Fair value, Derivatives, Hedging and CLP

The recent financial turmoil has placed the use of fair value (also known as "mark-to-market"), derivatives and hedging under the spotlight. To help our readers understand this topical yet complex issue, we try to explain in a simple way how it works and how it applies to CLP, without going into the more technical complications. The use of fair value in financial accounting has always been controversial. We applaud the relevance of fair value to the valuation of a company at the balance sheet date. But fair value accounting also introduces greater fluctuation into a company's earnings from year to year, not to mention the issue whether fair value reflects the "real value" of a company. Today fair value is widely used in accounting, from impairment assessment to the valuation of investment properties, securities and derivatives. To put our readers at ease, the use of fair value at CLP is limited and mainly relates to the valuation of our derivatives, including exchange forward contracts, cross-currency and interest rate swaps and energy contracts in Australia.

What is fair value?
It is the price which a buyer is willing to pay and a seller is willing to accept in an arm's length transaction. If the definition is simple, its determination is not always easy, especially when the market is illiquid or comparable transactions are few.

What is a derivative?
In a nutshell, a derivative is a contract for future performance, the value of which is "derived" from the value of something else, like interest rates or foreign exchange rates. Forward contracts, options and swaps fall within the scope of derivatives.
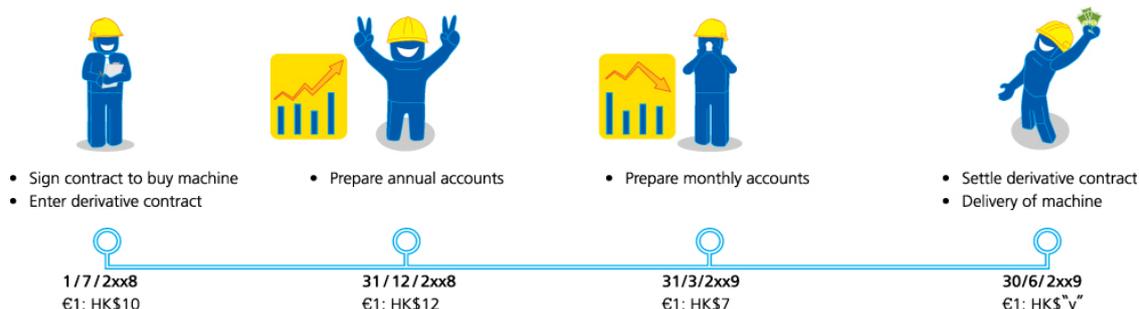
There are many reasons for people entering into derivatives, like speculating on gains or trading for profit, but at CLP there is only one principal purpose – hedging against risks, or in other words, reducing the future uncertainties faced by the Group. The profit or loss associated with derivatives is a "by-product" rather than the motive for entering into those hedging arrangements.

The mechanism for hedging

CLP uses derivatives to hedge its financial risks. To illustrate, assume on 1 July "2xx8", CLP contracts to buy a machine from France at a cost of Euro(€)10 million payable in one year's time (30 June "2xx9"). To reduce the exchange rate risk, CLP also enters into a forward contract to buy €10 million in the same one year's time at €1: HK$10, i.e. HK$100 million.

On 31 December 2xx8, suppose Euro rises in value to €1: HK$12, i.e. HK$120 million is needed to acquire €10 million. CLP holds a forward contract to pay only HK$100 million for the same. This potential saving of HK$20 million represents a fair value (mark-to-market) gain to CLP. This is only a "paper" gain without any "real cash" inflow to CLP and would turn into "real cash" upon settlement of the forward contract on 30 June 2xx9.

Subsequently, suppose on 31 March 2xx9, Euro depreciates to €1: HK$7 and only HK$70 million is needed to acquire €10 million. As CLP is bound to the forward contract to buy at HK$100 million, the extra HK$30 million CLP is required to pay represents a fair value (mark-to-market) loss on the forward contract. Similarly, this is only a "paper" loss without any "real cash" outflow and would be realised in "real cash" only upon settlement.

• Sign contract to buy machine • Enter derivative contract	• Prepare annual accounts	• Prepare monthly accounts	• Settle derivative contract • Delivery of machine
1/7/2xx8 €1: HK$10	31/12/2xx8 €1: HK$12	31/3/2xx9 €1: HK$7	30/6/2xx9 €1: HK$"y"

Merits of hedging

The common feature of both the above scenarios is that, no matter how the Euro exchange rate moves, it is certain that CLP needs to pay HK$100 million to acquire the €10 million on 30 June 2xx9, no more and no less. This is the essence of hedging – to remove the uncertainty on future cash flows by locking/closing out an open position so that we can plan ahead. Observers are often surprised, even shocked, by the reported "paper" gain or loss figures, but overlook the economic motive for hedging.

The previous illustration may over-simplify different hedging scenarios faced by CLP, but the principle holds true whether the derivatives are forward exchange contracts, interest rate swaps or energy contracts in Australia.

Energy contracts in Australia
The vast majority of our Australian energy contracts now held are for hedging purposes. The hedging mechanism is analogous to that illustrated above: energy contracts are entered to balance the portfolio position between generation and purchases from a central electricity pool for retail sales in order to minimise exposure to fluctuations in the spot price of electricity. Whilst this approach can limit potential upside to high spot prices in the markets where we are naturally long (i.e. we have spare generating capacity), this prudent approach allows for stable returns to be locked in. In markets where we are naturally short (i.e. our generating capacity may be less than the amount of electricity we are obliged to sell), it prevents negative exposure to the volatile nature of prices and potential for extremely high price outcomes.

The remaining contracts held for trading are extremely small and held within tightly controlled parameters. The purpose is to maintain access to market intelligence (which can only be obtained through transacting) in order to ensure we are in the best position when executing hedge transactions, and in order to facilitate better forecasting.

Pitfalls of fair value accounting

As pointed out above, one of the pitfalls of fair value accounting is that the mark-to-market "paper" gain or loss reported is only a snap-shot of the market position at the close of the year. The gain or loss will continue to fluctuate until final settlement. It is like watching a 26-mile Marathon race on your TV. Each time when you turn to the TV, the leading athlete in the pack (the "paper" gain or loss) will be different. However, until the race finishes (the settlement date), you cannot tell who is the winner ("real cash" gain or loss). In this race, our objective is neither winning nor losing, but to complete the race (certainty in future cash flows).

The "Derivative Marathon"

| 1/7/2xx8 | 31/12/2xx8 | 31/3/2xx9 | 30/6/2xx9 |
| Entering derivative contract | "Paper" gain position | "Paper" loss position | Who is the winner? |

Another pitfall of fair value accounting is whether the fair value really represents the "true" value of the underlying transaction. At times of vigorous market swings, like the peaks and troughs of fuel prices and exchange rates we have experienced in the past 12 months, fair values can be easily distorted by extreme market conditions and sentiments. The resulting mark-to-market impact on earnings can be a roller coaster.

Beneficial or detrimental?

Derivatives are a tool we use in hedging. Like any tool, if derivatives are used improperly, the result can be disastrous. However, if used properly and responsibly, derivatives are a powerful tool in financial risk management.