BLACKROCK APEX MUNICIPAL FUND INC
Form N-CSRS
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UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM N-CSRS

CERTIFIED SHAREHOLDER REPORT OF REGISTERED MANAGEMENT INVESTMENT COMPANIES

Investment Company Act file number 811-05227

Name of Fund: BlackRock Apex Municipal Fund, Inc. (APX)

Fund Address: 100 Bellevue Parkway, Wilmington, DE 19809

Name and address of agent for service: Donald C. Burke, Chief Executive Officer, BlackRock Apex Municipal Fund, Inc., 800 Scudders Mill Road, Plainsboro, NJ, 08536. Mailing address: P.O. Box 9011, Princeton, NJ, 08543-9011

Registrant's telephone number, including area code: (800) 882-0052, Option 4

Date of fiscal year end: 06/30/2009

Date of reporting period: 12/31/2008

Item 1 – Report to Stockholders

EQUITIES FIXED INCOME REAL ESTATE LIQUIDITY ALTERNATIVES BLACKROCK SOLUTIONS

BlackRock Apex Municipal Fund, Inc. (APX)

SEMI-ANNUAL REPORT
DECEMBER 31, 2008 | (UNAUDITED)

NOT FDIC INSURED
MAY LOSE VALUE
NO BANK GUARANTEE

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A Letter to Shareholders

Dear Shareholder

The present time may well be remembered as one of the most tumultuous periods in financial market history. Over the past year, the bursting of the housing bubble and the resultant credit crisis swelled into an all-out global financial market meltdown that featured the collapse of storied financial firms, volatile swings in the world's financial markets and monumental government responses designed to prop up the economy and stabilize the financial system.

The US economy appeared relatively resilient through the first half of 2008, when rising food and energy prices stoked fears of inflation. The tenor changed dramatically in the second half, as inflationary pressure subsided amid plummeting oil prices, while economic pressures escalated in the midst of a rapid deterioration in consumer spending, employment and other key indicators. By period-end, the National Bureau of Economic Research had confirmed what most already knew — the United States was in a recession, which officially began in December 2007. The Federal Reserve Board (the "Fed"), after slashing interest rates aggressively in the early months of the year, resumed that rate-cutting campaign in the fall, with the final reduction in December bringing the target federal funds rate to a record low range of between zero and 0.25%. Importantly, the central bank pledged that future policy moves to revive the global economy and financial markets would comprise primarily of nontraditional and quantitative easing measures, such as capital injections, lending programs and government guarantees.

Against this backdrop, US equity markets experienced intense volatility, with periods of downward pressure punctuated by sharp rebounds. Declines were significant and broad-based, though smaller cap stocks posted somewhat better relative performance. Non-US stocks started off the year stronger, but quickly lost ground as the credit crisis revealed itself to be global in nature and as the global economy turned south. Overall, domestic equities notched better results than non-US equities, reversing the prior years' trend of international equity outperformance.

In fixed income markets, investors shunned risky assets and sought the safety and liquidity of US Treasury issues. Prices soared, while yields fell to record lows, with the Treasury sector topping all other asset classes over the reporting period. Amid spillover from historic events in the financial sector, municipals contended with fewer market participants, lack of liquidity, a challenging funding environment and a backlog of new-issue supply, all of which contributed to the sector's underperformance relative to taxable issues. At the same time, economic turmoil combined with dislocated credit markets and substantial technical pressures resulted in the worst year on record for the high yield market.

In all, an investor flight to safety prevailed, as evidenced in the six- and 12-month returns of the major benchmark indexes:

Total Returns as of December 31, 2008	**6-month**	**12-month**
US equities (S&P 500 Index)	(28.48)%	(37.00)%
Small cap US equities (Russell 2000 Index)	(26.94)	(33.79)
International equities (MSCI Europe, Australasia, Far East Index)	(36.41)	(43.38)
US Treasury securities (Merrill Lynch 10-Year US Treasury Index)	17.70	20.06
Taxable fixed income (Barclays Capital US Aggregate Index*)	4.07	5.24
Tax-exempt fixed income (Barclays Capital Municipal Bond Index*)	(2.49)	(2.47)
High yield bonds (Barclays Capital US Corporate High Yield 2% Issuer Capped Index*)	(25.07)	(25.88)

* Formerly a Lehman Brothers index.

Past performance is no guarantee of future results. Index performance shown for illustrative purposes only. You cannot invest directly in an index.

Through periods of market turbulence, as ever, BlackRock's full resources are dedicated to the management of our clients' assets. For our most current views on the economy and financial markets, we invite you to visit **www.blackrock.com/funds.** As always, we thank you for entrusting BlackRock with your investments, and we look forward to continuing to serve you in the months and years ahead.

Sincerely,

Rob Kapito
President, BlackRock Advisors, LLC

Fund Summary as of December 31, 2008

Investment Objective

BlackRock Apex Municipal Fund, Inc. (APX) (the "Fund") seeks to provide shareholders with high current income exempt from federal income taxes by investing primarily in a portfolio of medium- to lower-grade or unrated municipal obligations, the interest on which is exempt from federal income taxes in the opinion of bond counsel to the issuer.

Performance

For the six months ended December 31, 2008, the Fund returned (29.72)% based on market price and (20.02)% based on net asset value ("NAV"). For the same period, the closed-end Lipper High Yield Municipal Debt Funds category posted an average return of (26.76)% on a NAV basis. All returns reflect reinvestment of dividends. The Fund moved from a premium to NAV to a discount to NAV, which accounts for the difference between performance based on price and performance based on NAV. Factors contributing to the Fund's outperformance included bias toward higher quality issues and a below-market duration stance, offset somewhat by a moderately below-average distribution yield. Given improving value in the high yield municipal arena, activity during the latter part of the reporting period has been geared toward adopting a more neutral posture with respect to both credit and duration.

The views expressed reflect the opinions of BlackRock as of the date of this report and are subject to change based on changes in market, economic or other conditions. These views are not intended to be a forecast of future events and are no guarantee of future results.

Fund Information

Symbol on New York Stock Exchange	APX
Initial Offering Date	July 25, 1989
Yield on Closing Market Price as of December 31, 2008 ($6.29)[1]	8.87%
Tax Equivalent Yield[2]	13.65%
Current Monthly Distribution per Common Share[3]	$0.0465
Current Annualized Distribution per Common Share[3]	$0.5580
Leverage as of December 31, 2008[4]	2%

1 Yield on closing market price is calculated by dividing the current annualized distribution per share by the closing market price. Past performance does not guarantee future results.

2 Tax equivalent yield assumes the maximum federal tax rate of 35%.

3 The distribution is not constant and is subject to change.

4 As a percentage of total managed assets, which is the total assets of the Fund (including any assets attributable to tender option bond trusts ("TOBs")) minus the sum of accrued liabilities.

The table below summarizes the changes in the Fund's market price and net asset value per share:

	12/31/08	6/30/08	Change	High	Low
Market Price	$ 6.29	$ 9.28	(32.22)%	$ 9.70	$ 5.55
Net Asset Value	$ 7.05	$ 9.14	(22.87)%	$ 9.21	$ 6.91

The following charts show the Fund's portfolio composition and credit quality allocations of the Fund's long-term investments:

Portfolio Composition

Sector	12/31/08	6/30/08
Industrial & Pollution Control	25%	24%
Hospitals	23	28
City, County & State	13	12
Transportation	11	7
Housing	7	7
Tax Revenue	7	7
Power	6	7
Education	5	5
Tobacco	2	2
Water & Sewer	1	1

Credit Quality Allocations[5]

Credit Rating	12/31/08	6/30/08
AAA/Aaa	10%	7%
AA/Aa	4	7
A/A	10	4
BBB/Baa	21	18
BB/Ba	10	11
B/B	4	5
CCC/Caa	3	4
CC/Ca	1	1
Not Rated[6]	37	43

[5] Using the higher of Standard & Poor’s or Moody’s Investors Service ratings.

[6] The Advisor has deemed certain of these not-rated securities to be of investment grade quality. As of December 31, 2008 and June 30, 2008, the market value of these securities was $8,553,293 and $8,940,500, representing 6% and 5% of the Fund’s long-term investments, respectively.

The Benefits and Risks of Leveraging

The Fund may utilize leverage to seek to enhance the yield and NAV of their Common Shares. However, these objectives cannot be achieved in all interest rate environments.

The Fund may from time to time leverage its assets through the use of tender option bond (“TOB”) programs, as described in Note 1 of the Notes to Financial Statements. TOB investments generally will provide the Fund with economic benefits in periods of declining short-term interest rates, but expose the Fund to risks during periods of rising short-term interest rates. Additionally, fluctuations in the market value of municipal securities deposited into the TOB trust may adversely affect the Fund’s NAV per share.

The interest earned on securities purchased with the proceeds from tender option bond (“TOB”) programs, as described in Note 1 of the Notes to Financial Statements, is paid to Common Shareholders in the form of dividends, and the value of these portfolio holdings is reflected in the per share NAV of each Fund’s Common Shares. However, in order to benefit Common Shareholders, the yield curve must be positively sloped; that is, short-term interest rates must be lower than long-term interest rates. If the yield curve becomes negatively sloped, meaning short-term interest rates exceed long-term interest rates, returns to Common Shareholders will be lower than if the Funds had not used leverage.

To illustrate these concepts, assume the Fund’s Common Shares capitalization is $100 million and it issues TOBs for an additional $30 million, creating a total value of $130 million available for investment in long-term securities. If prevailing short-term interest rates are 3% and long-term interest rates are 6%, the yield curve has a strongly positive slope. In this case, the Fund pays interest expense on the $30 million of TOBs based on the lower short-term interest rates. At the same time, the Fund’s total portfolio of $130 million earns the income based on long-term interest rates. In this case, the interest expense of the TOBs is significantly lower than the income earned on the Fund’s long-term investments, and therefore the Common Shareholders are the beneficiaries of the incremental yield.

Conversely, if prevailing short-term interest rates rise above long-term interest rates of 6%, the yield curve has a negative slope. In this case, the Fund pays interest expense on the higher short-term interest rates whereas the Fund’s total portfolio earns income based on lower long-term interest rates. If short-term interest rates rise, narrowing the differential between short-term and long-term interest rates, the incremental yield pickup on the Common Shares will be reduced or eliminated completely.

Furthermore, the value of the Fund’s portfolio investments generally varies inversely with the direction of long-term interest rates, although other factors can influence the value of portfolio investments. In contrast, the redemption value of the Fund’s TOBs do not fluctuate in relation to interest rates. As a result, changes in interest rates can influence the Fund’s NAV positively or negatively in addition to the impact on Fund performance from leverage from TOBs.

The use of leverage may enhance opportunities for increased returns to the Fund and Common Shareholders, but as described above, it also creates risks as short- or long-term interest rates fluctuate. Leverage also will generally cause greater changes in the Fund’s NAV, market price and dividend rate than a comparable portfolio without leverage. If the income derived from securities purchased with assets received from leverage exceeds the cost of leverage, the Fund’s net income will be greater than if leverage had not been used. Conversely, if the income from the securities purchased is not sufficient to cover the cost of leverage, the Fund’s net income will be less than if leverage had not been used, and therefore the amount available for distribution to shareholders will be reduced. The Fund may be required to sell portfolio securities at inopportune times or below fair market values in order to comply with regulatory requirements applicable to the use of leverage or as required by the terms of leverage instruments which may cause the Fund to incur losses. The use of leverage may limit the Fund’s ability to invest in certain types of securities or use certain types of hedging strategies, such as in the case of certain restrictions imposed by ratings agencies that rate preferred shares issued by a Fund. The Fund will incur expenses in connection with the use of leverage, all of which are borne by the holders of the Common Shares and may reduce returns on the Common Shares.

Under normal circumstances, the Fund anticipates that the total economic leverage from TOBs will not exceed 5% of its total managed assets at the time such leverage is incurred. As of December 31, 2008, the Fund had economic leverage from TOBs of 2% as a percentage of total managed assets.

Schedule of Investments December 31, 2008 (Unaudited) **(Percentages shown are based on Net Assets)**

Municipal Bonds	**Par (000)**	**Value**
Alabama — 1.9%		
Jefferson County, Alabama, Limited Obligation School Warrants, Series A:		
5%, 1/01/09	$ 1,600	$ 1,600,000
5%, 1/01/10	475	409,042
Tuscaloosa, Alabama, Special Care Facilities Financing Authority, Residential Care Facility Revenue Bonds (Capstone Village, Inc. Project), Series A, 5.875%, 8/01/36 (a)(b)	1,255	683,850
		2,692,892
Alaska — 1.1%		
Alaska Industrial Development and Expert Authority Revenue Bonds (Williams Lynxs Alaska Cargoport), AMT, 8%, 5/01/23	2,000	1,570,420
Arizona — 4.0%		