

Nuveen Core Equity Alpha Fund
Form N-Q
May 30, 2008

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UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, DC 20549

FORM N-Q

**QUARTERLY SCHEDULE OF PORTFOLIO HOLDINGS OF REGISTERED MANAGEMENT
INVESTMENT COMPANY**

Investment Company Act file number 811-22003

Nuveen Core Equity Alpha Fund

(Exact name of registrant as specified in charter)

333 West Wacker Drive, Chicago, Illinois 60606

(Address of principal executive offices) (Zip code)

Kevin J. McCarthy Vice President and Secretary

333 West Wacker Drive, Chicago, Illinois 60606

(Name and address of agent for service)

Registrant's telephone number, including area code: 312-917-7700

Date of fiscal year end: 12/31

Date of reporting period: 3/31/2008

Form N-Q is to be used by management investment companies, other than small business investment companies registered on Form N-5 (§§ 239.24 and 274.5 of this chapter), to file reports with the Commission, not later than 60 days after the close of the first and third fiscal quarters, pursuant to rule 30b1-5 under the Investment Company Act of 1940 (17 CFR 270.30b1-5). The Commission may use the information provided on Form N-Q in its regulatory, disclosure review, inspection, and policymaking roles.

A registrant is required to disclose the information specified by Form N-Q, and the Commission will make this information public. A registrant is not required to respond to the collection of information contained in Form N-Q unless the Form displays a currently valid Office of Management and Budget (OMB) control number. Please direct comments concerning the accuracy of the information collection burden estimate and any suggestions for reducing the burden to the Secretary, Securities and Exchange Commission, 450 Fifth Street, NW, Washington, DC 20549-0609. The OMB has reviewed this collection of information under the clearance requirements of 44 U.S.C. § 3507.

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March 31, 2008

| Shares | Description (1) | Value |
|---|---|--------------|
| Common Stocks 95.6% | | |
| Aerospace & Defense 5.8% | | |
| 24,000 | Boeing Company | \$ 1,784,880 |
| 11,300 | General Dynamics Corporation | 942,081 |
| 28,200 | Goodrich Corporation | 1,621,782 |
| 45,600 | Honeywell International Inc. | 2,572,752 |
| 4,300 | L-3 Communications Holdings, Inc. | 470,162 |
| 34,400 | Lockheed Martin Corporation | 3,415,920 |
| 5,800 | Northrop Grumman Corporation | 451,298 |
| 30,300 | Precision Castparts Corporation | 3,093,024 |
| 8,800 | Raytheon Company | 568,568 |
| 300 | Rockwell Collins, Inc. | 17,145 |
| 16,600 | United Technologies Corporation | 1,142,412 |
| | Total Aerospace & Defense | 16,080,024 |
| Air Freight & Logistics 0.1% | | |
| 4,000 | Expeditors International of Washington Inc. | 180,720 |
| 1,800 | United Parcel Service, Inc., Class B | 131,436 |
| | Total Air Freight & Logistics | 312,156 |
| Airlines 0.1% | | |
| 10,900 | Southwest Airlines Co. | 135,160 |
| Auto Components 0.8% | | |
| 6,400 | Goodyear Tire & Rubber Company, (2) | 165,120 |
| 60,900 | Johnson Controls, Inc. | 2,058,420 |
| | Total Auto Components | 2,223,540 |
| Automobiles 0.4% | | |

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| | | |
|--------|----------------------------|---------|
| 11,300 | Ford Motor Company, (2) | 64,636 |
| 47,900 | General Motors Corporation | 912,495 |
| | Total Automobiles | 977,131 |

Beverages 4.6%

| | | |
|--------|--|------------|
| 19,800 | Brown-Forman Corporation | 1,311,156 |
| 69,900 | Coca-Cola Company | 4,254,813 |
| 60,300 | Coca-Cola Enterprises Inc. | 1,459,260 |
| 39,200 | Constellation Brands, Inc., Class A, (2) | 692,664 |
| 9,400 | Molson Coors Brewing Company, Class B | 494,158 |
| 33,300 | Pepsi Bottling Group, Inc. | 1,129,203 |
| 45,300 | PepsiCo, Inc. | 3,270,660 |
| | Total Beverages | 12,611,914 |

Biotechnology 0.5%

| | | |
|--------|----------------------------|-----------|
| 2,000 | Amgen Inc., (2) | 83,560 |
| 4,200 | Biogen Idec Inc., (2) | 259,098 |
| 12,900 | Celgene Corporation, (2) | 790,641 |
| 1,700 | Genzyme Corporation, (2) | 126,718 |
| 1,500 | Gilead Sciences, Inc., (2) | 77,295 |
| | Total Biotechnology | 1,337,312 |

Building Products 0.0%

| | | |
|-----|----------------------------------|--------|
| 700 | American Standard Companies Inc. | 32,130 |
|-----|----------------------------------|--------|

Capital Markets 0.5%

| | | |
|-------|----------------------------|-----------|
| 7,800 | Charles Schwab Corporation | 146,874 |
| 400 | Franklin Resources, Inc. | 38,796 |
| 3,300 | Goldman Sachs Group, Inc. | 545,787 |
| 9,600 | JPMorgan Chase & Co. | 412,320 |
| 6,700 | T. Rowe Price Group Inc. | 335,000 |
| | Total Capital Markets | 1,478,777 |

Chemicals 1.4%

| | | |
|--------|-------------------------------|---------|
| 10,700 | Air Products & Chemicals Inc. | 984,400 |
| 7,600 | Dow Chemical Company | 280,060 |

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| | | |
|--------|---|------------------|
| 2,000 | Ecolab Inc. | 86,860 |
| 600 | International Flavors & Fragrances Inc. | 26,430 |
| 25,300 | PPG Industries, Inc. | 1,530,903 |
| 8,200 | Praxair, Inc. | 690,686 |
| 3,700 | Sigma-Aldrich Corporation | 220,705 |
| | Total Chemicals | 3,820,044 |

Commercial Banks 2.5%

| | | |
|--------|------------------------------------|------------------|
| 94,100 | Bank of America Corporation | 3,567,331 |
| 15,400 | BB&T Corporation | 493,724 |
| 1,800 | Comerica Incorporated | 63,144 |
| 5,000 | Fifth Third Bancorp. | 104,600 |
| 5,000 | M&T Bank Corporation | 402,400 |
| 17,000 | Marshall and Ilsley Corporation | 394,400 |
| 7,900 | Northern Trust Corporation | 525,113 |
| 2,000 | PNC Financial Services Group, Inc. | 131,140 |
| 2,100 | SunTrust Banks, Inc. | 115,794 |
| 7,953 | Toronto-Dominion Bank | 487,894 |
| 22,800 | Wells Fargo & Company | 663,480 |
| | Total Commercial Banks | 6,949,020 |

Commercial Services & Supplies 0.1%

| | | |
|-------|---|----------------|
| 2,100 | Cintas Corporation | 59,934 |
| 1,700 | Equifax Inc. | 58,616 |
| 1,800 | R.R. Donnelley & Sons Company | 54,558 |
| 2,200 | Waste Management, Inc. | 73,832 |
| | Total Commercial Services & Supplies | 246,940 |

Communications Equipment 2.2%

| | | |
|---------|---------------------------------------|------------------|
| 12,500 | Ciena Corporation, (2) | 385,375 |
| 156,300 | Cisco Systems, Inc., (2) | 3,765,267 |
| 15,700 | Corning Incorporated | 377,428 |
| 54,100 | Juniper Networks Inc., (2) | 1,352,500 |
| 24,900 | Motorola, Inc. | 231,570 |
| | Total Communications Equipment | 6,112,140 |

Computers & Peripherals 4.5%

| | | |
|--------|------------------|-----------|
| 22,400 | Apple, Inc., (2) | 3,214,400 |
| 30,500 | Dell Inc., (2) | 607,560 |

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| | | |
|---------|--|------------|
| 101,800 | EMC Corporation, (2) | 1,459,812 |
| 87,900 | Hewlett-Packard Company | 4,013,514 |
| 26,000 | International Business Machines Corporation (IBM) | 2,993,640 |
| 2,100 | SanDisk Corporation, (2) | 47,397 |
| 6,900 | Teradata Corporation, (2) | 152,214 |
| | Total Computers & Peripherals | 12,488,537 |
| | Construction & Engineering 0.9% | |
| 8,800 | Fluor Corporation | 1,242,208 |
| 16,100 | Jacobs Engineering Group Inc., (2) | 1,184,799 |
| | Total Construction & Engineering | 2,427,007 |
| | Construction Materials 0.1% | |
| 4,800 | Vulcan Materials Company | 318,720 |
| | Consumer Finance 0.3% | |
| 2,700 | American Express Company | 118,044 |
| 1,400 | Capital One Financial Corporation | 68,908 |
| 38,200 | SLM Corporation, (2) | 586,370 |
| | Total Consumer Finance | 773,322 |
| | Containers & Packaging 0.1% | |
| 4,400 | Ball Corporation | 202,136 |
| | Diversified Consumer Services 0.5% | |
| 26,500 | Apollo Group, Inc., (2) | 1,144,800 |
| 12,100 | H & R Block Inc. | 251,196 |
| | Total Diversified Consumer Services | 1,395,996 |
| | Diversified Financial Services 1.6% | |
| 103,900 | Citigroup Inc. | 2,225,538 |
| 600 | CME Group, Inc. | 281,460 |
| 1,600 | Intercontinental Exchange Inc., (2) | 208,800 |
| 38,200 | Leucadia National Corporation | 1,727,404 |

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| | | |
|---------|--|------------|
| 200 | New York Stock Exchange Euronext | 12,342 |
| | Total Diversified Financial Services | 4,455,544 |
| | Diversified Telecommunication Services 5.4% | |
| 297,800 | AT&T Inc. | 11,405,740 |
| 600 | CenturyTel, Inc. | 19,944 |
| 19,000 | Embarq Corporation | 761,900 |
| 38,700 | Sprint Nextel Corporation | 258,903 |
| 70,800 | Verizon Communications Inc. | 2,580,660 |
| 1,500 | Windstream Corporation | 17,925 |
| | Total Diversified Telecommunication Services | 15,045,072 |
| | Electric Utilities 4.8% | |
| 4,800 | Allegheny Energy, Inc. | 242,400 |
| 9,500 | Ameren Corporation | 418,380 |
| 28,400 | American Electric Power Company, Inc. | 1,182,292 |
| 8,700 | Edison International | 426,474 |
| 26,600 | Entergy Corporation | 2,901,528 |
| 4,900 | Exelon Corporation | 398,223 |
| 17,800 | FirstEnergy Corp. | 1,221,436 |
| 49,800 | FPL Group, Inc. | 3,124,452 |
| 8,500 | PG&E Corporation | 312,970 |
| 69,000 | PPL Corporation | 3,168,480 |
| | Total Electric Utilities | 13,396,635 |
| | Electrical Equipment 0.4% | |
| 16,800 | Cooper Industries, Ltd., Class A, (2) | 674,520 |
| 9,500 | Rockwell Automation, Inc. | 545,490 |
| | Total Electrical Equipment | 1,220,010 |
| | Electronic Equipment & Instruments 1.1% | |
| 8,800 | MEMC Electronic Materials, (2) | 623,920 |
| 5,800 | Molex Inc. | 134,328 |
| 34,700 | Thermo Fisher Scientific, Inc., (2) | 1,972,348 |
| 6,700 | Waters Corporation, (2) | 373,190 |
| | Total Electronic Equipment & Instruments | 3,103,786 |

Energy Equipment & Services 3.2%

| | | |
|--------|------------------------------------|-----------|
| 9,700 | Baker Hughes Incorporated | 664,450 |
| 6,200 | Cooper Cameron Corporation, (2) | 258,168 |
| 39,300 | National-Oilwell Varco Inc., (2) | 2,294,334 |
| 5,300 | Noble Corporation | 263,251 |
| 400 | Rowan Companies Inc. | 16,472 |
| 30,200 | Schlumberger Limited | 2,627,400 |
| 19,300 | Smith International, Inc. | 1,239,639 |
| 4,546 | Transocean Inc., (2) | 614,619 |
| 10,600 | Weatherford International Ltd, (2) | 768,182 |
| | Total Energy Equipment & Services | 8,746,515 |

Food & Staples Retailing 2.5%

| | | |
|--------|--------------------------------|-----------|
| 43,200 | CVS Caremark Corporation | 1,750,032 |
| 89,800 | Kroger Co. | 2,280,920 |
| 35,100 | Safeway Inc. | 1,030,185 |
| 28,800 | SUPERVALU INC. | 863,424 |
| 4,600 | Sysco Corporation | 133,492 |
| 2,600 | Wal-Mart Stores, Inc. | 136,968 |
| 22,300 | Whole Foods Market, Inc. | 735,231 |
| | Total Food & Staples Retailing | 6,930,252 |

Food Products 1.7%

| | | |
|--------|--------------------------------|-----------|
| 2,500 | Archer-Daniels-Midland Company | 102,900 |
| 1,600 | ConAgra Foods, Inc. | 38,320 |
| 500 | Dean Foods Company, (2) | 10,045 |
| 5,000 | General Mills, Inc. | 299,400 |
| 15,900 | H.J. Heinz Company | 746,823 |
| 19,600 | Kellogg Company | 1,030,176 |
| 11,400 | Kraft Foods Inc. | 353,514 |
| 7,100 | Monsanto Company | 791,650 |
| 49,000 | Tyson Foods, Inc., Class A | 781,550 |
| 7,000 | Wm. Wrigley Jr. Company | 439,880 |
| | Total Food Products | 4,594,258 |

Gas Utilities 0.2%

| | | |
|-------|---------------------|---------|
| 7,400 | Questar Corporation | 418,544 |
|-------|---------------------|---------|

Health Care Equipment & Supplies 2.3%

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| | | |
|--------|--|-----------|
| 7,900 | Applera Corporation-Applied Biosystems Group | 259,594 |
| 40,200 | Baxter International Inc. | 2,324,364 |
| 300 | Becton, Dickinson and Company | 25,755 |
| 600 | C. R. Bard, Inc. | 57,840 |
| 1,800 | Cardinal Health, Inc. | 94,518 |
| 2,700 | Hospira Inc., (2) | 115,479 |
| 900 | Medtronic, Inc. | 43,533 |
| 10,900 | Patterson Companies Inc., (2) | 395,670 |
| 39,300 | Stryker Corporation | 2,556,465 |
| 7,600 | Zimmer Holdings, Inc., (2) | 591,736 |

Total Health Care Equipment & Supplies 6,464,954

Health Care Providers & Services 2.9%

| | | |
|--------|-----------------------------------|-----------|
| 9,400 | Aetna Inc. | 395,646 |
| 52,200 | CIGNA Corporation | 2,117,754 |
| 4,100 | Coventry Health Care, Inc., (2) | 165,435 |
| 10,100 | Express Scripts, Inc., (2) | 649,632 |
| 100 | McKesson HBOC Inc. | 5,237 |
| 74,100 | Medco Health Solutions, Inc., (2) | 3,244,839 |
| 33,700 | Quest Diagnostics Incorporated | 1,525,599 |
| 500 | UnitedHealth Group Incorporated | 17,180 |

Total Health Care Providers & Services 8,121,322

Health Care Technology 0.1%

| | | |
|--------|-------------------------|---------|
| 11,500 | IMS Health Incorporated | 241,615 |
|--------|-------------------------|---------|

Hotels, Restaurants & Leisure 1.3%

| | | |
|--------|-------------------------------|-----------|
| 55,400 | McDonald's Corporation | 3,089,658 |
| 4,900 | Wyndham Worldwide Corporation | 101,332 |
| 7,200 | YUM! Brands, Inc. | 267,912 |

Total Hotels, Restaurants & Leisure 3,458,902

h

Household Durables 0.3%

| | | |
|-------|--------------------------------------|---------|
| 2,300 | Black & Decker Corporation | 152,030 |
| 3,000 | Centex Corporation | 72,630 |
| 3,500 | D.R. Horton, Inc. | 55,125 |
| 2,200 | Fortune Brands Inc. | 152,900 |
| 1,000 | Harman International Industries Inc. | 43,540 |

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| | | |
|--------|--------------------------|---------|
| 17,200 | Pulte Corporation | 250,260 |
| 2,600 | Whirlpool Corporation | 225,628 |
| | Total Household Durables | 952,113 |

Household Products 2.9%

| | | |
|--------|----------------------------|-----------|
| 35,700 | Colgate-Palmolive Company | 2,781,387 |
| 1,800 | Kimberly-Clark Corporation | 116,190 |
| 74,600 | Procter & Gamble Company | 5,227,222 |
| | Total Household Products | 8,124,799 |

Independent Power Producers & Energy Traders 0.7%

| | | |
|--------|----------------------------|-----------|
| 23,300 | Constellation Energy Group | 2,056,691 |
|--------|----------------------------|-----------|

Industrial Conglomerates 4.4%

| | | |
|---------|--------------------------------|------------|
| 17,400 | 3M Co. | 1,377,210 |
| 262,100 | General Electric Company | 9,700,321 |
| 19,600 | Textron Inc. | 1,086,232 |
| | Total Industrial Conglomerates | 12,163,763 |

Insurance 2.7%

| | | |
|--------|------------------------------------|-----------|
| 11,000 | AFLAC Incorporated | 714,450 |
| 2,700 | Allstate Corporation | 129,762 |
| 14,400 | American International Group, Inc. | 622,800 |
| 1,400 | Aon Corporation | 56,280 |
| 3,200 | Cincinnati Financial Corporation | 121,728 |
| 91,300 | Loews Corporation | 3,672,086 |
| 21,900 | MBIA Inc. | 267,618 |
| 4,400 | MetLife, Inc. | 265,144 |
| 16,100 | Progressive Corporation | 258,727 |
| 5,700 | Prudential Financial, Inc. | 446,025 |
| 3,400 | Travelers Companies, Inc. | 162,690 |
| 27,400 | Unum Group | 603,074 |
| 3,700 | XL Capital Ltd, Class A | 109,335 |
| | Total Insurance | 7,429,719 |

Internet & Catalog Retail 1.2%

| | | |
|--------|-----------------------|-----------|
| 41,000 | Amazon.com, Inc., (2) | 2,923,300 |
|--------|-----------------------|-----------|

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|--------|--|-----------|
| 20,500 | Expedia, Inc., (2) | 448,745 |
| | Total Internet & Catalog Retail | 3,372,045 |
| | Internet Software & Services 0.6% | |
| 3,600 | Google Inc., Class A, (2) | 1,585,692 |
| | IT Services 0.2% | |
| 10,900 | Fidelity National Information Services | 415,726 |
| | Leisure Equipment & Products 0.1% | |
| 6,400 | Eastman Kodak Company | 113,088 |
| 2,300 | Hasbro, Inc. | 64,170 |
| 9,300 | Mattel, Inc. | 185,070 |
| | Total Leisure Equipment & Products | 362,328 |
| | Life Sciences Tools & Services 0.1% | |
| 11,700 | Perkinelmer Inc. | 283,725 |
| | Machinery 3.3% | |
| 23,600 | Caterpillar Inc. | 1,847,644 |
| 32,500 | Cummins Inc. | 1,521,650 |
| 1,000 | Danaher Corporation | 76,030 |
| 9,300 | Deere & Company | 748,092 |
| 1,400 | Dover Corporation | 58,492 |
| 4,400 | Eaton Corporation | 350,548 |
| 7,900 | Illinois Tool Works Inc. | 381,017 |
| 38,900 | Ingersoll Rand Company Limited, Class A | 1,734,162 |
| 1,000 | ITT Industries Inc. | 51,810 |
| 2,600 | Manitowoc Company Inc. | 106,080 |
| 28,300 | PACCAR Inc. | 1,273,500 |
| 10,400 | Pall Corporation | 364,728 |
| 2,400 | Parker Hannifin Corporation | 166,248 |
| 7,600 | Terex Corporation, (2) | 475,000 |
| | Total Machinery | 9,155,001 |
| | Media 2.1% | |

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| | | |
|--------|------------------------------------|-----------|
| 2,500 | CBS Corporation, Class B | 55,200 |
| 28,300 | Clear Channel Communications, Inc. | 826,926 |
| 82,300 | Comcast Corporation, Class A | 1,591,682 |
| 44,800 | DIRECTV Group, Inc., (2) | 1,110,592 |
| 1,700 | E.W. Scripps Company, Class A | 71,417 |
| 59,400 | News Corporation, Class A | 1,113,750 |
| 3,000 | Omnicom Group Inc. | 132,540 |
| 18,700 | Walt Disney Company | 586,806 |
| 400 | Washington Post Company | 264,600 |
| | Total Media | 5,753,513 |

Metals & Mining 0.7%

| | | |
|-------|--------------------------------------|-----------|
| 9,500 | Alcoa Inc. | 342,570 |
| 2,300 | Allegheny Technologies, Inc. | 164,128 |
| 5,900 | CONSOL Energy Inc. | 408,221 |
| 4,500 | Freeport-McMoRan Copper & Gold, Inc. | 432,990 |
| 5,500 | United States Steel Corporation | 697,785 |
| | Total Metals & Mining | 2,045,694 |

Multiline Retail 0.3%

| | | |
|--------|--------------------------------|---------|
| 1,700 | Big Lots, Inc., (2) | 37,910 |
| 900 | Costco Wholesale Corporation | 58,473 |
| 11,400 | Kohl's Corporation, (2) | 488,946 |
| 1,300 | Sears Holding Corporation, (2) | 132,717 |
| 3,900 | Target Corporation | 197,652 |
| | Total Multiline Retail | 915,698 |

Multi-Utilities 0.7%

| | | |
|--------|--|-----------|
| 14,100 | Dynegy Inc., (2) | 111,249 |
| 46,000 | Public Service Enterprise Group Incorporated | 1,848,740 |
| 1,000 | Sempra Energy | 53,280 |
| | Total Multi-Utilities | 2,013,269 |

Oil, Gas & Consumable Fuels 9.4%

| | | |
|--------|--------------------------------|-----------|
| 10,200 | Anadarko Petroleum Corporation | 642,906 |
| 2,100 | Apache Corporation | 253,722 |
| 1,700 | Chesapeake Energy Corporation | 78,455 |
| 54,500 | Chevron Corporation | 4,652,120 |

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| | | |
|---------|----------------------------------|------------|
| 32,900 | ConocoPhillips | 2,507,309 |
| 800 | Devon Energy Corporation | 83,464 |
| 147,900 | Exxon Mobil Corporation | 12,509,382 |
| 600 | Hess Corporation | 52,908 |
| 31,200 | Marathon Oil Corporation | 1,422,720 |
| 10,600 | Murphy Oil Corporation | 870,684 |
| 17,600 | Occidental Petroleum Corporation | 1,287,792 |
| 1,000 | Peabody Energy Corporation | 51,000 |
| 700 | Range Resources Corporation | 44,415 |
| 6,800 | Tesoro Petroleum Corporation | 204,000 |
| 23,000 | Valero Energy Corporation | 1,129,530 |
| 1,700 | Williams Companies, Inc. | 56,066 |
| 3,950 | XTO Energy, Inc. | 244,347 |

Total Oil, Gas & Consumable Fuels 26,090,820

Paper & Forest Products 0.2%

| | | |
|-------|-----------------------------|---------|
| 3,300 | International Paper Company | 89,760 |
| 3,300 | MeadWestvaco Corporation | 89,826 |
| 3,700 | Weyerhaeuser Company | 240,648 |

Total Paper & Forest Products 420,234

Personal Products 0.2%

| | | |
|-------|--------------------------------------|---------|
| 9,200 | Avon Products, Inc. | 363,768 |
| 3,800 | Estee Lauder Companies Inc., Class A | 174,230 |

Total Personal Products 537,998

Pharmaceuticals 5.6%

| | | |
|---------|----------------------------------|-----------|
| 43,600 | Abbott Laboratories | 2,404,540 |
| 1,200 | Allergan, Inc. | 67,668 |
| 68,100 | Bristol-Myers Squibb Company | 1,450,530 |
| 15,300 | Eli Lilly and Company | 789,327 |
| 28,400 | Johnson & Johnson | 1,842,308 |
| 163,400 | Merck & Co. Inc. | 6,201,030 |
| 46,000 | Pfizer Inc. | 962,780 |
| 103,800 | Schering-Plough Corporation | 1,495,758 |
| 6,600 | Watson Pharmaceuticals Inc., (2) | 193,512 |

Total Pharmaceuticals 15,407,453

Real Estate 0.0%

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| | | |
|--|------------------------------------|-----------|
| 3,300 | Plum Creek Timber Company | 134,310 |
| Road & Rail 0.3% | | |
| 5,300 | CSX Corporation | 297,171 |
| 4,000 | Union Pacific Corporation | 501,520 |
| | Total Road & Rail | 798,691 |
| Semiconductors & Equipment 1.6% | | |
| 40,400 | Advanced Micro Devices, Inc., (2) | 237,956 |
| 7,200 | Altera Corporation | 132,696 |
| 17,000 | Analog Devices, Inc. | 501,840 |
| 3,500 | Applied Materials, Inc. | 68,285 |
| 67,700 | Intel Corporation | 1,433,886 |
| 1,500 | KLA-Tencor Corporation | 55,650 |
| 14,000 | Linear Technology Corporation | 429,660 |
| 3,600 | Microchip Technology Incorporated | 117,828 |
| 60,700 | Micron Technology, Inc., (2) | 362,379 |
| 7,200 | National Semiconductor Corporation | 131,904 |
| 6,500 | NVIDIA Corporation, (2) | 128,635 |
| 26,800 | Texas Instruments Incorporated | 757,636 |
| | Total Semiconductors & Equipment | 4,358,355 |
| Software 2.1% | | |
| 1,600 | Autodesk, Inc., (2) | 50,368 |
| 7,500 | Citrix Systems, (2) | 219,975 |
| 5,700 | Compuware Corporation, (2) | 41,838 |
| 1,600 | Electronic Arts Inc. (EA), (2) | 79,872 |
| 7,500 | Intuit Inc., (2) | 202,575 |
| 92,100 | Microsoft Corporation | 2,613,798 |
| 92,400 | Oracle Corporation, (2) | 1,807,344 |
| 30,600 | Symantec Corporation, (2) | 508,572 |
| 9,500 | VeriSign, Inc., (2) | 315,780 |
| | Total Software | 5,840,122 |
| Specialty Retail 1.1% | | |
| 2,300 | Abercrombie & Fitch Co., Class A | 168,222 |
| 4,000 | AutoNation Inc., (2) | 59,880 |
| 900 | AutoZone, Inc., (2) | 102,447 |
| 5,200 | Best Buy Co., Inc. | 215,592 |
| 18,100 | GameStop Corporation, (2) | 935,951 |

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|--------|--------------------------|---------|
| 7,100 | Gap, Inc. | 139,728 |
| 5,400 | Office Depot, Inc., (2) | 59,670 |
| 9,900 | RadioShack Corporation | 160,875 |
| 100 | Sherwin-Williams Company | 5,104 |
| 17,600 | Tiffany & Co. | 736,384 |
| 10,200 | TJX Companies, Inc. | 337,314 |

Total Specialty Retail 2,921,167

Textiles, Apparel & Luxury Goods 1.1%

| | | |
|--------|-------------------------------|-----------|
| 26,100 | Coach, Inc., (2) | 786,915 |
| 16,100 | Nike, Inc., Class B | 1,094,800 |
| 500 | Polo Ralph Lauren Corporation | 29,145 |
| 14,700 | VF Corporation | 1,139,397 |

Total Textiles, Apparel & Luxury Goods 3,050,257

Thriffs & Mortgage Finance 0.6%

| | | |
|--------|--|---------|
| 8,800 | Federal Home Loan Mortgage Corporation | 222,816 |
| 18,600 | Federal National Mortgage Association | 489,552 |
| 25,400 | Hudson City Bancorp, Inc. | 449,072 |
| 40,300 | Washington Mutual, Inc. | 415,090 |

Total Thriffs & Mortgage Finance 1,576,530

Tobacco 0.2%

| | | |
|-------|----------------------------------|---------|
| 8,100 | Altria Group, Inc. | 179,820 |
| 8,100 | Philip Morris International, (2) | 409,698 |

Total Tobacco 589,518

Trading Companies & Distributors 0.0%

| | | |
|-------|---------------------|---------|
| 1,700 | W.W. Grainger, Inc. | 129,863 |
|-------|---------------------|---------|

Wireless Telecommunication Services 0.0%

| | | |
|-------|---------------------------------|--------|
| 2,000 | American Tower Corporation, (2) | 78,420 |
|-------|---------------------------------|--------|

Total Common Stocks (cost \$277,623,172) 264,682,929

Principal

| Amount (000) | Description (1) | Coupon | Maturity | Value |
|-----------------|---|-------------|----------|--------------------|
| | Short-Term Investments | 6.1% | | |
| | U.S. Government and Agency Obligations | 2.1% | | |
| \$ 6,000 | U.S. Treasury Bills | 0.000% | 4/17/08 | \$ 5,994,347 |
| | Repurchase Agreements | 4.0% | | |
| 11,062 | Repurchase Agreement with State Street Bank, dated 3/31/08, repurchase price \$11,061,990, collateralized by \$9,745,000 U.S. Treasury Bonds, 5.375%, due 2/15/31, value \$11,285,570 | 1.100% | 4/01/08 | 11,061,652 |
| \$ 17,062 | Total Short-Term Investments (cost \$17,055,999) | | | 17,055,999 |
| | Total Investments (cost \$294,679,171) | | | 281,738,928 |
| | | | | 101.7% |

| Contracts | Type | Notional Amount (3) | Expiration Date | Strike Price | Value |
|-------------|---|----------------------|-----------------|--------------|------------------|
| | Call Options Written | | | | (0.1)% |
| (694,700) | Custom Basket 1 NASDAQ | \$ (69,470,038) | 4/10/08 | \$ 100.0 | \$ (351,796) |
| (689,327) | Custom Basket 3 NASDAQ | (68,932,699) | 4/03/08 | 100.0 | (18,888) |
| (1,384,027) | Total Call Options Written (premiums received \$4,014,378) | (138,402,737) | | | (370,684) |

Futures Contracts outstanding at March 31, 2008:

| Type | Contract Position | Number of Contracts | Contract Expiration | Value at March 31, 2008 | Unrealized Appreciation (Depreciation) |
|---------------|-------------------|---------------------|---------------------|-------------------------|--|
| S&P 500 Index | Long | 185 | 6/08 | \$12,247,000 | \$(18,593) |

(1) All percentages shown in the

Portfolio of Investments are based on net assets.

- (2) Non-income producing.
- (3) For disclosure purposes, Notional Amount is calculated by multiplying the number of Contracts by the Strike Price.

Fair Value Measurements

During the current fiscal period, the Fund adopted the provisions of Statement of Financial Accounting Standards No. 157, Fair Value Measurements (SFAS 157). SFAS 157 defines fair value, establishes a framework for measuring fair value in generally accepted accounting principles, and expands disclosure about fair value measurements. In determining the value of the Fund's investments various inputs are used. These inputs are summarized in the three broad levels listed below:

- Level 1 - Quoted prices in active markets for identical securities.
- Level 2 - Other significant observable inputs (including quoted prices for similar securities, interest rates, prepayment speeds, credit risk, etc.).
- Level 3 - Significant unobservable inputs (including management's assumptions in determining the fair value of investments).

The inputs or methodology used for valuing securities are not an indication of the risk associated with investing in those securities.

The following is a summary of the Fund's fair value measurements as of March 31, 2008:

| | Level 1 | Level 2 | Level 3 | Total |
|----------------------|----------------------|------------------|-------------|----------------------|
| Investments | \$281,329,230 | \$ 409,698 | \$ - | \$281,738,928 |
| Derivatives* | (18,593) | - | - | (18,593) |
| Call options written | - | (370,684) | - | (370,684) |
| Total | \$281,310,637 | \$ 39,014 | \$ - | \$281,349,651 |

* Represents net unrealized appreciation (depreciation).

Income Tax Information

The following information is presented on an income tax basis. Differences between amounts for financial statement and federal income tax purposes are primarily due to the recognition of unrealized gain or loss for tax (mark-to-market) on futures contracts and timing differences in recognizing certain gains and losses on investment transactions. To the extent that differences arise that are permanent in nature, such amounts are reclassified within the capital accounts on the Statement of Assets and Liabilities presented in the annual report, based on their federal tax

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basis treatment; temporary differences do not require reclassification. Temporary and permanent differences do not impact the net asset value of the Fund.

At March 31, 2008, the cost of investments was \$295,287,890.

Gross unrealized appreciation and gross unrealized depreciation of investments at March 31, 2008, were as follows:

| | |
|---|-----------------|
| Gross unrealized: | |
| Appreciation | \$ 8,517,644 |
| Depreciation | (22,066,606) |
| | |
| Net unrealized appreciation (depreciation) of investments | \$ (13,548,962) |

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Item 2. Controls and Procedures.

- a. The registrant's principal executive and principal financial officers, or persons performing similar functions, have concluded that the registrant's disclosure controls and procedures (as defined in Rule 30a-3(c) under the Investment Company Act of 1940, as amended (the "1940 Act") (17 CFR 270.30a-3(c))) are effective, as of a date within 90 days of the filing date of this report that includes the disclosure required by this paragraph, based on their evaluation of the controls and procedures required by Rule 30a-3(b) under the 1940 Act (17 CFR 270.30a-3(b)) and Rule 13a-15(b) or 15d-15(b) under the Securities Exchange Act of 1934 (17 CFR 240.13a-15(b) or 240.15d-15(b)).
- b. There were no changes in the registrant's internal control over financial reporting (as defined in Rule 30a-3(d) under the 1940 Act (17 CFR 270.30a-3(d))) that occurred during the registrant's last fiscal quarter that have materially affected, or are reasonably likely to materially affect, the registrant's internal control over financial reporting.

Item 3. Exhibits.

File as exhibits as part of this Form a separate certification for each principal executive officer and principal financial officer of the registrant as required by Rule 30a-2(a) under the 1940 Act (17 CFR 270.30a-2(a)), exactly as set forth below: EX-99 CERT Attached hereto.

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SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934 and the Investment Company Act of 1940, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

(Registrant) Nuveen Core Equity Alpha Fund

By (Signature and Title)* /s/ Kevin J. McCarthy
Kevin J. McCarthy
Vice President and Secretary

Date May 30, 2008

Pursuant to the requirements of the Securities Exchange Act of 1934 and the Investment Company Act of 1940, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

By (Signature and Title)* /s/ Gifford R. Zimmerman
Gifford R. Zimmerman
Chief Administrative Officer (principal executive officer)

Date May 30, 2008

By (Signature and Title)* /s/ Stephen D. Foy
Stephen D. Foy
Vice President and Controller (principal financial officer)

Date May 30, 2008

* Print the name and title of each signing officer under his or her signature.