





November 13, 2017

Via Federal Express

Ms. Jeanette Marshall  
Securities and Exchange Commission  
Division of Trading and Markets  
100 F Street, N.E.  
Mail Stop 6628  
Washington, DC 20549-0001

Re: *Cboe BZX Exchange, Inc.  
Form 1 Amendment*

Dear Jeanette:

On behalf of Cboe BZX Exchange, Inc. (or the "Exchange"), and in connection with the Cboe Form 1 that is on file with the Securities and Exchange Commission ("Commission"), enclosed please find one original and two copies of the Execution Page to Form 1 as well as the following exhibit:

- Exhibit C (updated to reflect list of Directors and Committee Members);
- Exhibit M (updated to provide a list of firms currently approved as members or other users of the Exchange);

This amendment is filed in accordance with SEC Rule 6a-2 and is intended to replace Exhibits C and M currently on file with the Commission. Please do not hesitate to contact me if you have any questions or require anything further.

Sincerely,

Anders Franzon  
SVP, Associate General Counsel

Enclosures

SEC  
Mail Processing  
Section

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Exhibit C

**Exhibit Request:**

For each subsidiary or affiliate of the applicant, and for any entity with whom the applicant has a contractual or other agreement relating to the operation of an electronic trading system to be used to effect transactions on the exchange (“System”), provide the following information:

1. Name and address of organization.
2. Form of organization (e.g., association, corporation, partnership, etc.).
3. Name of state and statute citation under which organized. Date of incorporation in present form.
4. Brief description of nature and extent of affiliation.
5. Brief description of business or functions. Description should include responsibilities with respect to operation of the System and/or execution, reporting, clearance, or settlement of transactions in connection with operation of the System.
6. A copy of the constitution.
7. A copy of the articles of incorporation or association including all amendments.
8. A copy of existing by-laws or corresponding rules or instruments.
9. The name and title of the present officers, governors, members of all standing committees or persons performing similar functions.
10. An indication of whether such business or organization ceased to be associated with the applicant during the previous year, and a brief statement of the reasons for termination of the association.

**Response:** Please see below responses for the following entities:

**A. Bats Global Markets Holdings, Inc.**

1. *Name:* Bats Global Markets Holdings, Inc.  
*Address:* 8050 Marshall Dr., Ste. 120, Lenexa, KS 66214
2. *Form of organization:* Corporation.
3. *Name of state, statute under which organized and date of incorporation:*  
Incorporated in Delaware under Section 101 of the General Corporation Law of the State of Delaware on June 29, 2007.
4. *Brief description of nature and extent of affiliation:* Cboe Bats, LLC owns 100% of the membership interests of Bats Global Markets Holdings, Inc. Bats Global Markets Holdings, Inc. is the Exchange's 100% owner.
5. *Brief description of business or functions:* Bats Global Markets Holdings, Inc. is an intermediate holding company.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*

Current Directors

- Ed Tilly
- Chris Concannon

Current Officers

- Ed Tilly (Chief Executive Officer)
- Chris Concannon (President, COO)
- Bryan Harkins (Senior Vice President)
- Alan Dean (Treasurer)
- Joanne Moffic-Silver (Secretary)

10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

**B. Direct Edge LLC**

1. *Name:* Direct Edge LLC (f/k/a Direct Edge, Inc.)  
*Address:* 8050 Marshall Dr., Ste. 120, Lenexa, KS 66214
2. *Form of organization:* Limited Liability Company.
3. *Name of state, statute under which organized and date of incorporation:* Formed in Delaware under Section 201 of the Limited Liability Company Act of the State of Delaware on December 31, 2014. Was converted from Direct Edge, Inc., a Delaware corporation, on December 31, 2014.
4. *Brief description of nature and extent of affiliation:* Cboe Bats, LLC owns 100% of the membership interests of Direct Edge LLC.
5. *Brief description of business or functions:* Direct Edge LLC is an intermediate holding company. Direct Edge LLC is the sole shareholder of Cboe EDGA Exchange, Inc. and Cboe EDGX Exchange, Inc.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws or corresponding rules or instruments:* No changes.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*

Current Directors

- None

Current Officers

- Ed Tilly (Chief Executive Officer)
- Chris Concannon (President)
- Bryan Harkins (Senior Vice President)
- Alan Dean (Chief Financial Officer)
- Chris Isaacson (Chief Information Officer)
- Joanne Moffic-Silver (Secretary)

10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

**C. Cboe BYX Exchange, Inc.**

1. *Name:* Cboe BYX Exchange, Inc.  
*Address:* 8050 Marshall Dr., Ste. 120, Lenexa, KS 66214
2. *Form of organization:* Corporation.
3. *Name of state, statute under which organized and date of incorporation:*  
Incorporated in Delaware under Section 101 of the General Corporation Law of the State of Delaware on July 31, 2009.
4. *Brief description of nature and extent of affiliation:* Cboe BYX Exchange, Inc. is wholly-owned by Bats Global Markets Holdings, Inc., which is also the Exchange's 100% owner.
5. *Brief description of business or functions:* Cboe BYX Exchange, Inc. operates as a registered national securities exchange pursuant to Section 6 of the Act.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*

Current Directors

- Ed Tilly
- Chris Concannon
- David Roscoe
- Sandy Kemper
- Scott Wagner
- Jill Sommers
- Matt Billings
- Joseph Mecane

Current Officers

- Ed Tilly (CEO)
- Chris Concannon (President, COO)
- Chris Isaacson (Executive Vice President, Global Chief Information Officer)
- Bryan Harkins (Executive Vice President, Head of U.S. Markets)
- Brian N. Schell (Executive Vice President, Chief Financial Officer, Treasurer)
- Bryan Christian (Senior Vice President, Head of U.S. Sales)

- Laura Morrison (Senior Vice President, Global Head of Exchange Products)
- Eric Crampton (Senior Vice President, Global Head of Software Engineering)
- Troy Yeazel (Senior Vice President, Operations)
- Jeff Connell (Senior Vice President, Market Oversight)
- Derick Shupe (Vice President, Controller)
- Greg Steinberg (Vice President, Assistant Secretary and Associate General Counsel)
- Aaron Weissenfluh (Vice President, Chief Information Security Officer)
- Rodney Burt (Vice President, Infrastructure)
- Kevin Carrai (Vice President, Connectivity, Data & Member Services)
- Stacie Fleming (Vice President, Communications)
- Anders Franzon (Senior Vice President, Associate General Counsel)
- Kapil Rathi (Senior Vice President, Options Business Development)
- Thad Prosocki (Vice President, Human Resources)
- Brett Johnson (Vice President, Software Engineering)
- Vivian Yiu (Vice President, Head of Product Strategy and Management)
- Alexandra Albright (Chief Compliance Officer)
- Pamela Culpepper (Chief HR Officer)
- Alan Dean (Executive Vice President F&A/Chief Financial Officer)
- Jon Deters (CSO & Head Corporate Initiatives)
- James Enstrom (Vice President & Chief Audit Executive)
- Angelo Evangelou (Deputy General Counsel)
- Eric Frait (Vice President Business Analysis)
- Todd Furney (Vice President, Chief Risk Officer)
- Gregory Hoogasian (Senior Vice President, Chief Regulatory Officer)
- Carol Kennedy (Vice President & Chief Communications Officer)
- Stephanie Klein (Vice President, Chief Marketing Officer)
- Joanne Moffic-Silver (Executive Vice President, General Counsel & Corporate Secretary)
- Donald Patton (Vice President Accountant/Controller)
- Arthur Reinstein (Deputy General Counsel)
- David Reynolds (Vice President & Chief Accounting Officer)
- John Patrick Sexton (Deputy General Counsel)

Standing Committees

Compensation Committee

- Sandy Kemper
- Scott Wagner
- Jill Sommers

Audit Committee

**Cboe BZX Exchange, Inc. Form 1 Registration Statement: Exhibit C**

- Jill Sommers
- David Roscoe
- Matt Billings

Regulatory Oversight Committee

- Scott Wagner
- Sandy Kemper
- David Roscoe

Appeals Committee

- Matt Billings
- Joseph Mecane
- Scott Wagner

10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year: Not applicable.*

**D. Cboe EDGA Exchange, Inc.**

1. *Name:* Cboe EDGA Exchange, Inc.  
*Address:* 8050 Marshall Dr., Ste. 120, Lenexa, KS 66214
2. *Form of organization:* Corporation.
3. *Name of state, statute under which organized and date of incorporation:* Formed in Delaware under the General Corporation Law of the State of Delaware on March 9, 2009.
4. *Brief description of nature and extent of affiliation:* Cboe EDGA Exchange, Inc. is an indirect wholly-owned subsidiary of Cboe Global Markets, Inc., the Exchange's ultimate parent.
5. *Brief description of business or functions:* Cboe EDGA Exchange, Inc. operates a registered national securities exchange pursuant to Section 6 of the Act.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*

Current Directors

- Ed Tilly
- Chris Concannon
- David Roscoe
- Sandy Kemper
- Scott Wagner
- Jill Sommers
- Matt Billings
- Joseph Mecane

Current Officers

- Ed Tilly (CEO)
- Chris Concannon (President, COO)
- Chris Isaacson (Executive Vice President, Global Chief Information Officer)
- Bryan Harkins (Executive Vice President, Head of U.S. Markets)
- Brian N. Schell (Executive Vice President, Chief Financial Officer, Treasurer)
- Bryan Christian (Senior Vice President, Head of U.S. Sales)

- Laura Morrison (Senior Vice President, Global Head of Exchange Products)
- Eric Crampton (Senior Vice President, Global Head of Software Engineering)
- Troy Yeazel (Senior Vice President, Operations)
- Jeff Connell (Senior Vice President, Market Oversight)
- Derick Shupe (Vice President, Controller)
- Greg Steinberg (Vice President, Assistant Secretary and Associate General Counsel)
- Aaron Weissenfluh (Vice President, Chief Information Security Officer)
- Rodney Burt (Vice President, Infrastructure)
- Kevin Carrai (Vice President, Connectivity, Data & Member Services)
- Stacie Fleming (Vice President, Communications)
- Anders Franzon (Senior Vice President, Associate General Counsel)
- Kapil Rathi (Senior Vice President, Options Business Development)
- Thad Prososki (Vice President, Human Resources)
- Brett Johnson (Vice President, Software Engineering)
- Vivian Yiu (Vice President, Head of Product Strategy and Management)
- Alexandra Albright (Chief Compliance Officer)
- Pamela Culpepper (Chief HR Officer)
- Alan Dean (Executive Vice President F&A/Chief Financial Officer)
- Jon Deters (CSO & Head Corporate Initiatives)
- James Enstrom (Vice President & Chief Audit Executive)
- Angelo Evangelou (Deputy General Counsel)
- Eric Frait (Vice President Business Analysis)
- Todd Furney (Vice President, Chief Risk Officer)
- Gregory Hoogasian (Senior Vice President, Chief Regulatory Officer)
- Carol Kennedy (Vice President & Chief Communications Officer)
- Stephanie Klein (Vice President, Chief Marketing Officer)
- Joanne Moffic-Silver (Executive Vice President, General Counsel & Corporate Secretary)
- Donald Patton (Vice President Accountant/Controller)
- Arthur Reinstein (Deputy General Counsel)
- David Reynolds (Vice President & Chief Accounting Officer)
- John Patrick Sexton (Deputy General Counsel)

Standing Committees

Compensation Committee

- Sandy Kemper
- Scott Wagner
- Jill Sommers

Audit Committee

**Cboe BZX Exchange, Inc. Form 1 Registration Statement: Exhibit C**

- Jill Sommers
- David Roscoe
- Matt Billings

Regulatory Oversight Committee

- Scott Wagner
- Sandy Kemper
- David Roscoe

Appeals Committee

- Matt Billings
- Joseph Mecane
- Scott Wagner

10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

**E. Cboe EDGX Exchange, Inc.**

1. *Name:* Cboe EDGX Exchange, Inc.  
*Address:* 8050 Marshall Dr., Ste. 120, Lenexa, KS 66214
2. *Form of organization:* Corporation.
3. *Name of state, statute under which organized and date of incorporation:* Formed in Delaware under the General Corporation Law of the State of Delaware on March 9, 2009.
4. *Brief description of nature and extent of affiliation:* Cboe EDGX Exchange, Inc. is an indirect wholly-owned subsidiary of Cboe Global Markets, Inc., the Exchange's ultimate parent.
5. *Brief description of business or functions:* Cboe EDGX Exchange, Inc. operates a registered national securities exchange pursuant to Section 6 of the Act.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*

Current Directors

- Ed Tilly
- Chris Concannon
- David Roscoe
- Sandy Kemper
- Scott Wagner
- Jill Sommers
- Matt Billings
- Joseph Mecane

Current Officers

- Ed Tilly (CEO)
- Chris Concannon (President, COO)
- Chris Isaacson (Executive Vice President, Global Chief Information Officer)
- Bryan Harkins (Executive Vice President, Head of U.S. Markets)
- Brian N. Schell (Executive Vice President, Chief Financial Officer, Treasurer)
- Bryan Christian (Senior Vice President, Head of U.S. Sales)

- Laura Morrison (Senior Vice President, Global Head of Exchange Products)
- Eric Crampton (Senior Vice President, Global Head of Software Engineering)
- Troy Yeazel (Senior Vice President, Operations)
- Jeff Connell (Senior Vice President, Market Oversight)
- Derick Shupe (Vice President, Controller)
- Greg Steinberg (Vice President, Assistant Secretary and Associate General Counsel)
- Aaron Weissenfluh (Vice President, Chief Information Security Officer)
- Rodney Burt (Vice President, Infrastructure)
- Kevin Carrai (Vice President, Connectivity, Data & Member Services)
- Stacie Fleming (Vice President, Communications)
- Anders Franzon (Senior Vice President, Associate General Counsel)
- Kapil Rathi (Senior Vice President, Options Business Development)
- Thad Prososki (Vice President, Human Resources)
- Brett Johnson (Vice President, Software Engineering)
- Vivian Yiu (Vice President, Head of Product Strategy and Management)
- Alexandra Albright (Chief Compliance Officer)
- Pamela Culpepper (Chief HR Officer)
- Alan Dean (Executive Vice President F&A/Chief Financial Officer)
- Jon Deters (CSO & Head Corporate Initiatives)
- James Enstrom (Vice President & Chief Audit Executive)
- Angelo Evangelou (Deputy General Counsel)
- Eric Frait (Vice President Business Analysis)
- Todd Furney (Vice President, Chief Risk Officer)
- Alicia Goldberg (Vice President Statistical Analysis)
- David Gray (Vice President Business Development GCS)
- Gregory Hoogasian (Senior Vice President, Chief Regulatory Officer)
- Carol Kennedy (Vice President & Chief Communications Officer)
- Stephanie Klein (Vice President, Chief Marketing Officer)
- Andrew Lowenthal (Senior Vice President Business Development)
- Joanne Moffic-Silver (Executive Vice President, General Counsel & Corporate Secretary)
- Donald Patton (Vice President Accountant/Controller)
- Arthur Reinstein (Deputy General Counsel)
- David Reynolds (Vice President & Chief Accounting Officer)
- John Patrick Sexton (Deputy General Counsel)

Standing Committees

Compensation Committee

- Sandy Kemper
- Scott Wagner

- Jill Sommers

Audit Committee

- Jill Sommers
- David Roscoe
- Matt Billings

Regulatory Oversight Committee

- Scott Wagner
- Sandy Kemper
- David Roscoe

Appeals Committee

- Matt Billings
- Joseph Mecane
- Scott Wagner

10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

**F. Cboe Trading, Inc.**

1. *Name:* Cboe Trading, Inc.  
*Address:* 8050 Marshall Dr., Ste. 120, Lenexa, KS 66214
2. *Form of organization:* Corporation.
3. *Name of state, statute under which organized and date of incorporation:*  
Incorporated in Delaware under Section 101 of the General Corporation Law of the State of Delaware on June 16, 2005.
4. *Brief description of nature and extent of affiliation:* Cboe Trading, Inc. is wholly-owned by Bats Global Markets Holdings, Inc., which is also the Exchange's 100% owner.
5. *Brief description of business or functions:* Cboe Trading, Inc. is a broker-dealer registered as such with the Securities and Exchange Commission and a member of the Financial Industry Regulatory Authority and other self-regulatory organizations. Cboe Trading, Inc. provides routing of orders from the Exchange Cboe BYX Exchange, Inc., Cboe EDGA Exchange, Inc. and Cboe EDGX Exchange, Inc. to other securities exchanges, facilities of securities exchanges, automated trading systems, electronic communication networks or other broker-dealers.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*

Current Directors

- Chris Isaacson
- Chris Concannon
- Brian N. Schell

Current Officers

- Troy Yeazel (President)
- Anders Franzon (Secretary)
- Bryan Upp (Chief Compliance Officer)
- Derick Shupe (FINOP, Treasurer)

10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

**G. Omicron Acquisition Corp.**

1. *Name:* Omicron Acquisition Corp.  
*Address:* 8050 Marshall Dr., Ste. 120, Lenexa, KS 66214
2. *Form of organization:* Corporation.
3. *Name of state, statute under which organized and date of incorporation:*  
Incorporated in Delaware under Section 101 of the General Corporation Law of the State of Delaware on February 7, 2011.
4. *Brief description of nature and extent of affiliation:* Omicron Acquisition Corp. is wholly-owned by Bats Global Markets Holdings, Inc., which is an affiliate of the Exchange.
5. *Brief description of business or functions:* Omicron Acquisition Corp. is an intermediate holding company of Bats Worldwide Holdings Limited.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*  
  
Current Directors
  - Ed Tilly
  - Chris Concannon
  - Mark Hemsley  
Current Officers
  - Mark Hemsley (President and Treasurer)
  - Joanne Moffic-Silver (Vice President and Secretary)
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

**H. Cboe FX Holdings, LLC**

1. *Name:* Cboe FX Holdings, LLC  
*Address:* 8050 Marshall Dr., Ste. 120, Lenexa, KS 66214
2. *Form of organization:* Limited Liability Company.
3. *Name of state, statute under which organized and date of incorporation:* Formed in Delaware under Section 201 of the Limited Liability Company Act of the State of Delaware on May 15, 2000. Name was amended from Hotspot FX Holdings, LLC, a Delaware LLC, on March 11, 2015.
4. *Brief description of nature and extent of affiliation:* Cboe FX Holdings, LLC is wholly-owned by Bats Global Markets Holdings, Inc., which is an affiliate of the Exchange.
5. *Brief description of business or functions:* Cboe FX Holdings, LLC is an intermediate holding company of Cboe FX Markets, LLC, Cboe FX Services, LLC, Cboe SEF, LLC, and Bats Hotspot IB LLC.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*  
  
Current Directors
  - None  
Current Officers
  - Ed Tilly (Chief Executive Officer)
  - Chris Concannon (President)
  - Bryan Harkins (Senior Vice President)
  - Alan Dean (Treasurer)
  - Joanne Moffic-Silver (Secretary)
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

**I. Cboe FX Markets, LLC**

1. *Name:* Cboe FX Markets, LLC  
*Address:* 8050 Marshall Dr., Ste. 120, Lenexa, KS 66214
2. *Form of organization:* Limited Liability Company.
3. *Name of state, statute under which organized and date of incorporation:* Formed in New Jersey under Section 42 of the Limited Liability Company Act of the State of New Jersey on August 7, 2001. Name was amended from KCG Hotspot FX LLC, a Delaware LLC, on March 12, 2015.
4. *Brief description of nature and extent of affiliation:* Cboe FX Markets, LLC is wholly-owned by Cboe FX Holdings, LLC, which is wholly-owned by Bats Global Markets Holdings, Inc., which is an affiliate of the Exchange.
5. *Brief description of business or functions:* Cboe FX Markets, LLC operates an institutional spot foreign exchange market.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*

Current Directors

- None

Current Officers

- Ed Tilly (Chief Executive Officer)
- Chris Concannon (President)
- Bryan Harkins (Senior Vice President)
- Alan Dean (Treasurer)
- Joanne Moffic-Silver (Secretary)
- Barry Calder (Head of Liquidity & Client Services)
- Paul Reidy (Chief Operating Officer)
- Lisa Shemie (Associate General Counsel)

10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

**J. Cboe FX Services, LLC**

1. *Name:* Cboe FX Services, LLC  
*Address:* 8050 Marshall Dr., Ste. 120, Lenexa, KS 66214
2. *Form of organization:* Limited Liability Company.
3. *Name of state, statute under which organized and date of incorporation:* Formed in New Jersey under Section 42 of the Limited Liability Company Act of the State of New Jersey on November 22, 2004. Name was amended from KCG Hotspot FX LLC, a Delaware LLC, on March 12, 2015.
4. *Brief description of nature and extent of affiliation:* Cboe FX Services, LLC is wholly-owned by Cboe FX Holdings, LLC, which is wholly-owned by Bats Global Markets Holdings, Inc., which is an affiliate of the Exchange.
5. *Brief description of business or functions:* Cboe FX Services, LLC operates an institutional spot foreign exchange market.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*

Current Directors

- None

Current Officers

- Ed Tilly (Chief Executive Officer)
  - Chris Concannon (President)
  - Bryan Harkins (Senior Vice President)
  - Alan Dean (Treasurer)
  - Joanne Moffic-Silver (Secretary)
  - Barry Calder (Head of Liquidity & Client Securities)
10. Indication of whether such business or organization ceased to be associated with the applicant during previous year: Not applicable.

**K. Bats International Holdings Limited**

1. *Name:* Bats International Holdings Limited  
*Address:* 10 Lower Thames Street, 6<sup>th</sup> Floor, London, UK EC3R 6AF
2. *Form of organization:* Private Company Limited by Shares.
3. *Name of state, statute under which organized and date of incorporation:*  
Incorporated in England and Wales under the Companies Act 1985 on February 5, 2015.
4. *Brief description of nature and extent of affiliation:* Bats International Holdings Limited is wholly-owned by Bats Worldwide Holdings Limited, which is an affiliate of the Exchange.
5. *Brief description of business or functions:* Bats International Holdings Limited is a holding company of Cboe FX Europe Limited, Bats Hotspot Asia Pte. Ltd., and IndexPubs S.A.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* Not applicable.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*  
  
Current Directors
  - Ed Tilly
  - Chris Concannon
  - Mark Hemsley  
Current Officers
  - Antonio Amelia (Secretary)
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

**L. Cboe FX Europe Limited**

1. *Name:* Cboe FX Europe Limited  
*Address:* 10 Lower Thames Street, 6<sup>th</sup> Floor, London, UK EC3R 6AF
2. *Form of organization:* Private Company Limited by Shares.
3. *Name of state, statute under which organized and date of incorporation:*  
Incorporated in England and Wales under the Companies Act 1985 on February 5, 2015.
4. *Brief description of nature and extent of affiliation:* Cboe FX Europe Limited is wholly-owned by Bats International Holdings Limited which is wholly-owned by Bats Worldwide Holdings Limited, which is an affiliate of the Exchange.
5. *Brief description of business or functions:* Cboe FX Europe Limited operates an institutional spot foreign exchange market.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* Not applicable.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*  
  
Current Directors
  - Ed Tilly
  - Chris Concannon
  - Mark Hemsley  
Current Officers
  - Antonio Amelia (Secretary)
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

**M. Bats Hotspot Asia Pte. Ltd.**

1. *Name:* Bats Hotspot Asia Pte. Ltd.  
*Address:* 16 Collyer Quay, #2104, Sixteen Collyer Quay, Singapore (049318)
2. *Form of organization:* Private Company Limited by Shares.
3. *Name of state, statute under which organized and date of incorporation:*  
Incorporated in Singapore under the Companies Act (Cap. 50) on February 23, 2015.
4. *Brief description of nature and extent of affiliation:* Bats Hotspot Asia Pte. Ltd. is wholly-owned by Bats International Holdings Limited which is wholly-owned by Bats Worldwide Holdings Limited, which is an affiliate of the Exchange.
5. *Brief description of business or functions:* Bats Hotspot Asia Pte. Ltd. operates an institutional spot foreign exchange market.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* Not applicable.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*  
  
Current Directors
  - Chris Concannon
  - Ng Lip Chih  
Current Officers
  - Chris Concannon (President)
  - Chew Pei Tsing (Secretary)
  - Lai Jek Ping (Secretary)
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

**N. Bats Trading Limited**

1. *Name:* Bats Trading Limited  
*Address:* 10 Lower Thames Street, 6<sup>th</sup> Floor, London, UK EC3R 6AF
2. *Form of organization:* Private Company Limited by Shares.
3. *Name of state, statute under which organized and date of incorporation:*  
Incorporated in England and Wales under the Companies Act 1985 on March 28, 2008.
4. *Brief description of nature and extent of affiliation:* Bats Trading Limited is wholly-owned by Bats Worldwide Holdings Limited, which is an affiliate of the Exchange.
5. *Brief description of business or functions:* Bats Trading Limited is recognized as a Recognized Investment Exchange in the United Kingdom under the Financial Services and Markets Act 2000 (“FSMA”). It operates a platform for trading of European equity securities.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* Not applicable.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*

Current Directors

- John Woodman
- Mark Hemsley
- Adam Eades
- Richard Balarkas
- Rebecca Fuller
- Julian Corner
- Kristian West
- Ted Hood

Current Officers

- Mark Hemsley (CEO)
- Antonio Amelia (Secretary)
- Jill Griebenow (CFO)
- Adam Eades (Chief Legal and Regulatory Officer)
- Jerry Avenell (Co-Head Sales)
- Alex Dalley (Co-Head Sales)
- Guy Simpkin (Head of Business Development)
- David Howson (COO)

Standing Committees

Audit, Risk and Compliance Committee

- Ted Hood
- Rebecca Fuller
- Richard Balarkas

Remuneration Committee

- John Woodman
- Rebecca Fuller
- Kristian West

10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

**O. Chi-X Europe Limited**

1. *Name:* Chi-X Europe Limited  
*Address:* 10 Lower Thames Street, 6<sup>th</sup> Floor, London, UK EC3R 6AF
2. *Form of organization:* Private Company Limited by Shares.
3. *Name of state, statute under which organized and date of incorporation:*  
Incorporated in England and Wales. It changed its name to Chi-X Europe Limited on July 2, 2007.
4. *Brief description of nature and extent of affiliation:* Chi-X Europe Limited is wholly-owned by Bats Trading Limited which, in turn, is indirectly wholly owned by Bats Global Markets, Inc.
5. *Brief description of business or functions:* Chi-X Europe Limited is authorized in the United Kingdom under the Financial Services and Markets Act 2000 (“FSMA”), as an investment firm. Between April 30, 2012 and May 20, 2013 it was a dormant company. Since May 20, 2013, Chi-X Europe Limited operates the smart order router that is needed for the routing strategies deployed by Bats Trading Limited.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* Not applicable.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*

Current Directors

- Mark Hemsley
- Adam Eades
- John Woodman

Current Officers

- John Woodman (Chairman)
- Mark Hemsley (CEO)
- Antonio Amelia (Secretary)
- Jill Griebenow (CFO)
- Adam Eades (Chief Legal and Regulatory Officer)

10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

**P. Cboe ETF.com, Inc.**

1. *Name:* Cboe ETF.com, Inc.  
*Address:* 8050 Marshall Dr., Ste. 120, Lenexa, KS 66214
2. *Form of organization:* Corporation.
3. *Name of state, statute under which organized and date of incorporation:*  
Incorporated in Delaware under Section 101 of the General Corporation Law of the State of Delaware on March 28, 2016.
4. *Brief description of nature and extent of affiliation:* Cboe ETF.com, Inc. is wholly-owned by Bats Global Markets Holdings, Inc., which is also the Exchange's 100% owner.
5. *Brief description of business or functions:* Cboe ETF.com, Inc. is a media company providing ETF data, news and analysis.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*  
  
Current Directors
  - Ed Tilly
  - Chris Concannon  
Current Officers
  - Dave Nadig (Chief Executive Officer)
  - Chris Concannon (President and Chief Operating Officer)
  - Bryan Harkins (Senior Vice President)
  - Alan Dean (Chief Financial Officer and Treasurer)
  - Chris Isaacson (Executive Vice President and Global Chief Information Officer)
  - Joanne Moffic-Silver (Executive Vice President, General Counsel and Secretary)
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

**Q. INDEXPUBS S.A.**

1. *Name:* INDEXPUBS S.A.  
*Address:* Almagro Plaza, Ste. 508, Pedro Ponce Carrasco, E8-06 y Diego de Almagro, 170516 – Quito, Ecuador
2. *Form of organization:* Corporation (Soceidad Anonima or S.A.).
3. *Name of state, statute under which organized and date of incorporation:*  
Incorporated in Ecuador on January 15, 2008.
4. *Brief description of nature and extent of affiliation:* INDEXPUBS S.A. is owned 0.1% by Fernando Rivera and 99.9% by Bats International Holdings Limited which is wholly-owned by Bats Worldwide Holdings Limited, which is an affiliate of the Exchange.
5. *Brief description of business or functions:* INDEXPUBS S.A. is a media company providing ETF data, news and analysis.
6. *Copy of constitution:* No changes.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*  
  
Current Directors  
  
Current Officers
  - Dave Nadig (President)
  - Verónica Rocío Bravo (General Manager)
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

**R. Bats Hotspot IB LLC**

1. *Name:* Bats Hotspot IB LLC  
*Address:* 17 State Street, 31<sup>st</sup> Floor, New York, NY 10004
2. *Form of organization:* Limited Liability Company.
3. *Name of state, statute under which organized and date of incorporation:* Formed in Illinois under Section 15-1 of the Limited Liability Company Act of the State of Illinois on May 23, 2003.
4. *Brief description of nature and extent of affiliation:* Bats Hotspot IB LLC is wholly-owned by Cboe FX Holdings LLC, which is wholly-owned by Bats Global Markets Holdings, Inc., which is an affiliate of the Exchange.
5. *Brief description of business or functions:* Bats Hotspot IB LLC is an introducing broker registered with the National Futures Association.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*  
  
Current Officers
  - Bryan Harkins (Senior Vice President)
  - Derick Shupe (Chief Accounting Officer)  
Managers
  - Chris Concannon
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

S. Cboe SEF, LLC

1. *Name:* Cboe SEF, LLC  
*Address:* 17 State Street, 31<sup>st</sup> Floor, New York, NY 10004
2. *Form of organization:* Limited Liability Company.
3. *Name of state, statute under which organized and date of incorporation:* Formed in Delaware under Section 201 of the Limited Liability Company Act of the State of Delaware on April 19, 2012.
4. *Brief description of nature and extent of affiliation:* Cboe SEF, LLC is wholly-owned by Cboe FX Holdings LLC, which is wholly-owned by Bats Global Markets Holdings, Inc., which is an affiliate of the Exchange.
5. *Brief description of business or functions:* Cboe SEF, LLC is a swap execution facility registered with the Commodity Futures Trading Association, which will soon list non-deliverable foreign exchange forwards for trading.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* See attached amendment indicating entity name change.
8. *Copy of existing by-laws:* See attached LLC Agreement.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*

Current Officers

- Bryan Harkins (Chief Executive Officer)
- Lisa Shemie (Chief Compliance Officer)

Managers

- Chris Concannon
- Gilbert Bassett
- Michael Gorham
- James Parisi
- Jill Sommers

10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

**T. Bats Worldwide Holdings Limited**

1. *Name:* Bats Worldwide Holdings Limited  
*Address:* 10 Lower Thames Street, 6<sup>th</sup> Floor, London, UK EC3R 6AF
2. *Form of organization:* Private Company Limited by Shares.
3. *Name of state, statute under which organized and date of incorporation:*  
Incorporated in England and Wales under the Companies Act 2006 on November 9, 2016.
4. *Brief description of nature and extent of affiliation:* Bats Worldwide Holdings Limited is wholly-owned by Omicron Acquisition Corp., which is an affiliate of the Exchange.
5. *Brief description of business or functions:* Bats Worldwide Holdings Limited is an intermediate holding company of Bats Trading Limited and Bats International Holdings Limited.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* Not applicable.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*

Current Directors

- Ed Tilly
- Chris Concannon
- Mark Hemsley

Current Officers

- Antonio Amelia (Secretary)

10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

**U. Cboe Global Markets, Inc.**

1. *Name:* Cboe Global Markets, Inc.  
*Address:* 400 South LaSalle Street, Chicago, Illinois 60605
2. *Form of organization:* Corporation.
3. *Name of state, statute under which organized and date of incorporation:*  
Delaware, Delaware General Corporation Law (8 Del. C. §101, et seq), August 15, 2006.
4. *Brief description of nature and extent of affiliation:* Cboe is a wholly-owned subsidiary of Cboe Global Markets, Inc.
5. *Brief description of business or functions:* Holding company.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*

Current Directors

- Ed Tilly
- James Boris
- Frank English
- William Farrow
- Edward Fitzpatrick
- Janet Froetscher
- Jill Goodman
- Chris Mitchell
- Roderick Palmore
- Joe Ratterman
- Michael Richter
- Samuel Skinner
- Carole Stone
- Eugene Sunshine

Current Officers

- Chris Concannon (President and COO)
- Alan Dean (EVP, CFO and Treasurer)
- Mark Hemsley (EVP, President Europe)
- Chris Isaacson (EVP, CIO)
- Joanne Moffic-Silver (EVP, General Counsel & Corporate Secretary)

- David Reynolds (VP, & Chief Accounting Ofc)
- Edward Tilly (Chief Executive Officer)

Compensation Committee

- Frank English
- Janet Froetscher
- Samuel Skinner
- Eugene Sunshine
- Edward Fitzpatrick

Audit Committee

- William Farrow
- Edward Fitzpatrick
- Carole Stone
- Michael Richter

Nominating and Governance Committee

- Jill Goodman
- Roderick Palmore
- Samuel Skinner
- Carole Stone
- Eugene Sunshine

Finance and Strategy Committee

- Frank English
- Edward Fitzpatrick
- Jill Goodman
- Carole Stone
- Chris Mitchell
- Joe Ratterman

10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

V. Cboe C2 Exchange, Inc.

1. *Name:* Cboe C2 Exchange, Inc.  
*Address:* 400 South LaSalle Street, Chicago, Illinois 60605
2. *Form of organization:* Corporation.
3. *Name of state, statute under which organized and date of incorporation:*  
Delaware, Delaware General Corporation Law (8 Del. C. § 101, et seq), July 21, 2009.
4. *Brief description of nature and extent of affiliation:* Wholly-owned subsidiary of Cboe Global Markets, Inc.
5. *Brief description of business or functions:* C2 is a registered national securities exchange.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*

Current Directors

- Ed Tilly
- James Boris
- Frank English
- William Farrow
- Ed Fitzpatrick
- Janet Froetscher
- Jill Goodman
- Chris Mitchell
- Roderick Palmore
- Joe Ratterman
- Michael Richter
- Samuel Skinner
- Carole Stone
- Eugene Sunshine

Current Officers

- Alexandra Albright (Chief Compliance Officer)
- Lawrence Bresnahan (VP, Market & Member Reg.)
- Rodney Burt (VP, Infrastructure)

- Kevin Carrai (VP, Connectivity, Data & Member Services)
- Karen Christiansen (VP, Regulatory Systems Dev)
- Paul Ciciora (VP, Systems Infrastructure)
- Catherine Clay (VP, Business Development)
- Chris Concannon (President and COO)
- Pamela Culpepper (Chief HR Officer)
- Alan Dean (EVP, CFO and Treasurer)
- John Deters (CSO & Head Corp Initiative)
- James Enstrom (VP & Chief Audit Exec.)
- Angelo Evangelou (Deputy General Counsel)
- Eric Frait (VP, Business Analysis)
- Carmen Frazier Brannan (VP, Government Relations)
- Anders Franzon (SVP, Associate General Counsel)
- Todd Furney (VP, Chief Risk Officer)
- Alicia Goldberg (VP, Statistical Analysis)
- David Gray (VP, Business Develop GCS)
- Mark Hemsley (EVP, President Europe)
- Gregory Hoogasian (SVP, CRO of CBOE, C2 CFE)
- Chris Isaacson (EVP, CIO)
- Carol Kennedy (VP, & Chief Comm, Officer)
- Stephanie Klein (VP Chief Marketing Officer)
- Deborah Koopman (VP, Investor Relations)
- Jennifer Lamie (Chief Regulatory Advisor)
- Stephanie Lara Marrin (Deputy Chief Reg officer)
- Andrew Lowenthal (SVP, Business Development)
- Joanne Moffic-Silver (EVP, General Counsel & Corporate Secretary)
- Anthony Montesano (VP, Trading Operations)
- Matthew Moran (VP, Institutional Marketing)
- Mark Novak (VP, CTO Development)
- LuAnn O'Shea (VP Facilities)
- Donald Patton (VP, Acct/Controller)
- Debra Peters (VP, Options Institute)
- Roberta Piwnicki (VP, Systems Development)
- Kapil Rathi (SVP, Options Business Development)
- Arthur Reinstein (Deputy General Counsel)
- David Reynolds (VP, & Chief Accounting Ofc)
- James Roche (VP, Market Data Services)
- Bradley Samuels (VP, Systems Development)
- Brian Schell (SVP, Finance)
- Curt Schumacher (VP, CTO Operations)
- Derick Shupe (VP, Controller)
- John Sexton (Deputy General Counsel)
- Steven Sinclair (VP, Systems Development)
- Philip Slocum (EVP, Chief Risk Officer)

- Eileen Smith (VP, Systems Planning)
- William Speth (VP, Research & Prod. Dev.)
- Gregory Steinberg (VP, Associate General Counsel and Assistant Secretary)
- Paul Stephens (VP, Inst'l Mrktg & Sales)
- Edward Tilly (Chief Executive Officer)
- Michael Todd (VP, Systems Operations)
- Michael Todorofsky (VP, Market Operations)
- Michael Trees (VP, Trading Sys Develop.)
- Aaron Weissenfluh (VP, CISO)
- Laura Zinanni (VP, Office of CEO)

Standing Committees

Executive Committee

- Edward Tilly
- James Boris
- Edward Fitzpatrick
- Roderick Palmore
- Samuel Skinner
- Carole Stone
- Eugene Sunshine

Compensation Committee

- Samuel Skinner
- Frank English
- Janet Froetscher
- Eugene Sunshine

Nominating and Governance Committee

- Eugene Sunshine
- Jill Goodman
- Roderick Palmore
- Samuel Skinner
- Carole Stone

Regulatory Oversight and Compliance Committee

- Roderick Palmore
- William Farrow
- Janet Froetscher
- Michael Richter

10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

**W. Cboe Futures Exchange, LLC**

1. *Name:* Cboe Futures Exchange, LLC  
*Address:* 400 South LaSalle Street, Chicago, Illinois 60605
2. *Form of organization:* Limited Liability Company.
3. *Name of state, statute under which organized and date of incorporation:*  
Delaware, Delaware Limited Liability Company Act (6 Del. C. §18-101, et seq),  
July 16, 2002.
4. *Brief description of nature and extent of affiliation:* Wholly-owned subsidiary of  
Cboe Global Markets, Inc.
5. *Brief description of business or functions:* Cboe Future Exchanges, LLC is a  
contract market approved by the Commodity Futures Trading Commission in  
August 2003. Cboe Futures Exchange, LLC is a fully electronic futures exchange.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* See attached  
amendment indicating entity name change.
8. *Copy of existing by-laws:* See attached LLC Agreement.
9. *Name and title of present officers, governors, members of standing committees  
and persons performing similar functions:*

Current Directors

- Chris Concannon
- Gilbert Bassett, Jr.
- Michael Gorham
- James Parisi
- Jill Sommers

Current Officers

- Alexandra Albright (Chief Compliance Officer)
- Lawrence Bresnahan (VP, Market & Member Reg.)
- Joseph Caauwe (Managing Director - CFE)
- Chris Concannon (President)
- Alan Dean (EVP, CFO and Treasurer)
- Gregory Hoogasian (SVP, CRO of CBOE C2, CFE)
- Chris Isaacson (EVP, CIO)
- Jennifer Lamie (Chief Regulatory Advisor)
- Stephanie Lara Marrin (Deputy Chief Reg Officer)
- Andrew Lowenthal (SVP, Business Development)
- Joanne Moffic-Silver (EVP, General Counsel & Corporate Secretary)

- Michael Mollet (Managing Director - CFE)
- Arthur Reinstein (Deputy General Counsel)
- David Reynolds (VP & Chief Accounting Ofc)

Standing Committees

Executive

- Chris Concannon
- Michael Gorham

Regulatory Oversight Committee

- Michael Gorham
- Gilbert Bassett
- James Parisi
- Jill Sommers

Trading Advisory Committee

- Jay Caauwe
- Kirk Bonniwell
- Zeke Charlesworth
- Michael Dennis
- Johan Drylewicz
- Alex Gerko
- Josh Grant
- Douglas Schadewald
- Andrew Smith

10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

**X. CBOE Stock Exchange, LLC**

1. *Name:* CBOE Stock Exchange, LLC (“CBSX”)  
*Address:* 400 South LaSalle Street, Chicago, Illinois 60605
2. *Form of organization:* Limited Liability Company.
3. *Name of state, statute under which organized and date of incorporation:*  
Delaware, Delaware Limited Liability Company Act (6 Del. C. §18-101, et seq),  
July 31, 2006.
4. *Brief description of nature and extent of affiliation:* CBSX is a 49.96%-owned  
subsidiary of Cboe Exchange, Inc.
5. *Brief description of business or functions:* CBSX operated the CBOE Stock  
Exchange, which acted as a trading market for securities other than options as a  
facility of CBOE. CBSX was approved by the SEC in March 2007. CBSX ceased  
trading operations on April 30, 2014.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees  
and persons performing similar functions:*

Current Directors

- Alan Dean
- James Fitzgibbons
- Jaap Gelderloos
- Andrew Lowenthal
- Tom O’Mara
- Rick Oscher
- John Deters
- Dave Reynolds
- Eric Frait
- Steve Sosnick

Current Officers

- Angelo Evangelou (Secretary)

10. *Indication of whether such business or organization ceased to be associated with  
the applicant during previous year:* Not applicable.

**Y. Cboe Exchange, Inc.**

1. *Name:* Cboe Exchange, Inc.  
*Address:* 400 South LaSalle Street, Chicago, Illinois 60605
2. *Form of organization:* Corporation.
3. *Name of state, statute under which organized and date of incorporation:*  
Delaware, Delaware General Corporation Law (8 Del. C. § 101, et seq), February 8, 1972.
4. *Brief description of nature and extent of affiliation:* Wholly-owned subsidiary of Cboe Global Markets, Inc.
5. *Brief description of business or functions:* CBOE is a registered national securities exchange.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*

Current Directors

- Ed Tilly
- James Boris
- Frank English
- William Farrow
- Ed Fitzpatrick
- Janet Froetscher
- Jill Goodman
- Chris Mitchell
- Roderick Palmore
- Joe Ratterman
- Michael Richter
- Samuel Skinner
- Carole Stone
- Eugene Sunshine

Current Officers

- Alexandra Albright (Chief Compliance Officer)
- Lawrence Bresnahan (VP, Market & Member Reg.)
- Rodney Burt (VP, Infrastructure)
- Kevin Carrai (VP, Connectivity, Data & Member Services)

**Cboe BZX Exchange, Inc. Form 1 Registration Statement: Exhibit C**

- Karen Christiansen (VP, Regulatory Systems Dev)
- Paul Ciciora (VP, Systems Infrastructure)
- Catherine Clay (VP, Business Development)
- Chris Concannon (President and COO)
- Pamela Culpepper (Chief HR Officer)
- Alan Dean (EVP, CFO and Treasurer)
- John Deters (CSO & Head Corp Initiative)
- James Enstrom (VP, & Chief Audit Exec)
- Angelo Evangelou (Deputy General Counsel)
- Eric Frait (VP, Business Analysis)
- Carmen Frazier Brannan (VP, Government Relations)
- Anders Franzon (SVP, Associate General Counsel)
- Todd Furney (VP, Chief Risk Officer)
- Alicia Goldberg (VP, Statistical Analysis)
- David Gray (VP, Business Develop GCS)
- Mark Hemsley (EVP, President Europe)
- Gregory Hoogasian (SVP, CRO of CBOE C2 CFE)
- Chris Isaacson (EVP, CIO)
- Carol Kennedy (VP & Chief Comm. Officer)
- Stephanie Klein (VP Chief Marketing Officer)
- Deborah Koopman (VP, Investor Relations)
- Jennifer Lamie (Chief Regulatory Advisor)
- Stephanie Lara Marrin (Deputy Chief Reg Officer)
- Andrew Lowenthal (SVP, Business Development)
- Joanne Moffic-Silver (EVP, General Counsel & Corporate Secretary)
- Anthony Montesano (VP, Trading Operations)
- Matthew Moran (VP, Institutional Marketing)
- Mark Novak (VP, CTO Development)
- LuAnn O'Shea (VP Facilities)
- Donald Patton (VP, Acct/Controller)
- Debra Peters (VP, Options Institute)
- Roberta Piwnicki (VP, Systems Development)
- Kapil Rathi (SVP, Options Business Development)
- Arthur Reinstein (Deputy General Counsel)
- David Reynolds (VP, & Chief Accounting Ofc)
- James Roche (VP, Market Data Services)
- Bradley Samuels (VP, Systems Development)
- Brian Schell (SVP, Finance)
- Curt Schumacher (VP, CTO Operations)
- Derick Shupe (VP, Controller)
- John Sexton (Deputy General Counsel)
- Steven Sinclair (VP, Systems Development)
- Philip Slocum (EVP, Chief Risk Officer)
- Eileen Smith (VP, Systems Planning)

- William Speth (VP, Research & Product Development)
- Gregory Steinberg (VP, Associate General Counsel and Assistant Secretary)
- Paul Stephens (VP, Inst'l Mrktg & Sales)
- Edward Tilly (Chief Executive Officer)
- Michael Todd (VP, Systems Operations)
- Michael Todorofsky (VP, Market Operations)
- Michael Trees (VP, Trading Sys Develop.)
- Aaron Weissenfluh (VP, CISO)
- Laura Zinanni (VP Office of CEO)

Standing Committees

Executive Committee

- Ed Tilly
- James Boris
- Edward Fitzpatrick
- Roderick Palmore
- Samuel Skinner
- Carole Stone
- Eugene Sunshine

Compensation Committee

- Samuel Skinner
- Frank English
- Janet Froetscher
- Eugene Sunshine

Nominating and Governance Committee

- Eugene Sunshine
- Jill Goodman
- Roderick Palmore
- Samuel Skinner
- Carole Stone

Regulatory Oversight and Compliance Committee

- Roderick Palmore
- William Farrow
- Janet Froetscher
- Michael Richter

10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year: Not applicable.*

**Z. Cboe Building Corporation**

1. *Name:* Cboe Building Corporation  
*Address:* 400 South LaSalle Street, Chicago, Illinois 60605
2. *Form of organization:* Corporation.
3. *Name of state, statute under which organized and date of incorporation:*  
Delaware, Delaware General Corporation Law (8 Del. C. § 101, et seq), August 8, 1980.
4. *Brief description of nature and extent of affiliation:* Wholly-owned subsidiary of Cboe Global Markets, Inc.
5. *Brief description of business or functions:* Owns facility used by Cboe.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*

Current Directors

- Alan Dean
- Chris Concannon
- Ed Tilly

Current Officers

- Chris Concannon (President)
- Alan Dean (Treasurer)
- LuAnn O'Shea (Secretary)

10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

AA. CBOE, LLC

1. *Name:* CBOE, LLC  
*Address:* 400 South LaSalle Street, Chicago, Illinois 60605
2. *Form of organization:* Limited Liability Company.
3. *Name of state, statute under which organized and date of incorporation:*  
Delaware, Delaware Limited Liability Company Act (6 Del. C. §18-101, et seq),  
August 22, 2001.
4. *Brief description of nature and extent of affiliation:* Wholly-owned subsidiary of  
Cboe Global Markets, Inc.
5. *Brief description of business or functions:* CBOE, LLC is a limited liability  
company member of OneChicago, LLC.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees  
and persons performing similar functions:*

Current Directors

- Chris Concannon
- Ed Tilly

Current Officers

- Chris Concannon (President)
- Andrew Lowenthal (Vice President)
- Alan Dean (Treasurer)
- Joanne Moffic-Silver (Secretary)

10. *Indication of whether such business or organization ceased to be associated with  
the applicant during previous year:* Not applicable.

**BB. CBOE III, LLC**

1. *Name:* CBOE III, LLC  
*Address:* 400 South LaSalle Street, Chicago, Illinois 60605
2. *Form of organization:* Limited Liability Company.
3. *Name of state, statute under which organized and date of incorporation:*  
Delaware, Delaware Limited Liability Company Act (6 Del. C. §18-101, et seq),  
May 2, 2014.
4. *Brief description of nature and extent of affiliation:* Wholly-owned subsidiary of  
Cboe Global Markets, Inc.
5. *Brief description of business or functions:* Holding company for investment in  
Tradelegs, LLC.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees  
and persons performing similar functions:*

Current Directors

- John Deters
- Chris Concannon
- Ed Tilly

Current Officers

- Chris Concannon (President)
- John Deters (Vice President)
- Alan Dean (Treasurer)
- Joanne Moffic-Silver (Secretary)

10. *Indication of whether such business or organization ceased to be associated with  
the applicant during previous year:* Not applicable.

CC. Cboe Bats, LLC

1. *Name:* Cboe Bats, LLC  
*Address:* 400 South LaSalle Street, Chicago, Illinois 60605
2. *Form of organization:* Limited Liability Company.
3. *Name of state, statute under which organized and date of incorporation:*  
Delaware, Delaware Limited Liability Company Act (6 Del. C. §18-101, et seq),  
September 25, 2016.
4. *Brief description of nature and extent of affiliation:* Wholly-owned subsidiary of  
Cboe Global Markets, Inc.
5. *Brief description of business or functions:* Holding company.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees  
and persons performing similar functions:*

Current Directors

- Alan Dean
- Chris Concannon
- Ed Tilly

Current Officers

- Chris Concannon (President)
- Bryan Harkins (Senior Vice President)
- John Deters (Vice President)
- Chris Isaacson (Vice President)
- Brian Schell (Vice President)
- Alan Dean (Treasurer)
- Joanne Moffic-Silver (Secretary)

10. *Indication of whether such business or organization ceased to be associated with  
the applicant during previous year:* Not applicable.

**DD. CBOE Livevol, LLC**

1. *Name:* CBOE Livevol, LLC  
*Address:* 400 South LaSalle Street, Chicago, Illinois 60605
2. *Form of organization:* Limited Liability Company.
3. *Name of state, statute under which organized and date of incorporation:*  
Delaware, Delaware Limited Liability Company Act (6 Del. C. §18-101, et seq),  
May 29, 2015.
4. *Brief description of nature and extent of affiliation:* Wholly-owned subsidiary of  
Cboe Global Markets, Inc.
5. *Brief description of business or functions:* CBOE Livevol, LLC provides equity  
and index options technology for professional and retail traders, which includes  
options strategy backtesting, trade analysis and volatility modeling technologies  
and historical data.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees  
and persons performing similar functions:*

Current Directors

- Andrew Lowenthal
- John Deters
- Catherine Clay

Current Officers

- John Deters (President)
- Andrew Lowenthal (Vice President)
- Catherine Clay (Vice President)
- Chris Isaacson (Vice President)
- Dave Reynolds (Treasurer)
- Joanne Moffic-Silver (Secretary)

10. *Indication of whether such business or organization ceased to be associated with  
the applicant during previous year:* Not applicable.

**EE. Cboe UK Limited**

1. *Name:* Cboe UK Limited  
*Address:* Level 30, The Leadenhall Building, 122 Leadenhall Street, London, United Kingdom EC3V 4AB
2. *Form of organization:* Private Limited Company.
3. *Name of state, statute under which organized and date of incorporation:* England and Wales, Companies Act 2006, March 10, 2016.
4. *Brief description of nature and extent of affiliation:* Wholly-owned subsidiary of Cboe Global Markets, Inc.
5. *Brief description of business or functions:* Marketing and business development services.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*  
  
Current Directors
  - None  
Current Officers
  - Dave Gray
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

**FF. CBOE Vest, LLC**

1. *Name:* CBOE Vest, LLC  
*Address:* 400 South LaSalle Street, Chicago, Illinois 60605
2. *Form of organization:* Limited Liability Company.
3. *Name of state, statute under which organized and date of incorporation:*  
Delaware, Delaware Limited Liability Company Act (6 Del. C. §18-101, et seq),  
December 10, 2015.
4. *Brief description of nature and extent of affiliation:* Wholly-owned subsidiary of  
Cboe Global Markets, Inc.
5. *Brief description of business or functions:* Holding company of majority equity  
investment in Vest Financial Group, Inc.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees  
and persons performing similar functions:*

Current Directors

- John Deters
- Chris Concannon
- Ed Tilly

Current Officers

- Chris Concannon (President)
- John Deters (Vice President)
- Alan Dean (Treasurer)
- Joanne Moffic-Silver (Secretary)

10. *Indication of whether such business or organization ceased to be associated with  
the applicant during previous year:* Not applicable.

**GG. Loan Markets, LLC**

1. *Name:* Loan Markets, LLC  
*Address:* 400 S. LaSalle Street, Chicago, Illinois 60605
2. *Form of organization:* Limited Liability Company.
3. *Name of state, statute under which organized and date of incorporation:*  
Delaware, Delaware Limited Liability Company Act (6 Del. C. §18-101, et seq),  
May 11, 2015.
4. *Brief description of nature and extent of affiliation:* Wholly-owned subsidiary of  
Cboe Global Markets, Inc.
5. *Brief description of business or functions:* Holding company for investment in  
American Financial Exchange, LLC.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees  
and persons performing similar functions:*

Current Directors

- John Deters
- Chris Concannon
- Ed Tilly

Current Officers

- Chris Concannon (President)
- John Deters (Vice President)
- Alan Dean (Treasurer)
- Joanne Moffic-Silver (Secretary)

10. *Indication of whether such business or organization ceased to be associated with  
the applicant during previous year:* Not applicable.

**HH. Cboe Data Services, LLC**

1. *Name:* Cboe Data Services, LLC  
*Address:* 400 South LaSalle Street Chicago, Illinois 60605
2. *Form of organization:* Limited Liability Company.
3. *Name of state, statute under which organized and date of incorporation:*  
Delaware, Delaware Limited Liability Company Act (6 Del. C. §18-101, et seq),  
February 21, 2006.
4. *Brief description of nature and extent of affiliation:* Wholly-owned subsidiary of  
Cboe Global Markets, Inc.
5. *Brief description of business or functions:* Cboe Data Services, LLC sells market  
data.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees  
and persons performing similar functions:*

Current Directors

- Eric Frait
- Bryan Harkins
- Chris Isaacson
- Jim Roche
- Curt Schumacher

Current Officers

- Chris Isaacson (President)
- Bryan Harkins (Senior Vice President)
- Kevin Carrai (Vice President)
- Jim Roche (Vice President)
- Alan Dean (Treasurer)
- Joanne Moffic-Silver (Secretary)

10. *Indication of whether such business or organization ceased to be associated with  
the applicant during previous year:* Not applicable.

**II. Signal Trading Systems, LLC**

1. *Name:* Signal Trading Systems, LLC (“STS”)  
*Address:* 400 South LaSalle Street, Chicago, Illinois 60605
2. *Form of organization:* Limited Liability Company.
3. *Name of state, statute under which organized and date of incorporation:*  
Delaware, Delaware Limited Liability Company Act (6 Del. C. §18-101, et seq),  
May 13, 2010.
4. *Brief description of nature and extent of affiliation:* Fifty percent (50%)  
subsidiary of Cboe Exchange, Inc.
5. *Brief description of business or functions:* STS developed and markets a multi-  
asset front-end order entry system known as “Pulse”.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees  
and persons performing similar functions:* There are no directors or officers of  
Signal Trading Systems, LLC.
10. *Indication of whether such business or organization ceased to be associated with  
the applicant during previous year:* Not applicable.

**JJ. The Options Exchange, Incorporated**

1. *Name:* The Options Exchange, Incorporated  
*Address:* 400 South LaSalle Street, Chicago, IL 60605
2. *Form of organization:* Corporation.
3. *Name of state, statute under which organized and date of incorporation:*  
Delaware, Delaware General Corporation Law (8 Del. C. § 101, et seq), January 7, 1974.
4. *Brief description of nature and extent of affiliation:* Wholly-owned subsidiary of Cboe Global Markets, Inc.
5. *Brief description of business or functions:* The Options Exchange, Incorporated has been inactive since its incorporation.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*

Current Directors

- Alan Dean
- Chris Concannon
- Ed Tilly

Current Officers

- Ed Tilly (Chairman)
- Chris Concannon (President)
- Alan Dean (Treasurer)
- Joanne Moffic-Silver (Secretary)

10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

**KK. Vest Financial Group, Inc.**

1. *Name:* Vest Financial Group, Inc.  
*Address:* 8300 Greensboro Drive, 8<sup>th</sup> Floor, McLean, VA 22102
2. *Form of organization:* Corporation.
3. *Name of state, statute under which organized and date of incorporation:*  
Delaware, Delaware General Corporation Law (8 Del. C. §101, et seq), January 2, 2015.
4. *Brief description of nature and extent of affiliation:* Majority-owned subsidiary of CBOE Vest, LLC.
5. *Brief description of business or functions:* Through its subsidiaries, provides options-based investment advisory services.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* No changes.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*

Current Directors

- John Deters
- Karan Sood
- William Speth

Current Officers

- Karan Sood (Chief Executive Officer)
- Jeffrey Chang (Chief Financial Officer)

10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

**LL. Cboe Hong Kong Limited**

1. *Name:* Cboe Hong Kong Limited  
*Address:* 6<sup>th</sup> Floor, Alexandra House, 18 Chater Road, Central, Hong Kong
2. *Form of organization:* Private Company Limited by Shares.
3. *Name of state, statute under which organized and date of incorporation:* Hong Kong under the Companies Ordinance (Chapter 622 of the Laws of Hong Kong), May 29, 2017.
4. *Brief description of nature and extent of affiliation:* Cboe Hong Kong Limited is wholly-owned by Bats Worldwide Holdings Limited, which is an affiliate of the Exchange.
5. *Brief description of business or functions:* Marketing and business development services (business expected to commence in September 2017).
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* No changes.
8. *Copy of existing by-laws:* Not applicable.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:*  
  
Current Directors
  - Dave Gray  
Current Officers
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

**MM. Bats Hotspot SEF LLC**

1. *Name:* Bats Hotspot SEF LLC  
*Address:* 8050 Marshall Dr., Ste. 120, Lenexa, KS 66214
2. *Form of organization:* Limited Liability Company.
3. *Name of state, statute under which organized and date of incorporation:* Formed in Delaware under Section 201 of the Limited Liability Company Act of the State of Delaware on May 1, 2015.
4. *Brief description of nature and extent of affiliation:* As of August 18, 2016, Bats Hotspot SEF LLC ceased to exist.
5. *Brief description of business or functions:* Not applicable.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* Not applicable.
8. *Copy of existing by-laws:* Not applicable
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:* None.
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* As of August 18, 2016, Bats Hotspot SEF LLC ceased to exist.

**NN. Bats Global Markets, Inc.**

1. *Name:* Bats Global Markets, Inc.  
*Address:* 8050 Marshall Dr., Ste. 120, Lenexa, KS 66214
2. *Form of organization:* Corporation.
3. *Name of state, statute under which organized and date of incorporation:*  
Incorporated in Delaware under Section 101 of the General Corporation Law of the State of Delaware on August 22, 2013.
4. *Brief description of nature and extent of affiliation:* On February 28, 2017, Bats Global Markets, Inc. was merged with and into Cboe Bats, LLC, with Cboe Bats, LLC as the surviving corporation.
5. *Brief description of business or functions:* Not applicable.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* Not applicable.
8. *Copy of existing by-laws:* Not applicable.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:* None.
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* As of February 28, 2017, Bats Global Markets, Inc. ceased to exist.

**OO. DerivaTech Corporation**

1. *Name:* DerivaTech Corporation  
*Address:*
2. *Form of organization:* Corporation.
3. *Name of state, statute under which organized and date of incorporation:*
4. *Brief description of nature and extent of affiliation:* DerivaTech Corporation, a previously wholly-owned subsidiary of CBOE Holdings, was dissolved on December 22, 2016.
5. *Brief description of business or functions:* Not applicable.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* Not applicable.
8. *Copy of existing by-laws:* Not applicable.
9. *Name and title of present officers, governors, members of standing committees and persons performing similar functions:* None.
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* DerivaTech Corporation, a previously wholly-owned subsidiary of CBOE Holdings, was dissolved on December 22, 2016.

## Form 1, Exhibit C Index of Attachments

- A Bats Global Markets Holdings, Inc.
- B Direct Edge LLC
- C Cboe BYX Exchange, Inc.
- D Cboe EDGA Exchange, Inc.
- E Cboe EDGX Exchange, Inc.
- F Cboe Trading, Inc.
- G Omicron Acquisition Corp.
- H Cboe FX Holdings, LLC
- I Cboe FX Markets, LLC
- J Cboe FX Services, LLC
- K Bats International Holdings Limited
- L Cboe FX Europe Limited
- M Bats Hotspot Asia Pte. Ltd.
- N Bats Trading Limited
- O Chi-X Europe Limited
- P Cboe ETF.com, Inc.
- Q INDEXPUBS S.A.
- R Bats Hotspot IB LLC
- S Cboe SEF, LLC (Updated)
- T Bats Worldwide Holdings Limited
- U Cboe Global Markets, Inc.
- V Cboe C2 Exchange, Inc.
- W Cboe Futures Exchange, LLC (Updated)
- X CBOE Stock Exchange, LLC
- Y Cboe Exchange, Inc.
- Z Cboe Building Corporation

- AA CBOE, LLC
- BB CBOE III, LLC
- CC Cboe Bats, LLC
- DD CBOE Livevol, LLC
- EE Cboe UK Limited
- FF CBOE Vest, LLC
- GG Loan Markets, LLC
- HH Cboe Data Services, LLC
- II Signal Trading Systems, LLC
- JJ The Options Exchange, Incorporated
- KK Vest Financial Group, Inc.
- LL Cboe Hong Kong Limited

**A Bats Global Markets Holdings, Inc.**

**B Direct Edge LLC**

**C Cboe BYX Exchange, Inc.**

**D Cboe EDGA Exchange, Inc.**

**E Cboe EDGX Exchange, Inc.**

**F Cboe Trading, Inc.**

**G      Omicron Acquisition Corp.**

**H Cboe FX Holdings, LLC**

I Cboe FX Markets, LLC

**J Cboe FX Services LLC**

**K      Bats International Holdings Limited**

**L Cboe FX Europe Limited**

**M Bats Hotspot Asia Pte. Ltd.**

**N Bats Trading Limited**

**O Chi-X Europe Limited**

**P Cboe ETF.com, Inc.**

**R     Bats Hotspot IB LLC**

**Q    INDEXPUBS S.A.**

**S Cboe SEF, LLC**

# Delaware

The First State

Page 1

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE RESTATED CERTIFICATE OF "BATS HOTSPOT SEF LLC", CHANGING ITS NAME FROM "BATS HOTSPOT SEF LLC" TO "CBOE SEF, LLC", FILED IN THIS OFFICE ON THE THIRTY-FIRST DAY OF OCTOBER, A.D. 2017, AT 11:26 O`CLOCK A.M.



  
Jeffrey W. Bullock, Secretary of State

5142689 8100  
SR# 20176859565

You may verify this certificate online at [corp.delaware.gov/authver.shtml](http://corp.delaware.gov/authver.shtml)

Authentication: 203488081  
Date: 10-31-17

State of Delaware  
Secretary of State  
Division of Corporations  
Delivered 11:26 AM 10/31/2017  
FILED 11:26 AM 10/31/2017  
SR 20176859565 - FileNumber 5142689

**AMENDED AND RESTATED  
CERTIFICATE OF FORMATION  
OF  
BATS HOTSPOT SEF LLC**

The limited liability company filed its original Certificate of Formation with the Secretary of State of the State of Delaware on April 19, 2012 under the name Javelin SEF, LLC. This Amended and Restated Certificate of Formation of the limited liability company, which restates and integrates and also further amends the provisions of the limited liability company's Certificate of Formation (as the same has been amended pursuant to those certain certificates of amendment filed with the Secretary of State of the State of Delaware on November 1, 2016), has been duly executed and is being filed in accordance with the Delaware Limited Liability Company Act (6 Del. C. § 18-208). The Certificate of Formation of the limited liability company is hereby amended, integrated and restated in its entirety to read as follows:

1. The name of the limited liability company is Cboe SEF, LLC.
2. The registered office of the limited liability company in the State of Delaware is located at 1209 Orange Street, City of Wilmington, County of New Castle, Delaware 19801. The name of the registered agent at such address upon whom process against the limited liability company may be served is The Corporation Trust Company.

*[Signature page follows]*

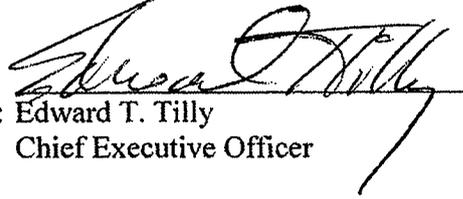
IN WITNESS WHEREOF, the undersigned has caused this Amended and Restated Certificate of Formation of Bats Hotspot SEF LLC to be executed as of this 31st day of October, 2017.

**BATS HOTSPOT SEF LLC**

By:

Name: Edward T. Tilly

Title: Chief Executive Officer

A handwritten signature in black ink, appearing to read "Edward T. Tilly", is written over a horizontal line. The signature is stylized and cursive.

**AMENDED AND RESTATED  
LIMITED LIABILITY COMPANY AGREEMENT OF  
CBOE SEF, LLC**

This **LIMITED LIABILITY COMPANY AGREEMENT** of Cboe SEF, LLC (the "Company"), formerly known as Bats Hotspot SEF LLC and, earlier, as Javelin SEF, LLC (such agreement, as amended from time to time, shall be referred to herein as this "Agreement"), effective as of October 31, 2017 (the "Effective Date"), is entered into by Cboe FX Holdings, LLC (formerly Bats Hotspot Holdings LLC), a Delaware limited liability company ("Cboe FX Holdings"), as Member (as hereinafter defined), and each of those other Members executing this Agreement from time to time in accordance with the terms hereof.

**EXPLANATORY  
STATEMENT**

On April 19, 2012, Javelin Capital Markets, Inc. ("Javelin") formed Javelin SEF, LLC as a limited liability company pursuant to the Act. On November 1, 2016, Javelin sold all of its right, title and interest in and to Javelin SEF, LLC to Cboe FX Holdings, which (a) caused the name of the Company to be changed from Javelin SEF, LLC to Bats Hotspot SEF LLC, and (b) determined to enter into this Agreement to govern the management and operation of the Company and the relationship of the parties in accordance with the terms and subject to the conditions set forth in this Agreement. On March 24, 2017, certain additional changes to the Agreement were made. On the Effective Date, Cboe FX Holdings caused the name of the Company to be changed from Bats Hotspot SEF LLC to Cboe SEF, LLC, and consented to the further amendment and restatement of the Agreement as more fully set forth below.

**AGREEMENT**

For good and valuable consideration, the parties, intending legally to be bound, agree as follows:

**ARTICLE I**

**Definitions**

In addition to any terms that are defined in the text of this Agreement, capitalized terms shall have the following meanings.

- (a) "Act" means the Delaware Limited Liability Company Act, as amended from time to time.
- (b) "Affiliate" means a Person who, directly or indirectly, Controls, is Controlled by, or is under common Control with, such other Person.
- (c) "Applicable Law" means (i) the provisions of all applicable statutes and laws of the United States of America, the states thereof (including the Act), and all other countries in which the Company or any of its Affiliates are then doing business, and (ii) the constitution, by-laws, rules, regulations, orders, customs and usage of (A) the Company and (B) any United

States, state or foreign governmental, regulatory or self-regulatory authority, in each case having jurisdiction over the Company or any of its Affiliates.

(d) "Board" means the Board of Managers of the Company.

(e) "Cash Flow" means the revenues and other cash receipts of the Company minus the expenditures of the Company. Cash Flow will not include reserves established by the Board from time to time except to the extent released from the reserves in question for distribution.

(f) "Cboe FX Holdings" means Cboe FX Holdings, LLC, a Delaware limited liability company which constitutes a Member of the Company.

(g) "CEA" means the Commodity Exchange Act.

(h) "Certificate" means the Certificate of Formation of the Company filed with the Delaware Secretary of State on April 20, 2012 and as further amended from time to time.

(i) "CFTC" means the Commodity Futures Trading Commission.

(j) "Code" means the Internal Revenue Code of 1986, as amended, or any corresponding provision of any succeeding law.

(k) "Company" means Cboe SEF, LLC, the limited liability company formed in accordance with the Certificate.

(l) "Control" means the possession, direct or indirect, of the power to direct or cause the direction of the management and policies of a Person, whether through the ownership of voting securities, by contract, or otherwise.

(m) "Interest" means a limited liability company interest in the Company entitling the holder thereof to receive a share of the Profits and Losses of, and the right to receive distributions from, the Company in accordance with the terms of this Agreement.

(n) "Interest Holder" means any Person who holds an Interest, whether as a Member or as an unadmitted assignee of a Member.

(o) "Majority-in-Interest of the Members" means a Member or Members with a Percentage Interest exceeding fifty percent (50%).

(p) "Member" means each Person signing this Agreement and any Person who subsequently is admitted as a member in the Company.

(q) "Membership Rights" means all of the rights of a Member in the Company, including a Member's: (i) Interests; (ii) right to inspect the Company's books and records; and (iii) right to vote on matters coming before the Members, if any.

(r) "Officer" means any individual from time to time authorized or appointed by the Board to act as an officer or representative of the Company on a general basis or for a specific purpose, which individual shall act for and bind the Company as authorized by the Board.

(s) "Percentage Interest" means, for any Interest Holder, the percentage interest of such Interest Holder in the Company as set forth on Exhibit A.

(t) "Person" means and includes an individual, corporation, partnership, association, limited liability company, trust, estate or other entity.

(u) "Profit" and "Loss" mean, for each taxable year of the Company (or other period for which Profit or Loss must be computed), the Company's taxable income or loss determined in accordance with the Code.

(v) "Resignation" (including its correlative meaning, "Resign") means a Member's resignation from the Company by any means.

(w) "Transfer" means, when used as a noun, any direct or indirect sale, hypothecation, pledge, assignment, attachment, or other transfer, and, when used as a verb, means to, directly or indirectly, sell, hypothecate, pledge, assign, or otherwise transfer.

## ARTICLE II

### **Formation and Name; Office; Purpose; Term**

Section 2.1. **Formation of the Company.** The Company was formed upon the execution and filing of the Certificate with the Delaware Secretary of State.

Section 2.2. **Name.** The name of the Company shall be "Cboe SEF, LLC." The Company may do business under that name and under any other name or names as may be determined by the Board.

Section 2.3. **Purpose.** The purposes of the Company shall be to (i) operate a swap execution facility in accordance with the CEA and regulations promulgated by the CFTC thereunder, (ii) engage in any and all activities necessary, desirable or incidental to the accomplishment of the foregoing and (iii) engage in any other lawful act or activity for which limited liability companies may be organized under the Act, as determined by the Board.

Section 2.4. **Term.** The term of the Company began upon the filing of the Certificate with the Delaware Secretary of State and shall continue in perpetual existence until dissolved pursuant to this Agreement. The registered office of the Company in the State of Delaware shall be as set forth in the Certificate.

Section 2.5. **Location of Principal Place of Business.** The principal office and place of business of the Company shall be located at 17 State Street, New York, New York 10004, or at such other place as the Board may designate from time to time. The name and address of the Company's registered agent in the State of Delaware shall be as set forth in the Certificate.

## ARTICLE III

### Members; Capital; Profit. Loss and Distribution

Section 3.1. **Members.** The name, present mailing address, taxpayer identification number and Percentage Interest of each Member are set forth on Exhibit A. A Majority-in-Interest of the Members shall have the right to admit additional Members from time to time as it determines in its sole discretion. If at any time a Majority-in-Interest of the Members deems it to be in the best interest of the Company to raise additional equity capital to properly carry out the Company's business and affairs, the Company shall have the right to (a) raise additional equity capital for infusion into the Company from Members or other Persons and issue Interests on terms that may be senior to, junior to, or on parity with, the terms of the Interests held by then-existing Members, and (b) admit the Persons investing such equity capital as additional Members. In addition, the Company may obtain funds through loans (which may be made by a Member) having such terms and conditions as a Majority-in-Interest of the Members, in its reasonable discretion, deems to be in the best interest of the Company. The Company shall amend Exhibit A from time to time to reflect changes in the identity of the Members and changes in information set forth on Exhibit A.

Section 3.2. **Capital.** It is acknowledged that Cboe FX Holdings has made all capital contributions to the capital of the Company required to be made by Cboe FX Holdings as of the Effective Date. From time to time the Members may, but shall not be obligated to, contribute additional capital or make loans to the Company, all at such times and upon such terms as the Board shall approve. No Member or Interest Holder shall be required to contribute any additional capital to the Company, and no Member or Interest Holder shall have any personal liability for any obligations of the Company.

Section 3.3. **Profit, Loss and Distributions.** Cash Flow for each taxable year of the Company shall be distributed to the Interest Holders, at such time as determined by the Board, in proportion to the Interest Holders' respective Percentage Interest. All Profit or Loss shall be allocated to the Interest Holders in proportion to their respective Percentage Interest. If the Company is dissolved, the assets of the Company shall be distributed as provided in Article IV.

## ARTICLE IV

### Dissolution

The Company shall be dissolved only if the Board determines to dissolve the Company or if the Company has no Members and no Interest Holder agrees in writing, within thirty (30) days after the occurrence of the event pursuant to which the last Person ceased to be a Member, to become a Member and be bound by the terms and conditions of this Agreement. If the Company is dissolved, the affairs of the Company shall be wound up. On winding up of the Company, the assets of the Company shall be distributed, first, to non-Interest Holder creditors of the Company in satisfaction of the liabilities of the Company, second, to creditors of the Company who are also Interest Holders in satisfaction of the liabilities of the Company but not including those liabilities to the Interest Holders in their capacity as Interest Holders, and then to the Interest Holders in proportion to their Percentage Interest.

## ARTICLE V

### Transfer and Resignation

Except as otherwise expressly permitted by this Agreement, no Member shall have the right, without the prior written consent of the Board, to Transfer all or any part of such Member's Membership Rights; provided, however, that if the Transfer is a transfer by operation of law, the dissolution of a non-individual Person or otherwise, and if the result of such transfer would be the Resignation of the last remaining Member in the Company, then the transferee(s) will be automatically admitted as Member(s) in the Company; provided, further that any of such transferee(s) may elect, at any time on or before ninety (90) days after such Transfer to such transferee, to Resign as a Member in the Company, such Resignation to be effective retroactive to the date of such Transfer. Except as provided in the preceding sentence, no Member shall have the right to Resign without the prior written consent of Cboe FX Holdings. The Company shall not be obligated to purchase the Interests of any Person who has Resigned for its fair value or otherwise. Notwithstanding any provision contained in this Agreement to the contrary, Cboe FX Holdings shall have the right, without the consent of the Board, to Transfer all or any part of Cboe FX Holdings' Membership Rights, and such transferees shall automatically be deemed to be admitted as a Member in the Company. The Interests and other Membership Rights are securities governed by Article 8 of the Uniform Commercial Code as in effect in the state of Delaware. Interests and Membership Rights shall not be certificated. The transferee of a Transfer for collateral purposes shall not be admitted as a Member in the Company until such time, if any, as the transferee has realized upon the Membership Rights pledged to it or has acquired such Membership Rights in lieu of such realization and such transferee expressly agrees in writing to be bound to the terms and conditions of this Agreement.

## ARTICLE VI

### Powers, Rights and Duties of the Board

#### Section 6.1. Management of the Company.

(a) Board. Except as otherwise provided in this Agreement, the business and affairs of the Company shall be exclusively managed under the direction of a Board, subject to any power and authority delegated to the Officers as provided in Article VIII, and the Board shall have all right and powers of a "manager" under the Act. Except as otherwise specifically provided herein or by Applicable Law, the Board has the power by itself or through agents, and is authorized and empowered on behalf and in the name of the Company, to carry out all of the objects and purposes of the Company and to perform all acts and enter into and perform all acts and other undertakings that it may in its sole discretion deem necessary or advisable in that regard. A member of the Board acting individually in his or her capacity has the power to act or bind the Company to the extent expressly authorized to do so by the Board. The Chairman of the Board, the President and the Secretary of the Company from time to time shall be deemed to be authorized persons within the meaning of the Act, to execute and file any amendments to, or restatements of, the Company's Certificate with the Delaware Secretary of State and any applicable filings as a foreign limited liability company in any state where such filings may be

necessary or desirable. The Board may establish such other rules and procedures for its deliberations as it may deem necessary or desirable.

(b) Number; Election. The Board shall consist of five (5) managers elected by Cboe FX Holdings for such purpose. A Majority-in-Interest of the Members may increase or decrease the number of managers from time to time; provided, however, that the Board shall consist of at least three (3) managers. Cboe FX Holdings shall appoint a Chairman of the Board from among the managers, who shall hold office until his or her successor is appointed and qualified or until his or her earlier resignation or removal.

(c) Composition of the Board. At all times following the appropriate compliance date of CFTC regulations applicable to the Company's governance, the members of the Board shall include no fewer than the minimum number or percentage of "Public Managers" required by such CFTC regulations.

(d) Resignation; Removal; Vacancies. Any member of the Board may resign at any time upon written notice to the Company directed to the Board or the Secretary. Such resignation shall take effect at the time specified therein and, unless otherwise specified therein, no acceptance of such resignation shall be necessary to make it effective. Any member of the Board may be removed at any time, without or without cause, by a Majority-in-Interest of the Members. The Board shall have procedures, as may be further set forth in policies that the Company may adopt, to remove a member from the Board where the conduct of such member is likely to be prejudicial to the sound and prudent management of the Company. Vacancies and newly created manager positions resulting from an increase in the authorized number of managers shall be filled by a Majority-in-Interest of the Members.

(e) Compensation of Managers. Members of the Board may be paid such compensation for their services and such reimbursement for expenses of attendance at meetings as the Board may from time to time determine. No such payment shall preclude any manager from serving the Company or any of its Affiliates in any other capacity and receiving compensation for such service. The compensation of Public Managers shall not be linked to the business performance of the Company.

(f) Meetings of the Board.

(i) Time and Place. Meetings of the Board will be held at such times, on such dates and at such places as the Board may from time to time establish by resolution or otherwise in accordance with this Agreement. Any or all members of the Board may participate in such meetings by means of conference telephone or other communications equipment by means of which all persons participating in the meeting can hear each other, and such participation in a meeting will constitute presence in person at such a meeting.

(ii) Quorum and Voting. At each meeting of the Board, a whole number of managers equal to at least a majority of the total number of managers then in office shall constitute a quorum for the transaction of business. The managers present at a duly organized meeting may continue to transact business until adjournment,

notwithstanding the withdrawal of enough managers to leave less than a quorum. In case at any meeting of the Board a quorum shall not be present, the members or a majority of the members of the Board present may adjourn the meeting from time to time until a quorum shall be present.

(iii) Special Meetings. Special meetings of the Board may be called by the Chairman of the Board or upon the written request of any two members of the Board. The Chairman will give at least two (2) business days' notice of such meetings to each member of the Board, unless all members of the Board agree to a shorter time period for such notice.

(iv) Decisions of the Board. Decisions of the Board will require the approval of a majority of the members of the Board present at a meeting; provided that should the Board be unable to render a decision due to either a tie in the vote or more than one Board member being recused with respect to the issue being voted upon, then Cboe FX Holdings, as the sole Member of the Company, may make the decision in lieu of the Board.

(v) Written Consents in Lieu of a Meeting. Any action required or permitted to be taken at any meeting of the Board, or of any committee thereof, may be taken without a meeting if all members of the Board or of such committee, as the case may be, then in office consent thereto in writing or by electronic transmission, which such writing or electronic transmission shall be filed with the minutes of proceedings of the Board or committee.

#### Section 6.2. Committees of the Board.

(a) The Board may from time to time designate one or more committees of the Board, with such lawfully delegable powers and duties as it thereby confers, to serve at the pleasure of the Board and shall, for those committees and any others provided for herein, elect a manager or managers to serve as the member or members, designating, if it desires, other managers as alternate members who may replace any absent or disqualified member at any meeting of the committee. In the absence or disqualification of any member of any committee and any alternate member in his or her place, the member or members of the committee present at the meeting and not disqualified from voting, whether or not he or she or they constitute a quorum, may by unanimous vote appoint another member of the Board to act at the meeting in the place of the absent or disqualified member. The Board shall have power at any time to fill vacancies in, or to change the membership of, or to dissolve, any such committee. Nothing herein shall be deemed to prevent the Board from appointing one or more committees consisting in whole or in part of persons who are not managers of the Company; provided, however, that no such committee shall have or may exercise any authority of the Board.

(b) Each committee may determine the procedural rules for meeting and conducting its business and shall act in accordance therewith, except as otherwise provided herein or required by law. A majority of any committee may fix the time and place of its meetings, unless

the Board shall otherwise provide. Adequate provision shall be made for notice of such meetings to be given to members of the committees.

(c) Unless the Board otherwise provides, each committee designated by the Board may adopt, amend and repeal rules for the conduct of its business. In the absence of a provision by the Board or a provision in the rules of such committee to the contrary, a majority of the entire authorized number of members of such committee shall constitute a quorum for the transaction of business, unless the committee shall consist of one (1) or two (2) members, in which event one (1) member shall constitute a quorum. The vote of a majority of the members present at a meeting at the time of such vote if a quorum is then present shall be the act of such committee. Action may be taken by any committee without a meeting if all members thereof consent thereto in writing or by electronic transmission, which such writing or electronic transmission shall be filed with the minutes of the proceedings of such committee.

## ARTICLE VII

### Liability and Indemnification

Section 7.1. Except as otherwise required by non-waivable provisions of Applicable Law or as expressly set forth in this Agreement, no Interest Holder shall have any personal liability whatsoever in such Interest Holder's capacity as an Interest Holder in excess of its capital contribution, whether to the Company, to any of the other Interest Holders, to the creditors of the Company or to any other third party, for the debts, liabilities, commitments or any other obligations of the Company or for any losses of the Company, other than arising out of a breach of this Agreement by such Interest Holder.

Section 7.2. None of the Members, the managers or the Officers shall be personally liable for the return of any portion of the capital contributions (or any return thereon) of the Interest Holders and the return, if any, of such capital contributions (or any return thereon) shall be made solely from assets of the Company. None of the Members or the managers or Officers shall be required to pay to the Company or any Interest Holder any deficit in any Interest Holder's capital account upon dissolution of the Company or otherwise. None of the Members, managers or the Officers shall be liable, responsible or accountable, in damages or otherwise, to any Interest Holder or to the Company for any act performed by such Member, manager or such Officer within the scope of the authority conferred on the Members, managers or the Officers by this Agreement, except for gross negligence, fraud, bad faith or a material breach of this Agreement.

Section 7.3. The Company shall, to the fullest extent permitted by the Act, indemnify and hold harmless the Interest Holders, Members, managers, Officers and their respective partners, shareholders, members, officers, trustees, advisory board, managers, employees, attorneys and agents and other affiliates (collectively, the "Indemnified Parties") from and against any loss, expense, damage or injury suffered or sustained by them by reason of any acts, omissions or alleged acts or omissions arising out of their activities on behalf of the Company or in furtherance of the interests of the Company or by reason of the fact that such Person is or was an Interest Holder, Member, manager, Officer, employee or agent of the Company, or is or was serving at the request of the Company as a manager, trustee, member, manager, officer, employee or agent of another limited liability company, corporation, partnership, joint venture, trust or other enterprise, including, but not limited to, any judgment,

award, settlement, reasonable attorneys' fees and other costs or expenses incurred in connection with the investigation and defense of any actual or threatened action, proceeding or claim, unless the acts, omissions or alleged acts or omissions upon which such actual or threatened action, proceeding or claim is based arose out of such Indemnified Party's gross negligence or were performed or omitted fraudulently or in bad faith by such Indemnified Party or constituted a material breach of this Agreement. If any claim for indemnification is based on a claim by a third party (a "Third Party Claim"), the Indemnified Party in question shall give prompt written notice thereof to the Company and shall permit the Company to defend and/or settle such Third Party Claim, so long as it does so diligently and in good faith; provided, however, that no compromise or settlement of any claim may be effected by the Company without the Indemnified Party's consent (which will not be unreasonably withheld, conditioned or delayed) unless the sole relief provided is monetary damages that are paid in full by the Company. Any such indemnification shall only be from the assets or insurance of the Company and no Interest Holder shall be required to contribute capital to the Company to satisfy any such indemnification. Any such indemnification shall be paid by the Company in advance of the final disposition of any such action, proceeding or claim upon receipt of an undertaking by or on behalf of the Indemnified Party seeking advancement to repay the amount advanced should it ultimately be determined that the Indemnified Party was not entitled to be indemnified hereunder or under the Act.

## ARTICLE VIII

### Officers

Section 8.1. Officers: Election or Appointment. The Board at any time and from time to time may elect a Chief Executive Officer, President, Vice President, Secretary, Treasurer, Chief Compliance Officer and one or more other Officers to the extent the Board deems necessary or desirable. The Board at any time and from time to time may authorize any Officer of the Company to appoint one or more Officers. Except with respect to the position of Chief Compliance Officer, any number of offices may be held by the same person and managers may hold any office unless this Agreement otherwise provides. Any Officer may also be a manager, officer, partner or employee of the Company or any of its Affiliates.

Section 8.2. Term of Office; Resignation; Removal; Vacancies. Unless otherwise provided in the resolution of the Board electing or authorizing the appointment of any Officer, each Officer shall hold office until his or her successor is elected or appointed and qualified or until his or her earlier resignation or removal. Any Officer may resign at any time upon written notice to the Board or to such Person(s) as the Board may designate. Such resignation shall take effect at the time specified therein, and unless otherwise specified therein no acceptance of such resignation shall be necessary to make it effective. The Board may remove any Officer with or without cause at any time. Any Officer authorized by the Board to appoint a person to hold an office of the Company may also remove such person from such office with or without cause at any time, unless otherwise provided in the resolution of the Board providing such authorization. Any vacancy occurring in any office of the Company by death, resignation, and removal or otherwise may be filled by the Board at any regular or special meeting or by an Officer authorized by the Board to appoint a person to hold such office.

Section 8.3. Powers and Duties. The Officers of the Company shall have such powers and duties in the management of the Company as shall be stated in this Agreement or in a resolution of the Board which is not inconsistent with this Agreement and, to the extent not so stated, as generally pertain to their respective offices, subject to the control of the Board.

## ARTICLE IX

### Books, Accounting, and Tax Matters Partner

All funds of the Company shall be deposited in such bank or other investment accounts as the Board shall approve. All such accounts shall be in the Company's name. The annual accounting period of the Company shall be the calendar year. Cboe FX Holdings shall be the tax matters partner unless the Member selects a different tax matters partner, to the extent a tax matters partner is required or permitted by Applicable Law.

## ARTICLE X

### General Provisions

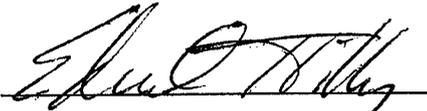
Any notice, demand, consent, election, offer, approval, request, or other communication (collectively, a "notice") required or permitted under this Agreement must be in writing and either delivered personally, sent by certified or registered mail, postage prepaid, return receipt requested, or sent by recognized overnight delivery service. A notice must be addressed to an Interest Holder or Member at the Interest Holder's or Member's last known address on the records of the Company. A notice to the Company must be addressed to the Company's principal office. Notices shall be deemed given upon receipt or refusal to accept delivery. Any party may designate, by notice to all of the others, substitute addresses or addressees for notices; and, thereafter, notices are to be directed to those substitute addresses or addressees. This Agreement constitutes the complete and exclusive statement of the agreement among the Members and supersedes all prior written and oral statements, including any prior representation, statement, condition or warranty. This Agreement may not be amended without the written consent of the Majority-in-Interest of the Members. This Agreement shall be governed by the internal law, not the law of conflicts, of the State of Delaware. The headings herein are inserted as a matter of convenience only, and do not define, limit, or describe the scope of this Agreement or the intent of the provisions hereof. This Agreement is binding upon, and inures to the benefit of, the parties hereto and their respective heirs, executors, administrators, personal and legal representatives, successors, and permitted assigns. Nouns and pronouns shall be deemed to refer to the masculine, feminine, neuter, singular and plural, as the identity of the Person may in the context require. Each provision of this Agreement shall be considered separable; and if, for any reason, any provision or provisions herein are determined to be invalid and contrary to any existing or future law, such invalidity shall not impair the operation of or affect those portions of this Agreement which are valid.

**[Remainder of page intentionally left blank. Signature page follows.]**

**IN WITNESS WHEREOF**, the undersigned has executed this Limited Liability Company Agreement as of the date first set forth above.

**SOLE MEMBER:**

**Cboe FX Holdings, LLC**

By: 

Name: Edward T. Tilly

Title: Chief Executive Officer

**EXHIBIT A**

**NAME, ADDRESS, TAXPAYER IDENTIFICATION NUMBER**  
**AND PERCENTAGE INTEREST**

**Address and Taxpayer**

<b><u>Identification Number</u></b>	<b><u>Percentage Interest</u></b>
Cboe FX Holdings, LLC 8050 Marshall Drive, Suite 120 Lenexa, KS 66214 EIN: 52-2241557	100%

**T      Bats Worldwide Holdings Limited**

**U Cboe Global markets, Inc.**

**V Cboe C2 Exchange, Inc.**

**W Cboe Futures Exchange, LLC**

# Delaware

The First State

Page 1

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE RESTATED CERTIFICATE OF "CBOE FUTURES EXCHANGE, LLC", FILED IN THIS OFFICE ON THE THIRTY-FIRST DAY OF OCTOBER, A.D. 2017, AT 11:29 O`CLOCK A.M.



  
Jeffrey W. Bullock, Secretary of State

3547866 8100  
SR# 20176859566

You may verify this certificate online at [corp.delaware.gov/authver.shtml](http://corp.delaware.gov/authver.shtml)

Authentication: 203488304  
Date: 10-31-17

State of Delaware  
Secretary of State  
Division of Corporations  
Delivered 11:29 AM 10/31/2017  
FILED 11:29 AM 10/31/2017  
SR 20176859566 - File Number 3547866

**AMENDED AND RESTATED  
CERTIFICATE OF FORMATION  
OF  
CBOE FUTURES EXCHANGE, LLC**

The limited liability company filed its original Certificate of Formation with the Secretary of State of the State of Delaware on July 16, 2002 under the name CBOE Futures Exchange, LLC. This Amended and Restated Certificate of Formation of the limited liability company, which restates and integrates and also further amends the provisions of the limited liability company's Certificate of Formation, has been duly executed and is being filed in accordance with the Delaware Limited Liability Company Act (6 Del. C. § 18-208). The Certificate of Formation of the limited liability company is hereby amended, integrated and restated in its entirety to read as follows:

1. The name of the limited liability company is Cboe Futures Exchange, LLC.
2. The address of the registered office of the limited liability company in the State of Delaware is c/o The Corporation Trust Company, 1209 Orange Street, Wilmington, County of New Castle, Delaware 19801. The name of the registered agent of the limited liability company at such address is The Corporation Trust Company.

*[Signature page follows]*

IN WITNESS WHEREOF, the undersigned has caused this Amended and Restated Certificate of Formation of Cboe Futures Exchange, LLC to be executed as of this 31st day of October, 2017.

**Cboe Global Markets, Inc.**

By:

  
Name: Edward T. Tilly

Title: Chief Executive Officer

Being the sole member of Cboe Futures Exchange,  
LLC

**SEVENTH AMENDED AND RESTATED  
LIMITED LIABILITY COMPANY AGREEMENT  
OF  
CBOE FUTURES EXCHANGE, LLC**

Cboe Global Markets, Inc. (f/k/a CBOE Holdings, Inc.) ("Cboe Global Markets") is executing this Seventh Amended and Restated Limited Liability Company Agreement (this "Agreement") for the purpose of amending and restating the Sixth Amended and Restated Limited Liability Company Agreement of CBOE Futures Exchange, LLC (the "Company"), dated as of March 24, 2017 (the "Existing Agreement"), pursuant to the provisions of the Delaware Limited Liability Company Act (6 Del.C. §§ 18-101, et seq.) (the "Act"). In furtherance of the foregoing, Cboe Global Markets, as the sole member of the Company, does hereby amend and restate the Existing Agreement in its entirety as follows:

Section 1. Name. The name of the Company shall be "Cboe Futures Exchange, LLC" or such other name as the Board of Directors (as defined below) may from time to time hereafter designate.

Section 2. Purpose. The Company was formed for the object and purpose of, and the nature of the business to be conducted and promoted by the Company is, engaging in any lawful act or activity for which limited liability companies may be formed under the Act and engaging in any and all activities necessary or incidental to the foregoing.

Section 3. Offices. (a) The principal place of business and office of the Company shall be located at, and the Company's business shall be conducted from, such place or places as the Board of Directors may from time to time designate.

(b) The registered office of the Company in the State of Delaware shall be located at The Corporation Trust Company, 1209 Orange Street, Wilmington, Delaware 19801. The name and address of the registered agent of the Company for service of process on the Company in the State of Delaware shall be The Corporation Trust Company, 1209 Orange Street, Wilmington, Delaware 19801.

Section 4. Member. The sole Member ("Member") of the Company is Cboe Global Markets.

Section 5. Term. The term of the Company commenced on the date of filing of the original Certificate of Formation of the Company in accordance with the Act and shall continue until dissolution of the Company in accordance with the Act or Section 12 of this Agreement.

Section 6. Management of the Company. (a) The sole Member hereby exclusively vests the power to manage, operate and set policies for the Company in a management board (the "Board of Directors"). The Board of Directors of the Company shall consist of at least five individuals elected by the sole Member. At least thirty-five percent of the Directors on the Board of Directors shall be Public Directors. The sole Member shall designate one of the Directors on the Board to serve as Chairman of the Board of Directors. The individuals elected to the Board of Directors by the sole Member and the Director designated as Chairman of the Board of Directors by the sole Member shall hold office for such term as may be determined by the sole Member or until their respective successors are chosen. Directors may be removed from, and substitute or additional Directors may be appointed to, the Board of Directors, at any time by the sole Member. The Chairman of the Board of Directors may be removed from that position, and a different member of the Board may be designated as Chairman of the Board, at any time by the sole Member. Each Director is designated a "manager" of the Company within the meaning of the Act.

(b) A "Public Director" is a member of the Board of Directors with the following qualifications:

(i) To qualify as a Public Director of the Company, an individual must first be found, by the Board of Directors, on the record, to have no relationship with the Company that reasonably could affect the independent judgment or decision making of the individual as a Public Director.

(ii) In addition, an individual shall not qualify as a Public Director if any of the following circumstances exist:

(A) The individual is, or was within the last year, an officer or employee of the Company or an officer or employee of any affiliate of the Company;

(B) The individual is, or was within the last year, a Trading Privilege Holder (as such term is defined by the rules of the Company promulgated in accordance with the Commodity Exchange Act and the regulations thereunder) or an officer or director of such a Trading Privilege Holder;

(C) The individual, or a firm with which the individual is an officer, director or partner, receives, or received within the last year, more than \$100,000 in combined annual payments from the Company, or any affiliate of the Company, for legal, accounting or consulting services. Compensation for services as a director of the Company or as a director of an affiliate of the Company does not count toward the \$100,000 payment limit, nor does deferred compensation for services prior to becoming a director, so long as such compensation is in no way contingent, conditioned or revocable.

(D) Any of the above relationships in this paragraph (b)(ii) apply to a member of the Director's "immediate family," i.e., spouse, parents, children and siblings.

(iv) Public Directors of the Company may also serve as directors of Company affiliates if the individuals otherwise meet the definition of Public Director in this Section 6(b).

(v) For purposes of this Section 6(b), "affiliate" includes parents or subsidiaries of the Company or entities that share a common parent with the Company.

(vi) The Company shall disclose to the Commodity Futures Trading Commission which members of the Board of Directors are Public Directors, and the basis for those determinations.

(c) Meetings of the Board of Directors shall be held at the principal place of business of the Company or at any other place that the Chairman of the Board of Directors may determine from time to time. Members of the Board of Directors may participate in such meetings by conference telephone or similar communications equipment by means of which all persons participating in the meeting can hear each other, and such participation in a meeting shall constitute presence in person at such a meeting. The presence of at least 50% of the Directors shall constitute a quorum for the transaction of business, provided that members of the Board that are recused with respect to a particular issue nevertheless shall be deemed present for the purpose of determining the existence of a quorum. Board meetings shall be held in accordance with the schedule established by the Board of Directors. Special meetings of the Board of Directors may be called by the Chairman of the Board of Directors, and shall be called by the Secretary of the Company upon the written request of any two Directors. The Secretary shall give at least one hour's notice of such meeting to each Director.

(d) Decisions of the Board of Directors shall require the approval of a majority of the Directors voting at a meeting; provided that should the Board of Directors be unable to render a decision due to a tie in the vote, then the sole Member may make the decision in lieu of the Board of Directors. The Board of Directors also may make decisions, without holding a meeting, in either of the following ways:

(i) The Board of Directors may make decisions by written consent of all of the Directors. Any such written consent may be executed in any number of counterparts, each such counterpart being deemed to be an original instrument, and all such counterparts together constituting the same consent. Written consent also may be transmitted by means of "electronic transmission" as described in the Act.

(ii) The members of the Board of Directors may be individually polled to vote on issues (x) requiring prompt action or action prior to the

next regularly scheduled Board meeting and (y) where the calling of a special Board meeting, in the opinion of the Chairman of the Board of Directors or the President of the Company, would be impractical. Any such poll may be conducted by telephone, by means of electronic transmission, and/or in person. An attempt shall be made to contact each Director in any such poll. A poll reaching at least 50% of the Directors shall be sufficient to constitute a quorum of the Board and the approval of a majority of the Directors voting in such a poll shall constitute requisite Board action, even if all Directors are not reached in connection with the poll. The results of any such poll shall be reported at the next physical meeting of the Board of Directors.

The Board of Directors may establish such other rules and procedures not inconsistent with the foregoing for its deliberations as it may deem necessary or desirable.

(e) The Executive Committee of the Company shall consist of the Chairman of the Board of Directors of the Company and one or more other members of the Board of Directors appointed by the Chairman of the Board of Directors with the approval of the Board of Directors. At least thirty-five percent of the Directors on the Executive Committee shall be Public Directors. The Chairman of the Board of Directors shall be the Chairperson of the Executive Committee. The Executive Committee shall have and may exercise all of the powers and authority of the Board of Directors in the management of the business and affairs of the Company, except that it shall not have any power or authority to amend the certificate of formation of the Company or this Agreement, each as amended or otherwise modified from time to time; adopt any agreement of merger or consolidation; approve the sale, lease or exchange of all or substantially all of the Exchange's property and assets; or approve the dissolution of the Company or a revocation of a dissolution.

(f) The Board of Directors shall have the power by itself or through agents, and shall be authorized and empowered on behalf and in the name of the Company, to carry out all of the objects and purposes of the Company and to perform all acts and enter into and perform all acts and other undertakings that it may in its discretion deem necessary or advisable in that regard, in each case in accordance with the provisions of this Agreement. A Director acting individually in his or her capacity shall have the power to act for or bind the Company to the extent authorized to do so by the Board of Directors. The Chief Executive Officer, the President and the Secretary are each hereby designated as authorized persons, within the meaning of the Act, to execute and file any amendments to, or restatements of, the Certificate of Formation with the Secretary of State of the State of Delaware and any applicable filings as a foreign limited liability company in any State where such filings may be necessary or desirable. The Board of Directors may confer upon any officer of the Company elected in accordance with paragraph (f) below, any of the powers of the Board of Directors set forth in this Agreement.

(g) The Chief Executive Officer of the Company shall be the individual serving as the Chief Executive Officer of the sole Member from time to time,

and the President of the Company shall be the individual serving as the President of the sole Member from time to time. The Board of Directors shall have the power to elect such other officers of the Company as it may deem necessary or appropriate from time to time. All officers of the Company elected by the Board of Directors shall hold office for such term as may be determined by the Board of Directors or until their respective successors are chosen. Any officer, other than the Chief Executive Officer and the President, may be removed from office at any time either with or without cause by the Chief Executive Officer, the President or the affirmative vote of a majority of the Directors then in office. Each of the officers of the Company shall have the powers and duties prescribed by the Board of Directors and, unless otherwise prescribed by the Board of Directors, shall have such further powers and duties as ordinarily pertain to that office.

Section 7. Liability; Indemnification. (a) Except as otherwise provided by the Act, neither Cboe Global Markets, solely by reason of being the sole Member of the Company, nor any director, officer, employee or agent of the Company, solely by reason of acting in such capacity (including a person having more than one such capacity), shall be personally liable for any expenses, liabilities, debts or obligations of the Company, whether arising in contract, tort or otherwise.

(b) The Company shall, to the fullest extent permitted by applicable law as it presently exists or may hereafter be amended, indemnify and hold harmless any person who was or is made or is threatened to be made a party or is otherwise involved in any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (a "proceeding"), by reason of the fact that he or she is or was a director, officer or member of a committee of the Board of Directors or the Company, or, while a director or officer of the Company, is or was serving at the request of the Company as a director or officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise or non-profit entity, including service with respect to employee benefit plans (collectively, a "Covered Person"), against all liability and loss suffered and expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such Covered Person in connection with a proceeding; provided, however, that no Covered Person shall be entitled to indemnification in connection with a proceeding (i) if that indemnification is impermissible under the Commodity Exchange Act or the regulations thereunder, (ii) unless the Covered Person acted in good faith, not in a wanton and willful manner, and in a manner the Covered Person reasonably believed to be in or not opposed to the best interests of the Company, and (iii) with respect to any criminal proceeding, unless the Covered Person had no reasonable cause to believe the Covered Person's conduct was unlawful. Notwithstanding the preceding sentence, except as otherwise provided in Section (c) of this Section 7, the Company shall be required to indemnify a Covered Person in connection with a proceeding (or part thereof) commenced by such Covered Person only if the commencement of such proceeding (or part thereof) by the Covered Person was authorized in the specific case by the Board of Directors of the Company.

(c) Expenses (including attorneys' fees) incurred by a Covered Person in defending a proceeding, including appeals, shall, to the extent not prohibited by law, be paid by the Company in advance of the final disposition of such proceeding; provided, however, that the Company shall not be required to advance any expenses to a person against whom the Company directly brings an action, suit or proceeding alleging that such person (i) committed an act or omission not in good faith or (ii) committed an act of intentional misconduct or a knowing violation of law. Additionally, an advancement of expenses incurred by a Covered Person shall be made only upon delivery to the Company of an undertaking, by or on behalf of such Covered Person, to repay all amounts so advanced if it shall ultimately be determined by final judicial decision from which there is no further right to appeal or otherwise in accordance with Delaware law that such Covered Person is not entitled to be indemnified for such expenses under this Section 7.

(d) If a claim for indemnification (following the final disposition of such action, suit or proceeding) or advancement of expenses under this Section 7 is not paid in full within thirty days after a written claim therefor by the Covered Person has been received by the Company, the Covered Person may file suit to recover the unpaid amount of such claim and, if successful in whole or in part, shall be entitled to be paid the expense of prosecuting such claim to the fullest extent permitted by law. In any action the Company shall have the burden of proving that the Covered Person is not entitled to the requested indemnification or advancement of expenses under applicable law.

(e) The provisions of this Section 7 shall be deemed to be a contract between the Company and each Covered Person who serves in any such capacity at any time while this Section 7 is in effect, and any repeal or modification of any applicable law or of this Section 7 shall not affect any rights or obligations then existing with respect to any state of facts then or theretofore existing or any action, suit or proceeding theretofore or thereafter brought or threatened based in whole or in part upon any such state of facts.

(f) Persons not expressly covered by the foregoing provisions of this Section 7, such as those (i) who are or were employees or agents of the Company, or are or were serving at the request of the Company as employees or agents of another corporation, partnership, joint venture, trust or other enterprise, or (ii) who are or were directors, officers, employees or agents of a constituent corporation absorbed in a consolidation or merger in which the Company was the resulting or surviving corporation, or who are or were serving at the request of such constituent corporation as directors, officers, employees or agents of another corporation, partnership, joint venture, trust or other enterprise, may be indemnified or advanced expenses to the extent authorized at any time or from time to time by the Board of Directors.

(g) The rights conferred on any Covered Person by this Section 7 shall not be deemed exclusive of any other rights to which such Covered Person may be entitled by law or otherwise, and shall continue as to a person who has ceased to be a

director, officer, employee or agent and shall inure to the benefit of the heirs, executors and administrators of such person.

(h) The Company's obligation, if any, to indemnify or to advance expenses to any Covered Person who was or is serving at its request as a director, officer, employee or agent of another corporation, partnership, joint venture, trust, enterprise or nonprofit entity shall be reduced by any amount such Covered Person may collect as indemnification or advancement of expenses from such other corporation, partnership, joint venture, trust, enterprise or non-profit entity.

(i) Any repeal or modification of the foregoing provisions of this Section 7 shall not adversely affect any right or protection hereunder of any Covered Person in respect of any act or omission occurring prior to the time of such repeal or modification.

(j) The Company may purchase and maintain insurance, at its expense, to protect itself and any director, manager, officer, trustee, employee or agent of the Company or another corporation, or of a partnership, limited liability company, joint venture, trust or other enterprise against any expense, liability or loss (as such terms are used in this Section 7), whether or not the Company would have the power to indemnify such person against such expense, liability or loss under the Act.

Section 8. Capital Contributions. The sole Member may make capital contributions to the Company in such amounts and at such times as it deems necessary or appropriate in its sole discretion.

Section 9. Assignment of Member's Interest. The sole Member may assign all, but not part, of its interest to any of its affiliates.

Section 10. Distributions. Distributions of cash or other assets of the Company shall be made at such time and in such amounts as the sole Member, by itself or through a power of attorney, or the Board of Directors may determine.

Section 11. Return of Capital. The sole Member has no right to receive, but the Board of Directors has absolute discretion to make, any distributions to the sole Member which include a return of all or any part of the sole Member's capital contribution; provided that upon the dissolution of the Company, the assets of the Company shall be distributed as provided in Section 18-804 of the Act.

Section 12. Dissolution. The Company shall be dissolved and its affairs wound up and terminated upon the determination of the Board of Directors or upon the consent of the sole Member to dissolve the Company. Such dissolution and winding up shall be carried out in accordance with the Act.

Section 13. Fiscal Year. The fiscal year of the Company shall be the twelve month period ending on December 31 of each year.

Section 14. Amendments. This Agreement may be amended only upon the written consent of the sole Member.

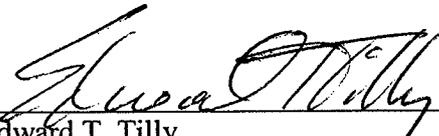
Section 15. Governing Law. This Agreement and the rights and obligations of the parties hereto shall be subject to, and governed by, the laws of the State of Delaware.

Section 16. Effect of Amendment and Restatement. This Agreement amends, restates and supersedes the Existing Agreement in all respects. From and after the date hereof, this Agreement shall be the limited liability company operating agreement of the Company for all purposes.

IN WITNESS WHEREOF, the undersigned has duly executed this Seventh Amended and Restated Limited Liability Company Agreement as of October 31, 2017.

**Choe Global Markets, Inc.,**  
a Delaware corporation

By:

  
\_\_\_\_\_  
Edward T. Tilly  
Chairman and Chief Executive Officer

**X CBOE Stock Exchange, LLC**

**Y Cboe Exchange, Inc.**

**Z Cboe Building Corporation**

**AA CBOE, LLC**

**BB CBOE III, LLC**

CC Cboe Bats, LLC

**DD CBOE Livevol, LLC**

**EE Cboe UK Limited**

**FF CBOE Vest, LLC**

**GG Loan Markets, LLC**

**HH Cboe Data Services, LLC**

## **II Signal Trading Systems, LLC**

**JJ The Options Exchange, Incorporated**

**KK Vest Financial Group, Inc.**

**LL Cboe Hong Kong Limited**

**Exhibit M**

**Exhibit Request:**

Provide an alphabetical list of all members, participants, subscribers or other users, including the following information:

1. Name,
2. Date of election to membership or acceptance as a participant, subscriber or other user,
3. Principal business address and telephone number,
4. If member, participant, subscriber or other user is an individual, the name of the entity with which such individual is associated and the relationship of such individual to the entity (e.g., partner, officer, director, employee, etc.),
5. Describe the type of activities primarily engaged in by the member, participant, subscriber, or other user (e.g., floor broker, specialist, odd lot dealer, other market maker, proprietary trader, non-broker dealer, inactive or other functions). A person shall be “primarily engaged” in an activity or function for purposes of this item when that activity or function is the one in which that person is engaged for the majority of their time. When more than one type of person at an entity engages in any of the six types of activities or functions enumerated in this item, identify each type (e.g., proprietary trader, Registered Competitive Trader and Registered Competitive Market Maker) and state the number of members, participants, subscribers, or other users in each, and
6. The class of membership, participation or subscription or other access.

**Response:**

Attached please find a list of the current Members and Sponsored Participants accepted as Users of the Exchange.

Company Name	BZX Approval Date	BYX Approval Date	EDGA Approval Date	EDGX Approval Date	CBOE Approval Date	C2 Approval Date	Type of User	Address	Phone Number	Primary Activities
ABN AMRO Clearing Chicago LLC	10/15/2008	10/1/2010	5/25/2010	5/27/2010	5/13/1985	9/24/2010	Member TPH	175 W Jackson Boulevard Suite 400 Chicago, IL 60604	312-604-8000	Clearing, Transact Business with the Public, Brokerage
ACS Execution Services, LLC	1/15/2016	1/15/2016	1/15/2016	1/15/2016	NA	NA	Member TPH	12 Broad Street 2nd Floor Red Bank, NJ 07701	732-204-8999	Proprietary Trading
Agency Desk, LLC	7/1/2009	NA	NA	NA	NA	NA	Member TPH	590 Madison Avenue 21st Floor New York, NY 10022	212-935-9835	Market Maker
Akuna Securities LLC	9/15/2015	NA	NA	8/14/2017	2/2/2012	2/12/2015	Member TPH	333 S Wabash Avenue Suite 2600 Chicago, IL 60604	312-984-4640	Market Maker, Proprietary Trading
Albert Fried & Company, LLC	8/18/2008	4/15/2011	5/18/2010	5/18/2010	NA	NA	Member TPH	31 W 52nd Street New York, NY 10019	212-827-7000	Agency
Alpha Trading, LP	10/24/2017	10/24/2017	10/24/2017	10/24/2017	NA	NA	Member TPH	640 W California Avenue Sunnyvale, CA 94086	408-990-1940	Market Maker, Proprietary Trading
Alpine Securities Corporation	11/3/2008	11/15/2010	NA	NA	NA	NA	Member TPH	39 Exchange Place Salt Lake City, UT 84111	801-355-5588	Agency
Andrie Trading LLC	NA	NA	NA	NA	10/1/1999	NA	Member TPH	440 S LaSalle Street Suite 1110 Chicago, IL 60605	312-663-8195	Market Maker
Apex Clearing Corporation	6/5/2012	6/5/2012	6/5/2012	6/5/2012	6/6/2012	6/6/2012	Member TPH	One Dallas Center 350 N St. Paul, Suite 1300 Dallas, TX 75201	214-765-1055	Clearing, Transact Business with the Public
Archipelago Securities LLC	8/18/2008	9/1/2010	5/25/2010	5/27/2010	NA	NA	Member TPH	353 N Clark Street Suite 3200 Chicago, IL 60654	312-836-6700	Limited Routing Facility of ICE affiliated Exchanges
Athena Capital Research, LLC	7/1/2009	10/20/2010	NA	NA	NA	NA	Sponsored Participant	440 9th Avenue 11th Floor New York, NY 10001	212-931-9056	Proprietary Trading
ATM Execution LLC	3/15/2012	3/15/2012	3/21/2012	3/21/2012	NA	NA	Member TPH	599 Lexington Avenue 21st Floor New York, NY 10022	646-562-1010	Public Customer Business
Barclays Capital Inc.	8/18/2008	10/1/2010	5/14/2010	5/14/2010	9/22/2008	10/6/2010	Member TPH	745 7th Avenue New York, NY 10019	212-526-7000	Clearing, Market Maker, Transact Business with the Public, Brokerage, Proprietary Trading
Bay Crest Partners, LLC	10/15/2008	NA	5/25/2010	5/27/2010	NA	NA	Member TPH	40 Wall Street 42nd Floor New York, NY 10005	212-480-1400	Agency
Bayes Capital LLC	1/15/2015	1/30/2015	1/30/2015	1/30/2015	NA	NA	Member TPH	54 Jefferson Avenue Suite 2 Westwood, NJ 07675	201-660-7187	Agency
Belvedere Trading LLC	11/1/2011	3/1/2012	11/29/2011	NA	1/3/2005	4/4/2011	Member TPH	10 S Riverside Plaza Suite 2100 Chicago, IL 60606	312-893-3750	Market Maker, Proprietary Trading
Bengal Capital Trading LLC	NA	NA	NA	NA	1/15/2013	NA	Member TPH	440 S LaSalle Street Suite 2121 Chicago, IL 60605	312-362-4928	Proprietary Trading
Benjamin & Jerold Brokerage I LLC	10/1/2009	NA	NA	NA	NA	NA	Member TPH	80 Broad Street 6th Floor New York, NY 10005	646-558-0055	Agency
BGC Financial, LP	8/17/2009	NA	NA	NA	NA	NA	Member TPH	One Seaport Plaza 19th Floor New York, NY 10038	646-346-7000	Agency
Blaylock Van, LLC	5/3/2010	NA	NA	NA	NA	NA	Member TPH	600 Lexington Avenue 3rd Floor New York, NY 10022	212-715-6600	Public Customer Business
Bloomberg Tradebook LLC	10/23/2008	10/4/2010	5/14/2010	5/14/2010	NA	NA	Member TPH	919 3rd Avenue New York, NY 10022	646-324-3178	Agency
Bluefin Trading, LLC	8/3/2009	6/1/2015	9/27/2013	8/13/2013	4/27/2009	NA	Member TPH	3 Park Avenue 37th Floor New York, NY 10016	212-457-9150	Market Maker, Proprietary Trading
BMO Capital Markets Corp.	8/18/2008	11/15/2010	7/15/2014	7/15/2014	10/8/2013	11/15/2013	Member TPH	3 Times Square New York, NY 10036	212-885-4000	Clearing, Proprietary Trading, Transact Business with the Public, Brokerage
BMT Trading, LLC	2/1/2010	NA	NA	NA	NA	NA	Sponsored Participant	800 3rd Avenue New York, NY 10022	212-813-0870	Proprietary Trading
BNP Paribas Prime Brokerage, Inc.	12/3/2012	12/3/2012	NA	NA	5/18/2012	NA	Member TPH	787 7th Avenue New York, NY 10019	212-471-6768	Clearing
BNP Paribas Securities Corp.	8/18/2008	9/15/2010	5/25/2010	5/27/2010	1/5/2005	10/15/2010	Member TPH	787 7th Avenue New York, NY 10019	212-841-2000	Clearing, Order Flow Provider, Proprietary Trading, Transact Business with the Public
BNY Mellon Capital Markets, LLC	NA	NA	NA	1/17/2017	NA	NA	Member TPH	101 Barclay Street New York, NY 10286	212-815-4972	Market Maker
Boerboel Capital LLC	NA	NA	NA	NA	2/1/2017	NA	Member TPH	300 N LaSalle Street Suite 2080 Chicago, IL 60654	708-967-6843	Market Maker
BTIG, LLC	8/18/2008	11/15/2010	5/25/2010	5/27/2010	NA	NA	Member TPH	600 Montgomery Street 6th Floor San Francisco, CA 94111	415-248-2200	Market Maker
C&C Trading LLC	8/18/2008	10/11/2010	5/25/2010	5/27/2010	NA	NA	Member TPH	71 Arch Street 1st Floor Greenwich, CT 06830	212-706-1227	Proprietary Trading
Canaccord Genuity Inc.	10/1/2013	10/1/2013	6/10/2010	6/10/2010	NA	NA	Member TPH	535 Madison Avenue New York, NY 10022	212-389-8000	Market Maker
Canadian Imperial Holdings, Inc.	10/15/2008	11/15/2010	NA	NA	NA	NA	Sponsored Participant	300 Madison Avenue 5th Floor New York, NY 10017	212-856-3877	Proprietary Trading
Cantor Fitzgerald & Co.	10/23/2008	2/13/2015	5/25/2010	5/27/2010	NA	NA	Member TPH	110 E 59th Street 4th Floor New York, NY 10022	212-938-5000	Agency, Institutional Trading
Capital Institutional Services, Inc.	8/18/2008	NA	5/25/2010	5/27/2010	NA	NA	Member TPH	1700 Pacific Avenue Suite 1100 Dallas, TX 75201	214-720-0055	Agency
Cardinal Capital Management, LLC	NA	NA	NA	NA	10/1/2007	NA	Member TPH	141 W Jackson Boulevard Suite 2200A Chicago, IL 60604	312-477-8400	Market Maker
Cboe Trading, Inc.	10/23/2008	9/1/2010	5/14/2010	5/14/2010	NA	NA	Member TPH	8050 Marshall Drive Suite 120 Lenexa, KS 66214	913-815-7000	Limited Routing Facility of Cboe affiliated Exchanges
CF Global Trading, LLC	10/23/2008	1/3/2011	NA	NA	NA	NA	Member TPH	60 E 42nd Street Suite 1455 New York, NY 10165	212-888-4711	Market Maker
Charles Schwab & Co., Inc.	NA	NA	NA	4/3/2017	6/2/1980	NA	Member TPH	211 Main Street San Francisco, CA 94105	415-636-7000	Clearing, Transact Business with the Public
Chimera Securities, LLC	6/2/2014	6/2/2014	6/25/2014	6/25/2014	NA	NA	Member TPH	27 Union Square W 4th Floor New York, NY 10003	646-597-6100	Proprietary Trading
CIBC World Markets Corp.	8/18/2008	11/15/2010	NA	NA	2/14/1973	NA	Member TPH	425 Lexington Avenue New York, NY 10017	212-856-4000	Clearing, Transact Business with the Public

Company Name	BZX Approval Date	BYX Approval Date	EDGA Approval Date	EDGX Approval Date	CBOE Approval Date	C2 Approval Date	Type of User	Address	Phone Number	Primary Activities
Citadel Securities LLC	10/23/2008	10/1/2010	5/14/2010	5/14/2010	4/17/2002	10/7/2010	Member TPH	131 S Dearborn Street 32nd Floor Chicago, IL 60603	312-395-2100	Market Maker, Order Flow Provider, Brokerage
Citi Order Routing and Execution, LLC	8/18/2008	9/15/2010	5/25/2010	5/27/2010	10/1/2008	9/24/2010	Member TPH	11 Ewall Street Mount Pleasant, SC 29464	843-789-2080	Clearing, Transact Business with the Public
Citigroup Derivatives Markets Inc.	NA	NA	NA	NA	12/3/2004	2/25/2011	Member TPH	130 Cheshire Lane Suite 102 Minnetonka, MN 55305	212-723-2960	Market Maker
Citigroup Global Markets Inc.	9/24/2008	12/15/2010	5/25/2010	5/27/2010	5/2/2011	NA	Member TPH	390-388 Greenwich Street New York, NY 10013	212-816-6000	Clearing, Proprietary Trading, Transact Business with the Public
Clarksons Platou Securities, Inc.	NA	NA	1/15/2015	NA	NA	NA	Member TPH	280 Park Avenue 21st Floor New York, NY 10017	212-317-7080	Public Customer Business
Clearpool Execution Services, LLC	5/15/2014	5/15/2014	6/16/2014	6/16/2014	NA	NA	Member TPH	17 State Street 38th Floor New York, NY 10004	212-531-8500	Public Customer Business
CLSA Americas, LLC	NA	NA	5/21/2013	5/21/2013	NA	NA	Member TPH	1301 Avenue of the Americas 15th Floor New York, NY 10019	212-549-5097	Agency
CM-CIC Market Solutions, Inc.	8/18/2008	NA	NA	NA	NA	NA	Member TPH	520 Madison Avenue New York, NY 10022	212-659-6292	Agency
CMT Fund XXV Limited	7/2/2012	7/2/2012	NA	NA	NA	NA	Sponsored Participant	500 West Monroe Street Suite 2630 Chicago, IL 60661	312-320-7897	Agency
CMT Trading LLC	3/17/2014	3/17/2014	3/5/2014	3/5/2014	NA	NA	Member TPH	500 W Monroe Street Suite 2630 Chicago, IL 60661	312-930-9050	Market Maker, Proprietary Trading
CMZ Trading, LLC	NA	NA	NA	NA	10/1/2004	NA	Member TPH	141 W Jackson Boulevard Suite 626 Chicago, IL 60604	312-604-3310	Market Maker, Proprietary Trading
CODA Markets, Inc.	10/15/2008	10/4/2010	5/26/2010	5/27/2010	NA	NA	Member TPH	2624 Patriot Boulevard Glenview, IL 60026	224-521-2700	ATS
Cognitive Capital, LLC	NA	NA	NA	NA	5/13/2004	NA	Member TPH	141 W Jackson Boulevard Suite 1620 Chicago, IL 60604	312-431-0400	Proprietary Trading
Comhar Capital Markets, LLC	2/27/2017	NA	NA	NA	NA	NA	Member TPH	311 S Wacker Drive Suite 2280A Chicago, IL 60606	872-205-0190	Proprietary Trading
Compass Professional Services, LLC	6/15/2011	NA	NA	10/1/2015	4/12/2005	9/24/2010	Member TPH	111 W Jackson Boulevard 20th Floor Chicago, IL 60604	312-692-5000	Clearing, Brokerage
Consolidated Trading, LLC	NA	NA	NA	NA	1/2/2002	NA	Member TPH	71 S Wacker Drive Suite 2300 Chicago, IL 60606	312-360-7300	Market Maker
COR Clearing LLC	10/15/2009	NA	NA	NA	NA	NA	Member TPH	1200 Landmark Center 1299 Farnam Street Suite 800 Omaha, NE 68102	402-384-6100	Clearing Services
Cowen and Company, LLC	8/18/2008	10/7/2010	5/14/2010	5/14/2010	NA	NA	Member TPH	599 Lexington Avenue 20th Floor New York, NY 10022	646-562-1010	Market Maker
Cowen Execution Services LLC	10/15/2008	9/1/2010	5/25/2010	5/27/2010	NA	NA	Member TPH	1633 Broadway 48th Floor New York, NY 10019	800-367-8998	Full Service
Cowen Prime Services LLC	3/15/2011	3/15/2011	NA	NA	NA	NA	Member TPH	599 Lexington Avenue 21st Floor New York, NY 10022	646-562-1010	Public Customer Business, Proprietary Trading
Credit Suisse Securities (USA) LLC	9/3/2008	10/1/2010	5/25/2010	5/27/2010	8/14/1981	10/8/2010	Member TPH	11 Madison Avenue New York, NY 10010	212-325-2000	Clearing, Proprietary Trading, Transact Business with the Public, Brokerage
Critical Trading, LLC	7/1/2014	NA	NA	NA	NA	NA	Member TPH	120 W 45th Street 15th Floor New York, NY 10036	646-918-0529	Market Maker, Proprietary Trading
CSS, LLC	NA	NA	NA	NA	8/21/1998	NA	Member TPH	175 W Jackson Boulevard Suite 440 Chicago, IL 60604	312-542-8505	Proprietary Trading
CTC, LLC	NA	NA	NA	NA	3/25/1998	3/3/2011	Member TPH	440 S LaSalle Street 4th Floor Chicago, IL 60605	312-863-8000	Market Maker
Cutler Group, LP	4/1/2010	10/6/2010	NA	10/16/2015	4/5/1999	NA	Member TPH	101 Montgomery Street Suite 700 San Francisco, CA 94104	415-293-3956	Market Maker, Proprietary Trading
DART Executions, LLC	8/18/2008	10/1/2010	5/25/2010	5/27/2010	1/2/2008	10/20/2010	Member TPH	350 N Orleans Street Suite 2N Chicago, IL 60654	312-244-5400	Order Flow Provider, Transact Business with the Public, Brokerage
Dash Financial Technologies LLC	10/23/2008	7/2/2012	6/9/2010	6/9/2010	5/19/2000	9/30/2010	Member TPH	311 S Wacker Drive Suite 1000 Chicago, IL 60606	312-986-2008	Clearing, Floor Broker, Order Flow Provider, Transact Business with the Public, Brokerage
Deutsche Bank Securities Inc.	10/15/2008	10/11/2010	5/21/2010	5/21/2010	4/25/1996	8/15/2011	Member TPH	60 Wall Street New York, NY 10005	212-250-2500	Clearing, Proprietary Trading, Transact Business with the Public, Brokerage
DRW Securities, LLC	9/1/2009	11/1/2010	5/25/2010	5/27/2010	11/23/1998	1/22/2016	Member TPH	540 W Madison Street Suite 2500 Chicago, IL 60661	312-542-1000	Market Maker, Proprietary Trading
E*TRADE Securities LLC	NA	NA	NA	6/10/2010	NA	NA	Member TPH	11 Times Square 32nd Floor New York, NY 10036	646-521-4300	Public Customer Business
EG Market Technologies LLC	4/3/2017	4/3/2017	4/3/2017	4/3/2017	NA	NA	Member TPH	767 5th Avenue 45th Floor New York, NY 10153	646-757-2831	Market Maker, Proprietary Trading
Electronic Transaction Clearing, Inc.	10/23/2008	9/1/2010	5/25/2010	5/27/2010	NA	NA	Member TPH	660 S Figueroa Street Los Angeles, CA 90017	949-533-1885	Market Maker
Equitec Proprietary Markets, LLC	NA	NA	NA	NA	6/1/2001	NA	Member TPH	111 W Jackson Boulevard 20th Floor Chicago, IL 60604	312-692-5000	Market Maker, Proprietary Trading
Essex Radez LLC	2/17/2009	10/1/2010	5/10/2010	5/14/2010	NA	NA	Member TPH	440 S LaSalle Street Suite 1111 Chicago, IL 60605	312-212-1815	Market Maker
Evercore Group LLC	NA	NA	5/10/2017	NA	NA	NA	Member TPH	55 E 52nd Street New York, NY 10055	212-857-3100	Public Customer Business
FIS Brokerage & Securities Services LLC	8/18/2008	10/1/2010	5/6/2010	5/6/2010	NA	NA	Member TPH	2100 Enterprise Avenue Geneva, IL 60134	630-482-7100	Agency
Flow Traders U.S. Institutional Trading LLC	NA	NA	6/1/2016	NA	NA	NA	Member TPH	1114 Avenue of the Americas 4th Floor New York, NY 10036	917-210-5000	Riskless Principal
Flow Traders U.S. LLC	10/1/2009	8/1/2012	2/28/2014	2/28/2014	8/31/2010	NA	Member TPH	1114 Avenue of the Americas 4th Floor New York, NY 10036	917-210-5000	Proprietary Trading
G1 Execution Services, LLC	8/18/2008	12/1/2010	4/17/2010	4/17/2010	NA	NA	Member TPH	175 W Jackson Boulevard Suite 1700 Chicago, IL 60604	312-362-0404	Market Maker
G2 Trading LLC	6/1/2016	NA	NA	NA	NA	NA	Member TPH	325 S Sangamon Street Chicago, IL 60607	404-697-9915	Market Maker, Proprietary Trading

Company Name	BZX Approval Date	BYX Approval Date	EDGA Approval Date	EDGX Approval Date	CBOE Approval Date	C2 Approval Date	Type of User	Address	Phone Number	Primary Activities
Gelber Securities, LLC	5/1/2015	NA	NA	NA	NA	NA	Member TPH	350 N Orleans Street 7th Floor Chicago, IL 60654	312-408-4354	Market Maker, Proprietary Trading
Geneva Stock, LLC	NA	NA	NA	NA	4/6/2001	NA	Member TPH	440 S LaSalle Street Suite 1711 Chicago, IL 60605	312-362-4404	Market Maker
Glenn Smith Trading LLC	NA	NA	NA	NA	9/9/2010	NA	Member TPH	995 Ridgewood Drive Chicago, IL 60185	630-346-8739	Market Maker
Global Execution Brokers, LP	2/1/2010	10/5/2010	12/1/2015	10/15/2015	12/23/2003	9/24/2010	Member TPH	401 City Avenue Bala Cynwyd, PA 19004	610-617-2600	Floor Broker, Transact Business with the Public, Brokerage
Global HFT Management, LLC	10/1/2010	NA	NA	NA	NA	NA	Sponsored Participant	800 Third Avenue New York, NY 10022	212-813-0870	Proprietary Trading
Global Liquidity Partners, LLC	4/21/2011	5/15/2012	NA	NA	NA	NA	Sponsored Participant	12 Broad Street Suite 201 Redbank, NJ 07701	773-459-4665	Agency
Goldman Sachs & Co. LLC	10/23/2008	10/12/2010	5/14/2010	5/14/2010	2/21/1973	10/8/2010	Member TPH	200 West Street New York, NY 10282	212-902-1000	Clearing, Market Maker, Proprietary Trading, Transact Business with the Public, Brokerage
Gordon, Haskett Capital Corporation	NA	NA	NA	5/2/2016	NA	NA	Member TPH	441 Lexington Avenue 10th Floor New York, NY 10017	212-883-0600	Agency, Institutional Trading
Green Street Trading, LLC	11/1/2011	NA	NA	NA	NA	NA	Member TPH	660 Newport Center Drive Suite 800 Newport Beach, CA 92660	214-749-4730	Agency
Group One Trading, LP	6/2/2015	NA	NA	9/29/2015	11/23/1994	NA	Member TPH	440 S LaSalle Street Suite 3232 Chicago, IL 60605	312-347-8864	Market Maker
GTS Securities LLC	12/17/2013	5/1/2012	6/2/2014	6/2/2014	NA	NA	Member TPH	545 Madison Avenue 15th Floor New York, NY 10022	212-715-2830	Market Maker, Proprietary Trading
Hainey Investments Limited	6/16/2014	NA	NA	NA	NA	NA	Sponsored Participant	Themistokli Dervi 41 #806-807 Nicosia, Cyprus	704-248-8221	Proprietary Trading
HAP Trading, LLC	10/1/2009	11/15/2010	NA	6/2/2010	3/16/2001	NA	Member TPH	395 Hudson Street Suite 701 New York, NY 10014	212-380-5100	Market Maker, Proprietary Trading
Hardcastle Trading USA LLC	4/15/2009	NA	5/25/2010	5/27/2010	5/16/2005	NA	Member TPH	755 Secaucus Road Suite F-1110 Secaucus, NJ 07094	201-305-8888	Proprietary Trading
Henning-Carey Proprietary Trading, LLC	8/15/2012	NA	NA	NA	NA	NA	Sponsored Participant	141 W. Jackson Boulevard Suite 1801 Chicago, IL 60604	312-789-8764	Proprietary Trading
Highbridge Capital Management, LLC	10/23/2008	NA	NA	NA	NA	NA	Sponsored Participant	9 West 57th Street 27th Floor New York, NY 10019	212-287-4900	Proprietary Trading
Hilltop Securities Inc.	10/23/2008	9/1/2010	NA	5/21/2013	10/1/2010	10/13/2010	Member TPH	1201 Elm Street Suite 3500 Dallas, TX 75270	214-859-1800	Clearing, Transact Business with the Public
HRT Financial LLC	2/1/2010	10/1/2010	5/18/2010	5/18/2010	1/24/2011	1/24/2011	Member TPH	4 World Trade Center 150 Greenwich Street, 57th Floor New York, NY 10007	212-293-1444	Proprietary Trading
HSBC Securities (USA) Inc.	4/3/2017	4/3/2017	4/3/2017	4/3/2017	11/21/2005	NA	Member TPH	452 Fifth Avenue New York, NY 10018	224-880-7116	Clearing, Transact Business with the Public
HTG Capital Partners, LLC	10/3/2016	10/3/2016	10/3/2016	10/3/2016	NA	NA	Sponsored Participant	601 South LaSalle Street 2nd Floor Chicago, IL 60605	312-327-4112	Proprietary Trading
Hybrid Trading & Resources, LLC	NA	NA	NA	NA	3/22/2005	NA	Member TPH	111 W Jackson Boulevard Suite 1146 Chicago, IL 60604	312-427-1585	Floor Broker, Transact Business with the Public
ICAP Corporates LLC	NA	NA	3/28/2013	NA	NA	NA	Member TPH	Harborside 5 Hudson Street, Suite 1200 Jersey City, NJ 07311	212-341-9944	Agency
IEX Services LLC	10/1/2013	10/1/2013	9/24/2013	9/24/2013	NA	NA	Member TPH	4 World Trade Center 44th Floor New York, NY 10007	646-343-2000	Limited Routing Facility of IEX affiliated Exchanges
IMC Financial Markets	8/18/2008	10/1/2010	5/25/2010	5/27/2010	7/5/2000	9/24/2010	Member TPH	233 S Wacker Drive Suite 4300 Chicago, IL 60606	312-244-3300	Market Maker, Proprietary Trading
Industrial and Commercial Bank of China Financial Services LLC	5/15/2014	5/15/2014	NA	NA	NA	NA	Member TPH	1633 Broadway 28th Floor New York, NY 10019	212-993-7300	Clearing Services
Instinet LLC	8/18/2008	9/1/2010	5/14/2010	5/14/2010	12/29/2009	10/8/2010	Member TPH	Worldwide Plaza 309 W 49th Street New York, NY 10019	212-310-9500	Clearing, Transact Business with the Public, Brokerage
Interactive Brokers Corp.	NA	NA	NA	NA	4/21/2009	10/6/2010	Member TPH	8 Greenwich Office Park Greenwich, CT 06831	203-618-5700	Floor Broker, Brokerage
Interactive Brokers LLC	8/18/2008	9/15/2010	5/25/2010	5/27/2010	NA	NA	Member TPH	One Pickwick Plaza 2nd Floor Greenwich, CT 06830	203-618-5710	Full Service
International Correspondent Trading, Inc.	8/18/2008	NA	NA	NA	NA	NA	Member TPH	One University Plaza Suite 301 Hackensack, NJ 07601	201-222-9300	Agency
Israel A. Englander & Co., LLC	NA	NA	NA	NA	10/27/1995	2/14/2011	Member TPH	666 5th Avenue 14th Floor New York, NY 10103	212-841-4587	Floor Broker, Transact Business with the Public, Brokerage
ISTRAL, LLC	12/15/2011	12/15/2011	NA	NA	NA	NA	Sponsored Participant	230 Park Avenue 10th Floor New York, NY 10169	718-618-4929	Proprietary Trading
ITG Derivatives LLC	8/18/2008	11/15/2010	NA	11/12/2015	2/1/2008	10/26/2010	Member TPH	601 S LaSalle Street Suite 300 Chicago, IL 60605	312-334-8000	Transact Business with the Public, Brokerage
ITG Inc.	8/18/2008	10/1/2010	5/25/2010	5/27/2010	NA	NA	Member TPH	One Liberty Plaza 165 Broadway, 4th Floor New York, NY 10006	212-588-4000	Agency
J.P. Morgan Securities LLC	8/18/2008	9/15/2010	5/14/2010	5/14/2010	10/29/1985	11/18/2010	Member TPH	383 Madison Avenue New York, NY 10179	212-272-2000	Clearing, Transact Business with the Public
Jane Street Capital, LLC	5/1/2009	11/15/2010	5/14/2010	5/14/2010	9/4/2012	NA	Member TPH	250 Vesey Street 5th Floor New York, NY 10281	646-759-6000	Market Maker, Proprietary Trading
Jane Street Options, LLC	1/3/2012	NA	NA	NA	NA	NA	Sponsored Participant	One New York Plaza New York, NY 10004	212-651-6969	Proprietary Trading
Jane Street Options, LLC	4/15/2016	NA	NA	NA	5/2/2005	NA	Member TPH	250 Vesey Street 5th Floor New York, NY 10281	646-759-6000	Market Maker
Jefferies Execution Services, Inc.	8/26/2008	9/1/2010	5/25/2010	5/27/2010	NA	NA	Member TPH	520 Madison Avenue New York, NY 10022	646-805-5400	Full Service
Jefferies Investment Advisers	7/1/2011	7/15/2011	NA	NA	NA	NA	Sponsored Participant	520 Madison Avenue New York, NY 10022	212-323-3993	Full Service
Jefferies LLC	10/23/2008	10/19/2010	5/25/2010	5/27/2010	7/9/2012	7/18/2012	Member TPH	520 Madison Avenue New York, NY 10022	212-284-2300	Clearing, Proprietary Trading, Transact Business with the Public, Brokerage

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JNK Securities Corp.	11/17/2008	11/15/2010	NA	NA	NA	NA	Member TPH	140 E 45th Street 27th Floor New York, NY 10017	212-885-6300	Agency
Juliet Group, LLC	3/1/2011	3/1/2011	NA	NA	NA	NA	Sponsored Participant	240 E. 35th Street #3A New York, NY 10016	646-360-0595	Proprietary Trading
Juliet Labs, LLC	9/20/2017	9/20/2017	9/20/2017	9/20/2017	NA	NA	Sponsored Participant	1 Northside Piers, 14H Brooklyn, NY 11249	646-360-0595	Proprietary Trading
Jump Trading, LLC	8/18/2008	10/1/2010	5/14/2010	5/14/2010	4/2/2012	6/6/2017	Member TPH	600 W Chicago Avenue Suite 825 Chicago, IL 60654	312-205-8900	Market Maker, Proprietary Trading
Keefe, Bruyette & Woods, Inc.	8/18/2008	12/1/2010	6/8/2010	6/8/2010	NA	NA	Member TPH	787 7th Avenue New York, NY 10019	212-887-7777	Agency
Lakeshore Securities, LP	NA	NA	NA	NA	1/24/1983	NA	Member TPH	401 S LaSalle Street Suite 1000 Chicago, IL 60605	312-663-1307	Clearing, Floor Broker, Market Maker, Transact Business with the Public
Lamberson Capital LLC	NA	NA	NA	NA	3/23/2016	NA	Member TPH	71 S Wacker Drive Suite 2300 Chicago, IL 60606	312-360-7300	Market Maker
Lampert Capital Markets Inc.	NA	2/18/2014	2/26/2014	NA	NA	NA	Member TPH	444 Madison Avenue Suite 401 New York, NY 10022	646-833-4900	Introducing Broker
Lampost Capital, LC	NA	NA	NA	3/15/2016	NA	NA	Member TPH	1900 Glades Road Suite 205 Boca Raton, FL 33431	561-883-0454	Public Customer Business, Proprietary Trading
Latour Trading LLC	8/17/2009	10/1/2010	5/26/2010	5/27/2010	4/8/2011	NA	Member TPH	377 Broadway 10th Floor New York, NY 10013	917-388-8000	Proprietary Trading
Leerink Partners LLC	8/18/2008	10/5/2010	5/26/2010	5/27/2010	NA	NA	Member TPH	1 Federal Street 37th Floor Boston, MA 02110	617-918-4900	Agency
LEK Securities Corporation	8/18/2008	10/1/2010	5/26/2010	5/27/2010	1/9/2001	9/24/2010	Member TPH	1 Liberty Plaza 165 Broadway, 52nd Floor New York, NY 10006	212-509-2300	Clearing, Transact Business with the Public
Lightspeed Trading, LLC	8/18/2008	11/15/2010	5/19/2010	5/19/2010	NA	NA	Member TPH	1001 Avenue of the Americas 16th Floor New York, NY 10018	646-393-4800	Proprietary Trading
Lime Brokerage LLC	8/18/2008	10/1/2010	5/26/2010	5/27/2010	6/24/2010	NA	Member TPH	11 E 44th Street Suite 705 New York, NY 10017	212-824-5000	Transact Business with the Public
Liquidnet, Inc.	9/1/2009	9/15/2010	NA	NA	NA	NA	Member TPH	498 7th Avenue 15th Floor New York, NY 10018	646-674-2000	Agency
Lupo Securities, LLC	NA	NA	NA	NA	8/1/1997	NA	Member TPH	141 W Jackson Boulevard Suite 2200A Chicago, IL 60604	312-477-8400	Market Maker, Proprietary Trading
Macquarie Capital (USA) Inc.	12/1/2009	NA	5/26/2010	5/27/2010	NA	NA	Member TPH	125 W 55th Street Level 22 New York, NY 10019	212-231-1000	Agency
Marathon Trading Group LLC	2/13/2015	NA	NA	NA	1/30/2013	NA	Member TPH	100 Matsonford Road Building 2, Suite 107 Wayne, PA 19087	610-254-4890	Market Maker, Proprietary Trading
Match-Point Securities, LLC	NA	NA	NA	11/16/2015	NA	NA	Member TPH	805 3rd Avenue 15th Floor New York, NY 10022	212-760-0760	Public Customer Business
Meadowhawk Capital, LLC	NA	NA	NA	NA	6/1/2007	NA	Member TPH	141 W Jackson Boulevard Suite 3750 Chicago, IL 60604	773-837-2612	Market Maker
Merrill Lynch Professional Clearing Corp.	8/18/2008	10/5/2010	5/14/2010	5/14/2010	4/8/1985	9/24/2010	Member TPH	One Bryant Park, 6th Floor NY-1-100-06-01 New York, NY 10036	646-743-1295	Clearing, Brokerage, Transact Business with the Public
Merrill Lynch, Pierce, Fenner & Smith Incorporated	8/18/2008	10/4/2010	5/14/2010	5/14/2010	4/25/1973	9/27/2010	Member TPH	One Bryant Park New York, NY 10036	800-637-7455	Clearing, Transact Business with the Public, Brokerage, Market Maker, Proprietary Trading
Mizuho Securities USA, LLC	6/1/2010	1/3/2011	NA	NA	NA	NA	Member TPH	320 Park Avenue 12th Floor New York, NY 10022	212-209-9300	Agency
MKM Partners LLC	8/3/2009	NA	5/14/2010	5/14/2010	NA	NA	Member TPH	300 First Stamford Place 4th Floor East Wing Stamford, CT 06902	203-861-9060	Agency
MNR Executions, LLC	NA	NA	NA	NA	4/30/2008	NA	Member TPH	141 W Jackson Boulevard Suite 3900 Chicago, IL 60604	312-878-4704	Floor Broker, Transact Business with the Public
Monadnock Capital Management, LP	NA	NA	5/26/2010	NA	12/1/2014	NA	Member TPH	1845 Walnut Street Suite 940 Philadelphia, PA 19103	267-239-0367	Market Maker
Moors & Cabot, Inc.	NA	4/2/2012	NA	NA	NA	NA	Member TPH	111 Devonshire Street Boston, MA 02109	617-428-0500	Agency
Morgan Stanley & Co. International plc	NA	NA	NA	NA	4/12/2017	NA	Sponsored Participant	20 Bank Street Canary Wharf London, UK E14 4A	44 20 7425-3107	
Morgan Stanley & Co. LLC	10/23/2008	9/1/2010	5/14/2010	5/14/2010	8/20/1980	9/24/2010	Member TPH	1585 Broadway New York, NY 10036	212-761-4000	Clearing, Market Maker, Proprietary Trading, Transact Business with the Public, Brokerage
Nasdaq Execution Services, LLC	8/19/2008	9/1/2010	5/26/2010	5/27/2010	NA	NA	Member TPH	One Liberty Plaza 165 Broadway New York, NY 10006	212-231-5100	Limited Routing Facility of Nasdaq affiliated Exchanges
National Financial Services LLC	10/23/2008	10/4/2010	5/26/2010	5/27/2010	10/8/1987	4/16/2012	Member TPH	200 Seaport Boulevard Boston, MA 02210	617-563-7000	Clearing, Floor Broker, Transact Business with the Public
National Securities Corporation	7/1/2009	NA	NA	NA	NA	NA	Member TPH	One Union Square 800 University Street, Suite 2900 Seattle, WA 98101	206-622-7200	Agency
Needham & Company, LLC	10/23/2008	10/1/2010	NA	NA	NA	NA	Member TPH	445 Park Avenue New York, NY 10022	212-371-8300	Market Maker
Nomura Securities International, Inc.	10/23/2008	10/1/2010	5/26/2010	5/27/2010	9/1/2009	11/16/2010	Member TPH	Worldwide Plaza 309 W 49th Street New York, NY 10019	212-667-9000	Clearing, Transact Business with the Public, Proprietary Trading
Northern Trust Securities, Inc.	8/18/2008	10/5/2010	5/26/2010	5/27/2010	NA	NA	Member TPH	50 S LaSalle Street Chicago, IL 60603	312-557-2000	Market Maker
Northland Securities, Inc.	12/15/2010	12/15/2010	NA	NA	NA	NA	Member TPH	45 S 7th Street 20th Floor Minneapolis, MN 55402	612-851-5900	Market Maker, Proprietary Trading
Old Mission Capital, LLC	4/16/2012	4/16/2012	4/25/2012	4/25/2012	9/27/2017	NA	Member TPH	314 W Superior Suite 200 Chicago, IL 60654	312-260-3031	Market Maker
Olivetree Financial, LLC	NA	NA	9/1/2016	NA	NA	NA	Member TPH	420 Lexington Avenue Suite 800 New York, NY 10170	646-930-6600	Agency
Oppenheimer & Co. Inc.	NA	NA	NA	NA	5/17/1973	NA	Member TPH	85 Broad Street 22nd, 24th Floors New York, NY 10004	212-668-8000	Clearing, Transact Business with the Public
Optiver US, LLC	6/15/2009	NA	NA	NA	6/1/2005	9/24/2010	Member TPH	130 E Randolph Street 14th Floor Chicago, IL 60601	312-821-9500	Market Maker

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Oscar Gruss & Son Incorporated	8/7/2017	NA	NA	NA	NA	NA	Member TPH	430 Park Avenue 6th Floor New York, NY 10022	212-419-4000	Agency
OTA LLC	8/18/2008	10/7/2010	NA	NA	NA	NA	Member TPH	One Manhattanville Road Purchase, NY 10577	914-694-5800	Institutional Trading
PEAK6 Capital Management LLC	8/1/2014	NA	NA	2/1/2016	12/2/1997	NA	Member TPH	141 W Jackson Boulevard Suite 500 Chicago, IL 60604	312-444-8000	Proprietary Trading
PEAK6 Capital Management, LLC	11/3/2008	7/15/2011	NA	NA	NA	NA	Sponsored Participant	141 W. Jackson Blvd. Suite 500 Chicago, IL 60604	312-362-2401	Market Maker
Penserra Securities, LLC	8/18/2008	10/6/2010	NA	NA	NA	NA	Member TPH	4 Orinda Way Suite 100-A Orinda, CA 94563	212-607-3190	Agency
Pershing LLC	8/18/2008	9/15/2010	5/26/2010	5/27/2010	2/21/1973	9/28/2010	Member TPH	One Pershing Plaza Jersey City, NJ 07399	201-413-2000	Clearing, Transact Business with the Public
Pictet Overseas Inc.	6/1/2015	6/1/2015	5/26/2010	5/27/2010	NA	NA	Member TPH	1000 de la Gauchetiere West Suite 3100 Montreal, Quebec H3B 4W5	514-288-8161	Agency
Piper Jaffray & Co.	10/15/2008	11/15/2012	5/14/2010	5/14/2010	NA	NA	Member TPH	800 Nicollet Mall Minneapolis, MN 55402	612-303-6000	Market Maker
Potamus Trading, LLC	4/15/2013	4/15/2013	4/11/2013	4/11/2013	NA	NA	Member TPH	2 Seaport Lane 8th Floor Boston, MA 02210	617-855-8722	Market Maker, Proprietary Trading
Princeton Alpha Management, LP	12/1/2015	12/1/2015	12/1/2015	12/1/2015	NA	NA	Sponsored Participant	61 Princeton Hightstown Rd West Windsor, NJ 08550	609-269-9212	Agency
PTR, Inc.	NA	NA	NA	NA	8/2/1995	NA	Member TPH	1800 JFK Boulevard Suite 401 Philadelphia, PA 19103	267-909-8368	Floor Broker, Transact Business with the Public
Puma Capital, LLC	NA	NA	6/15/2016	6/15/2016	NA	NA	Member TPH	287 Bowman Avenue 3rd Floor Purchase, NY 10577	212-269-4100	Market Maker, Proprietary Trading
Pundion LLC	2/27/2017	2/27/2017	2/27/2017	2/27/2017	NA	NA	Member TPH	230 Park Avenue 10th Floor New York, NY 10169	718-618-4929	Proprietary Trading
Quantex Clearing, LLC	10/3/2011	12/27/2011	5/17/2011	5/17/2011	NA	NA	Member TPH	70 Hudson Street Hoboken, NJ 07030	201-706-7157	Clearing Services
Quantlab Securities LP	8/18/2008	11/1/2010	5/26/2010	5/27/2010	10/5/2010	8/2/2011	Member TPH	3 Greenway Plaza Suite 200 Houston, TX 77046	713-333-3700	Transact Business with the Public, Brokerage
Quiet Light Securities, LLC	NA	NA	NA	NA	5/1/2001	NA	Member TPH	141 W Jackson Boulevard Suite 2020A Chicago, IL 60604	312-431-0573	Market Maker, Proprietary Trading
R.W. Pressprich & Co.	2/17/2009	11/15/2010	6/2/2010	6/2/2010	NA	NA	Member TPH	452 5th Avenue New York, NY 10018	212-832-6200	Agency
Rackson Asset Management, LLC	10/1/2009	NA	NA	NA	NA	NA	Sponsored Participant	2000 Broadway Suite 22C New York, NY 10023	212-724-2567	Proprietary Trading
Rainier Investment Management, Inc.	1/4/2010	NA	NA	NA	NA	NA	Sponsored Participant	601 Union Street Suite 2801 Seattle, WA 98101	206-518-6658	Hedge Fund
RBC Capital Markets, LLC	9/18/2008	10/14/2010	5/14/2010	5/14/2010	11/24/1993	10/19/2010	Member TPH	3 World Financial Center 200 Vesey Street New York, NY 10281	212-858-7000	Clearing, Proprietary Trading, Transact Business with the Public
RGM Securities, LLC	8/3/2009	10/1/2010	5/26/2010	5/27/2010	NA	NA	Member TPH	221 W 6th Street Suite 1650 Austin, TX 78701	512-807-5300	Proprietary Trading
Robert W. Baird & Co. Incorporated	10/23/2008	1/3/2011	NA	NA	NA	NA	Member TPH	777 E Wisconsin Avenue Milwaukee, WI 53202	414-765-3500	Market Maker
Ronin Capital, LLC	NA	NA	NA	NA	12/17/2001	NA	Member TPH	350 N Orleans Street Suite 2N Chicago, IL 60654	312-244-5000	Market Maker
Rosenblatt Securities Inc.	8/18/2008	10/6/2010	5/26/2010	5/27/2010	NA	NA	Member TPH	40 Wall Street 59th Floor New York, NY 10005	212-607-3100	Agency
Roth Capital Partners, LLC	8/18/2008	NA	NA	NA	NA	NA	Member TPH	888 San Clemente Suite 400 Newport Beach, CA 92660	949-720-5700	Market Maker
SAC Capital Advisors, LP	10/23/2008	NA	NA	NA	NA	NA	Sponsored Participant	72 Cummings Point Road Stamford, CT 06902	203-890-2275	Hedge Fund
Safra Securities LLC	NA	NA	5/26/2010	5/27/2010	NA	NA	Member TPH	546 5th Avenue New York, NY 10036	212-704-5500	Market Maker
SageTrader, LLC	3/1/2016	6/5/2017	6/5/2017	6/1/2016	NA	NA	Member TPH	340 Pine Street Suite 501 San Francisco, CA 94104	415-293-3894	Public Customer Business
SAL Equity Trading, GP	9/3/2008	10/5/2010	5/26/2010	5/27/2010	NA	NA	Member TPH	401 City Avenue Suite 220 Bala Cynwyd, PA 19004	610-617-3000	Agency, Institutional Trading
Sanford C. Bernstein & Co, LLC	9/10/2008	10/21/2010	5/26/2010	5/27/2010	8/13/2013	NA	Member TPH	1345 Avenue of the Americas New York, NY 10105	212-969-1000	Clearing, Proprietary Trading, Transact Business with the Public
Santander Investment Securities Inc.	4/15/2009	1/3/2011	NA	NA	NA	NA	Member TPH	45 E 53rd Street New York, NY 10022	212-350-3500	Institutional Trading
Scotia Capital (USA) Inc.	3/2/2009	9/15/2010	5/26/2010	5/27/2010	NA	NA	Member TPH	250 Vesey Street New York, NY 10281	212-225-6500	Institutional Trading
Scottrade, Inc.	6/1/2010	11/15/2010	5/26/2010	5/27/2010	NA	NA	Member TPH	700 Maryville Centre Drive St. Louis, MO 63141	314-965-1555	Public Customer Business
Seven Points Capital, LLC	NA	NA	5/14/2010	NA	NA	NA	Member TPH	805 3rd Avenue 15th Floor New York, NY 10022	212-760-0760	Agency
SG Americas Securities, LLC	9/17/2008	11/15/2011	5/14/2010	5/14/2010	4/23/2004	1/2/2015	Member TPH	245 Park Avenue New York, NY 10167	212-278-6000	Clearing, Proprietary Trading, Transact Business with the Public, Brokerage
Silver Fern Investments, LLC	8/20/2015	8/20/2015	8/20/2015	8/20/2015	NA	NA	Sponsored Participant	533 2nd Street Encinitas, CA 92024	858-947-8650	Proprietary Trading
Simplex Trading, LLC	3/16/2015	NA	NA	4/13/2017	8/12/2010	3/1/2017	Member TPH	230 S LaSalle Street Suite 4-100 Chicago, IL 60604	312-360-2440	Market Maker, Proprietary Trading
SMBC Nikko Securities America, Inc.	8/7/2017	8/7/2017	8/7/2017	8/7/2017	NA	NA	Member TPH	277 Park Avenue 5th Floor New York, NY 10172	212-224-5039	Institutional Trading
SogoTrade, Inc.	NA	NA	NA	6/19/2017	NA	NA	Member TPH	11 Broadway Suite 514 New York, NY 10004	646-885-6488	Public Customer Business
Spot Trading LLC	6/1/2012	NA	1/25/2013	1/25/2013	8/20/1999	7/26/2012	Member TPH	440 S LaSalle Street Suite 2800 Chicago, IL 60605	312-362-4550	Market Maker, Proprietary Trading

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Stifel, Nicolaus & Company, Incorporated	8/18/2008	NA	6/2/2010	6/2/2010	NA	NA	Member TPH	501 N Broadway St. Louis, MO 63102	314-342-2000	Agency
Stock USA Execution Services, Inc.	NA	NA	5/26/2010	5/27/2010	NA	NA	Member TPH	1717 Route 6 Suite 102 Carmel, NY 10512	800-874-3039	Agency
Stuyvesant Trading Group, LLC	8/15/2013	NA	NA	NA	NA	NA	Member TPH	3 Columbus Circle 15th Floor New York, NY 10019	203-207-0021	Market Maker
Summit Securities Group, LLC	7/16/2012	7/16/2012	8/20/2012	8/20/2012	6/6/2012	NA	Member TPH	55 Broadway Suite 2102 New York, NY 10006	646-738-4066	Market Maker, Proprietary Trading
Sumo Capital, LLC	7/15/2013	NA	NA	10/15/2015	3/3/2008	NA	Member TPH	440 S LaSalle Street Suite 2101 Chicago, IL 60605	312-324-0326	Market Maker, Proprietary Trading
Sun Trading LLC	8/18/2008	10/1/2010	5/26/2010	5/27/2010	9/3/2013	NA	Member TPH	100 S Wacker Drive Suite 300 Chicago, IL 60606	312-924-4777	Market Maker, Proprietary Trading
Susquehanna Financial Group, LLLP	9/3/2008	10/5/2010	5/26/2010	5/27/2010	NA	NA	Member TPH	401 City Avenue Suite 220 Bala Cynwyd, PA 19004	800-825-9550	Agency, Institutional Trading
Susquehanna Investment Group	NA	NA	NA	NA	5/1/1987	NA	Member TPH	401 City Avenue Suite 220 Bala Cynwyd, PA 19004	610-617-2600	Market Maker
Susquehanna Securities	10/15/2014	10/15/2014	10/15/2014	10/15/2014	4/4/1994	9/24/2010	Member TPH	401 City Avenue Suite 220 Bala Cynwyd, PA 19004	610-617-2600	Market Maker, Proprietary Trading
Synergy Capital Management, LLC	8/1/2016	NA	NA	NA	6/5/2007	NA	Member TPH	141 W Jackson Boulevard Suite 1530 Chicago, IL 60604	312-986-8869	Proprietary Trading
TD Ameritrade Clearing, Inc.	5/3/2011	5/3/2011	NA	5/27/2010	NA	NA	Member TPH	200 S 108th Avenue Omaha, NE 68154	800-669-3900	Public Customer Business, Clearing Services
Telsey Advisory Group, LLC	1/24/2011	8/15/2014	NA	NA	NA	NA	Member TPH	555 5th Avenue 7th Floor New York, NY 10017	212-973-9700	Public Customer Business
Tewksbury Investment Fund, Ltd.	7/1/2011	7/1/2011	1/6/2015	1/6/2015	NA	NA	Sponsored Participant	Washington Mall I 20th Church Street, 4th Floor Hamilton, HM 11 Bermuda	610-971-5000	Proprietary Trading
Tewksbury Investment Fund, Ltd.	10/23/2008	11/15/2010	NA	NA	NA	NA	Sponsored Participant	Washington Mall I 20th Church Street, 4th Floor Hamilton, HM 11 Bermuda	212-310-7076	Proprietary Trading
Themis Trading LLC	8/18/2008	10/1/2010	NA	NA	NA	NA	Member TPH	10 Town Square Suite 100 Chatham, NJ 07928	973-665-9600	Agency
ThinkTrade, LLC	2/1/2010	10/20/2010	1/9/2015	1/9/2015	NA	NA	Sponsored Participant	2210 Encintas Boulevard Suite 1 Encintas, CA 92024	760-452-2451	Proprietary Trading
Timber Hill LLC	2/16/2010	NA	NA	NA	12/27/1996	12/15/2010	Member TPH	One Pickwick Plaza Suite 200 Greenwich, CT 06830	203-618-5800	Clearing, Market Maker
TJM Investments, LLC	NA	NA	NA	NA	3/11/2013	NA	Member TPH	318 W Adams Street 9th Floor Chicago, IL 60606	312-432-5100	Floor Broker, Transact Business with the Public
TMT East LLC	6/1/2015	NA	NA	NA	NA	NA	Member TPH	440 S LaSalle Street Suite 1729 Chicago, IL 60605	312-362-4014	Market Maker
TMT Investments, LLC	NA	NA	NA	NA	4/2/2008	NA	Member TPH	440 S LaSalle Street Suite 1729 Chicago, IL 60605	312-362-3024	Market Maker
Tradebot Systems, Inc.	8/18/2008	9/1/2010	5/26/2010	5/27/2010	NA	NA	Member TPH	1251 NW Briarcliff Parkway Suite 700 Kansas City, MO 64116	816-285-6400	Proprietary Trading
TradeKing	10/15/2009	11/15/2010	NA	NA	NA	NA	Member TPH	888 E Las Olas Boulevard Suite 300 Fort Lauderdale, FL 33301	877-495-5464	Agency
TradeStation Securities, Inc.	8/18/2008	9/1/2010	5/25/2010	5/25/2010	NA	NA	Member TPH	8050 SW 10th Street Suite 2000 Plantation, FL 33324	954-652-7900	Market Maker
TRC Heteapolis, Ltd.	12/11/2009	NA	NA	NA	NA	NA	Sponsored Participant	377 Broadway 11th Floor New York, NY 10013	646-472-1792	Proprietary Trading
TRC Markets LLC	4/13/2017	4/13/2017	4/13/2017	4/13/2017	NA	NA	Member TPH	710 Johnnie Dodds Boulevard Suite 300 Mt. Pleasant, SC 29464	917-388-8644	Agency
Trinity Executions, LLC	NA	NA	NA	NA	11/1/2011	NA	Member TPH	141 W Jackson Boulevard Suite 3900 Chicago, IL 60604	312-878-4704	Floor Broker, Transact Business with the Public
Tudor, Pickering, Holt & Co. Securities, Inc.	8/18/2008	10/17/2011	NA	NA	NA	NA	Member TPH	1111 Bagby Suite 4900 Houston, TX 77002	713-333-7100	Agency
Two Sigma Investments, LLC	9/1/2009	NA	NA	NA	NA	NA	Sponsored Participant	100 Avenue of the Americas 4th Floor New York, NY 10013	212-775-6678	Proprietary Trading
Two Sigma Partners Master Fund, Ltd.	3/2/2009	NA	NA	NA	NA	NA	Sponsored Participant	100 Avenue of the Americas 4th Floor New York, NY 10013	212-775-6678	Proprietary Trading
Two Sigma Securities, LLC	7/1/2009	NA	NA	NA	NA	NA	Sponsored Participant	100 Avenue of the Americas 4th Floor New York, NY 10013	646-292-6643	Proprietary Trading
Two Sigma Securities, LLC	10/1/2009	10/5/2010	5/27/2010	5/27/2010	9/15/2017	NA	Member TPH	100 Avenue of the Americas 19th Floor New York, NY 10013	212-625-5700	Market Maker
U.S. Securities, Intl. Corp.	NA	NA	NA	NA	7/3/1973	NA	Member TPH	120 Broadway Suite 1017 New York, NY 10271	212-227-0800	Transact Business with the Public
UBS Financial Services Inc.	NA	NA	NA	NA	12/11/1972	NA	Member TPH	1200 Harbor Boulevard Weehawken, NJ 07086	201-352-3000	Clearing, Transact Business with the Public
UBS Securities LLC	10/15/2008	10/1/2010	4/12/2010	4/12/2010	10/1/1998	10/8/2010	Member TPH	1285 Avenue of the Americas New York, NY 10019	203-719-3000	Clearing, Proprietary Trading, Transact Business with the Public
Ustocktrade Securities, Inc.	4/17/2015	NA	NA	NA	NA	NA	Member TPH	275 Grove Street Suite 2-400 Newton, MA 02466	617-340-3041	Public Customer Business, Proprietary Trading
ViewTrade Securities, Inc.	8/18/2008	11/15/2010	6/10/2010	6/10/2010	NA	NA	Member TPH	7280 W Palmetto Park Road Suite 310 Boca Raton, FL 33433	561-620-0306	Agency
Virtu Americas LLC	9/15/2009	10/14/2010	1/3/2011	1/3/2011	9/18/2009	3/17/2011	Member TPH	300 Vesey Street New York, NY 10282	646-682-6000	Clearing, Proprietary Trading, Transact Business with the Public, Brokerage
Virtu Financial BD LLC	11/17/2008	10/7/2010	5/27/2010	5/27/2010	3/1/2010	6/12/2012	Member TPH	307 Camp Craft Road Austin, TX 78743	800-544-7508	Proprietary Trading
Virtu Financial Capital Markets LLC	8/18/2008	9/1/2010	5/25/2010	5/27/2010	NA	NA	Member TPH	300 Vesey Street New York, NY 10282	212-418-0100	Proprietary Trading
Vision Financial Markets LLC	4/1/2009	11/15/2010	7/13/2012	7/13/2012	12/11/2006	NA	Member TPH	120 Long Ridge Road 3 North Stamford, CT 06902	203-388-2700	Clearing, Transact Business with the Public

Company Name	BZX Approval Date	BYX Approval Date	EDGA Approval Date	EDGX Approval Date	CBOE Approval Date	C2 Approval Date	Type of User	Address	Phone Number	Primary Activities
Volant Liquidity, LLC	4/15/2011	NA	5/27/2010	5/27/2010	2/1/2010	3/23/2011	Member TPH	250 Vesey Street Suite 2601 New York, NY 10281	646-804-7900	Market Maker, Order Flow Provider, Brokerage
Wall Street Access	11/3/2008	10/17/2011	5/27/2010	5/27/2010	NA	NA	Member TPH	17 Battery Place 11th Floor New York, NY 10004	212-709-9400	Agency
Waileye Trading LLC	12/1/2008	11/12/2010	NA	NA	6/1/2006	NA	Member TPH	2800 Niagara Lane North Plymouth, MN 55447	952-345-6611	Market Maker
Wedbush Securities Inc.	8/18/2008	9/1/2010	5/27/2010	5/27/2010	2/23/2012	3/8/2012	Member TPH	1000 Wilshire Boulevard Suite 900 Los Angeles, CA 90017	213-688-8090	Clearing
Wells Fargo Clearing Services, LLC	7/1/2016	NA	NA	NA	11/14/2016	NA	Member TPH	One N Jefferson Avenue Mail Code: H0004-050 St. Louis, MO 63103	314-875-3000	Clearing, Transact Business with the Public
Wells Fargo Securities, LLC	8/18/2008	10/11/2010	6/9/2010	6/9/2010	4/1/2014	3/31/2014	Member TPH	550 S Tryon Street, 6th Floor D1086-060 Charlotte, NC 28202	704-410-1913	Clearing, Proprietary Trading
Western International Securities, Inc.	8/18/2008	11/15/2010	NA	NA	NA	NA	Member TPH	70 S Lake Avenue Suite 700 Pasadena, CA 91101	626-793-7717	Market Maker
Wolverine Execution Services, LLC	8/18/2008	10/19/2010	5/14/2010	5/14/2010	3/1/2006	9/24/2010	Member TPH	175 W Jackson Boulevard Suite 200 Chicago, IL 60604	312-884-4000	Clearing, Floor Broker, Transact Business with the Public, Brokerage
Wolverine Securities, LLC	NA	NA	NA	5/31/2017	NA	NA	Member TPH	175 W Jackson Boulevard Suite 200 Chicago, IL 60604	312-884-4000	Market Maker
Wolverine Trading, LLC	10/3/2011	NA	NA	10/1/2015	7/12/1994	9/24/2010	Member TPH	175 W Jackson Boulevard Suite 200 Chicago, IL 60604	312-884-4000	Market Maker, Proprietary Trading
X-Change Financial Access, LLC	NA	NA	NA	NA	5/1/2003	NA	Member TPH	440 S LaSalle Street Suite 2900 Chicago, IL 60605	312-235-0320	Clearing, Floor Broker, Transact Business with the Public
XR Securities LLC	1/15/2009	11/15/2010	5/10/2012	5/10/2012	11/30/2007	NA	Member TPH	550 W Jackson Boulevard Suite 1000 Chicago, IL 60661	312-244-4500	Market Maker, Proprietary Trading