MONTRÉAL EXCHANGE

Canadian Annual Derivatives Conference

November 26 to 28, 2018

Québec City

TMX THE FUTURE IS YOURS TO SEE.

FINANCE MONTRÉAL

Institut canadien des dérivés
Canadian Derivatives Institute

The essence of investment management is the management of risks, not the management of returns, well managed portfolios start with this precept

Benjamin Graham

Portfolio’s net value changes follow a log-normal distribution

Geometric average return $> \mu - \frac{\sigma}{2}$

$$\mu - \frac{\sigma}{2}$$

Arithmetic average return

$$\boxed{\frac{\sigma}{2}}$$

Volatility tax

Mark Spitznagel

Volatility can be understood as **a drag on the returns**

TMX THE FUTURE IS YOURS TO SEE.

To raise a portfolio geometric average, an excellent starting point is to reduce its **volatility tax**

The goal of risk mitigation strategies is to solve this “vexing non-ergodicity, volatility tax problem”

Mark Spitznagel

Down **50%** | Up **100%**

$100 → $50 → $100

Never lose money

Warren
Buffet

Volatility is a way to measure uncertainty

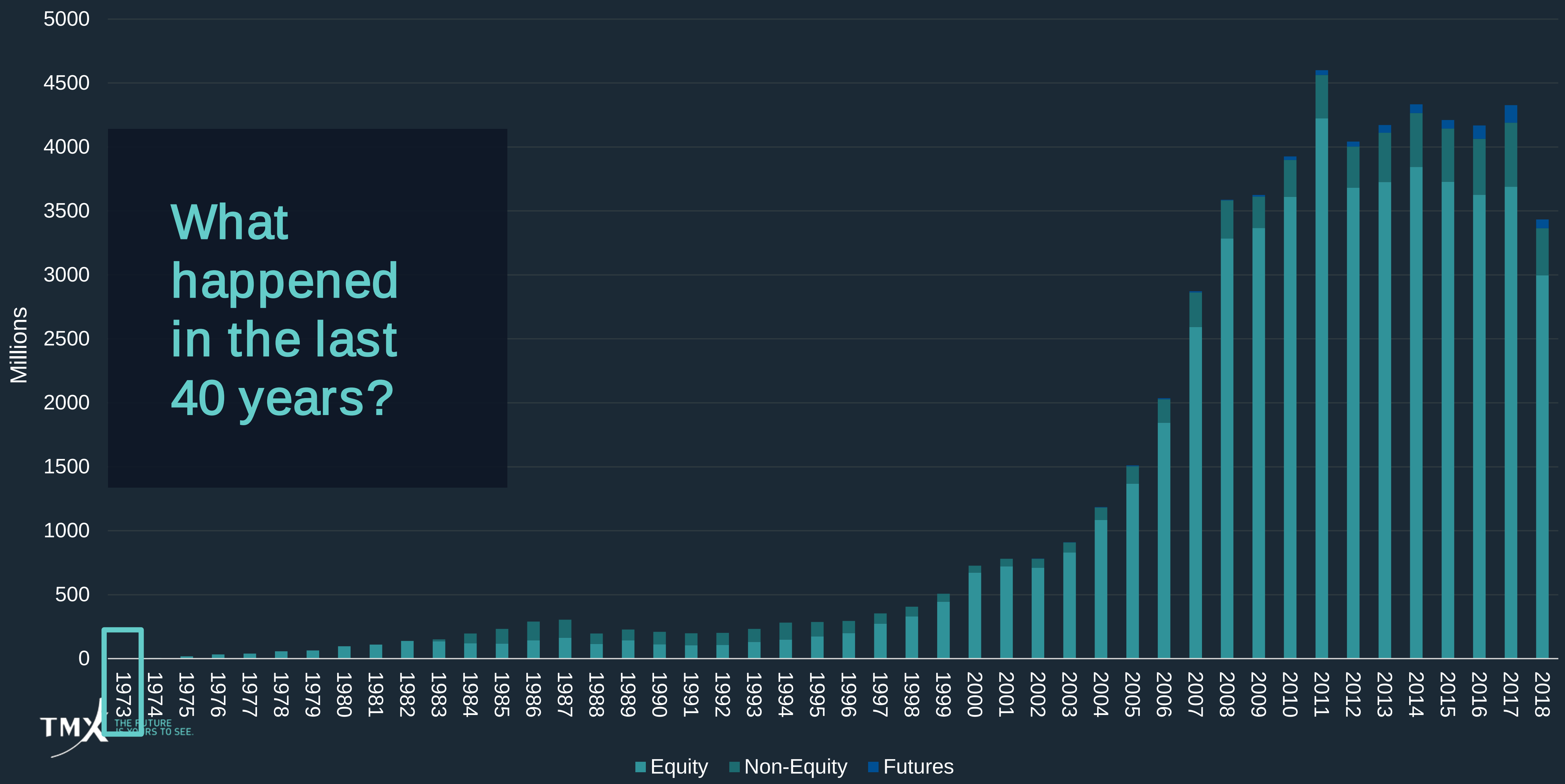
Market sentiment

Probability

Price movement

An insurance product	Gives the right but not the obligation	To buy or sell	At a certain price	Up to a certain date

Option Market Annual Volume



Black & Scholes Formula

$$C(S_t, t) = N(d_1)S_t - N(d_2)Ke^{-(r\tau)}$$

$$d_1 = \frac{1}{\sigma\sqrt{\tau}}\left[\ln\left(\frac{S_t}{K}\right) + (r + \frac{\sigma^2}{2})\tau\right]$$

$$d_2 = d_1 - \sigma\sqrt{\tau}$$

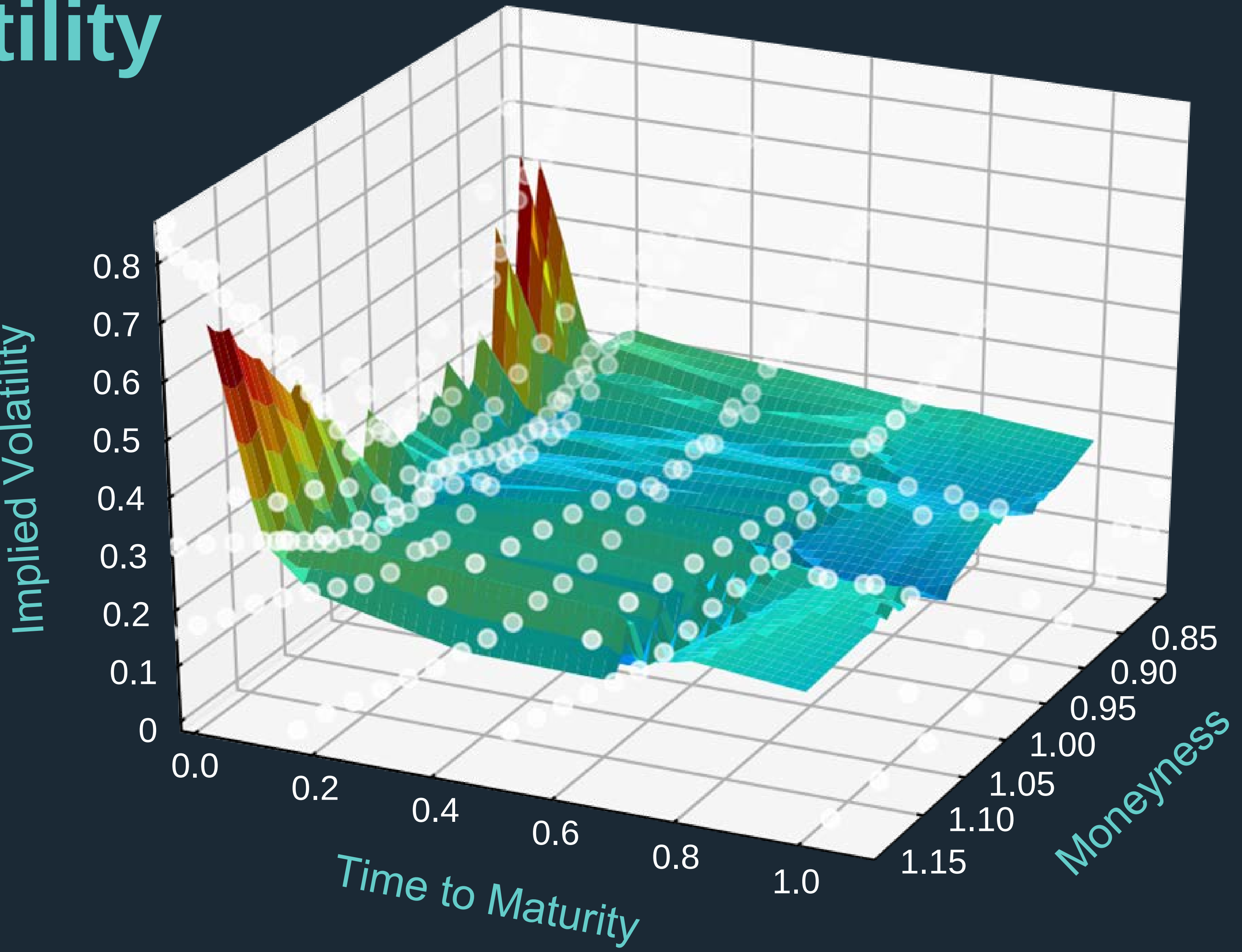
Option market in term of **$**

4$
ITM

0.5$
OTM

Option market in term of ***Implied Volatility***

Implied Volatility Surface



Is volatility an **asset class?**

How to **extract alpha from the market?**

A tale of two markets:

OTC vs **listed**