![Nasdaq Dubai logo]

Clearing, Settlement and Risk Management Procedure For Derivatives

version 1.73 / January 2019

1. INTRODUCTION

Purpose of the Document

This document intends to provide the operations team at the Clearing Member a clear understanding of all the Derivatives post trade activities at Nasdaq Dubai. The document also covers the information about the risk computation methodology and the clearing structure at Nasdaq Dubai.

Any reference to time in this document is in reference to Dubai time, unless otherwise stated.

In this notice, the terms "USD" or "US dollars" are used for the local currency of United States of America, "AED" or "UAE dirham" is used for the local currency of United Arab Emirates, and "SAR" or "Saudi Riyal" is used for the local currency of Saudi Arabia.

Scope

The document intends to cover post trade operational activities relating to clearing, risk management and settlement including their timelines.

Additional Documentation

In addition to this document, Clearing Members are required to read the following documents available on the Nasdaq Dubai website:

- Nasdaq Dubai Business Rules
- All information in the form of CANDI Notices and Circulars from time to time, which are posted on the website
- All updated information on the Nasdaq Dubai website: www.nasdaqdubai.com

Nasdaq Dubai Clearing system user manual can be provided to the Clearing Members via email upon request.

Nasdaq Dubai assistance

Please contact the Nasdaq Dubai Clearing team in case of any queries.

Email   : clearing@nasdaqdubai.com

Telephone   : +971 4 305 5648 / 5625 / 5139 / 5133

Periodical review

The revision of this document will be done in the event of any of the following:

1. Any changes to the banking model including changes in banks
2. Any changes in the settlement model
3. Any changes in the risk management model including Margining process
4. Any other material changes including timelines, etc.

2. CLEARING SYSTEM

The Derivatives Clearing system is a web based application used for all Derivatives related clearing functionalities. Members are provided with a default user, password and Business Partner ID (referred to as BP ID). The Members with the help of the default user can then create multiple users and access groups. Functional eligibilities can be set up based on access groups which determine the activities that each user can perform using the system. Each user can log in with the combination of a User ID, BP ID and password.

The following timelines pertain to the Clearing system:

Sunday to Thursday: Between 09:00 hours and 18:00 hours (In query mode after 17:00 hours) on all Business Days

3. OPERATING PROCEDURES FOR CLEARING OPERATIONS

Transactions executed on the Nasdaq Dubai trading system are sent to post-trade systems for the purposes of clearing and settlement. Clearing operations refer to various activities performed by the Clearing House and the Exchange.

Clearing Structure

3.1 Types of Clearing Membership

General Clearing Member (GCM): Members who can clear and settle their own transactions as well as transactions executed by other Trading Members. GCMs will typically have a set of Trading Members under them. GCMs can also execute transactions for their own clients.

Individual Clearing Member (ICM): Members who can execute as well as clear and settle their own and client transactions. ICMs cannot settle the transactions for another Trading Member.

Trading Members of Nasdaq Dubai need to have a relationship with a General Clearing Member (GCM) for clearing and settling of transactions executed by them as well as on behalf of their clients.

GCM-TM relationship

Important operational guidelines governing the GCM-TM relationship are summarised below:

a) The GCM needs to enter into a separate agreement with each TM it will clear and settle transactions for.

b) GCM needs to maintain adequate systems and controls to manage the risk arising out of positions taken by the TMs it clears for.

c) A Trading Member can have separate Clearing Members for different market segments. This means that a Trading Member can have separate Clearing Members in the Equity and Derivatives markets. However, a Trading Member cannot have more than one Clearing Member in each segment.

3.2   Accounts Set Up

In order to meet its Derivatives obligations, the Clearing Member needs to open various accounts referred as clearing accounts. The Member has to open separate clearing accounts for its house, client and Market Maker positions. An ICM needs to open at least one client account for all its underlying clients.

Nasdaq Dubai's Derivatives clearing system supports the following types of position accounts:

S. No	Type of position account	Gross/Net indicator for position keeping	Description	Remarks
1	House account	Net	Captures trades originating from a proprietary account of Member	
2	Market Maker	Net	Captures trades originating from a Market Making activity (HH) type user on the trading system	
3	Omnibus client	Gross	Captures trades originating from a client (CC) type user on the trading system (without maintaining a client account number in clearing system)	

4	Segregated client	Net	Captures trades originating from a client (CC) type user on the trading System, *if the Trading Account Number used for the trade is separately setup on the Clearing System* to capture trades in Clearing system	• Segregated client accounts **must** be created on the clearing system, before trade execution for the trade to flow through correctly. • Such accounts are always created under an "S1" type linking account (refer to diagram below).
5	Unallocated client account	Gross	This is the "Default account" that captures client trades which do not have a valid segregation type at the time of trade acceptance. The unallocated client account is treated as an omnibus client account.	Trades in the unallocated client account must not include any House account or Market account transactions. All trades must be allocated to either the Omnibus client account or segregated client account within 45 minutes from market close on the day of trading.

Members can request creation of position accounts by submitting "Form D5 - Clearing Account Opening Form" available on the Nasdaq Dubai website. To manage cash obligations arising out of Derivatives positions, separate Margin and Settlement accounts will be created on the Clearing system.

Obligations from **house** and **Market Maker** positions will be aggregated into one set of Margin and Settlement accounts, while those from client and unallocated accounts will be aggregated into separate pair of Margin and Settlement accounts.

Each Margin and Settlement account is, in turn, mapped to a bank account held at a Settlement Bank based on details provided as part of the Membership application.

The diagram summarises the Clearing System's account structure.
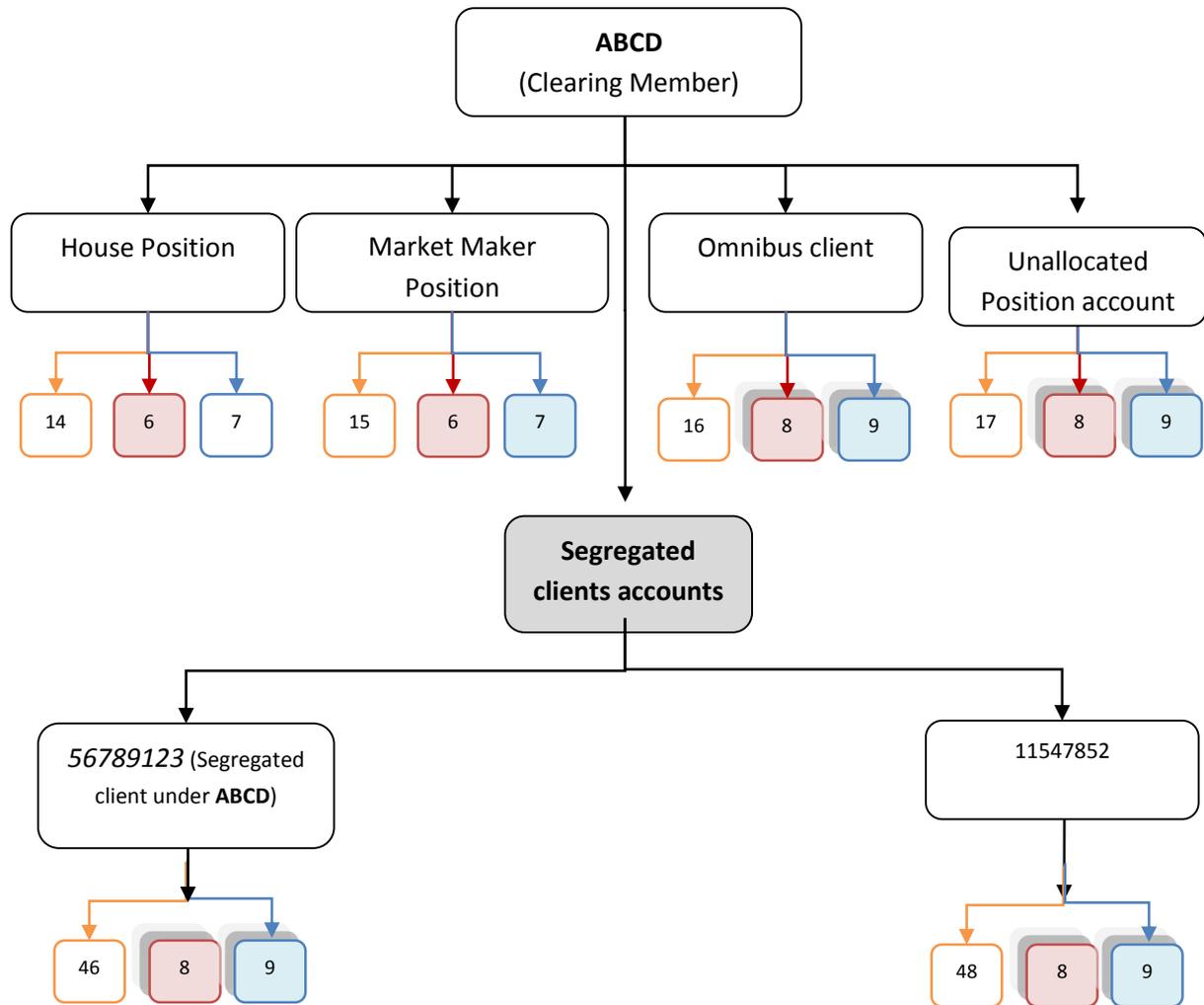
Position account – To maintain open position

Cash account for Initial margins obligation

Cash account for other cash obligations like mark to market, fees, premiums, etc.

The following account structure would apply for the different types of cash obligations:

1. **Initial Margins (Section 4**) : SPAN Margins (Initial Margin) and additional Margins calculated for each Member's house and Market maker positions would be consolidated into one cash account, while those generated for client positions would be posted to a separate account. An example of position keeping and Margining for house, client and market maker accounts can be seen in Appendix A.

2. **Cash Transactions (Section 5.1)** : Options premium, futures mark to market, give up & take commissions, cash settlements on expiration, trading and clearing fees payable to Nasdaq Dubai and any other payables calculated for each Member's house and Market Maker positions would be clubbed into one account for each Member, while those generated for client positions would be posted to a separate account.

Clearing Members will have to open a USD, AED, and SAR settlement bank accounts with any of the banks approved by Nasdaq Dubai. A List of such banks will be available on the Nasdaq Dubai website.

3.3   Transactions eligible for clearing

All transactions in futures and options instruments executed on the Nasdaq Dubai trading system are automatically subject to Central Counter Party (CCP) clearing.

3.4   Nasdaq Dubai as a CCP

The Nasdaq Dubai clearing house becomes the Central Counter Party (CCP) to all transactions executed on the Nasdaq Dubai trading system. All transactions accepted for clearing and settlement are novated. In other words, Nasdaq Dubai becomes the 'buyer' to every 'seller' and the 'seller' to every 'buyer'.

3.5   Trade Cancellation

Members cannot cancel transactions themselves. However, in the case of a material error by a Member, which is notified to Nasdaq Dubai within the specified time of the transaction being executed, Nasdaq Dubai may, but shall not be obliged to, cancel all transactions affected as a consequence of such error for a specified time interval. Nasdaq Dubai may also cancel any and all transactions which in its reasonable judgement do not comply with a Rule or applicable law or regulation. Please refer to Trading Manual for further details on Trade cancellation policy.

3.6   Give up and take up transactions

All On Exchange transactions entered by Members will be taken for post trade activities by its assigned Clearing Member. In cases where the trade is to be cleared by a Member other than the assigned Clearing Member, transactions can be 'given up' to the target Clearing Member. In such a scenario, the original assigned Clearing Member is referred to as the 'give-up Member' and the new Clearing Member will be referred as the 'take-up Member'.

Give-ups and take-ups of trades can be performed by Clearing Members subject to the following restrictions:

a. Trades can only be given up from the client account.
b. Trades can be taken up in the client account and in house accounts.
c. Give-ups and take-ups may only be performed for transactions executed on the same trading day (current give-up) or the previous trading day (historical give-up).

All give-up and take-up transactions require that the respective target Clearing Members accept them. Acceptance must take place on the same day as the transaction took place. If a give-up trade is not accepted by the end of specified time limit, the trade remains in the client account of the original Clearing Member. Deleted or rejected give-up trades also remain in the client account of the Clearing Member.

All changes to positions on account of give-up transactions will be effected on a real time basis i.e. even if the change in positions is on account of past dated trades, the positions will not be effected as of the trade date.

In exceptional circumstances, where the Members cannot perform the activity on account of not being able to access the clearing system, the Nasdaq Dubai clearing team will perform the activity on behalf of the Member. The Member needs to forward the completed Form D1 – Give-up Or Take-up Request to the Nasdaq Dubai clearing team. The form is available on the Nasdaq Dubai website.

3.7   Match outs (in closing out of an open position)

Match outs at Nasdaq Dubai can be of 2 types – Auto and Manual.

Auto match outs are match out instructions which are executed on the trading system at the time of entering the trade and manual match outs are match out instructions which are executed in the clearing system.

Only open positions can be matched out in the clearing system. Positions on account of manual match outs are updated on a real time basis. If the match out quantity is greater than the sufficient available positions, the system will not process the instruction. The match out instruction should be the minimum of available long and short positions. The match out instructions will be per ISIN, per account.

In exceptional circumstances, where the Members cannot perform the activity on account of them being unable to access the system, the Nasdaq Dubai clearing team will perform the activity on behalf of the Member. In such cases, the Member needs to forward the duly filled Form D2 - Match Out Request to the clearing team. The form is available on the Nasdaq Dubai website.

3.8   Unwinding of match outs

Transactions that have been matched out can be unwound again at the request of the Clearing Member. As match outs are considered on a positions basis, unwinding is also considered on a positions basis (and not on a transactions basis). This means that unwinding can occur only on match outs performed – either on auto or manual basis. Partial quantities cannot be unwound, which means the entire quantity of the match out must be unwound. Resultant positions on account of unwinding are updated on a real time basis. Past dated match outs may be unwound.

If the trade that is given up has an auto match out, then the system will unwind the auto-match out to the extent the positions were matched out for that trade.

In exceptional circumstances, where the Members cannot perform the activity on account of being unable to access the system, the Nasdaq Dubai clearing team will perform the activity on behalf of the Member. The Member needs to contact the Nasdaq Dubai clearing team in such cases.

3.9 Manual allocation

A Clearing Member can transfer trades from their house account to client accounts and vice versa subject to following conditions:

The trade must have been executed on the current trading day or the previous trading day.

a) The trade can be allocated only from client or house account and not from Market Maker account.

b) The trade must not concern a series or contract that has expired (futures and options).

3.10 Clearing Operations

Activity	Pictorial Representation
Individual futures and options transactions received from the trading system	
Trade Enrichment	The clearing & settlement system maintains a mapping between the Trading Member (TM) and its corresponding Clearing Member (CM) who is responsible for clearing the transactions. The system identifies the CM for every trade and enriches the trade record.
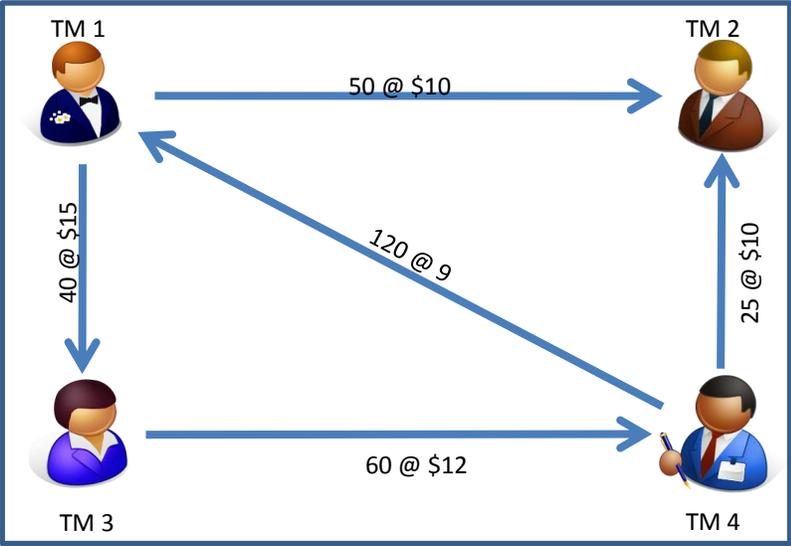
Trade Novation	Nasdaq Dubai clearing house becomes the Central Counter Party to all transactions executed on the Nasdaq Dubai trading system. In other words, it acts as a 'buyer' to every 'seller' and the 'seller' to every 'buyer'.
Generation of cash Obligations	 In case there are trade cancellations, the settlement obligations are adjusted accordingly and recomputed.
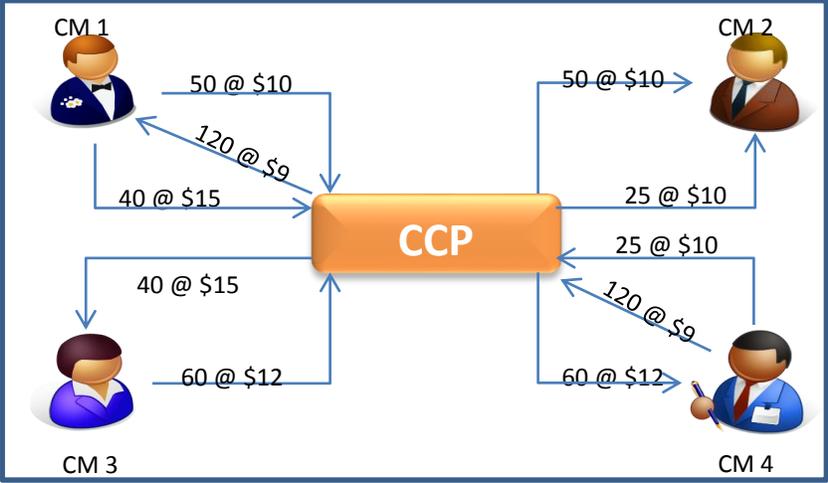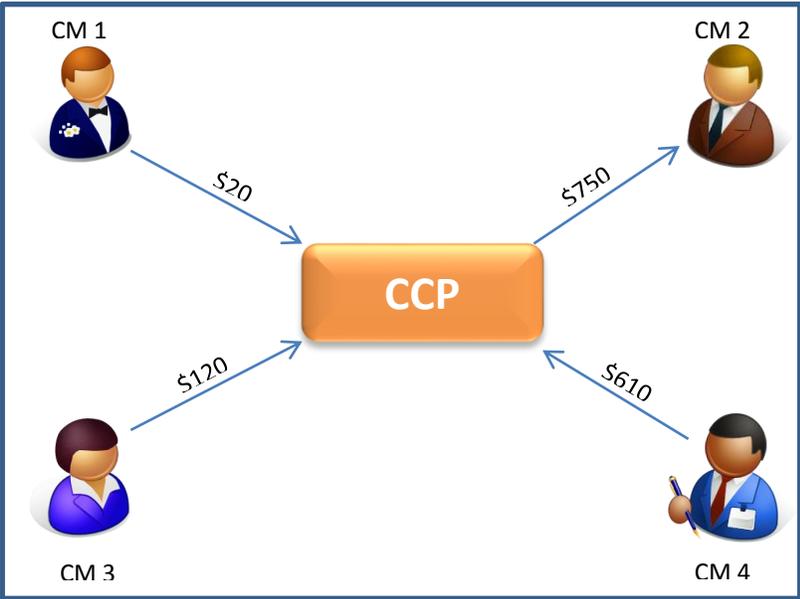
3.11   Market Calendar (Clearing and settlement)

Nasdaq Dubai informs it's Members about trading holidays and currency holidays via its Trading & Settlement Calendar. This calendar is published in the form of a notice to all the Members and is also posted on the Nasdaq Dubai website. Additionally, if due to exceptional circumstances, there are changes to the calendar, the same is informed by way of an additional Notice.

3.12   Trading Member - Clearing Member association

A Trading Member will get associated to a Clearing Member in the following cases:

1. New admission of a Trading Member
2. Voluntary transfer of association under another active Clearing Member
3. Clearing Member is suspended and hence, trading Member is required to be associated under another active Clearing Member

The Clearing Member who wishes to clear for a TM, contacts Nasdaq Dubai Clearing Operations with a written request. Nasdaq Dubai performs various verification checks on the request and then decides whether to process the allocation or not.

4. MARGIN REQUIREMENTS

In order to manage the risk that the clearing house assumes as the Central Counter Party to all obligations, Nasdaq Dubai will be using a concept based on collateralised obligations where the Margin will be collected to manage the replacement risk.

The Margin Rate for each Admitted Derivative Contract, will be published in a separate Notice, from time to time, upon admission of such Admitted Financial Instrument for trading on Nasdaq Dubai and thereafter when changed. The applicable Margin Rates and Margin parameters for all Admitted Financial Instruments are listed in the Margin Parameter Circular available on the Nasdaq Dubai website. The types of collateral that may be accepted to meet Margin calls are listed in the Eligible Margin Notice.

Note that any failure to meet Margin obligation within time specified in this procedure is subject to a penalty to be paid by the Clearing Member. Such penalty will be higher of USD 100 or 0.05% of the value of failed obligation. In addition to this penalty, Nasdaq Dubai may suspend Trading Members associated with such Clearing Member from trading if it believes there are reasons to do so to protect any potential risk to Nasdaq Dubai Clearing house. Where required, Nasdaq Dubai may decide to close out all or some of Clearing Members open position to restrict or minimize potential risk from unpaid margin obligations. Nasdaq Dubai may also in its absolute discretion, determine whether it will treat such failure to meet margin requirement as a Declared Default. Please refer to clause 10 of Nasdaq Dubai Business Rules for further details on Default Rules.

4.1   Initial Margin (SPAN Margin)

As a general statement it should be noted that Initial Margin is designed to reflect the market risk of a Clearing Member's Net Open Positions. The objective is to set a Margin Rate which will provide Nasdaq Dubai with 99 % confidence that the Margin provided will be sufficient to cover the loss. In arriving at a Margin Rate, Nasdaq Dubai will normally take into consideration historical price information in respect of securities, indices, sectors or other measurements that demonstrate some correlation with the Admitted Security in question.

Nasdaq Dubai uses the following guidelines to arrive at the Margin Rate for each:

1. Guidelines for Margin Rate calculations:

a.   Calculate lognormal returns of historical prices over a 1 day period;
b.   Calculate standard deviation of returns for 360 days, 180 days, 90 days and 30 days;
c.   The highest of the four standard deviations in b) above to be multiplied by a square root of 2 (assuming a 2 day close out period);
d.   To address illiquidity risk, if 6 months average trading value in underlying is less than USD 1 million, one additional day for closeout will be considered (in section c) to derive margin rate in above methodology.
e.   Multiply the above value by 2.57 (99% confidence level);
f.   The result derived in the above calculation will set the Margin rate and is rounded up to nearest integer;
g.   The derived Margin rate is compared with the last 300 days actual price movements. If the Margin rate breaks more than once, the rate is adjusted accordingly; and
h.   Minimum margin rate is set at 5% for Index and 10% for equities.
i.   The Margin rate so determined may be further adjusted at Nasdaq Dubai's discretion.

2. Minimum margin requirement for retail clients

Members will be required to impose at least 15% margin on open position for its retail client for single stock futures and 10% on Index futures.

3. Introduction of concentration Margins and position limits

Nasdaq Dubai will impose additional concentration margin and/or impose position limits if it feels necessary to do so to maintain a fair and orderly market.

The Margin rate thus arrived at is used to compute the 'Price Scanning Range' for each contract.

Nasdaq Dubai computes Initial Margin requirements using the Standard Portfolio Analysis of Risk ("SPAN") system, which is developed and owned by Chicago Mercantile Exchange ("CME"). The Scanning Range derived through the process above is fed into the SPAN system to calculate Margin requirements. These Scanning Ranges together with other details are calculated on a weekly basis (or more frequently, at Nasdaq Dubai's discretion) and published via circulars that are placed on the Nasdaq Dubai website.

The Span risk parameter file and price files are made available on CME FTP server (ftp://ftp.cmegroup.com/pub/span/data/difx/) as well as on the Nasdaq Dubai website.

Members may also request Nasdaq Dubai for sample SPAN files that they can use to verify Margin calculations if required. Please refer to Appendix B for a more detailed summary on the SPAN calculation methodology.

4.2   Additional Margin

Additional Margin will be called for by Nasdaq Dubai if market conditions warrant. Additional Margin may be applied in respect of a particular Clearing Member or with regards to a particular Admitted Security. The additional Margin requirement can be checked by the Clearing Member by logging on to the Clearing system.

4.3   Margin Call

The Margin requirements for each Derivatives Clearing Member will be the sum of the following Margin components: (i) Initial Margin for Futures Contract, (ii) Margin for Options Contract ("Options Margin") and (iii) Additional Margin.

Each Clearing Member's Margin requirement will be calculated at least every Business Day following the close of trading for that day and, where applicable a Margin call will be made. When Nasdaq Dubai notifies a Clearing Member of a Margin requirement and if applicable, a Margin call, it will be expressed as positive number that is payable by a Clearing Member.

All Margin calls will be expressed in the currency in which the contracts are denominated. However, under exceptional circumstances or if the situation so warrants, Nasdaq Dubai may call for Margins in the currency that is available on that particular day, e.g. on Sundays, Nasdaq Dubai may call for Margins in UAE dirham after converting US dollars Margin requirement into UAE dirhams or on Fridays, Nasdaq Dubai may call for Margins in US dollars after converting UAE dirham Margin requirements into US dollars.

4.4   Margin timelines

A Clearing Member must ensure that it monitors its requirement to provide Margin and that it complies with all Margin calls in a timely fashion. In connection with a Margin call, Nasdaq Dubai will notify the Clearing Bank and Clearing Members of the Margin call in question after the end of the Business Day (generally from 17.30 – 18:00 UAE time).

A Clearing Member shall ensure that all Margin payments (other than Intra-day Margin payments which may be subject to different time requirements) are made on the next Business Day no later than 10:30 hours, unless the day in question is a Currency Settlement Holiday, whereupon payment shall be made no later than 10:30 hours the following Business Day that is not a Currency Settlement Holiday. In connection with longer currency holidays specific special procedure may apply and will be communicated to members.

4.5   Intra-Day Margin

In certain circumstances (including but not limited to the accumulation of a larger than usual Net Open Position by a particular Clearing Member or unusually large market movements), Nasdaq Dubai may recalculate the Margin requirements for any or all Clearing Members and require the Clearing Members to provide intra-day Margin accordingly. The timing for complying with such intra-day Margin requirements shall be as notified to the Clearing Member at the time a request for Margin is notified. Clearing Members should ensure that they pay the intra-day Margin within the deadline set for it.

4.6   Eligible Margin

Nasdaq Dubai shall have the sole discretion to determine the Eligible Margin and shall specify the type of cash, Eligible Securities, bank guarantees and other assets comprising Eligible Margin by Notice.

Eligible Margin which Nasdaq Dubai currently accepts are as follows:

i.   USD or AED or SAR
ii.   USD or AED or SAR bank guarantees.

In the case of bank guarantees, no bank guarantee shall be accepted unless Nasdaq Dubai approves the issuing bank, the credit limit, the precise wording of the guarantee and the governing law of the guarantee.

Additions or deletions to the list of Eligible Margin will be made by Notice.

4.7   Concentration Limits on Eligible Margin

Nasdaq Dubai may impose restrictions on the quantity or proportion of each type of Eligible Margin by providing the requisite information in the Margin Notice.

This could include:

- Imposing a minimum requirement by proportion and/or value for cash Margin;
- Assigning a maximum limit for bank guarantees from a specific bank. The bank guarantee from that bank would be accepted only if the total bank guarantee provided by the bank is within the defined limit.

4.8   Valuation of Eligible Margin

The value of the Eligible Margin will be arrived at after taking into consideration the haircuts as specified by Nasdaq Dubai in the Margin notice. The value of Eligible Margin deposited can be checked by the Clearing Member by logging on to Clearing system and viewing the relevant reports.

4.9   Collateral Submission

The cash Margin should be deposited by the Clearing Member in the Settlement Bank. Clearing Member's Settlement Bank in turn will transfer it to Nasdaq Dubai's Margin account at the Clearing Bank. Bank guarantees shall be lodged with Nasdaq Dubai by the Clearing Member.

4.10   Margin Release

Clearing Members may request the withdrawal of those assets which are not required to meet the Margin requirement. In order to be eligible for such release of Margin on the same day, any such requests must be made to Nasdaq Dubai prior to 16:00 hours (UAE time). If approved, Margin will be released on the same day on best effort basis, after considering the end of day Margin requirements, and no later than next Business Day by 20:00 hours (UAE time).

Additionally, Members can request to auto-release free cash collaterals above a chosen threshold. If the Member defines this threshold by submitting the Collateral Release request form, then any free collateral above this limit will be automatically released as part of the end of day activities.

The Member should complete and submit Form D6 – Collateral Release Request available on the Nasdaq Dubai website at www.nasdaqdubai.com/members/procedures.

4.11   Interest on Cash Margin

Cash Margin held at Nasdaq Dubai shall be transferred to the Margin account in the name of Nasdaq Dubai at the Clearing Bank. Nasdaq Dubai will pay interest on cash Margin. The interest will be calculated on a monthly basis and credited on a quarterly basis to the funds held by Nasdaq Dubai as Margin of the Clearing Member.

The interest to be credited by Nasdaq Dubai to a Clearing Member on cash Margin shall be equal to the amount of interest which Nasdaq Dubai receives in respect of such cash Margin less the spread. Provided that no interest shall be paid on cash Margin which is less than USD1,000,000 for cash Margin held in USD and AED1,000,000 for cash Margins held in AED. Nasdaq Dubai will specify the minimum cash Margin amount eligible for interest and the spreads in the Margin Notice from time to time.

If Cash Margin held by Nasdaq Dubai is more than USD1,000,000 or AED1,000,000, Nasdaq Dubai will pay interest to Clearing Member only on amount in excess of USD1,000,000 for USD cash and AED1,000,000 for AED cash.

Cash Margin Amount in USD	Spread
Between USD1,000,000 and USD9,999,999	0.50 %
USD10,000,000 or more	0.25 % [on the amount exceeding USD 9,999,999]
Cash Margin Amount in AED	Spread

Between AED1,000,000 and AED24,999,999   0.50 %

AED25,000,000 or more   0.25 % [on the amount exceeding AED 24,999,999]

4.12   Daily Settlement Prices

4.12.1   Daily settlement price for Single Stock Futures and Index futures:

On each Business Day, Nasdaq Dubai determines the Closing Price for Derivatives contracts as follows:

1. The Closing Price will be the last traded price in the Derivative Contract during the same Business Day.
2. If there is no last traded price on the same Business Day, Nasdaq Dubai will determine the Closing Price based on quotes provided by its active market participants. Nasdaq Dubai will use midpoint of such bid and offer quotes provided by its active market participants. Nasdaq Dubai will have sole discretion to exclude any outliers at the time of such computation.
3. If a price cannot be determined by the above methods on account of lack of quotes on market, then the previous day's Closing Price shall be the Closing Price.

However, if the price so determined does not reflect the actual market conditions, Nasdaq Dubai may re-determine the daily settlement price at its sole discretion and may use theoretical fair value for the same.

Theoretical fair value will be calculated using the formula $FP = S * e^{rt}$

Where, FP = Futures price

S = price of the underlying security

R = Interest rate

t = time to expiry (i.e. period between current day and expiry day)

If underlying security prices in closing auction are not available on account of lack of trading activity, suspension of underlying security, any system access malfunctioning in underlying market or any other reason beyond Nasdaq Dubai's control then Nasdaq Dubai may re-determine the daily settlement price at its sole discretion

The daily settlement prices will be published on Nasdaq Dubai website and through data feed to brokers and vendors by 17:00 hours

4.13   Final Settlement Prices

4.13.1   Final settlement price for UAE Single Stock Futures:

When determining the final settlement price, Nasdaq Dubai will use the last 30 minutes of volume weighted average price (VWAP) of the underlying security. VWAP is calculated by adding up the trade value for every transaction executed in last 30 minutes and then dividing by the total number of shares traded during that period.

In the event that this price does not, in the opinion of Nasdaq Dubai, adequately reflect the actual market conditions, or if underlying security prices for last 30 minutes is not available on account of lack of trading activity, suspension of underlying security or any system malfunctioning in underlying market, then Nasdaq Dubai may re-determine the final settlement price at its sole discretion. In exercising its discretion, the exchange may consider the following approach to determine the final settlement price:

1. VWAP of the trading activity in the underlying security during the day for last available 30 minutes trading window in the underlying security.
2. If there is no last traded price available on the same trading day in the underlying security, Nasdaq Dubai will consult its active market participants to provide such prices. Nasdaq Dubai will consider averaging these prices received from its active participants and will have the sole discretion to exclude any outliers while using the averaging method.
3. If a price cannot be determined by the above methods, then Nasdaq Dubai may use its reasonable judgment based on the prevailing market conditions to establish the final settlement price at its sole discretion.

The final settlement prices will be published on Nasdaq Dubai website and through data feed to brokers and vendors by 15:00 hours

4.13.2   Final settlement price for Saudi Single Stock Futures:

When determining the final settlement price, Nasdaq Dubai will use the market price on the last Trading Day of the Contract. Such market price will be determined based on the below:

1. Nasdaq Dubai will use its active market participants quotes to determine market prices.
2. If a price cannot be determined by the above methods, or if the price so determined does not reflect the actual market conditions then Nasdaq Dubai may use its reasonable judgment based on the prevailing market conditions to establish the final settlement price at its sole discretion.

The final settlement prices will be published on Nasdaq Dubai website and through data feed to brokers and vendors by 17:00 hours

4.13.3   Final settlement price for Index Futures:

With respect to the Index Futures contracts the final settlement price of the respective index will be the last 30 minutes average price calculated using Index values after each 1 minute interval.

In case of extraordinary circumstances especially due to technical problems or if a price determination as mentioned is not possible for any reasons, the Nasdaq Dubai may determine the final settlement price at its sole discretion and may use last available Closing Price of Index as final settlement price.

4.13.4 Distribution of settlement prices

Nasdaq Dubai Clearing house shall determine the settlement prices within one hour from the market close. After such determination, these prices file shall be used and disseminated as follows:

1. Uploaded in the clearing system for Mark to Market calculations
2. Span system for calculation of Margins.
3. CME FTP website and Nasdaq Dubai website through span risk parameter file (difxyyyymmdd.spn).
4. Nasdaq Dubai website as public information (settlement_price_yyyymmdd.csv)
5. Nasdaq Dubai ftp folders for specific Members (settlement_price_yyyymmdd.csv)

Nasdaq Dubai Website: www.nasdaqdubai.com/trading/clearing-and-settlement

(CME ftp address: ftp://ftp.cmegroup.com/pub/span/data/difx/)

5. OPERATING PROCEDURES FOR SETTLEMENT OPERATIONS

5.1 Introduction to the settlement model

All Derivatives contracts on Nasdaq Dubai are currently cash settled. Daily cash obligations calculated for Derivatives positions include options premium, futures mark to market, give up & take commissions, cash settlements on expiration, trading and clearing fees payable to Nasdaq Dubai and any other payables.

5.1.1 Variation Margin Settlement (or mark to market settlement)

Mark-to-market settlement is designed to reflect the accrued unrealised profits or losses on the unsettled traded positions. A comparison will be made with each Business Day's closing price used for Margining. In general, the Variation Margin (i.e. the mark-to-market settlement value) will be calculated on the Business Day as the difference between the relevant transaction prices and the daily settlement price, i.e. the price at closing used for Margining for that Business Day. The Variation Margin will be calculated for all unsettled traded positions where profits and losses will be netted.

Nasdaq Dubai will calculate Variation Margin or any other payment (or receipt) of obligation for Admitted Derivative contracts like option premium, fees, etc., on daily basis at end of Business Day (generally from 17:30 – 18:00). A Clearing Member shall ensure that these are daily settled at 10:30 next Business Day, unless the day in question is a Currency Settlement Holiday, whereupon payments shall be made no later than 10:30 hour the following Business Day which is not a Currency Settlement Holiday.

5.1.2   Final Cash Settlement

For instruments that are Cash Settled, the final settlement will be done by either payment or receipt of monies. This means that the Member's cash account at the settlement bank will be either credited (in case of receipt obligations) or debited (in case of payment obligations). The payment and receipt of monies will be on the official settlement prices published by Nasdaq Dubai. Notification and payment deadlines for final cash settlements will follow the same timelines as the ones stated above for Variation Margin.

In case of physically settled instruments, the assignment date will be considered as "Trade Date" (T Day) and the positions will be settled on T+1 day. The Nasdaq Dubai Clearing house will forward cash instructions on the T-day and the confirmation of these instructions can be on the time decided by Nasdaq Dubai periodically.

For calculation of expiration fees, house positions will be netted and client positions will be on a gross basis.

5.2   Exercise

Expiry will take place on the 3rd Thursday of the expiration month. If the 3rd Thursday happens to be a non-Business Day, the previous Business Day will be taken as the expiry date. On the expiration day, all "in the money options" will be automatically exercised unless the holder of the option abandons. The term in the money herein means that even if the contract is in the money by the least minimum tick, the option will be exercised. The Member does not have the choice of specifying the factor, in terms of value or percentage by which the options can be exercised. Those options which are exactly "at the money" i.e. the closing price of the underlying assets is exactly the same as the strike price, will also be exercised.

   a. Automatic Exercise: In cases where the Member's option position has gone to expiration, the Member is not required to input any instructions. The Nasdaq Dubai clearing system computes the value of the positions and if the positions are deemed to be "In the Money", the positions are automatically exercised.
   b. Voluntary / Manual Exercise: In cases where the instrument has final exercise as "Voluntary", the Members are required to input instructions in the clearing system. Based on the instructions received, availability of positions and other data, the clearing system computes the value of the positions and the same are exercised.

Early Exercise: Members having a long position in an options instrument can early exercise to the extent of the available long positions. Member can perform early exercise only in those instruments which are of "American" style.

The Members can input 2 different types of instructions:

   1. Exercise Requests: Members having sufficient long positions in options can input exercise request via the clearing system. For American options, the Members can input the request up until one day prior to the expiration date. In cases where the option has the final exercise as "Voluntary / Manual" the Member has to input the instructions to exercise, otherwise the option expires worthless.
   2. Do not exercise requests: Members can input do not exercise requests only on the expiration date.

5.3   Assignment process:

The Clearing system uses an automated process to assign exercised options amongst short position holders. Assignments are binding for the holders of short positions. The assignment process is part of the end of the day activities performed by the clearing system and will commence after all other activities like the give up, take up of transactions, match outs, unwinding of match outs and allocation etc. have been completed. On the expiry date, the clearing system will identify the exercise requests and do not exercise requests placed by the Members. All valid exercise quantities will be picked up for the assignment process in order of time of placing the requests. All Clearing Members with short positions will then be assigned a number on a random basis. Based on the random number, every short position will be assigned to a long position until any of it is exhausted. In this process, all Members with short positions have equal chance of getting assigned. If the contract is physically settled, then the obligation are merged with the obligations in the equity market and the assignment date will be considered as Trade Date and will follow normal settlement cycle and fails management.

5.4   Delivery Notification:

Members who have short positions and have been assigned will be notified about the fact that they have been assigned and what quantity has been assigned. The Members will be notified in the form of end of day reports and in the clearing systems. The Members are required to honour the obligations from the option exercise transaction.

5.5   User Defined contracts:

Nasdaq Dubai has introduced user defined options contracts. This is to enable Member firms to request and report non-standardised contracts. Currently, the facility is restricted only to stocks on which contracts are available in the Derivatives segment i.e. (a) Any eligible security listed on and approved by Nasdaq Dubai (b) Any regional security approved by Nasdaq Dubai and (c) Any index covering regional markets, approved by Nasdaq Dubai. Members wishing to report such transactions need to forward the trade form and series creation form duly filled or provide details to Nasdaq Dubai. Nasdaq Dubai will then create the series in its clearing systems and subsequently print the trade on the next business day. However, the Members will have to honour Margin requirements on such contracts as per the timelines fixed by Nasdaq Dubai from time to time.

5.6   Block Amounts for options contract:

Nasdaq Dubai shall at periodical intervals review the Normal Block Amounts, and where necessitated, change and amend them via a CANDI Notice inform all market participants. Currently, the Normal Block Amounts for Options contracts are as follows:

Single Stock Options   :   500 contracts
FTSE Index Options   :   100 contracts

6. SWIFT MESSAGES

For the purposes of Derivatives, Nasdaq Dubai will not use any additional SWIFT messages. However, existing SWIFT messages (for cash settlement between Nasdaq Dubai, Members and settlement banks) will continue.

7. REPORTS

Nasdaq Dubai, as part of its daily end of the day activities, will forward an array of system generated user friendly reports to its participants. All of the reports will be in CSV or PDF formats.

The aforementioned CSV and PDF reports will be forwarded to Members in a secured destination using the secured file transfer protocol (SFTP) mechanism. The Members and / or their back office system vendors will be allowed to access these folders. Nasdaq Dubai will provide user names and passwords to access these folders. Nasdaq Dubai will forward the trade details to the Clearing Members and the Clearing Members in turn have to pass on the information to Trading Members.

The list of reports with its formats and specifications are explained in a "Reports specification document" which will be available on request.

Serial #	Report Name	Brief Description	Formats to be supported	Frequency of generation
1	Positions After Expiry Report	Details the positions After the expiry	CSV	End of day (EOD)
2	Trades Report	List of trades for the day	CSV	Intraday and EOD
3	Trades Given Up	Details of given up trades accepted successfully by the target CM	CSV	EOD
4	Trades Taken Up	Details of trades taken up by target CM	CSV	EOD
5	Contract details report	Summary of contract details Vs market price details for options	CSV	EOD
6	Cash obligation report	Summary of net cash obligations for Members in the Derivatives segment	CSV	EOD
7	Cash collateral history report	Summary of collaterals for Derivatives	CSV	EOD
8	Exercise Settlement (Cash)	Details of options exercised and settled in cash	CSV	EOD
9	Exercise Settlement (Physical)	Details of options exercised and settled in physical delivery	CSV	EOD
10	Daily MTM	Details of MTM settlement for Futures	CSV	EOD
11	Maturity of futures physical delivery	Details of Physical delivery of futures	CSV	EOD
12	Match Outs Done	Details of Match outs done during the day	CSV	EOD
13	Unwinding of Match outs	Details of match outs unwound during the day	CSV	EOD
14	Open Interest Report	Details of open interest on futures and options	CSV	EOD
15	Derivatives Margin Report	Details the initial Margin details for the Derivatives position	CSV	EOD
16	Exercise Request Report	Details on the exercise requests	CSV	EOD
17	Position Reconciliation	Details the reconciliation for positions	CSV	EOD
18	Assignment Report	Details the assignment	CSV	EOD
19	Positions Before Expiry Report	Details the positions before the expiry	CSV	EOD
20	Physical Settlement Trades Report	Details the trades generated in the equity segment	CSV	EOD

8. APPENDIX A

Example for position keeping and Margining

Position Keeping

Position account	Type	Net Position
1	House	10 contracts
2	Client	5 contracts
3	Market maker	15 contracts

Derivatives Margin calculation

Position account	Type	Currency	Margins
1	House	USD	50000
2	Client	USD	35000
3	Market maker	AED	80000

Margin calls (Cash message generation for pan Margins)

Cash settlement account	Account Type	Currency	Margin calculated	Collateral available	Margin call (shortage)
11	Cash [house]	USD	50000	10000	40000
12	Cash	USD	35000	10000	25000
11	Cash [Market Maker]	AED	80000	20000	60000

Note: Please note that profit and loss (MTM) and other cash obligations arising for premium and commissions and Settlements, etc. will be sent as a separate cash message.

9. APPENDIX B

Overview of SPAN calculation methodology

Nasdaq Dubai will use SPAN Risk Manager Clearing ("SPAN RMC") to calculate Margin obligations.

The Standard Portfolio Analysis of Risk™ (SPAN) system is a highly sophisticated methodology that calculates performance bond requirements by analysing the "what-ifs" of virtually any market scenario. Developed and implemented in 1988 by Chicago Mercantile Exchange (CME), SPAN was the first system ever to calculate performance bond requirements exclusively on the basis of overall portfolio risk at both clearing and customer levels.

Following types of Margins shall be calculated by SPAN RMC system:

Initial Margin on Futures – Futures are Margined for both side of the contract i.e. buyer and seller. It covers the Price volatility risk as determined by Nasdaq Dubai. Nasdaq Dubai will set and publish the Initial Margins based on the volatility analysis on the underlying.

Margin for written options

The total Initial Margin requirements for a Member for a portfolio of futures and options contract would be computed in SPAN RMC as follows:

  i.   SPAN will add up the Scanning Risk Charges and the Intra commodity Spread Charges.
  ii.   SPAN will compares this figure (as per i above) to the Short Option Minimum charge.
  iii. It will select the larger of the two values between (i) and (ii).
  iv.   Total SPAN Margin requirement is equal to SPAN Risk Requirement (as per iii above), less the 'net option value', which is mark to market value of difference in long option positions and short option positions.

Risk parameters:

Parameter used to calculate Margin requirement by SPAN are as follows:

- Price Scan Range: A set range of potential price changes

- Volatility Scan Range: A set range of potential implied volatility changes

- Intra commodity Spread Charge: An amount that accounts for risk (basis risk) of calendar spreads or different expirations of the same product, which are not perfectly correlated

- Short Option Minimum: Minimum Margin requirement for short option positions

- Spot Charge: A charge that covers the increased risk of positions in deliverable instruments near expiration

- Interest rates

- Expiry date

The Price scanning range is used to derive Initial Margin on Futures Contract, and is the amount of the Initial Margin per Futures Contract denominated in the currency of the contract. Intra commodity spread is the amount per Future Contract levied to cover the calendar spread risk in contracts on the same underlying.

SPAN Algorithm

SPAN evaluates overall portfolio risk by calculating the worst probable loss that a portfolio might reasonably incur over a specified time period. SPAN achieves this number by comparing hypothetical gains and losses that a portfolio would sustain under different market conditions.

SPAN typically provides a "Risk Array" analysis of 16 possible scenarios for a specific portfolio under various conditions.

SPAN Scenarios (Risk Arrays)

1. Futures unchanged, Volatility up
2. Futures unchanged, Volatility down
3. Futures up 1/3 range, Volatility up
4. Futures up 1/3 range, Volatility down
5. Futures down 1/3 range, Volatility up
6. Futures down 1/3 range, Volatility down
7. Futures up 2/3 range, Volatility up
8. Futures up 2/3 range, Volatility down
9. Futures down 2/3 range, Volatility up
10. Futures down 2/3 range, Volatility down
11. Futures up 3/3 range, Volatility up
12. Futures up 3/3 range, Volatility down
13. Futures down 3/3 range, Volatility up
14. Futures down 3/3 range, Volatility down
15. Futures up extremely (3x range; cover 32% of loss)
16. Futures down extremely (3x range; cover 32% of loss)

The risk array represents how a specific derivative instrument will gain or lose value, from the current point in time to a specific point in time in the near future, over a specific set of market conditions which may occur over this time duration, also called the look-ahead time. The look-ahead time is typically set to one trading day, because in SPAN we are trying to evaluate the maximum likely loss which may reasonably occur over one trading day.

The specific set of market conditions evaluated, are called the risk scenarios, are defined in terms of (a) how much the price of the underlying instrument is expected to change over the look-ahead time, and (b) how much the volatility of that underlying price is expected to change over the look-ahead time. The results of the calculation for each risk scenario, the amount by which the specific derivative instrument will gain or lose value over the look-ahead time under that risk scenario, is called the risk array value for that scenario. The set of risk array values for that contract (derivative instrument) under the full set of risk scenarios constitutes the risk array.

By convention, risk array values are calculated for a single long position. "Long" here means long the instrument, not long the market: buying a put and buying a call both yield long positions for the purposes of SPAN. Also by convention, since SPAN is more interested in potential losses than potential gains, losses are represented as positive values, and gains as negative values. Risk array values are typically represented in the performance bond currency in which the specific contract is denominated.

Since its inception, SPAN has used a standardised definition of the risk scenarios, defined, as indicated above, in terms of the underlying price scan range, and the underlying price volatility scan range. These two values are often simply referred to as the price scan range and the volatility scan range. There are 16 risk scenarios in the standard definition. Here's an example of a typical options risk array:

Scanning ranges

SPAN starts at the current underlying market settlement price and scans up and down three even intervals of price changes. At each underlying market price, the program also scans up and down a range from the underlying market's current volatility. Nasdaq Dubai determine the magnitude of these scan ranges for each underlying instrument.

The scenarios used by SPAN consider the following:

- Possible variation of underlying price (Price scanning range),
- Possible variation of underlying volatility (Volatility scanning rang),
- Impact of time on option price.

All these factors have an impact on the value of the portfolio. Through these scenarios and using positions of the portfolio, SPAN determines the maximum loss sustained by this portfolio from one market day to the next. This is the Scanning Risk.

SPAN considers a total of 16 risk scenarios by using a scanning range, or fluctuation range of the underlying instrument price and a volatility range defined for each Combined Commodity.

Intermonth Spread charge (Calendar Spread)

When SPAN scan the futures prices, it assumes that prices of different contract months move by the same amount. For a client holding long September XYZ futures and short December XYZ futures, SPAN will consider the loss from the long position to be completely offset by the gain from the short position for this client. To

cover the price risk among different contract months, SPAN adds an Intermonth Spread Charge to the Margin requirement.

SPAN uses deltas to compute the Intermonth Spread Charge. Deltas measure how a futures contract or an option's value reacts to underlying price change. Futures deltas are +1.0, while option deltas range from -1.0 to +1.0. SPAN finds the net delta in each contract month and then adds up the net delta in all net long months and all net short months. SPAN forms spread between delta in long months and delta in short months until it exhausts either long or short delta. SPAN then charges the spread rate for each spread and adds this Intermonth Spread Charge to the Scanning Risk Charge.

Short Option Minimum Charge

Short options positions in extremely deep-out-of-the-money strikes may appear to have little or no risk across the entire scanning range. However, in the event that underlying market conditions change sufficiently, these options may move into-the-money, thereby generating large losses for the holders of short positions in these options. To cover the risks associated with deep-out-of-the-money short options positions, SPAN assesses a minimum requirement for each short option contained in the portfolio.

These Short Option Minimum charges are set by the Nasdaq Dubai and expressed as amount. The Short Option Minimum charge serves as a lower bound to the risk requirement for each underlying instrument; the risk requirement for the instrument in question cannot fall below this level.

The SOM Margin is calculated based on the maximum number of total short calls or total short puts on the portfolio. The client Margin requirement can be obtained by added the Scanning Risk Charge and the Intermonth Spread Charge and then comparing it with the Short Option Minimum Margin whichever is larger.

*Short Option Minimum Charge = maximum (number of short calls, short puts) * Short option minimum charge rate*

Unusual Future Price moves (Scenario 15 and 16)

Deep-out-of-the-money short options positions pose a special risk identification problem. As they move toward expiration, they may not be significantly exposed to "normal" price moves in the underlying instrument. However, unusually large underlying price changes may cause these options to move into the money, thus creating large losses to the holders of short positions.

To cover this risk, SPAN constructs two additional scenarios by scanning up and down 3 times of the normal client Margin level. Since these unusually large price moves are so rare, SPAN covers only a fraction of the resulting loss, i.e. 32%.

Scanning Risk

SPAN computes the theoretical value of options and futures in each scenario. It then compares today's theoretical value to the following day's theoretical value for the same scenario and calculates the gain or loss.

SPAN will store these value gains and losses in each scenario in a Risk Array. As each futures contract and options series may react differently to each scenario, each will have its own Risk Array. The value gain and loss of a portfolio in each scenario is the aggregate value gains or losses of all futures and options positions in that portfolio. The largest loss of the portfolio in these sixteen scenarios is called the Scanning Risk Charge which is the basic Margin requirement for that portfolio.

Long Option Value

Long Option Value is applied to all long options in each Combined Commodity. It serves as an upper bound of Margin requirement for each Combined Commodity with solely net long calls and/or long put.

For each long option contract in this Combined Commodity,

1. Multiply the number of long positions by option contract value to obtain Long Option Value for each of the contract.

Long Option Value = number of long positions x option contract value where option contract value = option settlement price x contract multiplier

2. Add up all the Long Option Value in step 1 to derive Long Option Value for the Combined Commodity.

SPAN EXAMPLE

Example 1

Write (short) a September 16800 XYZ Call Option with underlying closing at 17515

Scenario	Value Loss
Futures unchanged, Volatility up	260
Futures unchanged, Volatility down	-380
Futures up 1/3 range, Volatility up	9,736
Futures up 1/3 range, Volatility down	9,424
Futures down 1/3 range, Volatility up	-8,759
Futures down 1/3 range, Volatility down	-9,684
Futures up 2/3 range, Volatility up	19,476
Futures up 2/3 range, Volatility down	19,321
Futures down 2/3 range, Volatility up	-17,060
Futures down 2/3 range, Volatility down	-18,391
Futures up 3/3 range, Volatility up	29,356
Futures up 3/3 range, Volatility down	29,285
Futures down 3/3 range, Volatility up	-24,342
Futures down 3/3 range, Volatility down	-26,011

| Futures up extremely (3x range; cover 30% of loss) | 20,745 |
| Futures down extremely (3x range; cover 30% of loss) | -13,512 |

All losses are positive numbers; all gains are negative numbers.

* These scenarios scan across a futures price range movement of 900 points (USD 45,000) and volatility movement range of 4%.

The Scanning Risk Charge for writing a September 16800 XYZ Call option is USD 29,356, which is larger than the Short Option Minimum Margin (USD 7,000). Therefore, the minimum Margin requirement for writing that option is USD 29,356.

Example 2

Long 1 December XYZ Futures
Short 2 September 17400 XYZ Calls; Market closed at 17438

Scenario	Long 1 Dec XYZ Futures		Value Loss
Futures unchanged, Volatility up	1 x	0	0
Futures unchanged, Volatility down	1 x	0	0
Futures up 1/3 range, Volatility up	1 x	-15,000	-15,000
Futures up 1/3 range, Volatility down	1 x	-15,000	-15,000
Futures down 1/3 range, Volatility up	1 x	15,000	15,000
Futures down 1/3 range, Volatility down	1 x	15,000	15,000
Futures up 2/3 range, Volatility up	1 x	-30,000	-30,000
Futures up 2/3 range, Volatility down	1 x	-30,000	-30,000
Futures down 2/3 range, Volatility up	1 x	30,000	30,000
Futures down 2/3 range, Volatility down	1 x	30,000	30,000
Futures up 3/3 range, Volatility up	1 x	-45,000	-45,000
Futures up 3/3 range, Volatility down	1 x	-45,000	-45,000
Futures down 3/3 range, Volatility up	1 x	45,000	45,000
Futures down 3/3 range, Volatility down	1 x	45,000	45,000
Futures up extremely (3x range; cover 30% of loss)	1 x	-31,500	-31,500

Futures down extremely (3x range; cover 30% of loss)	1 x	31,500	31,500	
Delta	1 x	1.00	1.00	

Scenario	Short 2 Sep. 17400 XYZ Calls		Value Loss
Futures unchanged, Volatility up	-2 x	-297	594
Futures unchanged, Volatility down	-2 x	717	-1,434
Futures up 1/3 range, Volatility up	-2 x	-8,263	16,526
Futures up 1/3 range, Volatility down	-2 x	-7,755	15,510
Futures down 1/3 range, Volatility up	-2 x	5,297	-10,594
Futures down 1/3 range, Volatility down	-2 x	6,420	-12,840
Futures up 2/3 range, Volatility up	-2 x	-17,586	35,172
Futures up 2/3 range, Volatility down	-2 x	-17,435	34,870
Futures down 2/3 range, Volatility up	-2 x	8,215	-16,430
Futures down 2/3 range, Volatility down	-2 x	8,870	-17,740
Futures up 3/3 range, Volatility up	-2 x	-27,424	54,848
Futures up 3/3 range, Volatility down	-2 x	-27,396	54,792
Futures down 3/3 range, Volatility up	-2 x	9,247	-18,494
Futures down 3/3 range, Volatility down	-2 x	9,441	-18,882
Futures up extremely (3x range; cover 30% of loss)	-2 x	-20,088	40,176
Futures down extremely (3x range; cover 30% of loss)	-2 x	3,327	-6,654
Delta	-2 x	0.64	-1.28

All losses in the above tables are positive numbers; all gains are negative numbers.

* These scenarios scan across a futures price range movement of 900 points (USD 45,000) and volatility movement range of 4%.

The Scanning Risk Charge for the above positions is **USD 26,506**.

For September contract,
Net Delta = -1.28
For December contract,
Net Delta = +1.00
Thus, one pair of spread can be formed and Intermonth Spread Charge is
1 x USD 7,500 per spread = USD 7,500
Minimum Margin requirement for these positions is the sum of the Scanning Risk Charge (USD 26,506) and the Intermonth Spread Charge (USD 7,500); i.e. **USD 34,006**.

10. APPENDIX C

The following request forms are available on the Nasdaq Dubai website:

#	Name	Description	Form Number
1.	Give up or take up Request	Instructions to give up or take up trade	Form D1
2.	Manual Match Out Request	To match out positions	Form D2
3.	Trade Allocation Request	To allocate a trade	Form D3
4.	Exercise Request	Creating an option exercise	Form D4
5.	Clearing Account Opening Form	To open new Clearing account	Form D5
6.	Collateral Release Request	To release collateral	Form D6