CALYON
CORPORATE AND INVESTMENT BANK

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Deconstruction Approach for Derivatives Accounting under IAS 39

In a risk management survey a year ago, 90% of respondents described accounting as **Critical** or **Important** to the risk management process. As our clients have gone through the IAS discussion and preparation process, the feed back we have received is not whether "I can or can't do" that particular option strategy but rather **"I want to do it, how do I account for it under IAS?"** We have also found that clients tend to be overwhelmingly polarised on the goal of claiming Hedge Accounting (to avoid P&L volatility) without necessarily having an idea of the magnitude of the potential mark to market volatility.

IAS by its very nature implies mark to market volatility. The only choice we have is whether to show it in the balance sheet or in the income statement. By the same token it is paramount not to lose sight of the objective of risk management; we should not sacrifice the economic effectiveness of a hedging strategy for the sake of accounting effectiveness. Consequently, in response to clients' needs, we have developed an approach to precisely gauge the potential mark to market volatility. Essentially, **the approach allows us to disaggregate the value of a complex derivative into a trading component** (– which typically goes to P&L and induces volatility) **and a hedging component** (which is used to calculate the effectiveness and hence claim or retain hedge accounting).

This note will address the more thorny issues related to structures which are IAS resistant. The aim is not to make them IAS compliant because to do so would imply changing their very nature. The approach instead is to provide clients with **the support and knowledge to document the structures in the most efficient way** and **gauge the potential mark to market volatility for the ineffective parts of the structures**.

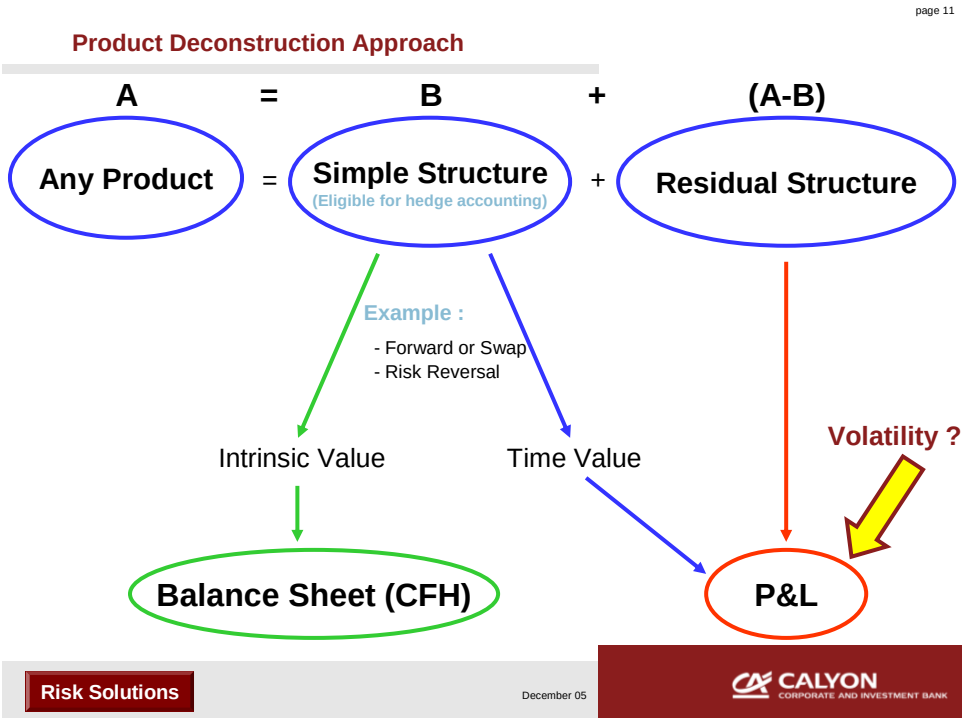
For such structures, there is no single and simple answer. The compromise is a function of three factors:

- Documentation burden - administrative concern related to the documentation of hedge accounting
- P&L volatility – which may harm the true and fair view of the core business
- Ability to show trading instruments in the annual report – communication concerns

Hence the decision to implement or not a non-IAS compliant structure can be made on a more objective basis. A structure should not be rejected simply because it creates P&L volatility; we must be able to **quantify the magnitude of such volatility.**

Part 1: Deconstruction Approach

Exhibit 1: Deconstruction Approach



The idea is to break down any complex derivative product into:

i) a derivative product that is eligible under IAS 39 for hedge accounting documentation (simple structure),

ii) One or more derivative products that will not be eligible for hedge accounting and that would be classified as trading (residual structure).

This approach is driven by the fact that according to IAS 39, a hedging relationship with a derivative as the hedging instrument can only be demonstrated if the effectiveness of the derivative is comprised in the 80-125% bucket. As this is usually not the case with complex derivatives, the risk is that despite their genuine risk management purpose, they will be qualified as "trading" derivative and induce high P&L volatility.

The deconstruction approach aims at getting around this difficulty. The idea is to break down any complex derivative into a plain vanilla derivative -such as a forward, a swap, a plain vanilla call, put or collar- which will be directly eligible for hedge accounting and a residual component classified as trading.

This breakdown reflects the true economic substance of the complex derivative, which is first to hedge a financial risk and second to take a directional position ensuing from the risk manager's market views.

However, because IAS 39 only allows for two kinds of splits within a derivative – separating the time value of an option from the intrinsic value and separating the interest element from the spot component of a forward contract – this break down will have to be real, i.e. there has be one ticket for the hedging component and another or more tickets for the component classified as trading.

At first sight, this approach could be challenged on the ground that this way of structuring the transaction is a way to get round the difficulty imposed by the standard in terms of split. However, we believe that our breakdown has a real business purpose and that not allowing it would go against the true reflection of the economic substance of the transaction

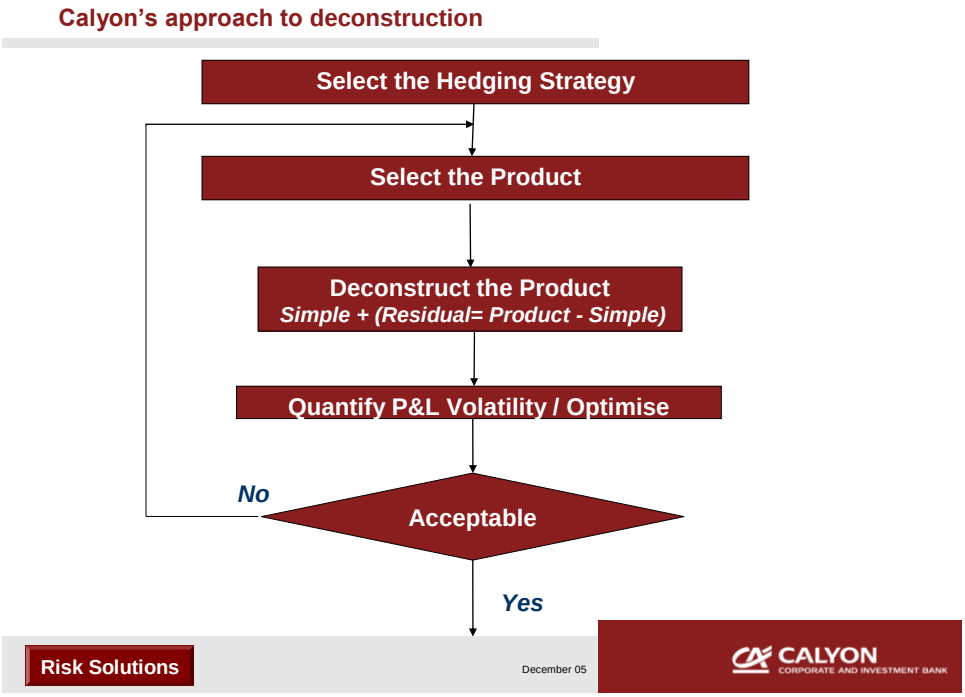
Moreover, the standard stipulates as preconditions for splits that the individual components could be measured separately and reliably. In our approach, we are in fact able to precisely measure separately the eligible component and the residual component. Therefore, we believe that for any complex derivative, as it is priced based on its building blocks, our breakdown could even be argued not to require a legal split within two real tickets. This is because the satisfaction of the separate and reliable measurement condition is inherent to the pricing process.

The volatility that goes to P&L is the sum of the volatility linked to the component classified as trading plus the volatility resulting from the ineffective part of the hedging derivative (e.g. time value of options).

The simple structure will be fully customised to ensure maximum hedge effectiveness. It will be approved and eligible to facilitate easy validation by the auditors. The eligible hedging structure will impact the balance sheet[1] for its effective part whereas the residual trading structure and the ineffective part of the hedging structure, if any (e.g. time value of options)will go to P&L. It will also be optimised in terms of notional and strike to reduce the mark to market (MtM) changes of the residual structure. The residual structure will by construction have the lowest volatility and changes in MtM will go directly to P&L. Exhibit 2 depicts a flow chart of the process.

Exhibit 2: Deconstruction Approach flow chart

[1] For example, under a cash flow hedge relationship as defined by IAS 39, the effective part of the hedging structure will impact equity, whereas the ineffective part will go to P&L.

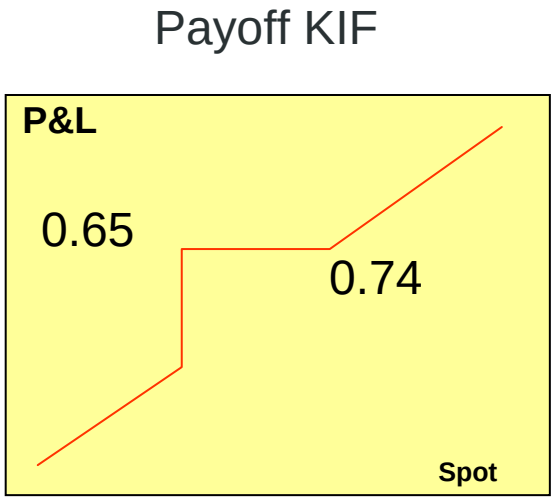


Our approach is illustrated below with an FX derivative (a knock-in forward) used to manage FX risk but it could be applied similarly to other derivatives.

Part 2: Application using Knock / In Forward

To illustrate the approach we will look at a Sterling based client looking to cover a short Euro position.

Exhibit 3: Pay off of a Knock/In Forward



Client's exposure: Short EUR / Long GBP
Market Data: Spot = 0.7020, 1 Year Forward = 0.719
Zero cost hedging strategy
Buy EUR Call / GBP Put Strike = 0.74
Sell EUR Put / GBP Call Strike = 0.74 K/In = 0.65
Pay off
Spot > 0.74 ➔ Buy EUR @ 0.74
0.65 < Spot < 0.74 ➔ Buy EUR @ prevailing spot rate

Spot < 0.65 ➔ Buy EUR @ 0.74

As depicted in Exhibit 4, the deconstruction can be achieved in two ways; either by extracting as the simple product a forward or alternatively a risk reversal. Although both are equally eligible and can be documented as easily, we will see that the implication for the residual component is not neutral as shown in exhibits 5, 6. Exhibit 7 shows clearly the significant difference between the P&L volatility of the "Residual structure" in the two cases.

Exhibit4: Knock In Forward Deconstruction

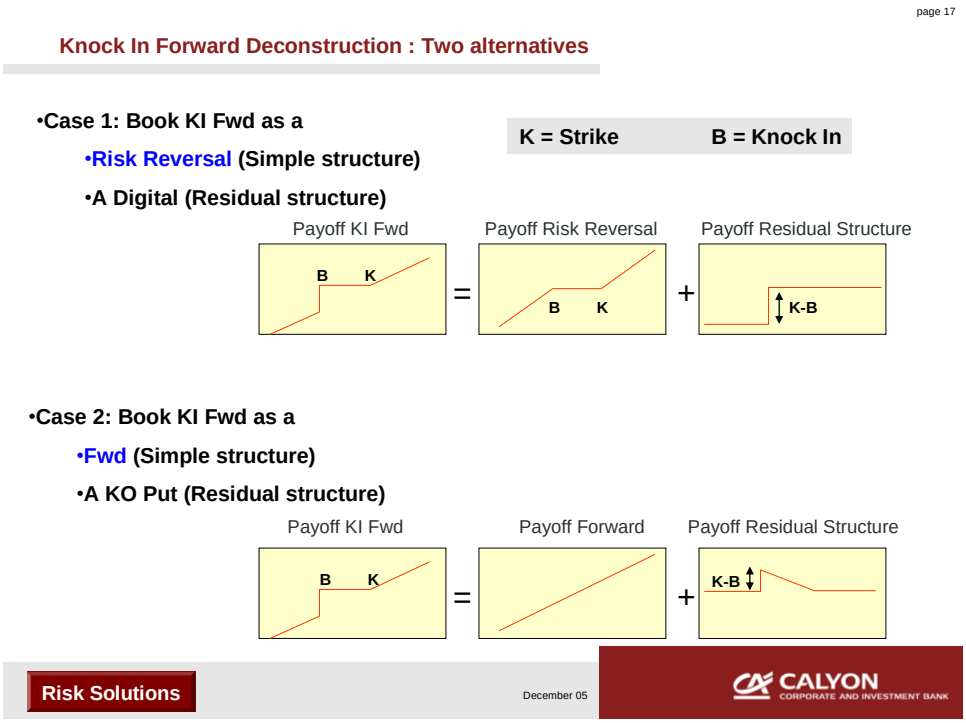


Exhibit 5: Deconstruction using Risk Reversal

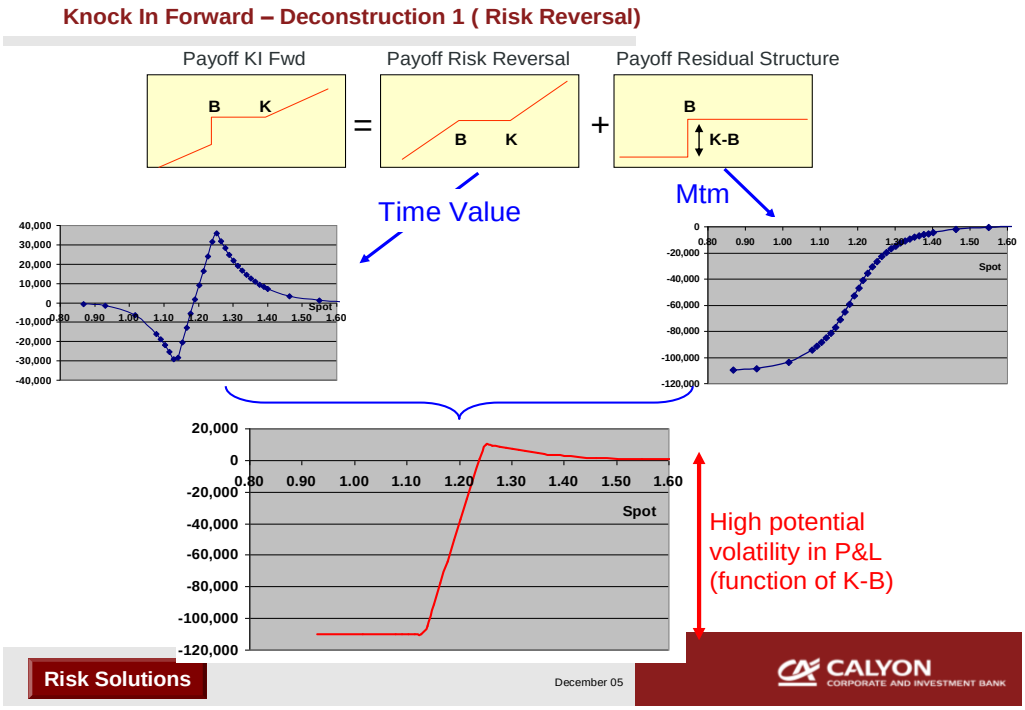
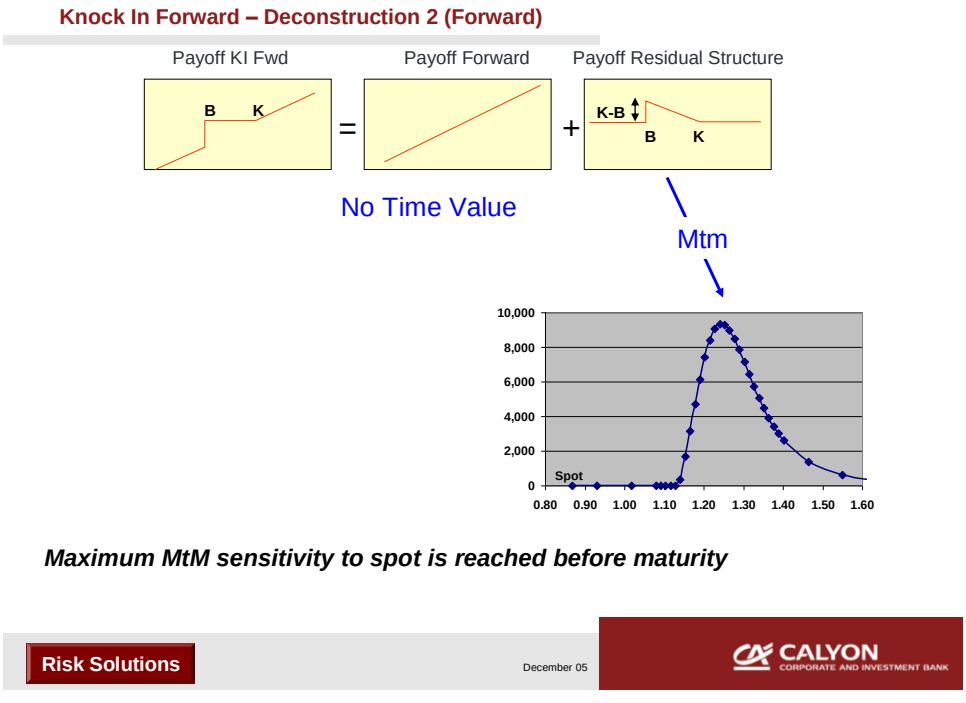


Exhibit 6: Deconstruction using Forward

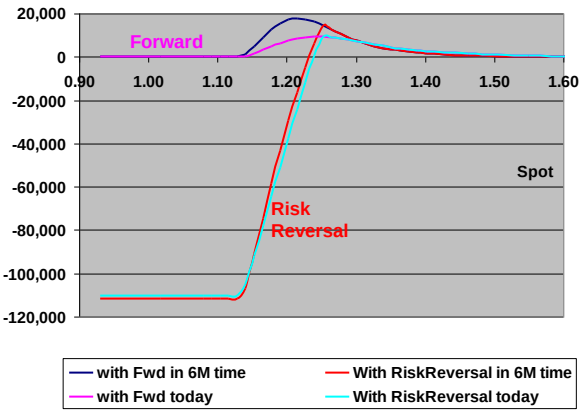


Maximum MtM sensitivity to spot is reached before maturity

Exhibit 7: Comparison of P&L volatility

Optimal Deconstruction using Forward

•MtM sensitivity over the life of the product is much lower when the KI Fwd is booked as a Forward + residual structure



Exhibits 8 and 9 illustrate the case of Window Knock / In forwards (with the window feature applicable to the last month before expiry) used by a Euro based importer who needs to buy USD. The client puts in place a strip of window K/I Forwards and would like to minimise the P&L volatility ensuing from this derivative. We have in this case used the deconstruction via a Forward + residual and quantified both the maximum mark to market changes from one quarter to another and the VaR of the MtM changes. As it can be seen the P&L impact of the "Residual structure" is significantly lower than that of the full derivative both in absolute terms (EUR 1.7 mio against EUR 72 mio) and in relative terms (8 % against 171%) - (Exhibit 8).
In the same way we observe that a significant reduction (between 2.6 and 6 times depending on the maturity) is achieved in the VaR of the MtM changes of the "Residual structure" compared to the full derivative (Exhibit 9).

Exhibit 8: Reduction of MtM changes achieved through deconstruction

Hedging strategy: Strip of 19 Window Knock/ In Forwards in EUR Put / USD Call
Strike = 1.29
Barrier = 1.45 active one month before expiry

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Knock-In Forward – Maximum Change in Mtm

The table below shows the P&L Impact under extreme conditions (spot goes from 0.60 to 2.00 within 3 months)

	Max MtM Change in Residual Structure		Max MtM Change in Knock In FWD	
	EUR	%Out. Notional	EUR	%Out. Notional
From Today to 3m	1,263,479	1.99%	55,921,721	87.89%
From 3m to 6m	1,740,801	3.30%	72,058,567	136.68%
From 6m to 9m	1,565,065	3.74%	58,161,036	139.10%
From 9m to 1y	1,354,638	4.38%	44,113,102	142.74%
From 1y to 15m	1,108,312	5.54%	29,914,349	149.59%
From 15m to Before	794,030	8.74%	15,573,537	171.33%

Maximum quarterly impact on P&L

Max.P&L Impact without hedge accounting

Even under these extreme conditions maximum potential impact on P&L prior to expiry of the structure is only 8.74% of the outstanding notional.

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Exhibit 9: VaR comparison

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Knock-In Forward – Var numbers

	VaR 95% MtM Change in Residual Structure		VaR 95% MtM Change in KI Fwd	
	EUR	%Out. Notional	EUR	%Out. Notional
Today->3m	699,333	0.84%	4,281,737	5.17%
3m->6m	1,128,386	1.64%	4,392,078	6.39%
6m->9m	1,091,645	2.00%	3,453,382	6.34%
9m->1y	1,042,586	2.59%	2,807,139	6.97%
1y->15m	985,288	3.78%	2,622,241	10.07%
15m->18m	794,030	6.71%	2,223,987	18.78%

The deconstruction reduced significantly the VaR numbers

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Conclusion

Our approach has two main merits. First it enables clients who want to continue managing their FX risk adequately to keep on doing so at an acceptable cost in terms of P&L volatility. It's a good compromise in terms of reconciling the economic and accounting effectiveness of the hedging practices. Secondly, it allows clients to get over the psychological hurdle of volatility aversion. By being able to quantify the volatility, we are able to resist throwing the baby with the bath water.

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