

Nuveen Core Equity Alpha Fund
Form N-Q
November 27, 2009

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: 9/30/2009

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.

Item 1. Schedule of Investments**Portfolio of Investments (Unaudited)****Nuveen Core Equity Alpha Fund (JCE)***September 30, 2009*

| Shares | Description (1) | Value |
|---|--|--------------|
| Common Stocks 97.5% | | |
| Aerospace & Defense 1.5% | | |
| 1,500 | Boeing Company | \$ 81,225 |
| 700 | General Dynamics Corporation | 45,220 |
| 17,900 | Goodrich Corporation | 972,686 |
| 5,500 | Honeywell International Inc. | 204,325 |
| 1,000 | ITT Industries, Inc. | 52,150 |
| 10,200 | Lockheed Martin Corporation | 796,416 |
| 800 | Precision Castparts Corporation | 81,496 |
| 800 | Raytheon Company | 38,376 |
| 10,400 | Rockwell Collins, Inc. | 528,320 |
| 4,400 | United Technologies Corporation | 268,092 |
| | Total Aerospace & Defense | 3,068,306 |
| Air Freight & Logistics 0.4% | | |
| 5,500 | C.H. Robinson Worldwide, Inc. | 317,625 |
| 7,800 | Expeditors International of Washington, Inc. | 274,170 |
| 3,100 | United Parcel Service, Inc., Class B | 175,057 |
| | Total Air Freight & Logistics | 766,852 |
| Auto Components 0.3% | | |
| 36,100 | Goodyear Tire & Rubber Company, (2) | 614,783 |
| Automobiles 0.3% | | |
| 78,100 | Ford Motor Company, (2) | 563,101 |
| 2,400 | Harley-Davidson, Inc. | 55,200 |
| | Total Automobiles | 618,301 |
| Beverages 2.4% | | |

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| | | |
|--------|--|-----------|
| 900 | Brown-Forman Corporation | 43,398 |
| 33,700 | Coca-Cola Company | 1,809,690 |
| 41,500 | Coca-Cola Enterprises Inc. | 888,515 |
| 1,600 | Constellation Brands, Inc., Class A, (2) | 24,240 |
| 2,600 | Dr. Pepper Snapple Group, (2) | 74,750 |
| 13,600 | Pepsi Bottling Group, Inc. | 495,584 |
| 26,100 | PepsiCo, Inc. | 1,531,026 |

Total Beverages 4,867,203

Biotechnology 1.0%

| | | |
|--------|----------------------------|-----------|
| 21,400 | Amgen Inc., (2) | 1,288,922 |
| 5,100 | Biogen Idec Inc., (2) | 257,652 |
| 2,400 | Celgene Corporation, (2) | 134,160 |
| 3,200 | Cephalon, Inc., (2) | 186,368 |
| 1,700 | Genzyme Corporation, (2) | 96,441 |
| 2,900 | Gilead Sciences, Inc., (2) | 135,082 |

Total Biotechnology 2,098,625

Building Products 0.0%

| | | |
|-------|-------------------|--------|
| 2,600 | Masco Corporation | 33,592 |
|-------|-------------------|--------|

Capital Markets 2.9%

| | | |
|--------|--------------------------------|---------|
| 13,300 | Ameriprise Financial, Inc. | 483,189 |
| 23,900 | Bank of New York Company, Inc. | 692,861 |
| 19,700 | Charles Schwab Corporation | 377,255 |
| 17,300 | Federated Investors Inc. | 456,201 |
| 1,800 | Franklin Resources, Inc. | 181,080 |
| 5,100 | Goldman Sachs Group, Inc. | 940,185 |
| 16,400 | Invesco LTD | 373,264 |
| 6,700 | Legg Mason, Inc. | 207,901 |
| 20,200 | Morgan Stanley | 623,776 |
| 6,500 | Northern Trust Corporation | 378,040 |
| 18,800 | State Street Corporation | 988,880 |
| 2,700 | T. Rowe Price Group Inc. | 123,390 |

Total Capital Markets 5,826,022

Chemicals 0.7%

| | | |
|-------|-------------------------------|---------|
| 2,100 | Air Products & Chemicals Inc. | 162,918 |
| 1,400 | Airgas, Inc. | 67,718 |

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| | | |
|-------|---|-----------|
| 600 | CF Industries Holdings, Inc. | 51,738 |
| 900 | E.I. Du Pont de Nemours and Company | 28,926 |
| 7,800 | Ecolab Inc. | 360,594 |
| 1,600 | FMC Corporation | 90,000 |
| 3,800 | International Flavors & Fragrances Inc. | 144,134 |
| 2,000 | Monsanto Company | 154,800 |
| 2,700 | PPG Industries, Inc. | 157,167 |
| 3,000 | Praxair, Inc. | 245,070 |
| 800 | Sigma-Aldrich Corporation | 43,184 |
| | Total Chemicals | 1,506,249 |

Commercial Banks 2.5%

| | | |
|--------|---|-----------|
| 20,000 | BB&T Corporation | 544,800 |
| 8,700 | Comerica Incorporated | 258,129 |
| 30,800 | Fifth Third Bancorp. | 312,004 |
| 24,681 | First Horizon National Corporation, (2) | 326,534 |
| 51,300 | Huntington BancShares Inc. | 241,623 |
| 32,300 | KeyCorp. | 209,950 |
| 2,100 | M&T Bank Corporation | 130,872 |
| 34,900 | Marshall and Ilsley Corporation | 281,643 |
| 16,900 | PNC Financial Services Group, Inc. | 821,171 |
| 10,500 | Regions Financial Corporation | 65,205 |
| 13,400 | U.S. Bancorp | 292,924 |
| 51,350 | Wells Fargo & Company | 1,447,043 |
| 10,400 | Zions Bancorporation | 186,888 |
| | Total Commercial Banks | 5,118,786 |

Commercial Services & Supplies 1.3%

| | | |
|--------|--------------------------------------|-----------|
| 14,900 | Cintas Corporation | 451,619 |
| 26,900 | Iron Mountain Inc., (2) | 717,154 |
| 4,500 | Pitney Bowes Inc. | 111,825 |
| 335 | Republic Services, Inc. | 8,901 |
| 1,200 | Stericycle Inc., (2) | 58,140 |
| 41,100 | Waste Management, Inc. | 1,225,602 |
| | Total Commercial Services & Supplies | 2,573,241 |

Communications Equipment 2.3%

| | | |
|--------|-------------------------------|-----------|
| 13,500 | Ciena Corporation, (2) | 219,780 |
| 98,100 | Cisco Systems, Inc., (2) | 2,309,274 |
| 33,200 | JDS Uniphase Corporation, (2) | 236,052 |
| 6,100 | Juniper Networks Inc., (2) | 164,822 |
| 39,100 | Motorola, Inc. | 335,869 |

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| | | |
|--------|--------------------------------|-----------|
| 24,800 | QUALCOMM, Inc. | 1,115,504 |
| 33,900 | Tellabs Inc., (2) | 234,588 |
| | Total Communications Equipment | 4,615,889 |

Computers & Peripherals 4.2%

| | | |
|--------|--|-----------|
| 8,700 | Apple, Inc., (2) | 1,612,719 |
| 24,000 | EMC Corporation, (2) | 408,960 |
| 47,400 | Hewlett-Packard Company | 2,237,754 |
| 24,500 | International Business Machines Corporation (IBM) | 2,930,445 |
| 7,700 | Network Appliance Inc., (2) | 205,436 |
| 14,100 | SanDisk Corporation, (2) | 305,970 |
| 41,200 | Sun Microsystems Inc., (2) | 374,508 |
| 4,000 | Teradata Corporation, (2) | 110,080 |
| 12,700 | Western Digital Corporation, (2) | 463,931 |
| | Total Computers & Peripherals | 8,649,803 |

Construction & Engineering 0.4%

| | | |
|--------|-------------------------------------|---------|
| 10,300 | Fluor Corporation | 523,755 |
| 6,300 | Jacobs Engineering Group, Inc., (2) | 289,485 |
| 500 | Quanta Services Incorporated, (2) | 11,065 |
| | Total Construction & Engineering | 824,305 |

Construction Materials 0.0%

| | | |
|-------|--------------------------|--------|
| 1,800 | Vulcan Materials Company | 97,326 |
|-------|--------------------------|--------|

Consumer Finance 0.7%

| | | |
|--------|-----------------------------------|-----------|
| 12,400 | American Express Company | 420,360 |
| 12,300 | Capital One Financial Corporation | 439,479 |
| 21,500 | Discover Financial Services | 348,945 |
| 24,800 | SLM Corporation, (2) | 216,256 |
| | Total Consumer Finance | 1,425,040 |

Containers & Packaging 0.7%

| | | |
|--------|---------------------------|---------|
| 14,100 | Ball Corporation | 693,720 |
| 10,200 | Bemis Company, Inc. | 264,282 |
| 6,900 | Owens-Illinois, Inc., (2) | 254,610 |

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| | | |
|---------|---|-------------------|
| 3,200 | Pactiv Corporation, (2) | 83,360 |
| 6,600 | Sealed Air Corporation | 129,558 |
| | Total Containers & Packaging | 1,425,530 |
| | Distributors 0.2% | |
| 12,700 | Genuine Parts Company | 483,362 |
| | Diversified Consumer Services 0.1% | |
| 10,100 | H & R Block Inc. | 185,638 |
| | Diversified Financial Services 2.6% | |
| 50,600 | Bank of America Corporation | 856,152 |
| 33,600 | Citigroup Inc. | 162,624 |
| 2,200 | CME Group, Inc. | 678,018 |
| 4,600 | Intercontinental Exchange, Inc., (2) | 447,074 |
| 36,005 | JPMorgan Chase & Co. | 1,577,739 |
| 25,400 | Moody's Corporation | 519,684 |
| 15,400 | Nasdaq Stock Market, Inc., (2) | 324,170 |
| 22,900 | New York Stock Exchange Euronext | 661,581 |
| | Total Diversified Financial Services | 5,227,042 |
| | Diversified Telecommunication Services 5.0% | |
| 241,900 | AT&T Inc. | 6,533,719 |
| 19,128 | CenturyTel, Inc. | 642,701 |
| 142,600 | Qwest Communications International Inc. | 543,306 |
| 76,900 | Verizon Communications Inc. | 2,327,763 |
| 4,900 | Windstream Corporation | 49,637 |
| | Total Diversified Telecommunication Services | 10,097,126 |
| | Electric Utilities 2.6% | |
| 6,400 | American Electric Power Company, Inc. | 198,336 |
| 16,900 | Duke Energy Corporation | 266,006 |
| 1,200 | Entergy Corporation | 95,832 |
| 25,800 | FPL Group, Inc. | 1,424,934 |
| 32,900 | Northeast Utilities | 781,046 |
| 20,100 | Pinnacle West Capital Corporation | 659,682 |
| 7,400 | PPL Corporation | 224,516 |

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|--------|--------------------------|-----------|
| 24,400 | Progress Energy, Inc. | 953,064 |
| 21,000 | Southern Company | 665,070 |
| | Total Electric Utilities | 5,268,486 |

Electrical Equipment 0.3%

| | | |
|-------|----------------------------|---------|
| 2,700 | Emerson Electric Company | 108,216 |
| 9,600 | Rockwell Automation, Inc. | 408,960 |
| | Total Electrical Equipment | 517,176 |

Electronic Equipment & Instruments 0.3%

| | | |
|--------|--|---------|
| 39,500 | Corning Incorporated | 604,745 |
| 1,300 | Molex Inc. | 27,144 |
| | Total Electronic Equipment & Instruments | 631,889 |

Energy Equipment & Services 0.7%

| | | |
|--------|-----------------------------------|-----------|
| 3,100 | BJ Services Company | 60,233 |
| 1,100 | Cooper Cameron Corporation, (2) | 41,602 |
| 200 | Diamond Offshore Drilling, Inc. | 19,104 |
| 2,400 | FMC Technologies Inc., (2) | 125,376 |
| 10,300 | National-Oilwell Varco Inc., (2) | 444,239 |
| 10,300 | Schlumberger Limited | 613,880 |
| 900 | Smith International, Inc. | 25,830 |
| | Total Energy Equipment & Services | 1,330,264 |

Food & Staples Retailing 2.4%

| | | |
|--------|--------------------------------|-----------|
| 6,400 | CVS Caremark Corporation | 228,736 |
| 51,400 | Kroger Co. | 1,060,896 |
| 2,000 | Safeway Inc. | 39,440 |
| 3,600 | SUPERVALU INC. | 54,216 |
| 16,300 | Sysco Corporation | 405,055 |
| 6,000 | Walgreen Co. | 224,820 |
| 51,900 | Wal-Mart Stores, Inc. | 2,547,771 |
| 13,400 | Whole Foods Market, Inc., (2) | 408,566 |
| | Total Food & Staples Retailing | 4,969,500 |

Food Products 3.1%

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| | | |
|--------|--------------------------------|-----------|
| 9,300 | Archer-Daniels-Midland Company | 271,746 |
| 2,900 | Campbell Soup Company | 94,598 |
| 1,800 | ConAgra Foods, Inc. | 39,024 |
| 3,600 | Dean Foods Company, (2) | 64,044 |
| 16,600 | General Mills, Inc. | 1,068,708 |
| 14,100 | H.J. Heinz Company | 560,475 |
| 24,200 | Hershey Foods Corporation | 940,412 |
| 10,800 | Hormel Foods Corporation | 383,616 |
| 8,100 | JM Smucker Company | 429,381 |
| 15,000 | Kellogg Company | 738,450 |
| 60,100 | Kraft Foods Inc. | 1,578,827 |
| 1,800 | Sara Lee Corporation | 20,052 |
| 14,100 | Tyson Foods, Inc., Class A | 178,083 |

Total Food Products 6,367,416

Gas Utilities 0.4%

| | | |
|--------|---------------------|---------|
| 16,200 | EQT Corporation | 690,120 |
| 4,100 | Questar Corporation | 153,996 |

Total Gas Utilities 844,116

Health Care Equipment & Supplies 0.5%

| | | |
|--------|------------------------------------|---------|
| 13,300 | Baxter International, Inc. | 758,233 |
| 600 | Becton, Dickinson and Company | 41,850 |
| 5,000 | Boston Scientific Corporation, (2) | 52,950 |
| 600 | C. R. Bard, Inc. | 47,166 |
| 300 | DENTSPLY International Inc. | 10,362 |
| 1,800 | Stryker Corporation | 81,774 |
| 900 | Varian Medical Systems, Inc., (2) | 37,917 |

Total Health Care Equipment & Supplies 1,030,252

Health Care Providers & Services 2.3%

| | | |
|--------|-----------------------------------|---------|
| 1,500 | Aetna Inc. | 41,745 |
| 12,400 | AmerisourceBergen Corporation | 277,512 |
| 7,300 | CIGNA Corporation | 205,057 |
| 4,100 | Coventry Health Care, Inc., (2) | 81,836 |
| 5,200 | Davita Inc., (2) | 294,528 |
| 1,300 | Express Scripts, Inc., (2) | 100,854 |
| 9,000 | Humana Inc., (2) | 335,700 |
| 11,600 | Medco Health Solutions, Inc., (2) | 641,596 |
| 17,700 | Quest Diagnostics Incorporated | 923,763 |
| 31,800 | UnitedHealth Group Incorporated | 796,272 |
| 19,100 | Wellpoint Inc., (2) | 904,576 |

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Total Health Care Providers & Services 4,603,439

Health Care Technology 0.0%

2,100 IMS Health Incorporated 32,235

Hotels, Restaurants & Leisure 3.1%

4,900 Carnival Corporation 163,072
 21,200 Darden Restaurants, Inc. 723,556
 40,200 International Game Technology 863,496
 16,032 Marriott International, Inc., Class A 442,317
 39,100 McDonald's Corporation 2,231,437
 35,100 Starbucks Corporation, (2) 724,815
 3,200 Starwood Hotels & Resorts Worldwide, Inc. 105,696
 10,300 Wyndham Worldwide Corporation 168,096
 3,800 Wynn Resorts Ltd, (2) 269,382
 17,000 YUM! Brands, Inc. 573,920

Total Hotels, Restaurants & Leisure 6,265,787

Household Durables 0.5%

19,600 D.R. Horton, Inc. 223,636
 1,100 Harman International Industries Inc. 37,268
 11,700 KB Home 194,337
 2,600 Leggett and Platt Inc. 50,440
 18,800 Lennar Corporation, Class A 267,900
 19,192 Pulte Corporation, (2) 210,920

Total Household Durables 984,501

Household Products 3.5%

14,600 Clorox Company 858,772
 11,300 Colgate-Palmolive Company 861,964
 10,600 Kimberly-Clark Corporation 625,188
 81,300 Procter & Gamble Company 4,708,896

Total Household Products 7,054,820

Independent Power Producers & Energy Traders 0.2%

9,700 AES Corporation, (2) 143,754
 6,000 Constellation Energy Group 194,220

| | |
|--|---------|
| Total Independent Power Producers & Energy Traders | 337,974 |
|--|---------|

Industrial Conglomerates 1.7%

| | |
|----------------------------------|-----------|
| 7,300 3M Co. | 538,740 |
| 173,700 General Electric Company | 2,852,154 |
| Total Industrial Conglomerates | 3,390,894 |

Insurance 3.3%

| | |
|--|-----------|
| 3,600 AFLAC Incorporated | 153,864 |
| 3,000 American International Group, (2) | 132,330 |
| 9,400 Chubb Corporation | 473,854 |
| 29,900 Cincinnati Financial Corporation | 777,101 |
| 10,500 Genworth Financial Inc., Class A | 125,475 |
| 13,900 Hartford Financial Services Group, Inc. | 368,350 |
| 16,700 Lincoln National Corporation | 432,697 |
| 20,600 Loews Corporation | 705,550 |
| 1,700 Marsh & McLennan Companies, Inc. | 42,041 |
| 6,500 MBIA Inc., (2) | 50,440 |
| 18,200 MetLife, Inc. | 692,874 |
| 7,300 Principal Financial Group, Inc. | 199,947 |
| 26,100 Progressive Corporation, (2) | 432,738 |
| 15,200 Prudential Financial, Inc. | 758,632 |
| 2,000 Torchmark Corporation | 86,860 |
| 15,800 Travelers Companies, Inc. | 777,834 |
| 6,500 Unum Group | 139,360 |
| 20,200 XL Capital Ltd, Class A | 352,692 |
| Total Insurance | 6,702,639 |

Internet & Catalog Retail 0.6%

| | |
|---------------------------------|-----------|
| 7,200 Amazon.com, Inc., (2) | 672,192 |
| 21,700 Expedia, Inc., (2) | 519,715 |
| Total Internet & Catalog Retail | 1,191,907 |

Internet Software & Services 1.0%

| | |
|---------------------------------------|---------|
| 24,500 Akamai Technologies, Inc., (2) | 482,160 |
| 6,700 eBay Inc., (2) | 158,187 |
| 2,000 Google Inc., Class A, (2) | 991,700 |
| 2,700 VeriSign, Inc., (2) | 63,963 |

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|--------|------------------------------------|-----------|
| 21,300 | Yahoo! Inc., (2) | 379,353 |
| | Total Internet Software & Services | 2,075,363 |

IT Services 2.3%

| | | |
|--------|--|-----------|
| 6,600 | Affiliated Computer Services, Inc., (2) | 357,522 |
| 42,700 | Automatic Data Processing, Inc. | 1,678,110 |
| 11,600 | Cognizant Technology Solutions Corporation, Class A, (2) | 448,456 |
| 10,600 | Computer Sciences Corporation, (2) | 558,726 |
| 9,400 | Convergys Corporation, (2) | 93,436 |
| 6,900 | Fidelity National Information Services | 176,019 |
| 6,800 | Fiserv, Inc., (2) | 327,760 |
| 1,600 | MasterCard, Inc. | 323,440 |
| 14,000 | Paychex, Inc. | 406,700 |
| 20,900 | Total System Services Inc. | 336,699 |
| 2,800 | Western Union Company | 52,976 |
| | Total IT Services | 4,759,844 |

Leisure Equipment & Products 0.0%

| | | |
|-------|--------------|--------|
| 3,100 | Mattel, Inc. | 57,226 |
|-------|--------------|--------|

Life Sciences Tools & Services 0.0%

| | | |
|-----|------------------------------------|--------|
| 900 | Life Technologies Corporation, (2) | 41,895 |
|-----|------------------------------------|--------|

Machinery 0.7%

| | | |
|--------|-----------------------------|-----------|
| 900 | Caterpillar Inc. | 46,197 |
| 700 | Cummins Inc. | 31,367 |
| 12,300 | Deere & Company | 527,916 |
| 2,000 | Dover Corporation | 77,520 |
| 300 | Flowserve Corporation | 29,562 |
| 7,000 | Illinois Tool Works, Inc. | 298,970 |
| 2,800 | PACCAR Inc. | 105,588 |
| 1,400 | Parker Hannifin Corporation | 72,576 |
| 4,100 | Stanley Works | 175,029 |
| | Total Machinery | 1,364,725 |

Media 2.6%

| | | |
|-------|--------------------------|--------|
| 1,200 | CBS Corporation, Class B | 14,460 |
|-------|--------------------------|--------|

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|---------|------------------------------|-----------|
| 122,300 | Comcast Corporation, Class A | 2,065,647 |
| 31,200 | DIRECTV Group, Inc., (2) | 860,496 |
| 14,600 | McGraw-Hill Companies, Inc. | 367,044 |
| 6,900 | Meredith Corporation | 206,586 |
| 21,800 | News Corporation, Class A | 261,382 |
| 1,200 | Omnicom Group, Inc. | 44,328 |
| 1,200 | Time Warner Cable, Class A | 51,708 |
| 6,066 | Time Warner Inc. | 174,579 |
| 26,500 | Viacom Inc., Class B, (2) | 743,060 |
| 22,500 | Walt Disney Company | 617,850 |
| | Total Media | 5,407,140 |

Metals & Mining 1.0%

| | | |
|--------|--------------------------------------|-----------|
| 1,900 | AK Steel Holding Corporation | 37,487 |
| 14,500 | Allegheny Technologies, Inc. | 507,355 |
| 7,100 | Freeport-McMoRan Copper & Gold, Inc. | 487,131 |
| 6,700 | Newmont Mining Corporation | 294,934 |
| 14,400 | Nucor Corporation | 676,944 |
| | Total Metals & Mining | 2,003,851 |

Multiline Retail 0.8%

| | | |
|--------|-----------------------------------|-----------|
| 4,300 | Family Dollar Stores, Inc. | 113,520 |
| 5,300 | Federated Department Stores, Inc. | 96,937 |
| 4,200 | J.C. Penney Company, Inc. | 141,750 |
| 17,200 | Kohl's Corporation, (2) | 981,260 |
| 7,500 | Nordstrom, Inc. | 229,050 |
| 2,700 | Target Corporation | 126,036 |
| | Total Multiline Retail | 1,688,553 |

Multi-Utilities 3.9%

| | | |
|--------|--|-----------|
| 9,400 | Ameren Corporation | 237,632 |
| 37,800 | CMS Energy Corporation | 506,520 |
| 48,400 | Consolidated Edison, Inc. | 1,981,496 |
| 12,700 | DTE Energy Company | 446,278 |
| 300 | Integrus Energy Group, Inc. | 10,767 |
| 29,300 | PG&E Corporation | 1,186,357 |
| 6,500 | Public Service Enterprise Group Incorporated | 204,360 |
| 19,400 | Scana Corporation | 677,060 |
| 14,600 | Sempra Energy | 727,226 |
| 1,200 | TECO Energy, Inc. | 16,896 |
| 16,000 | Wisconsin Energy Corporation | 722,720 |
| 66,100 | Xcel Energy, Inc. | 1,271,764 |

| | |
|-----------------------|-----------|
| Total Multi-Utilities | 7,989,076 |
|-----------------------|-----------|

Oil, Gas & Consumable Fuels 10.1%

| | | |
|---------|-----------------------------------|------------|
| 6,100 | Anadarko Petroleum Corporation | 382,653 |
| 600 | Apache Corporation | 55,098 |
| 13,100 | Cabot Oil & Gas Corporation | 468,325 |
| 7,200 | Chesapeake Energy Corporation | 204,480 |
| 51,600 | Chevron Corporation | 3,634,188 |
| 13,300 | ConocoPhillips | 600,628 |
| 6,300 | CONSOL Energy Inc. | 284,193 |
| 27,700 | Denbury Resources Inc., (2) | 419,101 |
| 400 | Devon Energy Corporation | 26,932 |
| 2,500 | El Paso Corporation | 25,800 |
| 2,500 | EOG Resources, Inc. | 208,775 |
| 153,700 | Exxon Mobil Corporation | 10,545,357 |
| 900 | Hess Corporation | 48,114 |
| 7,600 | Marathon Oil Corporation | 242,440 |
| 4,700 | Massey Energy Company | 131,083 |
| 1,700 | Murphy Oil Corporation | 97,869 |
| 12,200 | Occidental Petroleum Corporation | 956,480 |
| 9,900 | Peabody Energy Corporation | 368,478 |
| 700 | Pioneer Natural Resources Company | 25,403 |
| 8,200 | Range Resources Corporation | 404,752 |
| 10,900 | Southwestern Energy Company, (2) | 465,212 |
| 5,700 | Sunoco, Inc. | 162,165 |
| 18,600 | Tesoro Corporation | 278,628 |
| 8,100 | Valero Energy Corporation | 157,059 |
| 2,100 | Williams Companies, Inc. | 37,527 |
| 8,500 | XTO Energy, Inc. | 351,220 |
| | Total Oil, Gas & Consumable Fuels | 20,581,960 |

Pharmaceuticals 8.2%

| | | |
|---------|----------------------------------|-----------|
| 33,700 | Abbott Laboratories | 1,667,139 |
| 8,100 | Allergan, Inc. | 459,756 |
| 104,200 | Bristol-Myers Squibb Company | 2,346,584 |
| 2,200 | Eli Lilly and Company | 72,666 |
| 9,200 | Forest Laboratories, Inc., (2) | 270,848 |
| 72,600 | Johnson & Johnson | 4,420,614 |
| 4,500 | King Pharmaceuticals Inc., (2) | 48,465 |
| 54,300 | Merck & Co. Inc. | 1,717,509 |
| 39,800 | Mylan Laboratories Inc., (2) | 637,198 |
| 115,400 | Pfizer Inc. | 1,909,870 |
| 56,900 | Schering-Plough Corporation | 1,607,425 |
| 7,000 | Watson Pharmaceuticals Inc., (2) | 256,480 |
| 27,300 | Wyeth | 1,326,234 |

| | |
|-----------------------|------------|
| Total Pharmaceuticals | 16,740,788 |
|-----------------------|------------|

Professional Services 0.2%

| | | |
|-------|--------------------------------|---------|
| 2,200 | Dun and Bradstreet Inc. | 165,704 |
| 8,300 | Monster Worldwide Inc., (2) | 145,084 |
| 4,000 | Robert Half International Inc. | 100,080 |
| | Total Professional Services | 410,868 |

Real Estate 0.6%

| | | |
|--------|-------------------------------------|-----------|
| 422 | AvalonBay Communities, Inc. | 30,692 |
| 1,200 | Equity Residential | 36,840 |
| 12,600 | Health Care Property Investors Inc. | 362,124 |
| 16,600 | Host Hotels & Resorts Inc. | 195,382 |
| 1,200 | Plum Creek Timber Company | 36,768 |
| 6,500 | Public Storage, Inc. | 489,060 |
| 319 | Simon Property Group, Inc. | 22,148 |
| 2,500 | Ventas Inc. | 96,250 |
| 180 | Vornado Realty Trust | 11,594 |
| | Total Real Estate | 1,280,858 |

Real Estate Management & Development 0.2%

| | | |
|--------|--|---------|
| 26,900 | CB Richard Ellis Group, Inc., Class A, (2) | 315,806 |
|--------|--|---------|

Road & Rail 0.4%

| | | |
|-------|--|---------|
| 5,300 | Burlington Northern Santa Fe Corporation | 423,099 |
| 5,300 | Norfolk Southern Corporation | 228,483 |
| 3,600 | Union Pacific Corporation | 210,060 |
| | Total Road & Rail | 861,642 |

Semiconductors & Equipment 2.3%

| | | |
|--------|------------------------------------|---------|
| 53,900 | Advanced Micro Devices, Inc., (2) | 305,074 |
| 8,100 | Altera Corporation | 166,131 |
| 2,000 | Analog Devices, Inc. | 55,160 |
| 24,100 | Broadcom Corporation, Class A, (2) | 739,629 |
| 43,600 | Intel Corporation | 853,252 |
| 5,200 | KLA-Tencor Corporation | 186,472 |
| 6,200 | Linear Technology Corporation | 171,306 |

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| | | |
|--------|--------------------------------|---------|
| 14,000 | MEMC Electronic Materials, (2) | 232,820 |
| 49,200 | Micron Technology, Inc., (2) | 403,440 |
| 15,800 | Novellus Systems, Inc., (2) | 331,484 |
| 45,000 | NVIDIA Corporation, (2) | 676,350 |
| 16,500 | Teradyne Inc., (2) | 152,625 |
| 2,400 | Texas Instruments Incorporated | 56,856 |
| 15,600 | Xilinx, Inc. | 365,352 |

Total Semiconductors & Equipment 4,695,951

Software 3.2%

| | | |
|--------|---------------------------------|-----------|
| 1,200 | Adobe Systems Incorporated, (2) | 39,648 |
| 26,200 | BMC Software, Inc., (2) | 983,286 |
| 6,800 | CA Inc. | 149,532 |
| 7,000 | Citrix Systems, (2) | 274,610 |
| 26,600 | Intuit, Inc., (2) | 758,100 |
| 8,200 | McAfee Inc., (2) | 359,078 |
| 43,400 | Microsoft Corporation | 1,123,626 |
| 99,100 | Oracle Corporation | 2,065,244 |
| 7,500 | Red Hat, Inc., (2) | 207,300 |
| 2,300 | Salesforce.com, Inc., (2) | 130,939 |
| 25,000 | Symantec Corporation, (2) | 411,750 |

Total Software 6,503,113

Specialty Retail 3.2%

| | | |
|--------|----------------------------------|-----------|
| 2,900 | Abercrombie & Fitch Co., Class A | 95,352 |
| 13,500 | AutoNation Inc., (2) | 244,080 |
| 5,900 | AutoZone, Inc., (2) | 862,698 |
| 10,800 | Bed Bath and Beyond Inc., (2) | 405,432 |
| 14,800 | Best Buy Co., Inc. | 555,296 |
| 11,200 | Gap, Inc. | 239,680 |
| 43,900 | Home Depot, Inc. | 1,169,496 |
| 22,100 | Lowe's Companies, Inc. | 462,774 |
| 48,300 | Office Depot, Inc., (2) | 319,746 |
| 29,800 | O'Reilly Automotive Inc., (2) | 1,076,972 |
| 5,900 | RadioShack Corporation | 97,763 |
| 9,400 | Sherwin-Williams Company | 565,504 |
| 9,500 | Staples, Inc. | 220,590 |
| 2,900 | TJX Companies, Inc. | 107,735 |

Total Specialty Retail 6,423,118

Textiles, Apparel & Luxury Goods 0.3%

| | | |
|-------|-------------|---------|
| 5,700 | Coach, Inc. | 187,644 |
|-------|-------------|---------|

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| | | |
|-------|---|----------------|
| 3,800 | Nike, Inc., Class B | 245,860 |
| 2,200 | VF Corporation | 159,346 |
| | Total Textiles, Apparel & Luxury Goods | 592,850 |

Thriffs & Mortgage Finance 0.4%

| | | |
|--------|---|----------------|
| 22,400 | Hudson City Bancorp, Inc. | 294,560 |
| 38,500 | People's United Financial, Inc. | 599,060 |
| | Total Thriffs & Mortgage Finance | 893,620 |

Tobacco 0.8%

| | | |
|--------|-----------------------------|------------------|
| 23,800 | Altria Group, Inc. | 423,878 |
| 3,600 | Lorillard Inc. | 267,480 |
| 16,100 | Philip Morris International | 784,714 |
| 1,500 | Reynolds American Inc. | 66,780 |
| | Total Tobacco | 1,542,852 |

Trading Companies & Distributors 0.3%

| | | |
|-------|---|----------------|
| 2,100 | Fastenal Company | 81,270 |
| 6,900 | W.W. Grainger, Inc. | 616,584 |
| | Total Trading Companies & Distributors | 697,854 |

Wireless Telecommunication Services 0.0%

| | | |
|--------|--|---------------|
| 1,600 | Metropcs Communications Inc., (2) | 14,976 |
| 17,400 | Sprint Nextel Corporation, (2) | 68,730 |
| | Total Wireless Telecommunication Services | 83,706 |

Total Common Stocks (cost \$179,263,665) 198,658,975

Principal Amount

(000) Description (1) Coupon Maturity Ratings (3) Value

Short-Term Investments 4.6%

U.S. Government and Agency Obligations 3.0%

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| | | | | | | | |
|----|-------|-------------------------|--------|----------|-----|----|-----------|
| \$ | 6,000 | U.S. Treasury Bills (4) | 0.000% | 10/15/09 | AAA | \$ | 5,999,958 |
|----|-------|-------------------------|--------|----------|-----|----|-----------|

Repurchase Agreements 1.6%

| | | | | | | |
|-------|--|--------|----------|-----|--|-----------|
| 3,351 | Repurchase Agreement with State Street Bank, dated 09/30/09, repurchase price \$3,351,298, collateralized by \$3,425,000 U.S. Treasury Bills, 0.000%, due 3/11/10, value \$3,422,603 | 0.010% | 10/01/09 | N/A | | 3,351,297 |
|-------|--|--------|----------|-----|--|-----------|

| | | | | | | | |
|----|--------------|--|--|--|--|--|------------------|
| \$ | 9,351 | Total Short-Term Investments (cost \$9,350,935) | | | | | 9,351,255 |
|----|--------------|--|--|--|--|--|------------------|

| | | | | | | | |
|--|--|---|--|--|--|--|--------------------|
| | | Total Investments (cost \$188,614,600) | | | | | 208,010,230 |
| | | 102.1% | | | | | |

| Number of Contracts | Type | Notional Amount (5) | Expiration Date | Strike Price | Value |
|------------------------------------|---|------------------------|--------------------|-----------------|-----------------------|
| Call Options Written (0.3)% | | | | | |
| (455,953) | Custom Basket 1 NASDAQ | \$ (45,595,273) | 10/22/09 | \$105.0 | \$ (331,341) |
| (441,137) | Custom Basket 2 NASDAQ | (44,113,745) | 10/29/09 | 105.0 | (350,748) |
| (897,090) | Total Call Options Written (premiums received \$592,672) | (89,709,018) | | | (682,089) |
| | Other Assets Less Liabilities (1.8)% | | | | (3,588,694) |
| | Net Assets 100% | | | | \$ 203,739,447 |

Investments in Derivatives

Futures Contracts outstanding at September 30, 2009:

| Type | Contract Position | Number of Contracts | Contract Expiration | Unrealized Appreciation Value (Depreciation) |
|---------------|----------------------|---------------------------|------------------------|--|
| S&P 500 Index | Long | 125 | 12/09 | \$6,580,625 \$154,313 |

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.

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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 September 30, 2009:

| | Level 1 | Level 2 | Level 3 | Total |
|------------------------|----------------|--------------|---------|----------------|
| Investments: | | | | |
| Common Stocks | \$ 198,658,975 | \$ | \$ | \$ 198,658,975 |
| Short-Term Investments | 9,351,255 | | | 9,351,255 |
| Call Options Written | | (682,089) | | (682,089) |
| Derivatives: | | | | |
| Futures Contracts* | 154,313 | | | 154,313 |
| Total | \$ 208,164,543 | \$ (682,089) | \$ | \$ 207,482,454 |

* Represents net unrealized appreciation (depreciation).

Derivative Instruments and Hedging Activities

During the current fiscal period, the Fund adopted amendments to authoritative guidance under GAAP on disclosures about derivative instruments and hedging activities. This guidance is intended to enhance financial statement disclosures for derivative instruments and hedging activities and enable investors to understand: a) how and why a fund uses derivative instruments; b) how derivative instruments are accounted for; and c) how derivative instruments affect a fund's financial position, results of operations and cash flows, if any. The Fund records derivative instruments at fair value with changes in fair value recognized on the Statement of Operations, when applicable. Even though the Fund's investments in derivatives may represent economic hedges, under this guidance they are considered to be non-hedge transactions for financial reporting purposes.

The table below presents the fair value of all derivative instruments held by the Fund as of September 30, 2009, the location of these instruments on the Statement of Assets and Liabilities, and the primary underlying risk exposure.

| Underlying Risk Exposure | Derivative Instrument | Location on the Statement of Assets and Liabilities | | | |
|--------------------------|-----------------------|---|-------------------------|--------------------------------|-----------------------------|
| | | Asset Derivatives Location | Asset Derivatives Value | Liability Derivatives Location | Liability Derivatives Value |
| Equity Price | Options | | \$ | Call options written, at value | \$ 682,089 |
| Equity Price | Futures contracts | Receivable for variation margin on futures contracts* | 154,313 | | |

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Total \$ 154,313 \$ 682,089

* Value represents cumulative appreciation (depreciation) of futures contracts as reported in the Portfolio of Investments and not the deposits with brokers, if any, or the receivable or payable for variation margin presented on the Statements of Assets and Liabilities.

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 timing differences in recognizing certain gains and losses on investment transactions and the recognition of unrealized gain or loss for tax (mark-to-market) on futures contracts. 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 basis treatment; temporary differences do not require reclassification. Temporary and permanent differences do not impact the net asset value of the Fund.

At September 30, 2009, the cost of investments (excluding call options written) was \$194,618,779.

Gross unrealized appreciation and gross unrealized depreciation of investments (excluding call options written) at September 30, 2009, were as follows:

| | |
|---|-------------------|
| Gross unrealized: | |
| Appreciation | \$ 25,898,746 |
| Depreciation | (12,507,295) |
| | |
| Net unrealized appreciation (depreciation) of investments | \$ 13,391,451 |

- (1) All percentages shown in the Portfolio of Investments are based on net assets.
- (2) Non-income producing; issuer has not declared a dividend within the past twelve months.
- (3) Ratings: Using the higher of Standard & Poor's Group (Standard & Poor's) or Moody's Investor Service, Inc. (Moody's) rating. Rating below BBB by Standard & Poor's or Baa by Moody's are considered to be below investment grade.
- (4) Investment, or portion of investment, has been pledged to collateralize the net payment obligations for call options written and investments in derivatives.
- (5) For disclosure purposes, Notional Amount is calculated by multiplying the Number of Contracts by \$100.

N/A Not applicable.

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.

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 November 27, 2009

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 November 27, 2009

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

Date November 27, 2009