

Nuveen Core Equity Alpha Fund  
Form N-Q  
November 29, 2010

**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: 9/30/2010

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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**Item 1. Schedule of Investments****Portfolio of Investments (Unaudited)****Nuveen Core Equity Alpha Fund (JCE)***September 30, 2010*

| <b>Shares</b>                           | <b>Description (1)</b>                       | <b>Value</b> |
|---|--|--------------|
| <b>Common Stocks 98.8%</b>              |  |              |
| <b>Aerospace &amp; Defense 4.1%</b>     |  |              |
| 36,400                                  | Boeing Company                               | \$ 2,422,056 |
| 5,600                                   | General Dynamics Corporation                 | 351,736      |
| 600                                     | Goodrich Corporation                         | 44,238       |
| 13,300                                  | L-3 Communications Holdings, Inc.            | 961,191      |
| 27,100                                  | Northrop Grumman Corporation                 | 1,643,073    |
| 12,900                                  | Precision Castparts Corporation              | 1,642,815    |
| 2,300                                   | Raytheon Company                             | 105,133      |
| 16,100                                  | Rockwell Collins, Inc.                       | 937,825      |
| 8,200                                   | United Technologies Corporation              | 584,086      |
|   | Total Aerospace & Defense                    | 8,692,153    |
| <b>Air Freight &amp; Logistics 0.6%</b> |  |              |
| 700                                     | Expeditors International of Washington, Inc. | 32,361       |
| 15,300                                  | FedEx Corporation                            | 1,308,150    |
|   | Total Air Freight & Logistics                | 1,340,511    |
| <b>Airlines 0.9%</b>                    |  |              |
| 147,900                                 | Southwest Airlines Co.                       | 1,933,053    |
| <b>Automobiles 0.2%</b>                 |  |              |
| 39,400                                  | Ford Motor Company, (2)                      | 482,256      |
| <b>Beverages 1.3%</b>                   |  |              |
| 3,000                                   | Brown-Forman Corporation                     | 184,920      |
| 1,400                                   | Coca-Cola Company                            | 81,928       |
| 21,300                                  | Coca-Cola Enterprises Inc.                   | 660,300      |
| 51,000                                  | Dr. Pepper Snapple Group                     | 1,811,520    |

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|        |   |           |
|--------|---|-----------|
| 800    | Molson Coors Brewing Company, Class B   | 37,776    |
|        | Total Beverages                         | 2,776,444 |
| <br>   |   |           |
|        | <b>Biotechnology 0.2%</b>               |           |
| 1,600  | Amgen Inc., (2)                         | 88,176    |
| 1,500  | Biogen Idec Inc., (2)                   | 84,180    |
| 800    | Celgene Corporation, (2)                | 46,088    |
| 500    | Cephalon, Inc., (2)                     | 31,220    |
| 1,500  | Genzyme Corporation, (2)                | 106,185   |
|        | Total Biotechnology                     | 355,849   |
| <br>   |   |           |
|        | <b>Capital Markets 1.5%</b>             |           |
| 14,100 | Ameriprise Financial, Inc.              | 667,353   |
| 5,500  | Bank of New York Company, Inc.          | 143,715   |
| 21,700 | Franklin Resources, Inc.                | 2,319,730 |
| 1,300  | Invesco LTD                             | 27,599    |
|        | Total Capital Markets                   | 3,158,397 |
| <br>   |   |           |
|        | <b>Chemicals 1.3%</b>                   |           |
| 8,000  | Airgas, Inc.                            | 543,600   |
| 3,700  | E.I. Du Pont de Nemours and Company     | 165,094   |
| 3,000  | Eastman Chemical Company                | 222,000   |
| 800    | Ecolab Inc.                             | 40,592    |
| 21,100 | International Flavors & Fragrances Inc. | 1,023,772 |
| 10,700 | Sherwin-Williams Company                | 803,998   |
|        | Total Chemicals                         | 2,799,056 |
| <br>   |   |           |
|        | <b>Commercial Banks 2.2%</b>            |           |
| 22,500 | BB&T Corporation                        | 541,800   |
| 21,400 | Comerica Incorporated                   | 795,010   |
| 15,700 | Fifth Third Bancorp.                    | 188,871   |
| 2,100  | First Horizon National Corporation, (2) | 23,961    |
| 33,100 | Huntington BancShares Inc.              | 187,677   |
| 2,800  | KeyCorp.                                | 22,288    |
| 13,000 | M&T Bank Corporation                    | 1,063,530 |
| 4,700  | PNC Financial Services Group, Inc.      | 243,977   |
| 61,100 | Regions Financial Corporation           | 444,197   |
| 3,700  | SunTrust Banks, Inc.                    | 95,571    |
| 11,500 | U.S. Bancorp                            | 248,630   |

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|        |                        |           |
|--------|------------------------|-----------|
| 8,950  | Wells Fargo & Company  | 224,914   |
| 28,700 | Zions Bancorporation   | 613,032   |
|        | Total Commercial Banks | 4,693,458 |

**Commercial Services & Supplies 0.2%**

|       |                                      |         |
|-------|--------------------------------------|---------|
| 4,800 | Republic Services, Inc.              | 146,352 |
| 4,700 | Stericycle Inc., (2)                 | 326,556 |
|       | Total Commercial Services & Supplies | 472,908 |

**Communications Equipment 1.8%**

|         |                                |           |
|---------|--------------------------------|-----------|
| 38,300  | Harris Corporation             | 1,696,307 |
| 20,800  | JDS Uniphase Corporation, (2)  | 257,712   |
| 800     | Juniper Networks Inc., (2)     | 24,280    |
| 123,400 | Motorola, Inc., (2)            | 1,052,602 |
| 500     | QUALCOMM, Inc.                 | 22,560    |
| 88,100  | Tellabs Inc.                   | 656,345   |
|         | Total Communications Equipment | 3,709,806 |

**Computers & Peripherals 7.8%**

|        |   |            |
|--------|---|------------|
| 39,800 | Apple, Inc., (2)                          | 11,293,250 |
| 25,900 | Lexmark International, Inc., Class A, (2) | 1,155,658  |
| 77,000 | Network Appliance Inc., (2)               | 3,833,830  |
| 3,900  | Western Digital Corporation, (2)          | 110,721    |
|        | Total Computers & Peripherals             | 16,393,459 |

**Construction & Engineering 0.0%**

|       |                   |        |
|-------|-------------------|--------|
| 1,300 | Fluor Corporation | 64,389 |
|-------|-------------------|--------|

**Consumer Finance 0.0%**

|       |                                   |        |
|-------|-----------------------------------|--------|
| 2,500 | Capital One Financial Corporation | 98,875 |
|-------|-----------------------------------|--------|

**Containers & Packaging 0.1%**

|       |                         |         |
|-------|-------------------------|---------|
| 5,500 | Pactiv Corporation, (2) | 181,390 |
|-------|-------------------------|---------|

**Diversified Consumer Services 0.7%**

|        |                                     |           |
|--------|-------------------------------------|-----------|
| 20,800 | Devry, Inc.                         | 1,023,568 |
| 36,200 | H & R Block Inc.                    | 468,790   |
|        | Total Diversified Consumer Services | 1,492,358 |

**Diversified Financial Services 0.3%**

|        |                                      |         |
|--------|--------------------------------------|---------|
| 15,700 | Bank of America Corporation          | 205,827 |
| 50,500 | Citigroup Inc., (2)                  | 196,950 |
| 5,105  | JPMorgan Chase & Co.                 | 194,347 |
| 5,500  | Moody's Corporation                  | 137,390 |
|        | Total Diversified Financial Services | 734,514 |

**Diversified Telecommunication Services 0.9%**

|         |  |           |
|---------|--|-----------|
| 3,200   | AT&T Inc.                                    | 91,520    |
| 7,600   | Frontier Communications Corporation          | 62,092    |
| 174,200 | Qwest Communications International Inc.      | 1,092,234 |
| 1,400   | Verizon Communications Inc.                  | 45,626    |
| 42,300  | Windstream Corporation                       | 519,867   |
|         | Total Diversified Telecommunication Services | 1,811,339 |

**Electric Utilities 0.7%**

|        |                                       |           |
|--------|---------------------------------------|-----------|
| 4,200  | American Electric Power Company, Inc. | 152,166   |
| 1,500  | Duke Energy Corporation               | 26,565    |
| 1,100  | NextEra Energy Inc.                   | 59,829    |
| 41,600 | Pepco Holdings, Inc.                  | 773,760   |
| 7,000  | Pinnacle West Capital Corporation     | 288,890   |
| 1,900  | Progress Energy, Inc.                 | 84,398    |
| 2,600  | Southern Company                      | 96,824    |
|        | Total Electric Utilities              | 1,482,432 |

**Electrical Equipment 1.8%**

|        |                            |           |
|--------|----------------------------|-----------|
| 31,900 | Emerson Electric Company   | 1,679,854 |
| 34,500 | Rockwell Automation, Inc.  | 2,129,685 |
| 700    | Roper Industries Inc.      | 45,626    |
|        | Total Electrical Equipment | 3,855,165 |

**Electronic Equipment & Instruments 1.3%**

|        |  |           |
|--------|--|-----------|
| 65,400 | Agilent Technologies, Inc., (2)          | 2,182,398 |
| 1,300  | Corning Incorporated                     | 23,764    |
| 23,300 | FLIR Systems Inc., (2)                   | 598,810   |
|        | Total Electronic Equipment & Instruments | 2,804,972 |

**Energy Equipment & Services 1.0%**

|        |                                   |           |
|--------|-----------------------------------|-----------|
| 1,127  | Baker Hughes Incorporated         | 48,010    |
| 22,000 | Halliburton Company               | 727,540   |
| 22,642 | Schlumberger Limited              | 1,394,974 |
|        | Total Energy Equipment & Services | 2,170,524 |

**Food & Staples Retailing 0.2%**

|       |                                |         |
|-------|--------------------------------|---------|
| 2,200 | Kroger Co.                     | 47,652  |
| 2,400 | Sysco Corporation              | 68,448  |
| 8,200 | Walgreen Co.                   | 274,700 |
| 700   | Wal-Mart Stores, Inc.          | 37,464  |
| 1,100 | Whole Foods Market, Inc., (2)  | 40,821  |
|       | Total Food & Staples Retailing | 469,085 |

**Food Products 6.3%**

|         |  |            |
|---------|--|------------|
| 95,800  | General Mills, Inc.                            | 3,500,532  |
| 19,100  | Hershey Foods Corporation                      | 908,969    |
| 31,200  | JM Smucker Company                             | 1,888,536  |
| 30,300  | Kellogg Company                                | 1,530,453  |
| 3,100   | Kraft Foods Inc.                               | 95,666     |
| 4,300   | McCormick & Company, Incorporated              | 180,772    |
| 24,500  | Mead Johnson Nutrition Company, Class A Shares | 1,394,295  |
| 168,900 | Sara Lee Corporation                           | 2,268,327  |
| 100,200 | Tyson Foods, Inc., Class A                     | 1,605,204  |
|         | Total Food Products                            | 13,372,754 |

**Gas Utilities 0.4%**

|        |             |         |
|--------|-------------|---------|
| 17,800 | ONEOK, Inc. | 801,712 |
|--------|-------------|---------|

**Health Care Equipment & Supplies 6.1%**

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|        |                                   |           |
|--------|-----------------------------------|-----------|
| 39,500 | CareFusion Corporation, (2)       | 981,180   |
| 33,700 | Hospira Inc., (2)                 | 1,921,237 |
| 14,600 | Intuitive Surgical, Inc., (2)     | 4,142,604 |
| 3,700  | Medtronic, Inc.                   | 124,246   |
| 60,500 | Stryker Corporation               | 3,028,025 |
| 21,900 | Varian Medical Systems, Inc., (2) | 1,324,950 |
| 26,400 | Zimmer Holdings, Inc., (2)        | 1,381,512 |

Total Health Care Equipment & Supplies 12,903,754

**Health Care Providers & Services 6.0%**

|         |                                   |           |
|---------|-----------------------------------|-----------|
| 116,900 | AmerisourceBergen Corporation     | 3,584,154 |
| 132,200 | Cardinal Health, Inc.             | 4,367,888 |
| 6,900   | Express Scripts, Inc., (2)        | 336,030   |
| 23,200  | Humana Inc., (2)                  | 1,165,568 |
| 46,600  | McKesson HBOC Inc.                | 2,878,948 |
| 3,100   | Medco Health Solutions, Inc., (2) | 161,386   |
| 1,900   | UnitedHealth Group Incorporated   | 66,709    |
| 1,600   | Wellpoint Inc., (2)               | 90,624    |

Total Health Care Providers & Services 12,651,307

**Hotels, Restaurants & Leisure 3.4%**

|         |   |           |
|---------|---|-----------|
| 35,300  | Darden Restaurants, Inc.                  | 1,510,134 |
| 8,700   | Marriott International, Inc., Class A     | 311,721   |
| 5,500   | McDonald's Corporation                    | 409,805   |
| 135,400 | Starbucks Corporation                     | 3,463,532 |
| 4,700   | Starwood Hotels & Resorts Worldwide, Inc. | 246,985   |
| 6,500   | Wyndham Worldwide Corporation             | 178,555   |
| 600     | Wynn Resorts Ltd.                         | 52,062    |
| 21,500  | YUM! Brands, Inc.                         | 990,290   |

Total Hotels, Restaurants & Leisure 7,163,084

**Household Durables 2.3%**

|        |   |           |
|--------|---|-----------|
| 6,300  | Fortune Brands Inc.                       | 310,149   |
| 6,100  | Harman International Industries Inc., (2) | 203,801   |
| 10,300 | Lennar Corporation, Class A               | 158,414   |
| 53,987 | Stanley Black & Decker Inc.               | 3,308,323 |
| 11,500 | Whirlpool Corporation                     | 931,040   |

Total Household Durables 4,911,727

**Household Products 0.4%**

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|       |                            |         |
|-------|----------------------------|---------|
| 5,300 | Clorox Company             | 353,828 |
| 2,300 | Colgate-Palmolive Company  | 176,778 |
| 3,700 | Kimberly-Clark Corporation | 240,685 |
|       | Total Household Products   | 771,291 |

**Industrial Conglomerates 0.5%**

|        |                                |         |
|--------|--------------------------------|---------|
| 2,500  | 3M Co.                         | 216,775 |
| 22,400 | General Electric Company       | 364,000 |
| 1,300  | Textron Inc.                   | 26,728  |
| 10,400 | Tyco International Ltd.        | 381,992 |
|        | Total Industrial Conglomerates | 989,495 |

**Insurance 1.4%**

|        |                                       |           |
|--------|---------------------------------------|-----------|
| 5,600  | Ace Limited                           | 326,200   |
| 2,500  | AFLAC Incorporated                    | 129,275   |
| 1,800  | American International Group, (2)     | 70,380    |
| 5,300  | Assurant Inc.                         | 215,710   |
| 3,331  | Berkshire Hathaway Inc., Class B, (2) | 275,407   |
| 31,700 | Progressive Corporation               | 661,579   |
| 7,800  | Torchmark Corporation                 | 414,492   |
| 15,000 | Travelers Companies, Inc.             | 781,500   |
|        | Total Insurance                       | 2,874,543 |

**Internet & Catalog Retail 4.1%**

|        |                                 |           |
|--------|---------------------------------|-----------|
| 32,600 | Amazon.com, Inc., (2)           | 5,120,156 |
| 10,200 | Priceline.com Incorporated, (2) | 3,553,068 |
|        | Total Internet & Catalog Retail | 8,673,224 |

**Internet Software & Services 4.8%**

|        |                                    |            |
|--------|------------------------------------|------------|
| 23,200 | Akamai Technologies, Inc., (2)     | 1,164,176  |
| 95,200 | eBay Inc., (2)                     | 2,322,880  |
| 12,600 | Google Inc., Class A, (2)          | 6,624,954  |
|        | Total Internet Software & Services | 10,112,010 |

**IT Services 3.9%**



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|        |   |           |
|--------|---|-----------|
| 84,700 | Cognizant Technology Solutions Corporation,<br>Class A, (2) | 5,460,609 |
| 6,500  | Fidelity National Information Services                      | 176,345   |
| 12,100 | International Business Machines Corporation (IBM)           | 1,623,094 |
| 2,200  | MasterCard, Inc.  | 492,800   |
| 5,400  | Visa Inc.   | 401,004   |
|        | Total IT Services   | 8,153,852 |

**Leisure Equipment & Products 1.1%**

|        |              |           |
|--------|--------------|-----------|
| 50,300 | Hasbro, Inc. | 2,238,853 |
|--------|--------------|-----------|

**Life Sciences Tools & Services 0.2%**

|       |                                      |         |
|-------|--------------------------------------|---------|
| 300   | Life Technologies Corporation, (2)   | 14,007  |
| 4,400 | Perkinelmer Inc.                     | 101,816 |
| 3,000 | Waters Corporation, (2)              | 212,340 |
|       | Total Life Sciences Tools & Services | 328,163 |

**Machinery 2.1%**

|        |                             |           |
|--------|-----------------------------|-----------|
| 13,200 | Caterpillar Inc.            | 1,038,576 |
| 5,100  | Cummins Inc.                | 461,958   |
| 2,800  | Deere & Company             | 195,384   |
| 1,800  | Dover Corporation           | 93,978    |
| 25,300 | Eaton Corporation           | 2,086,997 |
| 1,600  | PACCAR Inc.                 | 77,040    |
| 4,800  | Parker Hannifin Corporation | 336,288   |
| 2,200  | Snap-on Incorporated        | 102,322   |
|        | Total Machinery             | 4,392,543 |

**Media 3.4%**

|         |  |           |
|---------|--|-----------|
| 3,600   | Comcast Corporation, Class A                       | 65,088    |
| 120,900 | DIRECTV Group, Inc., (2)                           | 5,033,067 |
| 8,300   | Discovery Communications Inc., Class A Shares, (2) | 361,465   |
| 4,400   | McGraw-Hill Companies, Inc.                        | 145,464   |
| 19,000  | Scripps Networks Interactive, Class A Shares       | 904,020   |
| 4,900   | Time Warner Cable, Class A                         | 264,551   |
| 7,400   | Viacom Inc., Class B                               | 267,806   |
| 6,800   | Walt Disney Company                                | 225,148   |
|         | Total Media  | 7,266,609 |

**Metals & Mining 0.2%**

|       |                                  |         |
|-------|----------------------------------|---------|
| 1,500 | Allegheny Technologies, Inc.     | 69,675  |
| 900   | Cliffs Natural Resources Inc.    | 57,528  |
| 2,000 | Nucor Corporation                | 76,400  |
| 6,500 | Titanium Metals Corporation, (2) | 129,740 |
|       | Total Metals & Mining            | 333,343 |

**Multiline Retail 1.2%**

|        |                                |           |
|--------|--------------------------------|-----------|
| 24,400 | Big Lots, Inc., (2)            | 811,300   |
| 19,400 | Family Dollar Stores, Inc.     | 856,704   |
| 11,700 | Sears Holding Corporation, (2) | 844,038   |
|        | Total Multiline Retail         | 2,512,042 |

**Multi-Utilities 3.0%**

|        |  |           |
|--------|--|-----------|
| 41,600 | CenterPoint Energy, Inc.                     | 653,952   |
| 16,400 | CMS Energy Corporation                       | 295,528   |
| 5,400  | Dominion Resources, Inc.                     | 235,764   |
| 54,300 | DTE Energy Company                           | 2,493,999 |
| 28,800 | Integrays Energy Group, Inc.                 | 1,499,328 |
| 30,700 | NiSource Inc.                                | 534,180   |
| 2,400  | Public Service Enterprise Group Incorporated | 79,392    |
| 900    | Sempra Energy                                | 48,420    |
| 18,700 | TECO Energy, Inc.                            | 323,884   |
| 3,600  | Wisconsin Energy Corporation                 | 208,080   |
|        | Total Multi-Utilities                        | 6,372,527 |

**Oil, Gas & Consumable Fuels 1.0%**

|        |                                   |           |
|--------|-----------------------------------|-----------|
| 400    | Chevron Corporation               | 32,420    |
| 2,500  | Denbury Resources Inc., (2)       | 39,725    |
| 700    | Hess Corporation                  | 41,384    |
| 28,700 | Pioneer Natural Resources Company | 1,866,361 |
| 2,000  | QEP Resources Inc., (2)           | 60,280    |
| 500    | Sunoco, Inc.                      | 18,250    |
|        | Total Oil, Gas & Consumable Fuels | 2,058,420 |

**Personal Products 1.5%**

|       |                     |         |
|-------|---------------------|---------|
| 6,300 | Avon Products, Inc. | 202,293 |
|-------|---------------------|---------|

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|  |   |           |
|--|---|-----------|
| 48,400                                     | Estee Lauder Companies Inc., Class A                  | 3,060,332 |
|  | Total Personal Products                               | 3,262,625 |
| <br>                                       |   |           |
| <b>Pharmaceuticals 3.1%</b>                |   |           |
| 30,800                                     | Abbott Laboratories                                   | 1,608,992 |
| 4,700                                      | Bristol-Myers Squibb Company                          | 127,417   |
| 2,400                                      | Eli Lilly and Company                                 | 87,672    |
| 1,300                                      | Johnson & Johnson                                     | 80,548    |
| 94,232                                     | Merck & Company Inc.                                  | 3,468,680 |
| 62,600                                     | Mylan Laboratories Inc., (2)                          | 1,177,506 |
|  | Total Pharmaceuticals                                 | 6,550,815 |
| <br>                                       |   |           |
| <b>Professional Services 0.2%</b>          |   |           |
| 16,600                                     | Equifax Inc.  | 517,920   |
| <br>                                       |   |           |
| <b>Real Estate 0.9%</b>                    |   |           |
| 6,600                                      | Apartment Investment & Management Company,<br>Class A | 141,108   |
| 3,600                                      | AvalonBay Communities, Inc.                           | 374,148   |
| 500  | Boston Properties, Inc.                               | 41,560    |
| 13,300                                     | Equity Residential                                    | 632,681   |
| 900  | Health Care REIT, Inc.                                | 32,382    |
| 3,600                                      | Host Hotels & Resorts Inc.                            | 52,128    |
| 4,700                                      | Public Storage, Inc.                                  | 456,088   |
| 1,300                                      | Ventas Inc.   | 67,041    |
| 600  | Vornado Realty Trust                                  | 51,318    |
|  | Total Real Estate                                     | 1,848,454 |
| <br>                                       |   |           |
| <b>Road &amp; Rail 0.0%</b>                |   |           |
| 400  | Ryder System, Inc.                                    | 17,108    |
| 500  | Union Pacific Corporation                             | 40,900    |
|  | Total Road & Rail                                     | 58,008    |
| <br>                                       |   |           |
| <b>Semiconductors &amp; Equipment 1.1%</b> |   |           |
| 35,200                                     | Advanced Micro Devices, Inc., (2)                     | 250,272   |
| 2,500                                      | Altera Corporation                                    | 75,400    |
| 2,100                                      | Linear Technology Corporation                         | 64,533    |

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|        |                                   |           |
|--------|-----------------------------------|-----------|
| 3,800  | Microchip Technology Incorporated | 119,510   |
| 800    | Novellus Systems, Inc., (2)       | 21,264    |
| 69,800 | Texas Instruments Incorporated    | 1,894,372 |
|        | Total Semiconductors & Equipment  | 2,425,351 |

**Software 2.1%**

|         |                           |           |
|---------|---------------------------|-----------|
| 1,400   | Autodesk, Inc., (2)       | 44,758    |
| 13,400  | Intuit, Inc., (2)         | 587,054   |
| 60,200  | Microsoft Corporation     | 1,474,298 |
| 105,700 | Novell Inc., (2)          | 631,029   |
| 14,300  | Salesforce.com, Inc., (2) | 1,598,740 |
|         | Total Software            | 4,335,879 |

**Specialty Retail 4.6%**

|        |                                  |           |
|--------|----------------------------------|-----------|
| 900    | Abercrombie & Fitch Co., Class A | 35,388    |
| 800    | AutoNation Inc., (2)             | 18,600    |
| 2,200  | AutoZone, Inc., (2)              | 503,602   |
| 6,300  | GameStop Corporation, (2)        | 124,173   |
| 38,000 | Home Depot, Inc.                 | 1,203,840 |
| 87,300 | Limited Brands, Inc.             | 2,337,894 |
| 9,200  | O Reilly Automotive Inc., (2)    | 489,440   |
| 2,400  | RadioShack Corporation           | 51,192    |
| 5,200  | Ross Stores, Inc.                | 284,024   |
| 14,000 | Tiffany & Co.                    | 657,860   |
| 87,900 | TJX Companies, Inc.              | 3,922,977 |
|        | Total Specialty Retail           | 9,628,990 |

**Textiles, Apparel & Luxury Goods 0.1%**

|       |                     |         |
|-------|---------------------|---------|
| 2,900 | Nike, Inc., Class B | 232,406 |
|-------|---------------------|---------|

**Thriffs & Mortgage Finance 0.1%**

|        |                           |         |
|--------|---------------------------|---------|
| 10,700 | Hudson City Bancorp, Inc. | 131,182 |
|--------|---------------------------|---------|

**Tobacco 1.1%**

|        |                             |           |
|--------|-----------------------------|-----------|
| 6,900  | Altria Group, Inc.          | 165,738   |
| 300    | Lorillard Inc.              | 24,093    |
| 900    | Philip Morris International | 50,418    |
| 36,000 | Reynolds American Inc.      | 2,138,040 |

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Total Tobacco 2,378,289

**Trading Companies & Distributors 1.2%**

46,300 Fastenal Company 2,462,697

**Wireless Telecommunication Services 1.9%**

74,300 American Tower Corporation, (2) 3,808,618

45,400 Sprint Nextel Corporation, (2) 210,202

Total Wireless Telecommunication Services 4,018,820

**Total Common Stocks (cost \$185,086,331) 208,705,082**

| Principal Amount (000)                             | Description (1)   | Coupon | Maturity | Rating (3) | Value            |
|--|---|--------|----------|------------|------------------|
| <b>Short-Term Investments 4.0%</b>                 |   |        |          |            |                  |
| <b>U.S. Government and Agency Obligations 1.9%</b> |   |        |          |            |                  |
| \$ 2,000   | U.S. Treasury Bills, (4)  | 0.000% | 1/27/11  | AAA        | \$ 1,999,214     |
| 2,000  | U.S. Treasury Bills   | 0.000% | 2/03/11  | AAA        | 1,999,118        |
| 4,000  | Total U.S. Government and Agency Obligations  |        |          |            | 3,998,332        |
| <b>Repurchase Agreements 2.1%</b>                  |   |        |          |            |                  |
| 4,465  | Repurchase Agreement with State Street Bank, dated 9/30/10, repurchase price \$4,464,799, collateralized by \$4,255,000 U.S. Treasury Notes, 2.500%, due 4/30/15, value \$4,555,829 | 0.080% | 10/01/10 | N/A        | 4,464,789        |
| <b>\$ 8,465</b>                                    | <b>Total Short-Term Investments (cost \$8,462,469)</b>  |        |          |            | <b>8,463,121</b> |
|  | Total Investments (cost \$193,548,800) 102.8%   |        |          |            | 217,168,203      |
|  | Other Assets Less Liabilities (2.8%)  |        |          |            | (5,817,522)      |

Net Assets 100%

\$ 211,350,681

**Investments in Derivatives****Call Options Written outstanding at September 30, 2010:**

| Number of Contracts | Type  | Notional Amount (\$)   | Expiration Date | Strike Price | Value                 |
|---------------------|---|------------------------|-----------------|--------------|-----------------------|
| (455,052)           | Custom Basket NASDAQ  | \$ (45,505,214)        | 10/21/10        | \$ 103.0     | \$ (817,319)          |
| (463,508)           | Custom Basket NASDAQ  | (46,350,790)           | 11/04/10        | 103.0        | (486,683)             |
| <b>(918,560)</b>    | <b>Total Call Options Written (premiums received \$996,342)</b> | <b>\$ (91,856,004)</b> |                 |              | <b>\$ (1,304,002)</b> |

**Futures Contracts outstanding at September 30, 2010:**

| Type          | Contract Position | Number of Contracts | Contract Expiration | Value at September 30, 2010 | Unrealized Appreciation (Depreciation) |
|---------------|-------------------|---------------------|---------------------|-----------------------------|--|
| S&P 500 Index | Long              | 125                 | 12/10               | \$7,104,375                 | \$130,250                              |

**Fair Value Measurements**

In determining the fair 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 methodologies 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, 2010:

|                        | Level 1        | Level 2        | Level 3 | Total          |
|------------------------|----------------|----------------|---------|----------------|
| Investments:           |                |                |         |                |
| Common Stocks          | \$ 208,705,082 | \$             | \$      | \$ 208,705,082 |
| Short-Term Investments | 8,463,121      |                |         | 8,463,121      |
| Derivatives:           |                |                |         |                |
| Call Options Written   |                | (1,304,002)    |         | (1,304,002)    |
| Futures Contracts *    | 130,250        |                |         | 130,250        |
| Total                  | \$ 217,298,453 | \$ (1,304,002) | \$      | \$ 215,994,451 |

\*Represents net unrealized appreciation (depreciation).

**Derivative Instruments and Hedging Activities**

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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, they are not considered to be hedge transactions for financial reporting purposes.

The following table presents the fair value of all derivative instruments held by the Fund as of September 30, 2010, 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                                     |            | Liability Derivatives                              |              |
|                          |                       | Location  | Value      | Location   | Value        |
| Equity Price             | Futures Contracts     | Receivable for variation margin on futures contracts* | \$ 130,250 | Payable for variation margin on futures contracts* | \$           |
| Equity Price             | Options               |   |            | Call options written, at value                     | 1,304,002    |
| Total                    |                       |   | \$ 130,250 |  | \$ 1,304,002 |

\* Value represents cumulative unrealized 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 Statement 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, 2010, the cost of investments (excluding investments in derivatives) was \$195,113,910.

Gross unrealized appreciation and gross unrealized depreciation of investments (excluding investments in derivatives) at September 30, 2010, were as follows:

|   |               |
|---|---------------|
| Gross unrealized:   |               |
| Appreciation  | \$ 25,022,506 |
| Depreciation  | (2,968,213)   |
| Net unrealized appreciation (depreciation) of investments | \$ 22,054,293 |

For Fund portfolio compliance purposes, the Fund's industry classifications refer to any one or more of the industry sub-classifications used by one or more widely recognized market indexes or ratings group indexes, and/or as defined by Fund management. This definition may not apply for purposes of this report, which may combine industry sub-classifications into sectors for reporting ease.

(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 highest of Standard & Poor's Group ( Standard & Poor's ), Moody's Investor Service, Inc. ( Moody's ) or Fitch, Inc. ( Fitch ) rating. Ratings below BBB by Standard & Poor's, Baa by Moody's or BBB by Fitch are considered to be below investment grade. Holdings designated N/R are not rated by any of these national rating agencies.
- (4) Investment, or portion of investment, has been pledged to collateralize the net payment obligations for investments in derivatives.
- (5) For disclosure purposes, Notional Amount is calculated by multiplying the Number of Contracts by \$100.

N/A Not applicable.

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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 November 29, 2010

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 29, 2010

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

Date November 29, 2010