived theoretical value, then an arbitrage opportunity exists and an arbitrage CDO securitization could be implemented by repackaging the underlying assets into an SPV to lock their value. Hence, from the investment management perspective, an arbitrage opportunity exists only if the excess spread between collateral assets and CDO liabilities is large enough to provide an attractive return to all categories of transaction's participants.

From sponsors' securitization technique perspective, arbitrage CDOs are implemented as true-sale (cash) based, credit-derivatives based (synthetic) CDOs and hybrid transactions. From repayments' source of funds standpoint, arbitrage CDO securitizations are both cash-flow arbitrage transactions as well as market-value arbitrage CDOs. While the funding technology is both cash-based (true sale) and synthetic (credit derivatives based), the arbitrage CDOs are featuring mostly an actively managed (dynamic) 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 arbitrage CDO securitization transactions benefit of multiple key motivations additional to those specific to generic CDOs, including: (a) to provide access to trade the arbitrage spread opportunities; (b) to earn the spread between return on the invested assets and the costs of the CDO transaction; (c) to exploit yield mismatches and differences in funding costs between assets and liabilities; (d) to achieve funding through the issuance of debt securities and equity; (e) to capitalize on perceived discrepancies between the market value and the theoretical value of the risky assets; (f) to improve return on assets ratio; etc. Arbitrage CDO securitization is 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. [12], [13], [14]

Furthermore, originators and sponsors involved in synthetic arbitrage CDO securitization transactions 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. Arbitrage synthetic CDO securitization is 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. [12], [13], [14]

Generally, arbitrage CDOs can be further broken down into two categories: cash-flow arbitrage CDOs and market-value arbitrage CDOs. Furthermore, each of these two categories can be additionally broken down into true-sale (cash-based) and synthetic (credit derivatives based) transactions (cash-flow true-sale arbitrage CDOs, cash-flow synthetic arbitrage CDOs, market-value true-sale arbitrage CDOs, market-value synthetic arbitrage CDOs). Accordingly, the true-sale arbitrage CDO structure allows the initiator to exchange the underlying collateral assets for cash while the SPV is holding the eligible securities as collateral against the CDO issuance. The synthetic arbitrage CDO structure permits the initiator to sell the credit risks associated to the reference collateral assets by means of credit derivative agreements settled with CDO investors via the SPV. Furthermore, the suitability of either cash-flow based or market-value based models is rather arbitrary and it depends exclusively on the asset manager's trading style and on the specifics of the underlying assets classes employed in the respective arbitrage CDO securitization.

A) Cash-Flow Arbitrage CDOs

In a cash-flow arbitrage CDO, the SPV purchases directly from the marketplace a substantial portfolio consisting of diversified underlying assets whereas the CDO transaction is structured so that the acquired collateral pool is able to generate, inherently, enough interest and principal cash stream to fully cover the entire debt servicing prerequisites of the newly issued CDOs.

During the ramp-up period of a cash-flow arbitrage CDO, the asset manager acquires collateral assets until the undertaking is fully invested. During the reinvestment period, the interest payments generated by the underlying

collaterals are passed through to CDO investors in accordance with securitization waterfall rules, while the principal repayments collected by the asset manager are reinvested in the acquisition of new collateral assets. At the end of the reinvestment period of a cash-flow arbitrage CDO, the principal repayments are also passed through to CDO investors according to transaction's waterfall rulings.

Hence, in a cash-flow arbitrage CDO, both the principal and interest on all issued CDO classes and tranches are fully repaid using the cash-flows generated from the repayments on the underlying acquired collaterals. Accordingly, cash-flow arbitrage CDOs do not have, normally, a mark-to-market transaction structuring provision.

Thus, any fluctuations in the market-value (i.e. pricing) of the underlying collaterals are mostly of a secondary importance for the cash-flow arbitrage CDO transaction, whilst the collateral assets are habitually passively (occasionally) traded since the asset managers of a cash-flow arbitrage CDO adopt largely a more relatively static buy-and-hold investment strategy. However, this is not an absolute tenet, since many cash-flow arbitrage CDO are quite actively traded especially when the asset managers assume a more aggressive investment strategy stance. Consequently, transaction's leverage does not fluctuate with collaterals' market-value and therefore the performance of the CDO securities is driven entirely by level of collateral's generated cash-flows (incomes and assets appreciation).

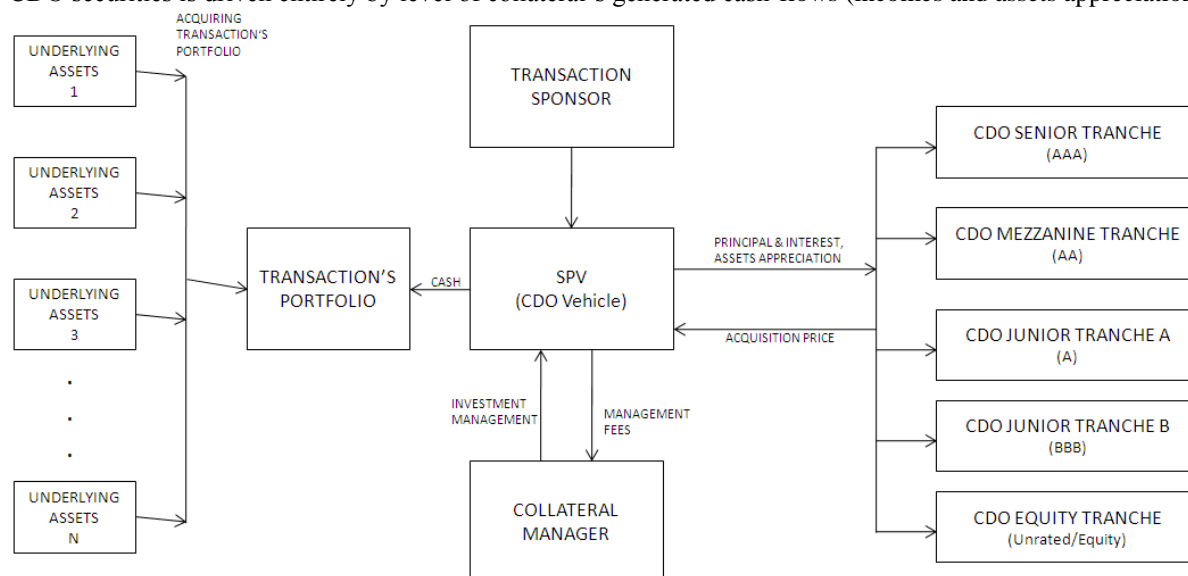


Figure 4. Simplified generic Cash-Flow Arbitrage CDO Securitization transaction structure

Source: Author's representation

B) Market-Value Arbitrage CDOs

In a market-value arbitrage CDO, the SPV purchases directly from the marketplace a substantial portfolio consisting of diversified underlying assets whereas the CDO transaction is structured so that the entire debt servicing prerequisites of the newly issued CDOs is ensured by the cash-flows generated by means of collateral's principal and interest, collateral's trading and collateral's liquidation.

During the ramp-up period of a market-value arbitrage CDO, the asset manager aggressively acquires a wide range of eligible collateral assets until the undertaking is fully invested. During the reinvestment period, the asset manager reinvests both the interest and principal payments generated by the underlying collaterals in the acquisition of new collateral assets. In the reinvestment period, the CDO manager is using dynamically (increase/decrease) the available funding amount (the liquidity facility) to actively adjust the leverage of the CDO transaction. At the end of the reinvestment period of a market-value arbitrage CDO, the asset manager liquidates the entire transaction's collateral and he passes through the proceeds (representing transaction's principal and interest repayments) to the CDO investors according to transaction's waterfall rules.

Thus, market-value arbitrage CDO's performance is entirely connected with the fluctuations in the market-value (i.e. pricing) of the underlying collateral assets pool and so it is highly dependent on the ability of the CDO manager to improve the market-value of the transaction's collateral assets. Consequently, the goal of any market-value arbitrage CDO securitization is to maximize transaction's total returns whilst minimizing the volatility of collaterals' prices. Accordingly, when measuring the performance of underlying collateral assets mixed in a market-value arbitrage CDO the most suitable indicator employed is the total rate of return ratio, which takes into account generated cash-flows (collateral yield), accumulated losses (collateral credit performance) and market-value variations (investment performance and volatility) of each collateral asset.

Hence, market-value arbitrage CDOs are periodically marked-to-market and therefore they go through a very extensive actively trading process by which the asset manager intends to positively exploit the perceived collaterals pricing appreciations and higher yielding in order to enhance CDOs total returns. To achieve a higher total rate of

return, the CDO manager is actively trading the portfolio by dynamically adapting transaction's leverage based on adjusted collaterals' market-value being primarily concerned on volatilities of collaterals' prices and liquidity levels.

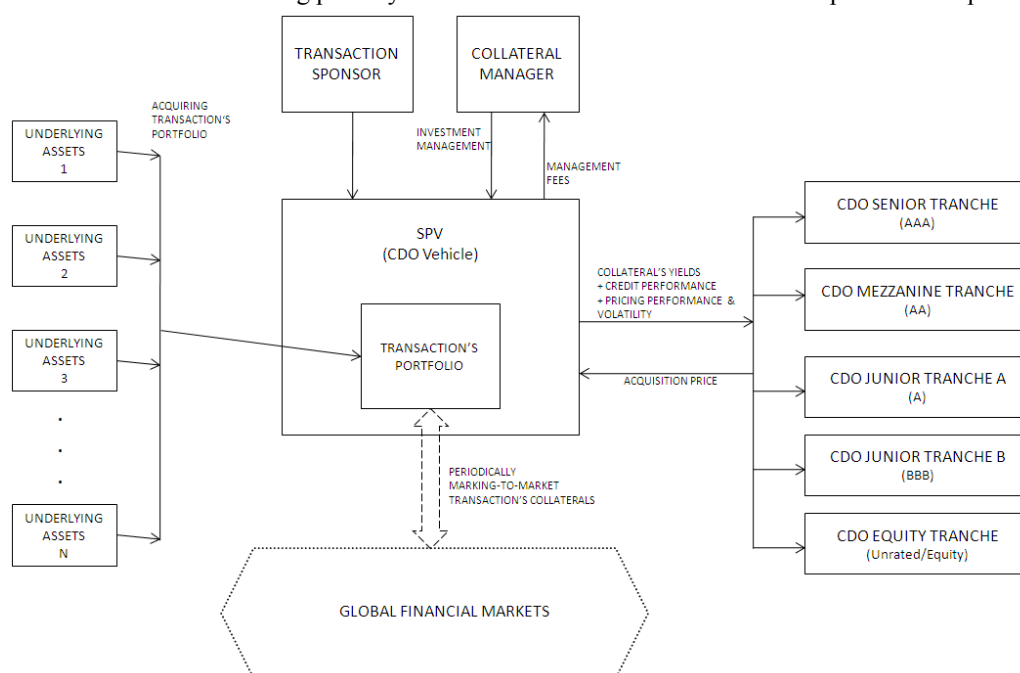


Figure 5. Simplified generic Market-Value Arbitrage CDO Securitization transaction structure

Source: Author's representation

C) Synthetic Arbitrage CDOs

In a synthetic arbitrage CDO, the SPV replicates the exposures to a reference portfolio of diversified underlying assets by means of credit derivatives. The synthetic transaction is structured so that the CDO vehicle enters into a series of funded (CLN) and unfunded (TRS, CDS) credit derivative contracts with the sponsor through which the SPV receives the total return on the reference portfolio and pays to the sponsor the premium credit protection, whereas, in turn, the SPV issues the asset-backed securities to CDO investors. Hence, in a synthetic arbitrage CDO the SPV does not hold the physical collateral assets but a set of credit derivatives on the underlying reference assets.

Thus, a synthetic arbitrage CDO makes profits from the positive difference between the spread received from selling credit protection on the individual assets from the reference portfolio and the spread paid to CDO investors to buy credit protection from them on a pool referenced basis. Consequently, synthetic arbitrage CDOs can be structured as both cash-flow based (non marked-to-market) deals and market-value based (marked-to-market) structures being passively as well as actively managed transactions according to CDO managers' investment strategy approaches.

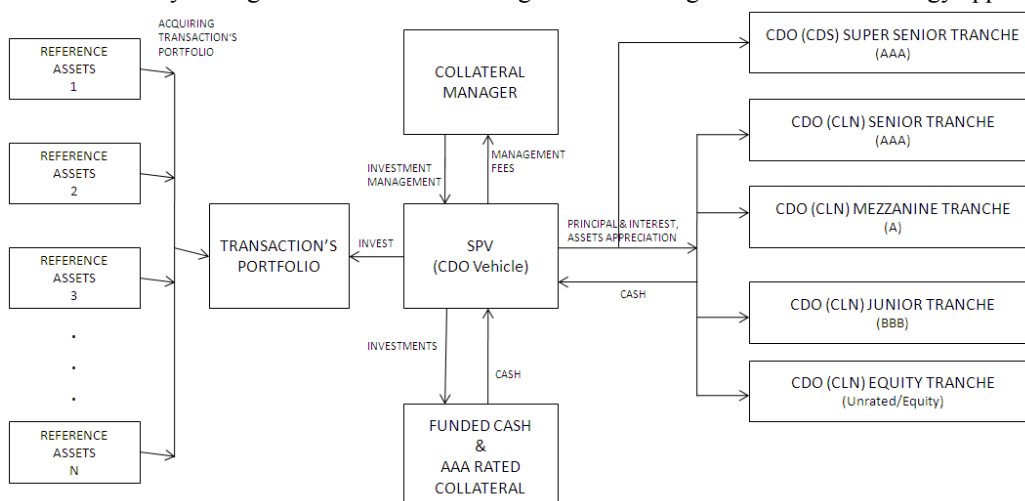


Figure 6. Simplified generic Partially-Funded Synthetic Arbitrage CDO Securitization transaction structure

Source: Author's representation

5. Balance-Sheet vs. Arbitrage CDO Securitizations

The interplay between Balance-Sheet and Arbitrage 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 balance-sheet and arbitrage 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 balance-sheet vs. arbitrage CDOs from the practical transaction’s perspective:

Table 1. Comparison synopsis between Balance-Sheet and Arbitrage CDO Securitizations outlining the main attributes of Balance-Sheet vs. Arbitrage CDOs

FEATURES	BALANCE-SHEET CDO SECURITIZATION	ARBITRAGE CDO SECURITIZATION
Transaction objectives	Balance-sheet management optimization	Make profit from arbitrage opportunities
Underlying assets treatment	The originator transfers the on-balance sheet assets (true-sale) or just their related risks (synthetic) to the SPV. The CDO vehicle becomes assets/risks owner	The CDO manager buys (true-sale) or gets exposure (synthetic) to 3rd party market participants’ eligible financial assets, which are subsequently repackaged into CDO securities. The CDO vehicle becomes assets/risks owner
Underlying assets regime	The assets are removed from originator’s balance-sheet (true-sale) or just their associated risks are removed (synthetic)	The assets being generally sourced from the marketplace continue to be unrelated to transaction sponsor, but they are actively managed by CDO manager
Advantages for the originator	Reduce the size of balance-sheet; diversify funding sources; optimization of regulatory and economic capital management (obtain capital relief); increase lending capacity; lower the cost of funding; risks transfer and risks management; portfolio transfer; financial and capital ratios optimization	Benefit from market arbitrage opportunities, making profits from spread arbitrages, to capture the (positive) excess spreads of higher-yielding assets over lower-yielding liabilities, trade the arbitrage opportunity between costs and return on assets
Carrying out transaction objectives	Originator acts as seller (true-sale) of the on-balance sheet assets or as protection buyer for the on-balance sheet assets (synthetic)	Transaction’s sponsor actively manages the CDO collaterals which are sourced from third parties
Aim of transaction	Optimize balance sheet management	To capture the various arbitrage opportunities
Securitization technique	True-sale and synthetic	True-sale and synthetic
Source of funds for principal and interest payments	Generally cash-flow, fewer market-value	Both cash-flow and market-value
Funding technology (liabilities distribution)	Cash-based (true-sale) and synthetic (credit derivatives)	Cash-based (true-sale) and synthetic (credit derivatives)
Collaterals management style	Mostly passively managed, fewer actively managed	Actively managed

Source: Author’s representation

6. Conclusions

Both balance-sheet and arbitrage 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 balance-sheet and arbitrage CDO securitizations, financial institutions should run in parallel, simultaneously both types of CDO 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.

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