

Fay Patrick J
 Form 3
 June 14, 2010

FORM 3 UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

OMB APPROVAL

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INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF SECURITIES

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934,
 Section 17(a) of the Public Utility Holding Company Act of 1935 or Section
 30(h) of the Investment Company Act of 1940

(Print or Type Responses)

| | | | | |
|---|---------|--------------------------------------|--|--|
| 1. Name and Address of Reporting Person * | | 2. Date of Event Requiring Statement | 3. Issuer Name and Ticker or Trading Symbol | |
| Fay Patrick J | | (Month/Day/Year) | CBOE Holdings, Inc. [CBOE] | |
| (Last) | (First) | (Middle) | 06/14/2010 | |
| C/O CBOE HOLDINGS, INC., 400 SOUTH LASALLE STREET | | | 4. Relationship of Reporting Person(s) to Issuer | 5. If Amendment, Date Original Filed(Month/Day/Year) |
| (Street) | | | | (Check all applicable) |
| CHICAGO, IL 60605 | | | <input type="checkbox"/> Director | <input type="checkbox"/> 10% Owner |
| (City) | (State) | (Zip) | <input checked="" type="checkbox"/> Officer | <input type="checkbox"/> Other |
| | | | (give title below) | (specify below) |
| | | | Senior VP | 6. Individual or Joint/Group Filing(Check Applicable Line) |
| | | | | <input checked="" type="checkbox"/> Form filed by One Reporting Person |
| | | | | <input type="checkbox"/> Form filed by More than One Reporting Person |

Table I - Non-Derivative Securities Beneficially Owned

| | | | |
|------------------------------------|--|---|--|
| 1. Title of Security (Instr. 4) | 2. Amount of Securities Beneficially Owned (Instr. 4) | 3. Ownership Form: Direct (D) or Indirect (I) (Instr. 5) | 4. Nature of Indirect Beneficial Ownership (Instr. 5) |
|------------------------------------|--|---|--|

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

SEC 1473 (7-02)

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Table II - Derivative Securities Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)

| | | | | | |
|---|---|--|--|---|--|
| 1. Title of Derivative Security (Instr. 4) | 2. Date Exercisable and Expiration Date (Month/Day/Year) | 3. Title and Amount of Securities Underlying Derivative Security (Instr. 4) | 4. Conversion or Exercise Price of Derivative Security | 5. Ownership Form of Derivative Security: Direct (D) | 6. Nature of Indirect Beneficial Ownership (Instr. 5) |
| | Date Exercisable | Expiration Date | Title | Amount or Number of | |

Shares

or Indirect
(I)
(Instr. 5)

Reporting Owners

| Reporting Owner Name / Address | Relationships | | | |
|---|---------------|-----------|-----------|-------|
| | Director | 10% Owner | Officer | Other |
| Fay Patrick J C/O CBOE HOLDINGS, INC. 400 SOUTH LASALLE STREET CHICAGO, IL 60605 | | | Senior VP | |

Signatures

/s/ Patrick Sexton,
attorney-in-fact

06/14/2010

__Signature of Reporting Person

Date

Explanation of Responses:

No securities are beneficially owned

- * If the form is filed by more than one reporting person, *see* Instruction 5(b)(v).
- ** Intentional misstatements or omissions of facts constitute Federal Criminal Violations. *See* 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

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Remarks:

Exhibit List: Exhibit 24 - Power of Attorney

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, *See* Instruction 6 for procedure. Potential persons who are to respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB number.