How Different is Detroit: A story in pictures

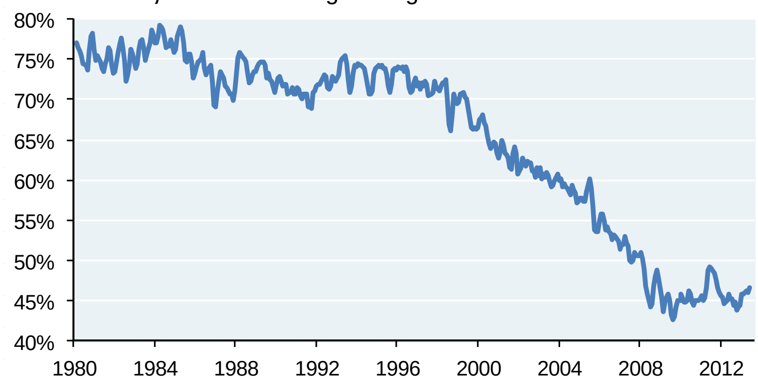
The state-appointed emergency manager ("EM") of Detroit has proposed writedowns of 80%-90% on holders of Detroit general obligation bonds[1], as well as substantial reductions in pension fund and healthcare obligations to retired city employees. The plan: Detroit will emerge from Chapter 9 bankruptcy early in the fall of 2014 with its slate of obligations practically wiped clean. This may be ambitious, given legal challenges and precedents involving the state constitution of Michigan. The important point, in my view, is not so much about Detroit. As shown below, it has been known for some time that Detroit is a very weak credit. In broad strokes, Detroit's credit deterioration matches the decline in sales of the Big 3 auto companies as a % of total US auto sales[2]. **What's more important for municipal investors: how different is Detroit from other city municipal issuers they own, particularly as it relates to general obligation bonds secured by the promise of levying taxes? Is Detroit a paradigm or an outlier?** There are two factors to consider: a city's economic strength, and its finances.

Ratings on Detroit's Uninsured General Obligation Bonds

	Moody's	Standard & Poor's	Fitch
Jun-98	Baa1	A-	A-
Jun-03	Baa1	A-	A
Jun-04	Baa1	A-	A
Jun-05	Baa1	BBB+	BBB+
Jun-06	Baa2	BBB	BBB
Jun-07	Baa2	BBB	BBB
Jun-08	Baa2	BBB	BBB
Jun-09	Ba2	BB	BB
Jun-10	Ba3	BB	BB
Jun-11	Ba3	BB	BB-
Jun-12	B3	B	CCC
Jul-13	Ca	C	C

Source: Moody's, Standard & Poor's, Fitch. July 2013.

Sales of Big 3 auto companies as a percent of total US auto sales, 3-month moving average

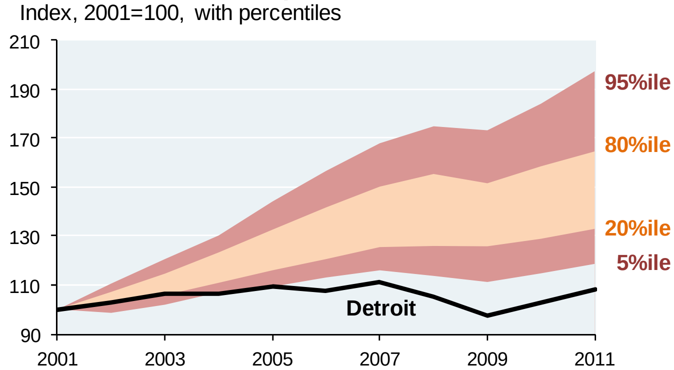


Source: J.P. Morgan Securities. Big 3 = GM, Ford, and Chrysler. June 2013.

Economic fundamentals: Detroit vs. the nation

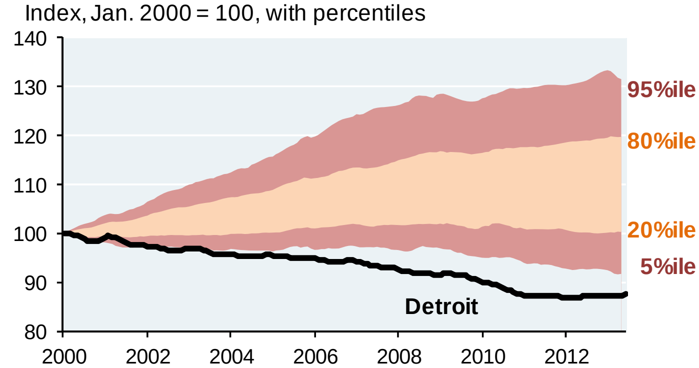
One way to compare Detroit to other cities is to look at Metropolitan Statistical Areas (MSAs), which are defined by the Office of Management and Budget and used by the Census Bureau and other agencies to compile data. At last count, there were 381 MSAs in the US. When thinking about Detroit, let's start with the stagnation in output and decline in its labor force, particularly as problems in the US auto industry intensified and created multiplier effects elsewhere. The charts below show the distribution of changes in Gross Metropolitan Product (a proxy for output) and labor force growth for all MSAs, with 95th, 80th, 20th and 5th percentiles highlighted (100th percentile = best). As shown, Detroit ranks very low on both (e.g., in the 1st and 2nd percentiles).

Growth in Gross Metropolitan Product
Index, 2001=100, with percentiles



Source: BEA. 2011.

Labor force growth (employed + unemployed)
Index, Jan. 2000 = 100, with percentiles



Source: Bureau of Labor Statistics, JPMAM. May 2013.

1 **The largest losses are likely to accrue to holders of unsecured general obligation bonds**. Detroit's essential service agency debt (water, sewer) serve townships outside of Detroit and are secured by net revenues of the systems, and are not expected to suffer substantial losses. Detroit's EM proposed exchanging some essential service debt for debt with weaker protections (bondholders would be subordinated to ongoing "transactional payments" to the City of Detroit); it is unclear whether bondholders will accept the idea. Other short term essential service debt (Class A) would be called. There are also *secured* GO bonds whose security is state aid payments from Michigan; these bonds are expected to be treated the same as the essential service debt. As for Detroit Metropolitan Airport, Detroit's bankruptcy should not have any immediate credit or rating impact given airport revenues as security, and its incorporation in Wayne County.

2 In the 1960's, Detroit had a 90% share of the American passenger car market. Its long decline happens to coincide with the publication of Ralph Nader's *Unsafe at Any Speed: The Designed-In Dangers of the American Automobile* in 1965.

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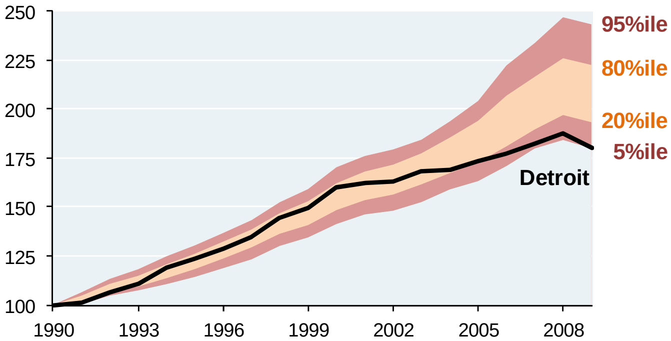
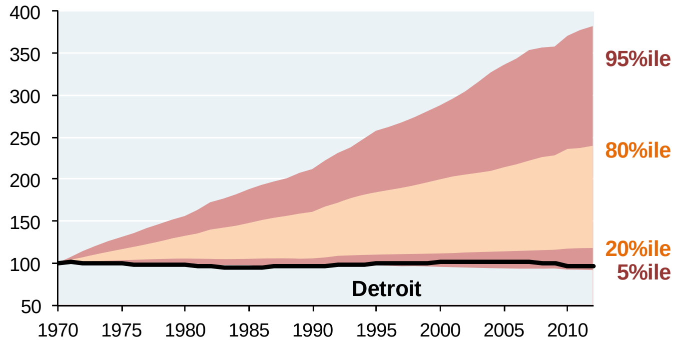
Detroit's labor force and demographic changes have created some unsustainable dynamics. According to the 2012 annual report of the Detroit Police & Fire Pension, there are 3,200 active workers and 9,300 beneficiaries, while in Chicago, there are 12,000 active workers and 13,000 beneficiaries. **As shown below, weak output and labor force growth unsurprisingly coincide with weakness in personal income and population growth, where Detroit ranks around the 5th percentile**.

Growth in personal income per capita
Index, 1990=100, with percentiles



Source: BEA. 2009.

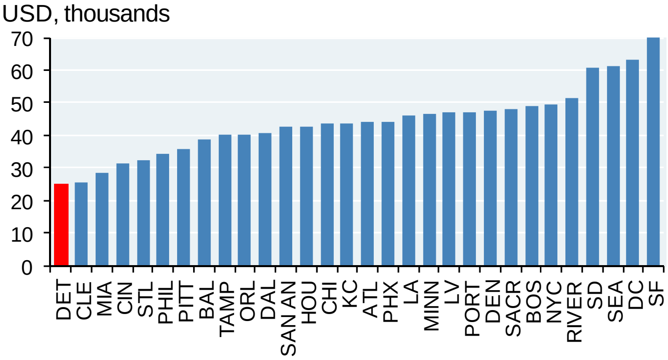
MSA-level population growth
Index, 1970 = 100, with percentiles



Source: US Census, JPMAM. 2012.

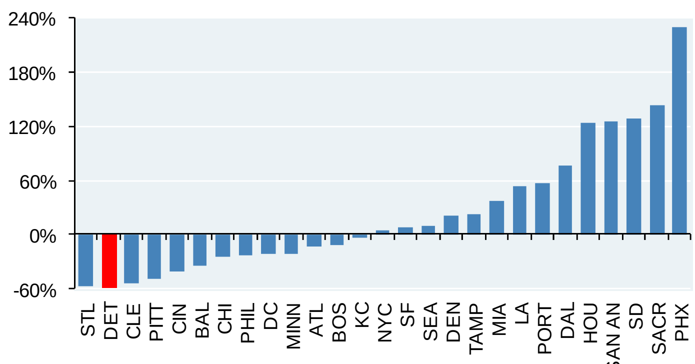
However, this is where MSA definitions obscure even more challenging demographics. The MSA for Detroit, for example, includes Warren, Livonia and other towns whose fundamentals are modestly better than Detroit itself. Other Census data look at "city-proper" statistics. The two charts below show median household income and change in population over the last 50 years for 30 cities analyzed by the Census as part of the 2007-2011 American Community Survey. Detroit is in very difficult shape: low household income, and a population that fell in half since 1960. According to Brookings, only 30% of the jobs within the city of Detroit are held by city residents; the rest live outside the city.

Median household income
USD, thousands



Source: Pew Research - American Cities Project, US Census. 2011.

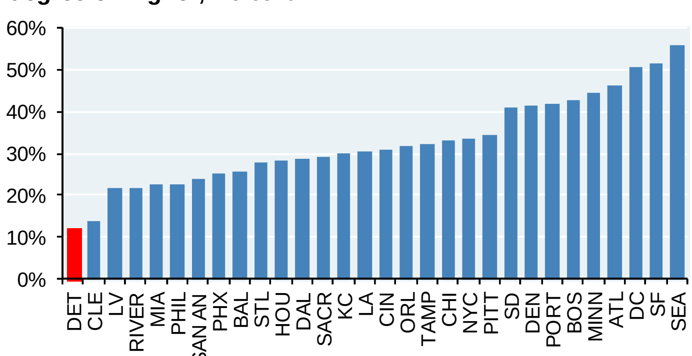
Change in city-proper population from 1960 to 2010
Percent



Source: US Census. 2010.

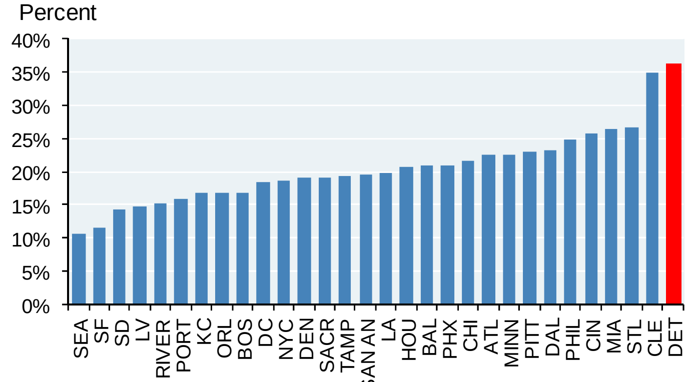
Here are three final charts cementing Detroit's ranking as perhaps the most troubled major city in the country: the penetration of advanced educational degrees, adults below the poverty line, and violent crime.

Percent of population over 25 years old with bachelor's degree or higher, Percent



Source: 2007-2011 American Community Survey, US Census. 2011.

Percent of individuals below poverty line
Percent



Source: US Census. 2009.

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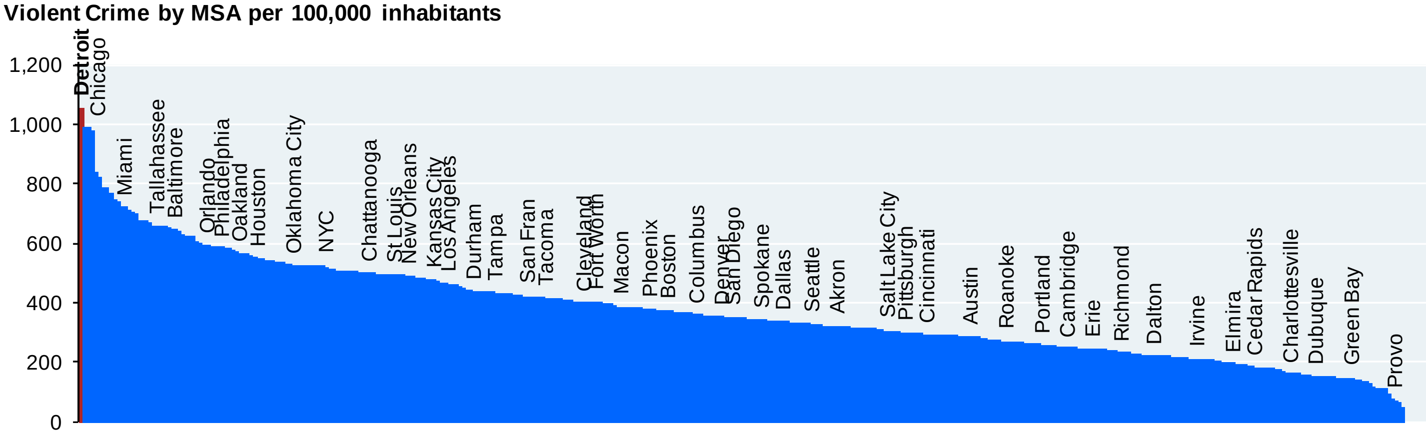
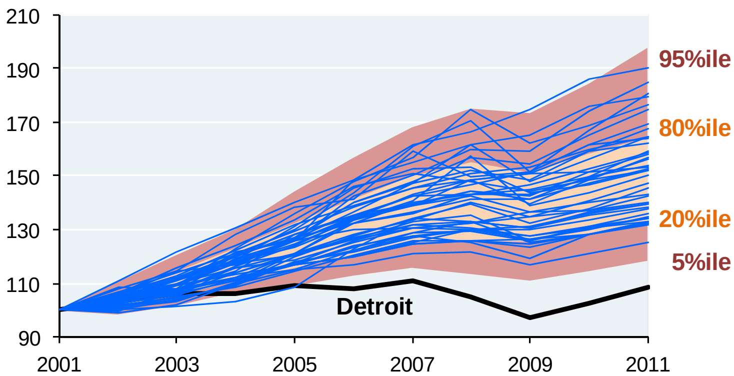
Violent Crime by MSA per 100,000 inhabitants



Source: Federal Bureau of Investigation, 2011

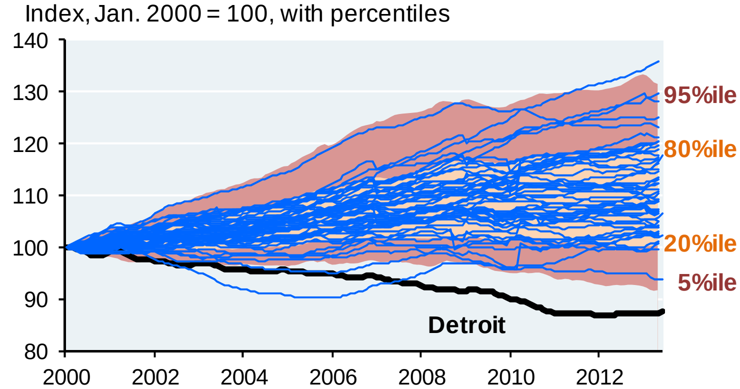
As mentioned on the first page, the more important issue for municipal investors is how similar or different their city GO holdings are from Detroit. I asked our municipal bond managers for a list of the 70 largest city GO issuers that they held in their portfolios as of June 2013. These issuers comprise ~70% of all their city GO exposures. We mapped these issuers into their respective MSAs, and show their **economic fundamentals in blue** in the charts below. In general, the distribution of their holdings shows considerably stronger economic dynamics than Detroit. There are a lot of factors involved in assessing municipal credit risk (debt, future liabilities, legal security, fiscal performance, tax base, financial guarantees, etc), but these charts capture the substantially better output, labor, income and population[3] trends in their holdings compared to Detroit.

Growth in Gross Metropolitan Product
Index, 2001=100, with percentiles



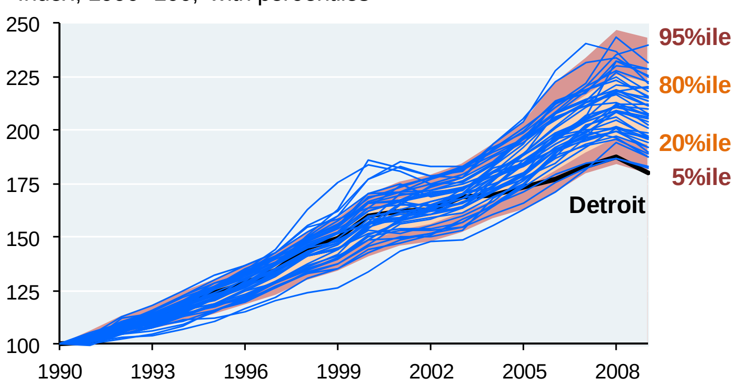
Source: BEA. 2011.

Labor force growth (employed + unemployed)
Index, Jan. 2000 = 100, with percentiles



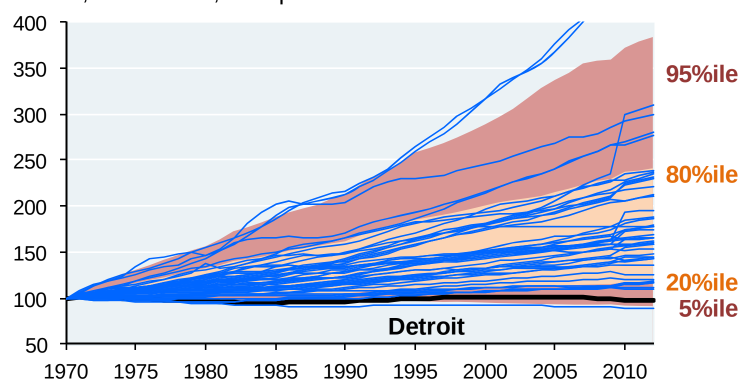
Source: Bureau of Labor Statistics, JPMAM. May 2013.

Growth in personal income per capita
Index, 1990=100, with percentiles



Source: BEA. 2009.

MSA-level population growth
Index, 1970 = 100, with percentiles



Source: US Census, JPMAM. 2012.

Blue lines represent mapping of our portfolio managers' municipal city GO issuers into MSAs and their respective economic characteristics

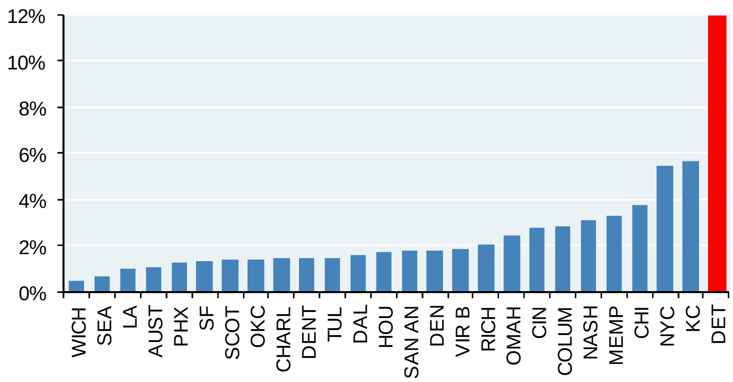
[3] In the population chart, there are some large upward revisions in calendar year 2010 that coincide with the Decennial Census.

How Different is Detroit: A story in pictures

<u>Debt fundamentals: Detroit vs. the nation</u>

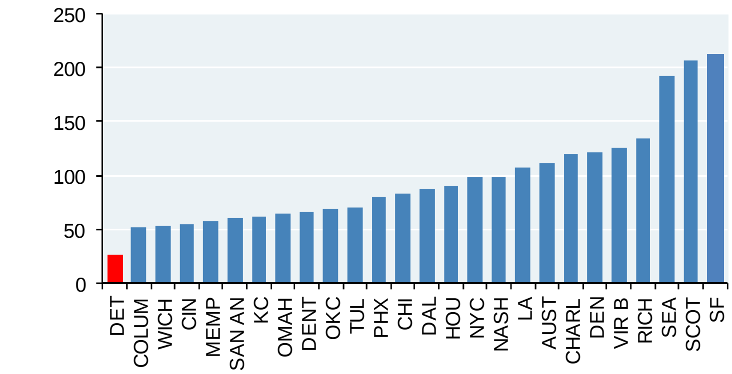
Any consideration of municipal credit risk has to focus on both funded debt and unfunded liabilities. In other words, debt that has already been issued, and unfunded amounts related to pensions and healthcare obligations. To compare cities, obligations have to be scaled relative to something that relates to a city's ability to pay. The first chart below computes the ratio of each city's general obligation debt to the market value of its property tax base[4]. The cities in the chart are the 25 largest city GO issuers held by our municipal bond managers, and also Detroit. [Note: the Detroit bar includes general obligation debt and certificates of participation]. **Detroit, once again, is in a league of its own.** The second chart below is another way to look at Detroit's problem: the market value of its property tax base per capita is a fraction of other cities. We did not show it earlier, but we have also compared Detroit's home price changes since 1991 to other MSAs; Detroit ranks in the 3rd percentile.

G.O. debt as a percent of the total value of the property tax base



Source: Merritt Credit Database, J.P.Morgan Asset Management. June 2013.

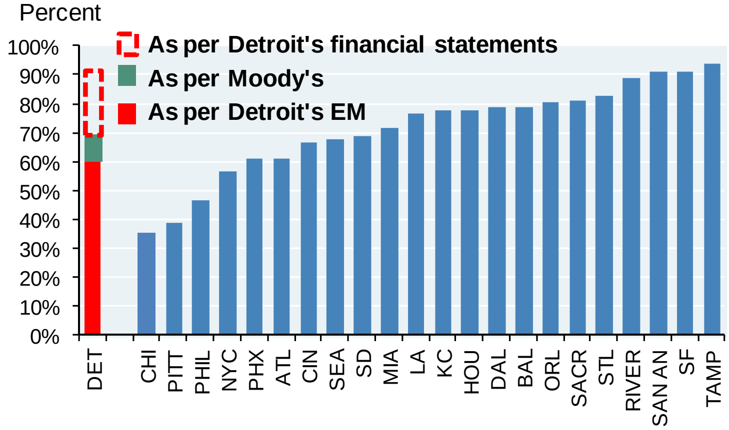
Total value of the property tax base per capita
USD, thousands



Source: Merritt Credit Database, J.P.Morgan Asset Management. June 2013.

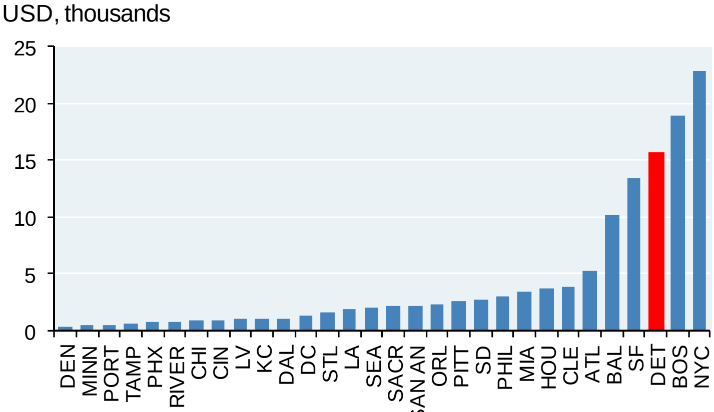
As for *un*funded obligations, Detroit's latest financial statements cite an unfunded liability of $640 mm for its pension plan (for a funded ratio of 91%). However, Moody's cites $3.0 billion (funded ratio of 69%), and Detroit's EM cites $3.5 billion (funded ratio of ~60%). The differences are most likely a function of discount rate assumptions; all three estimates are shown below relative to other city pension funding ratios. The second chart shows Detroit's retiree health care obligation per household alongside other cities analyzed by Pew Research in their American Cities Project. There are considerable differences between pension and healthcare obligations in states like Michigan: pension plans are protected by the state's constitution, while retiree health care obligations are statutory, and can be changed at will by the state legislature. When taken at face value, Detroit's retiree health burden is 1.5x the size of its underfunded pension.

Pension plan funding ratio
Percent



Source: Merritt Credit Database, Moody's, JPMAM. 2011.

Unfunded retiree health care liability per household
USD, thousands



Source: Pew Research - American Cities Project. 2009.

[4] The property tax base is a useful measure for scaling *city*-level debt, given the importance of property taxes to most cities. **According to the US Census 2011 Annual Survey of State and Local Government Finances, property taxes make up ~75% of total city tax receipts.** Scaling a *state's* debt by its property tax base makes less sense: 83% of state tax revenues come from sales and income taxes.

How Different is Detroit: A story in pictures

While pension plan funding levels cited by Moody's for Detroit are low, they are not critically out of whack compared to other cities (see chart above). Where Detroit runs into trouble is that its operating cash flow is in very poor shape given the economic weakness cited on prior pages. Detroit's income tax revenues have fallen by ~30% since 2002; its property tax and total tax revenues have declined by 20% since 2007; and its overall General Fund revenues have fallen by 25%. According to Detroit's EM, if unadjusted, retiree pension and health care claims will consume 65% of city tax revenues by 2017, up from 39% in 2012. The city's cash position was negative in 2012, negative in April of this year, and the city is projected to have another $200 mm cash shortfall next year as well. This is *after* draconian cuts to city services (fire, police, ambulance, traffic lights, parks, etc) and curtailed maintenance of Detroit's electricity and transportation grids. With this backdrop, Detroit defaulted on its debt and has begun deferring pension contributions.

Detroit's differences outweigh its similarities

What makes Detroit different is its elevated funded and unfunded obligations, the decline in tax receipts, and the poor state of its economy and infrastructure. Unfortunately for bondholders, tax increases are not an answer: corporate and personal tax rates in Detroit are already the highest in the state, making restructuring inevitable. **As city GO issuers go, if I *had* to choose, I would describe Detroit as more of an outlier than a paradigm**. The table below shows all of American's economically challenged big cities: MSAs with at least 500,000 people whose average economic percentile is 25% or worse, using our five measures. **Even within this troubled group, Detroit stands out as having the worst overall economic and fiscal mix**.

MSAs with the poorest economic trends (of MSAs with at least 500,000 people)

		Percentile based on changes in the following: (0 = worst, 100 = best)											
MSA	Population (thousands)	Non-farm payrolls	Population	Labor force	Personal Income	Gross Metr. Product	**Average percentile**	City	GO debt % property tax base	Property tax base $k per cap	Fund balance % of expenditures	Debt service, Pension and OPEB contrib % of gen fund expenditures	Average age of PPE (infrastr.)
Detroit-Warren-Livonia, MI	4,292	7%	10%	1%	5%	2%	5%	Detroit	12%	$ 27	-27%	49%	21.6
Akron, OH	702	38%	12%	27%	27%	23%	26%	Akron	5%	$ 43	7%	75%	15.7
Buffalo-Niagara Falls, NY	1,134	12%	2%	16%	31%	35%	19%	Buffalo	4%	$ 26	27%	31%	13.1
Chicago-Napervill-Jolet, IL-IN-WI	9,522	26%	23%	26%	28%	26%	26%	Chicago	4%	$ 83	8%	45%	13.4
Cleveland-Elyria-Mentor, OH	2,064	9%	5%	8%	7%	10%	8%	Cleveland	3%	$ 40	11%	32%	14.3
Dayton, OH	801	5%	6%	7%	11%	5%	7%	Dayton	2%	$ 35	38%	#N/A	17.7
Rochester, NY	1,082	16%	17%	14%	15%	21%	16%	Rochester	2%	$ 28	15%	17%	12.9
Springfield, MA	626	7%	10%	18%	36%	18%	17%	Springfield	3%	$ 51	17%	18%	17.8
St Louis MO	2,796	25%	15%	18%	34%	20%	22%	St Louis	4%	$ 55	12%	#N/A	12.7
Syracuse, NY	661	11%	13%	14%	24%	29%	18%	Syracuse	7%	$ 30	24%	65%	22.6
Toledo, OH	609	14%	7%	9%	3%	10%	9%	Toledo	2%	$ 38	0%	#N/A	19.4
Youngstn-Warren-Boardmn, OH	558	6%	3%	7%	13%	4%	6%	Youngstown	7%	$ 23	17%	#N/A	10.6

Sources: Census Bureau, BEA, BLS, Merritt Credit Database, JPMAM. 2012.

There will likely be more city bankruptcies in the years ahead, but the visibility around Detroit's problems and those of similarly-positioned cities should allow defensive-minded municipal portfolio managers to avoid large exposures to the biggest problems. Going forward, all eyes will be on Chicago. While its economic situation is substantially better than Detroit and its GO debt to property tax base is lower, it shares some of the same budgetary problems on retiree pensions and healthcare as a % of general fund expenditures, and is located in a state with more fiscal problems than Michigan.

Why are municipal bankruptcies so complicated? There are some **unresolved inconsistencies between Federal law and State law**, a consequence of efforts by states to effectively prioritize retiree claims. See the Appendix on the following page for more details. On the margin, the local politics and emotions involved argue for considerable caution regarding risky local municipal issuers.

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J.P. Morgan Asset Management

BEA = Bureau of Economic Analysis; EM= Emergency Manager; GO = General obligation; MSA = Metropolitan Statistical Area

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Appendix: municipal bankruptcy, the U.S. Constitution and State's Rights[5]

- A municipality can only file for bankruptcy under Chapter 9—the municipal bankruptcy provisions— if its state authorizes them to do so. Around half of all US states allow for municipalities to file for bankruptcy; the rest do not. Chapter 9 is only for cities; US states are not permitted to file for bankruptcy. Historically, Chapter 9 has mostly been used by small municipalities, but recent filings by Vallejo (CA), Jefferson County (AL), Central Falls (RI), Stockton (CA) and San Bernardino (CA) have changed that.
- In Michigan, the state's municipal distress statute authorizes the appointment of an emergency manager who can terminate or restructure contracts with municipal employees. The emergency manager displaces the city's governing body and other decision-makers, and has 45 days to create a financial and operating plan for the city. If the emergency manager concludes that the financial distress cannot be fixed, he can ask the governor to authorize a bankruptcy.
- Some states have made minor adjustments to pension schemes for existing employees and retirees. They have been minor, since the laws of most states make efforts to alter obligations to current retirees difficult. Even in bankruptcy, the ability to alter claims is unclear. **How should Federal bankruptcy law, which argues for equal treatment of creditors, be judged against state law indicating that one creditor class is effectively untouchable?** There is an active legal debate going on as to how to resolve this apparent inconsistency between Federal and State law:

The "Federalist" Argument: the Constitution authorizes Congress to pass laws related to bankruptcy, and the Congress has chosen to require equal treatment of creditors:	**The "State Right's" Argument: States can do what they want, and in many of them, state legislators don't want retiree pensions interfered with:**
US Constitution: Article I, Section 8, Clause 4 • "The Congress shall have Power …To establish a uniform rule of naturalization, and uniform laws on the subject of bankruptcies throughout the United States"	United States Constitution: 10th Amendment • "The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people"
US Bankruptcy law: Chapter 9 referencing Chapter 11: • "The court, on request of the proponent of the plan, shall confirm the plan notwithstanding the requirements of such paragraph if the plan does not discriminate unfairly, and is fair and equitable, with respect to each class of claims or interests that is impaired under, and has not accepted, the plan"	Michigan State Constitution: Article IX, Section 24: • "The accrued financial benefits of each pension plan and retirement system of the state and its political subdivision shall be a contractual obligation thereof which shall not be diminished or impaired thereby. Financial benefits arising on account of service rendered in each fiscal year shall be funded during that year and such funding shall not be used for financing unfunded accrued liabilities"

Here are a few examples of municipal bankruptcies underway; the question above has not yet been definitively resolved.

- In Central Falls (RI), retiree pensions will be restructured. However, the decision was agreed to by the pensioners themselves, leaving unresolved for now the issue of how the courts would rule if a pension restructuring were not mutually agreed to. Another oddity about Central Falls: just prior to its bankruptcy, Rhode Island converted its unsecured general obligation bonds to secured special revenue bonds through legislative fiat, which improved their standing substantially.
- Stockton (CA) took the opposite approach from Central Falls and prioritized retirees over bondholders. Stockton filed for Chapter 9 relief a year ago, and promised in advance not to make any changes in retiree payments. Stockton defaulted on bondholders and proposed substantial delays in future payments. CalPERS, which administers the Stockton retirement plan, has taken the position that obligations to retirees cannot be modified, even in bankruptcy. As of July 2013, while the Bankruptcy Court has issued 5 decisions on Stockton's bankruptcy, none resolved the question of whether a plan that leaves retiree pensions unimpaired but impairs bondholders is "fair" (an important concept as described above), or whether the city can assume pension-related agreements over the objection of capital markets creditors.
- To make matters more complicated, a court ruling in the Vallejo (CA) bankruptcy suggests that Federal law *trumps* California state law, and that cities *do* have the right to reject executory contracts despite state efforts to impose its own law into the bankruptcy process. In Vallejo, both bondholders and retirees were forced to make sacrifices (which is not what Stockton is proposing). The Bankruptcy Court upheld Vallejo's decision to reject current collective bargaining agreements, it rejected retiree claims for unpaid benefits, and it rejected an injunction designed to prevent a reduction in payments.
- In San Bernardino, the presiding federal judge will appoint a mediator to arbitrate talks between the City and creditors. The judge has not yet ruled on the City's bankruptcy petition, preferring to give these discussions a chance to produce some kind of agreement between the parties. The City is operating under a temporary plan developed in November 2012 and implemented under the City's fiscal 2013 and fiscal 2014 budgets.

[5] This section draws from the following papers: "*Is Bankruptcy the Answer For Troubled Cities and States?*", David A. Skeel, Jr., University of Pennsylvania, March 2013; and "*Fairness and Risk in Stockton*", C. Scott Pryor, Regent University School of Law, July 2013.

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