

Nuveen Core Equity Alpha Fund
Form N-Q
May 28, 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: 3/31/2010

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.

Item 1. Schedule of Investments

Portfolio of Investments (Unaudited)

Nuveen Core Equity Alpha Fund (JCE)

March 31, 2010

Shares	Description (1)	Value
Common Stocks 98.5%		
Aerospace & Defense 2.1%		
2,500	Boeing Company	\$ 181,525
3,900	General Dynamics Corporation	301,080
19,400	Goodrich Corporation	1,368,088
16,800	Honeywell International Inc.	760,536
200	ITT Industries, Inc.	10,722
400	Lockheed Martin Corporation	33,288
1,200	Northrop Grumman Corporation	78,684
5,400	Precision Castparts Corporation	684,234
11,000	Rockwell Collins, Inc.	688,490
5,800	United Technologies Corporation	426,938
	Total Aerospace & Defense	4,533,585
Air Freight & Logistics 0.2%		
3,900	FedEx Corporation	364,260
Airlines 0.2%		
36,600	Southwest Airlines Co.	483,852
Auto Components 0.3%		
20,600	Johnson Controls, Inc.	679,594
Automobiles 0.3%		
56,000	Ford Motor Company, (2)	703,920
1,600	Harley-Davidson, Inc.	44,912
	Total Automobiles	748,832

Beverages 3.1%

39,700	Coca-Cola Company	2,183,500
51,800	Coca-Cola Enterprises Inc.	1,432,788
11,300	Constellation Brands, Inc., Class A, (2)	185,772
29,700	Dr. Pepper Snapple Group, (2)	1,044,549
9,700	Molson Coors Brewing Company, Class B	407,982
23,874	PepsiCo, Inc.	1,579,504
	Total Beverages	6,834,095

Biotechnology 0.4%

7,600	Amgen Inc., (2)	454,176
6,100	Celgene Corporation, (2)	377,956
	Total Biotechnology	832,132

Capital Markets 2.4%

7,000	Ameriprise Financial, Inc.	317,520
10,200	Bank of New York Company, Inc.	314,976
3,600	Federated Investors Inc.	94,968
13,100	Franklin Resources, Inc.	1,452,790
12,900	Goldman Sachs Group, Inc.	2,201,127
5,300	Invesco LTD	116,123
1,300	Legg Mason, Inc.	37,271
5,400	Morgan Stanley	158,166
3,700	State Street Corporation	167,018
4,900	T. Rowe Price Group Inc.	269,157
	Total Capital Markets	5,129,116

Chemicals 2.0%

18,800	Air Products & Chemicals Inc.	1,390,260
3,300	CF Industries Holdings, Inc.	300,894
6,500	Dow Chemical Company	192,205
26,300	E.I. Du Pont de Nemours and Company	979,412
7,200	Eastman Chemical Company	458,496
900	International Flavors & Fragrances Inc.	42,903
12,700	PPG Industries, Inc.	830,580
1,100	Praxair, Inc.	91,300
900	Sigma-Aldrich Corporation	48,294
	Total Chemicals	4,334,344

Commercial Banks 2.3%

3,300	BB&T Corporation	106,887
3,800	Comerica Incorporated	144,552
86,500	Fifth Third Bancorp.	1,175,535
14	First Horizon National Corporation, (2)	200
118,800	Huntington BancShares Inc.	637,956
1,900	M&T Bank Corporation	150,822
1,900	Marshall and Ilsley Corporation	15,295
8,700	PNC Financial Services Group, Inc.	519,390
15,900	Regions Financial Corporation	124,815
9,400	SunTrust Banks, Inc.	251,826
5,700	U.S. Bancorp	147,516
51,150	Wells Fargo & Company	1,591,788
1,500	Zions Bancorporation	32,730
	Total Commercial Banks	4,899,312

Commercial Services & Supplies 0.4%

10,600	Avery Dennison Corporation	385,946
200	Iron Mountain Inc., (2)	5,480
20,100	R.R. Donnelley & Sons Company	429,135
2,000	Republic Services, Inc.	58,040
1,600	Waste Management, Inc.	55,088
	Total Commercial Services & Supplies	933,689

Communications Equipment 3.2%

112,400	Cisco Systems, Inc., (2)	2,925,772
8,500	Harris Corporation	403,665
8,400	Juniper Networks Inc., (2)	257,712
207,600	Motorola, Inc.	1,457,352
35,700	QUALCOMM, Inc.	1,499,043
44,500	Tellabs Inc., (2)	336,865
	Total Communications Equipment	6,880,409

Computers & Peripherals 8.4%

18,900	Apple, Inc., (2)	4,440,177
78,700	Dell Inc., (2)	1,181,287
32,700	EMC Corporation, (2)	589,908
56,900	Hewlett-Packard Company	3,024,235
36,600	International Business Machines Corporation (IBM)	4,693,950
8,500	Lexmark International, Inc., Class A, (2)	306,680

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49,900	Network Appliance Inc., (2)	1,624,744
11,700	QLogic Corporation, (2)	237,510
1,300	SanDisk Corporation, (2)	45,019
37,800	Teradata Corporation, (2)	1,092,042
25,200	Western Digital Corporation, (2)	982,548

Total Computers & Peripherals	18,218,100
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Construction & Engineering 0.0%

1,600	Fluor Corporation	74,416
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Consumer Finance 1.1%

25,300	American Express Company	1,043,878
9,200	Capital One Financial Corporation	380,972
35,500	Discover Financial Services	528,950
36,200	SLM Corporation, (2)	453,224

Total Consumer Finance	2,407,024
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Containers & Packaging 0.5%

7,500	Ball Corporation	400,350
5,100	Owens-Illinois, Inc., (2)	181,254
23,000	Sealed Air Corporation	484,840

Total Containers & Packaging	1,066,444
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Diversified Consumer Services 0.2%

6,300	Devry, Inc.	410,760
7,400	H & R Block Inc.	131,720

Total Diversified Consumer Services	542,480
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Diversified Financial Services 2.3%

71,500	Bank of America Corporation	1,276,275
41,300	Citigroup Inc.	167,265
2,600	CME Group, Inc.	821,886
1,000	Intercontinental Exchange, Inc., (2)	112,180
53,905	JPMorgan Chase & Co.	2,412,249
400	Moody's Corporation	11,900
4,400	New York Stock Exchange Euronext	130,284

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Total Diversified Financial Services	4,932,039
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Diversified Telecommunication Services 3.4%

241,500	AT&T Inc.	6,240,360
21,728	CenturyTel, Inc.	770,475
11,200	Verizon Communications Inc.	347,424
5,700	Windstream Corporation	62,073
Total Diversified Telecommunication Services		7,420,332

Electric Utilities 0.5%

2,200	American Electric Power Company, Inc.	75,196
17,800	FPL Group, Inc.	860,274
9,000	Pepco Holdings, Inc.	154,350
Total Electric Utilities		1,089,820

Electrical Equipment 0.5%

18,100	Rockwell Automation, Inc.	1,020,116
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Electronic Equipment & Instruments 1.0%

45,400	Agilent Technologies, Inc., (2)	1,561,306
6,700	Amphenol Corporation, Class A	282,673
8,300	Corning Incorporated	167,743
4,300	FLIR Systems Inc., (2)	121,260
3,500	Molex Inc.	73,010
Total Electronic Equipment & Instruments		2,205,992

Energy Equipment & Services 2.1%

2,800	Baker Hughes Incorporated	131,152
31,600	BJ Services Company	676,240
10,600	Cooper Cameron Corporation, (2)	454,316
2,700	Diamond Offshore Drilling, Inc.	239,787
6,600	FMC Technologies Inc., (2)	426,558
28,200	Halliburton Company	849,666
2,000	Helmerich & Payne Inc.	76,160
1,800	Nabors Industries Inc., (2)	35,334
3,300	National-Oilwell Varco Inc., (2)	133,914
1,900	Rowan Companies Inc.	55,309

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22,300	Schlumberger Limited	1,415,158
	Total Energy Equipment & Services	4,493,594

Food & Staples Retailing 1.7%

4,000	Costco Wholesale Corporation	238,840
19,100	CVS Caremark Corporation	698,296
26,900	Walgreen Co.	997,721
22,300	Wal-Mart Stores, Inc.	1,239,880
13,100	Whole Foods Market, Inc., (2)	473,565
	Total Food & Staples Retailing	3,648,302

Food Products 2.2%

8,800	Archer-Daniels-Midland Company	254,320
5,800	Campbell Soup Company	205,030
9,300	ConAgra Foods, Inc.	233,151
10,400	General Mills, Inc.	736,216
2,400	H.J. Heinz Company	109,464
1,500	Hormel Foods Corporation	63,015
10,000	JM Smucker Company	602,600
9,800	Kellogg Company	523,614
10,600	Kraft Foods Inc.	320,544
16,300	Mead Johnson Nutrition Company, Class A Shares	848,089
25,400	Sara Lee Corporation	353,822
27,200	Tyson Foods, Inc., Class A	520,880
	Total Food Products	4,770,745

Gas Utilities 0.3%

10,500	EQT Corporation	430,500
1,300	Nicor Inc.	54,496
3,700	ONEOK, Inc.	168,905
1,200	Questar Corporation	51,840
	Total Gas Utilities	705,741

Health Care Equipment & Supplies 2.1%

1,200	Baxter International, Inc.	69,840
37,900	Boston Scientific Corporation, (2)	273,638
7,600	CareFusion Corporation, (2)	200,868
1,400	DENTSPLY International Inc.	48,790

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22,000	Hospira Inc., (2)	1,246,300
3,400	Intuitive Surgical, Inc., (2)	1,183,642
10,100	Medtronic, Inc.	454,803
4,200	Saint Jude Medical Inc., (2)	172,410
2,200	Stryker Corporation	125,884
2,100	Varian Medical Systems, Inc.	116,193
13,200	Zimmer Holdings, Inc., (2)	781,440

Total Health Care Equipment & Supplies	4,673,808
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Health Care Providers & Services 3.6%

1,800	Aetna Inc.	63,198
15,200	AmerisourceBergen Corporation	439,584
4,200	Cardinal Health, Inc.	151,326
32,100	CIGNA Corporation	1,174,218
26,300	Coventry Health Care, Inc., (2)	650,136
3,100	Davita Inc., (2)	196,540
6,200	Express Scripts, Inc., (2)	630,912
6,000	Humana Inc., (2)	280,620
19,600	McKesson HBOC Inc.	1,288,112
11,300	Medco Health Solutions, Inc., (2)	729,528
17,700	Patterson Companies, Inc., (2)	549,585
90,400	Tenet Healthcare Corporation, (2)	517,088
7,500	UnitedHealth Group Incorporated	245,025
14,500	Wellpoint Inc., (2)	933,510

Total Health Care Providers & Services	7,849,382
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Hotels, Restaurants & Leisure 1.4%

1,700	Carnival Corporation	66,096
4,500	Darden Restaurants, Inc.	200,430
6,500	International Game Technology	119,925
10,618	Marriott International, Inc., Class A	334,679
4,400	McDonald's Corporation	293,568
70,100	Starbucks Corporation, (2)	1,701,327
1,900	Starwood Hotels & Resorts Worldwide, Inc.	88,616
6,900	Wyndham Worldwide Corporation	177,537

Total Hotels, Restaurants & Leisure	2,982,178
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Household Durables 0.7%

9,100	Harman International Industries Inc., (2)	425,698
8,000	Leggett and Platt Inc.	173,120
1,300	Lennar Corporation, Class A	22,373
26,000	Newell Rubbermaid Inc.	395,200

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4,187	Black & Decker Inc.	240,376
2,500	Whirlpool Corporation	218,125
	Total Household Durables	1,474,892

Household Products 1.2%

5,900	Colgate-Palmolive Company	503,034
1,300	Kimberly-Clark Corporation	81,744
32,200	Procter & Gamble Company	2,037,294
	Total Household Products	2,622,072

Independent Power Producers & Energy Traders 1.1%

127,400	AES Corporation, (2)	1,401,400
17,300	Constellation Energy Group	607,403
14,600	NRG Energy Inc., (2)	305,140
	Total Independent Power Producers & Energy Traders	2,313,943

Industrial Conglomerates 2.0%

11,600	3M Co.	969,412
177,500	General Electric Company	3,230,500
4,500	Textron Inc.	95,535
	Total Industrial Conglomerates	4,295,447

Insurance 2.1%

6,700	AFLAC Incorporated	363,743
4,900	Allstate Corporation	158,319
9,900	American International Group, (2)	337,986
1,500	Assurant Inc.	51,570
1	Berkshire Hathaway Inc., Class B, (2)	121,800
331	Berkshire Hathaway Inc., Class B, (2)	26,900
52,400	Genworth Financial Inc., Class A	961,016
1,500	Lincoln National Corporation	46,050
21,200	Loews Corporation	790,336
7,600	Marsh & McLennan Companies, Inc.	185,592
4,500	Principal Financial Group, Inc.	131,445
6,900	Progressive Corporation, (2)	131,721
2,000	Prudential Financial, Inc.	121,000
3,700	Travelers Companies, Inc.	199,578
48,600	XL Capital Ltd, Class A	918,540

Total Insurance	4,545,596
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Internet & Catalog Retail 1.5%

9,000	Amazon.com, Inc., (2)	1,221,570
29,000	Expedia, Inc., (2)	723,840
5,200	Priceline.com Incorporated, (2)	1,326,000
Total Internet & Catalog Retail		3,271,410

Internet Software & Services 2.3%

64,900	eBay Inc., (2)	1,749,055
4,900	Google Inc., Class A, (2)	2,778,349
26,500	Yahoo! Inc., (2)	438,045
Total Internet Software & Services		4,965,449

IT Services 3.2%

100	Automatic Data Processing, Inc.	4,447
37,000	Cognizant Technology Solutions Corporation, Class A, (2)	1,886,260
16,500	Computer Sciences Corporation, (2)	899,085
35,200	Fidelity National Information Services	825,088
11,600	Fiserv, Inc., (2)	588,816
3,400	MasterCard, Inc.	863,600
31,400	Total System Services Inc.	491,724
12,000	Visa Inc.	1,092,360
15,000	Western Union Company	254,400
Total IT Services		6,905,780

Leisure Equipment & Products 0.1%

5,300	Mattel, Inc.	120,522
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Life Sciences Tools & Services 1.4%

26,000	Life Technologies Corporation, (2)	1,359,020
2,300	Millipore Corporation, (2)	242,880
19,400	Perkinelmer Inc.	463,660
7,700	Thermo Fisher Scientific, Inc., (2)	396,088
9,500	Waters Corporation, (2)	641,630

Total Life Sciences Tools & Services	3,103,278
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Machinery 1.1%

16,900	Caterpillar Inc.	1,062,165
900	Deere & Company	53,514
800	Dover Corporation	37,400
4,800	Eaton Corporation	363,696
2,300	Flowsolve Corporation	253,621
8,500	Illinois Tool Works, Inc.	402,560
1,300	Pall Corporation	52,637
1,800	Parker Hannifin Corporation	116,532
	Total Machinery	2,342,125

Media 4.4%

35,400	Comcast Corporation, Class A	666,228
3,700	DIRECTV Group, Inc., (2)	125,097
5,800	Discovery Communications Inc., Class A Shares, (2)	195,982
13,400	Gannett Company Inc.	221,368
19,600	Interpublic Group Companies, Inc., (2)	163,072
21,500	McGraw-Hill Companies, Inc.	766,475
2,900	Meredith Corporation	99,789
3,900	New York Times, Class A	43,407
60,700	News Corporation, Class A	874,687
17,700	Omnicom Group, Inc.	686,937
17,900	Scripps Networks Interactive, Class A Shares	793,865
25,100	Time Warner Cable, Class A, (2)	1,338,081
28,966	Time Warner Inc.	905,767
52,100	Viacom Inc., Class B, (2)	1,791,198
25,200	Walt Disney Company	879,732
	Total Media	9,551,685

Metals & Mining 0.2%

3,500	Freeport-McMoRan Copper & Gold, Inc.	292,390
1,300	Newmont Mining Corporation	66,209
1,500	Nucor Corporation	68,070
	Total Metals & Mining	426,669

Multiline Retail 1.1%

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3,000	Big Lots, Inc., (2)	109,260
800	Family Dollar Stores, Inc.	29,288
12,500	J.C. Penney Company, Inc.	402,125
21,000	Kohl's Corporation, (2)	1,150,380
5,200	Macy's, Inc.	113,204
5,000	Nordstrom, Inc.	204,250
1,700	Sears Holding Corporation, (2)	184,331
5,600	Target Corporation	294,560

Total Multiline Retail	2,487,398
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Multi-Utilities 0.5%

6,000	CenterPoint Energy, Inc.	86,160
600	CMS Energy Corporation	9,276
1,900	DTE Energy Company	84,740
3,400	Integrus Energy Group, Inc.	161,092
14,500	NiSource Inc.	229,100
1,000	PG&E Corporation	42,420
3,900	Public Service Enterprise Group Incorporated	115,128
4,600	Sempra Energy	229,540
6,600	TECO Energy, Inc.	104,874

Total Multi-Utilities	1,062,330
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Office Electronics 0.0%

7,896	Xerox Corporation	76,986
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Oil, Gas & Consumable Fuels 7.5%

8,800	Anadarko Petroleum Corporation	640,904
1,400	Chesapeake Energy Corporation	33,096
38,100	Chevron Corporation	2,889,123
12,700	ConocoPhillips	649,859
154,400	Exxon Mobil Corporation	10,341,711
1,400	Murphy Oil Corporation	78,666
500	Noble Energy, Inc.	36,500
12,200	Occidental Petroleum Corporation	1,031,388
2,400	Pioneer Natural Resources Company	135,168
1,700	Range Resources Corporation	79,679
2,000	Southwestern Energy Company, (2)	81,440
11,700	Spectra Energy Corporation	263,601
2,100	Williams Companies, Inc.	48,510
1,600	XTO Energy, Inc.	75,488

Total Oil, Gas & Consumable Fuels	16,385,133
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Paper & Forest Products 0.4%

7,200	International Paper Company	177,192
30,300	MeadWestvaco Corporation	774,165
	Total Paper & Forest Products	951,357

Personal Products 0.7%

31,500	Avon Products, Inc.	1,066,905
6,200	Estee Lauder Companies Inc., Class A	402,194
	Total Personal Products	1,469,099

Pharmaceuticals 4.8%

4,200	Abbott Laboratories	221,256
4,900	Allergan, Inc.	320,068
15,300	Bristol-Myers Squibb Company	408,510
10,600	Forest Laboratories, Inc., (2)	332,416
50,200	Johnson & Johnson	3,273,040
22,400	King Pharmaceuticals Inc., (2)	263,424
69,532	Merck & Company Inc.	2,597,020
31,200	Mylan Laboratories Inc., (2)	708,552
112,590	Pfizer Inc.	1,930,919
10,500	Watson Pharmaceuticals Inc., (2)	438,585
	Total Pharmaceuticals	10,493,790

Professional Services 0.1%

400	Equifax Inc.	14,320
9,700	Monster Worldwide Inc., (2)	161,117
	Total Professional Services	175,437

Real Estate 0.3%

2,800	Apartment Investment & Management Company, Class A	51,548
1,100	AvalonBay Communities, Inc.	94,985
900	Health Care REIT, Inc.	40,707
950	Host Hotels & Resorts Inc.	13,918
2,520	Simon Property Group, Inc.	211,428
4,500	Ventas Inc.	213,660

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Total Real Estate	626,246
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Real Estate Management & Development 0.1%

12,000	CB Richard Ellis Group, Inc., Class A, (2)	190,200
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Road & Rail 0.6%

16,400	CSX Corporation	834,760
5,300	Norfolk Southern Corporation	296,217
2,400	Ryder System, Inc.	93,024
1,800	Union Pacific Corporation	131,940

Total Road & Rail	1,355,941
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Semiconductors & Equipment 3.7%

32,300	Advanced Micro Devices, Inc., (2)	299,421
400	Altera Corporation	9,724
32,600	Analog Devices, Inc.	939,532
3,400	Applied Materials, Inc.	45,832
21,000	Broadcom Corporation, Class A, (2)	696,780
75,700	Intel Corporation	1,685,082
31,300	KLA-Tencor Corporation	967,796
1,000	Linear Technology Corporation	28,280
25,600	LSI Logic Corporation, (2)	156,672
22,500	Microchip Technology Incorporated	633,600
8,900	Micron Technology, Inc., (2)	92,471
19,000	National Semiconductor Corporation	274,550
8,100	Novellus Systems, Inc., (2)	202,500
1,400	NVIDIA Corporation, (2)	24,332
70,900	Texas Instruments Incorporated	1,734,923
8,900	Xilinx, Inc.	226,950

Total Semiconductors & Equipment	8,018,445
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Software 4.4%

26,100	Adobe Systems Incorporated, (2)	923,157
3,700	Autodesk, Inc.	108,854
10,100	BMC Software, Inc., (2)	383,800
13,000	Citrix Systems, (2)	617,110
1,200	Intuit, Inc., (2)	41,208
4,900	McAfee Inc., (2)	196,637
126,000	Microsoft Corporation	3,688,020
81,400	Oracle Corporation	2,091,166
26,800	Red Hat, Inc., (2)	784,436

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8,500	Salesforce.com, Inc., (2)	632,825
1,100	Symantec Corporation, (2)	18,612
	Total Software	9,485,825

Specialty Retail 2.9%

4,300	Abercrombie & Fitch Co., Class A	196,252
3,800	AutoNation Inc., (2)	68,704
400	AutoZone, Inc., (2)	69,236
9,800	Bed Bath and Beyond Inc., (2)	428,848
4,600	Best Buy Co., Inc.	195,684
13,500	Gap, Inc.	311,985
16,000	Home Depot, Inc.	517,600
33,200	Limited Brands, Inc.	817,384
4,100	Office Depot, Inc., (2)	32,718
9,000	O Reilly Automotive Inc., (2)	375,390
4,300	RadioShack Corporation	97,309
7,100	Ross Stores, Inc.	379,637
9,700	Staples, Inc.	226,883
15,300	Tiffany & Co.	726,597
33,800	TJX Companies, Inc.	1,437,176
11,900	Urban Outfitters, Inc., (2)	452,557
	Total Specialty Retail	6,333,960

Textiles, Apparel & Luxury Goods 0.9%

24,900	Coach, Inc.	984,048
1,200	Nike, Inc., Class B	88,200
9,700	Polo Ralph Lauren Corporation	824,888
200	VF Corporation	16,030
	Total Textiles, Apparel & Luxury Goods	1,913,166

Tobacco 0.9%

3,900	Altria Group, Inc.	80,028
6,200	Lorillard Inc.	466,488
23,800	Philip Morris International	1,241,408
4,700	Reynolds American Inc.	253,706
	Total Tobacco	2,041,630

Trading Companies & Distributors 0.1%

1,800	W.W. Grainger, Inc.	194,616
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Wireless Telecommunication Services 0.0%

15,300	Sprint Nextel Corporation, (2)	58,140
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Total Common Stocks (cost \$186,639,920)	214,012,300
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Principal Amount (000)	Description (1)	Coupon	Maturity	Rating (3)	Value
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Short-Term Investments - 3.8%**U.S. Government and Agency Obligations
- 1.8%**

\$ 2,000	U.S. Treasury Bills, (4)	0.000%	7/29/10	AAA	\$ 1,999,042
2,000	U.S. Treasury Bills, (4)	0.000%	9/09/10	AAA	1,998,166
4,000	Total U.S. Government and Agency Obligations				3,997,208

Repurchase Agreements - 2.0%

4,285	Repurchase Agreement with State Street Bank, dated 3/31/10, repurchase price \$4,284,988, collateralized by \$4,375,000 U.S. Treasury Bills, 0.000%, due 9/02/10, value \$4,371,063	0.000%	4/01/10	N/A	4,284,988
\$ 8,285	Total Short-Term Investments (cost \$8,282,157)				8,282,196

Total Investments (cost \$194,922,077) 102.3%	222,294,496
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Other Assets Less Liabilities (2.3)%	(5,085,277)
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Net Assets 100%	\$ 217,209,219
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Investments in Derivatives**Call Options Written outstanding at March 31, 2010:**

Number of Contracts	Type	Notional Amount (5)	Expiration Date	Strike Price	Value
(449,283)	) Custom Basket 4 NASDAQ	\$ (43,817,996)	4/15/10	\$ 102.0	\$ (357,292)

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(438,180)	Custom Basket 2 NASDAQ	(44,928,321)	4/29/10	102.0	(1,081,200)
Total Call Options Written					
(887,463)	(premiums received \$862,061)	(88,746,317)			\$ (1,438,492)

Futures Contracts outstanding at March 31, 2010:

Type	Contract Position	Number of Contract		Value at March 31, 2010	Unrealized Appreciation (Depreciation)
		Contracts	Expiration		
S&P 500 Index	Long	125	6/10	\$7,282,500	\$121,500

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, 2010:

	Level 1	Level 2	Level 3	Total
Investments:				
Common Stocks	\$ 214,012,300	\$	\$	\$ 214,012,300
Short-Term Investments	8,282,196			8,282,196
Derivatives:				
Call Options Written		(1,438,492)		(1,438,492)
Futures Contracts*	121,500			121,500
Total	\$ 222,415,996	\$ (1,438,492)	\$	\$ 220,977,504

* Represents net unrealized appreciation (depreciation).

Derivative Instruments and Hedging Activities

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 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 March 31, 2010, the location of these instruments on the Statement of Assets and Liabilities, and the primary underlying risk exposure.

Location on the Statements of Assets Liabilities

Underlying Risk Exposure	Derivative Instrument	Location	Asset Derivatives	Liability Derivatives	
				Value	Location/Value

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Equity Price	Futures Contracts	Receivable for variation margin on futures contracts*	\$ 121,500	\$
	Options			Call 1,438,492 options written, at value
Equity Price				
Total			\$ 121,500	\$ 1,438,492

* Value represents cumulative unrealized appreciation (depreciation) of futures contracts as reported on 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 March 31, 2010, the cost of investments was \$196,487,187.

Gross unrealized appreciation and gross unrealized depreciation of investments at March 31, 2010, were as follows:

Gross unrealized:	
Appreciation	\$ 32,044,097
Depreciation	(6,236,788)

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Net unrealized appreciation (depreciation) of investments	\$ 25,807,309
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- (1) All percentages shown in the Portfolio of Investments are based on net assets.
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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.

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 28, 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 May 28, 2010

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

Date May 28, 2010