U.S. Municipal Bond Market

Impact on U.S. Municipals from the Latest Chapter of the Russian-Ukrainian Conflict

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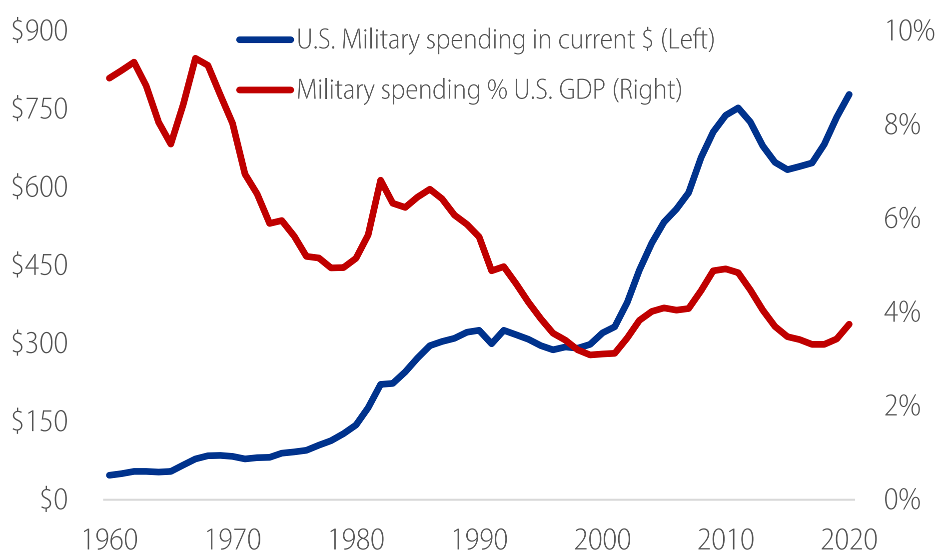
- Treasury and municipal yields are still lower compared to where they were before Russia's conventional, large-scale invasion of Ukraine began last week. We expect more interest rate volatility in the near-term as news from the invasion battles FOMC March meeting speculation.
- Municipal bond primary market supply has been much lower than we expected at the end of 2021. We are almost certainly going to revise our forecast in April.
- We have seen $5.7 billion flow out of municipal funds since the beginning of 2022. Buyer interest remains shaky at best.
- Germany announced a doubling of military spending in response to Russia's aggression in Ukraine. We think it is possible that the U.S. increases military spending in coming years and select pockets of public finance would benefit if this occurred.
- We have not seen a significant increase of cyber-attacks in the U.S., but lawmakers are preparing and bi-partisan cyber related legislation just unanimously passed the Senate – that is a good sign it could become law.

We Could See an Increase in U.S. Military Spending in Coming Years



Source: World Bank, SIPRI, and HilltopSecurities.

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Yields Lower Still After Conventional Invasion of Ukraine by Russia

On Feb. 24 Russian Vladimir Putin announced a "special military operation" in Eastern Ukraine. This, in fact, was the beginning of the large-scale, conventional invasion of country of Ukraine from the north, south, and east by Russian military. This invasion has been ongoing since last week and has only increased the uncertainty municipal bond investors faced since the beginning of 2022. U.S. Treasury yields fells sharply but recovered to levels somewhat closer to municipal yields yesterday, after Fed Chair Jerome Powell testified before Congress when he stresses that he expects only a 25 basis point move higher when the FOMC meets on March 16. Municipal yields rose slightly yesterday as well. We expect more interest rate volatility in the near-term as news from the invasion battles FOMC March meeting news.

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U.S. Treasury Yields Recovered Closer to AAA MMD Yields Mid-Week

Index	18-Feb-2022	22-Feb-2022	23-Feb-2022	24-Feb-2022	25-Feb-2022	28-Feb-2022	1-Mar-2022	2-Mar-2022	Feb 23 to Mar 1 Change	Feb 23 to Mar 2 Change
AAA MMD (10 Year)	1.65	1.65	1.65	1.57	1.60	1.58	1.53	1.56		
Day-to-Day Change		0.00	0.00	-0.08	0.03	-0.02	-0.05	0.03	-0.12	-0.09
U.S. Treasury (10 Year)	1.93	1.94	1.98	1.95	1.99	1.85	1.71	1.86		
Day-to-Day Change		0.01	0.04	-0.03	0.04	-0.14	-0.14	0.15	-0.27	-0.12
M/T Ratio	85%	85%	83%	81%	80%	85%	89%	84%		

Source: Refinitiv Municipal Market Data (MMD) and HilltopSecurities.

Municipal Supply – Much Lower than Expected to Begin 2022

February municipal bond supply came in at only $26.5 billion, which is about $1.5 billion below the nine-year average we have seen for February issuance. This is the second month in a row municipal primary market issuance has been below the recent nine-year average. January 2022 issuance was only $25.2 billion, which was about $2 billion below the January nine-year average. New money issuance has not come-in anywhere near as strong as we expected to begin the year. The big miss so far this year has been on the refunding side. In the first two months of the 2022 refunding issuance has only been 22% of the total $51.6 billion of bond sales. A little over three months ago we forecast total issuance for 2022 at $495 billion, a record amount. We expected refunding issuance to be about 30% of that. Both of these expectations are all but exhausted even at this early part of the year. We will be revising our issuance forecast most likely in April. Until then, we will try to work through whether we see overall issuance being closer to $450 billion, or even much lower potentially near $400 billion. One thing is clear, the landscape in March of 2022 is much different than what we expected toward the end of last year.

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Municipal Demand – Buyer Interest is Shaky at Best

At the end of 2021 there were questions about whether the strong investor demand for municipals we saw in 2019 and 2020 was going to continue. The strong appetite continued in December when almost $4 billion was deposited into municipal funds. That made net flows into municipals total $65.7 billion for all of 2021. Investor appetite has quickly shifted where municipal flows are concerned to begin the new year.

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Another important factor influencing almost all aspects of the municipal bond market in 2022 has been on the demand side. In short, investor demand has been shaky. This could be because a supply of attractively priced bonds has been low, it could be because of interest rate and Fed related uncertainty, it could be because of war related uncertainty, and it also could be because of other technical and qualitative factors. In the first eight weeks of the year we have already seen $5.7 billion flow out of municipal bond funds. Today, Thursday March 3, we very well could see another outflow. It is very possible if not likely that the current dynamic results in net outflows for at least the next few weeks. Currently there is nothing that is likely to stabilize this investor behavior.

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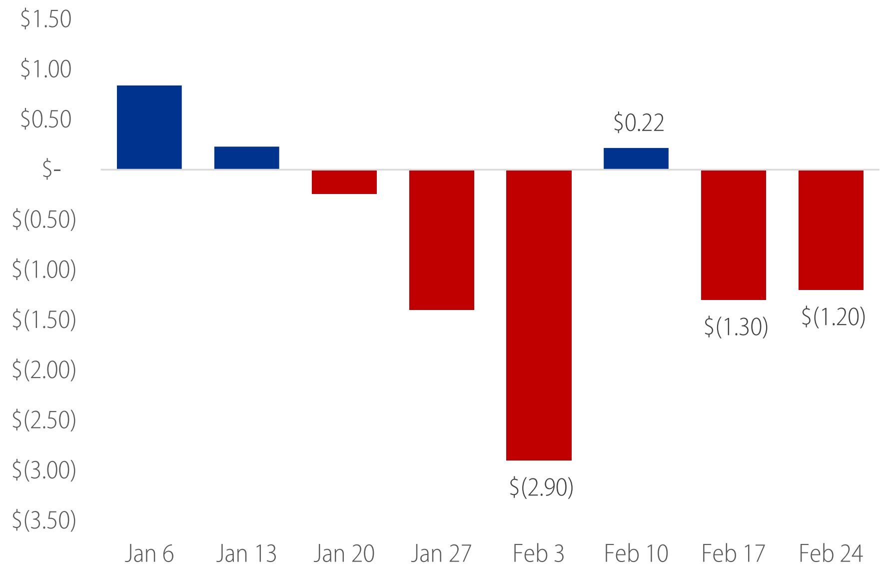
Almost $6 Billion Flowed Out of Municipal Funds in 2022 So Far



Source: Lipper and HilltopSecurities. ***(Weekly municipal flows, $ in billions)***

Market predictability will remain choppy until this factor stabilizes. All this makes the argument that it is still a buyers' market, problem is that buyers do not seem to be jumping in to take advantage of more favorable M/T ratios and other opportunities as quickly as they once were. To begin the year we saw 30 year investment grade related hospital yields climb toward 3.00% yields, and this started to get retail investors involved at a pace we had not seen for some time. The 30 year "A" rated Hospital proxy published by Refinitiv MMD peaked at a 2.75% on Feb. 16, but this has since fallen to a 2.62% as of March 2nd.

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U.S. Defense Spending Could Ramp Up

Over the weekend (Feb. 27) Germany announced they plan to commit $112 billion to military spending. That is more than double what Germany has been spending on its military and would move the country into 4th as military spending is concerned worldwide. German Chancellor Olaf Scholz also said Germany would supply Ukraine with weapons including 1,000 anti-tank weapons and 500 surface-to-air missiles as soon as possible.

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Top 15 Countries Ranked by Military Spending

Rank	Country	Military Spending ($ in billions)	% of GDP	% of global spending
	World Total	1,981	2.4	100.0%
1	United States	778	3.7	39.0%
2	China	252	1.7	13.0%
3	India	72.9	2.9	3.7%
4	Russia	61.7	4.3	3.1%
5	United Kingdom	59.2	2.7	3.0%
6	Saudi Arabia	57.5	8.4	2.9%
7	Germany	52.8	1.4	2.7%
8	France	52.7	2.1	2.7%
9	Japan	49.1	1	2.5%
10	South Korea	45.7	2.8	2.3%
11	Italy	28.9	1.6	1.5%
12	Australia	27.5	2.1	1.4%
13	Canada	20.8	1.3	1.1%
14	Israel	21.7	5.6	1.1%
15	Brazil	19.7	1.4	1.0%

Source: SIPRI Military Expenditure Database, April 2021.

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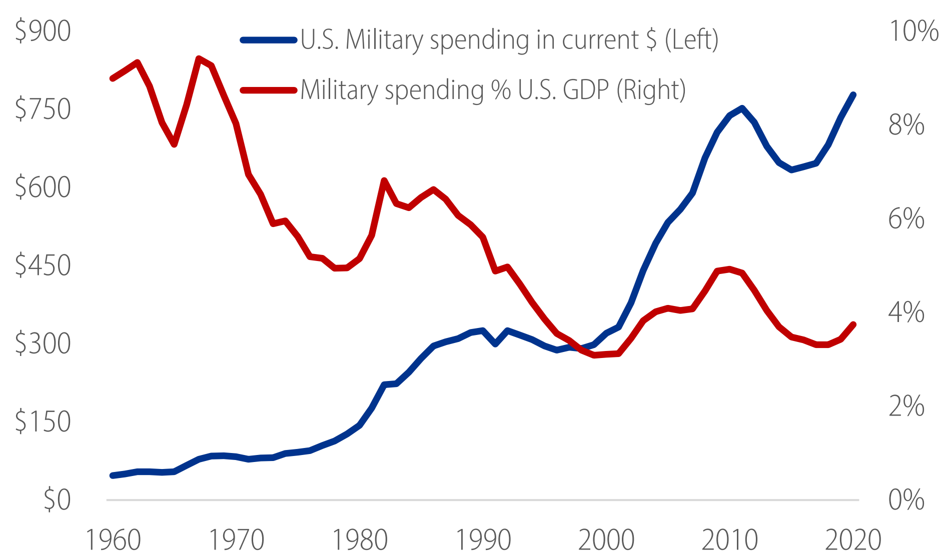
The U.S. military's "force structure" was called into question even before last week's Russian invasion. Although U.S. military spending started to rise in dollars and as a % of GDP toward the end of the last decade it is still no where close to where it was before the Great Recession (as a % of GDP) and in in terms of dollars it is just above where it was before the world Financial Crisis. Some military preparedness experts have been arguing that U.S. has not been ready for the circumstances that could arise throughout the globe.

We Could See an Increase in U.S. Military Spending in Coming Years



Source: World Bank, SIPRI, and HilltopSecurities.

In an October 2021 analysis, "U.S. Military Forces in FY 2022: Peering Into the Abyss — The Budget and Strategy Overview" the Center for Strategic and International Studies (CSIS) highlighted that the "no-growth" pattern of U.S. military spending was a problem. The CSIS report highlights that, "If that [no-growth pattern] continues, force structure will shrink rapidly. It is likely this impact will be accentuated with rising inflation.

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The threat we are now seeing develop in eastern Europe could cause U.S. lawmakers to increase military spending if the appropriate make-up of lawmakers exists in Washington. An increase in military spending could have negative implications on the U.S. deficit, and could also have negative implications on domestic spending in other areas of the U.S. budget. There could be a positive impact to public finance entities that would benefit from higher levels of military related spending in specific geographic areas of the country, those near military bases and installations, and those connected directly or indirectly with defense contractors.

Importance of Cyber, Likelihood of Cyber-Attacks on Pub Finance & Infrastructure

When Russia attacked Ukraine last week we questioned if war in Eastern Europe would lead to cyber-attacks on U.S. public finance and infrastructure targets. This has not materialized a week after the initial waves, however we think the likelihood of cyber attacks from Russia, Russian sponsored, and organizations siding with Russia is high in the near term still.

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The U.S. Cybersecurity & Infrastructure Security Agency (CISA) indicated the following in their recent "Shields Up" alert:

> While there are no specific or credible cyber threats to the U.S. homeland at this time, Russia's unprovoked attack on Ukraine, which has involved cyber-attacks on Ukrainian government and critical infrastructure organizations, may impact organizations both within and beyond the region, particularly in the wake of costs imposed by the United States and our Allies. Every organization—large and small—must be prepared to respond to disruptive cyber activity.

The President Joe Biden signed an Executive Order meant to strengthen U.S. cyber defense in the beginning of the summer of 2021. This is the May 12, 2021 EO on Improving the Nation's Cybersecurity. President Biden called cybersecurity a "core national security challenge" also last summer. It was surprising, if not even troubling that the President did not stress the importance of cybersecurity in this week's State of the Union. However, the President and D.C. lawmakers are taken action on this topic. President Biden took action where cyber is concerned to begin 2022. He signed a memo that sought to increase the preparedness of U.S. agencies from hacking and cyber activity. In a February speech at the U.S. State Department President Biden also said, "We are launching an urgent initiative to improve our capability, readiness and resilience in cyberspace."

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Cyber Related Legislation Unanimously Passes U.S. Senate

To begin this week the U.S. Senate, recognizing the increased risk cyber attacks on U.S. targets, unanimously passed cyber related legislation that would require the private sector to notify the U.S. Cybersecurity and Infrastructure Security Agency (CISA) within a specific period of time. The Strengthening American Cybersecurity Act of 2022 is not directly related to public finance entities, but steps such as this could indirectly support public finance especially as it seeks to increase the amount of federal cooperation among agencies. It is not very often that legislation unanimously passes a chamber that is not controlled by one party or another. Therefore, it is very possible this legislation could pass the House, and be signed into law in one form or another. Timing now is uncertain.

Recent HilltopSecurities Municipal Commentary

- Will War in Eastern Europe Lead to Cyber-Attacks on U.S. Public Finance & Infrastructure, Feb. 24, 2022
- REVISED: The Municipal Market in 2022, Due to the COVID-19 Paradigm Shift, Feb. 7, 2022
- January Housing Finance Agency Prepayment Report, Delinquency Trends, and Outlook, Jan. 27, 2022

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