

FINAL REPORT  
OIC MEMBER STATES' STOCK EXCHANGES FORUM  
10TH MEETING

ISTANBUL, OCTOBER 27, 2016

Wyndham Grand Istanbul  
Istanbul, October 2016

## TABLE OF CONTENTS

Final Report of the Tenth Meeting of the OIC Member States' Stock Exchanges Forum

### ANNEXES

- I. Presentation by Mr. Mohammad Farrukh RAZA
- II. Presentation by Mr. Fatih KAZAN
- III. Presentation by Mr. Johan TOLL
- IV. Presentation by Mr. Oğuzhan ALOĞLU
- V. Presentation by Ms. Ayzer BİLGİÇ
- VI. Presentation by Mr. Recep BİLDİK
- VII. Presentation by Ms. Şenay PEHLİVANOĞLU
- VIII. Presentation by Mr. Ufuk ÖZDEMİR and Mr. Haluk GÜRSEL
- IX. Presentation by Mr. Jahangir SULTAN

Original: English

FINAL REPORT  
OIC MEMBER STATES' STOCK EXCHANGES FORUM  
10TH MEETING  
(Istanbul, October 27, 2016)

1. The Tenth Meeting of the OIC Member States' Stock Exchanges Forum convened in Istanbul on October 27, 2016.
2. The Meeting was attended by the representatives of the following capital market institutions of the OIC Member States:

**A. EXCHANGES OF THE OIC MEMBER STATES**

1. Borsa İstanbul, Turkey
2. Douala Stock Exchange, Cameroon
3. Iran Fara Bourse Company, Iran
4. Kazakhstan Stock Exchange, Kazakhstan
5. Pakistan Mercantile Exchange, Pakistan
6. Palestine Securities Exchange, Palestine
7. Qatar Stock Exchange, Qatar
8. Tehran Stock Exchange, Iran

**B. CENTRAL DEPOSITORIES, CLEARING AND REGISTRY INSTITUTIONS OF THE OIC MEMBER STATES**

1. Central Securities Depository of Iran, Iran
2. MKK-Central Depository of Turkey, Turkey
3. Takasbank, Turkey
4. Tunisie Clearing, Tunisia

**C. OTHER ORGANISATIONS**

1. Arab Federation of Exchanges
2. Bentley University
3. COMCEC Coordination Office

4. IFAAS- Islamic Finance Advisory & Assurance Services
5. Ministry of Foreign Affairs, Turkey
6. NASDAQ
7. SESRIC- Statistical Economic and Social Research and Training Center for Islamic Countries
8. Word Bank

### **Opening and Seminar Session**

1. The meeting was opened by Mr. Himmət KARADAĞ, Forum Chairman and CEO of Borsa İstanbul, who welcomed all delegates to Istanbul on the occasion of the tenth meeting of the OIC Member States' Stock Exchanges Forum and expressed his honour and contentment for opening the OIC Member States' Stock Exchanges Forum. Mr. KARADAĞ has stated:

“As the new management of Borsa İstanbul, we are committed to promoting Islamic Finance and we believe that the Forum is a precious channel for reaching and collaborating with other stakeholders of Islamic Finance.

We would like the Forum to be an area for discussion of new ideas and formation of new business relations through also by holding shuras. We would like to be able to hold shuras in order to better lead our capital markets. We hope our Forum will be the starting point for stronger cooperation among our members.”

2. Mr. KARADAĞ gave the floor to Mr. Recep BİLDİK, Head of Research and Business Development at Borsa İstanbul to moderate the meeting.
3. Mr. Mohammad Farrukh RAZA, Managing Director, IFAAS delivered a presentation entitled “Central Shariah Boards and Long-term Growth of Islamic Financial Industry”.

*(A copy of the presentation by Mr. Mohammad Farrukh RAZA is herewith attached as Annex I)*

4. Mr. Fatih KAZAN, Financial Sector Specialist, World Bank delivered a presentation entitled “Developing Shariah Compliant Stock Index”.

*(A copy of the presentation by Mr. Fatih KAZAN is herewith attached as Annex II)*

5. Mr. Johan TOLL, Associate Vice President and Product Manager Blockchain, NASDAQ delivered a presentation entitled “PROs and CONS of Blockchain in Capital Markets”.

*(A copy of the presentation by Mr. Mr. Johan TOLL is herewith attached as Annex III)*

6. Mr. Oğuzhan ALOĞLU, Director of Precious Metals & Diamond Market at Borsa İstanbul, delivered a presentation entitled “Report on Gold Trading in the OIC Countries”.

*(A copy of the presentation by Mr. Oğuzhan ALOĞLU is herewith attached as Annex IV)*

7. Ms. Ayzer BİLGİÇ, Assistant Director, MKK-Central Securities Depository of Turkey, delivered a presentation entitled “The Impact of Implementing the XBRL on the Promptness and Quality of Disclosure- the Case Study”.

*(A copy of the presentation by Ms. Ayzer BİLGİÇ is herewith attached as Annex V)*

8. Mr. Recep BİLDİK gave a background of Forum activities and current projects, and some ideas on future activities. Mr. BİLDİK then made a presentation on the OIC Exchanges Statistics Report, which was shared with Forum Members on the occasion of this Meeting. The presentation summarized key statistics of the OIC markets on equity, debt instruments and derivatives.

*(A copy of the presentation by Mr. Recep BİLDİK is herewith attached as Annex VI)*

9. Ms. Ayşe ÇAĞLAYAN gave information on the activities of Task Force on Indices.

*(A copy of the presentation by Ms. Ayşe ÇAĞLAYAN is herewith attached as Annex VII)*

10. Mr. Ufuk ÖZDEMİR, Executive Vice President and Haluk GÜRSEL, Service Manager, Borsa İstanbul delivered a presentation entitled “In What Areas Can Technological Infrastructure Contribute to Development of Stock Exchanges?”

*(A copy of the presentation by Mr. Ufuk ÖZDEMİR and Haluk GÜRSEL is herewith attached as Annex VIII)*

11. Mr. Jahangir SULTAN, Professor of Finance, Bentley University, delivered a presentation entitled “Developing Market for Islamic Depository Receipts and ETFs”.

*(A copy of the presentation by Mr. Jahangir SULTAN, is herewith attached as Annex IX)*

## DECISIONS

The following decisions were taken at the meeting:

1. The Forum mandates the Task Force on Indices to continue its efforts to promote both the S&P OIC COMCEC Sharia 50 Index and possible product creation on the index and finalize its ongoing studies on publishing the index on both Borsa Istanbul and OIC Exchanges Forum websites. Forum members agree to make their best effort to promote the S&P OIC COMCEC Sharia 50 Index in their markets and work for publishing the Index on their own websites with the assistance of Task Force.
2. The Forum appreciates the Technical Report on Gold Market Initiative for the OIC Member States prepared by the Task Force on Precious Metals - as requested in the COMCEC 31st Ministerial Session. The Forum welcomes the report proposals which aim to establish a common web-based gold trading and clearing platform with delivery options through several locations on which physical gold and gold futures contract can be traded, to bring together the OIC Exchanges, to enable members of such exchanges to trade on gold, to enhance connections among other related Islamic financial institutions and all Islamic finance. This report will be presented to the COMCEC 32nd Ministerial Session. The Forum mandates Task Force on Precious Metals and Forum Coordinator to carry out necessary actions according to the decision that will be taken at COMCEC 32nd Ministerial Session.
3. The Forum appreciates the 3rd issue of the OIC Member States' Stock Exchanges Integrated Statistics Report prepared by the Forum Coordinator. All Forum Members are encouraged to actively participate in the survey sent by the Forum Coordinator. The Forum encourages Members to publish and distribute the report in any convenient event.
4. The Forum Coordinator will continue publishing the quarterly newsletter to update members on the recent developments in OIC markets and Islamic finance. The Forum appreciates the contributions of the members to the Newsletter.
5. The conclusions of the meeting will be reported to the 32nd session of COMCEC, which will be held in Istanbul on 21-24 November 2016.
6. The next annual meeting of the Forum is planned to be held on Oct - Nov 2017 in Istanbul.

# CENTRAL SHARIAH BOARD (“CSB”) AND LONG TERM GROWTH OF ISLAMIC FINANCIAL INDUSTRY

OIC EXCHANGES FORUM – 10TH MEETING  
ISTANBUL – 27TH OCTOBER 2016

**FARRUKH RAZA**  
MANAGING DIRECTOR – IFAAS GROUP  
MEMBER - AAOIFI’S BOARD OF GOVERNANCE & ETHICS

# IFAAS

ISLAMIC FINANCE ADVISORY & ASSURANCE SERVICES

## AT A GLANCE

- ▶ IFAAS: Islamic Finance Advisory & Assurance Services
- ▶ Professional consultancy specialised in Islamic Banking and Finance incorporated in 2007
- ▶ 4 Offices: UK, France, Bahrain & Pakistan
- ▶ Over 50 institutional clients with present client reach in 5 Continents
- ▶ Projects in 35 countries (completed to date and in-progress)
- ▶ Largest market share in Europe and Africa
- ▶ Over 100 Islamic financial products developed
- ▶ Worked on regulatory frameworks in 12 countries
- ▶ All services provided in English, French and Arabic languages



**Winner of the world’s first Ethical  
Finance Innovation Challenge & Awards  
created by Thomson Reuters and Abu  
Dhabi Islamic Bank**



THOMSON REUTERS

ADIB

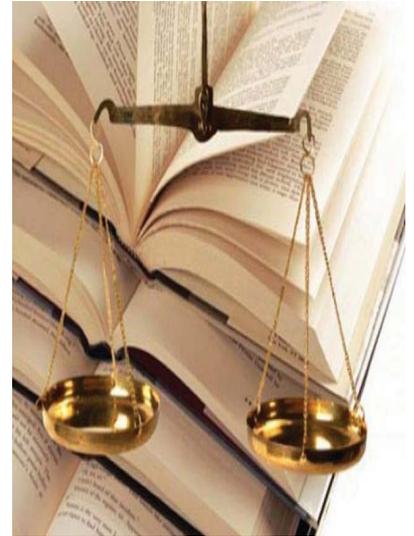


مصرف أبوظبي الإسلامي

# CONTENTS

---

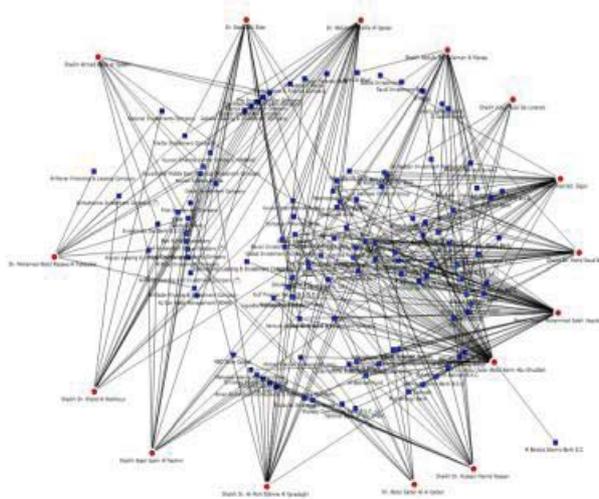
- ❑ Laying down the foundations
- ❑ Particulars of the CSB
  - CSB at a glance
  - Fit and proper criteria
  - Key responsibilities
  - CSB vs SSB
  - CSB and AAOIFI
- ❑ CSB across the globe – selected experiences
- ❑ Challenges in introducing the CSB
- ❑ Q&A



## LAYING DOWN THE FOUNDATIONS

# GUESS WHAT IS THIS?

---



Source: Funds @ work

- 2010 study – concentration of scholars in institutional Shariah Supervisory Boards (SSBs)
- Governance issues – conflicts of interest, confidentiality, impartiality etc
- Gaps in Shariah governance of Islamic Financial Institutions (IFIs) – conflicting Shariah opinions within the same market, enforceability of Shariah rulings by the SSBs
- A more comprehensive and effective framework for Shariah governance required

# EMERGENCE OF THE CSB CONCEPT

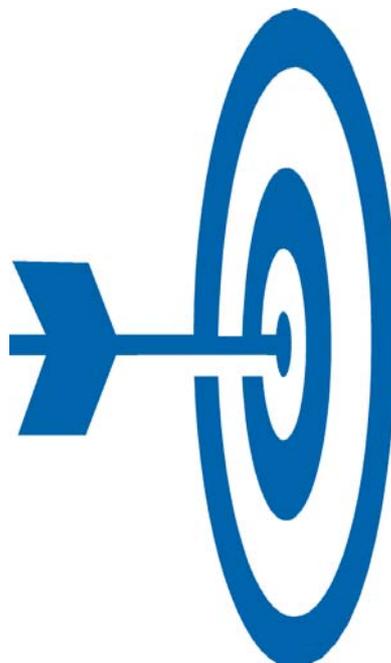
---

Importance of Shariah governance and Shariah compliance in Islamic finance

The rapid growth and sophistication of the Islamic finance industry

Controversies in Shariah governance and regulators' concerns about the emergence of Shariah non-compliance as a systematic risk

Impairment of the growth of Islamic finance due to the instability caused by these issues in some countries



- A country-level approach becomes a pressing need
- A centralised Shariah governance model is increasingly being adopted in a number of jurisdictions



## PARTICULARS OF THE CSB

### CSB AT A GLANCE

---

- CSB is a national-level Shariah supervisory body of a specific country/regulator, appointed by the government or the regulator, to act as the highest authority in the country's Islamic finance sector and to oversee the activities of the industry, providing it stability from Shariah compliance perspective
- The overall objective is ensuring Shariah compliance at all times by working closely with the industry stakeholders including the SSBs of the IFIs



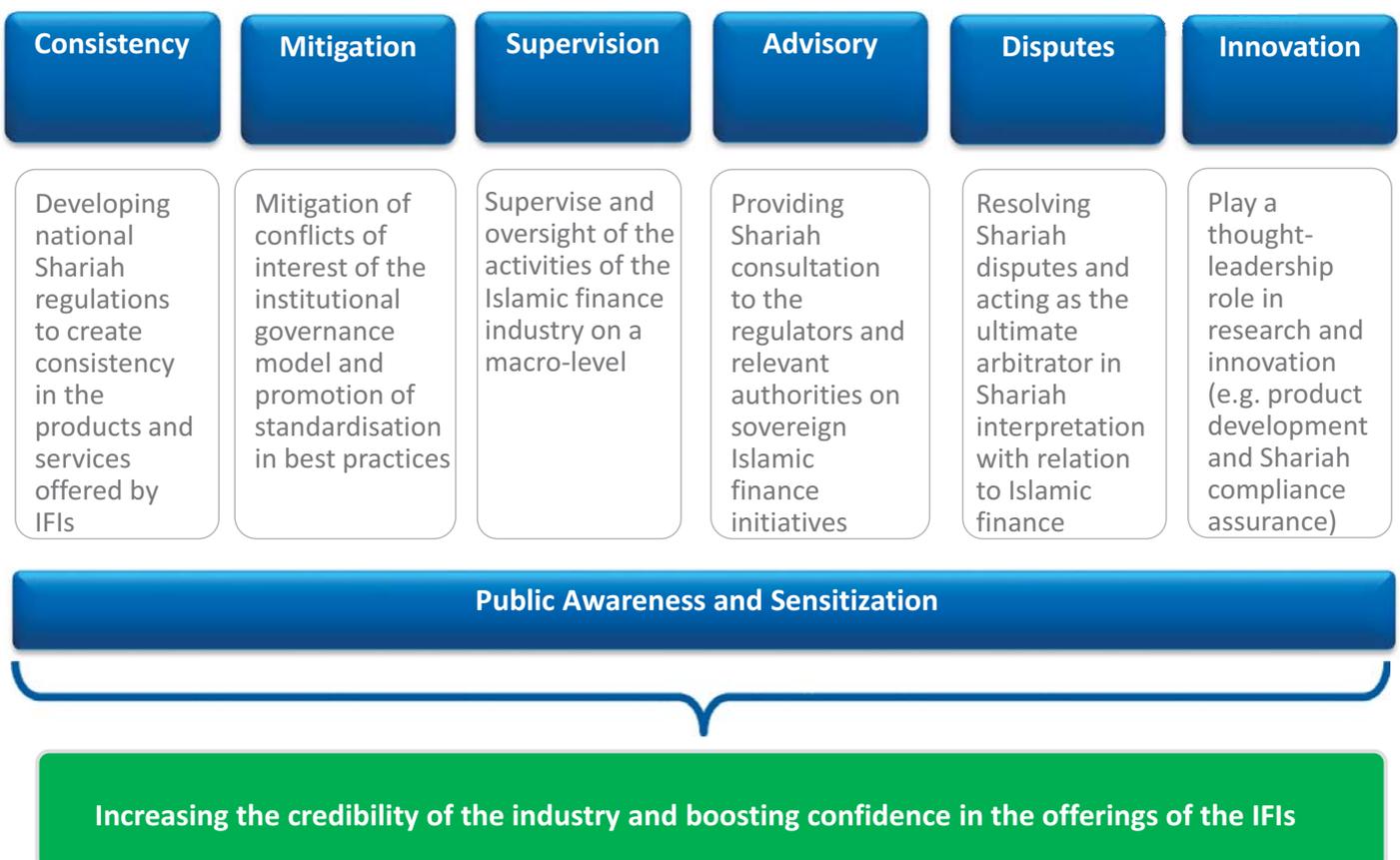
# FIT AND PROPER CRITERIA\* – CSB MEMBERS



- The fit & proper criteria for CSB members varies from country to country
- Local variations and preferences: number of members, voting and non-voting members, Shariah scholars and technical experts, gender mix, local scholars and experts vs foreigners, number of appointments etc

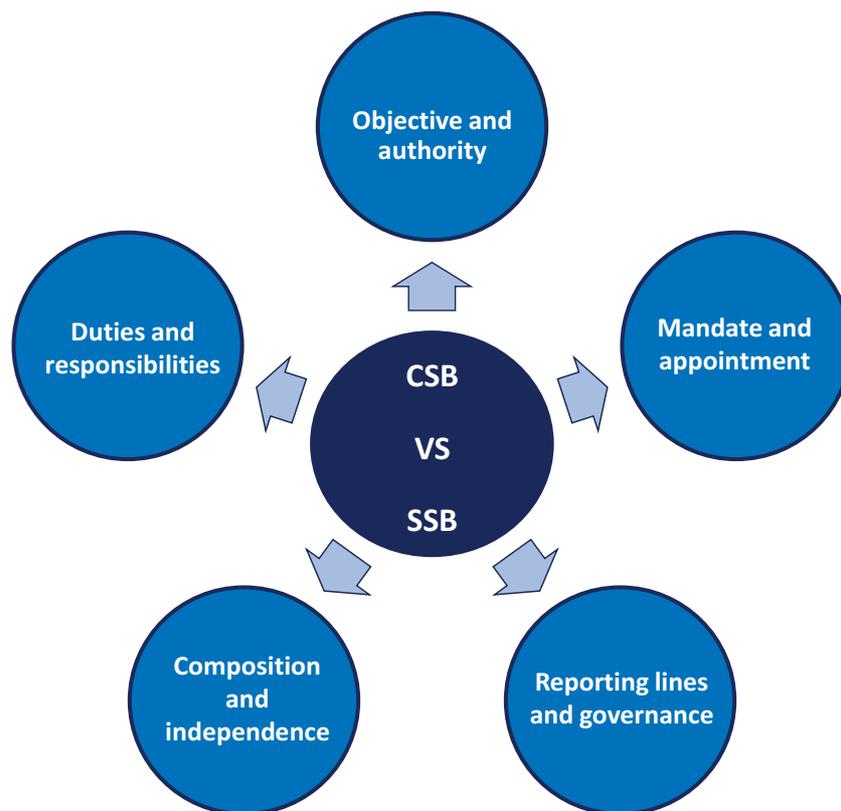
*\*Indicative only*

## KEY RESPONSIBILITIES OF THE CSB



# CSB VS SSB

---



# CSB AND AAOIFI

---

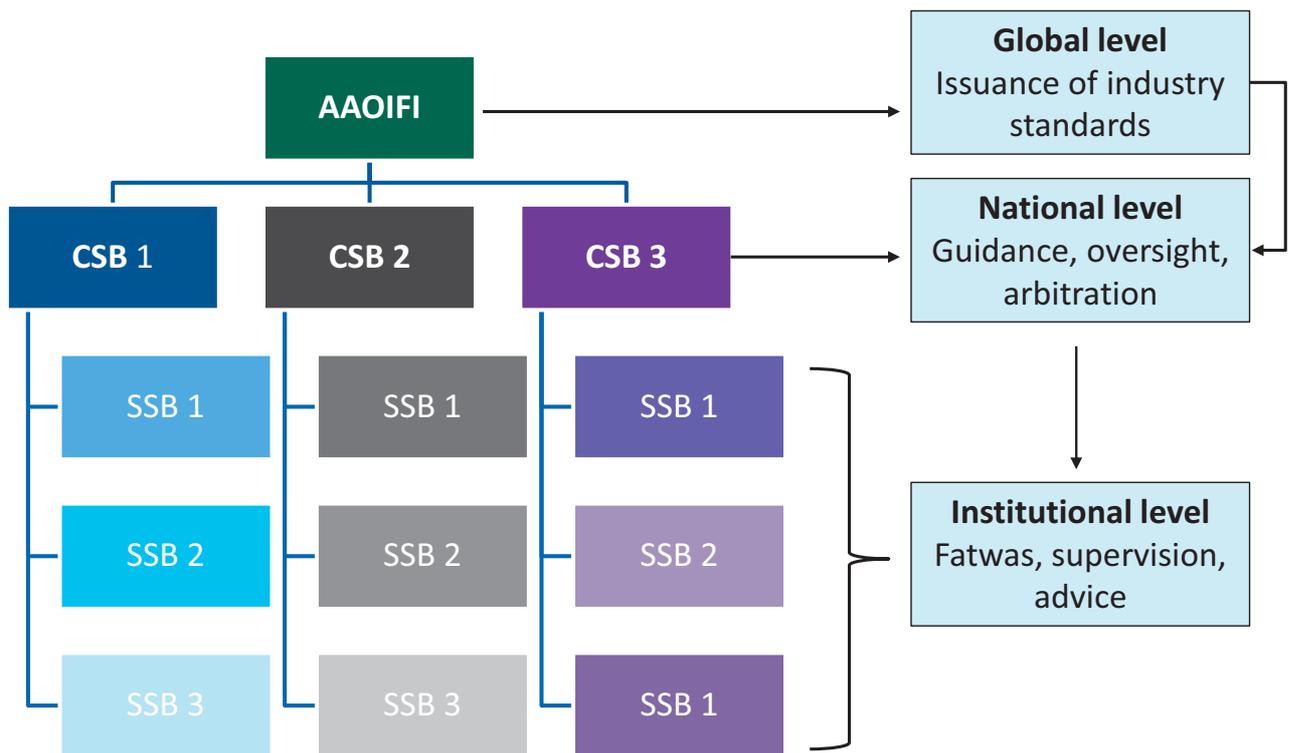
## Conflict?

- No conflict or competition
- AAOIFI is the international standards setting body for Shariah, Accounting, Auditing, Governance and Ethics for Islamic financial industry
- CSBs are the national bodies overseeing the implementation and/or adaptation of AAOIFI standards within their respective countries
- AAOIFI and CSBs have different mandates for the same cause
- Mutually complementary functions with one clear vision for the Islamic finance industry

## Standards on CSB?

- There is no specific AAOIFI standard on Central Shariah Boards
- Presently, AAOIFI is working on a standard on the same which is expected to be issued soon
- AAOIFI has issued two governance standards on SSBs
  - On appointment, composition and reports issued by SSBs; and
  - The independence of SSB members

# INDUSTRY SHARIAH GOVERNANCE MODEL



Sound governance = stronger industry, sustainable growth, achieving the objectives of Islamic finance



## CSB ACROSS THE GLOBE SELECTED EXPERIENCES

## CSB ACROSS THE GLOBE – SELECTED EXAMPLES 1/2

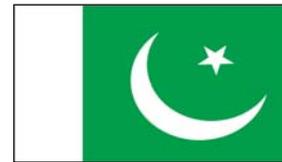
### ▪ Malaysia

- Malaysia uses the two-tier centralized model with the Shariah Advisory Council (“SAC”) at the Central Bank level and SSBs at the IFIs level
- SAC directs Central Bank on Shariah matters and is the ultimate arbitrator in Shariah interpretation disputes
- The directives issued by Bank Negara Malaysia in consultation with the SAC have binding authority over banks and Islamic windows
- The members of the SAC are appointed by the ruling Sultan of Malaysia



### ▪ Pakistan

- The State Bank of Pakistan and the Securities and Exchange Commission of Pakistan have their own Shariah Boards
- These Boards approve relevant Shariah compliance regulations and produce specimen of permissible Islamic financial contracts
- The Shariah department of the Central Bank of Pakistan clearly states that they rely heavily on a suite of international standards such as AAOIFI, IFSB and corporate governance standards



## CSB ACROSS THE GLOBE – SELECTED EXAMPLES 2/2

### ▪ Sudan

- The Sudanese Shariah Advisory Council was set up in 2003
- It is responsible for Fatwas, contract specimen, arbitration, consultations relating to Islamic legal aspects, training, research, lectures and seminars
- All members are appointed by the President of the country upon recommendation of the Governor of Central Bank of Sudan and Minister of finance



### ▪ Oman

- In October 2014, Oman’s central bank set up a five member Shariah board to help oversee the Sultanate’s Islamic banking industry
- Oman was the last nation in the six-member Gulf Cooperation Council to introduce Islamic finance
- The introduction of a CSB is aimed at speeding up product development, limiting costs for Islamic banks and facilitating issues of Sukuk



**MANY OTHER JURISDICTIONS HAVE ALSO INTRODUCED CSBs LIKE INDONESIA, BAHRAIN, UAE, JORDAN, BANGLADESH, SYRIA AND NIGERIA**

## NATIONAL SHARIAH BOARD OF INDONESIA – CASE STUDY

---

- The National Shariah Board or Diwan Syariah Nasional (“DSN-MUI”) is the **supreme authority** in the country to oversee Shariah compliance, approve Islamic financial products and provide guidance, opinions and Fatwas related to Islamic finance matters
- DSN-MUI is **completely independent** of all government entities and part of the Indonesian Council of Scholars (Majlis Ulama Indonesia)
- The DSN-MUI consists of **35 scholars** from **different regions** of the country representing different religious groups in Indonesia
- The DSN-MUI has played an **instrumental role** in the development and growth of the Islamic financial industry in Indonesia. It has maintained its independent character within a unique model of Shariah governance. However, the current structure has caused challenges for the market hence there is a need to redefine DSN-MUI’s role and enhance the overall framework of Shariah governance in the country
- The **Islamic Finance Masterplan**, recently launched by the **Indonesian government**, and prepared by **IFAAS**, includes a comprehensive set of recommendations in relation to DSN-MUI that are very relevant to the context of CSBs across the world



## KEY RECOMMENDATIONS – DSN-MUI AND SGF\*

---

Issue the general frameworks and guidelines instead of product approvals

The number of scholars to be reduced to 7 for a term of 3 years with maximum 2 terms

Scholars not able to sit simultaneously on DSN-MUI and any institutional SSBs

Aggregate number of appointments (SSB, academic, pastoral etc) limited

DSN-MUI to be subject to SLAs with Indonesian regulators

Government allocation of annual budget for DSN-MUI (no other funding allowed)

DSN-MUI plays a thought-leadership role in research and innovation

Introduce a Fit & Proper criteria for all scholars at all levels including CPD requirements

Enhancing internal audit and introducing external Shariah audit



## CHALLENGES IN INTRODUCING THE CSB

## CHALLENGES IN INTRODUCING THE CSB

Identifying qualified scholars with adequate levels of independence



Authority and legitimacy



Misunderstanding about “Islamisation” of the country



Accommodating the requirements of the local religious fabric and demographics

Managing expectations of different stakeholders



# Q&A

# THANK YOU!

**IFAAS UK**  
Faraday Wharf  
Holt Street  
Birmingham B7 4BB  
TEL : +44 8444 821 941  
Email: info@ifaas.com

**IFAAS France**  
Tour ARIANE  
5, place de la pyramide  
92 088 Paris - La Défense  
TEL : +33 820 20 41 21  
Email: contact@ifaas.com

**IFAAS Bahrain**  
5th floor,  
GBCorp Tower,  
P.O.Box 10945, Manama.  
TEL : : +973 17151521  
Email: contact@ifaas.com



[WWW.IFAAS.COM](http://WWW.IFAAS.COM)

# Developing Shari'ah Compliant Stock Index

**The Organisation of Islamic Cooperation  
Member States' Stock Exchanges Forum 10th Meeting  
October 27, 2016 | Wyndham Hotel, İstanbul**

**Fatih Kazan**

The World Bank Global Islamic Finance Development Center  
Istanbul, Turkey

## Roadmap

---

- I. **WHAT IS AN ISLAMIC INDEX?**
- II. **SHARI'AH SCREENING PROCESS**
- III. **SHARI'AH SCREENING METHODOLOGIES**
- IV. **ROLE OF SHARI'AH SUPERVISORY BOARD**
- V. **IMPLEMENTATION CONSIDERATIONS**

---

---

## I. What is an Islamic Index?

### What is an Islamic Index?

---

- An Islamic index, combines the performance-related statistics of a conventional index with Islamic screening methodologies.
- It is very much like any other index, with a major difference being that the constituent stocks of such indices have to be Shari'ah compliant.
- The securities included in an Islamic index need to go through a rigorous Shari'ah screening and review process

# What is an Islamic Index?

Shari'ah Indices	Details	Weighting	Shari'ah Review	Inception
<b>Dow Jones Islamic Market Index (DJIM) World Index</b>	DJIM was the first Islamic equity benchmarked index introduced in February 1999. It is one of the Dow Jones Global Index Series and the aim of the DJIM is to track stocks traded globally and pass the rules-based screens for compliance with Islamic investment guidelines. The DJIM World Index was first calculated on 24 May 1999. The selection universe for the DJIM World Index includes the components from 57 country-level benchmark indices, each of which covers 95% of the float-adjusted market capitalization of the underlying market.	Free float market capitalization	Quarterly	1999
<b>MSCI Singapore IMI Islamic</b>	The MSCI Global Islamic Indices are derived from MSCI's country indices. The MSCI Singapore Investable Market Index (IMI) Islamic measures the performance of large, mid and small cap segments of the Singapore market relevant to Islamic investors. There are 31 constituents.	Free float market capitalization	Quarterly	2007
<b>FTSE Bursa Malaysia EMAS Shari'ah Index</b>	The index comprises the constituents of the FTSE Bursa Malaysia EMAS Index that are Shari'ah-compliant according to SC Malaysia's Shari'ah Advisory Council (SAC) screening methodology. The FTSE Bursa Malaysia EMAS Shari'ah Index incorporates the large and mid cap stocks of the FTSE Bursa Malaysia Top 100 Index and the FTSE Bursa Malaysia Small Cap Index. It also replaced the Kuala Lumpur Syariah Index (KLSI) in 2007.	Free float market capitalization	Semi-annually	2007
<b>S&amp;P 500 Shari'ah</b>	S&P 500 Shari'ah is the part of the S&P Global Investable Shari'ah index series which is designed to offer investors a set of Shari'ah-compliant investment solutions. S&P 500 is widely regarded as the best single gauge of the US equities market and includes 500 companies in leading industries in the US economy.	Free float market capitalization	Monthly	2006
<b>Edbiz NASDAQ-100 Shari'ah</b>	The Edbiz NASDAQ-100 Shari'ah Index is designed to track the performance of securities of the NASDAQ-100 Index that meet the Shari'ah requirements as prescribed by AAOIFI and adopted by NASDAQ OMX.	Market capitalization	Quarterly	2010

Source: ISRA (2015)

## II. Shari'ah Screening Process

# Shari'ah Screening Process

---

## *Qualitative and Quantitative Screening Methods*

- **Business Screen:** Does the company partake in activities deemed by Shari'ah to be impermissible?
- **Financial Screen:** Does the financial management of the company involve undertaking financial obligations that are not entirely in conformity with Shari'ah?

7

# Shari'ah Screening Process

---

## **Business Screen**

A company is regarded as Shari'ah non-compliant if its primary activities are in the following lines of business:

- Sale and manufacturing of alcohol
- Gambling, gaming, casino operations
- Conventional interest-based finance including insurance
- Pornography
- Sale and production of pork-related products and non-halal meat
- Other non-permissible activities (including Shari'ah non-compliant entertainment)

The list of Shari'ah non-compliant activities varies across screening methodologies based on the jurisdiction's preferences.

8

# Shari'ah Screening Process

---

## Financial Screening

Regulatory bodies, index providers, funds and Islamic banks can have different criteria for the same ratio, or different ratios altogether.

The ratios intend to measure two main aspects of the financial management of companies:

- Indebtedness and interest income
- Cash and receivables

# Shari'ah Screening Methodologies

---

## Some examples:

1- Dow Jones Islamic Screening Methodology

2- Securities Commission Malaysia Screening Methodology

3- AAOIFI (Accounting and Auditing Organization for Islamic Financial Institutions) Screening Methodology

11

# Shari'ah Screening Methodologies

---

## Dow Jones Islamic Market Index

### *Business Screening*

Income from the following impure sources cannot exceed 5% of revenue:

- Alcohol, Pork-related products, Conventional financial services, Entertainment (hotels, casinos/gambling, cinema, pornography, music), Tobacco, Weapons and defence

### *Financial Screening*

- Total debt divided by trailing average market capitalization should be less than 33%. (Total debt includes: Short-term debt plus current portion of long-term debt plus long-term-debt.)
- Cash and interest-bearing securities divided by average market capitalization should be less than 33%.
- Accounts receivables divided by trailing average market capitalization should be less than 33%. (Receivables include current receivables plus long-term receivables)
- **Note:** Average market capitalization could be based on 12, 24 or 36 months trailing average market capitalization, depending on the volatility of the market. The more volatile the market is, the longer duration is used for calculating the average. This ensures stability of the indices.

12

# Shari'ah Screening Methodologies

---

## Securities Commission Malaysia

- The screening methodologies first introduced by SC Malaysia in 1995 have been revised in line with current developments in the Islamic banking and finance industry.
- SC Malaysia has now adopted a two-tier approach to the financial assessment which applies to business activity benchmarks and the recently introduced financial ratios, while keeping a check on the quality.

13

# Shari'ah Screening Methodologies

---

## Securities Commission Malaysia

### *Business Screening*

- There are two thresholds for the business activity, 5% and 20%.
  - Companies will be included if they generate less than 5% revenue or profit before tax from the following sectors:
    - Conventional banking including insurance, Gambling, Liquor and liquor-related activities, pork and pork-related activities, non-halal food and beverages, Shari'ah non-compliant entertainment, Interest income from conventional accounts and instruments, Tobacco and tobacco-related activities, Other activities deemed Shari'ah non-compliant
  - In addition, there is a 20% benchmark which is applicable to companies that generate part of their revenue or profit before tax from the following activities:
    - Hotel and resort operations, Share trading and stock-broking business, Rental received from Shari'ah non-compliant activities, Other activities that are deemed Shari'ah non-compliant
- Contributions of the Shari'ah non-compliant activities to the overall revenue or profit before tax of the company will be calculated and compared against the relevant business activity benchmarks.

14

# Shari'ah Screening Methodologies

---

## Securities Commission Malaysia

### *Financial Screening :*

The financial ratios include:

- **Cash divided by total assets should be less than 33%.** Cash includes only that placed with conventional accounts and instruments, whereas cash placed with Islamic banks will not form part of it.
- **Total debt divided by total assets should be less than 33%.** Debt will include interest-bearing debt whereas Islamic debt/financing or sukuk will not be part of the calculation.

The aim of both ratios here is to capture and measure interest-based elements within a company's balance sheet, which should be less than 33%.

15

# Shari'ah Screening Methodologies

---

## AAOIFI

### *Business Screening conditions*

- The company does not state in its memorandum of association that its objective is to deal in interest, or in prohibited goods or materials like pork and others.
- The total amount of income generated from such prohibited activities should not exceed 5% of the total income of the corporation.

### *Financial Screening conditions*

- Total long- and short-term debt divided by market capitalization is less than 30%.
- Total interest-bearing securities divided by market capitalization is less than 30%
- Interest income divided by total income or total revenue is less than 5%.
- Cash and receivables divided by total assets is less than 70%.

16

# Shari'ah Screening Methodologies

## Comparison of Screening Benchmarks

	AAOIFI	SC Malaysia	DJIM	MSCI Islamic	FTSE	Russell Jadwa
<b>Business Screening</b>	5%	5% and 20%	5%	5%	5%	5%
<b>Financial Screening</b>						
Interest-Bearing Debt / Market Capitalization	30%					
Interest-Bearing Securities / Market Capitalization	30%					
Cash and Receivables / Total Assets	70%					
Total Debt / Total Asset		33%		33.33%	33%	
Cash and Interest-Bearing Securities / Total Asset				33.33%	33.33%	
Accounts Receivable and Cash / Total Asset				33.33%	50%	
Total Cash / Total Assets		33%				
Debt / 24-Month Average Market Capitalization			33%			
Cash and Interest-Bearing Securities / 24-month Average Market Capitalization			33%			
Accounts Receivable and Cash / 24 Month Average Market Capitalization			33%			
Interest-Bearing Debt / 12-month Average Market Capitalization						33%
Total Cash, Deposits and Receivables / 12-month Average Market Capitalization						70%
Total Cash, Deposits and Interest-Bearing Securities /12-month Average Market Capitalization						33%

Source: ISRA (2015)

## Role of Shari’ah Supervisory Board

---

- Even though there is a general consensus on the broad outlines of the two Shari’ah screens (business and financial), differences of opinion remain on specifics.
- Standard-setting bodies such as AAOIFI and regulatory bodies such as Securities Commission Malaysia have issued guidelines and guidance on the business and financial screens.
- While NASDAQ OMX Islamic Indices follow the screening methodology of AAOIFI, other major index providers like Dow Jones Islamic Index and MSCI have their own set of guidelines and follow the methodologies approved by their respective Shari’ah board.

19

## Role of Shari’ah Supervisory Board

---

### Examples for Presence of Shari’ah Boards

Screening Benchmark	Presence of Shariah Board
Securities Commission Malaysia	The Shariah Advisory Council (SAC) set up at the Securities Commission Malaysia (SC) approves the list of securities which have been classified as Shariah-compliant securities. The SAC has 11 members.
Dow Jones Islamic Market Index	The Dow Jones Islamic Market™ Index Shari’ah Supervisory Board was established to advise the company on the methodology for screening securities for inclusion in the Dow Jones Islamic Market™ Indices and matters relating to the Shari’ah compliance of the index components. The board consists of four eminent Shari’ah scholars from around the world. The geographic diversity of the scholars helps to ensure that diverse interpretations of Shari’ah law are represented. The board has 4 members.
S&P Shariah Indices	S&P has contracted with Ratings Intelligence Partners (RI) to provide the Shariah screens and filter the stocks based on these screens. Ratings Intelligence Partners is a London/Kuwait-based consulting company specializing in solutions for the global Islamic investment market. Its team consists of qualified Islamic researchers who work directly with a Shari’ah Supervisory Board, which is a board of Islamic scholars serving to interpret business issues and recommend actions related to business decisions for the indices.

20

### Implementation Considerations

---

- Determination of Objectives
- Target Investors – Domestic or international
- Index versus ETFs
- Governance on the operations of Index
  - Transparency
  - Disclosure
  - Maintenance, i.e. re-balancing
- Shariah Governance
  - Domestic versus international

# Disclaimers

©2012 The International Bank for Reconstruction and Development / The World Bank 1818 H Street NW Washington DC 20433/ Telephone: 202-473-1000/ Internet: [www.worldbank.org](http://www.worldbank.org)

E-mail: [feedback@worldbank.org](mailto:feedback@worldbank.org)

**All rights reserved.**

This work is a product of the staff of the International Bank for Reconstruction and Development/The World Bank. The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of the Executive Directors of the World Bank or the governments they represent.

The World Bank does not guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of the World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

## **Rights and Permissions**

The material in this publication is copyrighted. Copying and/or transmitting portions or all of this work without permission may be a violation of applicable law. The International Bank for Reconstruction and Development / The World Bank encourages dissemination of its work and will normally grant permission to reproduce portions of the work promptly.

For permission to photocopy or reprint any part of this work, please contact the World Bank Treasury.

# PROS AND CONS OF BLOCKCHAIN IN CAPITAL MARKETS

JOHAN TOLL  
PRODUCT MANAGER BLOCKCHAIN

OIC CONFERENCE OCTOBER 27<sup>TH</sup>



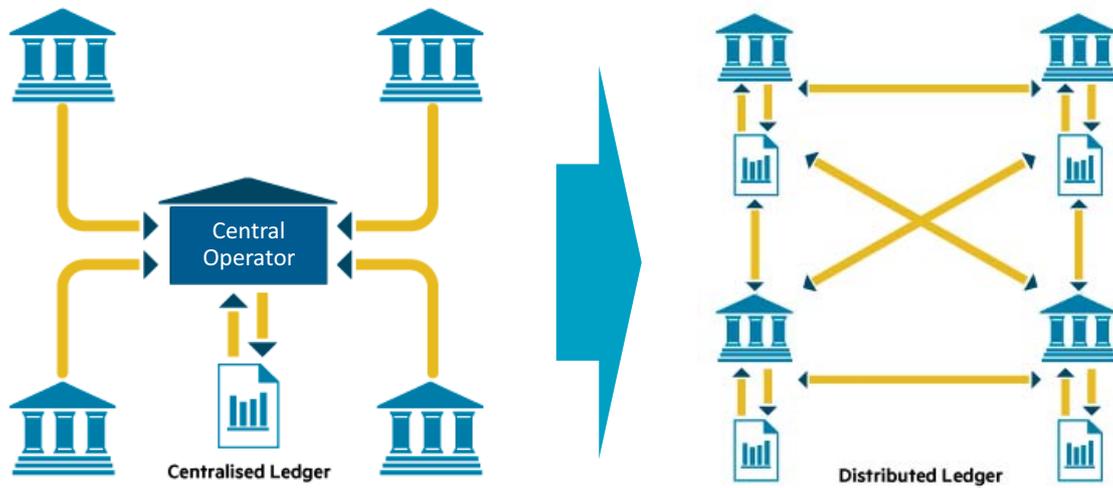
## SOLVING THE PROBLEM OF DOUBLE SPENDING



- Digital data = Copyable
- This is a feature for digital content, but a bug for digital assets: if a photo is copied and shared, that's great; if a dollar is copied, it breaks the currency
- AKA the “double spending” problem
- Thus, traditionally, the only way to transfer an asset digitally was to entrust an intermediary to control the records

Source: chain.com

## A NEW APPROACH FOR FINANCIAL MARKETS

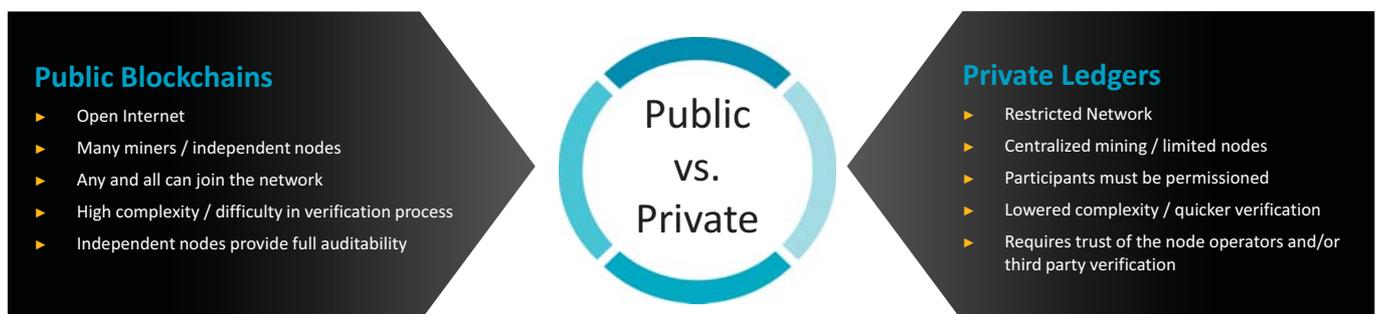


Blockchain  
-> The Internet of Value <-

## A NEW MEDIUM FOR TRANSFERRING ASSETS

- Can save major financial institutions billions of dollars on the cost of settling trades and other financial transactions
- Brings robustness, transparency and innovation together to transform the marketplace
- Improve efficiency and reducing errors within your business
- Applies to a wide variety of use cases
  - Currencies, P2P lending, medical data records, mortgage loans, SIM cards, etc
- Our focus primarily on post trade
  - Securities registrar, immediate settlement, securities lending, collateral mgmt, corporate actions, investor services etc.

## THERE ARE DIFFERENT KINDS OF BLOCKCHAINS



## FINANCIAL INDUSTRY MOVING FAST

- ▶ > 1B USD in venture capital invested since 2012
- ▶ World Economic Forum believes 10% of global GDP will be registered in blockchain by 2025
- ▶ More than 50 banks in a blockchain consortium for how to tap into the blockchain technology. Pilot case launched in January 2016
- ▶ Linux Foundation unites industry leaders to advance the blockchain technology
- ▶ Exchanges and Clearinghouses invest and pilot on several initiatives
- ▶ Heavy focus on clearing/settlement with clear synergies also in the derivatives clearing

7

## WHERE CAN DISTRIBUTED LEDGERS BE USEFUL?



This technology is good at keeping track of possession of any digitized asset.

8

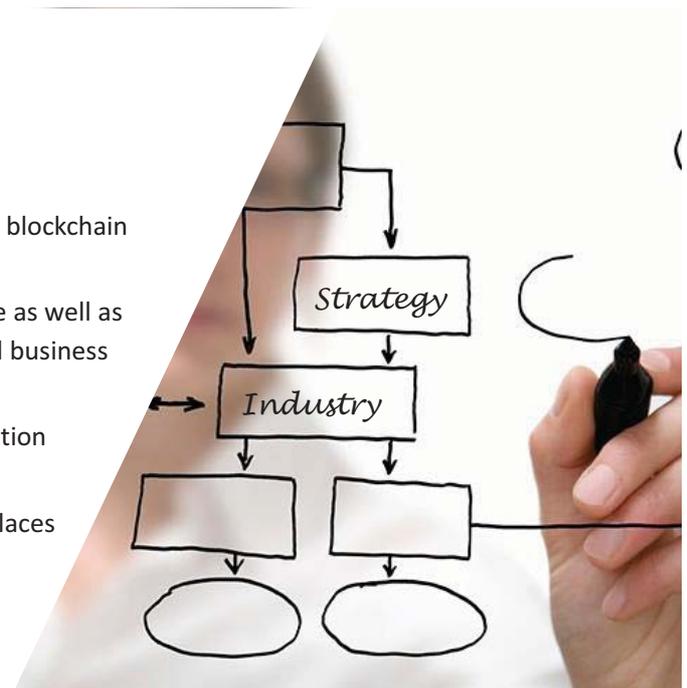
# PILLARS OF INTEREST FOR THE FINANCIAL INDUSTRY



9

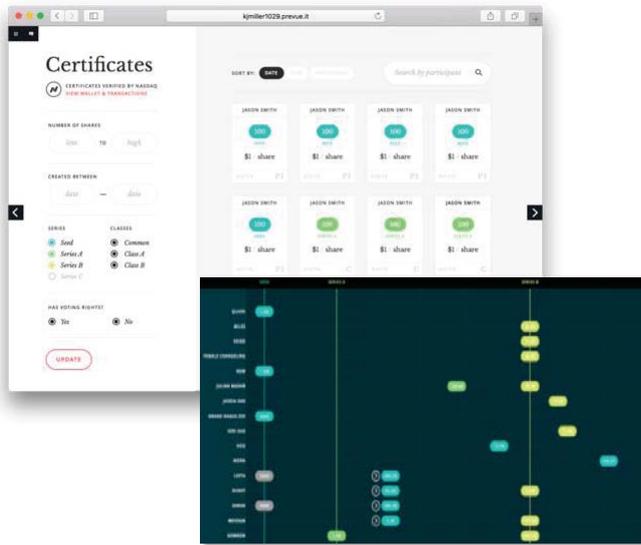
## NASDAQ STRATEGIC DIRECTION

- ▶ Full senior management commitment
- ▶ Initial blockchain offering launched to the market in 2015, i.e. Nasdaq Linq
- ▶ Continued strong focus on investment and evolution of our blockchain technology into more tangible assets during 2016
- ▶ Several projects now ongoing within our own clearinghouse as well as with external customers, to develop and launch BC enabled business applications on our core framework
- ▶ A global play where major benefits occur through collaboration between major marketplaces
- ▶ Market Technology well placed with more than 80 marketplaces running on our framework



10

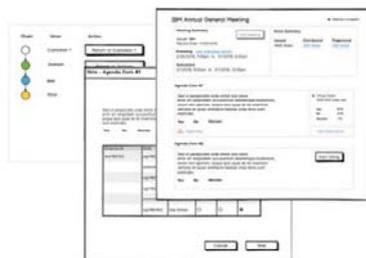
# NASDAQ PRIVATE MARKET - LINQ IN PRODUCTION



**“Enables First-Ever Private Securities Issuance Documented With Blockchain Technology”**

- ▶ A Blockchain-enabled platform for managing electronic records of ownership in privately issued securities
- ▶ Issuance and immediate transfer of shares without CSD or CCP
- ▶ Complete historical record, increased auditability
- ▶ Cap table management interface to blockchain
- ▶ Will support liquidity events through integration with bank partners

# NASDAQ PROXY VOTING SECOND OFFICIAL PROJECT



**“Nasdaq is to use blockchain technology to streamline proxy voting on companies listed on the Tallinn Stock Exchange”**

- ▶ Streamlined service for proxy voting
- ▶ Votes will be tracked stored in the immutable ledger
- ▶ Digital authentication to onboard users
- ▶ Issue and record votes on the blockchain

**//**

**We are going to put proxy voting on the blockchain, on the immutable ledger and obviously enable people to do that with their cell phone and have that record with them forever.”**

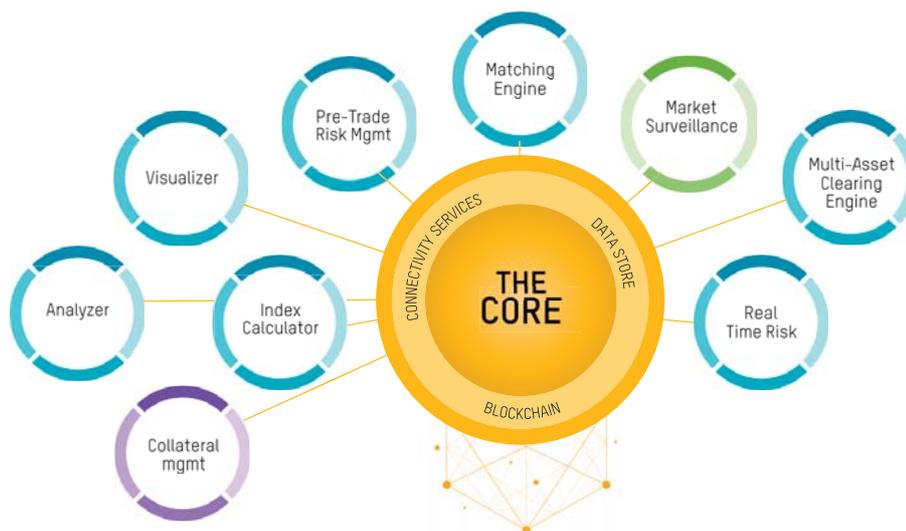
- Nasdaq CEO Bob Greifeld in Bloomberg, Oct 2015

**//**

## MORE USE CASES BEING WORKED ON AT NASDAQ

Registrar services of assets onto a shared ledger
Issuance, custody and settlement services for bi-lateral agreements
Corporate actions and dividend payments onto the ledger
Tri-party collateral management services over a shared ledger
Securities lending for CCPs with atomic swap of securities, money and positions
Movement of CCP trades and positions to a shared ledger
Clearing interoperability for multiparty clearing services
Member safekeeping services of securities over a shared ledger
Repo market solution through smart contracts

## NASDAQ FINANCIAL FRAMEWORK ENABLED FOR BLOCKCHAIN BUSINESS



○ Nasdaq-built applications  
 ○ Blockchain-integrated application  
 ○ Application leveraging Machine Intelligence  
 ○ Third-party applications

## HURDLES TO WIDE-SCALE ADOPTION OF BLOCKCHAIN TECHNOLOGY IN CAPITAL MARKETS

It will take some time before we see a wide scale adoption of blockchain technology in large scale capital markets.

Transitioning existing structures into new blockchain based models will be very difficult

Near-term commercial opportunities are likely to arise in markets where the hurdles to wide scale adoption are not prevalent.

Markets with weak- or lacking trusted third part structures may be easier to address.

## BLOCKCHAIN - THE CATALYST FOR CHANGE

- Blockchain promises operational and capital efficiencies, but more interestingly new business models
- Financial industry needs to consider regulations and legislations
- Smaller markets / regions more likely to change first

**THANK YOU**





## Task Force Activities

- Formation of the Task Force on Precious Metals, led by Borsa İstanbul in the 9th meeting of OIC Member States' Stock Exchanges Forum on November 15, 2015
- Invited Exchanges: Leading exchanges of the OIC Countries on which gold is traded
- Task Force Participants: Dubai Gold and Commodities Exchange (DGCX), Bursa Malaysia and Borsa İstanbul.
- Research process and preparation of the Report
- Thorough researches on the exchanges in the OIC Countries

## Task Force Activities

- Studied countries: Turkey, UAE, Malaysia, Saudi Arabia, Kuwait, Oman, and Qatar
- The result: Borsa İstanbul, DGCX and Bursa Malaysia stand out
- Modest or no physical gold or gold futures trade on other organized exchanges operating in above-mentioned countries
- Thus, the report's focus is DGCX, Bursa Malaysia and Borsa İstanbul.



## Mine Production of Gold (tons)

Countries	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Avg.
Indonesia	167	114.1	149.5	95.9	160.5	140.1	121.1	93	110.7	116.4	134.3	127.5
Uzbekistan	75.5	74.1	72.9	72.2	70.5	71	71.4	73.3	77.4	81.4	83.2	74.8
Kazakhstan	19.2	21.8	22.6	22	22.5	29.9	36.7	40	42.6	49.2	49.1	32.3
Mali	46.7	56.9	51.9	47	49.1	43.9	43.5	50.3	48.2	48.9	47.5	48.5
Burkina Faso	1.7	2.1	2.9	6.9	13.8	25.3	34.1	31.3	35	38.5	38	20.9
Turkey	5.1	8.1	10.1	11.4	14.5	16.6	24.1	29.6	33.5	32.3	27.5	19.3
Suriname	18.2	16.9	16.1	17.9	20.8	22.9	24.6	26.5	27	26.6	25.4	22.1
Guinea	14.3	16.6	18	23.9	22.5	20.4	19.7	18.4	19	21	20	19.4
Sudan	5.6	3.6	3.1	2.7	4	10.1	22.5	27.9	20.1	21.5	16.5	12.5
Kyrgyzstan	16.6	10.6	10.5	18.4	17	18.5	19.7	11.3	20.2	19.2	17.7	16.3
Ivory Coast	3	3	3	5.3	8.6	7.3	13.4	14	13.6	18	22.2	10.1
Guyana	10.1	8.4	9.7	10.5	11.9	12.8	14.4	14.4	14.4	14.4	15.7	12.4
Egypt	0	0	0	0	0	4.7	6.3	8.2	11.1	11.8	13.7	5.1
Mauritania	0.5	0.6	1.9	6.8	8.4	9.1	8.7	8.2	10	10.1	9.3	6.7
<b>Total</b>	<b>391.6</b>	<b>344.1</b>	<b>378.9</b>	<b>346.5</b>	<b>434.9</b>	<b>444.3</b>	<b>471.7</b>	<b>460.9</b>	<b>497.1</b>	<b>523.9</b>	<b>534.7</b>	<b>439.0</b>
<b>World Total</b>	<b>2,562</b>	<b>2,496</b>	<b>2,499</b>	<b>2,429</b>	<b>2,612</b>	<b>2,742</b>	<b>2,846</b>	<b>2,875</b>	<b>3,064</b>	<b>3,133</b>	<b>3,178</b>	<b>2,765</b>
<b>Share of the OIC (%)</b>	<b>15.3</b>	<b>13.8</b>	<b>15.2</b>	<b>14.3</b>	<b>16.7</b>	<b>16.2</b>	<b>16.6</b>	<b>16.0</b>	<b>16.2</b>	<b>16.7</b>	<b>16.8</b>	<b>15.8</b>



## Scrap Supply of Gold (tons)

Countries	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Avg.
Turkey	67.7	82.5	71.5	199.0	217.2	122.0	78.0	72.3	56.3	41.4	72.4	100.8
Indonesia	67.0	71.9	67.9	72.5	79.9	64.9	58.3	49.0	36.2	36.3	46.0	60.4
United Arab Emirates	28.2	34.0	43.8	59.4	70.6	110.0	71.4	73.4	57.0	51.4	43.5	59.9
Saudi Arabia & Yemen	92.5	133.7	56.4	69.4	57.3	44.1	37.1	33.5	23.6	20.8	16.8	56.8
Egypt	72.7	77.5	56.5	35.8	65.0	48.0	47.6	53.6	43.2	39.9	35.0	54.0
Pakistan & Afghanistan	30.9	33.4	31.7	35.5	53.8	50.4	42.7	47.2	37.2	28.8	22.5	39.2
Iran	16.1	21.9	23.0	25.9	32.1	32.7	32.4	32.9	24.3	22.1	17.7	26.3
Iraq & Syria	14.4	23.9	19.0	21.9	35.6	36.7	36.0	33.1	25.3	17.0	12.4	26.3
Malaysia	11.0	19.1	16.4	18.4	19.2	22.2	19.2	16.6	13.2	12.3	10.8	16.8
Libya	4.6	9.7	9.4	10.4	13.4	15.7	16.6	14.4	8.8	8.2	7.7	11.1
Lebanon	6.6	9.9	4.8	6.2	15.1	19.7	14.9	12.6	9.6	8.8	8.2	10.8
Kuwait	12.4	21.8	9.7	10.2	10.4	8.5	7.7	6.2	5.0	4.5	3.9	9.6
Morocco	5.9	6.3	6.2	6.3	9.7	9.3	12.0	11.3	9.3	8.9	8.8	8.5
Jordan	4.6	8.7	7.0	5.6	9.2	12.7	10.8	9.7	7.2	7.4	6.6	8.3
Algeria	2.7	2.8	3.3	3.6	5.8	6.1	7.9	7.5	6.8	6.6	6.7	5.3
Oman & Qatar	3.1	6.1	5.7	6.4	7.3	6.7	5.4	4.9	3.9	3.6	3.3	5.3
The OIC Countries Total	447	571	441	595	713	620	508	488	375	331	339	509
World Total	903	1,133	1,006	1,352	1,728	1,713	1,675	1,677	1,287	1,157	1,172	1,363
Share of the OIC (%)	49.5	39.4	44.4	33.0	25.8	26.1	26.7	26.6	34.7	38.6	38.1	32.8



## Jewelry Fabrication (tons)

Countries	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Avg.
Turkey	251.1	184.9	219.7	183.2	80	73	77	73.8	87.1	114.8	91.6	130.6
Saudi Arabia & Yemen	124.6	89.6	99.5	85	53.5	46.5	36.8	32.5	41.4	37.3	40.8	62.5
Indonesia	86	64.2	62.7	60.8	45.5	38.4	38.7	43.5	51	51.9	48.2	53.7
Malaysia	74.1	58	60.9	56.2	44.9	43.6	37.1	34.7	44.6	44.7	40.9	49.1
Egypt	70.8	50.3	56.5	62.4	44	42.1	28.7	37.4	40.6	40.6	37.8	46.5
UAE	53.2	45.4	48.1	44.6	34	31	26.3	24.7	34.4	33.1	35.1	37.3
Pakistan & Afghanistan	64.2	53.9	50.3	43.8	29.6	26.1	22.1	20.6	24.6	20.9	22.6	34.4
Iran	36.5	32.2	36.2	35.6	30	29.9	27.8	27.7	31.3	28	29	31.3
Iraq & Syria	21.2	20	22.4	19.6	15.1	14.7	11.4	8.7	8.7	7.3	7	14.2
Uzbekistan	9.1	10	10.6	9.6	7.5	9.1	10.2	9.6	9.9	10	8.6	9.5
Kazakhstan	9.1	10	10.6	9.6	7.5	9.1	10.2	9.6	9.9	9.3	7.4	9.3
Bangladesh & Nepal	13.6	11.8	11.7	10.3	8.1	7.7	7.1	7.2	8.1	5.7	4.4	8.7
Morocco	13.8	10.6	10.3	9.4	7.6	7	6.8	6.5	6.4	6.7	6.8	8.4
Kuwait	12.3	9.7	8.9	9.5	7.4	6.6	6.2	5.6	6.3	7	6.7	7.8
Oman & Qatar	11.3	9.9	10.3	8.7	6.6	5.9	5.2	4.8	5.8	5.5	5.8	7.3
Bahrain	11.4	9.6	9.9	8.6	6.4	5.7	5.1	4.5	5.8	5.6	5.7	7.1
Jordan	6.9	4.5	4.7	4.7	5.6	5.8	5.1	4.5	5.4	11.4	12.4	6.5
The OIC Countries Total	885.6	687.9	747.4	674.2	443	410.7	369.2	363.8	430.6	450.7	421.5	535.0
World Total	2,722	2,302	2,426	2,308	1,819	2,033	2,034	2,008	2,439	2,250	2,178	2,229
Share of the OIC (%)	32.5	29.9	30.8	29.2	24.4	20.2	18.2	18.1	17.7	20.0	19.4	24.0



## Official Gold Reserves (tons)

Countries	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Avg.
Turkey	116.1	116.1	116.1	116.1	116.1	116.1	195.3	359.6	519.7	529.1	474.4	252.3
Saudi Arabia	143.0	143.0	143.0	322.9	322.9	322.9	322.9	322.9	322.9	322.9	322.9	273.8
Lebanon	286.8	286.8	286.8	286.8	286.8	286.8	286.8	286.8	286.8	286.8	286.8	286.8
Kazakhstan	59.7	67.3	69.5	71.9	70.4	67.3	82.0	115.3	143.7	191.8	238.2	107.0
Algeria	173.6	173.6	173.6	173.6	173.6	173.6	173.6	173.6	173.6	173.6	173.6	173.6
Libya	143.8	143.8	143.8	143.8	143.8	143.8	116.6	116.6	116.6	116.6	116.6	131.5
Kuwait	79.0	79.0	79.0	79.0	79.0	79.0	79.0	79.0	79.0	79.0	79.0	79.0
Indonesia	96.4	73.1	73.1	73.1	73.1	73.1	73.1	74.0	78.1	78.1	78.1	76.7
Egypt	75.6	75.6	75.6	75.6	75.6	75.6	75.6	75.6	75.6	75.6	75.6	75.6
Pakistan	65.3	65.3	65.4	65.4	65.4	64.4	64.4	64.4	64.4	64.5	64.5	64.9
Malaysia	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4	35.8	36.4	36.3
Jordan	12.8	12.7	14.3	12.8	12.8	12.8	12.8	13.8	15.6	19.3	34.5	15.8
Syria	25.9	25.9	25.9	25.8	25.8	25.8	25.8	25.8	25.8	25.8	25.8	25.8
Morocco	22.0	22.0	22.0	22.0	22.1	22.1	22.1	22.1	22.1	22.1	22.0	22.0
Afghanistan	-	-	-	21.9	21.9	21.9	21.9	21.9	21.9	21.9	21.9	15.9
Bangladesh	3.5	3.5	3.5	3.5	3.5	13.5	13.5	13.5	13.5	13.8	13.8	9.0
Qatar	0.6	0.6	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	10.3
The OIC Total	1,341	1,325	1,341	1,543	1,542	1,547	1,614	1,814	2,008	2,069	2,077	1,656
World Total	30,833	30,468	29,963	29,981	30,506	30,840	31,206	31,681	31,854	32,029	32,804	31,106
Share of the OIC (%)	4.3	4.3	4.5	5.1	5.1	5.0	5.2	5.7	6.3	6.5	6.3	5.3



## Gold Refineries & Exchanges

- 6 (out of 71) refineries of the OIC countries are in the LBMA GDL.
- UAE-Dubai and Turkey are the most prominent countries on physical gold
- In Turkey, gold-backed futures and physical gold dealings take place on Borsa Istanbul.
- Dubai has been an important center for gold in recent years.
- Gold futures traded at Jakarta Futures Exchange and Bursa Malaysia.



## Bursa Malaysia

- Established in 1973
- Home to more than 900 companies across 60 economic activities
- Comprehensive range of products:
  - Equities,
  - Derivatives,
  - Futures and Options,
  - Offshore and Islamic assets, and
  - Exchange-related services;
    - listing,
    - trading,
    - clearing,
    - settlement and depository.



## Bursa Malaysia

- Uses GLOBEX of the Chicago Mercantile Exchange Group in Derivatives Markets where gold is traded.
- GLOBEX, an electronic trading platform, offers global connectivity to the broadest array of futures and options across all asset classes,
- Only gold futures contracts can be traded.
- Possibly “Gold i-ETF” could be traded in the future.



## Dubai Gold And Commodities Exchange - DGCX

- A subsidiary of DMCC of the Government of Dubai
- Started trading in 2005 as the regions first commodity derivatives exchange.
- Owns Dubai Commodities Clearing Corporation, CCP of the markets.
- Wide range of products; precious metal, base metals, energy and currency sectors.
- Exchange traded gold products:
  - Gold Futures
  - Spot Gold (with T+2 delivery)
  - India Gold Quanto Futures



## Dubai Gold And Commodities Exchange - DGCX

- Uses EOS of Cinnober, a leading trading technology provider.
- EOS provides
  - superior transaction speed,
  - more efficient means to access liquidity,
  - higher reliability,
  - enhanced trading and clearing flexibility and
  - global connectivity.
- EOS enables the DGCX to offer contracts in multiple currencies.



## Borsa İstanbul

- Dates back to 1985
- Financial supermarket of Turkey
- Four markets:
  - Equity Market,
  - Debt Securities Market,
  - Derivatives Market (VIOP), and
  - Precious Metals and Diamond Markets.
    - Spot gold (with T+0 delivery),
    - Gold futures contracts
    - Gold ETF



## Borsa İstanbul

- Currently also uses in-house developed softwares in its market operations.
- Will migrate onto Nasdaq's GENIUM INET, a platform for trading, clearing, market surveillance and risk management
- In the first quarter of 2017 Derivatives Market, by 2018 Precious Metals and Diamond Markets and Debt Securities Market to move.



## Conclusion

- A state-of-the-art and highly adaptable web-based trading and clearing platform.
- Related exchanges to connect the platform as a pilot scheme.
- Only authorized members of those exchanges to connect and trade.
- Foreign bullion banks, Banks and other international market players should be attracted to the system,
- Physical delivery should be carried out by clearing subsidiaries of those Exchanges.
- Money clearing institution(s) should be determined beforehand.
- Gold standard should be defined beforehand.

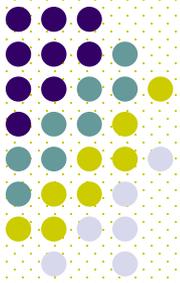


## Conclusion

- At the outset 1 kg gold bullions and large bars (350 to 430 oz.) with over 0.995 fineness should be traded
- Harmonization of regulations across countries
- A commission of experts specialized on the capital markets and related laws needs be formed
- Market should be spot and derivative
- Connection among other institutions and products should be developed
- Delivery location must be an order matching criteria.
- Borsa İstanbul with its affiliate Takasbank and DGCX with its affiliate DCCC are keen to carry out the Project.







# Developing Markets for Islamic ETFs and Depository Receipts

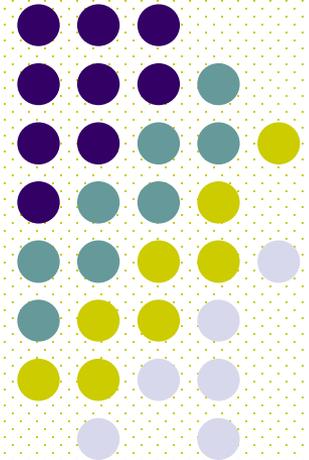
Presented at  
**OIC Member States' Stock Exchanges Forum 10th Meeting**  
Istanbul, Turkey.  
October 27, 2016

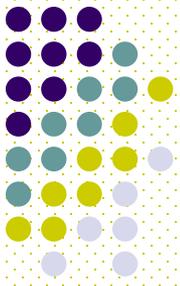
Jahangir Sultan  
*Bentley University*

and

*Marblehead Investment Partners, llc*

Marblehead, Massachusetts

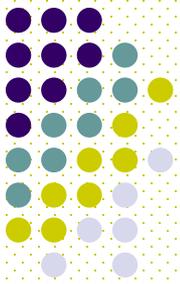




# Promoting Islamic Investment Products

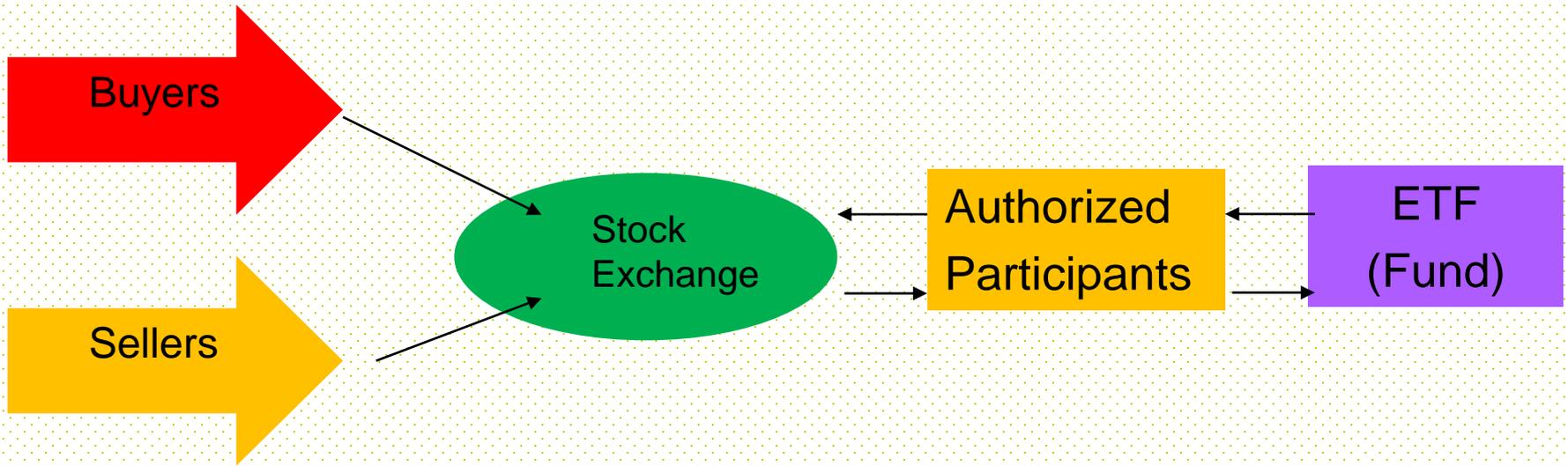
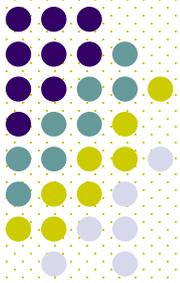
- Attract foreign investment increased product development
  - Macro investing
    - Creating ETFs representing an index
  - Micro investing
    - Investing in firm-specific DRs
  - Challenges and opportunities

# ETFs



- Open ended mutual funds that trade like stocks
- ETFs represent stocks, bonds, currencies, country index, commodities, gold, etc.
- Some are passive (indexed) while others are active -- ‘smart beta’ ETFs
- Transparency: NAV of underlying basket of shares reported daily

# Trading ETFs



# Market cap of ETF's from 2002 - 2016

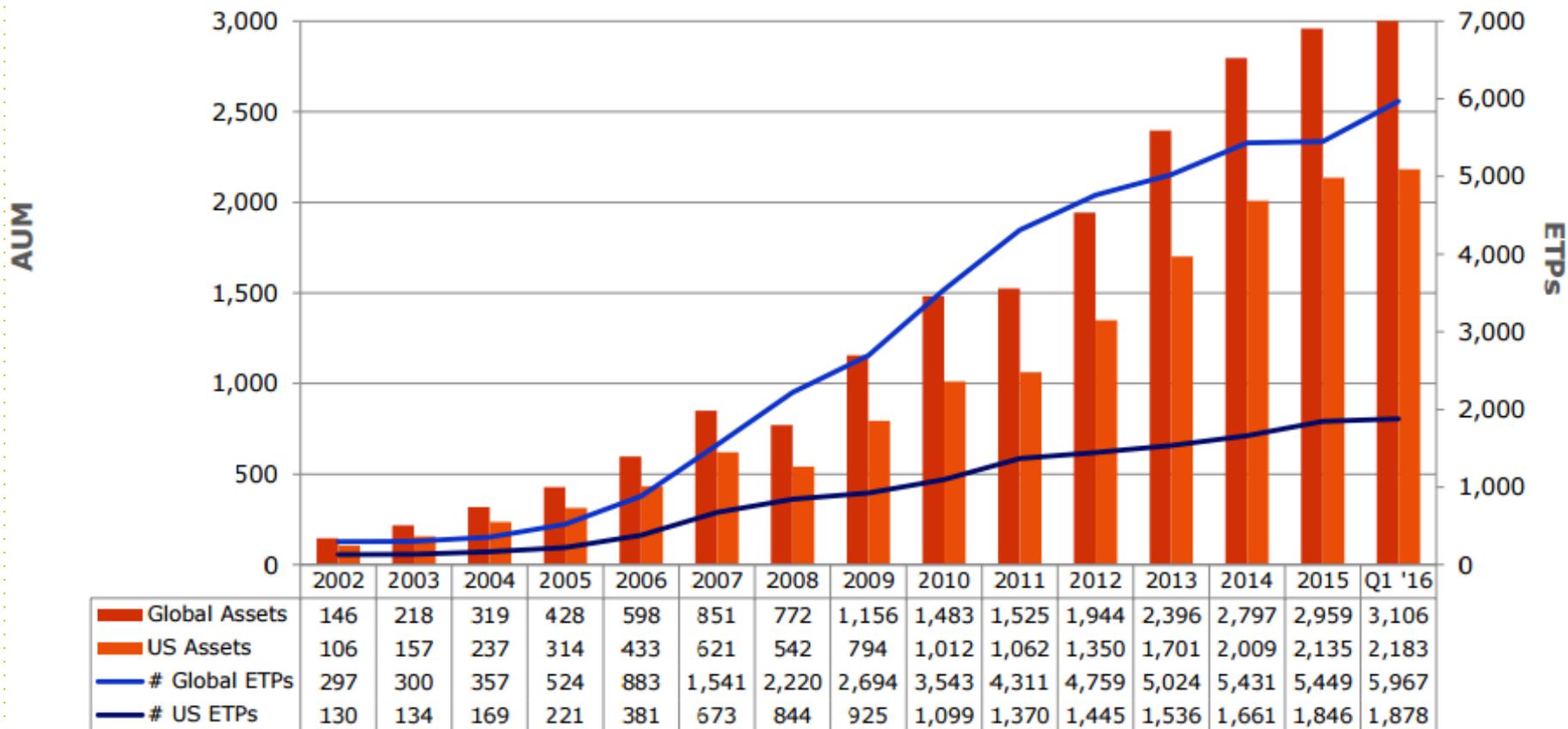
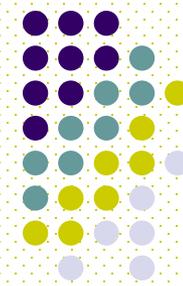
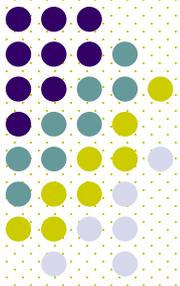


Chart Source: Blackrock and Bloomberg L.P., from Dec. 31, 2001 to March 31, 2016  
 1 Sources: Bloomberg, L.P. and ArcaVision, as of March 31, 2016

powerSHARES®

# Why invest in ETFs

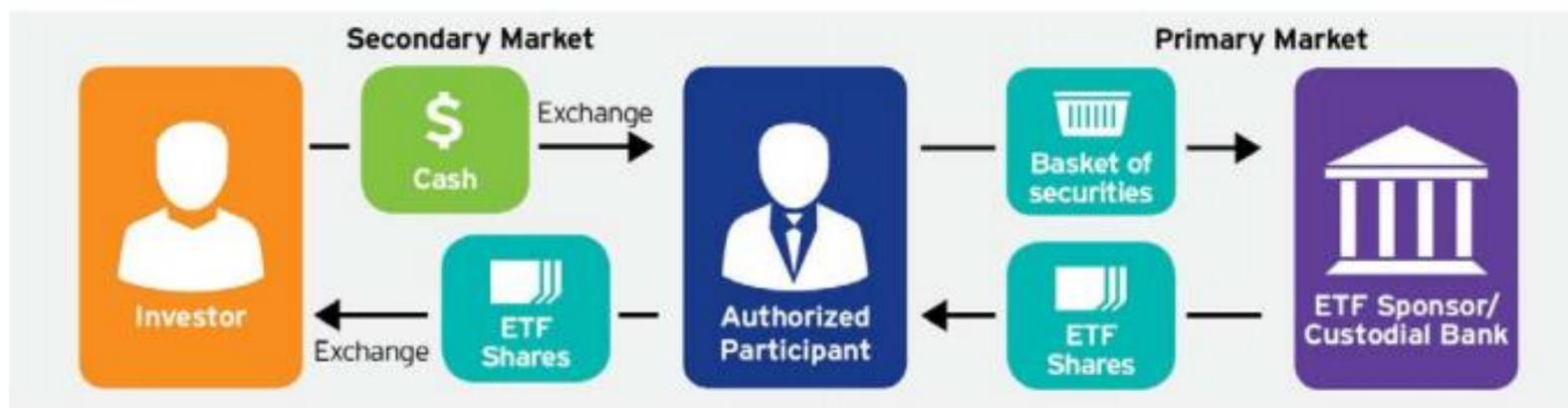


- Participate in the full index
- Portfolio management style (factor investing); style consistency
- Being able to trade anytime when the stock market is open
- Low costs because of lower management fees
- Potential for diversification

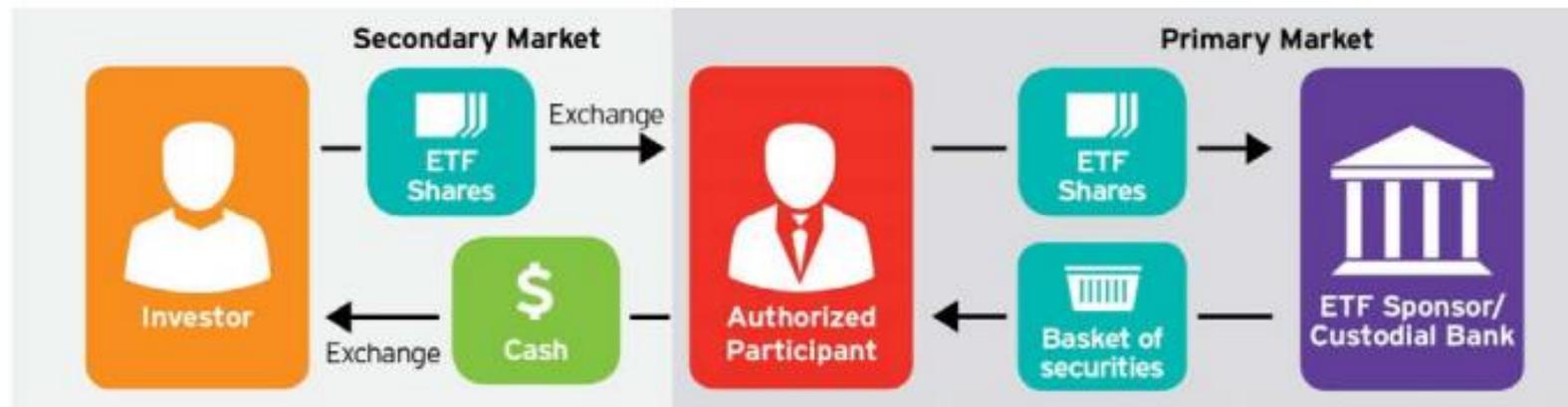
# Creation and redemption process

The “in-kind” process allows securities to be swapped between the ETF provider as depicted below:

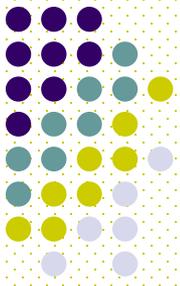
## Creation



## Redemption

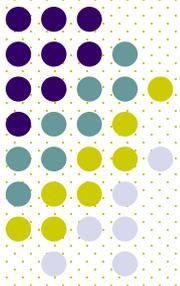


# ETF underlying basket selection



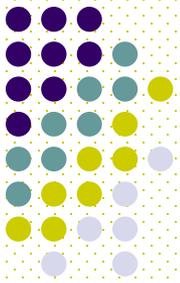
- Physical -- Full replication of the index (identical replica)
- Buy shares that are included in the index with the same weightings
- Most transparent; Low tracking error; too many stocks to buy; Not very efficient (costly)

# ETF underlying basket selection

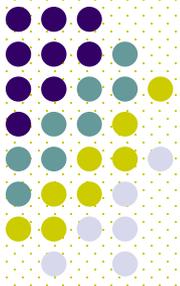


- Physical – Stratified Sampling
    - Buy shares of largest index members (liquid stocks).
    - Buy reduced number of smaller companies that mimic the index.
- Rebalancing is easy; Tracking errors might be higher; Not very transparent

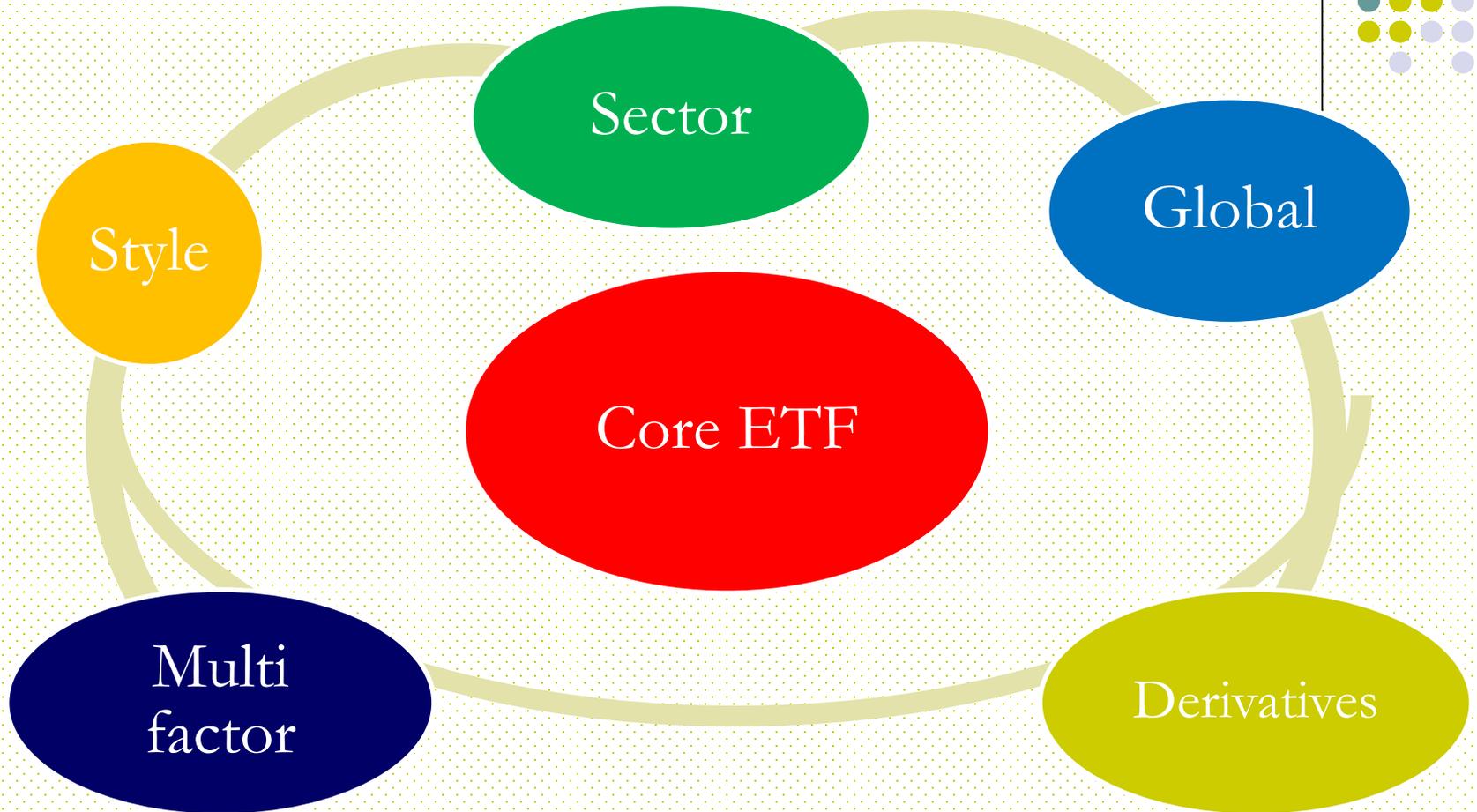
# ETFs- alternative weighting



- Selections
  - Rules based quantitatively optimized
  - Instead of cap weighting
    - Factor based
    - Factors could be fundamental/economic factors
    - firm-specific

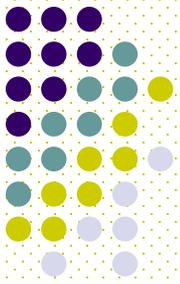


# Core and satellite approach



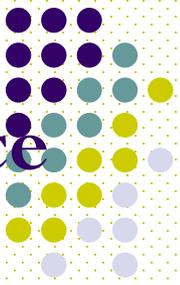
- Core is a diversified strategy based on an index
- Satellite are different tilts (opportunistic) to add exposure and enhance returns

# Islamic and Conventional ETFs: Differences



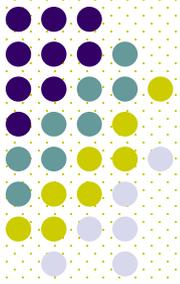
- Islamic ETFs include SC stocks
- Benchmark index is SC
- Diversification benefits are lower with Islamic ETFs because many sectors/stocks are excluded
- Risk is lower
- Excludes derivatives
- Risk management of ETFs is very limited
- Does not allow securities lending, shorting, or swaps

# Size of Islamic ETF Industry and performance



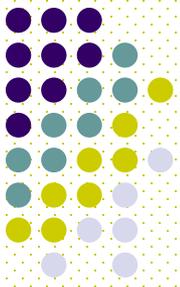
- Shariah-compliant equity ETFs listed globally in 10 countries, including Malaysia, Saudi Arabia and Turkey added up to \$1.23 billion (Global Finance, July 2014)
- Alam (2013) finds Islamic ETF outperformed conventional ETFs (2008-2011) –small sample
- Lackluster performance in other cases

# Islamic ETF providers --perspectives

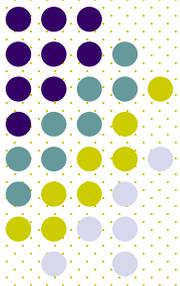


- Perspectives on growth
  - ETFs issued from Western economies
    - Slow growth
  - ETFs issued from Eastern economies
    - Slow growth;
- Demand side
- Supply side
- Performance

# Slow Growth of Islamic ETFs – exposure



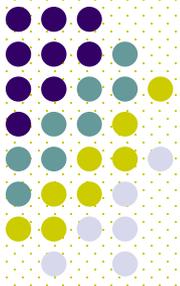
- Developed country ETFs have less than 1% exposure to Islamic countries. Islamic countries are not well represented in Sharia compliant universe of stocks (ISWD MSCI world exposure is about 94% (US and developed economies))
- Does not really promote developing /emerging countries –capital markets in these countries remain illiquid



# Why slow Growth of Islamic ETFs –

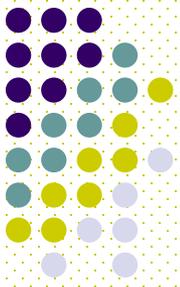
- Most faith based ETFs are experiencing slow growth
  - Not just Islamic ETFs
  - Some Islamic ETFs have closed after a brief period of existence
  - Christian ETFs are also having similar issues
  - Compared to that SRI/ESG/Gender/Environment issues are doing better

# Slow Growth of Islamic ETFs – track record



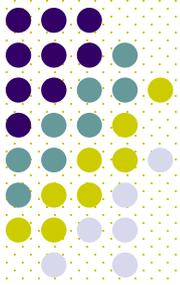
- Islamic ETF providers may not have the track record.
- Javelin (JVS) had no previous experience in managing a fund

# Slow Growth of Islamic ETFs – identity crisis



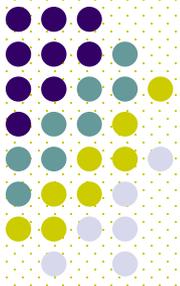
- Low favorability of faith based investment products in general
- Negative perception of Islam and Sharia in the West.
- Unfamiliarity with Islamic ETFs among investors -
- Not on the radar screens of investment advisors

# Slow Growth of Islamic ETFs – performance



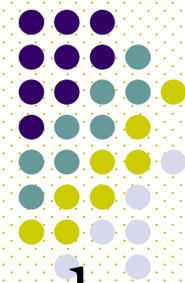
- By definition, Islamic ETFs may not outperform the underlying index
  - Often less than full replication
  - Remaining basket not representative of the index
  - Further reduction in coverage due to Sharia screening of negative stocks
  - So, are we expecting a lot?

# Slow Growth of Islamic ETFs – illiquidity



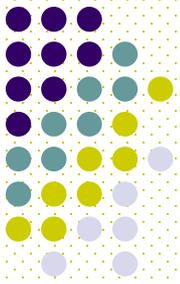
- Low trading volume of underlying shares
- High bid-ask spread
- Difficult to exit with fair prices
- Creation and redemption help -- but tough to unload large number of shares (Mahdzir Othman, i-VCAP)

# Slow Growth of Islamic ETFs – cash drag and timing issues



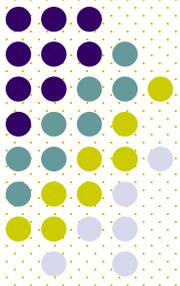
- Cash Drag: When dividends are distributed by underlying shares, distribute to ETFs on a real time basis. Should reduce cash drag and tracking error
- Timing: If index reconstitutes, the rebalancing of the ETF should be done quickly to reduce tracking error.

# Slow Growth of Islamic ETFs – short selling



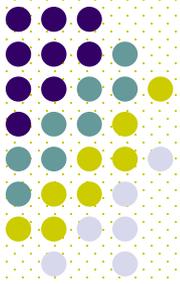
- Since, trading alternatives such as short selling is not available in Islamic ETFs, they tend to be less attractive for non-Muslim individuals or institutional investors with mandates for risk management
- For Muslim investors, this is not an issue

# Islamic ETFs: lack of product diversity



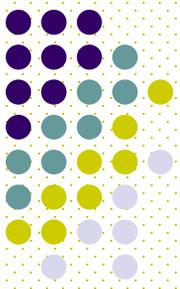
- Islamic ETFs have a single focus – Sharia compliant large/mid-cap stocks
- Not enough attention to SRI/ESG/governance themes
- Raja Teh Maimunah, head of Islamic markets at Bursa Malaysia --the lack of diversified products was one shortcoming of the industry compared to its conventional peers.

# Slow Growth of Islamic ETFs – support system



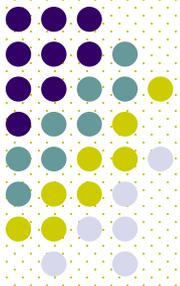
- Since these ETFs have low trading volume, they have trouble exciting market makers
- Unlike mutual funds (with dedicated distribution agents), dealers and agents of ETFs do not charge commission.
- ETF providers can only charge very low management fees. (Mahdzir)

# Problems with Islamic ETFs- government support



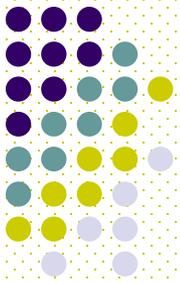
- Should governments support Islamic ETFs?
- Why should government be involved in helping out Islamic ETFs when non-Sharia ETFs are left to fend for themselves
- Governments should create a fair and consistent standards for all. UK FSA – no obstacle, no special favors –level playing field..  
Financial regulator, not a religious regulator

# Problems with Islamic ETFs- government support



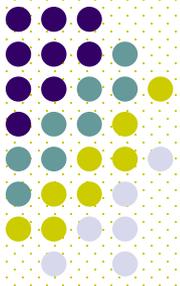
- There is a role for sovereign wealth funds for supporting Islamic ETFs issued in their country.
- But sovereigns buying *Western economies-based* ETFs does not benefit the industry or the constituents which are from Islamic countries.
- “If **Islamic ETFs** are going to take hold globally and specifically in the Middle East, there has to be government, or quasi-government support, through sovereign wealth fund participation in the market”  
(Source : Islamic Finance Asia)

# Soft support



- Rebranding? Controversial but may be prudent
- Improve image of Islam in Western economies
- How?
  - Investor education; roadshows in Islamic and Western economies – connecting with Islamic centers in large cities to highlight benefits of Islamic ETFs
- Providing research and training support; webinars; educational seminars
-

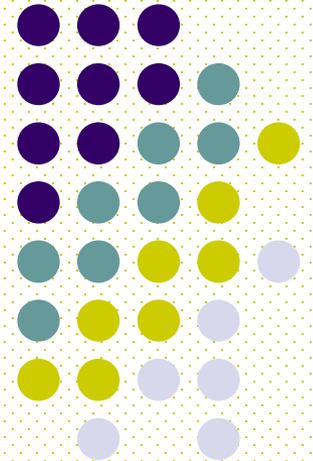
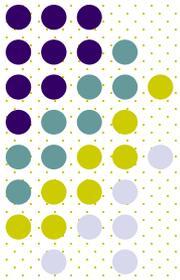
# Conclusions

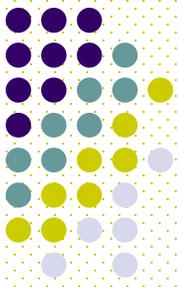


- Islamic ETFs investors do not have to sacrifice returns for subscribing to faith
- Islamic ETFs should be attractive to non-Muslim investors for their performance.
- Overly aggressive optimization should be avoided to reduce tracking error
- Investor familiarity with ETFs should be improved
- SECs should set up uniform standards for issuing ETFs

# Depository Receipts

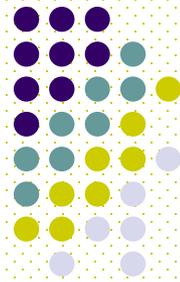
---



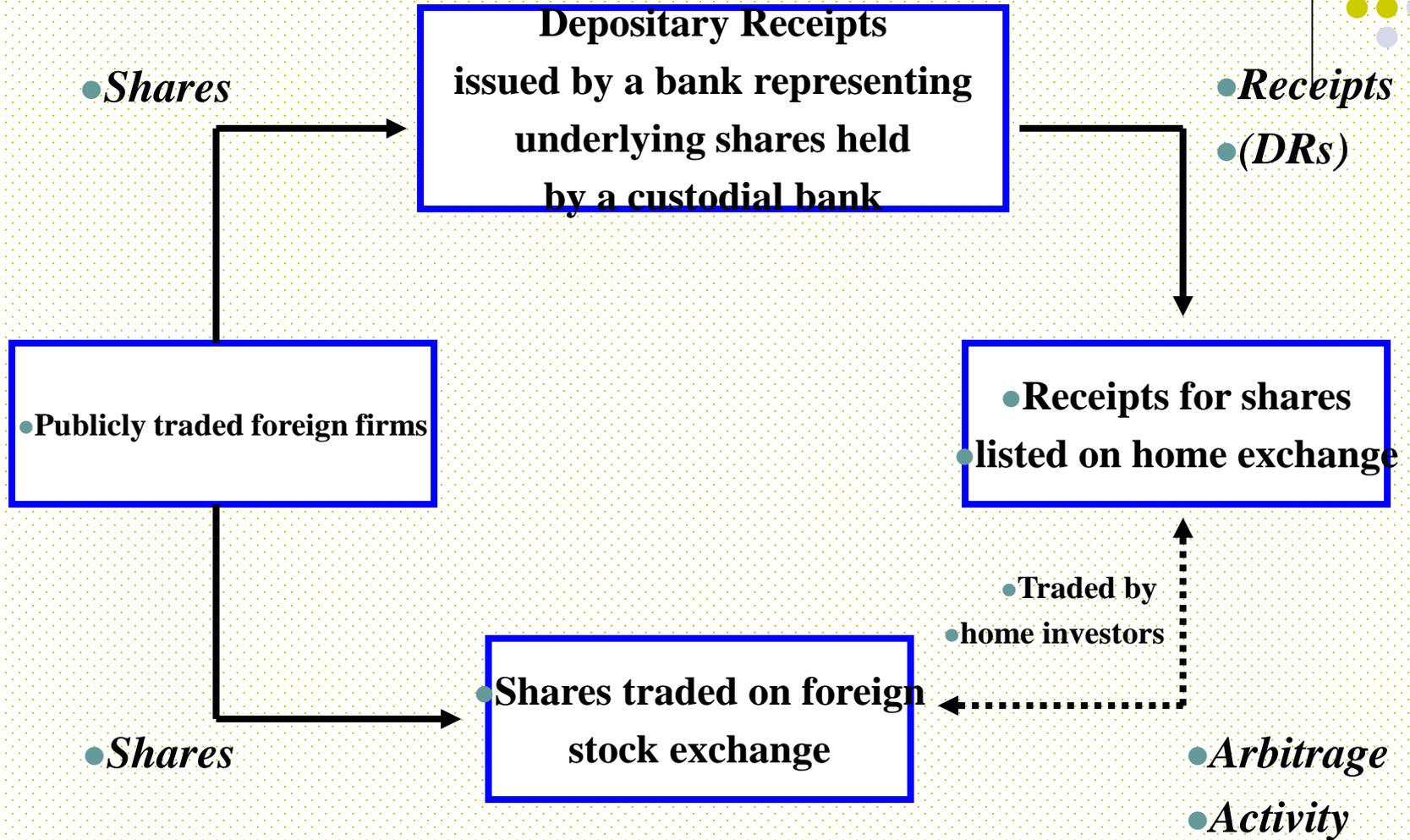


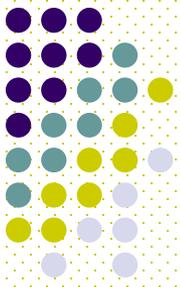
# Depository Receipt (DR)

- A stock that trades in the domestic stock exchange but represents a specific number of shares in a foreign stock
- Traded like stocks
- Issued/sponsored by a domestic bank or brokerage



- Mechanics of Depositary Receipts (DRs)





# Three Types of DRs

**Level 1:** Foreign companies either don't qualify for listing on an exchange

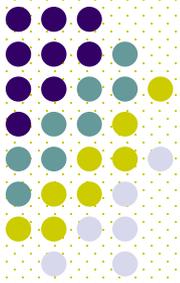
- OTC; loosest requirements from the SEC

**Level 2:** Listed on an exchange or quoted on Nasdaq

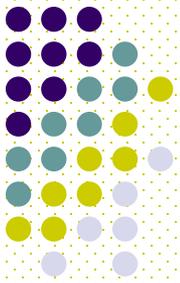
- Filing requirements; higher visibility trading volume

**Level 3:** Capital raising; high quality

# Sponsored vs Unsponsored DRs



- Sponsored
  - Supply driven
  - Deutsche creates a DR on behalf of a foreign company for a **fee**
  - Represents legal relationship between Deutsche and the foreign company
  - Trade on NYSE/NASDAQ; full voting rights
- Unsponsored
  - Demand driven
  - Trade on OTC; no voting rights



# Risks of DRs

## Political Risk

- Is the government of the DR's home country stable?

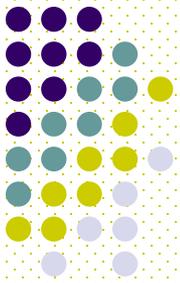
## Exchange Rate Risk

- Is the currency of the home country stable?

## Inflationary Risk

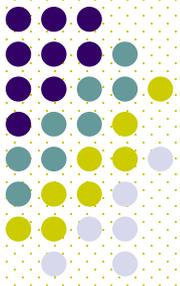
- Extension of exchange rate risk

## Marketing DRs --Listing



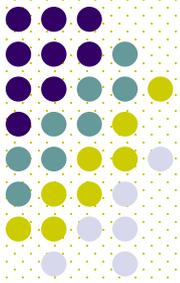
Most often cited reasons for listing DRs

- Reducing the stake held by existing shareholders
- Improving liquidity and broadening the shareholder base
- Capitalizing on the product market reputation
- Fees
- Lowering cost of capital
- External image
- Promote price discovery



# Investors benefits from DRs

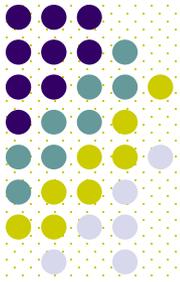
- For individuals, DRs are an easy, cost-effective way to buy shares in a foreign company
- Country exposure
- Foreign exchange exposure
- Firm-specific exposure
- Investing in industries that are absent in home country
  - Non-systematic risk should be higher
  - International diversification would be greater



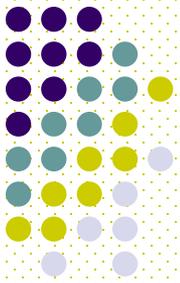
## Who are the Investors in DRS?

- Institutional investors dominate the DR market, accounting for 72% of all holdings.
- They possess significant advantage in accessing, acquiring, processing information.
- A significant part of this pool is involved in high frequency trading and quantitative portfolio optimization.

# Islamic DRs

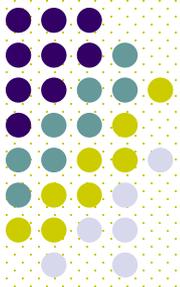


- Select DRs by applying Sharia screening
- Restricted universe because of negative screens
- Apply the DJIM index as a benchmark
- Single stock DRs
- Allow faith based investing and foreign diversification



## The universe of DRs in this study

- S&P Dow Jones Islamic
- S&P Dow Jones Global
- S&P Dow Jones SRI (Socially responsible DRs and ESG)
- Passive – min-variance optimization
- Performance indicator – Sharpe, MSR, Sortino
  - Constituents provided by S&P Dow Jones

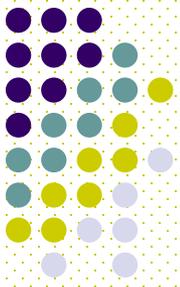


# International portfolio diversification – Islamic DRs or their underlying stocks

Compare international portfolio diversification with DRs and their underlying foreign stocks

– which is better?

- Four regimes
  - 2003-2014
  - Pre-crash (2003-Feb 2007)
  - Crash (2007 (March) – 2009 (April))
  - Recovery (2009 (May) – 2014 October)

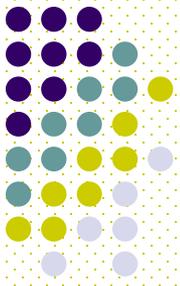


## Performance\* of Islamic DRs

<u>Regimes</u>	<u>DR portfolio rank</u>
• 2003-2014	1
• Pre-crisis	2
• Crisis	2
• Post-crisis	1

*\*Based on risk adjusted returns*

*\* Underlying portfolios perform similar*

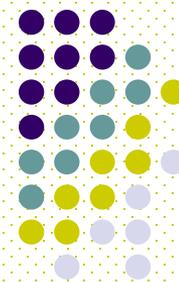


# The Universe

	<b>DR Universe</b>					
<i>Category</i>	<i>GLOBAL</i>	<i>ISLAMIC</i>	<i>SRI</i>	<i>Grand Total</i>		
144A			3	3		
LEVEL I	110	82	46	238		
Sponsored	66	64	39	169		
Unsponsored	44	18	7	69		
LEVEL II	21	30	12	63		
LEVEL III	20	12	16	48		
Grand Total	151	124	77	352		
	<b>Underlying Stocks*</b>					
	151	124	77	352		

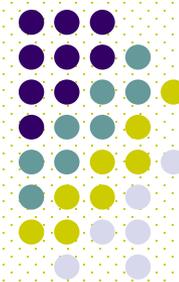
- Each DR was matched by its corresponding underlying stock

# Diversification with DRs and underlying stocks (2003-2014 (October))



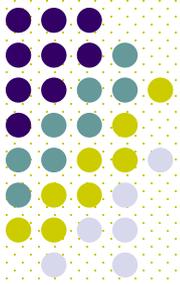
	<b>DR Portfolio</b>								
<b>Category</b>	Return	Risk	Tracking Error	Number of stocks	MSR	Downside risk	Excess Return	Sortino	MSR Ranking
Islamic DR	7.31%	11.64%	1.83%	20	32.92%	1.29%	0.02%	0.02	1
Global DR	6.18%	10.70%	2.03%	27	25.21%	1.43%	0.00%	0.00	2
SRI DR	6.18%	15.27%	1.63%	23	17.67%	1.18%	0.00%	0.00	3
	<b>Underlying Stock Portfolio</b>								
Islamic Stocks	7.43%	11.90%	1.92%	20	33.16%	1.36%	0.02%	0.02	3
Global Stocks	9.41%	10.81%	2.04%	27	54.86%	1.40%	0.06%	0.04	1
SRI Stock	9.97%	15.50%	1.73%	23	41.87%	1.20%	0.07%	0.06	2

# Diversification with DRs and underlying stocks: Pre-crisis (2003-2007 (Feb))



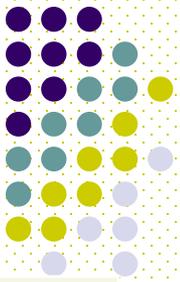
	DR Portfolio								
Category	Return	Risk	Tracking Error	Number of stocks	MSR	Downside risk	Excess Return	Sortino	MSR Ranking
Islamic DR	12.84%	9.57%	1.40%	20	88.29%	1.01%	0.03%	0.03	2
Global DR	11.70%	10.03%	1.51%	27	72.89%	1.06%	0.01%	0.01	3
SRI DR	17.08%	11.67%	1.43%	23	108.81%	0.97%	0.11%	0.11	1
	Underlying Stock Portfolio								
Islamic Stocks	13.07%	9.48%	1.44%	20	91.62%	1.02%	0.03%	0.03	3
Global Stocks	14.58%	9.96%	1.53%	27	102.37%	1.04%	0.06%	0.06	2
SRI Stock	20.22%	11.77%	1.54%	23	134.49%	1.02%	0.17%	0.17	1

# Diversification with DRs and underlying stocks: Crisis (2007 (Mar)-2009 (Apr))

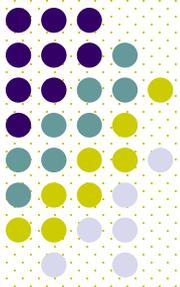


	DR Portfolio								
Category	Return	Risk	Tracking Error	Number of stocks	MSR	Downside risk	Excess Return	Sortino	MSR Ranking
Islamic DR	-12.04%	17.26%	2.70%	20	-2.71%	1.88%	0.22%	0.12	2
Global DR	-5.58%	15.20%	3.04%	27	-1.41%	2.00%	0.35%	0.17	1
SRI DR	-18.20%	24.23%	2.30%	23	-5.30%	1.66%	0.11%	0.06	3
	Underlying Stock Portfolio								
Islamic Stocks	-11.67%	18.08%	2.89%	20	-2.77%	2.02%	0.23%	0.11	2
Global Stocks	-2.74%	15.52%	3.08%	27	-0.99%	2.03%	0.40%	0.20	1
SRI Stock	-13.27%	25.10%	2.46%	23	-4.25%	1.70%	0.20%	0.12	3

# Diversification with DRs and underlying stocks: Post-Crisis (2009 (May)-2014 (October))

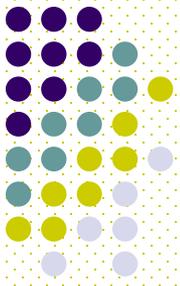


	DR Portfolio								
Category	Return	Risk	Tracking Error	Number of stocks	MSR	Downside risk	Excess Return	Sortino	MSR Ranking
Islamic DR	10.88%	10.07%	1.67%	20	81.62%	1.19%	-0.06%	-0.05	1
Global DR	6.72%	8.84%	1.85%	27	46.00%	1.40%	-0.14%	-0.10	2
SRI DR	7.70%	12.69%	1.44%	23	39.78%	1.08%	-0.12%	-0.12	3
	Underlying Stock Portfolio								
Islamic Stocks	10.80%	10.23%	1.74%	20	79.62%	1.25%	-0.06%	-0.05	2
Global Stocks	10.36%	8.94%	1.84%	27	86.20%	1.34%	-0.07%	-0.05	1
SRI Stock	11.53%	12.57%	1.50%	23	70.59%	1.08%	-0.05%	-0.05	3



## Diversification with DRs

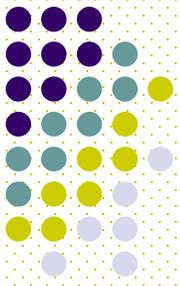
- DR and UL portfolio returns are very similar --no statistical differences in the returns
- Directional diversification strategy (DR to UL or UL to DR) yield similar results
- Indication of maturity of the markets – especially for cross-listed stocks
- Stocks with DRs perform similar – important feed back effects --



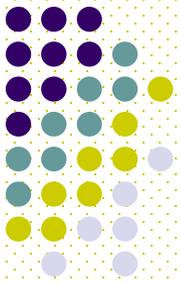
## Diversification with DRs

- Islamic DR portfolio has the best performance for post-recovery period
- Islamic UL portfolio performs very similar
- During financial crisis, Islamic portfolios were effective in preserving value – not as effective as global portfolio
- SRI portfolio had the worst performance during the crisis

# Depository Concerns



- Poor liquidity-DRs and underlying
- Large cancellation reduces business; cancellation/conversion fees discourage flow
- How to encourage investors to stay engaged with DRs
- The effects of corporate actions on trading volume
- Sanctity of financial statements
- Do brokers understand risks?



## Broker Concerns

Poor liquidity-DRs and underlying

Market price; execution delays

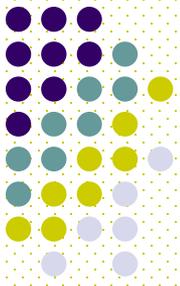
Cancellation/conversion fees discourage flow

Inventory -- Books open?

Cross-border settlement delay; infrastructure

The effects of corporate actions on trading volume

Sanctity of financial statements



## Issuer Concerns

Poor liquidity-DRs

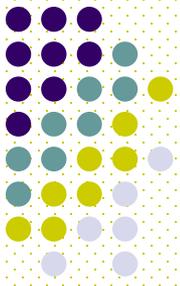
Investor appetite; investor participation

Marketing; reputation of the depositary institution

Regulatory environment

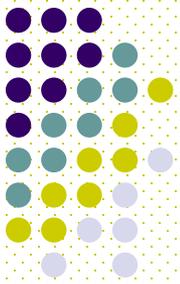
Image of the firm among Institutional investor;

# Western perceptions

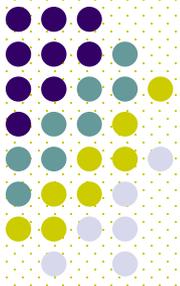


- ❑ Regulatory barriers –repatriation of capital
- ❑ Liquidity; breadth; depth
- ❑ Familiarity with OIC countries
- ❑ Familiarity with Islamic theme based investments
- ❑ Not visible in world capital markets
- ❑ Low volume in Islamic products
- ❑ Not enough marketing of OIC products

# Perceptions about Islamic finance products



- ❑ Lack of standardization of Sharia principles
- ❑ Lack of risk management instruments
- ❑ Enforcement of legal rights across markets
- ❑ Very limited appetite for Islamic products among HNW investors



## Conclusions

Possible to discriminate among various stock universes to identify disparate investment strategies

There is room for both values and profit motivated investment strategies for these stock universes

SC universe has unique appeal to those demanding SC compliance as well as profitability

## IMPACT OF XBRL ON DISCLOSURE QUALITY



### The Case Study of Turkey

---

*MKK Investor Relations & PDP Dept.*

*Fatma Ayzer Bilgiç*

*October, 2016*

## Agenda

---

- Merkezi Kayıt Kuruluşu A.Ş. (MKK)
- Disclosure in Turkish Capital Markets & PDP
- PDP 4.0. XBRL Project

## Merkezi Kayıt Kuruluşu A.Ş.

---

### Merkezi Kayıt Kuruluşu A.Ş. (MKK)

---

- Main Role - Central Securities Depository of Turkey
- Officially licensed R&D center for Turkish capital markets
- Value-added services
  - *Public Disclosure Platform (PDP)*
  - *e-GOVERNANCE (Corporate Governance & Investor Relations)*
  - *e-GEM (Electronic General Meeting)*
  - *e-COMPANY (Companies Information Portal)*
  - *e-CAS (Investor Notification & Alert System)*
  - *e-COMMODITY (Electronic Warehouse Receipt Center)*
  - *e-DATA (Capital Markets Data Bank)*

### FIGURES (September 2016)

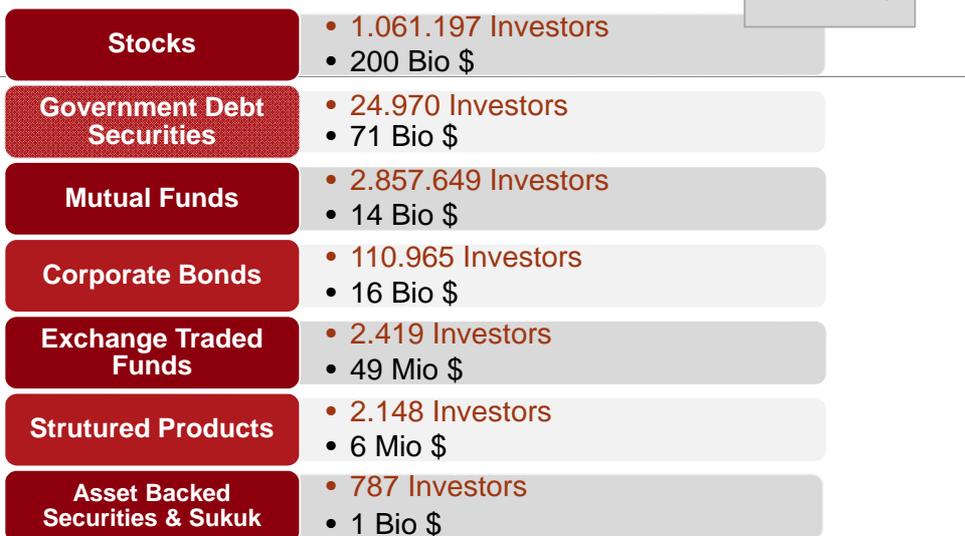


5

Foreign Ownership:  
% 62,68

### CUSTODY-SECURITIES (September 2016)

Free Float:  
79 bil. US \$  
Non Free Float:  
121 bil. US \$



6

## Disclosure in Turkish Capital Markets

### Transparency in Capital Markets...

- Main principles that form the pillars of capital markets: *Protection of shareholders' rights, disclosure & operation of markets in a secure, transparent and reliable environment*
- **Disclosure**-Timely announcement of relevant information in a **complete, unbiased, fair** and **correct** way to ensure simultaneous access of investors, shareholders and other market participants.
- Mandatory & voluntary disclosure



## Regulatory Environment

- ➔ Capital Markets Board (CMB) - Regulatory & supervisory authority in Turkey.
- ➔ Capital Markets Law- main regulation.
- ➔ Detailed subjects - regulated by Communiqués issued by CMB

Main communiqués related to public disclosure;

- ✓ Principals Regarding The Public Disclosure of Material Events
- ✓ Principals of Financial Reporting in Capital Markets
- ✓ Public Disclosure Platform (PDP)



## PDP in General

- All regulated information has to be disclosed through **Public Disclosure Platform (PDP)**
- Electronic disclosure system using internet & digital-signature technologies
- Companies are responsible for keeping a sufficient quantity of valid electronic certificates to allow uninterrupted flow of notifications
- System was put into action **June 1, 2009**
- Initial platform was developed by BIST & CMB; current system was by MKK
- MKK-operator and administrator of the system,
- 7/24 basis
- Web-site- [www.kap.org.tr](http://www.kap.org.tr)
- 370.000 different visitors/month – 1,3 mio different pages/month
- 14 data vendors disseminate PDP notifications on a real time basis.



## Chronology



## Public Disclosure Platform (PDP)





## Main Notifications



-Financial statements (In accordance with IFRSs)



-Material events



-Any other events required to be disclosed by CMB & BIST regulations.



## Advantages of PDP

### ***For notification-senders;***

- Collection of the notifications by e-signature in a secure environment
- Fast dissemination of information without any intermediaries
- Reduction in paper consumption & bureaucracy
- Improved information quality through templates
- Electronic archive, queries based on type of notification, sender, or subject

### ***For investors;***

- Centralized, trustable source of information
- Immediate & simultaneous access to information
- Electronic archive, queries based on type of notification, sender, or subject
- Rapid access to current general information about companies through a single channel
- Analyzable data

### ***For regulatory authorities;***

- A further step for regulatory authorities to focus on their primary responsibilities,
- Reduction in paper consumption & bureaucracy
- Improving the quality of information by defining the minimum constituents of notifications, ensuring complete, clear, relevant and correct information
- Analyzable data

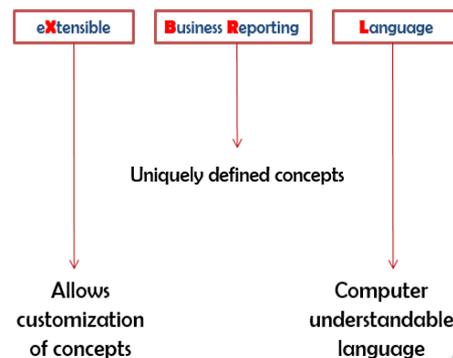


## XBRL and PDP 4.0.

### XBRL

- ✓ An XML based open standard to improve publishing, exchange, analysis & comparison of financial data & business information
- ✓ Financial/business items translated (tagged) in an electronic set of data (taxonomy)
- ✓ **Machine readable**– software can interpret & process data
- ✓ **XBRL International consortium**-supported by more than 600 member organisations, from private & public sectors.
  - ✓ Public authorities: central banks, banking supervisors, securities regulators...
  - ✓ Business NPO: accountants, banks, vendors, analysts...
  - ✓ Commercial companies: firms, banks, software vendors, issuers,...
- ✓ Local jurisdictions

#### An Information Standard



## Why XBRL in PDP?

### PDP before XBRL

Data for presentation, difficult to analyze, notes are in pdf

Limited controls, so errors on FRs

No connection between MKK based e-systems

Swift message infrastructure

Limited notifications in English

### Requirements

Dynamic data to search, retrieve & analyze

Ensure data accuracy, especially in FRs

Integration of PDP with other MKK systems

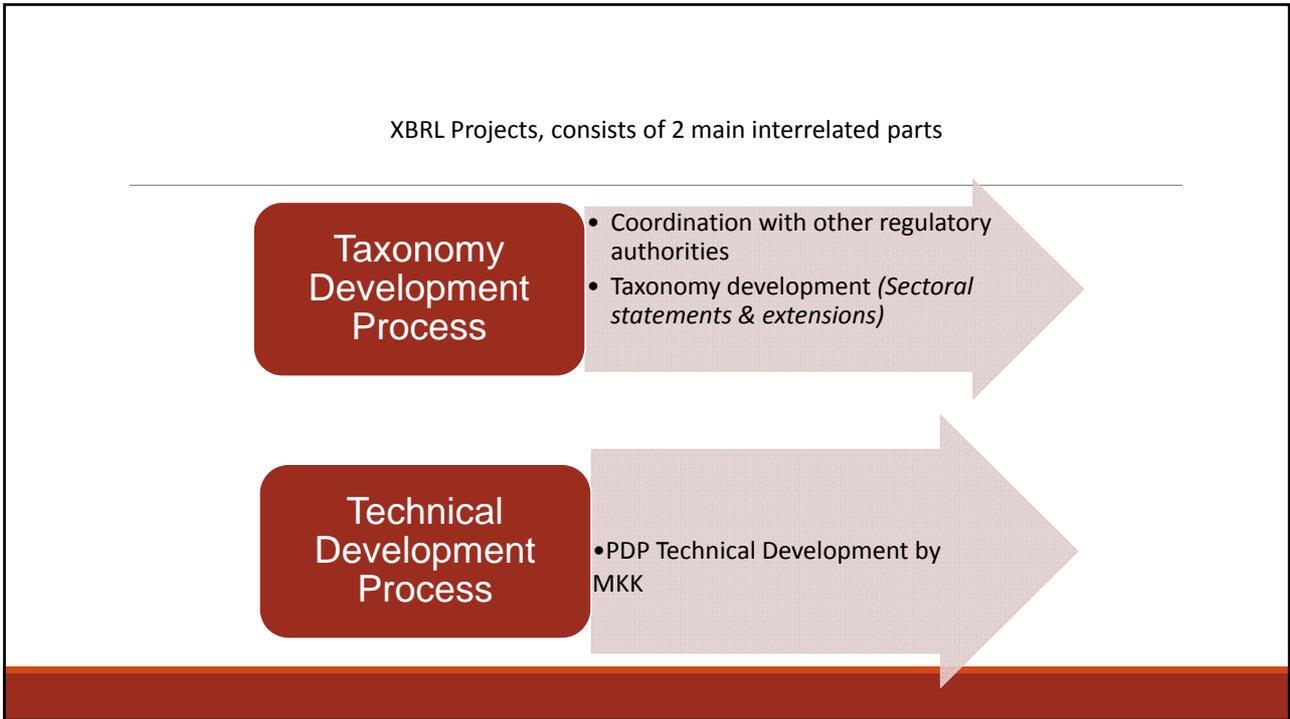
Swift message infrastructure as STP

Multi-language support

Promoting academic researches about Turkish capital markets

## PDP 4.0. Project Phases

- 1st Phase-(completed):
  - FR, material events, CA and fund notification in XBRL
  - Integrate with e-GEM (one way integration)
- 2nd Phase:
  - Integrate with e-GEM (two way integration)
  - Analysis of XBRL data
- 3rd Phase:
  - Notes in XBRL
- 4th Phase:
  - Receive instance files from companies



## Alternatives in XBRL Reporting

Closed System	Open System
Regulatory authority determines the taxonomy	
Extensions can be done only by regulatory authority periodically	Companies can extend the taxonomy according to their needs
Examples: EU banking reporting, Australia, Singapore...	Example: ABD SEC, Israel
<p><u>Advantage:</u></p> <ul style="list-style-type: none"> <li>-No risk of wrong extension</li> <li>-Short technical development period</li> <li>-No cost for company</li> </ul>	<p><u>Advantage:</u></p> <ul style="list-style-type: none"> <li>-Companies can make extensions whenever they need</li> </ul>
<p><u>Disadvantage:</u></p> <p>--</p>	<p><u>Disadvantage:</u></p> <ul style="list-style-type: none"> <li>- Comparability breaks down</li> <li>- Potential for wrong extensions</li> <li>- Long technical development period, costly for companies, XBRL know-how on company side</li> </ul>

## Some Findings Before PDP 4.0.

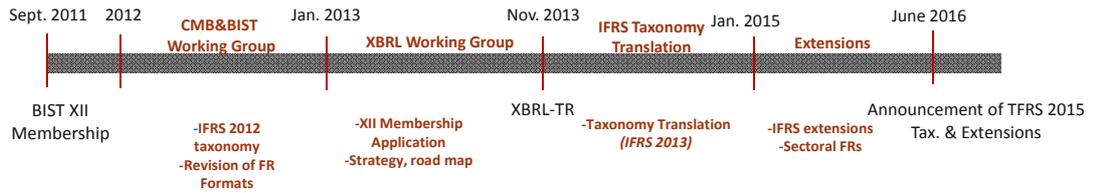
- Sectoral FRs (*bank, islamic banks, insurance, leasing co.s, ETFs*) was closed system
- But industrial companies' FR templates were open system.
- We determined more than **7.000 items** were added to FRs by BIST companies in 2014/Q2 & Q3.
  1. *Addition of same item with many companies with different names (When we eliminated this case, additions decreased to 2.030.)*
  2. *Addition of items that already exist in PDP templates*
  3. *Calculation errors*
  4. *Use of wrong templates*
  5. *Blank FR announcement*
  6. *Forgetting footnotes*

## Taxonomy Development-I

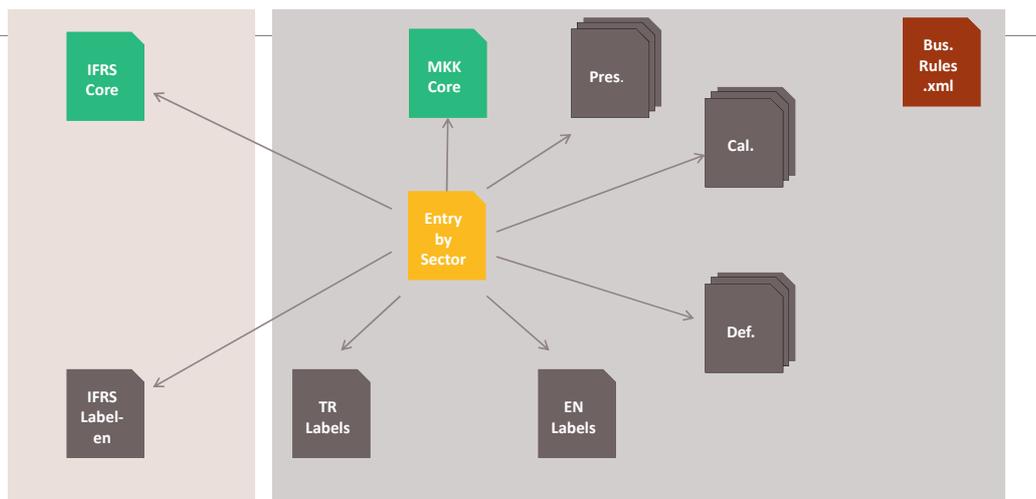
-A commission was established by Public Oversight Accounting and Auditing Standards Authority (POA), with representatives of all regulatory authorities & independent audit firms

- Worked on these 2030 items
- Standardized items used by companies
- Extended IFRS formats (apr. + 600 new extensions for industrial firms)
- Prepared a comprehensive financial statement format for industrial and holding companies
- Material Event Disclosure Taxonomy (Our Own)
  - Material Event Disclosures
  - Fund Disclosures

## Taxonomy Development-II



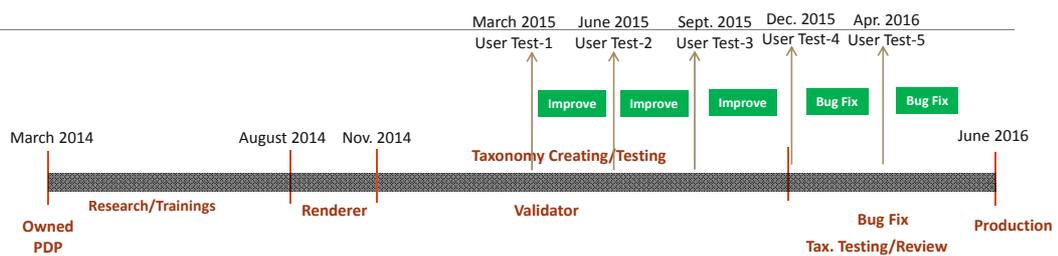
## Financial Report Taxonomy Architecture



## Technical Development

- Phase 1 completed & alive since June 2016
- Inhouse Development
  - Renderer, Validator, Instance Creator/Viewer
  - Portal for Submitters
  - New Web Site for Publishing
  - New Web Services for Data Vendors
- Big Bang-renewal of whole system, whole notifications in XBRL

## PDP 4.0. Project Timeline



## **Disclosure Environment in PDP 4.0.**

---

- Dynamically Rendered Web Forms
- xls Templates to Upload
- Business rules
- Calculation controls
- Digital Signature
- Process Flows among Actors
  - Within Company
  - Auditor

## **Corporate Action Disclosures**

---

- Coded Web Forms
- Hard Coded Business Rules
- Process Flows among Actors
- Relations between Corporate Actions
- Digital signature
- SWIFT Message Creating (STP)

## Benefits Gained...

---

- Increased data accuracy (XBRL & business rules)
- Searchable & analyzable data
- Multi language support (automatically prepared TR & EN templates, English FRs)
- PDP & e-GEM integration
- STP swift message system

## Clues for XBRL Projects

---

- Taxonomy preparation before technical development
- Start technical development when whole set is completed
- Training, networking
- Working with stakeholders (*companies, related authorities, audit companies etc.*)
- Thinking about B Plan



***THANK YOU...***

**ayzer.bilgic@mkk.com.tr**



## Background

■ Observers  
■ Members

- ▶ Initiated at the 20<sup>th</sup> session of the Standing Committee for Economic and Commercial Cooperation of the OIC (COMCEC) in 2004
- ▶ Dedicated platform and communication channel for the members
- ▶ Currently 53 exchanges from 46 countries:
  - 40 national and 2 regional stock exchanges
  - 11 commodity exchanges
  - 20 clearing, settlement, registry and depository institutions
  - 11 related organizations (SESRIC, IIFM, IFSB etc.)

2

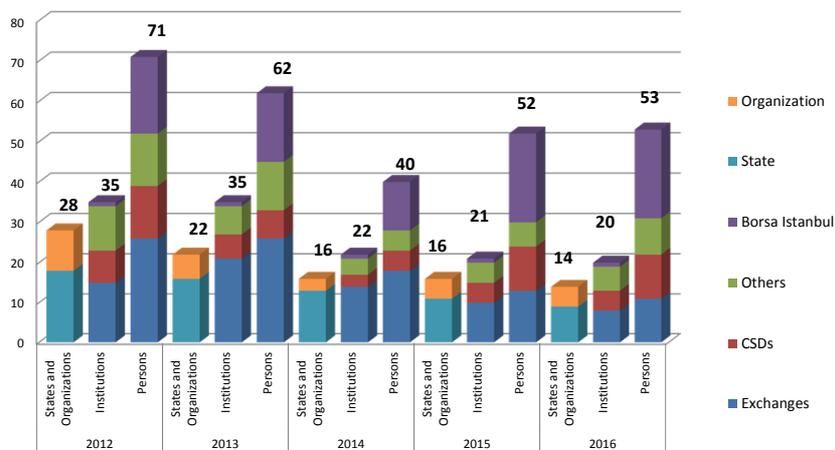
# Meetings

- ▶ First Round-table Meeting, Istanbul – March 2005
- ▶ Second Annual Meeting, Istanbul – October 2008
  - ✓ A working committee and four task forces established
- ▶ First Working Committee Meeting, Tehran – May 2009
- ▶ Third Annual Meeting, Istanbul – October 2009
  - ✓ Task forces renamed and new tasks assigned
  - ✓ Final Report submitted to the COMCEC
  - ✓ In the COMCEC meeting, regulatory bodies of the OIC member states requested to establish a similar platform to boost cooperation efforts
- ▶ Third Working Committee Meeting, Abu Dhabi – April 2010
- ▶ Fourth Annual Meeting, Istanbul – October 2010
- ▶ Fourth Working Committee meeting – April 2011 -
  - ✓ Cancelled due to the conflicts in the MENA region (Cancelled due to the conflicts in the MENA)
- ▶ Fifth Annual Meeting, Istanbul – September 2011
- ▶ Sixth Annual Meeting, Istanbul – September 26, 2012
- ▶ Seventh Annual Meeting, Istanbul – September 16, 2013
- ▶ Eighth Annual Meeting, Istanbul – November 11, 2014
- ▶ Ninth Annual Meeting, Istanbul – November 19, 2015

3



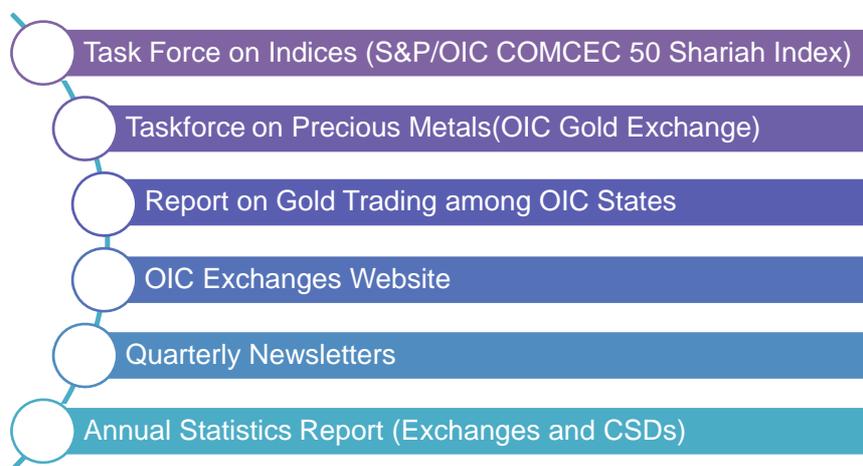
# Forum Participation



4



## Current Activities of the Forum



5



## Task Forces

- ▶ Task Force on Indices
  - ✓ S&P/ OIC COMCEC 50 Shariah Index launched on June 25, 2012
  - ✓ Measures performance of 50 leading Shariah-compliant companies from 19 OIC member states
  - ✓ Screened for Shariah compliance by S&P in accordance with S&P Shariah Indices
- ▶ Precious Metals Task Force
  - ✓ Established by a decision taken at the 9th Forum Meeting
  - ✓ Bursa Malaysia, Borsa Istanbul and Dubai Gold and Commodities Exchange are the members

6



## Task Forces

- ▶ At the thirty-first meeting of the Follow-Up Committee of the COMCEC, which was held in Ankara on 13-14 May, 2015, following decision was made:
  - ✓ *Recalling the proposal made in the statement of H.E. Recep Tayyip ERDOĞAN, Chairman of the COMCEC, in the 30th Session of the COMCEC, on establishing a Gold Exchange among the OIC Member Countries, the Committee requested the Secretariat of the OIC Stock Exchange Forum to conduct a study on the feasibility and the ways and means of realizing the proposal and submit it to the 31st Session of the COMCEC.*
- ▶ Report on the OIC Gold Exchange was prepared. It was submitted to the 31st COMCEC Ministerial Meeting on 23-26 November.
  - ✓ *Welcomes the report on "Gold Market Initiative for the OIC Member Countries" prepared by the OIC Member States' Stock Exchanges Forum and requests it to further study, through its Task Force on Precious Metals, to accelerate the process of integration of exchanges and harmonization of regulatory frameworks with a view to establishing a gold exchange among the OIC Member Countries and submit a report on this issue to the 32nd Session of the COMCEC.*
- ▶ Second report of the OIC Gold Exchange will be submitted to the 32nd COMCEC Ministerial Meeting on 21-24 November 2016.

7



## OIC MEMBER STATES' STOCK EXCHANGES INTEGRATED STATISTICS REPORT 2015

8



## OIC Exchanges Survey

- ▶ As decided at the 7th meeting of the OIC Member States' Stock Exchanges Forum in 2013, Borsa İstanbul as the Forum Coordinator presents the third issue of the Integrated Statistical Report, which covers 2014-2015 periods of the exchanges and the central securities depositories of the OIC Member States
- ▶ 17 stock exchanges, 1 commodities exchange and 7 central securities depositories have responded to the survey
- ▶ The patterns, trends, and other results presented in this report are based on the sets of 20 exchanges and 7 depositories. Therefore, these sets will be referred as "OIC Exchanges" and "OIC CSDs" collectively
  - ✓ The data for 2 exchanges were collected from WFE

9



## Survey: Participants

### Stock Exchanges

State	Name	Acronym	Source
United Arab Emirates	Abu Dhabi Securities Exchange	ADX*	Survey
Jordan	Amman Stock Exchange	ASE	Survey
Turkey	Borsa İstanbul	BIST	Survey
Malaysia	Bursa Malaysia Berhad	BM*	Survey
Mozambique	Bolsa de Valores de Moçambique	BVM*	Survey
Bangladesh	Chittagong Stock Exchange	CSE(BJ)*	Survey
Morocco	Casablanca Stock Exchange	CSE(M)	WFE
United Arab Emirates	Dubai Financial Market	DFM*	Survey
Egypt	The Egyptian Exchange	EGX	Survey
Indonesia	Indonesia Stock Exchange	IDX	WFE
Iran	Iran Fara Bourse Company	IFB	Survey
Iraq	Iraq Stock Exchange	ISX*	Survey
Kazakhstan	Kazakhstan Stock Exchange	KASE	Survey
Maldives	Maldives Stock Exchange Pvt Ltd	MSE*	Survey
Palestine	Palestine Securities Exchange	PEX*	Survey
Qatar	Qatar Stock Exchange	QSE	Survey
Algeria	Algiers Stock Exchange	SGBV	Survey
Saudi Arabia	Saudi Stock Exchange	Tadawul*	Survey
Iran	Tehran Stock Exchange	TSE	Survey

10



# Survey: Participants

## Commodities Exchanges

State	Name	Acronym	Source
Pakistan	Pakistan Mercantile Exchange	PMEX	Survey

## Central Securities Depositories

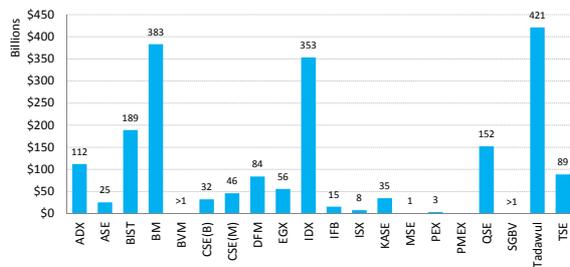
State	Name	Acronym	Source
Algeria	Algeria Central Securities Depository	AC	Survey
Pakistan	Central Depository Company of Pakistan Ltd	CDC	Survey
Iran	Central Securities Depository of Iran	CSDI	Survey
Morocco	Maroclear CSD Morocco	Maroclear	Survey
Turkey	Central Registry Agency	MKK	Survey
Jordan	Securities Depository Center of Jordan	SDC	Survey
Tunisia	Tunisia Clearing	TC	Survey



# Survey: Equities

	ADX	ASE	BIST	BM	BVM	CSE (B)	CSE (M)	DFM	EGX	IDX	IFB	ISX	KASE	MSE	PMEX	QSE	SGBV	Tadawul	TSE	
Shares	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Securitized Derivatives																				
ETFs	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Investment Funds	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

Market Capitalization, 2015



- OIC Exchanges have represented \$2 trillion of the world equities markets in 2015 with an 16% annual decrease in the market capitalization and a 22% annual decrease in the value of trading for all equities products, compared to 1.3% decrease and 41% increase of the WFE averages respectively.

### ETFs

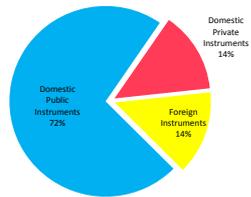
- ADX, BIST, BM, EGX, IDX, IFB, Tadawul, and TSE have 49 ETF products, with the value of trading of \$1.8 billion in 2015, which is a 8% decrease from 2014
- 80% of the value traded was executed at Borsa Istanbul with 12 products



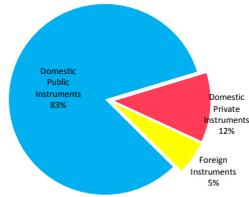
# Survey: Debt Instruments

	ADX	ASE	BIST	BM	BVM	CSE (B)	CSE (M)	DFM	EGX	IDX	IFB	ISX	KASE	NSE	PEX	PMEX	QSE	SGBV	Tadawul	TSE	
Domestic Public																					
Domestic Private																					
Foreign																					
REPO																					

Value of Instruments Listed, 2015



Value of Trades, 2015



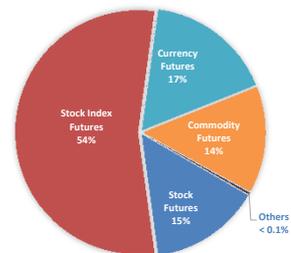
- The outstanding value of debt instruments listed at the OIC Exchanges was \$546.2 billion with a 4% annual decrease
- The value of trading for the 1608 instruments listed by 474 issuers was \$312.8 billion which is a 49% annual increase from 2014.
- Borsa Istanbul is leading the exchange in OIC debt securities markets with 42% of the value of instruments listed, 62% of the raised funds from debt securities, and 86% of the value of trades.
- Domestic public instruments are leading the markets; private and foreign bonds are relatively illiquid.

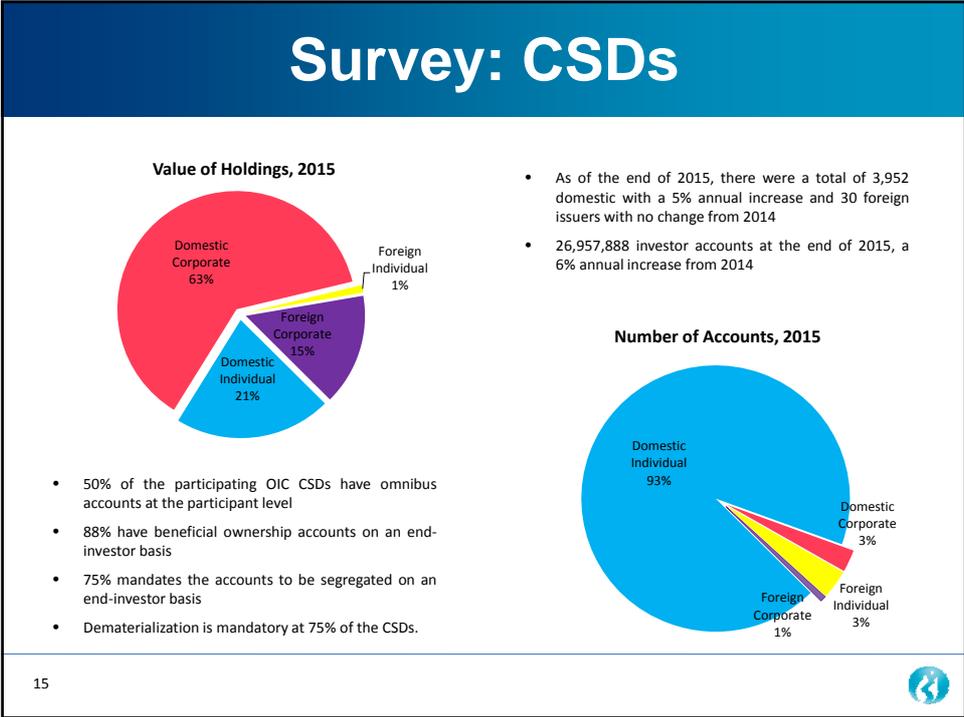


# Survey: Derivatives

	ADX	ASE	BIST	BM	BVM	CSE (B)	CSE (M)	DFM	EGX	IDX	IFB	ISX	KASE	NSE	PEX	PMEX	QSE	SGBV	Tadawul	TSE	
Stock Futures																					
Stock Index Futures																					
ETF Futures																					
Interest Rate Futures																					
Currency Futures																					
Commodity Futures																					
Stock Options																					
Stock Index Options																					
ETF Options																					
Interest Rate Options																					
Currency Options																					
Commodity Options																					

Five exchanges had derivatives contracts available for trading with a total of 108.2 million contracts traded in 2015, which is a 43% annual increase from the number of contracts traded in 2014.









**Task Force on Indices**  
OIC Member States' Stock Exchanges Forum  
10th Meeting / October 27th, 2016  
*Şenay Pehlivanoğlu & Ayşe Çağlayan Gümüş*  
Audit and Surveillance Board

## S&P/OIC COMCEC 50 Shariah Index

### ➤ Main Motivation for the Index

- Although there are numerous Islamic indices in the world, most of them include equities from countries with not Muslim majority
- So there is a need for creating an index that would truly represent the equities from countries with majority Muslim population

### ➤ Main Objectives for the Index

- Facilitating the collaboration among the OIC Exchanges
- Promoting the OIC Member States' Stock Exchanges Forum and highlighting the OIC Brand
- Creating different investment alternatives



## S&P/OIC COMCEC 50 Shariah Index

### ➤ The Coverage of the Index

- Successfully launched in 2012, the Index includes 50 leading Shariah-compliant companies from 19 countries that are covered by S&P DJ Indices, namely:
  - ✓ Bahrain, Bangladesh, Côte d'Ivoire, Egypt, Indonesia, Jordan, Kazakhstan, Kuwait, Lebanon, Malaysia, Morocco, Nigeria, Oman, Pakistan, Qatar, Saudi Arabia, Tunisia, Turkey and the United Arab Emirates

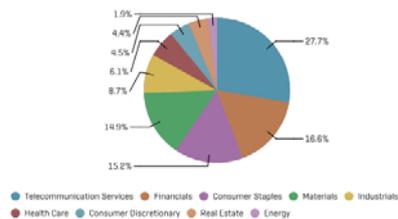
3



## S&P/OIC COMCEC 50 Shariah Index Factsheet

### Sector Breakdown

[as of 30-Sep-2016]



### Index Characteristics

[as of 30-Sep-2016]

Launch Date	15-Jun-2012
Number of Constituents	48
Constituent Market Cap. [ USD Millions ]	
Mean Total Market Cap	10106.65
Largest Total Market Cap	64553.87
Smallest Total Market Cap	154.53
Median Total Market Cap	6175.50

### Historical Performance

[as of 16-Oct-2016]



### Performance

[as of 16-Oct-2016]

Index Level	Returns				Annualized Returns		
	1 Day	MTD	QTD	YTD	1 Year	3 Year	5 Year
<b>TOTAL RETURNS</b>							
173.73	-0.12%	-0.11%	-0.11%	3.76%	-2.49%	-3.82%	2.06%
<b>PRICE RETURNS</b>							
128.39	-0.12%	-0.16%	-0.16%	0.71%	-5.61%	-7.01%	-1.55%

4



## The 9th Forum Meeting Decisions

- Since the Index Provider strongly emphasized that increasing the number of indices without carefully analyzing the demand side could result in index inflation instead of products, the Forum has taken the following decisions at its 9th Meeting
  - ✓ The Task Force on Indices is mandated to collaborate with S&P DJ Indices teams in exploring the level of demand for sub-indices in the markets. If there is sufficient demand for product creation, the Task Force will then work on launching and promoting the sub-indices, which will include companies from emerging OIC markets
  - ✓ Forum members agreed to make their best effort to promote the S&P OIC COMCEC Shariah 50 Index and the potential sub-indices in their markets
  - ✓ The Task Force is also mandated to assess the feasibility of a sustainability index

5



## The Creation of Sub-Indices

- Taking into consideration that;
  - ✓ There is no concrete demand regarding the sub-indices
  - ✓ Global monetary policies have been leading to the re-pricing of nearly all financial assets since the tapering decision of FED in May of 2013,
  - ✓ Lingering uncertainties, particularly in the monetary policies of developed economies, are boosting the volatility in financial markets,
  - ✓ Emerging economies witnessed portfolio outflows,
  - ✓ Turmoils in some OIC countries also have negative impacts on the investor appetite for the region,

***The Task Force has decided to focus on the promotion of the S&P OIC COMCEC 50 Shariah Index and assessing the feasibility of a sustainability index.***

6



## The Promotion of the S&P/OIC COMCEC 50 Shariah Index

- Information regarding the index will be published on the Forum website and Borsa Istanbul website
  - ✓ The agreement process with the index provider is about to come to an end
  - ✓ A design study is going on in cooperation with Borsa Istanbul IT department
- Publicizing the index information on the Forum website together with the Borsa Istanbul website which has a much higher hit number will provide a great contribution to the visibility of the Index

7



## The Feasibility of a Sustainability Index

- Although it may provide some reputational benefits for the companies operating in OIC countries and engaging in sustainability-related issues; considering following issues that;
  - ✓ The proportion of sustainable investment remains a relatively small percentage of global financial assets, even smaller in OIC countries
  - ✓ The demand by mainstream investors is insignificant
  - ✓ The benefit from the creation of such indices has been limited,
  - ✓ It may take several years for the investors to get familiar with the index and index methodology,
  - ✓ It is not very feasible to calculate and launch a tradeable asset based on such a sustainability index

*The recommendation of the task for is that the existing conditions do not provide a viable and feasible environment for the launch of a Sustainability Index for OIC countries*

8





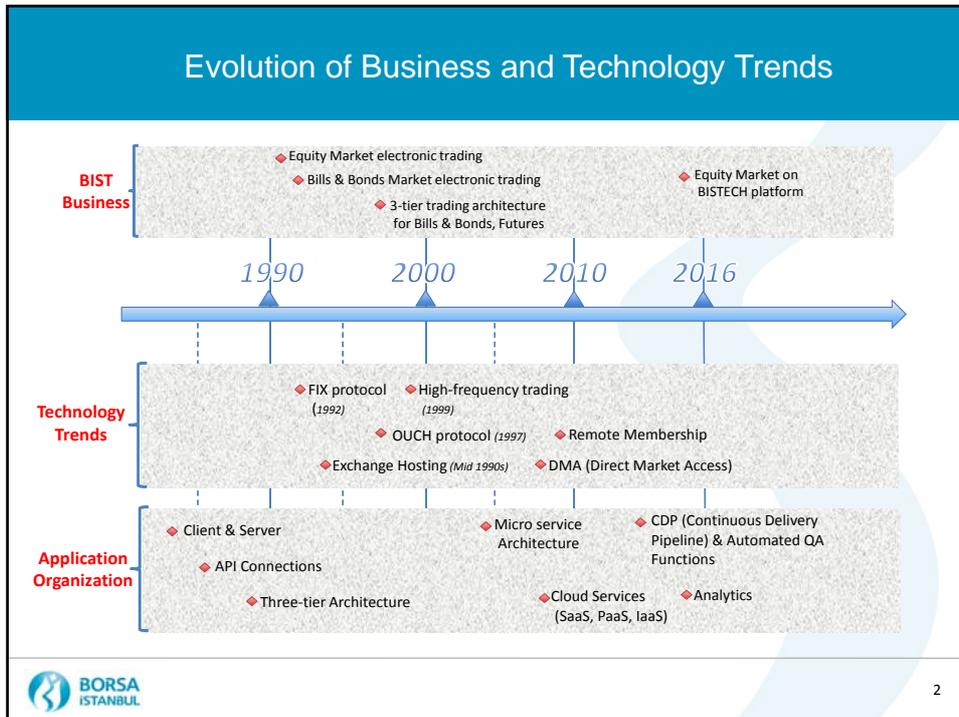
In What Areas Can Technological Infrastructure Contribute to Development of Stock Exchanges?

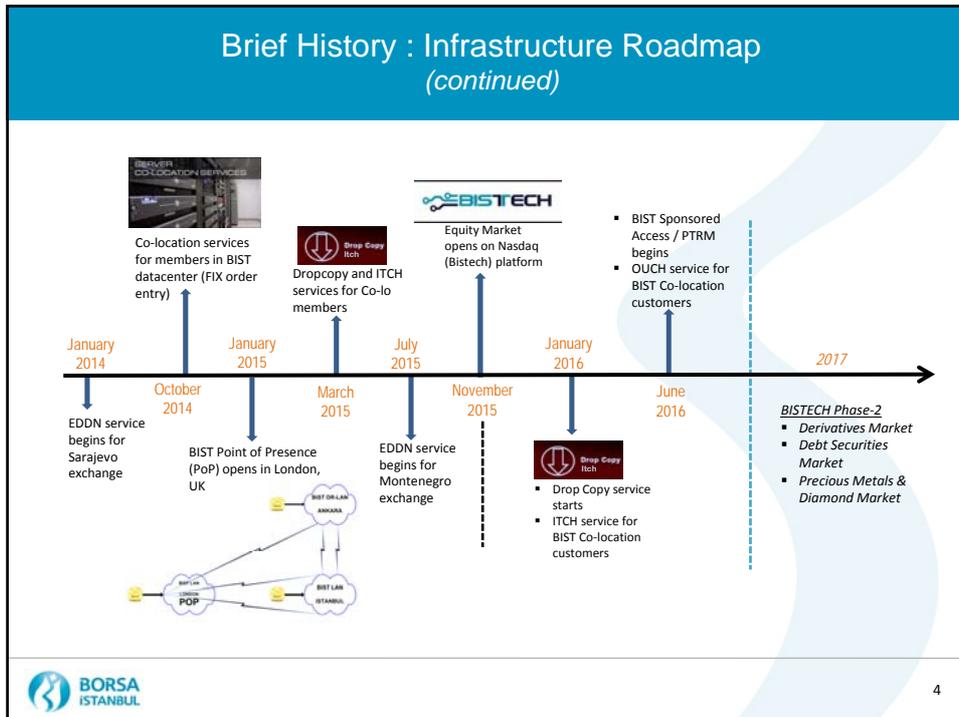
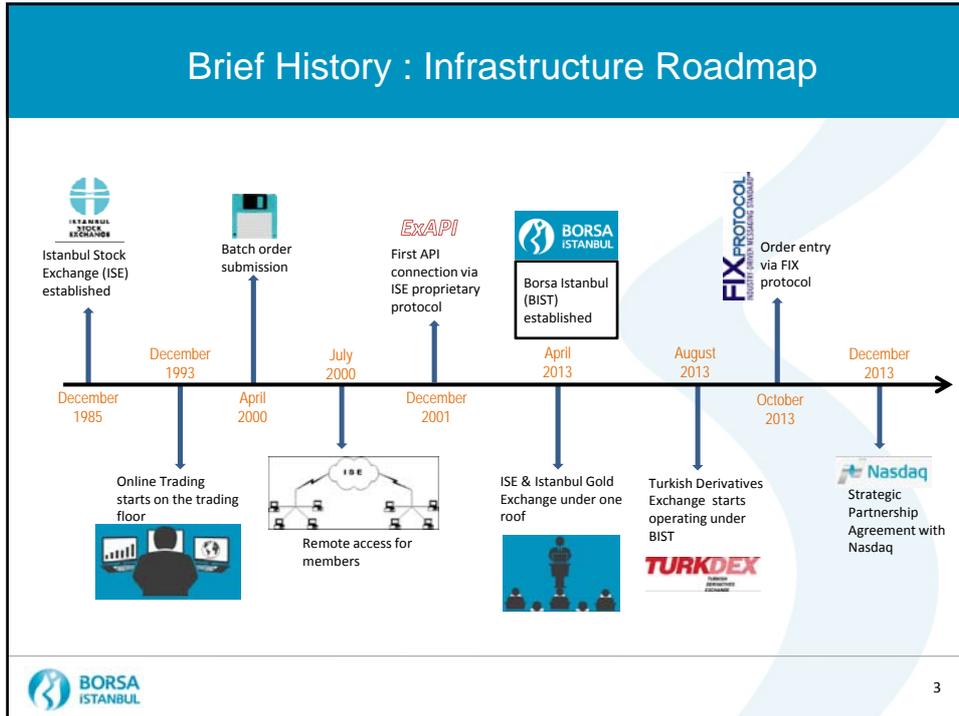


**BORSA İSTANBUL**  
*Benchmark for Investment*

OIC Member States' Stock Exchanges Forum 10th Meeting

October 27, 2016





## Partnership with Nasdaq

The  Platform

Strategic partnership agreement with Nasdaq signed end of 2013

- ❑ *Adapting and developing high Nasdaq technology and infrastructure to suit BIST needs*
- ❑ *Large spectrum of products from index calculation to business intelligence, marketing, etc.*
- ❑ *Technology know-how transfer made possible through human resource training programmes and source code access*
- ❑ *BIST has ownership and re-selling rights throughout the region (25 countries)*




5

## BIST Markets Infrastructure (Before Common Platform)

**BIST Markets (Silo Structure)**

	<u>Equities</u>	<u>Bills and Bonds</u>	<u>Derivatives, F&amp;O</u>	<u>Precious Metals and Diamond</u>
<b>TRADING</b>	<ul style="list-style-type: none"> <li>❑ Proprietary hardware</li> <li>❑ Proprietary O/S</li> <li>❑ PL/I and C applications</li> <li>❑ In-memory database</li> <li>❑ Separate back-office</li> </ul> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 5px;">                     Trading                      Data dissemination                      Index calculation                      Surveillance                      Data Warehouse                      ...                 </div>	<ul style="list-style-type: none"> <li>❑ Proprietary hardware</li> <li>❑ UNIX based O/S</li> <li>❑ C applications</li> <li>❑ Relational database</li> <li>❑ Separate back-office</li> </ul> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 5px;">                     Trading                      Collateral / Risk Management                      Data dissemination                      Index calculation                      Surveillance                      Data Warehouse                      ...                 </div>	<ul style="list-style-type: none"> <li>❑ Proprietary hardware</li> <li>❑ UNIX based O/S</li> <li>❑ C applications</li> <li>❑ Relational database</li> <li>❑ Separate back-office</li> </ul> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 5px;">                     Trading                      Data dissemination                      Surveillance                      Data Warehouse                      ...                 </div>	<ul style="list-style-type: none"> <li>❑ Proprietary hardware</li> <li>❑ UNIX and Windows based</li> <li>❑ Web-based app (C and JAVA)</li> <li>❑ Relational database</li> <li>❑ Separate back-office</li> </ul> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 5px;">                     Trading                      Custody                      Settlement                      Data dissemination                      Index calculation                      Surveillance                      Data Warehouse                      ...                 </div>
<b>SETTLEMENT</b>	<div style="border: 1px solid #ccc; padding: 5px; margin-top: 5px;">                     Clearing                      Settlement (formerly) Custody                      Data Warehouse                      ...                 </div>	<div style="border: 1px solid #ccc; padding: 5px; margin-top: 5px;">                     Clearing                      Settlement                      Data Warehouse                      ...                 </div>	<div style="border: 1px solid #ccc; padding: 5px; margin-top: 5px;">                     Risk Management                      Settlement                      Data Warehouse                      ...                 </div>	<div style="border: 1px solid #ccc; padding: 5px; margin-top: 5px;">                     Cash clearing                      Data Warehouse                      ...                 </div>


6

## BIST Infrastructure : Moving towards a Common Platform

**(+)**

- ❑ Highly modular and scalable
- ❑ Better investment protection due to shared and re-assignable resources
- ❑ Near-homogeneous hardware and software infrastructure
- ❑ Required knowledge domain more limited
- ❑ Increased know-how sharing among various business units
- ❑ Single database management and data sharing possible
- ❑ Common modules usable by trading and settlement organizations

**(-)**

- ❑ Underlying platform requires large number of resources due to high level of functional segregation
- ❑ High homogeneity creates platform dependency and associated risks

BORSA  
ISTANBUL
7

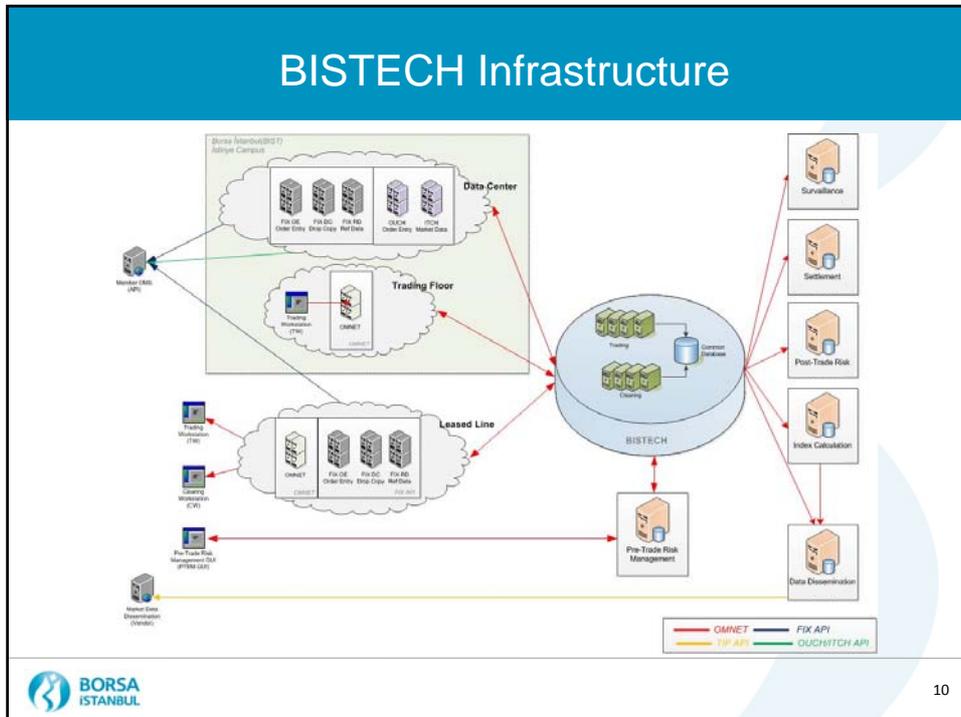
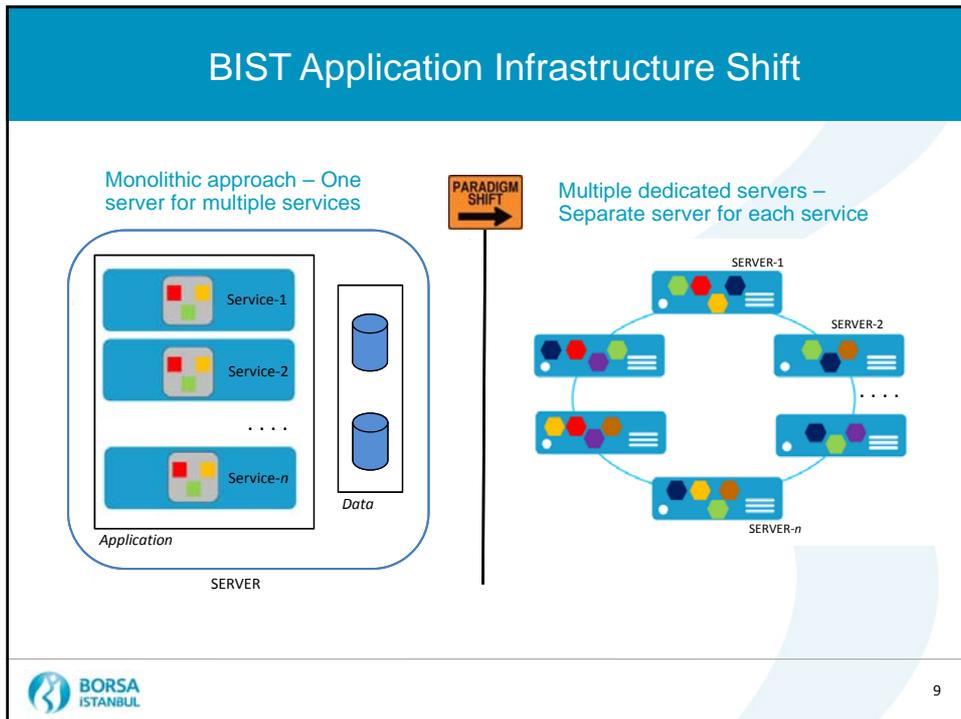
## BIST IT infrastructure : Capabilities

➤ Technological Progress : BIST Trading System Performance

YEAR	1993	1994	1995	1997	1999	2000	2000	2001	2003	2006	2008	2012	2015
Orders / sec	3	5	13	25	39	77	124	239	478	550	2500	5000	10000

- BISTECH platform
  - 10.000 orders/sec (sustained)
  - 100.000 orders/sec (peak)
- 99% of orders from FixAPI
- Includes orders from co-lo customers

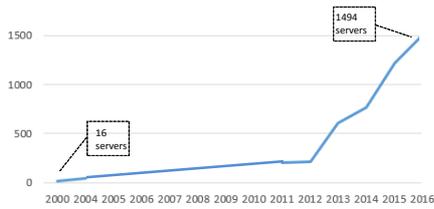
BORSA  
ISTANBUL
8



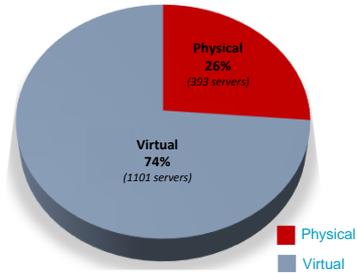


## BISTECH Infrastructure – Market Servers

Market server numbers (Physical + Virtual)



Physical vs Virtual Servers



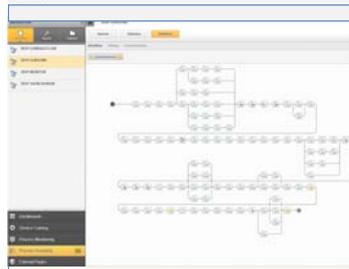
- Numbers include all market, back office etc servers in BIST and DR site
- Market production systems are all physical
- Currently high level of virtualization due to numerous test and development environments
- Test and development systems quickly provisioned on the virtual system pools using highly automated processes



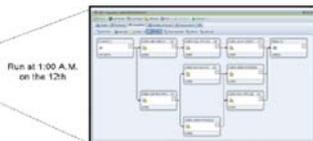
## BISTECH Infrastructure – Automation

### Automating day-to-day operations

- Market operations automated using workload automation tool
- Minimizes human errors and ensures flawless operation
- Control jobs and process flow execution with conditions possible
- Status easily viewed during execution
- Business rules can be defined without writing code
- Extensive reporting and alarm generating capabilities



Typical job flow prepared by the tool



Flexible calendar structure enables having different job flows for different dates, including custom holidays, half workdays, etc.



## BISTECH Time Server Infrastructure

- High-precision time-tagging and time-stamping needed for high frequency transactions
- BIST established satellite time server infrastructure in 2015
- Services all BIST IT infrastructure systems and devices
- Global best practices implemented
- Accurate time information with up to  $10^{-7}$  precision

- Fully redundant «time server» infrastructure with NTP and PTP support
- BIST members are also provided time services

15

## BIST Infrastructure : Datacenter Highlights

*BIST datacenter hosts all IT infrastructure systems and devices of BIST, Takasbank and MKK, as well as special areas for ISP's, data vendors and co-located member systems*

High level of security

- 70 indoor/outdoor cameras and sensors for surveillance
- Carded access system for all doors and individual rack cabinets (420 card readers)
- State-of-the-art fire detection, prevention and intrusion detection systems

Accommodates cutting edge technology

- Redundant hybrid dry coolers ensure «free cooling» during 3 months of the year
- Building Management System (BMS) with 150 sensors
- Fully manageable rack cabinets and PDU's
- Total area of 1.500 m<sup>2</sup> in 5 fire-resistant zones
- 650 m<sup>2</sup> of earthquake-proof raised floor space (white space)

Highly efficient : Yearly average PUE = 1,4

16

## BIST Infrastructure : Monitoring

### Infrastructure Monitoring

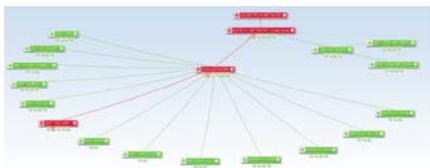
- Unified console on single platform for the whole infrastructure
- Server, storage and network monitoring
- Agentless, low CPU consuming approach for minimum intervention to trading systems
- Synthetic User Transactions
- Service tree, alert correlation
- Application availability monitoring

### 7x24 Active Monitoring

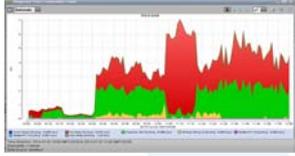



### Application Monitoring

- Application response time analysis and end user experience
- Network traffic analysis
- Anomaly detection
- Troubleshooting and root cause analysis
- Trend analysis



A total of nearly 29,000 infrastructure elements monitored and 10,600 checks are done every minute



Example : Application response time analysis


17

## BISTECH Test Automation

BIST-developed automated market test tool enables thorough testing of applications

Test Clients

↑

Test Controller

↓

Mail Server

→

1. Load Data

2. Create Sessions

3. Set Security Filters

4. Set Parameters

5. Run Tests for each Mode

6. Log Test Results

Trading System

←

Test Controller

→

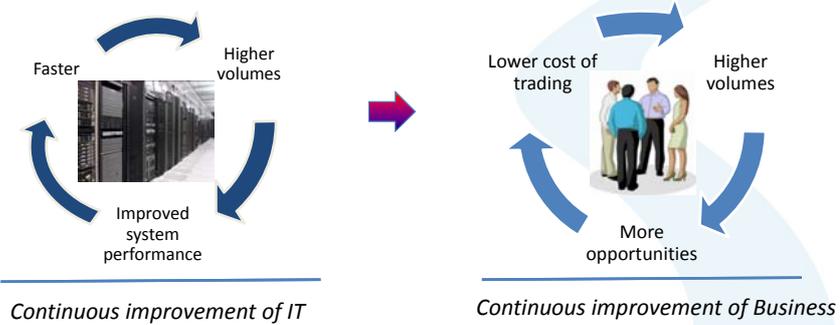
Journal data

- ✓ A whole business day's data can be replayed in minutes
- ✓ Actual order and trade data read from journal files
- ✓ Test client sends data through normal market gateways
- ✓ Responses compared with actual market responses
- ✓ Success and failure cases reported
- ✓ Enables bug-free releases for UAT (User Acceptance Test) to business teams


18

## High Technology in Stock Exchange IT

### How high speed trading enables business



## BIST : 2017 and Beyond

### Future services

- **BISTECH Cloud**
- **Advanced Data Analytics**
- **Order Entry Hub**
- **Blockchain**
- **Hosting services for other exchanges**
- **New EDDN connections**
- **Extensive use of «Continuous Delivery Pipeline» approach**



