

Pioneer Municipal High Income Opportunities Fund, Inc.

October 31, 2024

Pioneer Municipal High Income Opportunities Fund, Inc. is a newly organized, diversified, closed-end fund designed to provide holders with a high level of current income exempt from regular federal income tax. As a secondary investment objective, the Fund may seek capital appreciation to the extent consistent with its primary investment objective. The Fund invests in a professionally managed portfolio of municipal securities from across the United States. The market prices of securities may go up or down, sometimes rapidly or unpredictably, due to general market conditions, such as real or perceived adverse economic, political, or regulatory conditions, recessions, inflation, changes in interest or currency rates, lack of liquidity in the bond markets, the spread of infectious illness or other public health issues or adverse investor sentiment. All investments are subject to risk, including the possible loss of principal. In the past several years, financial markets have experienced increased volatility and heightened uncertainty. These conditions may continue, recur, worsen or spread. Investments in high-yield or lower-rated securities are subject to greater-than-average risk. The Fund may invest in securities of issuers that are in default. A portion of income may be subject to state, federal, and/or alternative minimum tax. Capital gains, if any, are subject to a capital gains tax. When interest rates rise, the prices of fixed-income securities held by the Fund will generally fall. Conversely, when interest rates fall, the prices of fixed-income securities held by the Fund will generally rise. The value of municipal securities can be adversely affected by changes in financial condition of municipal issuers, lower revenues, and regulatory and political developments. Investments in the Fund are subject to possible loss due to the financial failure of the issuers of the underlying securities and the issuers' inability to meet their debt obligations. The Fund uses leverage, which entails specific risks, to seek a higher return. Leverage generally magnifies the effect of any increase or decrease in the value of the Fund's underlying assets and creates investment risk with respect to a larger pool of assets than the Fund would otherwise have, potentially resulting in the loss of all assets. Prepayment risk is the chance that an issuer may exercise its right to prepay its security, if falling interest rates prompt the issuer to do so. Forced to reinvest the unanticipated proceeds at lower interest rates, the Fund would experience a decline in income and lose the opportunity for additional price appreciation. Unless the limited term provision of the Fund is amended, the Fund will terminate in twelve years. In connection with the termination, the Fund will incur transaction costs in connection with dispositions of portfolio securities. The Fund may be required to sell portfolio securities when it otherwise would not, including at times when market conditions are not favorable, which may cause the Fund to lose money. During the wind-down period, beginning one year before termination, the Fund may begin liquidating all or a portion of its portfolio, and may deviate from its investment policies and may not achieve its investment objective.

Fund Facts

CUSIP	723761049
Symbol	MIO
Total Common Assets (millions)	\$219.2
Total Assets from Borrowings (millions)	\$26.0
Total Net Assets (millions)	\$245.2
Leverage %	10.6%
Net Asset Value	\$12.98
Market Price	\$12.12
Premium/Discount	-6.6%
Inception Date	8/5/2021
Total Expense Ratio (Common)	2.10%
Number of Issues	93

12-Month Distribution History

Ex Date	Payable Date	Distribution Per Share
11/15/23	11/30/23	0.0425*
12/11/23	12/19/23	0.0425*
1/18/24	1/31/24	0.0425
2/15/24	2/29/24	0.0425*
3/14/24	3/28/24	0.0485*
4/18/24	5/1/24	0.0500*
5/16/24	5/31/24	0.0500*
6/18/24	6/28/24	0.0500*
7/19/24	7/31/24	0.0500*
8/20/24	8/30/24	0.0500*
9/20/24	10/31/24	0.0500*
10/18/24	10/31/24	0.0500*

Distributions are not guaranteed. The amount of distributions may vary depending on a number of factors. As portfolio and market conditions change, the rate of distributions on Fund common shares could change. The Fund will determine the tax characteristics of all fund distributions after the end of the Fund's fiscal year and will provide shareholders such information at that time.

*A portion of the Fund's distribution is comprised of non-income items. For additional information, please refer to Section 19a Notices posted on our website at www.amundi.com/us/investors/Products/Closed-End-Funds/Section-19a-Notices. The Fund will determine the tax characteristics of all fund distributions after the end of the Fund's fiscal year and will provide shareholders such information at that time.

Not FDIC insured • May lose value • No bank guarantee

Top 5 Sectors

1. Tobacco	23.6%
2. IDR/PCR-Other	17.1%
3. Hospital	11.9%
4. Special Tax	10.1%
5. Education	9.5%

Portfolio Characteristics

Weighted Average Life	19.73 Years
Modified Duration	7.48 Years
Current Distribution Rate (on market price)	4.95%
Taxable-Equivalent Rate (on market price)	8.36%

Modified duration calculates how much a bond's price will change in response to changes in interest rates and is derived from the weighted average time until the bond's cash flows are received. Current Distribution Rate is calculated by dividing the last distribution per share (annualized) by market price. The current distribution rate includes leverage (non-income items such as loan proceeds or borrowings). Taxable-Equivalent Rate reflects top federal tax rate of 40.8%. **The performance data quoted represents past performance, which is no guarantee of future results.**

Top 10 Holdings

1. Tobacco Settlement Finance Aut 4.31% 6/1/49	5.12%
2. Buckeye Tobacco Stmt Fin Auth 5% 6/1/55	4.92%
3. Big River Steel Llc 4.5% 9/1/49	3.81%
4. ST of ILL Mcco Pla Expa Prj Fd 4% 6/15/50	3.64%
5. Tobacco Settlement Fin Corp/Va 6.71% 6/1/46	3.37%
6. Commonwealth of Puerto Rico 4% 7/1/37	3.12%
7. New York Count Tobac Trust Iv 5% 6/1/45	3.07%
8. Samaritan Housing Foundatn O G 4% 6/1/41	3.00%
9. Purchase Sen Lear Comm Obl Grp 4.5% 7/1/56	2.89%
10. Puerto Rico Sale Tax Fi Cor Tr 4.75% 7/1/53	2.82%

The portfolio is actively managed, and current holdings may be different. The holdings listed should not be considered recommendations to buy or sell any security.

Quality Distribution*

AA	0.55%
A	4.08%
BBB	18.79%
BB	12.75%
B	6.31%
CCC	5.54%
Not Rated	51.91%
Cash Equivalent	0.07%

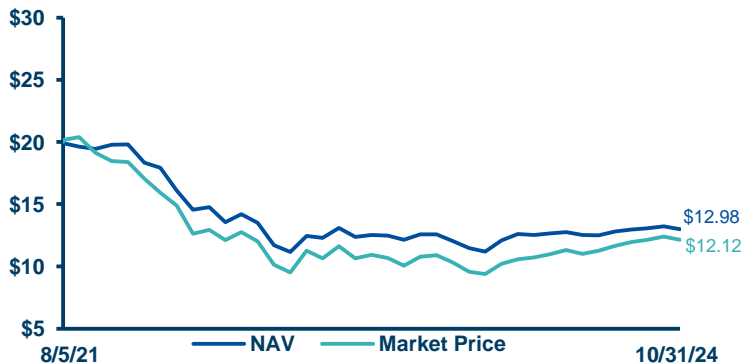
Rating Description/Source: Credit rating breakdown reflects the average of available ratings across Moody's, Standard & Poor's (S&P), Fitch, DBRS Morningstar and KBRA. Bond ratings are ordered highest to lowest in the portfolio. Based on S&P's measures, AAA (highest possible rating) through BBB are considered investment grade. BB or lower ratings are considered non-investment grade. Cash equivalents and some bonds may not be rated.

Maturity Distribution*

0 to 2 Years	3.62%
2 to 5 Years	1.18%
5 to 7 Years	2.10%
7 to 10 Years	2.12%
10 to 20 Years	35.67%
20+ Years	55.31%

*Due to rounding, figures may not total 100%. Portfolio is actively managed and characteristics are subject to change.

Net Asset Value and Market Price History



Next Call Date as of 10/31/24

Under 5 years	62.85%
5-9.99 years	33.71%
10+ Years	0.00%
Cash	0.00%
Non-Callable	3.44%

Average Annual Total Returns (%)

Through October 31, 2024	Market Price	Net Asset Value
1-Year	35.63	22.00
3-Year	-9.58	-7.95
Since Inception	-10.10	-8.18

Pioneer Municipal High Income Opportunities Fund, Inc. Offers Investors:

- **High current income potential** – The Fund seeks opportunities for a high level of current income exempt from federal income tax by investing in municipal securities with a broad range of maturities and credit ratings. The Fund intends to pay distributions on a monthly basis.

Portfolio Management

Day-to-day management of the fund's portfolio is the responsibility of John (Jake) Crosby van Roden III and Prakash Vadlamani. Mr. van Roden and Mr. Vadlamani are supported by the fixed income team. Mr. van Roden, Managing Director and Director of Municipals, US, joined Amundi US in February 2024. Prior to joining Amundi US, Mr. van Roden was Managing Director and Senior Portfolio Manager at Macquarie Investment Management, which he joined in 2004. Mr. Vadlamani, Senior Vice President, Associate Portfolio Manager and Senior Credit Analyst at Amundi US, has been a member of the Amundi US Municipals investment team since 2014 and has served as portfolio manager of the fund since February 2024.

Effective February 28, 2024, Mr. van Roden and Mr. Vadlamani became Portfolio Managers for the Fund.

Call 1-800-225-6292 or visit amundi.com/usinvestors for the most recent month-end performance results. Current performance may be lower or higher than the performance data quoted.

Performance data shown represents past performance. Past performance is no guarantee of future results. Investment return and market price will fluctuate, and your shares may trade below net asset value, due to such factors as interest rate changes, and the perceived credit quality of borrowers.

Total investment return does not reflect broker sales charges or commissions. All performance information is for common shares of the Fund.

The performance information does not reflect the deduction of fees and taxes that a shareowner would pay on Fund distributions or the sale of Fund shares. Had these fees and taxes been reflected, performance would have been lower.

Shares of closed-end funds, unlike open-end funds, are not continuously offered. Once issued, shares of closed-end funds are bought and sold in the open market through a stock exchange and frequently trade at prices lower than their net asset value. Net Asset Value (NAV) is total assets less total liabilities, which includes preferred shares, or borrowings as applicable, divided by the number of common shares outstanding.

When net asset value (NAV) is lower than market price, dividends are assumed to be reinvested at the greater of NAV or 95% of the market price. When NAV is higher, dividends are assumed to be reinvested at prices obtained through open market purchases under the Fund's dividend reinvestment plan.

For additional information, please contact your financial professional or visit our website amundi.com/usinvestors.