

INFORMATION PAPER

On HKEx Flexible Index Options

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香港交易及結算所有限公司

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INFORMATION PAPER ON HKEx FLEXIBLE INDEX OPTIONS

1. Introduction

Purpose of this paper

1.1 This paper describes the key features of HKEx Flexible Index Options, together with the proposed operational arrangements, as well as the benefits the product will bring to HKEx markets.

Background

1.2 The trading of equity-related futures and options in over-the-counter (OTC) markets is active, particularly for those based on Hang Seng Index (HSI), Hang Seng China Enterprises Index (H-shares Index) and local stocks. Many of these OTC transactions, especially for index options, expire on the same day as HKEx traded contracts, with the cash settlement prices determined by making reference to HKEx prices. OTC options players also employ exchange-traded futures contracts for delta hedging. The strike levels for OTC options are conventionally quoted as a percentage of the underlying. This differs from the standard strikes¹ of HKEx traded options.

1.3 HKEx provides both an open auction market and a Block Trade Facility (BTF) under the Rules². Block Trades are privately negotiated OTC transactions involving single or multiple legs of futures, options, or a combination of both, executed through BTF with a minimum size of 100 contracts. The execution price must be within a permissible price range³. We have proposed that this price range not apply to the proposed Flexible Index Options. In the first half of 2009, about 28% (around 9,500 contracts daily) of HSI and H-shares Index options traded at HKEx were Block Trades. Unlike the contracts that are matched in the open market, the novation⁴ of Block Trades including the proposed Flexible Index Options are delayed as the clearing house⁵ has to determine whether a Special Block Trade Margin (SBTM) is to be required from the clearing participant or not, when the executed price of a Block Trade is not considered fair and reasonable (i.e. if there is a significant deviation between the prevailing market price⁶ and

¹ For an index level at 8,000 or above, HKEx sets 200 index points intervals for standard strikes on index options (e.g. 10,600; 10,800; 11,000; etc).

² Rules, Regulations and Procedures of the Futures Exchange.

³ As defined under 815A(5) of the Rules.

⁴ Novation is where the clearing house interposes itself between buyers and sellers as their legal counter party, i.e., the clearing house becomes buyer to every seller and vice versa.

⁵ The clearing house for HKEx index futures and options contracts is its wholly owned subsidiary HKCC (HKFE Clearing Corporation Limited).

⁶ The clearing house will calculate the theoretical price of the Flexible Option series with reference to the underlying price and volatility derived from the most similar standard series to determine if SBTM is required.

the executed price of the Block Trade such that an intra-day variation adjustment would have been triggered). Novation of Block Trades will only take place if the clearing house determines that SBTM is not to be required, or after any required SBTM is on hand as specified under the Rules.

- 1.4 HKEx believes that modifications to the BTF to enhance flexibility will help to facilitate acceptance of more OTC index options while retaining appropriate risk management measures to safeguard the integrity of the clearing house.
- 1.5 Acceptance of OTC options by exchanges and clearing houses is now common in most major markets, including at Eurex, NYSE Euronext-Liffe, NASDAQ OMX and CBOE.

2. What are Flexible Index Options?

2.1 Subject to the approval from the Securities and Futures Commission (SFC), HKEx plans to offer Flexible Index Options with flexibility in strike prices and expiry months on **HSI and H-shares Index options** contracts under the following arrangement:

- (a) **Series Creation** - HKEx will create a particular Flexible Index Option series upon request of an Exchange Participant (EP) according to the stipulated procedures and criteria;
- (b) **Strike Prices** - Flexible Index Options strike prices are in whole index points and within +/-30% from the opening price of the spot month futures contract on the day of request, or the range of the prevailing highest and lowest strike prices available amongst the contract month requested to be created, and all other existing contract months with longer expiry terms on the day of request, whichever range is the largest. [Please refer to Appendix I](#) for examples of acceptable strike prices;
- (c) **Expiry** - Expiry days of Flexible Index Options must be the second last trading day of any calendar month, and must not be further out than the longest term of expiry months that are available for trading (maximum of 42 months). [Please refer to Appendix II](#) for examples of expiry months available;
- (d) **Only through BTF** - Flexible Index Options can only be entered through BTF with a minimum size of 100 contracts. As noted, we propose that the BTF permissible price range not apply to provide additional flexibility;
- (e) **No duplication with standard series** - Flexible Index Option series will not be created if there is an existing standard series that has the same strike price and expiry;

- (f) **No market making service** - There will be no market making service available as execution is confined to BTF. Market makers of standard options contracts when executing Flexible Index Options will be required to pay standard exchange fees i.e. no fee discounts; and
- (g) **Others** - Exchange fee, levy, trading hours, exercise style and settlement method will be the same as standard series. Position limits and reporting requirements will also be the same and in combination with the standard series.

3. Trading Arrangements

- 3.1 EPs may make requests for the creation of Flexible Index Option series to HKEx from market open until 30 minutes before the close of trading for index options. No request for series creation will be accepted on the expiry day of the contract. The EPs may then execute the Flexible Index Option series as Block Trades during trading hours and observe the requirements relating to the execution of Block Trades, except that of the permissible price range.
- 3.2 Initiating EPs and any other EPs can enter new trades to an existing Flexible Index Option series once created, but only through BTF.
- 3.3 Flexible Index Options may be executed in combination with standard series and futures contracts, as well as other Flexible Index Options, through BTF. However, each Flexible Index Option leg of a combination trade must be of 100 contracts or more.
- 3.4 When a standard series having the same strike price and expiration as a Flexible Index Option series becomes available for trading⁷, the Flexible Index Option series will then be prohibited from further trading. See also paragraph 2.1 (e) above and paragraph 4.4 below.
- 3.5 Compared to standard series, there could be potentially many more series of Flexible Index Options. To maintain smooth and efficient operations, measures to prevent requests for unnecessary creation of Flexible Index Options will be in place. Each EP will be provided with a monthly allowance of a number of series that were created but did not result in trade execution. Any extra series requested to be created but without subsequent trades will be charged a fee. HKEx will also have absolute discretion to decline any requests for the creation of Flexible Index Option series.

⁷ Example: In Jan, the short-term expiry months for HSI Options available are Jan, Feb, Mar, Jun, Sep & Dec, a Flexible Index Option series of Apr 18,000 can be created. On the business day after the expiration of the Jan contracts, standard series with Apr expiration will be generated, and hence the standard series of Apr 18,000 will exist concurrently with the previously created Flexible Index Option series.

3.6 EPs can use the existing Click workstations without any system changes. EPs who have developed their own Application Programming Interfaces will need to check if system changes are necessary to facilitate the execution of Flexible Index Options. Only EPs who have indicated to HKEx that their systems are ready will be granted trading access.

4. Clearing and Settlement Arrangements

4.1 Participating EPs will have to check their back-office systems to ensure that they will be able to perform clearing and settlement functions for Flexible Index Options.

4.2 The traded prices of Flexible Index Option series will **NOT** be used by HKCC in the daily closing quotation (“CQ”) determination process of the standard series as the range of traded prices may vary significantly from the prevailing market price. The settlement price of Flexible Index Option series will be determined theoretically with reference to the volatilities and underlying prices derived from the market data of the standard series in accordance with the daily CQ determination process for daily mark-to-market purpose.

4.3 Positions of Flexible Index Options and standard series which are sharing the same underlying will be margined on a portfolio basis. The concentration risk and capital-based position limits, measures used by the clearing house to mitigate the risk arising from the concentration of open positions in a product and to ensure the risk exposures of the clearing participants in terms of margin liabilities are commensurate with their financial strength with reference to their respective liquid capital levels, will also be determined in combination with the standard series. [Please refer to Appendix III](#) for examples illustrating the calculations of margin requirement, concentration risk and capital-based position limits of Flexible Index Options.

4.4 As noted, if a standard series coincidentally has the same strike price and expiration as a Flexible Index Option series, the latter will be suspended from further trading. Positions in the 2 series will be kept and treated separately. EPs who hold opposite positions in the 2 series may request HKCC to perform an internal position close out according to the HKCC procedures.

5. Trading Information Availability

- 5.1 Particulars of Flexible Index Options, including the strike price and expiry month, will be disseminated real-time to information vendors. Trading information will also be provided through the daily market reports ([examples illustrated in Appendix IV](#)) on HKEx's website (www.hkex.com.hk) in the evening of each trading day.

6. Benefits of Flexible Index Options

- 6.1 Flexible Index Options will offer an attractive counterparty risk alternative to OTC market participants. OTC players using exchange-traded futures contracts to hedge their OTC options positions will realize collateral and margining efficiencies when they book relevant positions with HKEx. Inter-dealer brokers could continue their business through providing execution services for OTC trades at HKEx.
- 6.2 Booking of OTC trades at HKEx will result in more market transparency allowing HKEx, the regulators and market participants to have a better knowledge of OTC market related activities. Netting, novation, and risk management measures applied by HKCC should reduce overall risks compared to OTC markets.

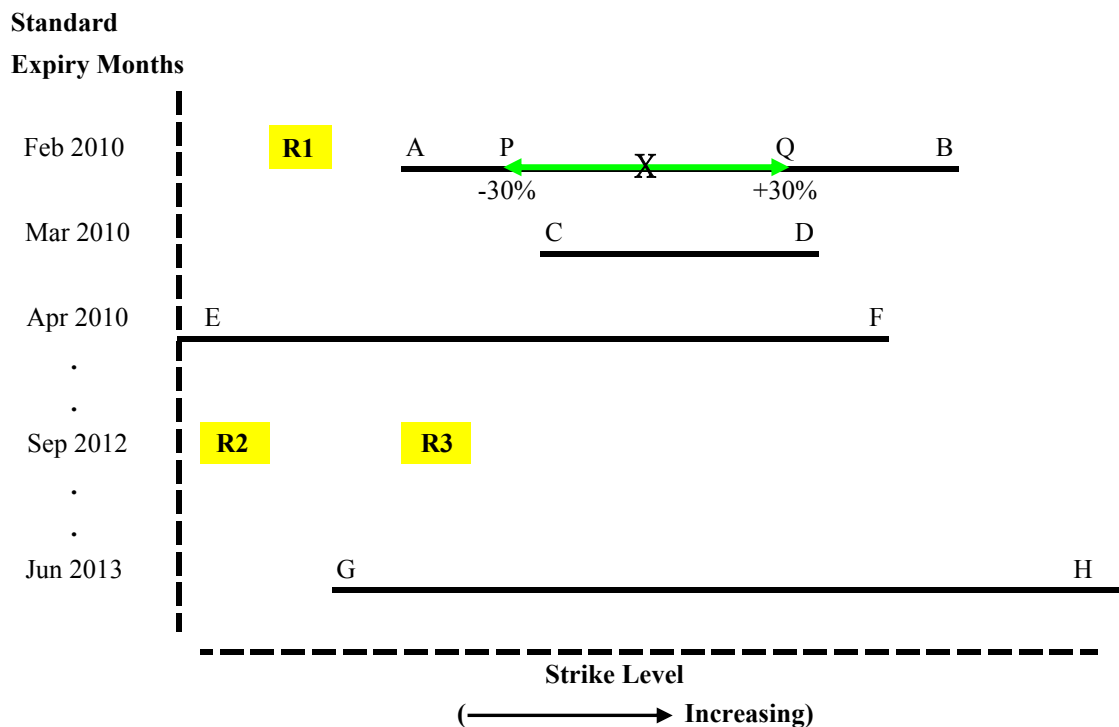
7. Launch of Flexible Index Options

- 7.1 Upon completion of necessary internal preparatory procedures and subject to the approval on the rule amendments from the SFC, the facility for execution of Flexible Index Options is scheduled to be available by the first quarter of 2010.

For inquiries on Flexible Index Options, please call (852) 2522-1122 or send e-mail to info@hkex.com.hk.

Appendix I

Illustration of Determination of the Acceptable Strike Prices for Flexible Index Options



- Remarks:
- 1) Feb 2010 is the spot month;
 - 2) X is the opening price of spot month futures contract;
 - 3) P ↔ Q is the acceptable range determined by +/- 30% of X;
 - 4) A-B, C-D, E-F and G-H are the ranges of strike prices for respective expiry months for standard series;
 - 5) For request **R1** with contract month in Feb 2010, it will be accepted if the requested price falls between the largest acceptable range which is determined as follows:
 - (i) Within +/- 30% of current spot month futures opening price, i.e. P-Q; or
 - (ii) Within the ranges of strike prices of the contract month requested, i.e. A-B; or
 - (iii) Within the high-low ranges of all subsequent contract months, i.e. C-D, E-F and G-H, etc.
 Amongst (i) to (iii), the lowest strike level is E and the highest strike level is H, hence the overall largest acceptable range is E-H, therefore request **R1** which is within E-H, will be accepted.
 - 6) For request **R2** and **R3** with contract month in Sep 2012, the requests will be accepted if the prices fall between the largest acceptable range which is determined as follow:
 - (i) Within +/- 30% of current spot month futures opening price, i.e. P-Q; or
 - (ii) Within the ranges of strike prices of the contract month requested, i.e. 0 (since no series exist for Sep 2012); or
 - (iii) Within the high-low ranges of all subsequent contract months, i.e. G-H, etc.
 Amongst (i) to (iii), the lowest strike level is G and the highest strike level is H, hence the overall acceptable range is G-H, therefore request **R2** which is outside G-H, will be rejected and request **R3** which is within G-H, will be accepted.

Appendix II

Examples of Acceptable Expiry Months for Flexible Index Options

(a) For HSI Index Options, assuming Feb 2010 is spot month:

Month \ Year	2010		2011		2012		2013	
	S	F	S	F	S	F	S	F
January			x	✓	x	✓	x	✓
February	✓	✓	x	✓	x	✓	x	✓
March	✓	✓	x	✓	x	✓	x	✓
April	✓	✓	x	✓	x	✓	x	✓
May	x	✓	x	✓	x	✓	x	✓
June	✓	✓	✓	✓	✓	✓	✓	✓
July	x	✓	x	✓	x	✓	○	○
August	x	✓	x	✓	x	✓	○	○
September	✓	✓	x	✓	x	✓	○	○
October	x	✓	x	✓	x	✓	○	○
November	x	✓	x	✓	x	✓	○	○
December	✓	✓	✓	✓	✓	✓	○	○

(b) For H-shares Index Options, assuming Feb 2010 is spot month:

Month \ Year	2010		2011		2012	
	S	F	S	F	S	F
January			x	✓	x	✓
February	✓	✓	x	✓	x	✓
March	✓	✓	x	✓	x	✓
April	✓	✓	x	✓	x	✓
May	x	✓	x	✓	x	✓
June	✓	✓	✓	✓	✓	✓
July	x	✓	x	✓	○	○
August	x	✓	x	✓	○	○
September	✓	✓	x	✓	○	○
October	x	✓	x	✓	○	○
November	x	✓	x	✓	○	○
December	✓	✓	✓	✓	○	○

S – Standard Index Options

F – Flexible Index Options

✓ – Contract Month Acceptable

x – Contract Month Not Acceptable

○ – Contract Month Not Yet Available

Appendix III

Examples of Margin Requirement, Concentration Risk and Capital-based Position Limits Calculation for Flexible Index Options

Key Assumptions

- A clearing participant has positions of Hang Seng Index (HSI) standard and Flexible Index Option series in its clearing accounts and each account is beneficially owned by different parties.
- The positions of standard and Flexible Index Option series in clearing account C0003 is the same as that combined under clearing accounts C0001 and C0002.

Clearing Account	Option Series	Type	Strike	Expiry	Series Delta	Long	Short	Remarks
Individual Client Account C0001	HSI20000C0	Call	20,000	Mar 10	0.62	10,000		Standard Option
Individual Client Account C0002	XHS20295F0	Call	20,295	Jun 10	0.58		5,000	Flexible Index Option
Individual Client Account C0003	HSI20000C0	Call	20,000	Mar 10	0.62	10,000		Standard Option
	XHS20295F0	Call	20,295	Jun 10	0.58		5,000	Flexible Index Option
House Account H1	HSI20000C0	Call	20,000	Mar 10	0.62	6,500		Standard Option

Margin Requirement

The margin requirement of each clearing account is as follows:

Clearing Account	Option Series	Long	Short	Margin Requirement	Remarks
Individual Client Account C0001	HSI20000C0	10,000		HK\$ 439m	Margined independently
Individual Client Account C0002	XHS20295F0		5,000	HK\$ 263m	Margined independently
Individual Client Account C0003	HSI20000C0	10,000		HK\$ 203m	Margin offset between 2 series is available
	XHS20295F0		5,000		
House Account H1	HSI20000C0	6,500		HK\$ 285m	Margined independently

- The positions of clearing accounts C0001 and C0002 are margined independently as they belong to different beneficial owners while the positions of the standard and Flexible Index Option series in clearing account C0003 are margined on a portfolio basis to reflect the hedging effect of the positions belonging to the same beneficial owner.
- The margin requirement of clearing account C0003 (HK\$203m) is less than the summation of that under clearing accounts C0001 and C0002 (HK\$439m + HK\$263m = HK\$702m) because of the offsets available between the long 10,000 HSI20000C0 (standard series) and short 5,000 XHS20295F0 (Flexible Option series).

Concentration Risk

- Concentration risk is measured in terms of the delta position of the portfolios of the clearing participant with reference to the total delta of the market sharing the same directional risk.
- The respective delta positions of the standard and Flexible Index Option series are combined to account for the respective total upside and downside risks of the HSI market of the clearing participant.

The delta of each clearing account is calculated as follows:

Clearing Account	Option Series	Delta (per series)	Long	Short	Delta position	
					Downside risk	Upside risk
Individual Client Account C0001	HSI20000C0	0.62	10,000		$0.62 * 10,000 = 6,200$	
Individual Client Account C0002	XHS20295F0	0.58		5,000		$0.58 * -5,000 = -2,900$
Individual Client Account C0003	HSI20000C0	0.62	10,000		$0.62 * 10,000 + 0.58 * -5,000 = 3,300$	
	XHS20295F0	0.58		5,000		
House Account H1	HSI20000C0	0.62	6,500		$0.62 * 6,500 = 4,030$	
				Total Delta	13,530	-2,900

- If the total HSI market delta is 40,000, the clearing participant would have accounted for more than 30% ($13,530 / 40,000 = 33.8\%$) of the total market downside risk. HKCC would impose a 20% additional margin on the clearing participant according to its risk management policy.

Capital-based Position Limit (CBPL)

- CBPL is one of the key components of the counterparty risk management framework of the HKCC. It is designed to ensure that the risk exposures of clearing participants are commensurate with their financial strengths in terms of the liquid capital. Under this measure, clearing participants need to ensure that their gross and net margin liabilities arising from both the standard and Flexible Index Options series are in compliance with the respective prescribed limits.

The gross and net margin liabilities of the clearing accounts are determined as follows:

Clearing Account	Option Series	Long	Short	Margin Requirement	Gross Margin Liability	Net Margin Liability
Individual Client Account C0001	HSI20000C0	10,000		\$ 439m	\$ 439m	\$ 406m
Individual Client Account C0002	XHS20295F0		5,000	\$ 263m	\$ 263m	
Individual Client Account C0003	HSI20000C0	10,000		\$ 203m	\$ 203m	
	XHS20295F0		5,000			
House Account H1	HSI20000C0	6,500		\$ 285m	\$ 285m	\$ 285m
				Total	\$ 1,190m	\$ 691m

- If the liquid capital of the clearing participant is \$200m, the gross and net limits of the clearing participant would be \$1,200m (6 * 200m) and \$600m (3 * 200m) respectively.
- The clearing participant's gross margin liability (**\$1,190m**) is within the gross limit (\$1,200m)
- The clearing participant's net margin liability (**\$691m**) has however breached its net limit (\$600m).
- To rectify the breach, the participant can extend its limit by lodging bank guarantees or increasing its liquid capital within 10 days and during such period, a 25% additional margin will be imposed on the positions exceeding the limit.

Appendix IVa

Sample Daily Market Report of Flexible Index Options Available on HKEx Website

FLEXIBLE HANG SENG INDEX OPTIONS DAILY MARKET REPORT

FLEXIBLE HANG SENG INDEX OPTIONS HK\$ 50 PER POINT

BUSINESS DAY

23 FEB 2010, TUESDAY

CONTRACT MONTH	STRIKE PRICE	C/P	OPENING PRICE	DAILY HIGH	DAILY LOW	S.P. S.P.	S.P. CHANGE	IV%	VOLUME	OPEN INTEREST	CHANGE IN OI
FEB 10	17401	C	-	-	-	3543	159	33	330	790	330
TOTAL CALL									330	790	330
MONTH TOTAL									330	790	330

CONTRACT MONTH	STRIKE PRICE	C/P	OPENING PRICE	DAILY HIGH	DAILY LOW	S.P. S.P.	S.P. CHANGE	IV%	VOLUME	OPEN INTEREST	CHANGE IN OI
JUN 10	19123	P	-	-	-	663	83	41	200	200	0
JUN 10	20111	P	-	-	-	990	82	41	750	0	750
TOTAL PUT									950	200	750
MONTH TOTAL									950	200	750
MARKET TOTAL									1280	990	1080

*** END OF REPORT ***

S.P. - SETTLEMENT PRICE

Appendix IVb

Sample Daily Market Report of Flexible Index Options Available on HKEx Website

FLEXIBLE H-SHARES INDEX OPTIONS DAILY MARKET REPORT

FLEXIBLE H-SHARES INDEX OPTIONS HK\$ 50 PER POINT

BUSINESS DAY

23 FEB 2010, TUESDAY

CONTRACT MONTH	STRIKE PRICE	C/P	OPENING PRICE	DAILY HIGH	DAILY LOW	S.P. S.P.	S.P. CHANGE	IV%	VOLUME	OPEN INTEREST	CHANGE IN OI
FEB 10	12610	C	-	-	-	307	10	43	230	700	230
TOTAL CALL									230	700	230
MONTH TOTAL									230	700	230

CONTRACT MONTH	STRIKE PRICE	C/P	OPENING PRICE	DAILY HIGH	DAILY LOW	S.P. S.P.	S.P. CHANGE	IV%	VOLUME	OPEN INTEREST	CHANGE IN OI
JUL 10	19123	P	-	-	-	7285	83	41	500	500	0
JUL 10	20111	P	-	-	-	6723	82	41	750	0	750
TOTAL PUT									1250	500	750
MONTH TOTAL									1250	500	750
MARKET TOTAL									1480	1200	980

*** END OF REPORT ***

S.P. - SETTLEMENT PRICE

