

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549

SCHEDULE 13G

UNDER THE SECURITIES EXCHANGE ACT OF 1934  
ANNUAL FILING

3M CO.  
(NAME OF ISSUER)  
COMMON  
(TITLE CLASS OF SECURITIES)  
88579Y101  
(CUSIP NUMBER)  
12/31/2006  
(DATE OF EVENT WHICH REQUIRES FILING OF THIS STATEMENT)

CHECK THE APPROPRIATE BOX TO DESIGNATE THE RULE PURSUANT TO WHICH THIS SCHEDULE IS FILED:

- RULE 13D-1(B)  
 RULE 13D-1(C)  
 RULE 13D-1(D)

\*THE REMAINDER OF THIS COVER PAGE SHALL BE FILLED OUT FOR A REPORTING PERSON'S INITIAL FILING ON THIS FORM WITH RESPECT TO THE SUBJECT CLASS OF SECURITIES, AND FOR ANY SUBSEQUENT AMENDMENT CONTAINING INFORMATION WHICH WOULD ALTER THE DISCLOSURES PROVIDED IN A PRIOR COVER PAGE.

THE INFORMATION REQUIRED IN THE REMAINDER OF THIS COVER PAGE SHALL NOT BE DEEMED TO BE "FILED" FOR THE PURPOSE OF SECTION 18 OF THE SECURITIES EXCHANGE ACT OF 1934 ("ACT") OR OTHERWISE SUBJECT TO THE LIABILITIES OF THAT SECTION OF THE ACT BUT SHALL BE SUBJECT TO ALL OTHER PROVISIONS OF THE ACT (HOWEVER, SEE THE NOTES).

CUSIP NO. 88579Y101      SCHEDULE 13G      PAGE 2 OF 5 PAGES

1. NAME OF REPORTING PERSON  
S.S. OR I.R.S. IDENTIFICATION NO. OF PERSON  
STATE STREET BANK AND TRUST COMPANY, ACTING IN VARIOUS FIDUCIARY CAPACITIES.      04-1867445
2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP.\*  

NOT APPLICABLE	A <input type="checkbox"/>
	B <input type="checkbox"/>
3. SEC USE ONLY
4. CITIZENSHIP OR PLACE OF ORGANIZATION  
BOSTON, MASSACHUSETTS
5. SOLE VOTING POWER  
26,091,255 SHARES
6. SHARED VOTING POWER  
29,286,023 SHARES
7. SOLE DISPOSITIVE POWER  
0 SHARES
8. SHARED DISPOSITIVE POWER  
55,377,278 SHARES
9. AGGREGATED AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON  
55,377,278 SHARES
10. CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES\*

NOT APPLICABLE

11. PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW 9

7.5%

12. TYPE OF REPORTING PERSON\*

BK

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ITEM 1.

(A) NAME OF ISSUER

3M CO.

(B) ADDRESS OF ISSUER'S PRINCIPAL EXECUTIVE OFFICES

3M CENTER

ST. PAUL, MN 55144-144

ITEM 2.

(A) NAME OF PERSON FILING

STATE STREET BANK AND TRUST COMPANY, TRUSTEE

(B) ADDRESS OF PRINCIPAL BUSINESS OFFICE OR, IF NONE,  
RESIDENCE

225 FRANKLIN STREET, BOSTON, MA 02110

(C) CITIZENSHIP

BOSTON, MASSACHUSETTS

(D) TITLE CLASS OF SECURITIES

COMMON

(E) CUSIP NUMBER

88579Y101

ITEM 3. IF THIS STATEMENT IS FILED PURSUANT TO RULE 13D-1(B), OR  
13D-2(B), CHECK WHETHER THE PERSON FILING IS A:

(B)  BANK AS DEFINED IN SECTION 3(A)(6) OF THE ACT

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ITEM 4. OWNERSHIP

(A) AMOUNT BENEFICIALLY OWNED

55,377,278 SHARES

(B) PERCENT OF CLASS

7.5%

(C) NUMBER OF SHARES AS TO WHICH SUCH PERSON HAS:

(I) SOLE POWER TO VOTE OR TO DIRECT THE VOTE OF

26,091,255 SHARES

(II) SHARED POWER TO VOTE OR TO DIRECT THE VOTE

29,286,023 SHARES

(III) SOLE POWER TO DISPOSE OR TO DIRECT THE DISPOSITION OF  
0 SHARES

(IV) SHARED POWER TO DISPOSE OR TO DIRECT THE DISPOSITION OF

55,377,278 SHARES

ITEM 5. OWNERSHIP OF FIVE PERCENT OR LESS OF A CLASS

NOT APPLICABLE

ITEM 6. OWNERSHIP OF MORE THAN FIVE PERCENT ON BEHALF OF ANOTHER  
PERSON.

NOT APPLICABLE

ITEM 7. IDENTIFICATION AND CLASSIFICATION OF THE SUBSIDIARY WHICH  
ACQUIRED THE SECURITY BEING REPORTED ON BY THE PARENT  
HOLDING COMPANY

NOT APPLICABLE

ITEM 8. IDENTIFICATION AND CLASSIFICATION OF MEMBERS OF THE GROUP

NOT APPLICABLE

ITEM 9. NOTICE OF DISSOLUTION OF GROUP

NOT APPLICABLE

ITEM 10. CERTIFICATION

THE FOLLOWING CERTIFICATION SHALL BE INCLUDED IF THE STATEMENT IS FILED PURSUANT TO RULE 13D-1(B) :

BY SIGNING BELOW I CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE SECURITIES REFERRED TO ABOVE WERE ACQUIRED IN THE ORDINARY COURSE OF BUSINESS AND WERE NOT ACQUIRED FOR THE PURPOSE OF AND DO NOT HAVE THE EFFECT OF CHANGING OR INFLUENCING THE CONTROL OF THE ISSUER OF SUCH SECURITIES AND WERE NOT ACQUIRED IN CONNECTION WITH OR AS A PARTICIPANT IN ANY TRANSACTION HAVING SUCH PURPOSES OR EFFECT.

THIS REPORT IS NOT AN ADMISSION THAT STATE STREET BANK AND TRUST COMPANY IS THE BENEFICIAL OWNER OF ANY SECURITIES COVERED BY THIS REPORT, AND STATE STREET BANK AND TRUST COMPANY EXPRESSLY DISCLAIMS BENEFICIAL OWNERSHIP OF ALL SHARES REPORTED HEREIN PURSUANT TO RULE 13D-4.

SIGNATURE

AFTER REASONABLE INQUIRY AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, I CERTIFY THAT THE INFORMATION SET FORTH IN THIS STATEMENT IS TRUE, COMPLETE AND CORRECT.

12 FEBRUARY 2007

STATE STREET CORPORATION  
STATE STREET BANK AND TRUST COMPANY,  
TRUSTEE

/s/ SYDNEY MARZEOTTI  
VICE PRESIDENT