

PUTNAM MANAGED MUNICIPAL INCOME TRUST
Form N-CSR
December 29, 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: (811-05740)

Exact name of registrant as specified in charter: Putnam Managed Municipal Income Trust

Address of principal executive offices: One Post Office Square, Boston, Massachusetts
02109

Name and address of agent for service: Beth S. Mazor, Vice President
One Post Office Square
Boston, Massachusetts 02109

Copy to: John W. Gerstmayr, Esq.
Ropes & Gray LLP
One International Place
Boston, Massachusetts 02110

Registrant's telephone number, including area
code: (617) 292-1000

Date of fiscal year end: October 31, 2008

Date of reporting period: November 1, 2007 - October 31, 2008

Item 1. Report to Stockholders:

The following is a copy of the report transmitted to stockholders pursuant to Rule 30e-1 under the Investment Company Act of 1940:

What makes Putnam different?

A time-honored tradition in money management

Since 1937, our values have been rooted in a profound sense of responsibility for the money entrusted to us.

A prudent approach to investing

We use a research-driven approach to seek superior investment results over time.

Funds for every investment goal

We offer a broad range of mutual funds and other financial products so investors and their financial representatives can build diversified portfolios.

A commitment to doing what's right for investors

With a focus on investment performance and in-depth information about our funds, we put the interests of investors first and seek to set the standard for integrity and service.

Industry-leading service

We help investors, along with their financial representatives, make informed investment decisions with confidence.

In 1830, Massachusetts Supreme Judicial Court Justice Samuel Putnam established The Prudent Man Rule, a legal foundation for responsible money management.

THE PRUDENT MAN RULE

All that can be required of a trustee to invest is that he shall conduct himself faithfully and exercise a sound discretion. He is to observe how men of prudence, discretion, and intelligence manage their own affairs, not in regard to speculation, but in regard to the permanent disposition of their funds, considering the probable income, as well as the probable safety of the capital to be invested.

Putnam Managed Municipal Income Trust

10|31|08 *Annual Report*

Message from the Trustees	1
About the fund	2
Performance and portfolio snapshots	4
Interview with your fund's Portfolio Manager	5
Performance in depth	8
Your fund's management	9

Terms and definitions	10
Trustee approval of management contract	11
Other information for shareholders	14
Financial statements	15
Federal tax information	36
Compliance certifications	36
Shareholder meeting results	37
About the Trustees	38
Officers	41

Cover photograph: © Richard H. Johnson

Message from the Trustees

Dear Fellow Shareholder:

For several months now, financial markets have been experiencing significant upheaval. Coordinated responses by economic and financial authorities in the United States and overseas should restore stability in due course, but investors should not expect a reduction in volatility in the near term.

As a shareholder of this fund, you should feel confident about the financial standing of Putnam Investments. Our parent companies, Great-West Lifeco and Power Financial Corporation, are among the largest and most successful organizations in the financial services industry. All three companies are well capitalized with strong cash flows.

We are pleased to announce that Robert L. Reynolds, a well-known leader and visionary in the mutual fund industry, joined the Putnam leadership team as President and Chief Executive Officer of Putnam Investments in July. Charles E. Haldeman, Jr., former President and CEO, has taken on the role of Chairman of Putnam Investment Management, LLC, the firm's fund management company. He continues to serve as President of the Funds and as a Trustee. Mr. Reynolds also serves as a Trustee.

Mr. Reynolds brings to Putnam Investments substantial industry experience and an outstanding record of success, including serving as Vice Chairman and Chief Operating Officer at Fidelity Investments from 2000 to 2007. We look forward to working with Mr. Reynolds as we continue our efforts to position Putnam Investments to exceed our shareholders' expectations.

Respectfully yours,

About the fund

Potential for income exempt from federal income tax

Municipal bonds finance important public projects such as schools, roads, and hospitals, and they can help investors keep more of the income they receive from their investment. Putnam Managed Municipal Income Trust offers an additional advantage — the flexibility to invest in municipal bonds issued by any state in the country.

Edgar Filing: PUTNAM MANAGED MUNICIPAL INCOME TRUST - Form N-CSR

Municipal bonds are typically issued by states and local municipalities to raise funds for building and maintaining public facilities. The income from a municipal bond is generally exempt from federal income tax, and often state and local taxes. The bonds are backed by either the issuing city or town or by revenues collected from usage fees, and have varying degrees of credit risk — the risk that the issuer won't be able to repay the bond.

The fund's portfolio managers can select bonds from a variety of state and local governments throughout the United States. The fund also combines bonds of differing credit quality. In addition to investing in high-quality bonds, the managers allocate a portion of the portfolio to lower-rated bonds, which may offer higher income in return for more risk.

When deciding whether to invest in a bond, the portfolio managers consider factors such as credit risk, interest-rate risk, and the risk that the bond will be prepaid. The managers are backed by Putnam's fixed-income organization, one of the largest in the investment management industry, in which municipal bond analysts are grouped into sector teams and conduct ongoing research. Once a bond has been purchased, the team continues to monitor developments that affect the bond market, the sector, and the issuer of the bond. Typically, lower-rated bonds are reviewed more often because of their greater potential risk.

The goal of research and active management is to stay a step ahead of the industry and pinpoint opportunities to adjust the fund's holdings — either by acquiring more of a particular bond or by selling it — for the benefit of the fund and its shareholders.

Capital gains, if any, are taxable for federal and, in most cases, state purposes. For some investors, investment income may be subject to the federal alternative minimum tax. Income from federally exempt funds may be subject to state and local taxes. Please consult with your tax advisor for more information. Mutual funds that invest in bonds are subject to certain risks, including interest-rate risk, credit risk, and inflation risk. As interest rates rise, the prices of bonds fall. Long-term bonds are more exposed to interest-rate risk than short-term bonds. Lower-rated bonds may offer higher yields in return for more risk. Unlike bonds, bond funds have ongoing fees and expenses. The fund uses leverage, which involves risk and may increase the volatility of the fund's net asset value. The fund's shares trade on a stock exchange at market prices, which may be higher or lower than the fund's net asset value.

How do closed-end funds differ from open-end funds?

More assets at work While open-end funds need to maintain a cash position to meet redemptions, closed-end funds are not subject to redemptions and can keep more of their assets invested in the market.

Traded like stocks Closed-end fund shares are traded on stock exchanges, and their market prices fluctuate in response to supply and demand, among other factors.

Net asset value vs. market price Like an open-end fund's net asset value (NAV) per share, the NAV of a closed-end fund share is equal to the current value of the fund's assets, minus its liabilities, divided by the number of shares outstanding. However, when buying or selling closed-end fund shares, the price you pay or receive is the market price. Market price reflects current market supply and demand and may be higher or lower than the NAV.

Putnam Managed Municipal Income Trust

Municipal bonds may finance a range of projects in your community and thus play a key role in its development.

Performance and portfolio snapshots

Average annual total return (%) comparison as of 10/31/08

Data is historical. Past performance does not guarantee future results. More recent returns may be less or more than those shown. Investment return and net asset value will fluctuate, and you may have a gain or a loss when you sell your shares. Performance assumes reinvestment of distributions and does not account for taxes. Fund returns in the bar chart are at NAV. See pages 5 and 8-9 for additional performance information, including fund returns at market price. Index and Lipper results should be compared to fund performance at NAV. Lipper calculates performance differently than the closed-end funds it ranks, due to varying methods for determining a fund's monthly reinvestment NAV.

□ We believe that income tax rates are unlikely to fall from here and may, in fact, rise with a new Obama administration, causing municipal bonds to become an even more attractive asset class relative to taxable fixed income. □

Paul Drury, Portfolio Manager, Putnam Managed Municipal Income Trust

Credit qualities shown as a percentage of portfolio value as of 10/31/08. A bond rated Baa or higher (MIG3/VMIG3 or higher, for short-term debt) is considered investment grade. The chart reflects Moody's ratings; percentages may include bonds not rated by Moody's but considered by Putnam Management to be of comparable quality. Ratings will vary over time.

Credit quality overview

4

Interview with your fund's Portfolio Manager

Paul Drury

Thank you, Paul, for talking with us today about what has been a tumultuous 12 months for the fixed-income markets. How has the municipal bond market performed?

This really has been an unprecedented time for the municipal bond market. We have seen the subprime mortgage meltdown that began in 2007 severely impact virtually all corners of the financial markets, including municipal bonds. Several factors related to the subprime-lending crisis contributed to historic volatility in municipal bonds. Concerns about the credit ratings of municipal bond insurers, which also insure subprime debt, added to market volatility in late 2007 and during 2008. In addition, forced selling by hedge funds and investment banks put pressure on municipal bonds as these firms needed to raise capital and cover losses. In this environment, nearly all asset classes, including municipal bonds, underperformed U.S. Treasuries, which reached record-low yields.

This added up to the worst municipal bond market performance in two decades.

In this challenging environment, how did Putnam Managed Municipal Income Trust fare?

In these volatile markets, the fund performed in line with its peers; however, the fund did post a negative return for the period. For the 12 months ended October 31, 2008, the fund posted a 17.71% decline, while our Lipper peers, High Yield Municipal Debt Funds (closed-end), lost 21.19% over the same period.

With investors continuing an overall "flight to quality" in municipal bonds, the fund lagged its benchmark, the Barclays Capital Municipal Bond Index, which invests only in investment-grade municipal bonds. For the period, the benchmark had a loss of 3.30%.

The final months of the period were particularly difficult. Describe what happened with municipal bonds during that time.

In September 2008, the municipal bond market endured its worst month on record. As the credit crisis grew, the yield spreads between tax-exempt bonds and Treasury bonds diverged dramatically, as most investors avoided all asset classes with any perceived credit risk.

Broad market index and fund performance

This comparison shows your fund's performance in the context of broad market indexes for the 12 months ended 10/31/08. See the previous page and pages 8-9 for additional fund performance information. Index descriptions can be found on page 10.

5

Three factors contributed to the weakness in the credit markets during the fall of 2008. The first was unrelenting downward price pressure on municipal bonds. This pressure was spurred by the forced selling of hedge fund positions and the rumored potential liquidation of AIG's \$50 billion to \$60 billion municipal bond portfolio. Second, dealer liquidity became more constrained with the historic bankruptcy of Lehman Brothers, UBS's exit from the institutional market, and the purchase of Merrill Lynch by Bank of America.

Finally, we saw a temporary lack of primary market supply of municipal bonds in the wake of the Lehman bankruptcy. Because new issues typically help establish prices in the marketplace, as dealers delayed pricing new issues, secondary market liquidity was negatively affected. All of these issues put downward pressure on municipal bond prices, further hurting asset class performance.

How did you position the portfolio in light of these ongoing issues?

We've decided to remain cautious, continuing to focus on keeping the fund's overall credit quality relatively high compared to our Lipper peer group. One factor that continued to aid performance versus that of our peers during the period was the fund's shorter-maturity positioning. This helped performance as the yield curve steepened and prices on shorter-term instruments held up better than longer-maturity bonds.

Were there any notable contributors to performance?

Absolutely. The fund's performance was aided when our holding in **Tobacco Settlement Revenue Management Authority** was escrowed to maturity or "pre-refunded" in June. Pre-refunding means the bond issuer was able to secure enough in Treasury securities to ensure it would redeem the bond issues on their first call date. This action raised the bonds' creditworthiness and allowed us to sell the holding at a premium as a result.

Were there any notable detractors?

Main Street Natural Gas Bonds detracted from performance during the period. On the whole, prepaid gas bonds help a municipal utility buy natural gas at a discounted price. One important feature of prepaid gas bonds, however, is that the bond's rating is tied to its financial sponsor — in this case, Lehman Brothers. Because Lehman was affected by liquidity problems and concerns about subprime exposure, the performance of these bonds suffered and we sold this holding by the end of the period.

What is your outlook for the municipal bond market?

Investors have seen the Federal Reserve [the Fed] dramatically inject liquidity into the markets, and the U.S.

Comparison of top sector weightings

This chart shows how the fund's top weightings have changed over the past six months. Weightings are shown as a percentage of net assets. Holdings will vary over time.

6

Treasury Department take other unprecedented steps to aid the economy and free up credit markets. It's important to understand, however, that the effects of many of the changes will take time, and that markets are likely, in our view, to remain volatile in the near term — particularly with concerns over state budgets and the monoline insurers.

Despite the current market environment, we see two key reasons why municipal bond funds remain relatively attractive. The first is future tax rates. We believe that income-tax rates are unlikely to fall from here and may, in fact, rise in the near future, especially in view of the tax cuts scheduled to sunset in 2010. This may cause municipal bonds to become an even more attractive asset class relative to taxable fixed income.

Even at today's tax rates, we believe municipal bonds offer a great value because of a second key factor: The overall credit quality of the municipal asset class remains strong. The fund has benefited from having a bias for higher-quality holdings in the portfolio. We believe that many areas of the municipal bond market have been oversold by panicked investors, creating unique opportunities for the fund to add highly rated bonds paying unusually high yields.

Finally, I'd like to add that in these turbulent credit markets, shareholders should understand that Putnam's deep research capability is making a difference for them every day. As confidence in the public ratings agencies weakens, the in-depth, independent research of a large, integrated team like ours cannot be overemphasized.

Thank you, Paul, for your time and insights today.

The views expressed in this report are exclusively those of Putnam Management. They are not meant as investment advice.

Please note that the holdings discussed in this report may not have been held by the fund for the entire period. Portfolio composition is subject to review in accordance with the fund's investment strategy and may vary in the future.

I N T H E N E W S

In November, the Federal Reserve Bank (the Fed) and the U.S. Treasury announced \$800 billion in new lending programs to help the consumer lending and home mortgage markets. The Treasury and the Fed said they would create a \$200 billion program to support the issuance of securities that are backed by car loans, student loans, credit card debt, and small-business loans. In a separate action, the Fed said it would lower mortgage rates and increase the availability of credit for the housing market by buying up to \$600 billion in debt tied to home loans backed by Fannie Mae, Freddie Mac, and other government-controlled financing agencies.

Of special interest

In October 2008, the Board of Trustees approved a proposal to merge your fund into Putnam Tax-Free High Yield Fund, an open-end fund. The expected benefits of the proposed merger to shareholders of your fund include the opportunity to invest in a similarly managed open-end fund and the ability to redeem shares at their net asset value on a daily basis without the discount to net asset value at which shares of your fund have traded historically. It is currently expected that the merger would occur in 2009, following approval from shareholders of your fund, though there is no guarantee that the merger will occur. Proxy materials relating to the proposed merger are expected to be mailed to shareholders early in 2009.

In connection with their approval of the proposed merger into Putnam Tax-Free High Yield Fund, the Trustees have also authorized your fund to begin redeeming all of its outstanding preferred shares through a series of partial redemptions. The first such partial redemptions by your fund occurred following the close of the fiscal period, and the remaining redemptions are expected to occur in the coming months. In accordance with legal requirements applicable to open-end funds, your fund will be required to redeem all of its preferred shares prior to completing the proposed merger into Putnam Tax-Free High Yield Fund.

We are pleased to report that effective May 2008, your fund's dividend increased by 3.81%, from \$0.0341 to \$0.0354 per share. The dividend was increased to reflect the current earnings distribution of the portfolio holdings.

7

Your fund's performance

This section shows your fund's performance for periods ended October 31, 2008, the end of its most recent fiscal year. In accordance with regulatory requirements for mutual funds, we also include performance as of the most recent calendar quarter-end. Performance should always be considered in light of a fund's investment strategy. Data represents past performance. Past performance does not guarantee future results. More recent returns may be less or more than those shown. Investment return, net asset value, and market price will fluctuate, and you may have a gain or a loss when you sell your shares.

Fund performance Total return for periods ended 10/31/08

	NAV	Market price	Barclays Capital Municipal Bond Index	Lipper High Yield Municipal Debt Funds (closed-end) category average*
Annual average				
Life of fund (since 2/24/89)	5.32%	4.46%	6.18%	4.46%
10 years	23.72	□2.81	49.96	27.16
Annual average	2.15	□0.28	4.14	2.36
5 years	5.12	4.56	14.41	4.76
Annual average	1.00	0.90	2.73	0.88
3 years	□10.08	□5.65	5.23	□11.83
Annual average	□3.48	□1.92	1.71	□4.18
1 year	□17.71	□15.69	□3.30	□21.19

Performance assumes reinvestment of distributions and does not account for taxes.

Index and Lipper results should be compared to fund performance at net asset value. Lipper calculates performance differently than the closed-end funds it ranks, due to varying methods for determining a fund's monthly reinvestment NAV.

* Over the 1-year, 3-year, 5-year, 10-year, and life-of-fund periods ended 10/31/08, there were 14, 14, 13, 11, and 6 funds, respectively, in this Lipper category.

Fund price and distribution information For the 12-month period ended 10/31/08

Distributions*

Number	12
Income ¹	\$0.417
Capital gains ²	□
Total	\$0.417

Distributions □ preferred shares* Series A (495 shares) Series B (495 shares) Series C (1,980 shares)

Income ¹	\$3,619	\$3,579	\$1,500
Capital gains ²	□	□	□
Total	\$3,619	\$3,579	\$1,500
Share value	NAV	Market price	
10/31/07	\$8.04	\$7.18	
10/31/08	6.23	5.70	
Current yield (end of period)	NAV	Market price	
Current dividend rate ³	6.82%	7.45%	
Taxable equivalent ⁴	10.49	11.46	

The classification of distributions, if any, is an estimate. Final distribution information will appear on your year-end tax forms.

* Putnam High Yield Municipal Trust merged into the fund on February 19, 2008.

¹ For some investors, investment income may be subject to the federal alternative minimum tax. Income from federally exempt funds may be subject to state and local taxes.

² Capital gains, if any, are taxable for federal and, in most cases, state purposes.

³ Most recent distribution, excluding capital gains, annualized and divided by NAV or market price at end of period.

⁴ Assumes maximum 35% federal tax rate for 2008. Results for investors subject to lower tax rates would not be as advantageous.

8

Fund performance as of most recent calendar quarter Total return for periods ended 9/30/08

	NAV	Market price
Annual average		
Life of fund (since 2/24/89)	5.89%	5.19%
10 years	36.62	13.36
Annual average	3.17	1.26
5 years	15.96	15.91
Annual average	3.01	3.00
3 years	□0.94	3.08
Annual average	□0.31	1.02
1 year	□8.58	□4.58

Your fund's management

Your fund's Portfolio Managers are Paul Drury, Brad Libby, Susan McCormack, and Thalia Meehan.

Trustee and Putnam employee fund ownership

As of October 31, 2008, 12 of the 13 Trustees of the Putnam funds owned fund shares. The table below shows the approximate value of investments in the fund and all Putnam funds as of that date by the Trustees and Putnam employees. These amounts include investments by the Trustees and employees' immediate family members and investments through retirement and deferred compensation plans.

	Assets in the fund	Total assets in all Putnam funds
Trustees	\$43,000	\$33,000,000
Putnam employees	\$5,000	\$396,000,000

Other Putnam funds managed by the Portfolio Managers

Paul Drury, Brad Libby, Susan McCormack, and Thalia Meehan are Portfolio Managers of Putnam's open-end tax-exempt funds for the following states: Arizona, California, Massachusetts, Michigan, Minnesota, New Jersey, New York, Ohio, and Pennsylvania. The same group also manages Putnam Tax Exempt Income Fund, Putnam AMT-Free Municipal Fund, Putnam Municipal Opportunities Trust, Putnam Tax-Free High Yield Fund, and Putnam Managed Municipal Income Trust.

Paul Drury, Brad Libby, Susan McCormack, and Thalia Meehan may also manage other accounts and variable trust funds advised by Putnam Management or an affiliate.

Portfolio management fund ownership

The following table shows how much the fund's current Portfolio Managers have invested in the fund and in all Putnam mutual funds (in dollar ranges). Information shown is as of October 31, 2008, and October 31, 2007.

9

Terms and definitions

Important terms

Total return shows how the value of the fund's shares changed over time, assuming you held the shares through the entire period and reinvested all distributions in the fund.

Net asset value (NAV) is the value of all your fund's assets, minus any liabilities and the net assets allocated to any outstanding preferred shares, divided by the number of outstanding common shares.

Market price is the current trading price of one share of the fund. Market prices are set by transactions between buyers and sellers on exchanges such as the New York Stock Exchange.

Current yield is the annual rate of return earned from dividends or interest of an investment. Current yield is expressed as a percentage of the price of a security, fund share, or principal investment.

Comparative indexes

Barclays Capital Aggregate Bond Index is an unmanaged index of U.S. investment-grade fixed-income securities.

Barclays Capital Municipal Bond Index is an unmanaged index of long-term fixed-rate investment-grade tax-exempt bonds.

Merrill Lynch U.S. 3-Month Treasury Bill Index is an unmanaged index that seeks to measure the performance of U.S. Treasury bills available in the marketplace.

S&P 500 Index is an unmanaged index of common stock performance.

Indexes assume reinvestment of all distributions and do not account for fees. Securities and performance of a fund and an index will differ. You cannot invest directly in an index.

Lipper is a third-party industry-ranking entity that ranks mutual funds. Its rankings do not reflect sales charges. Lipper rankings are based on total return at net asset value relative to other funds that have similar current investment styles or objectives as determined by Lipper. Lipper may change a fund's category assignment at its discretion. Lipper category averages reflect performance trends for funds within a category.

Trustee approval of management contract

General conclusions

The Board of Trustees of the Putnam funds oversees the management of each fund and, as required by law, determines annually whether to approve the continuance of your fund's management contract with Putnam Investment Management ("Putnam Management"). In this regard, the Board of Trustees, with the assistance of its Contract Committee consisting solely of Trustees who are not "interested persons" (as such term is defined in the Investment Company Act of 1940, as amended) of the Putnam funds (the "Independent Trustees"), requests and evaluates all information it deems reasonably necessary under the circumstances. Over the course of several months ending in June 2008, the Contract Committee met several times to consider the information provided by Putnam Management and other information developed with the assistance of the Board's independent counsel and independent staff. The Contract Committee reviewed and discussed key aspects of this information with all of the Independent Trustees. The Contract Committee recommended, and the Independent Trustees approved, the continuance of your fund's management contract, effective July 1, 2008.

The Independent Trustees' approval was based on the following conclusions:

That the fee schedule in effect for your fund represented reasonable compensation in light of the nature and quality of the services being provided to the fund, the fees paid by competitive funds and the costs incurred by Putnam Management in providing such services, and

That this fee schedule represented an appropriate sharing between fund shareholders and Putnam Management of such economies of scale as may exist in the management of the fund at current asset levels.

These conclusions were based on a comprehensive consideration of all information provided to the Trustees, were subject to the continued application of certain expense reductions and waivers and other considerations noted below, and were not the result of any single factor. Some of the factors that figured particularly in the Trustees' deliberations and how the Trustees considered these factors are described below, although individual Trustees may have evaluated the information presented differently, giving different weights to various factors. It is also important to recognize that the fee arrangements for your fund and the other Putnam funds are the result of many years of review and discussion between the Independent Trustees and Putnam Management, that certain aspects of such arrangements may receive greater scrutiny in some years than others, and that the Trustees' conclusions may be based, in part, on their consideration of these same arrangements in prior years.

Management fee schedules and categories; total expenses

The Trustees reviewed the management fee schedules in effect for all Putnam funds, including fee levels and breakpoints, and the assignment of funds to particular fee categories. In reviewing fees and expenses, the Trustees generally focused their attention on material changes in circumstances — for example, changes in a fund's size or investment style, changes in Putnam Management's operating costs or responsibilities, or changes in competitive practices in the mutual fund industry — that suggest that consideration of fee changes might be warranted. The Trustees concluded that the circumstances did not warrant changes to the management fee structure of your fund, which had been carefully developed over the years, re-examined on many occasions and adjusted where appropriate. In this regard, the Trustees also noted that shareholders of your fund voted in 2007 to approve new management contracts containing an identical fee structure. The Trustees focused on two areas of particular interest, as discussed further below:

Competitiveness. The Trustees reviewed comparative fee and expense information for competitive funds, which indicated that, in a custom peer group of competitive funds selected by Lipper Inc., your fund ranked in the 25th percentile in management fees and in the 25th percentile in total expenses as of December 31, 2007 (the first percentile being the least expensive funds and the 100th percentile being the most expensive funds). The Trustees expressed their intention to monitor this information closely to ensure that fees and expenses of your fund continue to meet evolving competitive standards.

Economies of scale. The Trustees considered that most Putnam funds currently have the benefit of breakpoints in their management fees that provide shareholders with significant economies of scale, which means that the effective management fee rate of a fund (as a percentage of fund assets) declines as a fund grows in size and crosses specified asset thresholds. Conversely, as a fund shrinks in size — as has been the case for many Putnam funds in recent years — these breakpoints result in increasing fee levels. In recent years, the Trustees have examined the operation of the existing breakpoint structure during periods of both growth and decline in asset levels. The Trustees concluded that the fee schedules in effect for the funds represented an appropriate sharing of economies of scale at current asset levels.

In connection with their review of the management fees and total expenses of the Putnam funds, the Trustees also reviewed the costs of the services to be provided and profits to be realized by Putnam Management and its affiliates from the relationship with the funds. This information included trends in revenues, expenses and profitability of Putnam Management and its affiliates relating to the investment management and distribution services provided to the funds. In this regard, the Trustees also reviewed an analysis of Putnam Management's revenues, expenses and profitability with respect to the funds' management contracts, allocated on a fund-by-fund basis.

11

Investment performance

The quality of the investment process provided by Putnam Management represented a major factor in the Trustees' evaluation of the quality of services provided by Putnam Management under your fund's management contract. The Trustees were assisted in their review of the Putnam funds' investment process and performance by the work of the Investment Oversight Coordinating Committee of the Trustees and the Investment Oversight Committees of the Trustees, which had met on a regular monthly basis with the funds' portfolio teams throughout the year. The Trustees concluded that Putnam Management generally provides a high-quality investment process — as measured by the experience and skills of the individuals assigned to the management of fund portfolios, the resources made available to such personnel, and in general the ability of Putnam Management to attract and retain high-quality personnel — but also recognized that this does not guarantee favorable investment results for every fund in every time period. The Trustees considered the investment performance of each fund over multiple time periods and considered information comparing each fund's performance with various benchmarks and with the performance of competitive funds.

While the Trustees noted the satisfactory investment performance of certain Putnam funds, they considered the disappointing investment performance of many funds in recent periods, particularly over periods in 2007 and 2008. They discussed with senior management of Putnam Management the factors contributing to such underperformance and actions being taken to improve performance. The Trustees recognized that, in recent years, Putnam Management has taken steps to strengthen its investment personnel and processes to address areas of underperformance, including recent efforts to further centralize Putnam Management's equity research function. In this regard, the Trustees took into consideration efforts by Putnam Management to improve its ability to assess and mitigate investment risk in individual funds, across asset classes, and across the complex as a whole. The Trustees indicated their intention to continue to monitor performance trends to assess the effectiveness of these efforts and to evaluate whether additional changes to address areas of underperformance are warranted.

In the case of your fund, the Trustees considered that your fund's common share cumulative total return performance at net asset value was in the following percentiles of its Lipper Inc. peer group (Lipper High Yield Municipal Debt Funds (closed-end)) (compared using tax-adjusted performance to recognize the different federal income tax treatment for capital gains distributions and exempt-interest distributions) for the one-year, three-year and five-year periods ended December 31, 2007 (the first percentile being the best-performing funds and the 100th percentile being the worst-performing funds):

One-year period	50th
Three-year period	87th

(Because of the passage of time, these performance results may differ from the performance results for more recent periods shown elsewhere in this report.) Over the one-year, three-year and five-year periods ended December 31, 2007, there were 15, 15, and 12 funds, respectively, in your fund's Lipper peer group.* Past performance is no guarantee of future returns.

The Trustees noted the disappointing performance for your fund for the three-year and five-year periods ended December 31, 2007. In this regard, the Trustees considered Putnam Management's belief that one factor in the fund's relative underperformance during these periods was its selection of higher-quality bonds during these periods, when lower-quality bonds had strong relative performance. The Trustees also considered that Putnam Management continues to believe that the fund's investment strategy and process are designed to produce attractive relative performance over longer periods, and the fund's performance for the one-year period has rebounded.

As a general matter, the Trustees believe that cooperative efforts between the Trustees and Putnam Management represent the most effective way to address investment performance problems. The Trustees noted that investors in the Putnam funds have, in effect, placed their trust in the Putnam organization, under the oversight of the fund's Trustees, to make appropriate decisions regarding the management of the funds. Based on the responsiveness of Putnam Management in the recent past to Trustee concerns about investment performance, the Trustees concluded that it is preferable to seek change within Putnam Management to address performance shortcomings. In the Trustees' view, the alternative of engaging a new investment adviser for an underperforming fund would entail significant disruptions and would not provide any greater assurance of improved investment performance.

Brokerage and soft-dollar allocations; other benefits

The Trustees considered various potential benefits that Putnam Management may receive in connection with the services it provides under the management contract with your fund. These include benefits related to brokerage and soft-dollar allocations, whereby a portion of the commissions paid by a fund for brokerage may be used to

* The percentile rankings for your fund's common share annualized total return performance in the Lipper High Yield Municipal Debt Funds (closed-end) category for the one-year, five-year and ten-year periods ended September 30, 2008 were 34%, 77%, and 75%, respectively. Over the one-year, five-year and ten-year periods ended September 30, 2008, your fund ranked 5th out of 14, 10th out of 12, and 9th out of 11 funds, respectively. Unlike the information above, these rankings reflect performance before taxes. Note that this more recent information was not available when the Trustees approved the continuance of your fund's management contract.

12

acquire research services that may be useful to Putnam Management in managing the assets of the fund and of other clients. The Trustees considered changes made in 2008, at Putnam Management's request, to the Putnam funds' brokerage allocation policy, which expanded the permitted categories of brokerage and research services payable with soft dollars and increased the permitted soft dollar allocation to third-party services over what had been authorized in previous years. The Trustees indicated their continued intent to monitor the potential benefits associated with the allocation of fund brokerage and trends in industry practice to ensure that the principle of seeking "best price and execution" remains paramount in the portfolio trading process.

The Trustees' annual review of your fund's management contract arrangements also included the review of your fund's investor servicing agreement with Putnam Fiduciary Trust Company ("PFTC"), which provides benefits to affiliates of Putnam Management. In the case of the investor servicing agreement, the Trustees considered that certain shareholder servicing functions were shifted to a third-party service provider by PFTC in 2007.

Comparison of retail and institutional fee schedules

The information examined by the Trustees as part of their annual contract review has included for many years information regarding fees charged by Putnam Management and its affiliates to institutional clients such as defined benefit pension plans, college endowments, etc. This information included comparisons of such fees with fees charged to the funds, as well as a detailed assessment of the differences in the services provided to these two types of clients. The Trustees observed, in this regard, that the differences in fee rates between institutional clients and mutual funds are by no means uniform when examined by individual asset sectors, suggesting that differences in the pricing of investment management services to these types of clients reflect to a substantial degree historical competitive forces operating in separate market places. The Trustees considered the fact that fee rates across different asset classes are typically higher on average for mutual funds than for institutional clients, as well as the differences between the services that Putnam Management provides to the Putnam funds and those that it provides to institutional clients of the firm, but did not rely on such comparisons to any significant extent in concluding that the management fees paid by your fund are reasonable.

13

Other information for shareholders

Important notice regarding share repurchase program

In September 2008, the Trustees of your fund approved the renewal of a share repurchase program that had been in effect since 2005. This renewal will allow your fund to repurchase, in the 12 months beginning October 8, 2008, up to 10% of the fund's common shares outstanding as of October 7, 2008. The repurchase program has been temporarily suspended for your fund pending the proposed merger of your fund into Putnam Tax-Free High Yield Fund.

Putnam's policy on confidentiality

In order to conduct business with our shareholders, we must obtain certain personal information such as account holders' addresses, telephone numbers, Social Security numbers, and the names of their financial representatives. We use this information to assign an account number and to help us maintain accurate records of transactions and account balances. It is our policy to protect the confidentiality of your information, whether or not you currently own shares of our funds, and, in particular, not to sell information about you or your accounts to outside marketing firms. We have safeguards in place designed to prevent unauthorized access to our computer systems and procedures to protect personal information from unauthorized use. Under certain circumstances, we share this information with outside vendors who provide services to us, such as mailing and proxy solicitation. In those cases, the service providers enter into confidentiality agreements with us, and we provide only the information necessary to process transactions and perform other services related to your account. We may also share this information with our Putnam affiliates to service your account or provide you with information about other Putnam products or services. It is also our policy to share account information with your financial representative, if you've listed one on your Putnam account. If you would like clarification about our confidentiality policies or have any questions or concerns, please don't hesitate to contact us at 1-800-225-1581, Monday through Friday, 8:30 a.m. to 8:00 p.m., or Saturdays from 9:00 a.m. to 5:00 p.m. Eastern Time.

Proxy voting

Putnam is committed to managing our mutual funds in the best interests of our shareholders. The Putnam funds' proxy voting guidelines and procedures, as well as information regarding how your fund voted proxies relating to portfolio securities during the 12-month period ended June 30, 2008, are available in the Individual Investors section of www.putnam.com, and on the SEC's Web site, www.sec.gov. If you have questions about finding forms on the SEC's Web site, you may call the SEC at 1-800-SEC-0330. You may also obtain the Putnam funds' proxy voting guidelines and procedures at no charge by calling Putnam's Shareholder Services at 1-800-225-1581.

Fund portfolio holdings

The fund will file a complete schedule of its portfolio holdings with the SEC for the first and third quarters of each fiscal year on Form N-Q. Shareholders may obtain the fund's Forms N-Q on the SEC's Web site at

www.sec.gov. In addition, the fund's Forms N-Q may be reviewed and copied at the SEC's Public Reference Room in Washington, D.C. You may call the SEC at 1-800-SEC-0330 for information about the SEC's Web site or the operation of the Public Reference Room.

14

Financial statements

These sections of the report, as well as the accompanying Notes, preceded by the Report of Independent Registered Public Accounting Firm, constitute the fund's financial statements.

The fund's portfolio lists all the fund's investments and their values as of the last day of the reporting period. Holdings are organized by asset type and industry sector, country, or state to show areas of concentration and diversification.

Statement of assets and liabilities shows how the fund's net assets and share price are determined. All investment and noninvestment assets are added together. Any unpaid expenses and other liabilities are subtracted from this total. The result is divided by the number of shares to determine the net asset value per share. (For funds with preferred shares, the amount subtracted from total assets includes the liquidation preference of preferred shares.)

Statement of operations shows the fund's net investment gain or loss. This is done by first adding up all the fund's earnings — from dividends and interest income — and subtracting its operating expenses to determine net investment income (or loss). Then, any net gain or loss the fund realized on the sales of its holdings — as well as any unrealized gains or losses over the period — is added to or subtracted from the net investment result to determine the fund's net gain or loss for the fiscal year.

Statement of changes in net assets shows how the fund's net assets were affected by the fund's net investment gain or loss, by distributions to shareholders, and by changes in the number of the fund's shares. It lists distributions and their sources (net investment income or realized capital gains) over the current reporting period and the most recent fiscal year-end. The distributions listed here may not match the sources listed in the Statement of operations because the distributions are determined on a tax basis and may be paid in a different period from the one in which they were earned.

Financial highlights provide an overview of the fund's investment results, per-share distributions, expense ratios, net investment income ratios, and portfolio turnover in one summary table, reflecting the five most recent reporting periods. In a semi-annual report, the highlight table also includes the current reporting period.

15

Report of Independent Registered Public Accounting Firm

The Board of Trustees and Shareholders
Putnam Managed Municipal Income Trust:

We have audited the accompanying statement of assets and liabilities of Putnam Managed Municipal Income Trust (the fund), including the fund's portfolio, as of October 31, 2008, and the related statement of operations for the year then ended, the statements of changes in net assets for each of the two years in the period then ended and the financial highlights for each of the five years in the period then ended. These financial statements and financial highlights are the responsibility of the fund's management. Our responsibility is to express an opinion on these financial statements and financial highlights based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform our audit to obtain reasonable assurance about whether the financial statements and financial highlights are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. Our procedures included confirmation of securities owned as of October 31, 2008 by correspondence with the custodian and brokers or by other appropriate auditing procedures. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements and financial highlights referred to above present fairly, in all material respects, the financial position of Putnam Managed Municipal Income Trust, as of October 31, 2008, the results of its operations for the year then ended, the changes in its net assets for each of the two years in the period then ended, and the financial highlights for each of the five years in the period then ended, in conformity with U.S. generally accepted accounting principles.

Boston, Massachusetts
December 15, 2008

16

The fund's portfolio 10/31/08

Key to abbreviations

AGO Assured Guaranty, Ltd.	FRN Floating Rate Notes
AMBAC AMBAC Indemnity Corporation	FSA Financial Security Assurance
COP Certificate of Participation	GNMA Coll. Government National Mortgage Association Collateralized
FGIC Financial Guaranty Insurance Company	G.O. Bonds General Obligation Bonds
FHA Insd. Federal Housing Administration Insured	MBIA MBIA Insurance Company
FNMA Coll. Federal National Mortgage Association Collateralized	U.S. Govt. Coll. U.S. Government Collateralized
FRB Floating Rate Bonds	VRDN Variable Rate Demand Notes

MUNICIPAL BONDS AND NOTES (151.9%)*	Rating**	Principal amount	
Alabama (0.8%)			
Butler, Indl. Dev. Board Solid Waste Disp. Rev. Bonds (GA. Pacific Corp.), 5 3/4s, 9/1/28	B	\$1,500,000	\$1,000,000
Courtland, Indl. Dev. Board Env. Impt. Rev. Bonds (Intl. Paper Co.), Ser. A, 5s, 11/1/13			
Sylacauga, Hlth. Care Auth. Rev. Bonds (Coosa Valley Med. Ctr.), Ser. A			
6s, 8/1/35	B/P	250,000	175,000
6s, 8/1/25	B/P	650,000	500,000
Arizona (3.8%)			
Apache Cnty., Indl. Dev. Auth. Poll. Control Rev. Bonds (Tucson Elec. Pwr. Co.)			
Ser. B, 5 7/8s, 3/1/33	Baa3	1,000,000	710,000
Ser. A, 5.85s, 3/1/28	Baa3	250,000	180,000

Edgar Filing: PUTNAM MANAGED MUNICIPAL INCOME TRUST - Form N-CSR

AZ Hlth. Fac. Auth. Hosp. Syst. Rev. Bonds (John C. Lincoln Hlth. Network), 6 3/8s, 12/1/37 (Prerefunded)	BBB	1,500,000	1,66
Casa Grande, Incl. Dev. Auth. Rev. Bonds (Casa Grande Regl. Med. Ctr.), Ser. A 7 5/8s, 12/1/29	B+/P	1,800,000	1,56
7 1/4s, 12/1/19	B+/P	1,000,000	91
Cochise Cnty., Incl. Dev. Auth. Rev. Bonds (Sierra Vista Regl. Hlth. Ctr.), Ser. A, 6.2s, 12/1/21	BB+/P	470,000	43
Coconino Cnty., Poll. Control Rev. Bonds (Tucson/Navajo Elec. Pwr.), Ser. A, 7 1/8s, 10/1/32	Baa3	3,750,000	3,00
Glendale, Incl. Dev. Auth. Rev. Bonds (John C. Lincoln Hlth.), Ser. B, 5 1/4s, 12/1/19	BBB	500,000	41
Maricopa Cnty., Poll. Control Rev. Bonds (Public Service Co. of New Mexico), Ser. A, 6.3s, 12/1/26	Baa3	535,000	42
Pima Cnty., Incl. Dev. Auth. Rev. Bonds (Tucson Elec. Pwr.), Ser. A, 6 3/8s, 9/1/29	Baa3	500,000	39
(Horizon Cmnty. Learning Ctr.), 5.05s, 6/1/25	BBB	1,140,000	85
Salt Verde, Fin. Corp. Gas Rev. Bonds 5 1/2s, 12/1/29	Aa3	2,000,000	1,40
5s, 12/1/37	Aa3	330,000	20
Scottsdale, Incl. Dev. Auth. Hosp. Rev. Bonds (Scottsdale Hlth. Care), Class A, 5 1/4s, 9/1/30	A3	1,000,000	78
Tempe, Incl. Dev. Auth. Sr. Living Rev. Bonds (Friendship Village), Ser. A, 5 3/8s, 12/1/13	BB□/P	500,000	47
Arkansas (2.4%)			13,46
AR State Hosp. Dev. Fin. Auth. Rev. Bonds (Washington Regl. Med. Ctr.), 7 3/8s, 2/1/29 (Prerefunded)	Baa1	4,600,000	4,88
Arkadelphia, Pub. Ed. Fac. Board Rev. Bonds (Ouachita Baptist U.), 6s, 3/1/33	BB/P	840,000	68
Independence Cnty., Poll. Control Rev. Bonds (Entergy AR, Inc.), 5s, 1/1/21	A□	1,400,000	1,23
Little Rock G.O. Bonds (Cap. Impt.), FSA, 3.95s, 4/1/19	Aaa	325,000	32
Springdale, Sales & Use Tax Rev. Bonds, FSA 4.05s, 7/1/26	Aaa	1,000,000	93
4s, 7/1/27	Aaa	710,000	64
California (9.5%)			8,70
ABAG Fin. Auth. COP (American Baptist Homes), Ser. A, 6.2s, 10/1/27	BBB□	345,000	29
CA Hlth. Fac. Fin. Auth. Rev. Bonds AMBAC, 5.293s, 7/1/17	AA	3,400,000	3,38
(CA-NV Methodist), 5s, 7/1/26	A+	740,000	63

Edgar Filing: PUTNAM MANAGED MUNICIPAL INCOME TRUST - Form N-CSR

CA Poll. Control Fin. Auth. Rev. Bonds (Pacific Gas & Electric Corp.), Class D, FGIC, 4 3/4s, 12/1/23	A	2,500,000	1,89
CA Poll. Control Fin. Auth. VRDN (Pacific Gas & Electric Corp.), Ser. E, 0.85s, 11/1/26	VMIG1	3,000,000	3,00
CA Poll. Control Fin. Auth. Solid Waste Disp. FRB (Waste Management, Inc.), Ser. C, 2.08s, 11/1/23	BBB	2,150,000	1,50
CA Poll. Control Fin. Auth. Solid Waste Disp. Rev. Bonds (Waste Management, Inc.), Ser. A-2, 5.4s, 4/1/25	BBB	1,760,000	1,25
CA Statewide Cmnty. Dev. Auth. COP (The Internext Group), 5 3/8s, 4/1/30	BBB	3,950,000	2,99

17

MUNICIPAL BONDS AND NOTES (151.9%)* <i>cont.</i>	Rating**	Principal amount	Val
<i>California cont.</i>			
CA Statewide Cmnty., Dev. Auth. Rev. Bonds (Thomas Jefferson School of Law), Ser. A, 7 1/4s, 10/1/38	BB+	\$560,000	\$454,
Cathedral City, Impt. Board Act of 1915 Special Assmt. Bonds (Cove Impt. Dist.), Ser. 04-02 5.05s, 9/2/35	BB+/P	1,040,000	717,
5s, 9/2/30	BB+/P	250,000	178,
Chula Vista, Cmnty. Fac. Dist. Special Tax Rev. Bonds (No. 06-1 Eastlake Woods Area), 6.1s, 9/1/21	BBB/P	1,000,000	887,
(No. 07-1 Otay Ranch Village Eleven), 5.8s, 9/1/28	BB/P	290,000	236,
Chula Vista, Indl. Dev. Rev. Bonds (San Diego Gas), Ser. B, 5s, 12/1/27	A1	1,490,000	1,095,
Corona, COP (Vista Hosp. Syst.), zero %, 7/1/29 (In default) ^F	D/P	10,775,000	118,
Folsom, Special Tax Rev. Bonds (Cmnty. Facs. Dist. No. 10), 5 7/8s, 9/1/28 (Prerefunded)	AAA/P	1,100,000	1,160,
Foothill/Eastern Corridor Agcy. Rev. Bonds (CA Toll Roads), 5 3/4s, 1/15/40	Baa3	2,000,000	1,602,
Golden State Tobacco Securitization Corp. Rev. Bonds, Ser. A-1, 5s, 6/1/33	BBB	750,000	475,
Irvine, Impt. Board Act of 1915 Special Assmt. Bonds (No. 00-18 Group 3), 5.55s, 9/2/26	BBB/P	500,000	417,
Orange Cnty., Cmnty. Fac. Dist. Special Tax Bonds (Ladera Ranch No. 02-1), Ser. A, 5.55s, 8/15/33	BBB/P	900,000	668,
Poway, Unified School Dist. Cmnty. Facs. Special Tax Bonds (Dist. No. 14- Area A), 5 1/8s, 9/1/26	BB□/P	850,000	635,
Roseville, Natural Gas Fin. Auth. Rev. Bonds, 5s, 2/15/12	A2	400,000	382,
Sacramento, Special Tax (North Natomas Cmnty. Fac.), Ser. 4-C, 6s, 9/1/33	BBB/P	1,245,000	1,000,
Santaluz, Cmnty. Facs. Dist. No. 2 Special Tax Rev. Bonds (Impt. Area No. 1), Ser. B, 6 3/8s, 9/1/30	BBB/P	3,075,000	2,607,

Edgar Filing: PUTNAM MANAGED MUNICIPAL INCOME TRUST - Form N-CSR

Sunnyvale, Special Tax Rev. Bonds (Cmnty. Fac. Dist. No. 1), 7 3/4s, 8/1/32	BB□/P	835,000	791,
Thousand Oaks, Cmnty. Fac. Dist. Special Tax Rev. Bonds (Marketplace 94-1), zero %, 9/1/14	B/P	2,805,000	1,796,
Vernon, Natural Gas Fin. Auth. Mandatory Put Bonds, Ser. A-4, MBIA, 5s, 8/3/09	AA	3,780,000	3,763,
			33,948,
Colorado (3.2%)			
CO Edl. & Cultural Fac. Auth. VRDN (National Jewish Federation Bond), Ser. C-2, 1.3s, 3/1/36	VMIG1	600,000	600,
CO Hlth. Fac. Auth. Rev. Bonds (Christian Living Cmnty.), Ser. A, 5 3/4s, 1/1/26	BB□/P	425,000	321,
(Valley View Hosp. Assn.), 5 1/2s, 5/15/28	BBB	3,495,000	2,772,
(Evangelical Lutheran), 5 1/4s, 6/1/23	A3	1,000,000	843,
CO Pub. Hwy. Auth. Rev. Bonds (E-470 Pub. Hwy.), Ser. B zero %, 9/1/35 (Prerefunded)	Aaa	15,500,000	2,228,
zero %, 9/1/34 (Prerefunded)	Aaa	16,500,000	2,559,
CO Pub. Hwy. Auth. Rev. Bonds (E-470 Pub. Hwy.), Ser. C1, MBIA, 5 1/2s, 9/1/24	AA	1,000,000	941,
Denver, City & Cnty. Arpt. Rev. Bonds, Ser. D, AMBAC, 7 3/4s, 11/15/13	AA	930,000	996,
Denver, City & Cnty. Special Fac. Arpt. Rev. Bonds (United Airlines), Ser. A, 5 1/4s, 10/1/32	B□	325,000	146,
			11,409,
Connecticut (0.9%)			
CT State Dev. Auth. 1st. Mtg. Gross Rev. Hlth. Care Rev. Bonds (Elim Street Park Baptist, Inc.), 5.85s, 12/1/33	BBB+&		