THE PRACTICAL APPLICATION OF EQUITY DERIVATIVES FOR CORPORATES

The perfect Hedger and the Fox

Dr Antonie Kotzé

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Niels Bohr
and
Albert Einstein

Before I came here I was confused about the subject. Having listened to your lecture I am still confused. But on a higher level.

Enrico Fermi (1901-1954)

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What's in the 1997 Nobel prize?

**Along the way, it changed the way investors and others place a value on risk, giving rise to the field of risk management, the increased marketing of derivatives, and widespread changes in the valuation of corporate liabilities.**

Myron Scholes (1941 -)

The theory "is absolutely crucial to the valuation of anything from a company to property rights". In my view, **financial economics deals with four main phenomena**:

Robert Merton (1944 -)

Fischer Black (1938 - 1995)

time, uncertainty, options and information.

William F. Sharp

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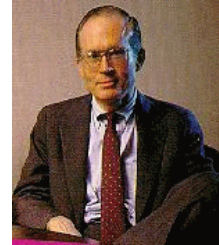
What's in it for corporates?

Derivatives expanded the universe of instruments available for trading and hedging

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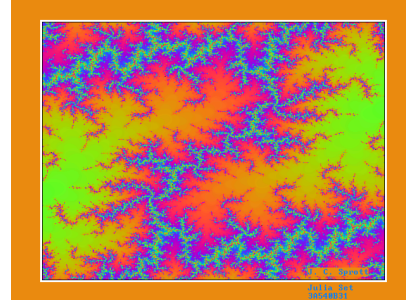## Corporates and equity warrants

Can corporates utilise equity derivatives effectively?

YES

Corporates as hedgers use derivatives to reduce the market and operational risks they are exposed to

Saggitarius A

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Black-Scholes through the eyes of.....

Transactions of JSCES, Paper No.20010048

Black-Scholes方程式の流体力学的解釈による拡張

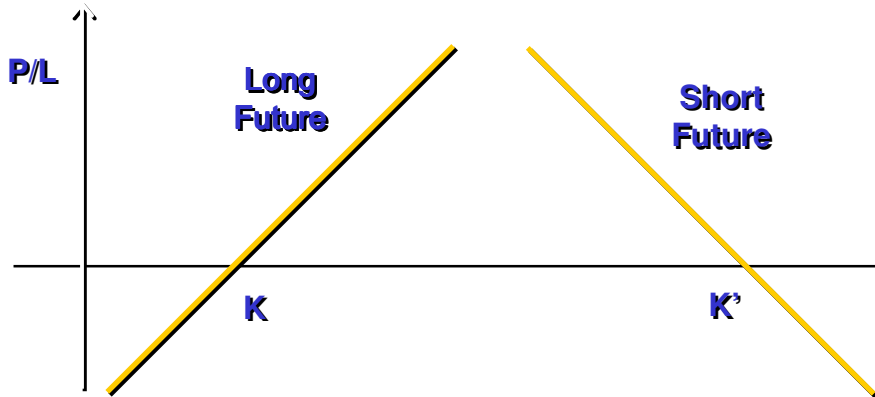The Expansion for Black-Scholes equation on Hydrodynamics Interpretation

尹　熙元[1]，棚橋　隆彦[2]
Hiwon YOON, Takahiko TANAHASHI

[1] 慶應義塾大学院 理工学研究科（〒223-8522　横浜市港北区日吉3-14-1）
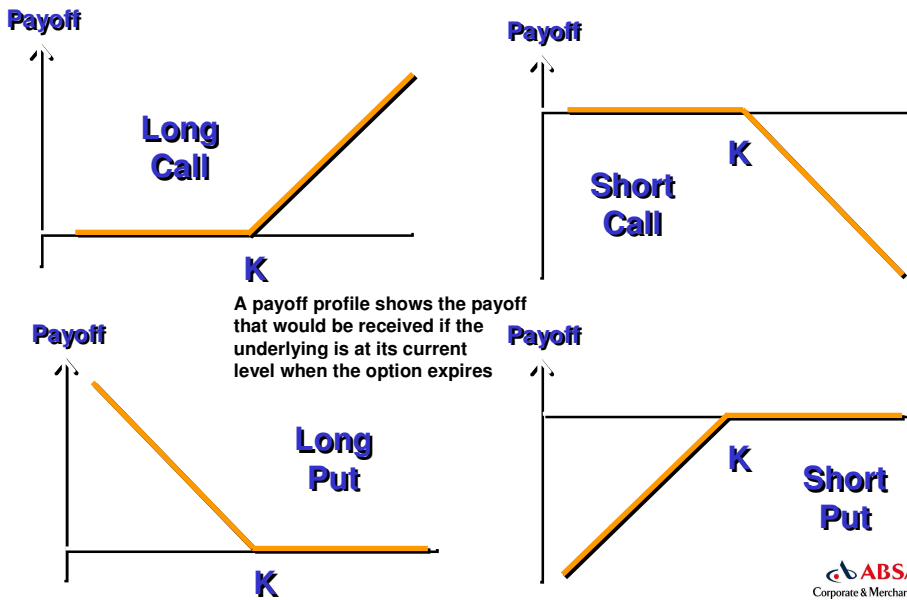[2] 慶應義塾大学 理工学部機械工学科（同上）

Let's demistify options

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Derivatives as simple diagrams

P/L

Long Future

Short Future

K

K'

❑ **a future has unlimited profit potential, but such a diagram also shows the potential losses**

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Options as simple diagrams

Payoff

Payoff

Long Call

K

Short Call

K

A payoff profile shows the payoff that would be received if the underlying is at its current level when the option expires

Payoff

Payoff

Long Put

K

Short Put

K

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The put and/or call strategy

- **Bullish Strategy**
- **Buying just a call can be a strategy**

- **The investor will profit from an upward move in the underlying stock price while having very little capital at risk**

- **Bearish Strategy**
- **Buying a put is also a strategy**

- **In general investors buy a put as a hedge when they are long the underlying stock**

Albert Einstein

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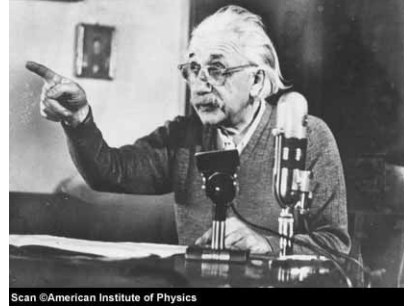Corporate & Merchant Bank

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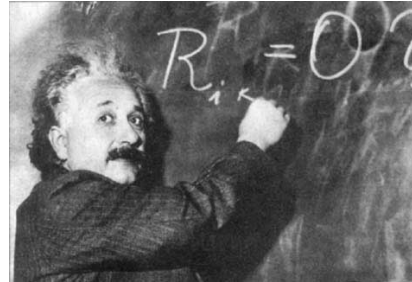
Share buybacks

- **Board decides to buy shares back if share price goes below a certain level**

- **Company writes OTM puts**

- **Example: share price at 100, board decides to buy shares if share price dips below 90**

- **Company receives premium income**

Myron Scholes on the floor
of the CBOE

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An Innovative Funding Strategy

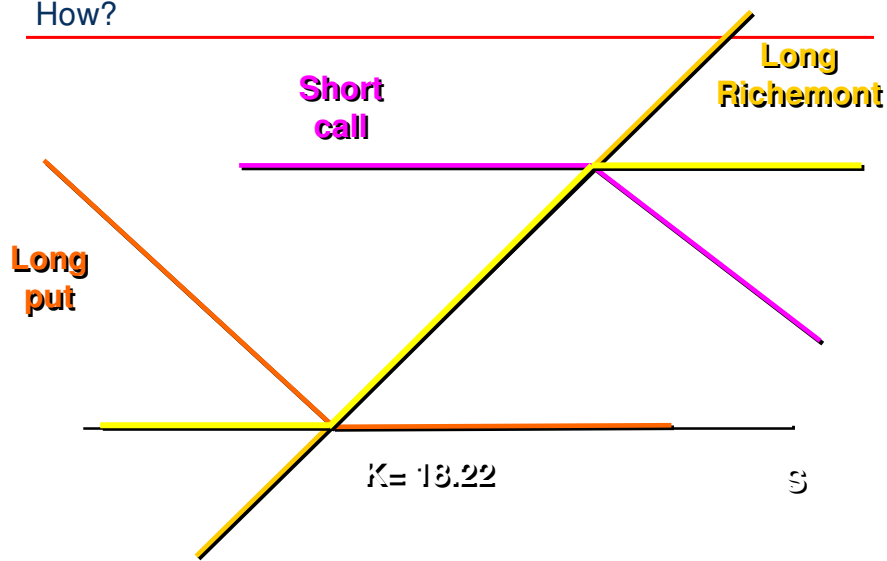- **Venfin inherited 2% of Richemont's share capital when the Rembrandt Group split into Remgro and Venfin**

- **Venfin used these shares in an innovative manner to fund the purchase of HCI's Vodacom's stake**

Source: SENS

How?

Short call

Long Richemont

Long put

K= 18.22

S

Why?

- **Simple solution could have been: sell shares at beginning of the negotiations, put money on deposit and buy stake on finalisation**
- **Why through such a structure as described above?**

    – **Uncertainty regarding the outcome of negotiations – if negotiations failed they did not have to exercise option**
    – **Richemont declared a dividend with LDT date in this period**
    – **Venfin kept all its share holder rights until the deal was finalised**

Norbert Wiener

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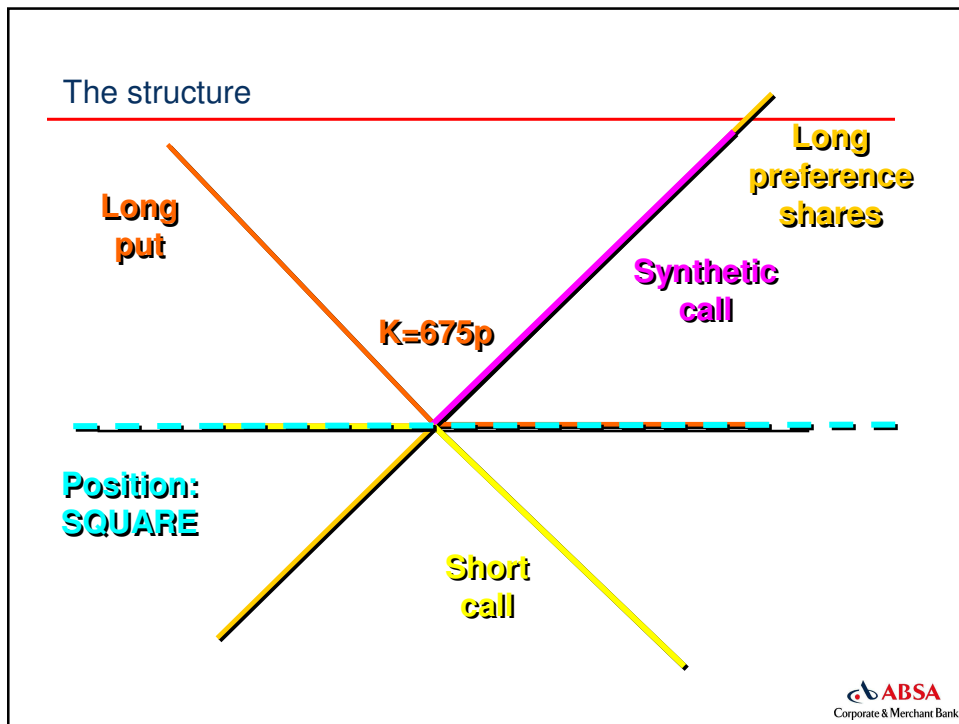Corporate & Merchant Bank

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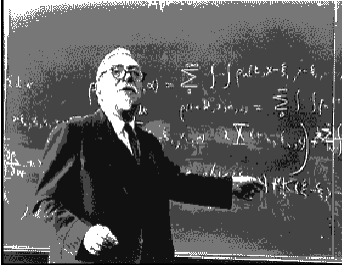
Hedging using corporate warrants

- **Remgro and Richemont's owns a company called R&R Holdings which holds 31% in BAT**

- **R&R's stake in BAT was split into 26.5% ordinary shares and 5% preference shares with embedded put options at a strike of 675p**

- **The preference shares automatically converted into ordinary shares on a one to one basis on any sale to a third party**

- **R&R wanted certainty on the optionality**

The Manhatten Project: Niels Bohr, Robert Oppenheimer, Richard Feynman, Enrico Fermi

Source: SENS

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The structure

Long
put

K=675p

Long
preference
shares

Synthetic
call

Position:
SQUARE

Short
call

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Lock in returns

Enrico Fermi

- **In June 2004, R&R Holdings received GBP 816 million, either upon exercise of the warrants by the warrant holders or through the redemption of the preference shares by BAT**

- **By issuing warrants R&R was guaranteed of GBP 816 million**

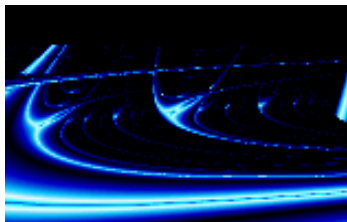- **R&R sold the time value and option rights embedded in the synthetic call, unlocking value early**

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Corporate warrants, the LTCM and UBS way

Report: International Herald Tribune, Saturday, September 26, 1998

Losses due to the failure of Long Term Capital Management (LTCM):

Credit Suisse, Europe's sixth-biggest bank - $55 million

Dresdner Bank - $142.6 million

Union Bank of Switzerland (UBS – the world's second largest bank) - $682 million

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A convenient deal

UBS wanted a structure that looked more like an option than a loan, turning any income into a capital gain, and they wanted an opportunity to invest directly in LTCM.

- **LTCM was on the crest of the wave**
- **LTCM and UBS had complementary goals:**
  UBS wanted to buy a significant stake in the fund, and LTCM partners wanted to convert foreign interest income from their off-shore hedge fund into capital gains and defer it
- **Income from LTCM flows directly to the partners in the form of short-term profits or interest and**
- **dividends, which are taxed at 39.6 percent. Long-term capital gains, by contrast, are taxed at 20 percent.**
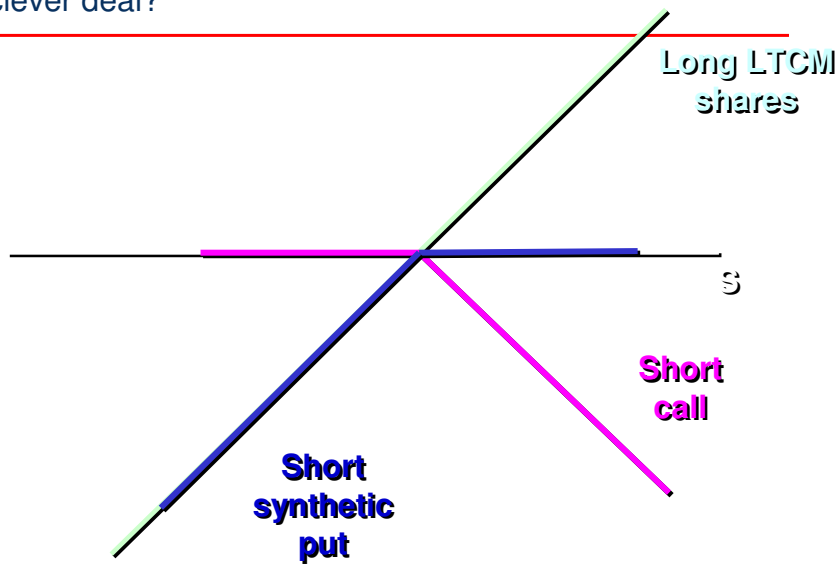
UBS: the deal

- **For a premium of $300 million UBS sold to LTCM a seven-year European call option on 1 million of LTCM's own shares, valued then at $800 million.**

- **To hedge the position UBS bought $800 million worth of LTCM shares.**

- **UBS booked an estimated $30 to $50 million profit up front**

Enrico Fermi

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A clever deal?

Long LTCM shares

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Short call

Short synthetic put

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UBS's risk management

- **Hedge fund shares are not liquid**

- **When Russia defaulted on loans in 1998, liquidity dried up**

- **UBS could not delta hedge its short synthetic put by selling LTCM shares**

- **LTCM's share price collapsed and UBS lost $682 million**

- **UBS's risk managers never considered the possibility of a collapse of LTCM**

Hedgers and foxes

- **Equity derivatives can be used effectively by corporates to hedge certain contractual liabilities**

- **Understand the risks involved**

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Contact and Disclaimer

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