

Nuveen Core Equity Alpha Fund
Form N-CSRS
September 08, 2008

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM N-CSR
CERTIFIED SHAREHOLDER REPORT OF REGISTERED MANAGEMENT INVESTMENT
COMPANIES
Investment Company Act file number 811-22003
Nuveen Core Equity Alpha Fund**

(Exact name of registrant as specified in charter)

Nuveen Investments
333 West Wacker Drive
Chicago, IL 60606

(Address of principal executive offices) (Zip code)

Kevin J. McCarthy
Nuveen Investments
333 West Wacker Drive
Chicago, IL 60606

(Name and address of agent for service)

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

Date of fiscal year end: December 31

Date of reporting period: June 30, 2008

Form N-CSR is to be used by management investment companies to file reports with the Commission not later than 10 days after the transmission to stockholders of any report that is required to be transmitted to stockholders under Rule 30e-1 under the Investment Company Act of 1940 (17 CFR 270.30e-1). The Commission may use the information provided on Form N-CSR in its regulatory, disclosure review, inspection, and policymaking roles. A registrant is required to disclose the information specified by Form N-CSR, and the Commission will make this information public. A registrant is not required to respond to the collection of information contained in Form N-CSR 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 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. SS. 3507.

ITEM 1. REPORTS TO SHAREHOLDERS

Semi-Annual
Report
June 30, 2008

Nuveen Investments
Closed-End Funds

NUVEEN
CORE EQUITY
ALPHA FUND
JCE

*Mathematically-driven investment strategy that seeks to
generate risk-adjusted excess returns*

Life is complex.

Nuveen

makes things

e-simple.

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Chairman's
LETTER TO SHAREHOLDERS

Robert P. Bremner

Chairman of the Board

Dear Fellow Shareholders:

I'd like to use my initial letter to you to accomplish several things. First, I want to report that after fourteen years of service on your Fund's Board, including the last twelve as chairman, Tim Schwertfeger retired from the Board in June. The Board has elected me to replace him as the chairman, the first time this role has been filled by someone who is not an employee of Nuveen Investments. Electing an independent chairman marks a significant milestone in the management of your Fund, and it aligns us with what is now considered a best practice in the fund industry. Further, it demonstrates the independence with which your Board has always acted on your behalf.

Following Tim will not be easy. During my eleven previous years on the Nuveen Fund Board, I found that Tim always set a very high standard by combining insightful industry and market knowledge and sound, clear judgment. While the Board will miss his wise counsel, I am certain we will retain the primary commitment Tim shared with all of us—an unceasing dedication to creating and retaining value for Nuveen Fund shareholders. This focus on value over time is a touchstone that I and all the other Board members will continue to use when making decisions on your behalf.

Second, I also want to report that we are very fortunate to be welcoming two new Board members to our team. John Amboian, the current chairman and CEO of Nuveen Investments, has agreed to replace Tim as Nuveen's representative on the Board. John's presence will allow the independent Board members to benefit not only from his leadership role at Nuveen but also his broad understanding of the fund industry and Nuveen's role within it. We also are adding Terry Toth as an independent director. A former CEO of the Northern Trust Company's asset management group, Terry will bring extensive experience in the fund industry to our deliberations.

Finally, I urge you to take the time to review the Portfolio Manager's Comments, the Distribution and Share Price Information, and the Performance Overview sections of this report. All of us are grateful that you have chosen Nuveen Investments as a partner as you pursue your financial goals, and, on behalf of myself and the other members of your Fund's Board, let me say we look forward to continuing to earn your trust in the months and years ahead.

Sincerely,

Robert P. Bremner
Chairman of the Board
August 22, 2008

Portfolio Managers COMMENTS

Nuveen Investments Closed-End Funds

JCE

Nuveen Core Equity Alpha Fund (JCE) is managed by Enhanced Investment Technologies, LLC (INTECH), an independently managed subsidiary of Janus Capital Group Inc. INTECH's Chief Investment Officer Dr. Robert Fernholz, Ph.D., leads the portfolio management team. Here Dr. Fernholz and team members talk about the management strategy and the performance of the Fund for the six-month period ended June 30, 2008.

OVER THIS PERIOD, WHAT KEY STRATEGIES WERE USED TO MANAGE THE FUND?

INTECH's mathematical investment process is applied to the equity portion of the Fund, which analyzes the relative volatility of individual stocks that can then be captured in our optimization and rebalancing process. While we expect that there will be individual periods or years in which we exceed or underperform our targets, we seek over the long term to be able to provide returns in excess of the S&P 500 Index with equal or less risk.

Since the Fund's inception in March 2007, the basis of our proprietary mathematical investment process has been a mathematical algorithm that seeks to combine stocks with high relative volatility and low correlation in a potentially more efficient combination than is found in the benchmark index. These target weights are then maintained over time and the portfolio is re-optimized and re-balanced on a regular basis. Since the investment process searches for stocks that are volatile relative to the index, this may lead us toward the smaller members of the large cap stock universe. Consequently, the weighted average market capitalization of the Fund's portfolio often may be smaller than the weighted average market capitalization of the S&P 500 Index. INTECH does not make decisions on individual stocks based on fundamental analysis.

The Fund also employs an option strategy to enhance its risk adjusted returns over time. Over this period, the Fund wrote (sold) call options primarily on custom baskets of securities. The sale of equity call options was used to generate current gains that could be used to partially offset equity portfolio losses in certain situations. The option strategy was administered by Nuveen Asset Management, the Fund's investment adviser.

Discussions of specific investments are for illustrative purposes only and are not intended as recommendations of individual investments. The views expressed in this commentary represent those of the portfolio managers as of the date of this report and are subject to change at any time, based on market conditions and other factors. The Fund disclaims any obligation to advise shareholders of such changes.

HOW DID THE FUND PERFORM OVER THIS TWELVE-MONTH PERIOD?

Past performance does not guarantee future results. Current performance may be higher or lower than the data shown.

Returns do not reflect the deduction of taxes that shareholders may have to pay on Fund distributions or upon the sale of Fund shares. For additional information, see the individual Performance Overview for the Fund in this report.

1 The S&P 500 Index is an unmanaged Index generally considered representative of the U.S. Stock Market.

The performance of JCE, as well as the Fund's benchmark index, is presented in the accompanying table.

Cumulative Total Returns on Net Asset Value
For the six-months ended 6/30/08

JCE	-8.75%
S&P 500 Index ¹	-11.91%

Overall, larger cap stocks generally did not perform well during the six-month period. Although the Fund had a negative total return, it did outperform the S&P 500 Index.

As noted earlier, the Fund's investment strategy may lead to the purchase of smaller members of the large cap stock universe. In the short term, this can impact the performance of the Fund relative to a passive benchmark. For example, during periods when capital flows from larger to smaller stocks, the Fund's smaller stock tendency may prove to be a positive for performance.

Since INTECH uses a purely portfolio-theoretic methodology, we do not specifically select stocks or overweight sectors in response to market conditions or expectations. Instead, we modify the Fund's holdings in an attempt to construct a portfolio that is slightly more efficient than the S&P 500 Index by using an optimization program that analyzes a stock's relative volatility and its price correlation with other equities. Since the sector structure of the market is not taken into account in the our methodology, any sector underweights or overweights are likely to be coincidental.

Distribution and Share Price

INFORMATION

We are providing you with information regarding your Fund's distributions. This information is as of June 30, 2008, and likely will vary over time based on the Fund's investment activities and portfolio investment value changes.

The Fund has a managed distribution program. The goal of a managed distribution program is to provide shareholders with relatively consistent and predictable cash flow by systematically converting its expected long-term return potential into regular distributions. As a result, regular distributions throughout the year are likely to include a portion of expected long-term gains (both realized and unrealized), along with net investment income.

Important points to understand about a managed distribution program are:

The Fund seeks to establish a relatively stable distribution rate that roughly corresponds to the projected total return from its investment strategy over an extended period of time. However, you should not draw any conclusions about the Fund's past or future investment performance from its current distribution rate.

Actual returns will differ from projected long-term returns (and therefore the Fund's distribution rate), at least over shorter time periods. Over a specific timeframe, the difference between actual returns and total distributions will be reflected in an increasing (returns exceed distributions) or a decreasing (distributions exceed returns) Fund net asset value.

Each distribution is expected to be paid from some or all of the following sources:

net investment income (regular interest and dividends),

realized capital gains, and

unrealized gains, or, in certain cases, a return of principal (non-taxable distributions).

A non-taxable distribution is a payment of a portion of the Fund's capital. When the Fund's returns exceed distributions, it may represent portfolio gains generated, but not realized as a taxable capital gain. In periods when the Fund's returns fall short of distributions, it will represent a portion of your original principal unless the shortfall is offset during other time periods over the life of your investment (previous or subsequent) when the Fund's total return exceeds distributions.

Because distribution source estimates are updated during the year based on the Fund's performance and forecast for its current fiscal year (which is the calendar year for the Fund), estimates on the nature of your distributions provided at the time the distributions are paid may differ from both the tax information reported to you in your Fund's IRS Form 1099 statement provided at year end, as well as the ultimate economic sources of distributions over the life of your investment.

The following table provides estimated information regarding the Fund's distributions and total return performance for the six months ended June 30, 2008. The distribution information is presented on a tax basis rather than on a generally accepted accounting principles (GAAP) basis. This information is intended to help you better understand whether the Fund's returns for the specified time period was sufficient to meet the Fund's distributions.

As of 6/30/08	JCE
Inception date	3/27/07
Six months ended June 30, 2008:	
Per share distribution:	
From net investment income	\$0.07
From realized capital gains	
From return of capital	0.75
Total per share distribution	\$0.82
Distribution rate on NAV	5.04%
Annualized total returns:	
Six-Month (Cumulative) on NAV	-8.75%
1-Year on NAV	-5.30%
Since Inception on NAV	-3.44%

COMMON SHARE REPURCHASES AND SHARE PRICE INFORMATION

The Board of Directors/Trustees for each of Nuveen's 120 closed-end funds approved a program, effective August 7, 2008, under which each fund may repurchase up to 10% of its common shares.

As of June 30, 2008, the Fund's share price was trading at a -11.55% discount to its NAV, compared with an average discount of -10.93% for the entire six-month period.

Fund Snapshot

Share Price	\$14.40
Net Asset Value	\$16.28
Premium/(Discount) to NAV	-11.55%
Current Distribution Rate ¹	11.39%
Net Assets (\$000)	\$267,720

Average Annual Total Return

(Inception 3/27/07)

	On Share Price	On NAV
6-Month (Cumulative)	-6.99%	-8.75%
1-Year	-12.91%	-5.30%
Since Inception	-14.74%	-3.44%

Industries

(as a % of total investments)²

Oil, Gas & Consumable Fuels	10.8%
Aerospace & Defense	5.4%
Pharmaceuticals	5.3%
Beverages	4.6%
Electric Utilities	4.6%
Diversified Telecommunication Services	4.4%
Industrial Conglomerates	4.1%
Computers & Peripherals	4.1%

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Household Products	3.2%
Insurance	3.0%
Commercial Banks	3.0%
Health Care Equipment & Supplies	2.8%
Health Care Providers & Services	2.8%
Software	2.6%
Energy Equipment & Services	2.5%
Machinery	2.4%
Food & Staples Retailing	2.2%
Communications Equipment	1.9%
Chemicals	1.7%
Food Products	1.7%
Specialty Retail	1.6%
Media	1.6%
U.S. Government and Agency Obligations	2.3%
Short-Term Investments	1.9%
Other	19.5%

JCE
Performance
OVERVIEW

Nuveen
Core Equity
Alpha Fund
as of June 30, 2008

Portfolio Allocation (as a % of total investments)²

2007-2008 Distributions Per Share

Share Price Performance Weekly Closing Price

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Current Distribution Rate is based on the Fund's current annualized quarterly distribution divided by the Fund's current market price. The Fund's quarterly distributions to its shareholders may be comprised of ordinary income, net realized capital gains and, if at the end of the calendar year the Fund's cumulative net ordinary income and net realized gains are less than the amount of the Fund's distributions, a return of capital for tax purposes.

2 Excluding derivative transactions.

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Shareholder Meeting Report

The Annual Meeting of Shareholders was held in the offices of Nuveen Investments on June 30, 2008.

	JCE
	Common Shares
Approval of the Board Members was reached as follows:	
John P. Amboian	
For	12,874,449
Withhold	215,427
Total	13,089,876
William C. Hunter	
For	12,879,298
Withhold	210,578
Total	13,089,876
David J. Kundert	
For	12,877,195
Withhold	212,681
Total	13,089,876
Terence J. Toth	
For	12,877,318
Withhold	212,558
Total	13,089,876
To ratify the selection of PricewaterhouseCoopers LLP as the independent registered public accounting firm:	
For	12,985,854
Against	67,182
Abstain	36,840
Total	13,089,876

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JCE Nuveen Core Equity Alpha Fund
Portfolio of INVESTMENTS

June 30, 2008 (Unaudited)

Shares	Description (1)	Value
	Common Stocks 95.1%	
	Aerospace & Defense 5.3%	
19,800	Boeing Company	\$ 1,301,256
13,800	General Dynamics Corporation	1,161,960
29,200	Goodrich Corporation	1,385,832
43,800	Honeywell International Inc.	2,202,264
5,600	L-3 Communications Holdings, Inc.	508,872
32,200	Lockheed Martin Corporation	3,176,852
5,800	Northrop Grumman Corporation	388,020
22,200	Precision Castparts Corporation	2,139,414
13,700	Raytheon Company	771,036
20,500	United Technologies Corporation	1,264,850
	Total Aerospace & Defense	14,300,356
	Air Freight & Logistics 0.3%	
3,200	C.H. Robinson Worldwide, Inc.	175,488
9,600	Expeditors International of Washington Inc.	412,800
3,600	United Parcel Service, Inc., Class B	221,292
	Total Air Freight & Logistics	809,580
	Airlines 0.1%	
9,600	Southwest Airlines Co.	125,184
	Auto Components 0.7%	
6,900	Goodyear Tire & Rubber Company, (2)	123,027
60,900	Johnson Controls, Inc.	1,746,612
	Total Auto Components	1,869,639
	Automobiles 0.5%	
11,300	Ford Motor Company, (2)	54,353
96,000	General Motors Corporation	1,104,000
1,700	Harley-Davidson, Inc.	61,642
	Total Automobiles	1,219,995
	Beverages 4.6%	
13,900	Brown-Forman Corporation	1,050,423
89,400	Coca-Cola Company	4,647,012
72,900	Coca-Cola Enterprises Inc.	1,261,170
31,700	Constellation Brands, Inc., Class A, (2)	629,562

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6,100	Molson Coors Brewing Company, Class B	331,413
33,300	Pepsi Bottling Group, Inc.	929,736
55,100	PepsiCo, Inc.	3,503,809
	Total Beverages	12,353,125
	Biotechnology 1.0%	
8,100	Amgen Inc., (2)	381,996
11,200	Biogen Idec Inc., (2)	625,968
11,100	Celgene Corporation, (2)	708,957
9,800	Genzyme Corporation, (2)	705,796
2,800	Gilead Sciences, Inc., (2)	148,260
	Total Biotechnology	2,570,977
	Capital Markets 1.3%	
4,900	American Capital Strategies Limited	116,473
3,700	Bank of New York Company, Inc.	139,971
16,400	Charles Schwab Corporation	336,856
11,200	Federated Investors Inc.	385,504
3,200	Goldman Sachs Group, Inc.	559,680
16,805	JPMorgan Chase & Co.	576,580
17,500	Lehman Brothers Holdings Inc.	346,675

Shares	Description (1)	Value
Capital Markets (continued)		
5,100	State Street Corporation	\$ 326,349
11,400	T. Rowe Price Group Inc.	643,758
	Total Capital Markets	3,431,846
Chemicals 1.7%		
11,500	Air Products & Chemicals Inc.	1,136,890
1,700	Dow Chemical Company	59,347
15,200	Ecolab Inc.	653,448
14,800	PPG Industries, Inc.	849,076
11,200	Praxair, Inc.	1,055,488
15,300	Sigma-Aldrich Corporation	824,058
	Total Chemicals	4,578,307
Commercial Banks 3.0%		
140,400	Bank of America Corporation	3,351,348
35,100	BB&T Corporation	799,227
8,100	M&T Bank Corporation	571,374
19,800	Marshall and Ilsley Corporation	303,534
16,100	Northern Trust Corporation	1,103,977
5,000	PNC Financial Services Group, Inc.	285,500
5,500	Regions Financial Corporation	60,005
700	SunTrust Banks, Inc.	25,354
15,800	U.S. Bancorp	440,662
42,700	Wells Fargo & Company	1,014,125
	Total Commercial Banks	7,955,106
Commercial Services & Supplies 0.1%		
2,100	Cintas Corporation	55,671
1,600	Equifax Inc.	53,792
2,800	Robert Half International Inc.	67,116
	Total Commercial Services & Supplies	176,579
Communications Equipment 1.9%		
10,200	Ciena Corporation, (2)	236,334
134,800	Cisco Systems, Inc., (2)	3,135,448
21,100	Corning Incorporated	486,355
49,600	Juniper Networks Inc., (2)	1,100,128
16,900	Motorola, Inc.	124,046
1,200	QUALCOMM Inc.	53,244
	Total Communications Equipment	5,135,555
Computers & Peripherals 4.0%		

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15,000	Apple, Inc., (2)	2,511,600
12,000	Dell Inc., (2)	262,560
79,400	EMC Corporation, (2)	1,166,386
89,800	Hewlett-Packard Company	3,970,058
23,800	International Business Machines Corporation (IBM)	2,821,014
2,100	SanDisk Corporation, (2)	39,270
	Total Computers & Peripherals	10,770,888
	Construction & Engineering 1.0%	
6,500	Fluor Corporation	1,209,520
16,500	Jacobs Engineering Group Inc., (2)	1,331,550
	Total Construction & Engineering	2,541,070
	Consumer Finance 0.1%	
2,700	American Express Company	101,709
1,400	Capital One Financial Corporation	53,214
4,400	SLM Corporation, (2)	85,140
2,200	Western Union Company	54,384
	Total Consumer Finance	294,447

JCE Nuveen Core Equity Alpha Fund (continued)
Portfolio of INVESTMENTS June 30, 2008 (Unaudited)

Shares	Description (1)	Value
	Diversified Consumer Services 0.6%	
22,900	Apollo Group, Inc., (2)	\$ 1,013,554
22,100	H & R Block Inc.	472,940
	Total Diversified Consumer Services	1,486,494
	Diversified Financial Services 1.2%	
11,700	CIT Group Inc.	79,677
33,100	Citigroup Inc.	554,756
1,300	CME Group, Inc.	498,147
1,000	Intercontinental Exchange Inc., (2)	114,000
36,500	Leucadia National Corporation	1,713,310
2,400	New York Stock Exchange Euronext	121,584
	Total Diversified Financial Services	3,081,474
	Diversified Telecommunication Services 4.4%	
281,100	AT&T Inc.	9,470,259
900	Embarq Corporation	42,543
61,100	Verizon Communications Inc.	2,162,940

