SGX CME Group

Celebrating the Success of Nikkei 225 Futures

Singapore Exchange

30 YEARS OF SGX NIKKEI 225

Internationalising Japan Equity Futures

This year marks the 30th anniversary of the Singapore International Monetary Exchange (SIMEX), now Singapore Exchange (SGX), pioneering the world's first futures contract based on the Japanese stock market – the SGX Nikkei 225 Index futures. In a related milestone, Nikkei 225 futures debuted at the CME Group 26 years ago this year. CME Group and SIMEX partnered in 1986 to launch futures based on the Japanese benchmark Nikkei 225 Index futures at SIMEX, Asia's first financial futures exchange.

Representing Asia's biggest advanced economy, the Nikkei 225 Index was also the first Asian equity index to be represented in the futures market. Led by then Chairman Leo Melamed, CME Group strengthened its strategic partnership with SIMEX by jointly pioneering the revolutionary Mutual Offset System (MOS) – in 1984 this was one of the earliest and most successful exchange linkages in the history of the derivatives industry.

Box 1: The Founding Father of Futures Markets

Leo Melamed is regarded as the founding father of futures markets. His role in developing CME Group as a premier futures market and in setting up the International Monetary Market is legendary in financial markets. He also led in elevating SIMEX, which later merged with the Stock Exchange of Singapore and Securities Clearing and Computer Services Pte Ltd to form the SGX.

"I knew that if MOS proved to work, we would have revolutionised the trading of futures by connecting two time zones and bringing business and respect to Singapore shores." – Leo Melamed, Chairman Emeritus, CME Group

About the Mutual Offset System

Through a special arrangement between CME Group and SGX, traders of yen- and USD- based Nikkei futures contracts have the ability to take positions at one exchange, and clear them at the other exchange on the same trading day. As a result, traders can execute transactions in two exchanges and have the ability to clear those trades in their preferred time zone.

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Endurance of the Mutual Offset System

More than three decades later, SIMEX's first and longest-standing partnership endures, and MOS is still widely used by global investors.

Under the MOS arrangement, Nikkei 225 Index futures were made available on CME Group's Globex trading platform in 1988, and CME Group itself listed the Nikkei futures contract in 1990.

The partnership between SGX and CME Group enabled round-the-clock trading and internationalised the Japanese equity futures market. Today, Nikkei 225 Index futures are actively traded all over the globe.

Over the last decade, turnover of Nikkei 225 Index futures listed at CME Group and SGX has grown more than 4 times compared to the previous decade, and the contract has made the successful transition from floor to electronic trading.

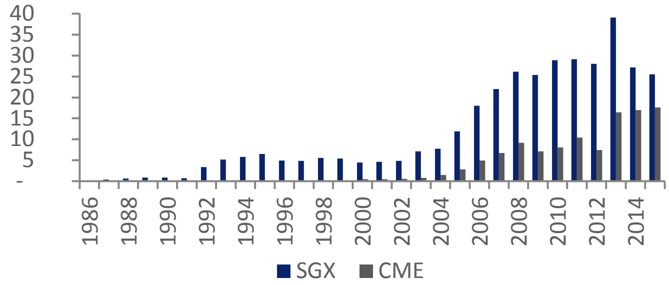
Figure 1: SIMEX Trading Floor

About the Nikkei 225 Index

Since 1950, the Nikkei Stock Average, commonly referred to as the Nikkei 225 Index, is the most widely quoted index of Japanese equities. Many financial products are linked to the Nikkei 225 Index. The Nikkei 225 is a price-weighted equity index (denominated in yen), which consists of 225 stocks in the First Section (for large companies) of the Tokyo Stock Exchange, and the components are reviewed once a year.

The Nikkei 225 Index has a market value of approximately US$3 trillion, representing more than 12% of Asia's combined stock markets, and more than 4% of the world's stock markets.

Figure 2: Turnover of Nikkei Futures on SGX & CME Group (Million Lots)



Source: Bloomberg, 1 August 2016

Components of the Nikkei 225 Index

The five largest constituent weightings of the Nikkei 225 Index are currently made up of a retailer, two telecommunications companies and two manufacturers. Unlike the S&P 500® or Singapore's Straits Times Index (STI), financial stocks do not represent the largest sector of the index. Four-fifths of the Nikkei 225 stocks represent four sectors - consumer, industrial, information technology, and healthcare. Apart from domestic economic factors, the performance of the Nikkei 225 Index, like much of Asia in 2016, has been driven by global growth outlooks.

Stocks are weighted on the Nikkei 225 Index by giving an equal weighting based on a par value of 50 yen per share. Events such as stock splits, and removals and additions of constituents impact the effective weighting and calculation of the index. The Nikkei 225 Index is designed to reflect the overall market, so there is no specific weighting of industries.

Figure 3: Nikkei 225 Index Performance

Source: Bloomberg, 1 August 2016

Nikkei 225 Futures versus ETFs Tracking Nikkei 225

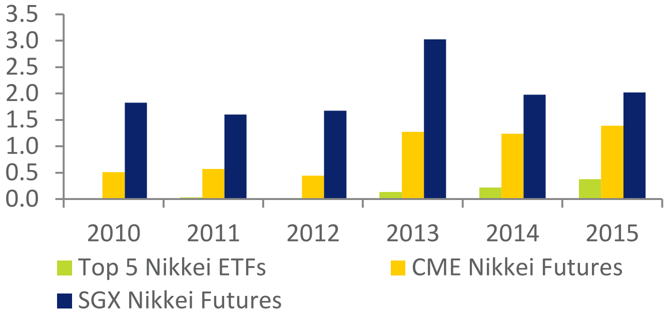
Offshore Nikkei futures continue to provide investors with high liquidity and ease of access. The total daily combined turnover of SGX and CME Group Nikkei 225 futures was US$23 billion in 2015, which dwarfs the US$2.6 billion turnover of the top 5 ETFs tracking the Nikkei 225 Index.

The top ETFs tracking the Index listed in Japan are the Nomura Nikkei 225 Index, Nikko Nikkei 225 Index, Daiwa Nikkei 225 Index, Next Funds Nikkei 225 Index Leverage, and the Maxis Nikkei 225 Index.

Futures are the instrument of choice for investors seeking access to the Japanese equity market or risk management, as sizable positions can be entered or exited easily with the deep liquidity offered on offshore markets, as indicated by Figure 4. Leverage can also be deployed effectively through futures.

Professional traders depend on the liquidity, cross margining, and the MOS between CME Group and SGX to effectively manage risk and express views. Indeed, the liquidity afforded by this linkage fueled the growth of Nikkei futures over the past decades.

Figure 4: Turnover of Nikkei Futures and ETFs (US$ Trillions)



Source: Bloomberg, 1 August 2016

Expanding the Nikkei Derivatives Eco-System

Though Nikkei 225 futures and options were originally traded via open outcry in trading pits, the contracts have since evolved in-line with changing customer needs. Today, SGX and CME Group customers have a choice of currencies and trading venues for this suite of products.

Yen-denominated and USD-denominated Nikkei 225 futures are available at SGX and CME Group, offering convenience for investors with portfolios comprised of yen-based or dollar-based investments.

Open interest in the CME Group USD-denominated Nikkei 225 futures has grown among asset managers. The net position of asset managers has been at or above 40% in the past few years.

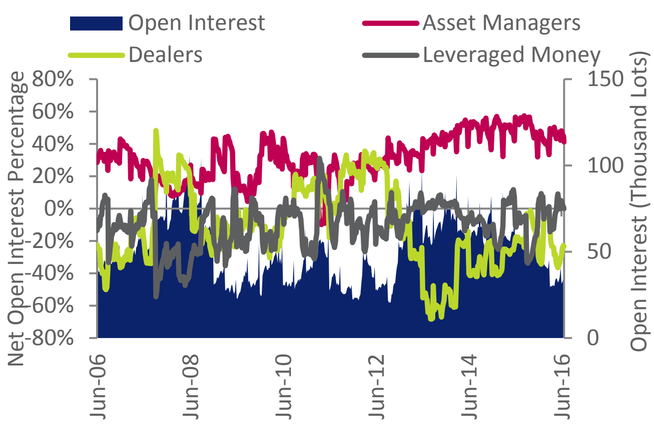
Both SGX and CME Group have listed complementary products, including options on the Nikkei 225 Index, and SGX also has Asia's first dividend futures to provide the widest suite of offshore Japan products.

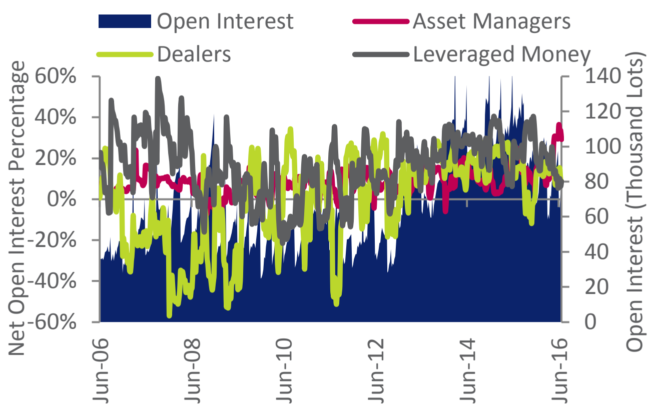
SGX and CME Group Immersed in the Eco-System

Nikkei futures traded at CME Group and SGX are integral parts of the ecosystem that supports access to the Japanese equity market, with each exchange leveraging its inherent strengths.

For example, for Nikkei 225 Index options, outstanding positions on SGX have grown as investors' hedging requirements increased with higher market volatility. Open interest in the contract topped 1 million lots at SGX at the end of July 2016.

Figure 5: Commitment of Traders & Open Interest on CME Group's Nikkei USD and Nikkei JPY





Source: CME Group Market Data

The charts in Figure 5 show the access to two currency denominations of an index future at the same venue, as in CME Group Nikkei futures. Demand for USD-denominated currencies is typically from the asset manager community. This is met by leveraged money accounts, which go short while going long on the yen position. This is referred to as a "quanto" spread trade, and is unique in the Nikkei futures. It requires both currency-denominated contracts to be available and liquid at the same venue, to enable the cross-margining to be economically viable.

In both illustrations, the usage of futures and options contracts to gain exposure to the Nikkei 225 Index is evidenced by the increase in their respective open interest.

Reminiscing the SGX-CME Group Partnership

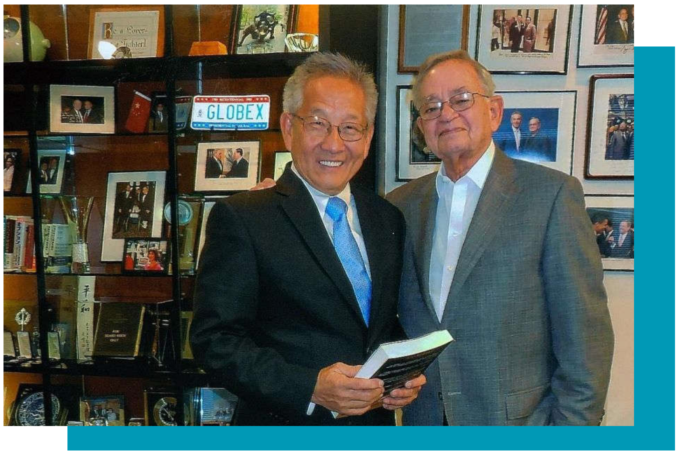


Figure 6: Ng Kok Song (Founding Chairman of SIMEX) and Leo Melamed

In closing, we share the thoughts of Leo Melamed from an interview he gave regarding the early days of the SGX-CME Group partnership during the 1980s.

Box 2: Interview with Business Times Singapore on February 10, 2015

"Although Singapore had little futures market experience, the community of traders all spoke with one voice. More than that, Singapore's officials, both in the public and private sector, were eager to make the deal. Thus, Singapore became my choice.

"... Did I foresee that the Simex would someday become part of SGX and a center for Asian equity derivatives? Of course not. But in a very real sense I understood that the success of our agreement would be fundamental to Singapore's future growth as a center of finance in South-east Asia." – Leo Melamed, Chairman Emeritus, CME Group

Appendix

Box 3: SGX Extends Nikkei Derivatives Trading Hours With Next-Generation Derivatives Platforms

From the end of October, SGX will implement its upgrade of its derivatives trading and clearing platforms. As a result, SGX Nikkei 225 Index Futures and Options trading hours will be extended to 4.45pm Eastern Time. Block trade registration will also be extended to 4.45pm Eastern Time. This enhancement will reduce the session gap from 45 minutes to 15 minutes between the T and T+1 trading sessions.

Figure 7: New Trading Hours for SGX Nikkei 225 Index Futures*

Session State	Eastern Time	Remarks
Pre-Open (T)	7.15pm – 7.28pm	Non-matching phase. Order entry, modification and cancellation allowed.
Non-Cancel (T)	7.28pm – 7.30pm	Non-matching phase. Order entry allowed but no modification or cancellation
Opening (T)	7.30pm – 2.25am	Matching phase
Pre-Close (T)	2.25am – 2.29am	Non-matching phase. Order entry, modification and cancellation allowed.
Non-Cancel (T)	2.29am – 2.30am	Non-matching phase. Order entry allowed but no modification or cancellation
15mins gap		
Pre-Open (T+1)	2.45am – 2.53am	
Non-Cancel (T+1)	2.53am – 2.55am	
Opening (T+1)	2.55am – 4.45pm	All T+1 sessions will end at 4.45am

*New trading hours will be confirmed ahead of launch

Other significant benefits from the upgraded infrastructure include industry standard access protocols, extensive self-help functionality and improved straight-through-processing. The new systems will strengthen risk controls and system safeguards to help market participants manage their trading and clearing positions on a 24-hour basis.

Figure 8: Benefits from New SGX Derivatives Platforms

Industry Standard Access Protocols	Self-Trade Prevention	Mass Quote Protection
■ The new SGX trading platform will support the OUCH low-latency binary socket protocol for order entry, providing the fastest, asynchronous interaction with the order book ■ Direct Multicast ITCH data feed in market-by-order format for immediate market signals and instant order book updates	■ Avoid unintentional internal trading by preventing certain participant's orders from executing against each other. ■ Participants benefit from reduced programing complexity in their trading strategies to avoid self-trading	■ Allows Market Makers to manage exposure risk more effectively and gives Market Makers more confidence to quote with greater quantity or better spread or both.

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