

Form I Page I Execution Page	U.S. SECURITIES AND EXCHANGE COMMISSION WASHINGTON, D.C. 20549 APPLICATION FOR, AND AMENDMENTS TO APPLICATION FOR, REGISTRATION AS A NATIONAL SECURITIES EXCHANGE OR EXEMPTION FROM REGISTRATION PURSUANT TO SECTION 5 OF THE EXCHANGE ACT	Date filed (MM/DD/YY) 09/16/19	OFFICIAL USE ONLY
<p>WARNING: Failure to keep this form current and to file accurate supplementary information on a timely basis, or the failure to keep accurate books and records or otherwise to comply with the provisions of law applying to the conduct of the applicant would violate the federal securities laws and may result in disciplinary, administrative or criminal action.</p>			
INTENTIONAL MISSTATEMENTS OR OMISSIONS OF FACTS MAY CONSTITUTE CRIMINAL VIOLATIONS			
<p><input type="checkbox"/> APPLICATION <input checked="" type="checkbox"/> AMENDMENT</p>			
<p>1. State the name of the applicant: <u>Cboe BYX Exchange, Inc.</u></p>			
<p>2. Provide the applicant's primary street address (Do not use a P.O. Box): <u>400 South LaSalle Street</u> <u>Chicago, Illinois 60605</u></p>			
<p>3. Provide the applicant's mailing address (if different): _____ _____</p>			
<p>4. Provide the business telephone and facsimile number: <u>(913) 815-7000</u> (Telephone) <u>(913) 815-7119</u> (Facsimile)</p>			
<p>5. Provide the name, title and telephone number of a contact employee: <u>Kyle Murray</u> Assistant General Counsel, <u>Cboe BYX Exchange, Inc.</u> <u>(913) 815-7121</u> (Name) (Title) (Telephone Number)</p>			
<p>6. Provide the name and address of counsel for the applicant: <u>Pat Sexton</u> <u>400 S. LaSalle Street</u> <u>Chicago, IL 60605</u></p>			
<p>7. Provide the date that applicant's fiscal year ends: <u>December 31</u></p>			
<p>8. Indicate legal status of the applicant: <input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Sole Partnership <input type="checkbox"/> Partnership <input type="checkbox"/> Limited Liability Company <input type="checkbox"/> Other (specify): _____</p>			
<p>If other than a sole proprietor, indicate the date and place where applicant obtained its legal status (e.g. state where incorporated, place where partnership agreement was filed or where applicant entity was formed): (a) Date (MM/DD/YY): <u>11/01/07</u> (b) State/Country of formation: <u>Delaware/United States of America</u> (c) Statute under which applicant was organized: <u>General Corporation Law of the State of Delaware</u></p>			
<p>EXECUTION: The applicant consents that service of any civil action brought by, or notice of any proceeding before, the Securities and Exchange Commission in connection with the applicant's activities may be given by registered or certified mail or confirmed telegram to the applicant's contact employee at the main address, or mailing address if different, given in Items 2 and 3. The undersigned, being first duly sworn, deposes and says that he/she has executed this form on behalf of, and with the authority of, said applicant. The undersigned and applicant represent that the information and statement contained herein, including exhibits, schedules, or other documents attached hereto, and other information filed herewith, all of which are made a part hereof, are current, true and complete.</p>			
<p>Date: <u>09/16/19</u> <u>Cboe BYX Exchange, Inc.</u> (MM/DD/YY) (Name of Applicant)</p>			
<p>By: <u>[Signature]</u> <u>Kyle Murray, Assistant General Counsel</u> (Signature) (Printed Name and Title)</p>			
<p>Subscribed and sworn before me this <u>16th</u> day of <u>September, 2019</u> by <u>Rex Jeto</u> (Month) (Year) (Notary Public)</p>			
<p>My Commission expires <u>08/04/23</u> County of <u>Johnson</u> State of <u>Kansas</u></p>			
<p>This page must always be completed in full with original, manual signature and notarization. Affix notary stamp or seal where applicable.</p>			



19004152





SEC Mail Processing

September 16, 2019

SEP 18 2019

Via Federal Express

Washington, DC

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 BYX Exchange, Inc.**
Form 1 Amendment

Dear Jeanette:

On behalf of Cboe BYX 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 exhibits¹:

- 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 & M currently on file with the Commission. Please do not hesitate to contact me if you have any questions or require anything further.

Sincerely,

Kyle Murray
Assistant General Counsel
913-815-7121

Enclosures

¹ See Attachment for a comprehensive list of updates to Exhibits C & M

SEP 18 2019
COMMUNICATIONS

Attachment

Summary of changes made to Exhibit C:

- A new entity, Cboe Global Indices, LLC, was added

Summary of changes made to Exhibit M:

Membership Approval:

- AMS Derivatives B.V. was approved on Cboe BYX Exchange, Inc.

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
- Brian Schell

Current Officers

- Ed Tilly (President and Chief Executive Officer)
- Jen Browning (Vice President)
- Jill Griebenow (Vice President)
- Bryan Harkins (Vice President)
- Chris Isaacson (Vice President)
- Jackie Hancock (Vice President)
- Brian Schell (Treasurer)
- J. Patrick Sexton (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
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 (President and Chief Executive Officer)
 - Jill Griebenow (Vice President)
 - Bryan Harkins (Vice President)
 - Chris Isaacson (Vice President)
 - Jackie Hancock (Vice President and Controller)
 - Brian Schell (Treasurer)
 - J. Patrick Sexton (Secretary)
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

C. Cboe BZX Exchange, Inc.

1. *Name:* Cboe BZX 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:*
Incorporated in Delaware under Section 101 of the General Corporation Law of the State of Delaware on November 1, 2007.
4. *Brief description of nature and extent of affiliation:* Cboe BZX 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 BZX 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
- Bruce Andrews
- Kevin Murphy
- David Roscoe
- Jill Sommers
- Scott Wagner

Current Officers

- Ed Tilly (President and Chief Executive Officer)
- Alexandra Albright (SVP, Chief Compliance Officer)
- Lawrence Bresnahan (VP, Market & Member Reg.)
- Jen Browning (VP, Head of Human Resources)
- Rodney Burt (VP, Infrastructure)
- Kevin Carrai (VP, Market Data and Access Services)
- Catherine Clay (SVP, Information Solutions)
- Gary Compton (VP, Communications)
- Jeff Connell (VP, Deputy Chief Regulatory Officer)
- Brent Coonrod (VP, Software Engineering)
- Arianne Criqui (SVP, Head of Options and Business Development)

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

- Eric Crampton (SVP, CTO)
- John Deters (EVP, Chief Strategy Officer & Head Multi-Asset Solutions)
- Laura Dickman (VP, Associate General Counsel)
- James Enstrom (SVP, & Chief Audit Exec)
- Todd Furney (VP, Chief Risk Officer)
- Alicia Goldberg (VP, Statistical Analysis)
- Jennifer Golding (VP, Associate General Counsel, Chief Litigation Officer)
- Jill Griebnow (SVP & Chief Accounting Officer)
- Jackie Hancock (VP, Controller)
- John Hiatt (VP, Product Development)
- Bryan Harkins (EVP, Co-Head Markets Division)
- Mark Hemsley (EVP, President Europe)
- Rob Hocking (SVP, Head of Derivatives Strategy)
- Gregory Hoogasian (SVP, CRO)
- Chris Isaacson (EVP, COO)
- Brett Johnson (VP, Software Engineering)
- Jennifer Lamie (VP, Chief Regulatory Advisor)
- Stephanie Marrin Lara (VP, Deputy Chief Reg Officer)
- Andrew Lowenthal (EVP, Co-Head Markets Division)
- Marc Magrini (VP, Administration)
- Anthony Montesano (VP, TSD and Registration)
- Laura Morrison (SVP, ETP Listings)
- Mark Novak (VP, Software Engineer)
- Dan Overmyer (VP, Options Regulation)
- Arthur Reinstein (SVP & Deputy General Counsel)
- Bradley Samuels (VP, Systems Development)
- Brian Schell (EVP, CFO, & Treasurer)
- Curt Schumacher (VP, Infrastructure)
- J. Patrick Sexton (Executive Vice President, General Counsel & Corporate Secretary)
- Steven Sinclair (VP, Systems Development)
- Eileen Smith (VP, Data and Analytics)
- Michael Trees (VP, Trading Sys Develop.)
- Aaron Weissenfluh (VP, CISO)
- Troy Yeazel (SVP, Operations)
- Vivian Yiu (VP, Product Strategy)

Standing Committees

Executive Committee

- Ed Tilly
- Bruce Andrews
- Kevin Murphy
- David Roscoe
- Jill Sommers
- Scott Wagner

Regulatory Oversight Committee

- Scott Wagner
- Bruce Andrews
- David Roscoe
- Jill Sommers

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: 400 South LaSalle Street, Chicago, Illinois 60605
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
- Bruce Andrews
- Kevin Murphy
- David Roscoe
- Jill Sommers
- Scott Wagner

Current Officers

- Ed Tilly (President and Chief Executive Officer)
- Alexandra Albright (SVP, Chief Compliance Officer)
- Lawrence Bresnahan (VP, Market & Member Reg.)
- Jen Browning (VP, Head of Human Resources)
- Rodney Burt (VP, Infrastructure)
- Kevin Carrai (VP, Market Data and Access Services)
- Catherine Clay (SVP, Information Solutions)
- Gary Compton (VP, Communications)
- Jeff Connell (VP, Deputy Chief Regulatory Officer)
- Brent Coonrod (VP, Software Engineering)
- Arianne Criqui (SVP, Head of Options and Business Development)

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

- Eric Crampton (SVP, CTO)
- John Deters (EVP, Chief Strategy Officer & Head Multi-Asset Solutions)
- Laura Dickman (VP, Associate General Counsel)
- James Enstrom (SVP, & Chief Audit Exec)
- Todd Furney (VP, Chief Risk Officer)
- Alicia Goldberg (VP, Statistical Analysis)
- Jennifer Golding (VP, Associate General Counsel, Chief Litigation Officer)
- Jill Griebnow (SVP & Chief Accounting Officer)
- Jackie Hancock (VP, Controller)
- John Hiatt (VP, Product Development)
- Bryan Harkins (EVP, Co-Head Markets Division)
- Mark Hemsley (EVP, President Europe)
- Rob Hocking (SVP, Head of Derivatives Strategy)
- Gregory Hoogasian (SVP, CRO)
- Chris Isaacson (EVP, COO)
- Brett Johnson (VP, Software Engineering)
- Jennifer Lamie (VP, Chief Regulatory Advisor)
- Stephanie Marrin Lara (VP, Deputy Chief Reg Officer)
- Andrew Lowenthal (EVP, Co-Head Markets Division)
- Marc Magrini (VP, Administration)
- Anthony Montesano (VP, TSD and Registration)
- Laura Morrison (SVP, ETP Listings)
- Mark Novak (VP, Software Engineer)
- Dan Overmyer (VP, Options Regulation)
- Arthur Reinstein (SVP & Deputy General Counsel)
- Bradley Samuels (VP, Systems Development)
- Brian Schell (EVP, CFO, & Treasurer)
- Curt Schumacher (VP, Infrastructure)
- J. Patrick Sexton (Executive Vice President, General Counsel & Corporate Secretary)
- Steven Sinclair (VP, Systems Development)
- Eileen Smith (VP, Data and Analytics)
- Michael Trees (VP, Trading Sys Develop.)
- Aaron Weissenfluh (VP, CISO)
- Troy Yeazel (SVP, Operations)
- Vivian Yiu (VP, Product Strategy)

Standing Committees

Executive Committee

- Ed Tilly
- Bruce Andrews
- Kevin Murphy
- David Roscoe
- Jill Sommers
- Scott Wagner

Regulatory Oversight Committee

- Scott Wagner
- Bruce Andrews
- David Roscoe
- Jill Sommers

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: 400 South LaSalle Street, Chicago, Illinois 60605
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
- Bruce Andrews
- Kevin Murphy
- David Roscoe
- Jill Sommers
- Scott Wagner

Current Officers

- Ed Tilly (President and Chief Executive Officer)
- Alexandra Albright (SVP, Chief Compliance Officer)
- Lawrence Bresnahan (VP, Market & Member Reg.)
- Jen Browning (VP, Head of Human Resources)
- Rodney Burt (VP, Infrastructure)
- Kevin Carrai (VP, Market Data and Access Services)
- Catherine Clay (SVP, Information Solutions)
- Gary Compton (VP, Communications)
- Jeff Connell (VP, Deputy Chief Regulatory Officer)
- Brent Coonrod (VP, Software Engineering)
- Arianne Criqui (SVP, Head of Options and Business Development)

Choe BYX Exchange, Inc. Form 1 Registration Statement: Exhibit C

- Eric Crampton (SVP, CTO)
- John Deters (EVP, Chief Strategy Officer & Head Multi-Asset Solutions)
- Laura Dickman (VP, Associate General Counsel)
- James Enstrom (SVP, & Chief Audit Exec)
- Todd Furney (VP, Chief Risk Officer)
- Alicia Goldberg (VP, Statistical Analysis)
- Jennifer Golding (VP, Associate General Counsel, Chief Litigation Officer)
- Jill Griebnow (SVP & Chief Accounting Officer)
- Jackie Hancock (VP, Controller)
- John Hiatt (VP, Product Development)
- Bryan Harkins (EVP, Co-Head Markets Division)
- Mark Hemsley (EVP, President Europe)
- Rob Hocking (SVP, Head of Derivatives Strategy)
- Gregory Hoogasian (SVP, CRO)
- Chris Isaacson (EVP, COO)
- Brett Johnson (VP, Software Engineering)
- Jennifer Lamie (VP, Chief Regulatory Advisor)
- Stephanie Marrin Lara (VP, Deputy Chief Reg Officer)
- Andrew Lowenthal (EVP, Co-Head Markets Division)
- Marc Magrini (VP, Administration)
- Anthony Montesano (VP, TSD and Registration)
- Laura Morrison (SVP, ETP Listings)
- Mark Novak (VP, Software Engineer)
- Dan Overmyer (VP, Options Regulation)
- Arthur Reinstein (SVP & Deputy General Counsel)
- Bradley Samuels (VP, Systems Development)
- Brian Schell (EVP, CFO, & Treasurer)
- Curt Schumacher (VP, Infrastructure)
- J. Patrick Sexton (Executive Vice President, General Counsel & Corporate Secretary)
- Steven Sinclair (VP, Systems Development)
- Eileen Smith (VP, Data and Analytics)
- Michael Trees (VP, Trading Sys Develop.)
- Aaron Weissenfluh (VP, CISO)
- Troy Yeazel (SVP, Operations)
- Vivian Yiu (VP, Product Strategy)

Standing Committees

Executive Committee

- Ed Tilly
- Bruce Andrews
- Kevin Murphy
- David Roscoe
- Jill Sommers
- Scott Wagner

Regulatory Oversight Committee

- Scott Wagner
- Bruce Andrews
- David Roscoe
- Jill Sommers

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

F. 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 Exchange, Inc. 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
- Bruce Andrews
- Kevin Murphy
- David Roscoe
- Jill Sommers
- Scott Wagner

Current Officers

- Ed Tilly (President and Chief Executive Officer)
- Alexandra Albright (SVP, Chief Compliance Officer)
- Lawrence Bresnahan (VP, Market & Member Reg.)
- Jen Browning (VP, Head of Human Resources)
- Rodney Burt (VP, Infrastructure)
- Kevin Carrai (VP, Market Data and Access Services)
- Catherine Clay (SVP, Information Solutions)
- Gary Compton (VP, Communications)
- Jeff Connell (VP, Deputy Chief Regulatory Officer)
- Brent Coonrod (VP, Software Engineering)
- Arianne Criqui (SVP, Head of Options and Business Development)
- Eric Crampton (SVP, CTO)

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

- John Deters (EVP, Chief Strategy Officer & Head Multi-Asset Solutions)
- Laura Dickman (VP, Associate General Counsel)
- James Enstrom (SVP, & Chief Audit Exec)
- Todd Furney (VP, Chief Risk Officer)
- Alicia Goldberg (VP, Statistical Analysis)
- Jennifer Golding (VP, Associate General Counsel, Chief Litigation Officer)
- Jill Griebnow (SVP & Chief Accounting Officer)
- Jackie Hancock (VP, Controller)
- John Hiatt (VP, Product Development)
- Bryan Harkins (EVP, Co-Head Markets Division)
- Mark Hemsley (EVP, President Europe)
- Rob Hocking (SVP, Head of Derivatives Strategy)
- Gregory Hoogasian (SVP, CRO)
- Chris Isaacson (EVP, COO)
- Brett Johnson (VP, Software Engineering)
- Jennifer Lamie (VP, Chief Regulatory Advisor)
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- Andrew Lowenthal (EVP, Co-Head Markets Division)
- Marc Magrini (VP, Administration)
- Anthony Montesano (VP, TSD and Registration)
- Laura Morrison (SVP, ETP Listings)
- Mark Novak (VP, Software Engineer)
- Dan Overmyer (VP, Options Regulation)
- Arthur Reinstein (SVP & Deputy General Counsel)
- Bradley Samuels (VP, Systems Development)
- Brian Schell (EVP, CFO, & Treasurer)
- Curt Schumacher (VP, Infrastructure)
- J. Patrick Sexton (Executive Vice President, General Counsel & Corporate Secretary)
- Steven Sinclair (VP, Systems Development)
- Eileen Smith (VP, Data and Analytics)
- Michael Trees (VP, Trading Sys Develop.)
- Aaron Weissenfluh (VP, CISO)
- Troy Yeazel (SVP, Operations)
- Vivian Yiu (VP, Product Strategy)

Standing Committees

Executive Committee

- Ed Tilly
- Bruce Andrews
- Kevin Murphy
- David Roscoe
- Jill Sommers
- Scott Wagner

Regulatory Oversight Committee

- Scott Wagner
- Bruce Andrews
- David Roscoe
- Jill Sommers

Indemnity Committee

- Ed Tilly

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

G. 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:* Cboe C2 Exchange, Inc. 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
- Bruce Andrews
- Kevin Murphy
- David Roscoe
- Jill Sommers
- Scott Wagner

Current Officers

- Ed Tilly (President and Chief Executive Officer)
- Alexandra Albright (SVP, Chief Compliance Officer)
- Lawrence Bresnahan (VP, Market & Member Reg.)
- Jen Browning (VP, Head of Human Resources)
- Rodney Burt (VP, Infrastructure)
- Kevin Carrai (VP, Market Data and Access Services)
- Catherine Clay (SVP, Information Solutions)
- Gary Compton (VP, Communications)
- Jeff Connell (VP, Deputy Chief Regulatory Officer)
- Brent Coonrod (VP, Software Engineering)
- Arianne Criqui (SVP, Head of Options and Business Development)

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

- Eric Crampton (SVP, CTO)
- John Deters (EVP, Chief Strategy Officer & Head Multi-Asset Solutions)
- Laura Dickman (VP, Associate General Counsel)
- James Enstrom (SVP, & Chief Audit Exec)
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- Jennifer Golding (VP, Associate General Counsel, Chief Litigation Officer)
- Jill Griebnow (SVP & Chief Accounting Officer)
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- Bryan Harkins (EVP, Co-Head Markets Division)
- Mark Hemsley (EVP, President Europe)
- Rob Hocking (SVP, Head of Derivatives Strategy)
- Gregory Hoogasian (SVP, CRO)
- Chris Isaacson (EVP, COO)
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- Andrew Lowenthal (EVP, Co-Head Markets Division)
- Marc Magrini (VP, Administration)
- Anthony Montesano (VP, TSD and Registration)
- Laura Morrison (SVP, ETP Listings)
- Mark Novak (VP, Software Engineer)
- Dan Overmyer (VP, Options Regulation)
- Arthur Reinstein (SVP & Deputy General Counsel)
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- Brian Schell (EVP, CFO, & Treasurer)
- Curt Schumacher (VP, Infrastructure)
- J. Patrick Sexton (Executive Vice President, General Counsel & Corporate Secretary)
- Steven Sinclair (VP, Systems Development)
- Eileen Smith (VP, Data and Analytics)
- Michael Trees (VP, Trading Sys Develop.)
- Aaron Weissenfluh (VP, CISO)
- Troy Yeazel (SVP, Operations)
- Vivian Yiu (VP, Product Strategy)

Standing Committees

Executive Committee

- Ed Tilly
- Bruce Andrews
- Kevin Murphy
- David Roscoe
- Jill Sommers
- Scott Wagner

Regulatory Oversight Committee

- Scott Wagner
- Bruce Andrews
- David Roscoe
- Jill Sommers

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

H. 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
- Brian Schell

Current Officers

- Jackie Hancock (FINOP, Treasurer)
- Bryan Upp (Chief Compliance Officer)
- Troy Yeazel (President)
- J. Patrick Sexton (Secretary)

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

I. 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 Cboe 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
 - Mark Hemsley
Current Officers
 - Ed Tilly (President and Chief Executive Officer)
 - Jill Griebenow (Vice President)
 - Mark Hemsley (Vice President)
 - Jackie Hancock (Vice President and Controller)
 - Chris Isaacson (Vice President)
 - Brian Schell (Treasurer)
 - J. Patrick Sexton (Secretary)
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

J. 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.
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, and Cboe SEF, 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 (President and Chief Executive Officer)
- Jill Griebenow (Vice President)
- Bryan Harkins (Vice President)
- Jackie Hancock (Vice President and Controller)
- Chris Isaacson (Vice President)
- Brian Schell (Treasurer)
- J. Patrick Sexton (Secretary)

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

K. 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.
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 (President and Chief Executive Officer)
- Alexandra Albright (Chief Compliance Officer)
- Sean Cleary (VP, Sales FX)
- Eric Crampton (SVP, CTO)
- John Deters (EVP, Chief Strategy Officer and Head of Multi-Asset Solutions)
- James Enstrom (SVP, Chief Audit Executive)
- Todd Furney (Chief Risk Officer)
- Jennifer Golding (VP, Associate General Counsel, Chief Litigation Officer)
- Jill Griebenow (SVP & Chief Accounting Officer)
- Jackie Hancock (VP, Controller)
- Bryan Harkins (EVP, Co-Head Markets Division)
- Mark Hemsley (EVP, President Europe)
- Greg Hoogasian (SVP, Chief Regulatory Officer)
- Chris Isaacson (EVP)
- Stephanie Marrin Lara (Deputy Chief Regulatory Officer)
- Andrew Lowenthal (EVP, Co-Head Markets Division)

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

- Paul Reidy (VP, Cboe FX COO)
 - Brian Schell (EVP, CFO and Treasurer)
 - J. Patrick Sexton (EVP, General Counsel, and Secretary)
 - Lisa Shemie (VP, Associate General Counsel and Cboe FX Chief Legal Officer)
 - Aaron Weissenfluh (VP, CISO)
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

L. 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.
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 (President and Chief Executive Officer)
 - Jill Griebenow (Vice President)
 - Bryan Harkins (Vice President)
 - Jackie Hancock (Vice President and Controller)
 - Chris Isaacson (Vice President)
 - Andrew Lowenthal (Vice President)
 - Brian Schell (Treasurer)
 - J. Patrick Sexton (Secretary)
10. Indication of whether such business or organization ceased to be associated with the applicant during previous year: Not applicable.

M. Cboe International Holdings Limited

1. *Name:* Cboe International Holdings Limited
Address: 11 Monument Street, London, EC3R 8AF, United Kingdom
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 International Holdings Limited is wholly-owned by Cboe Worldwide Holdings Limited, which is an affiliate of the Exchange.
5. *Brief description of business or functions:* Cboe International Holdings Limited is a holding company of Cboe FX Europe 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

Current Officers

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

N. Cboe FX Europe Limited

1. *Name:* Cboe FX Europe Limited
Address: 11 Monument Street, London, EC3R 8AF, United Kingdom
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 Cboe International Holdings Limited which is wholly-owned by Cboe 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
 - Mark Hemsley
Current Officers
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

O. Cboe FX Asia Pte. Limited

1. *Name:* Cboe FX Asia Pte. Limited
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:* Cboe FX Asia Pte. Limited is wholly-owned by Cboe Worldwide Holdings Limited which is an affiliate of the Exchange.
5. *Brief description of business or functions:* Cboe FX Asia Pte. Limited operates an institutional spot foreign exchange market.
6. *Copy of constitution:* No changes.
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
- Ng Lip Chih (Singapore Nominee)

Current Officers

- Ed Tilly (President)
- Ang Yee Koon Daphne, Secretary (Allen & Gledhill)
- Tan Zhe Lei, Secretary (Allen & Gledhill)

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

P. Cboe Europe Limited

1. *Name:* Cboe Europe Limited
Address: 11 Monument Street, London, EC3R 8AF, United Kingdom
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:* Cboe Europe Limited is wholly-owned by Cboe Worldwide Holdings Limited, which is an affiliate of the Exchange.
5. *Brief description of business or functions:* Cboe Europe 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

- Richard Balarkas
- Julian Corner
- Angelo Evangelou
- Rebecca Fuller
- Mark Hemsley
- Ted Hood
- Kristian West
- John Woodman

Current Officers

- Mark Hemsley (Chief Executive Officer)
- Antonio Amelia (Secretary)
- Jerry Avenell (Co-Head Sales)
- Alex Dalley (Co-Head Sales)
- Adam Eades (Chief Legal and Regulatory Officer)
- David Howson (COO)
- Stephanie Renner (CFO)

Standing Committees

Audit, Risk and Compliance Committee

- Richard Balarkas
- Rebecca Fuller
- Ted Hood

Remuneration Committee

- Rebecca Fuller
- Kristian West
- John Woodman

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

Q. Cboe Chi-X Europe Limited

1. *Name:* Cboe Chi-X Europe Limited
Address: 11 Monument Street, London, EC3R 8AF, United Kingdom
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.
4. *Brief description of nature and extent of affiliation:* Cboe Chi-X Europe Limited is wholly-owned by Cboe Europe Limited which, in turn, is indirectly wholly owned by Bats Global Markets, Inc.
5. *Brief description of business or functions:* Cboe 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, Cboe Chi-X Europe Limited operates the smart order router that is needed for the routing strategies deployed by Cboe Europe Limited. As of November 2018 this company remains dormant.
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

- Mark Hemsley (Chief Executive Officer)
- Antonio Amelia (Secretary)
- Adam Eades (Chief Legal and Regulatory Officer)
- Stephanie Renner (Chief Financial Officer)

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

R. 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
- Brian Schell

Current Officers

- Ed Tilly (President and Chief Executive Officer)
 - Brent Coonrod (Vice President)
 - Eric Crampton (Vice President)
 - Jennifer Golding (Vice President)
 - Jill Griebenow (Vice President)
 - Jackie Hancock (Vice President and Controller)
 - Bryan Harkins (Vice President)
 - Chris Isaacson (Vice President)
 - Laura Morrison (Vice President)
 - Dave Nadig (Senior Director, Content and ETF)
 - Brian Schell (Treasurer)
 - J. Patrick Sexton (Secretary)
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

S. 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 Cboe 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

- Patricia Hidalgo (General Manager)
 - Dave Nadig (President)
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

T. Cboe SEF, LLC

1. *Name:* Cboe SEF, LLC
Address: 17 State Street, 31st 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:* 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

- Ed Tilly (President and Chief Executive Officer)
- Alexandra Albright (Senior Vice President and Chief Compliance Officer)
- Sean Cleary (Vice President)
- Eric Crampton (SVP, CTO)
- John Deters (EVP, Chief Strategy Officer & Head of Multi-Asset Solutions)
- James Enstrom (Senior Vice President & Chief Audit Executive)
- Todd Furney (VP, and Chief Risk Officer)
- Jennifer Golding (VP, Associate General Counsel, Chief Litigation Officer)
- Jill Griebenow (SVP & Chief Accounting Officer)
- Bryan Harkins (Executive Vice President, Co-Head of U.S. Markets)
- Mark Hemsley (Executive Vice President, President Europe)
- Gregory Hoogasian (Senior Vice President & Chief Regulatory Officer)
- Chris Isaacson (Executive Vice President & COO)
- Andrew Lowenthal (Executive Vice President, Co-Head of U.S. Markets)
- Stephanie Marrin (Vice President and Deputy Chief Regulatory Officer)
- Paul Reidy (Vice President)
- J. Patrick Sexton (Executive Vice President, General Counsel & Corporate Secretary)

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

- Brian Schell (Executive Vice President, Chief Financial Officer & Treasurer)
- Lisa Shemie (Vice President, Associate General Counsel & Cboe SEF Chief Legal Officer)
- Jackie Hancock (Vice President and Controller)
- Aaron Weissenfluh (Vice President & Chief Information Security Officer)

Managers

- Ed Tilly
- 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.

U. Cboe Worldwide Holdings Limited

1. *Name:* Cboe Worldwide Holdings Limited
Address: 11 Monument Street, London, EC3R 8AF, United Kingdom
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:* Cboe Worldwide Holdings Limited is wholly-owned by Omicron Acquisition Corp., which is an affiliate of the Exchange.
5. *Brief description of business or functions:* Cboe Worldwide Holdings Limited is an intermediate holding company of Cboe Europe Limited, Cboe International Holdings Limited, Cboe Hong Kong Limited, Cboe UK Limited, Cboe FX Asia Pte. Limited, 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
- Mark Hemsley

Current Officers

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

V. 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 Bats, LLC 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
- Frank English
- William Farrow
- Janet Froetscher
- Jill Goodman
- Roderick Palmore
- James Parisi
- Joe Ratterman
- Michael Richter
- Jill Sommers
- Carole Stone
- Eugene Sunshine
- Fredric Tomczyk

Current Officers

- Ed Tilly (President and Chief Executive Officer)
- John Deters (EVP, Chief Strategy Officer and Head of Multi-Asset Solutions)
- Jill Griebenow (SVP & Chief Accounting Officer)
- Bryan Harkins (EVP, Co-Head Markets Division)
- Mark Hemsley (EVP, President Europe)
- Chris Isaacson (EVP and COO)

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

- Andrew Lowenthal (EVP, Co-Head Markets Division)
- Brian Schell (EVP, and CFO)
- J. Patrick Sexton (EVP, General Counsel and Corporate Secretary)

Compensation Committee

- Frank English
- Janet Froetscher
- Edward Fitzpatrick
- James Parisi

Audit Committee

- William Farrow
- Carole Stone
- Michael Richter
- James Parisi

Nominating and Governance Committee

- Frank English
- Jill Goodman
- Roderick Palmore
- Carole Stone
- Janet Froetscher

Finance and Strategy Committee

- Frank English
- Jill Goodman
- Joe Ratterman
- Roderick Palmore
- Jill Sommers

Risk Committee

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

Indemnity Committee

- Ed Tilly

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 Futures Exchanges, LLC is a designated contract market (DCM) 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:* 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
- Gilbert Bassett, Jr.
- Michael Gorham
- James Parisi
- Jill Sommers

Current Officers

- Ed Tilly (President and Chief Executive Officer)
- Alexandra Albright (SVP and Chief Compliance Officer)
- Lawrence Bresnahan (VP, Market & Member Reg.)
- Joseph Caauwe (CFE Managing Director)
- Kevin Carrai (Vice President, Connectivity, Data & Member Services)
- Catherine Clay (SVP, Business Development)
- Eric Crampton (SVP, CTO)
- John Deters (Executive Vice President, Chief Strategy Officer & Head of Multi-Asset Solutions)

- James Enstrom (Senior Vice President & Chief Audit Executive)
- Todd Furney (Vice President and Chief Risk Officer)
- Jennifer Golding (VP, Associate General Counsel & Chief Litigation Officer)
- Jill Griebenow (Senior Vice President & Chief Accounting Officer)
- Jackie Hancock (Vice President and Controller)
- Bryan Harkins (Executive Vice President, Co-Head of U.S. Markets Division)
- Mark Hemsley (Executive Vice President, President Europe)
- Gregory Hoogasian (Senior Vice President & Chief Regulatory Officer)
- Chris Isaacson (Executive Vice President, CFE Senior Managing Director, & COO)
- Jennifer Lamie (VP & Chief Regulatory Advisor)
- Stephanie Marrin Lara (VP & Deputy Chief Reg Officer)
- Andrew Lowenthal (Executive Vice President, Co-Head of U.S. Markets Division, and CFE Senior Managing Director)
- Matthew McFarland (VP, Head of Futures and CFE Managing Director)
- Arthur Reinstein (Senior Vice President, Deputy General Counsel & CFE Chief Legal Officer)
- J. Patrick Sexton (Executive Vice President, General Counsel & Corporate Secretary)
- Brian Schell (Executive Vice President, Chief Financial Officer & Treasurer)
- Aaron Weissenfluh (Vice President & Chief Information Security Officer)
- Troy Yeazel (Senior Vice President, U.S. Electronic Trading Operations and CFE Managing Director)

Standing Committees

Executive

- Ed Tilly
- Michael Gorham

Regulatory Oversight Committee

- Michael Gorham
- Gilbert Bassett
- Jill Sommers

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
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:* CBOE Stock Exchange, LLC
is a 49.96%-owned subsidiary of Cboe Exchange, Inc.
5. *Brief description of business or functions:* CBOE Stock Exchange, LLC operated
the CBOE Stock Exchange, which acted as a trading market for securities other
than options as a facility of Cboe Exchange, Inc. CBOE Stock Exchange, LLC
was approved by the SEC in March 2007. CBOE Stock Exchange, LLC 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

- John Deters
- James Fitzgibbons
- Jaap Gelderloos
- Andrew Lowenthal
- Tom O'Mara
- Rick Oscher
- 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 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 Global Markets, 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

- Ed Tilly
- Brian Schell

Current Officers

- Ed Tilly (President and Chief Executive Officer)
 - Jill Griebenow (Vice President)
 - Jackie Hancock (Vice President and Controller)
 - Chris Isaacson (Vice President)
 - Marc Magrini (Vice President)
 - Brian Schell (Treasurer)
 - J. Patrick Sexton (Secretary)
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

Z. 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

- Ed Tilly
- Brian Schell

Current Officers

- Ed Tilly (President and Chief Executive Officer)
- Catherine Clay (Vice President)
- Jill Griebenow (Vice President)
- Jackie Hancock (Vice President and Controller)
- Chris Isaacson (Vice President)
- Brian Schell (Treasurer)
- J. Patrick Sexton (Secretary)

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

AA. 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

- Ed Tilly
- John Deters
- Brian Schell

Current Officers

- Ed Tilly (President and Chief Executive Officer)
- John Deters (Vice President)
- Jill Griebnow (Vice President)
- Jackie Hancock (Vice President and Controller)
- Chris Isaacson (Vice President)
- Brian Schell (Treasurer)
- J. Patrick Sexton (Secretary)

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

BB. 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

- Ed Tilly
- Brian Schell
- Chris Isaacson

Current Officers

- Ed Tilly (President and Chief Executive Officer)
- Alexandra Albright (SVP, Chief Compliance Officer)
- Lawrence Bresnahan (VP, Market & Member Regulation)
- Jen Browning (VP, Head of Human Resources)
- Kevin Carrai (VP, Market Data and Access Services)
- Catherine Clay (SVP, Information Solutions)
- Sean Cleary (VP, Sales FX)
- Gary Compton (VP, Corporate Communications)
- Jeff Connell (VP, Deputy Chief Regulatory Officer)
- Brent Coonrod (Vice President, Software Engineering)
- Eric Crampton (SVP, CTO)
- Arianne Criqui (SVP, Head of Options and Business Development)
- John Deters (EVP, Chief Strategy Officer and Head of Multi-Asset Solutions)
- Laura Dickman (VP, Associate General Counsel)
- James Enstrom (SVP, Chief Audit Executive) Bats
- Angelo Evangelou (SVP, Market Policy and Government Affairs)

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

- Carmen Frazier Brannan (VP, Government Relations)
- Todd Furney (VP, Chief Risk Officer)
- Alicia Goldberg (VP, Statistical Analysis)
- Jennifer Golding (VP, Associate General Counsel, Chief Litigation Officer)
- Jill Griebenow (SVP & Chief Accounting Officer)
- Jackie Hancock (VP, Controller)
- Bryan Harkins (EVP, Co-Head Markets Division)
- Mark Hemsley (EVP, President Europe)
- John Hiatt (VP, Product Development)
- Rob Hocking (SVP, Head of Derivatives Strategy)
- Gregory Hoogasian (SVP, Chief Regulatory Officer)
- Chris Isaacson (EVP, Chief Operating Officer)
- Brett Johnson (VP, Software Engineering)
- Carol Kennedy (VP, Chief Communications Officer)
- Deborah Koopman (VP, Investor Relations)
- Jennifer Lamie (VP, Chief Regulatory Advisor)
- Andrew Lowenthal (EVP, Co-Head Markets Division)
- Marc Magrini (VP, Administration)
- Stephanie Marrin Lara (VP, Deputy Chief Regulatory Officer)
- Anthony Montesano (VP, TSD and Membership Services)
- Laura Morrison (SVP, ETP Listings)
- Mark Novak (VP, Software Engineering)
- Dan Overmyer (VP, Options Regulations)
- Paul Reidy (VP, Cboe FX COO)
- Arthur Reinstein (SVP, Deputy General Counsel)
- Bradley Samuels (VP, Systems Development)
- Brian Schell (EVP, Chief Financial Officer and Treasurer)
- Curt Schumacher (VP, Infrastructure)
- J. Patrick Sexton (EVP, General Counsel and Corporate Secretary)
- Lisa Shemie (VP, Associate General Counsel, Cboe FX and Cboe SEF Chief Legal Officer)
- Steven Sinclair (VP, Systems Development)
- Eileen Smith (VP, Data and Analytics)
- Michael Trees (VP, Trading Systems Development)
- Aaron Weissenfluh (VP, CISO)
- Troy Yeazel (SVP, Operations)
- Vivian Yiu (VP, Product Strategy)

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

CC. 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

- Ed Tilly (President and Chief Executive Officer)
- Alexandra Albright (Chief Compliance Officer)
- Brent Coonrod (Vice President)
- Catherine Clay (Vice President)
- Eric Crampton (Vice President)
- John Deters (Vice President)
- James Enstrom (Vice President, Chief Audit Executive)
- Todd Furney (Chief Risk Officer)
- Jennifer Golding (Vice President)
- Jill Griebnow (Vice President)
- Jackie Hancock (Vice President and Controller)
- Chris Isaacson (Vice President)
- Andrew Lowenthal (Vice President)

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

- Brian Schell (Treasurer)
- J. Patrick Sexton (Secretary)
- Aaron Weissenfluh (Vice President, CISO)

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

DD. Cboe UK Limited

1. *Name: Cboe UK Limited*
Address: 11 Monument Street, London, EC3R 8AF, United Kingdom
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
 - Ed Tilly
 - Mark Hemsley
Current Officers
 - None
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year: Not applicable.*

EE. 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 Eris 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

- Ed Tilly
- John Deters
- Brian Schell

Current Officers

- Ed Tilly (President and Chief Executive Officer)
 - Catherine Clay (Vice President)
 - John Deters (Vice President)
 - Jill Griebenow (Vice President)
 - Jackie Hancock (Vice President and Controller)
 - Chris Isaacson (Vice President)
 - Brian Schell (Treasurer)
 - J. Patrick Sexton (Secretary)
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year: Not applicable.*

FF. 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

- Ed Tilly
- John Deters
- Brian Schell

Current Officers

- Ed Tilly (President and Chief Executive Officer)
 - John Deters (Vice President)
 - Jill Griebenow (Vice President)
 - Jackie Hancock (Vice President and Controller)
 - Chris Isaacson (Vice President)
 - Andrew Lowenthal (Vice President)
 - Brian Schell (Treasurer)
 - J. Patrick Sexton (Secretary)
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year: Not applicable.*

GG. 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

- Ed Tilly
- Bryan Harkins
- Brian Schell

Current Officers

- Ed Tilly (President and Chief Executive Officer)
- Alexandra Albright (Chief Compliance Officer)
- Kevin Carrai (Vice President)
- Catherine Clay (Vice President)
- Eric Crampton (Vice President)
- James Enstrom (Chief Audit Executive)
- Todd Furney (Chief Risk Officer)
- Jennifer Golding (Vice President)
- Jill Griebenow (Vice President)
- Jackie Hancock (Vice President and Controller)
- Bryan Harkins (Vice President)
- Chris Isaacson (Vice President)
- Andrew Lowenthal (Vice President)
- Jim Roche (Vice President)
- Brian Schell (Treasurer)

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

- J. Patrick Sexton (Secretary)
- Aaron Weissenfluh (Chief Information Security Officer)

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

HH. Signal Trading Systems, LLC

1. *Name: Signal Trading Systems, 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 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: Signal Trading Systems, LLC 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.*

II. Cboe Vest Group, Inc.

1. *Name: Cboe Vest Group, Inc.
Address: 8300 Greensboro Drive, 8th 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
- Catherine Clay

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*

JJ. Cboe Hong Kong Limited

1. *Name: Cboe Hong Kong Limited*
Address: 66th Floor, The Center, 99 Queen's 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 Cboe 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
 - Andy Lowenthal
Current Officers
 - None
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year: Not applicable.*

KK. Cboe Silexx, LLC

1. *Name:* Cboe Silexx, LLC
Address: 400 South LaSalle Street, Chicago, IL 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),
October 16, 2017.
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 Silexx, LLC operates the Silexx
order execution management system business.
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
- John Deters
- Brian Schell

Current Officers

- Ed Tilly (President and Chief Executive Officer)
- Alexandra Albright (Chief Compliance Officer)
- Catherine Clay (Vice President)
- Brent Coonrod (Vice President)
- Eric Crampton (Vice President)
- John Deters (Vice President)
- James Enstrom (Chief Audit Executive)
- Todd Furney (Chief Risk Officer)
- Jennifer Golding (Vice President)
- Jill Griebenow (Vice President)
- Jackie Hancock (Vice President and Controller)
- Chris Isaacson (Vice President)
- Brian Schell (Treasurer)
- J. Patrick Sexton (Secretary)
- Aaron Weissenfluh (Chief Information Security Officer)

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

LL. Digital Asset Benchmark Administration, LLC

1. *Name:* Digital Asset Benchmark Administration, LLC
Address: 400 South LaSalle Street, Chicago, IL 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),
October 17, 2017.
4. *Brief description of nature and extent of affiliation:* Wholly-owned subsidiary of
Cboe Global Markets, Inc.
5. *Brief description of business or functions:* Digital Asset Benchmark
Administration, LLC licenses Gemini-related 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:* Not applicable.
9. *Name and title of present officers, governors, members of standing committees
and persons performing similar functions:*

Current Directors

- Ed Tilly
- John Deters
- Brian Schell

Current Officers

- Ed Tilly (President and Chief Executive Officer)
- Alexandra Albright (Chief Compliance Officer)
- Catherine Clay (Vice President)
- Eric Crampton (Vice President)
- John Deters (Vice President)
- James Enstrom (Vice President and Chief Audit Executive)
- Todd Furney (Chief Risk Officer)
- Jennifer Golding (Vice President))
- Jill Griebenow (Vice President)
- Jackie Hancock (Vice President and Controller)
- Chris Isaacson (Vice President)
- Brian Schell (Treasurer)
- J. Patrick Sexton (Secretary)
- Aaron Weissenfluh (CISO)

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

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

MM. CBOE Europe B.V.

1. *Name:* CBOE Europe B.V.
Address: 1212 Gustav Mahlerlaan, 108La Amsterdam (Netherlands)
2. *Form of organization:* Private Company Limited by Shares
3. *Name of state, statute under which organized and date of incorporation:*
Incorporated in the United Kingdom on August 1, 2018.
4. *Brief description of nature and extent of affiliation:* Wholly-owned subsidiary of Cboe Europe Limited. Cboe Europe Limited is wholly-owned by Cboe Worldwide Holdings Limited, which is an affiliate of the Exchange.
5. *Brief description of business or functions:* The business is very broad, encompassing the operation of a regulated market and an approved publication arrangement, and all other businesses that may be ancillary or useful for the above operations
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
 - Ruben Hilhorst
 - Shyam Savania
Current Officers
 - Adam Eades (President)
 - Ruben Hilhorst (Head of Compliance)
 - Shyam Savania (Operations Manager)
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

NN. Cboe Off-Exchange Services, LLC

1. *Name:* Cboe Off-Exchange Services, LLC
Address: 1209 Orange Street, Wilmington, County of New Castle, DE 19801
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),
January 31, 2019.
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 Company is organized for the
purpose of engaging in any lawful activity for which limited liability companies
may be organized under 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:* Not applicable.
9. *Name and title of present officers, governors, members of standing committees
and persons performing similar functions:*

Current Directors

- None

Current Officers

- Ed Tilly (President and Chief Executive Officer)
 - John Deters (Vice President)
 - Jill Griebenow (Vice President)
 - Jackie Hancock (Vice President and Controller)
 - Bryan Harkins (Vive President)
 - Mark Hemsley (Vice President)
 - Chis Isaacson (Vice President)
 - Andrew Lowenthal (Vice President)
 - Brian Schell (Treasurer)
 - J. Patrick Sexton (Secretary)
10. *Indication of whether such business or organization ceased to be associated with
the applicant during previous year:* Not applicable.

OO. Cboe Global Indices, LLC

1. *Name:* Cboe Global Indices, LLC
Address: 400 South LaSalle Street, Chicago, IL 60605
2. *Form of organization:* Limited Liability Company
3. *Name of state, statute under which organized and date of incorporation:* Illinois, Illinois Limited Liability Company Act, September 11, 2019.
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 Company is organized for the purpose of engaging in any lawful activity for which limited liability companies may be organized under the Act.
6. *Copy of constitution:* Not applicable.
7. *Copy of articles of incorporation or association and amendments:* See attached
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
- Brian Schell
- Catherine Clay

Current Officers

- Ed Tilly (President and Chief Executive Officer)
 - Alexandra Albright (Vice President and Chief Compliance Officer)
 - Catherine Clay (Vice President)
 - Eric Crampton (Vice President)
 - Jennifer Golding (Vice President and Chief Litigation Officer)
 - Jill Griebenow (Vice President)
 - Jackie Hancock (Vice President and Controller)
 - Rob Hocking (Vice President)
 - Chris Isaacson (Vice President)
 - Brian Schell (Treasurer)
 - J. Patrick Sexton (Secretary)
 - Aaron Weissenfluh (Vice President and CISO)
10. *Indication of whether such business or organization ceased to be associated with the applicant during previous year:* Not applicable.

PP. 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:* 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 December 31, 2018 The Options Exchange, Incorporated ceased to exist

Form 1, Exhibit C Index of Attachments

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

- AA Cboe III, LLC
- BB Cboe Bats, LLC
- CC Cboe Livevol, LLC
- DD Cboe UK Limited
- EE Cboe Vest, LLC
- FF Loan Markets, LLC
- GG Cboe Data Services, LLC
- HH Signal Trading Systems, LLC
- II Cboe Vest Group Inc.
- JJ Cboe Hong Kong Limited
- KK Cboe Silexx, LLC
- LL Digital Asset benchmark Administration, LLC
- MM CBOE Europe B.V.
- NN Cboe Off-Exchange Services, LLC
- OO Cboe Global Indices, LLC (see attachment)

OO Cboe Global Indices, LLC

LIMITED LIABILITY COMPANY OPERATING AGREEMENT

OF

CBOE GLOBAL INDICES, LLC

This Limited Liability Company Operating Agreement (this "Agreement") of Cboe Global Indices, LLC, an Illinois limited liability company (the "Company"), is entered into as of September 11, 2019 by Cboe Global Markets, Inc., a Delaware corporation (the "Member").

WHEREAS, the Member formed the Company on the date hereof by causing articles of organization (the "Articles of Organization") to be filed with the Secretary of State of the State of Illinois, pursuant to the provisions of the Illinois Limited Liability Company Act, as the same may be amended from time to time (the "Act").

NOW, THEREFORE, the Member, intending to be legally bound, hereby states the terms of its agreement as to the affairs of, and the conduct of the business of, the Company as follows:

1. Name. The name of the limited liability company is Cboe Global Indices, LLC.
2. Purpose. The purpose of the Company shall be to engage in any lawful act or activity for which limited liability companies may be organized under the Act as determined by the Board of Directors (as defined herein).
3. Formation. The filing of the Articles of Organization of the Company with the Secretary of State of the State of Illinois on the date first written above pursuant to the Act is hereby ratified and approved.
4. Duration. Unless the Company shall be earlier dissolved, wound-up and terminated in accordance with Sections 18 and 19, it shall continue in existence in perpetuity.
5. Offices. The principal place of business and office of the Company shall be located at, and the Company's business shall be conducted from, the same location as the principal place of business and office of the Member or such other place or places as the Board of Directors may from time to time designate.
6. Registered Agent and Office. The registered agent and registered office of the Company in the State of Illinois shall be as specified in the Company's Articles of Organization. The Board of Directors may, at any time, designate another registered agent and/or registered office of the Company and may amend the Articles of Organization of the Company to reflect such designation without the consent of the Member or any other person or entity.
7. Member. The Member is admitted as the sole member of the Company and shall be shown as such on the books and records of the Company. No other person shall be

admitted as a member of the Company, and no additional interest in the Company shall be issued, without appropriate amendments to this Agreement, approved by the Member.

8. Other Activities of Member. The Member may engage in or possess an interest in other business ventures of any nature, whether or not similar to or competitive with the activities of the Company.

9. Management of the Company.

(a) *Management by Board of Directors.* The business and affairs of the Company shall be managed by a board of directors (the "Board of Directors"). The number of persons constituting the Board of Directors shall be fixed from time to time by the Member, and the Board of Directors shall consist of individuals elected by the Member (each such individual, a "Director"). Directors shall hold office for such term as may be determined by the Member and, if later, until their respective successors are elected by the Member, or until the respective Director's earlier death, resignation or removal. Directors may be removed from, and substitute or additional Directors may be appointed to, the Board of Directors, at any time by the Member. Each Director is hereby designated as a "manager" of the Company within the meaning of the Act.

(b) *Meetings of the Board of Directors.* The Board of Directors shall meet as often as is necessary or desirable to carry out its functions on such dates and times as the Board of Directors may determine from time to time. 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 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 then in office shall constitute a quorum for the transaction of business; provided that a quorum shall not exist unless at least two Directors are present. Notice of the date, time and purpose of each regular and special meeting shall be delivered personally or by telephone to each Director or sent by first class mail, electronic mail or facsimile transmission, charges prepaid, addressed to such Director at such Director's mailing or electronic mail address or facsimile address or number as appears on the records of the Company. Such notice shall be delivered to each Director at least one day prior to the date scheduled for a meeting. A Director may waive the requirement of notice of meeting either by attending a meeting for which notice was not given or providing a written waiver (email is sufficient) before or after such meeting.

(c) *Actions of the Board of Directors; Action by Written Consent.* The act of a majority of the Directors present at any meeting of the Board of Directors at which there is a quorum shall be the act of the Board of Directors. Any action required or permitted to be taken at a meeting of the Board of Directors may be taken without a meeting and without prior notice if written consents, setting forth the action so taken, are executed by the members of the Board of Directors representing the minimum number of votes that would be necessary to authorize or to take such action at a meeting at which all members of the Board of Directors permitted to vote were present and voted. Any such written consents may be executed in any number of counterparts, with each such counterpart being deemed to be an original instrument, and all such

counterparts together constituting the same consent. The Board of Directors may establish such other rules and procedures for its deliberations as it may deem necessary or desirable.

(d) *Powers of the Board of Directors.* 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 as a Director shall have the power to act for or bind the Company to the extent authorized to do so by the Board of Directors.

(e) *Other Activities of Directors.* The Directors shall not be required to manage the Company as their sole and exclusive function, and they may have other business interests and may engage in other activities in addition to those relating to the Company.

(f) *Officers.* The Company may have such officers and agents with such respective rights and duties as the Board of Directors may from time to time determine. The Board of Directors may delegate to one or more officers, agents or employees or other persons (who shall not be deemed "managers" within the meaning of the Act by virtue of such delegation) any and all powers to manage the Company that the Directors possess under this Agreement and the Act. All officers of the Company appointed by the Board of Directors shall hold office for such term as may be determined by the Board of Directors or, if later, until their respective successors are appointed, or until the respective officer's earlier death, resignation or removal. Any officer may be removed from office at any time either with or without cause by the president of the Company 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, if the title assigned to an officer is one commonly used for officers of a business corporation formed under the Illinois Business Corporation Act, the assignment of such title shall constitute the delegation to such person of the authorities and duties that are normally associated with that office.

10. Voting Powers of Member.

(a) *General Rules.* The Member, as such, shall not have any voting rights or take any part in the day-to-day management or conduct of the business of the Company, nor shall the Member have any right or authority to act for or bind the Company. Actions and decisions that do require the approval of the Member pursuant to any provision of this Agreement or applicable law may be authorized or made by affirmative vote of the Member. Such vote may be taken at a meeting of the Member or by written consent without a meeting.

(b) *Meetings.* An annual meeting of the Member may be held for the purpose of electing Directors and conducting such additional business as shall properly come before the meeting in any calendar year. In addition, the Member may call a meeting to consider approval of an action or decision under any provision of this Agreement or applicable law.

(c) *Action by Written Consent.* Any action required or permitted to be taken at a meeting of the Member may be taken without a meeting if, prior or subsequent to the action, a written consent in lieu of a meeting, setting forth the action so taken or to be taken shall be signed by such Member.

11. Initial Capital Contribution. Concurrently with or prior to the execution of this Agreement, the Member has made one or more capital contributions to the Company in exchange for 100% of the limited liability company membership interests in the Company.

12. Additional Capital Contributions. The Member may, but is not required to, make additional capital contributions to the Company. All capital contributions shall be made at the option of the Member and shall be made as and when the Member deems appropriate.

13. Loans. If the Member makes any loans to the Company, or advances money on the Company's behalf, the amount of any such loan or advance shall not be deemed an increase in, or contribution to, the capital contribution of the Member. If the Company makes any loans to the Member, or advances money on the Member's behalf, the amount of any such loan or advance shall not be deemed a decrease in capital of the Member or a distribution to the Member. Interest shall accrue on any such loan or advance at an annual rate agreed to by the Company and the Member (but not in excess of the maximum rate allowable under applicable usury laws).

14. Allocation of Profits and Losses. All of the Company's profits and losses shall be allocated to the Member.

15. Distributions. The Company may distribute funds or other assets to the Member at such times and in such amounts as the Board of Directors may determine. In determining the amount of funds to distribute pursuant to this Section 15, the Board of Directors may consider such factors as the need to allocate funds to any reserves for Company contingencies or any other Company purposes that the Board of Directors reasonably deems necessary or appropriate. Notwithstanding any of the foregoing, the Company shall not make a distribution to the Member on account of its interest in the Company if such distribution would violate the Act or other applicable law.

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

17. No Certification of Interests. The membership interests in the Company shall not be certificated.

18. Dissolution. The Company shall be dissolved and its affairs wound up upon the first to occur of the following events: (i) the affirmative approval of the Board of Directors to dissolve the Company; (ii) the written consent of the Member to dissolve the Company; (iii) at any time there are no members of the Company, unless the Company is continued in accordance with the Act; or (iv) when required by a decree of judicial dissolution

entered in accordance with the Act. Such dissolution and winding up shall be carried out in accordance with the Act. The bankruptcy (as defined in the Act) of the Member shall not cause the Member to cease to be a member of the Company, and upon the occurrence of such an event, the Company shall continue without dissolution.

19. Winding Up of Company. Upon dissolution, the Company's business shall be liquidated in an orderly manner. The Board of Directors shall act as the liquidator to wind up the affairs of the Company pursuant to this Agreement. In performing its duties, the Board of Directors is authorized to sell, distribute, exchange or otherwise dispose of the assets of the Company in accordance with the Act and in any reasonable manner that the Board of Directors shall determine. The Company shall terminate when (i) all of the assets of the Company, after payment of or due provision for all debts, liabilities and obligations of the Company shall have been distributed to the Member in the manner provided for in this Agreement and (ii) the Articles of Organization of the Company shall have been canceled in the manner required by the Act.

20. Liability, Exculpation and Indemnification.

(a) *Limited Liability Generally.* Except as otherwise expressly required by the Act, the debts, obligations and liabilities of the Company, whether arising in contract, tort or otherwise, shall be the debts, obligations and liabilities solely of the Company, and the Member, Directors, officers, employees and agents of the Company shall not be obligated personally for any such debt, obligation or liability of the Company solely by reason of being a Member, Director, officer, employee or agent of the Company.

(b) *Exculpation.* Neither the Member nor any Director nor any officer nor member of a committee of the Company (a "Covered Person") shall be liable to the Company or any other person or entity who is bound by this Agreement for any loss, damage or claim incurred by reason of any act or omission performed or omitted by such Covered Person in good faith on behalf of the Company and in a manner reasonably believed to be within the scope of the authority conferred on such Covered Person by this Agreement; provided that a Covered Person shall be liable for any such loss, damage or claim incurred if such Covered Person (1) committed an act or omission not in good faith or (2) committed an act of intentional misconduct or a knowing violation of law.

(c) *Indemnification of Member, Officers and Directors.* 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 Covered 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 Covered Person, or, while a Covered Person, is or was serving at the request of the Company as a director or officer, employee or agent of another company, partnership, joint venture, trust or other enterprise or non-profit entity, including service with respect to employee benefit plans, against all liability and loss suffered and expenses (including reasonable attorneys' fees), judgment, fines and amounts paid in settlement actually and reasonably incurred by such Covered Person in connection with a proceeding. Notwithstanding the preceding sentence, except as otherwise provided in Section 20(d), 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.

(d) *Advancement of Expenses.* Expenses (including reasonable 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 (1) committed an act or omission not in good faith or (2) 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 Illinois law that such Covered Person is not entitled to be indemnified for such expenses under this Section 20.

(e) *Enforcement.* If a claim for indemnification (following the final disposition of such action, suit or proceeding) or advancement of expenses under this Section 20 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.

(f) *Deemed Contract.* The provisions of this Section 20 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 20 is in effect, and any repeal or modification of any applicable law or of this Section 20 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.

(g) *Indemnification of Employees and Agents.* Persons not expressly covered by the foregoing provisions of this Section 20, including without limitation 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 company, partnership, joint venture, trust or other enterprise, or (ii) who are or were directors, officers, employees or agents of a constituent company absorbed in a consolidation or merger in which the Company was the resulting or surviving company, or who are or were serving at the request of such constituent company as directors, officers, employees or agents of another company, 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. The Board of Directors may also enter into separate and/or additional documents with any Covered Person or any other person which may have the effect of granting additional indemnification rights, and/or establishing additional rights, or altering or supplementing the terms of this Section 20 without the consent of any other person.

(h) *Nonexclusivity of Rights.* The rights conferred on any Covered Person by this Section 20 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.

(i) *Collateral Source Recovery.* 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 company, 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 company, partnership, joint venture, trust, enterprise or non-profit entity.

(j) *Repeal or Modification.* Any repeal or modification of the foregoing provisions of this Section 20 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.

(k) *Insurance.* The Company may purchase and maintain insurance, at its expense, to protect itself and any Member, Director, officer, manager, trustee, employee or agent of the Company or, at its request, as a director, officer, employee or agent of another company, partnership, limited liability company, joint venture, trust or other enterprise against any expense, liability or loss, whether or not the Company would have the power to indemnify such person against such expense, liability or loss under the Act.

21. Application for Admission to Transact Business. The Member shall file, on behalf of the Company, in accordance with applicable law, an application to transact business as a foreign limited liability company in any jurisdiction where the Member deems such a filing or similar filing to be appropriate.

22. Governing Law. This Agreement shall be governed by, and construed under, the laws of the State of Illinois (without regard to conflict of laws principals), all rights and remedies being governed by such laws.

23. Fiscal Year. The fiscal year of the Company shall end on December 31.

24. Modification, Waiver or Termination. Except as otherwise expressly provided herein, no modification, waiver or termination of this Agreement, or any part hereof, shall be effective unless made in writing and signed by the Member.

25. Benefits of Agreement. None of the provisions of this Agreement shall be for the benefit of or enforceable by any creditor of the Company or of any other person not a party to this Agreement.

26. Headings. The titles of Sections of this Agreement are for convenience of reference only and shall not define or limit any of the provisions of this Agreement.

27. Severability. The invalidity or unenforceability of any particular provision of this Agreement shall be construed in all respects as if such invalid or unenforceable provision were omitted.

[Signature Page Follows]

IN WITNESS WHEREOF, the undersigned, intending to be legally bound hereby, has duly executed this Limited Liability Company Operating Agreement of Cboe Global Indices, LLC as of the date first written above.

MEMBER:

Cboe Global Markets, Inc.

By: 
Name: Patrick Sexton
Title: Executive Vice President, General Counsel
& Corporate Secretary



OFFICE OF THE SECRETARY OF STATE

JESSE WHITE-Secretary of State

08000972
SEPTEMBER 11, 2019

C T CORPORATION SYSTEM
208 SO LASALLE ST, SUITE 814
CHICAGO, IL 60604-1101

RE CBOE GLOBAL INDICES, LLC

DEAR SIR OR MADAM:

IT HAS BEEN OUR PLEASURE TO APPROVE AND PLACE ON RECORD THE ARTICLES OF ORGANIZATION THAT CREATED YOUR LIMITED LIABILITY COMPANY. WE EXTEND OUR BEST WISHES FOR SUCCESS IN YOUR NEW VENTURE.

PLEASE NOTE! THE LIMITED LIABILITY COMPANY MUST FILE AN ANNUAL REPORT PRIOR TO THE FIRST DAY OF THIS ANNIVERSARY MONTH NEXT YEAR. FAILURE TO TIMELY FILE MAY RESULT IN PENALTY AND DISSOLUTION.
A PRE-PRINTED ANNUAL REPORT WILL BE MAILED TO THE REGISTERED AGENT AT THE REGISTERED OFFICE ADDRESS APPROXIMATELY 45 DAYS BEFORE THE DUE DATE.

A LIMITED LIABILITY COMPANY THAT INTENDS TO PROVIDE A PROFESSIONAL SERVICE REGULATED BY THE ILLINOIS DEPARTMENT OF FINANCIAL AND PROFESSIONAL REGULATION MUST REGISTER WITH THAT AGENCY.

PUBLICATIONS/FORMS AND OTHER SERVICES ARE AVAILABLE ON OUR WEBSITE. VISIT WWW.CYBERDRIVEILLINOIS.COM TO VIEW THE STATUS OF THIS COMPANY, PURCHASE A CERTIFICATE OF GOOD STANDING, OR EVEN FILE THE ANNUAL REPORT REFERRED TO IN THE EARLIER PARAGRAPH.

SINCERELY YOURS,

JESSE WHITE
ILLINOIS SECRETARY OF STATE
DEPARTMENT OF BUSINESS SERVICES
LIMITED LIABILITY DIVISION
(217) 524-8008

08000972

Form **LLC-5.5**
May 2018

Secretary of State
Department of Business Services
Limited Liability Division
501 S. Second St., Rm. 351
Springfield, IL 62756
217-524-8008
www.cyberdriveillinois.com

Illinois
Limited Liability Company Act
Articles of Organization

FILE

This space for use by Secretary of State.

FILED

SEP 11 2019

JESSE WHITE
SECRETARY OF STATE

SUBMIT IN DUPLICATE

Type or print clearly.

Filing Fee: \$150

Approved:

KH

Payment must be made by certified check, cashier's check, Illinois attorney's check, C.P.A.'s check or money order payable to Secretary of State.

1. Limited Liability Company name (see Note 1): Cboe Global Indices, LLC

2. Address of principal place of business where records of the company will be kept: (P.O. Box alone or c/o is unacceptable.)
400 South LaSalle Street, Chicago, Illinois 60605

3. Articles of Organization effective on: (check one)
 the filing date
 a later date (not to exceed 60 days after the filing date): _____
Month, Day, Year

4. Registered agent's name and registered office address:
Registered agent: CT Corporation System
(P.O. Box alone or c/o is unacceptable.)
Registered office: 208 South LaSalle Street Suite 814
Number Street Suite #
Chicago IL 60604
City ZIP

Note: The registered agent must reside in Illinois. If the agent is a business entity, it must be authorized to act as agent in this state.

5. Purpose(s) for which the Limited Liability Company is organized: (see Note 2)
The transaction of any or all lawful business for which Limited Liability Companies may be organized under this Act and/or exclusively for the purpose(s) stated below:
N/A

6. The duration of the company is perpetual unless otherwise stated. If the operating agreement provides for a dissolution date, enter that date here: _____
Month/Day Year

LLC-5.5

7. **Optional:** Other provisions for the regulation of the internal affairs of the company: (If additional space is needed, use sheets of this size.) _____

8. The Limited Liability Company has or will have on the effective date of filing one or more members.

9. Name(s) and business address(es) of the manager(s) and any member with the authority of manager:

Edward T. Tilly	400 South LaSalle Street	Chicago	IL	60605
Name	Number & Street	City	State	ZIP
Brian N. Schell	400 South LaSalle Street	Chicago	IL	60605
Name	Number & Street	City	State	ZIP
Catherine Clay	400 South LaSalle Street	Chicago	IL	60605
Name	Number & Street	City	State	ZIP
Name	Number & Street	City	State	ZIP
Name	Number & Street	City	State	ZIP

(If additional space is needed, use sheets of this size.)

10. **Name and Address of Organizer(s):**

I affirm, under penalties of perjury, having authority to sign hereto, that these Articles of Organization are to the best of my knowledge and belief, true, correct and complete.

Dated: September 11, 2019
Month/Day Year

1. 
Signature
Patrick Sexton, EVP, General Counsel & Corp. Secretary
Name and Title (type or print)
Cboe Global Markets, Inc.
If organizer is signing for a company or other entity, state name of company or entity.

1. 400 South LaSalle Street
Number Street
Chicago
City
Illinois 60605
State ZIP

2. _____
Signature

Name (type or print)

If organizer is signing for a company or other entity, state name of company or entity.

2. _____
Number Street

City

State ZIP

Note 1: The name must contain the term Limited Liability Company, LLC or L.L.C. The name cannot contain any of the following terms: "Corporation," "Corp." "Incorporated," "Inc.," "Ltd.," "Co.," "Limited Partnership" or "LP." However, a limited liability company that will provide services licensed by the Illinois Department of Financial and Professional Regulation must instead contain the term Professional Limited Liability Company, PLLC or P.L.L.C. in the name.

Note 2: A professional limited liability company must state the specific professional service or related professional services to be rendered by the professional limited liability company.

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 Effective Date	C2 Effective 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	312-994-4640	Market Maker, Proprietary Trading
All Rise Trading LLC	NA	NA	NA	NA	8/14/2018	NA	Member TPH	141 W Jackson Boulevard Suite 300A Chicago, IL 60604	312-483-2147	Floor Broker
Alpha Direct 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
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
Alpha Trading, LP	2/22/2019	2/22/2019	2/22/2019	2/22/2019	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
AMS Derivatives B.V.	8/14/2019	9/10/2019	9/10/2019	8/14/2019	12/1/2017	6/5/2019	Member TPH	Strawinskylaan 3095 Amsterdam, 1077ZX Netherlands	31-020-708-7000	Proprietary Trading
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	312-836-8700	Limited Routing Facility of ICE affiliated Exchanges
Athens 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 dba Cowen Electronic	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
Axos Financial LLC	10/15/2009	NA	NA	NA	NA	NA	Member TPH	1200 Landmark Center 1299 Farnam Street Suite 800 Omaha, NE 68102	402-394-6100	Clearing Services
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
Belvedere Trading LLC	11/1/2011	3/1/2012	11/29/2011	10/16/2018	1/3/2005	4/4/2011	Member TPH	10 S Riverside Plaza Suite 2100 Chicago, IL 60606	312-893-3750	Market Maker, Proprietary Trading
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
Bitmore International Corporation	NA	NA	NA	5/15/2019	NA	NA	Member TPH	1090 King Georges Post Road Edison, NJ 08837	732-791-4000	Market Maker, Proprietary Trading
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
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	11/17/2017	8/27/2019	8/27/2019	8/27/2019	2/1/2017	NA	Member TPH	300 N LaSalle Street Suite 2060 Chicago, IL 60654	708-967-6843	Market Maker
Boerboel Capital LLC	1/30/2019	1/30/2019	1/30/2019	1/30/2019	NA	NA	Sponsored Participant	300 N LaSalle Street Suite 2060 Chicago, IL 60654	708-967-6843	Market Maker
Boerboel Trading LP	10/15/2018	10/15/2018	10/15/2018	10/15/2018	NA	NA	Sponsored Participant	Maples Corporate Services PO Box 309, Ugland House Cayman Islands KY1-1104	#####	Proprietary Trading
BofA Securities, Inc.	9/19/2018	9/19/2018	9/19/2018	9/19/2018	5/13/2019	5/13/2019	Member TPH	One Bryant Park New York, NY 10036	201-671-5685	Clearing Services, Firm Proprietary Trading, Public Customer Business
BTIG, LLC	8/18/2008	11/15/2010	5/25/2010	5/27/2010	NA	NA	Member TPH	800 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 LLC	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	212-858-3877	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	1/24/2019	NA	NA	NA	10/1/2007	NA	Member TPH	141 W Jackson Boulevard Suite 2200A Chicago, IL 60604	312-477-8400	Market Maker/Proprietary
Cboe Trading, Inc.	10/23/2008	9/1/2010	5/14/2010	5/14/2010	7/26/2019	4/18/2018	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	80 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
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
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

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Citigroup Derivatives Markets Inc.	2/15/2018	NA	NA	2/15/2018	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	6/3/2019	Member TPH	390-388 Greenwich Street New York, NY 10013	212-616-6000	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
Clear Street Markets, LLC	7/16/2012	7/16/2012	8/20/2012	8/20/2012	6/6/2012	3/22/2019	Member TPH	55 Broadway Suite 2102 New York, NY 10006	646-738-4066	Market Maker, Proprietary Trading
Clear Street, LLC	3/18/2019	8/14/2019	8/14/2019	8/14/2019	NA	NA	Member TPH	55 Broadway Suite 2102 New York, NY 10006	646-738-4068	Public Customer Business, Clearing, Proprietary Trading
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
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 W 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	312-630-9050	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
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
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	10/6/2010	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	6/8/2018	NA	6/8/2018	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	3/15/2018	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
Cutter 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	415-293-3958	Market Maker, Proprietary Trading
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	312-998-2006	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
DRW Singapore Ltd.	11/19/2018	NA	NA	11/19/2018	NA	NA	Sponsored Participant	8 Marina View Asia Square Tower 1 #32-05 Singapore 018960	312-542-1005	Proprietary Trading
Dynamic Technology Lab Pte. Ltd.	11/5/2018	11/5/2018	11/5/2018	11/5/2018	NA	NA	Sponsored Participant	07-00, 178 Clemenceau Avenue Singapore 239926	656-610-4693	Proprietary Trading
E & F Man Capital Markets Inc.	NA	NA	NA	NA	3/1/2019	6/7/2019	Member TPH	140 E. 45th Street 10th Floor New York, NY 10017	212-618-2800	Clearing, Public Customer Business
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
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
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
Gair Loch Enterprises Ltd	2/22/2019	2/22/2019	4/8/2019	4/8/2019	NA	NA	Member TPH	540 W. Madison Suite 2500 Chicago, IL 60661	312-542-1193	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
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
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
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

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Hailey Investments Limited	6/16/2014	NA	NA	NA	NA	NA	Sponsored Participant	Themistoki 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
Headlands Technologies LLC	10/15/2018	10/15/2018	10/15/2018	10/15/2018	NA	NA	Sponsored Participant	155 N. Wacker Drive, Suite 1900 Chicago, IL 60606	312-601-8649	Proprietary Trading
Helmeyer, LLC	10/3/2016	10/3/2016	10/3/2016	10/3/2016	NA	NA	Sponsored Participant	601 S LaSalle Street 2nd Floor Chicago, IL 60605	312-327-4112	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	NA	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
ICAP Corporates LLC	NA	NA	3/28/2013	NA	NA	NA	Member TPH	Harborade 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-Chicago LLC dba 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
IMC-Chicago LLC dba IMC Financial Markets	11/5/2018	11/5/2018	11/5/2018	11/5/2018	NA	NA	Sponsored Participant	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	1833 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	10/6/2010	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
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	1/2/2019	Member TPH	250 Vesey Street 5th Floor New York, NY 10281	646-759-6000	Market Maker, Proprietary Trading
Jane Street Execution Services LLC	1/24/2019	1/24/2019	1/24/2019	1/24/2019	NA	NA	Member TPH	250 Vesey Street 8th Floor New York, NY 10281	646-759-6381	Proprietary Trading
Jane Street Options, LLC	4/15/2016	NA	NA	11/9/2018	5/2/2005	1/2/2019	Member TPH	250 Vesey Street 5th Floor New York, NY 10281	646-759-6000	Market Maker
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
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 Suite 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	312-863-1307	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
Lamport 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
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
Lime Brokerage LLC	8/18/2008	10/1/2010	5/26/2010	5/27/2010	NA	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

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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
Matrix Executions, 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
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-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	NA	Member TPH	One Bryant Park New York, NY 10036	800-637-7455	Clearing, Transact Business with the Public, Brokerage, Market Maker, Proprietary Trading
Mint Global Markets, Inc.	NA	NA	5/28/2010	5/27/2010	NA	NA	Member TPH	1717 Route 6 Suite 102 Carmel, NY 10512	800-874-3039	Agency
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
Monednock Capital Management, LP	NA	NA	NA	NA	12/1/2014	NA	Member TPH	1845 Walnut Street Suite 940 Philadelphia, PA 19103	267-239-0367	Market Maker
Morgan Stanley & Co. International plc	NA	NA	NA	NA	4/12/2017	NA	Sponsored Participant	20 Bank Street Canary Wharf London, UK E14 4A	#####	
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 600 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	5/28/2010	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
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	5/30/2018	6/1/2005	9/24/2010	Member TPH	130 E Randolph Street 14th Floor Chicago, IL 60601	312-821-9500	Market Maker
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
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
Phillip Capital Inc.	NA	NA	NA	11/27/2017	NA	NA	Member TPH	141 W Jackson Boulevard Suite 3050 Chicago, IL 60604	312-356-9001	Clearing Services
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 Montréal, Québec 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	81 Princeton Highstown Road West Windsor, NJ 08550	609-269-9212	Agency
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
Purdion 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
Purdion LLC	10/15/2018	10/15/2018	10/15/2018	10/15/2018	NA	NA	Sponsored Participant	230 Park Avenue 10th Floor New York, NY 10169	718-618-4929	Proprietary Trading
Quantbot Technologies LP	3/27/2018	3/27/2018	3/27/2018	3/27/2018	NA	NA	Sponsored Participant	369 Lexington Avenue New York, NY 10017	212-622-6510	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	NA	NA	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
Radix Trading LLC	11/5/2018	11/5/2018	11/5/2018	11/5/2018	NA	NA	Sponsored Participant	353 N Clark Street Suite 3200 Chicago, IL 60654	773-377-8080	Research Firm
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	9/19/2008	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

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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
Ronin Professional, 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
Rosenblatt Securities Inc.	8/18/2008	10/6/2010	5/28/2010	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	5/28/2010	5/27/2010	NA	NA	Member TPH	548 5th Avenue New York, NY 10036	212-704-5500	Market Maker
SeageTrader, 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	5/28/2010	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	5/28/2010	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	5/29/2010	5/27/2010	NA	NA	Member TPH	250 Vesey Street New York, NY 10281	212-225-6500	Institutional Trading
Sea Otter Securities Group LLC	10/9/2018	10/9/2018	NA	10/9/2018	NA	NA	Sponsored Participant	107 Grand Street 7th Floor New York, NY 10013	646-762-9972	Proprietary Trading
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 10187	212-278-6000	Clearing, Proprietary Trading, Transact Business with the Public, Brokerage
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	8/19/2017	NA	NA	Member TPH	11 Broadway Suite 514 New York, NY 10004	646-885-6486	Public Customer Business
SRT Securities LLC	NA	NA	NA	NA	10/27/1995	9/24/2010	Member TPH	666 5th Avenue 14th Floor New York, NY 10103	212-841-4567	Floor Broker, Transact Business with the Public, Brokerage
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
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
SumRidge Partners, LLC	NA	NA	NA	12/27/2017	NA	NA	Member TPH	111 Town Square Place Suite 320 Jersey City, NJ 07310	201-898-2520	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, LLC	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
SVB Leerink 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
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	800-869-3900	Public Customer Business, Clearing Services
Tafsey 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
Thema 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 Encinitas Boulevard Suite 1 Encinitas, CA 92024	760-452-2451	Proprietary Trading
Timber Hill LLC	NA	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
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
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 Helepolis, 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

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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	212-775-5678	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	7/18/2018	Member TPH	100 Avenue of the Americas 19th Floor New York, NY 10013	212-625-5700	Market Maker, Broker
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
Ultraviolet Securities LLC	6/17/2019	6/17/2019	6/17/2019	6/17/2019	NA	NA	Sponsored Participant	151 Bodman Place Suite 301 Red Bank, NJ 07701	732-450-7462	Proprietary Trading
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
Valox Clearing LLC	9/5/2019	9/5/2019	9/5/2019	9/5/2019	NA	NA	Member TPH	2400 E. Katella Ave Suite 725 Anaheim, CA 92806	949-352-4694	Clearing Services
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	646-682-8000	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
Volant Execution, 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
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
Walleye Trading LLC	12/1/2008	11/12/2010	NA	4/17/2018	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 Washburn 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	4/1/2014	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