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Municipal bond sectors: resilient in times of uncertainty

Insights from

Nuveen Municipal Credit Research

Many investors are concerned about the potential for a prolonged economic downturn. If that were to happen, municipal credit should show resilience, due to unprecedented federal pandemic stimulus support, strong reserves and revenue collections, and the ability to adjust budgets. During past downturns, muni defaults have been limited and concentrated among more esoteric credits. Most municipal issuers provide essential services and generally have a long history of functioning through varying economic cycles. We expect this to continue.

ECONOMIC DOWNTURNS HAVE AFFECTED SECTORS DIFFERENTLY

	Potential impact of a downturn	Page reference
States and local governments	Low	2
Higher education	Medium	2
Health care	Medium	3
Toll roads	Low	3
Ports	Low	4
Airports	Low	4
Airlines	Low	5
Industrial development revenue/pollution control revenue (IDR/PCR)	High/Low	5
Land secured	Medium	6
Charter schools	Low	6
Long-term care	High	7
Public power	Low	8
Municipal issuers	–	8

STATE AND LOCAL GOVERNMENTS RECOVER QUICKLY

State and local governments recovered quickly from the pandemic, and credit quality in the tax-backed sector has remained resilient. The Coronavirus Aid, Relief and Economic Security Act (CARES Act) and American Rescue Plan Act (ARPA) together provided \$500 billion in federal aid to state, local and territorial governments.

This funding helped offset revenue declines and addressed the health, economic and fiscal impacts of the pandemic. It enabled states to balance their budgets and avoid state funding cuts for schools, health care and state revenue shared with locals.

The unprecedented federal aid, strong economic growth and employment trends all bolstered state and local government tax revenues in 2021. The positive growth continued into the first quarter of 2022, with total state and local government tax revenues up 4.7% from the fourth quarter of 2021, and up 15.9% versus the first quarter of 2021.

Additionally, state and local government balance sheets remain historically high. Median fund balances for all Moody's rated cities and counties stood at an ample 41% and 38% of operating revenue, respectively, as of FY20. In FY21, states grew their collective rainy day funds by \$37.7 billion, driving the total held to a record \$114.6 billion.

Unlike 15 years ago, sizeable reserves now put state and local governments in a much stronger position to weather an economic downturn. Credits that historically exhibit expenditure pressures may be impacted the most by a recession, given the current inflationary environment that puts upward pressure on wages, borrowing costs and pension liabilities. Similar to the Great Recession, officials would look to raise tax rates, cut service spending and/or draw down reserves to close projected budget gaps.

Local government and school district general obligation (GO) bonds are largely secured by ad valorem property taxes, which are not expected to experience widespread decline even in a recession. If assessed values decline, property tax levy adjustments will help these governments maintain revenues. Notably, the 2009 recession produced just a 3% reduction in property tax receipts that was eventually realized in the third quarter of 2010. The 2001 recession saw no reduction.

Additionally, states are less likely to consider cuts to shared revenues given their historically stronger reserve positions. States and larger cities that tend to depend more on sales tax receipts or other economically sensitive revenue streams may be more vulnerable.

HIGHER EDUCATION RESULTS ARE VARIED

The higher ed sector continues to recover from enrollment and revenue declines experienced during the pandemic. Undergraduate enrollment declined for the third year in a row, falling nearly 5% in spring 2022 and driven by a nearly 8% decline at community colleges.

Undergraduate enrollment at private nonprofit higher ed institutions and public four-year institutions fell 2% and 3%, respectively, this spring. Though enrollment declines have pressured revenues, many colleges and universities have responded swiftly by trimming expenses.

Liquidity is robust, as colleges and universities received \$80 billion in federal stimulus aid due to the pandemic. Strong investment returns through FY21 increased balance sheet liquidity. While some gains have surely been given back during the recent market downturn, we anticipate balance sheet ratios will generally remain strong in the near term.

We believe a potential recession would impact various higher education institutions differently. The strongest credits would likely see minimal impact on student demand and revenues, while the more vulnerable credits would experience additional pressure on enrollment and student



\$115B

**RAINY DAY
FUND TOTAL**

derived revenues. Though the sector may face some challenges in a potential recession, institutions have flexibility to adjust expenses and draw on reserves to manage through any softness in revenues.

Small private colleges and universities located in demographically challenged areas struggled with student demand and finances prior to the pandemic. These negative trends have been accelerated in some cases over the past two years. A potential recession would likely hit these institutions the hardest and could result in credit challenges. However, the vast majority of higher ed institutions would be expected to manage through a recession with modest credit impact.

HEALTH CARE FACES SPIKES IN OPERATING EXPENSES

Hospital and health system volumes have largely returned to pre-pandemic levels, with the accompanying revenues. Hospitals received significant federal stimulus funding over the past two years, though this funding is now ending.

The biggest hurdle for hospitals in the current environment are spikes in operating expenses, particularly for staffing. Staffing costs (salaries, wages and benefits) make up more than 50% of the typical hospital's cost structure. Staffing shortages had been partially addressed by the increased use of agency nurses at much greater cost than in-house staff. These higher expenses are beginning to wane, with the declining cost and use of outside agency staff.

Still, for most hospitals, operating margins for the first half of 2022 are off significantly from the prior year. Full year results will likely be well behind prior years as well. The combination of inflation and lingering staffing shortages may well delay full recovery from these weaker margins.

Balance sheets for most hospitals – at least those of any size – remain strong, with ample liquidity and manageable debt burdens. Some of this liquidity had been enhanced by favorable investment markets in past years and the receipt of significant amounts through CMS (i.e, Medicare) advances during the pandemic.

The more recent market environment has eroded some of this liquidity, as has the repayment of the CMS advances (which have mostly been repaid at this point). With strong overall liquidity heading into the pandemic, recent declines shouldn't create significant credit concerns for most hospitals.

A recessionary environment would provide headwinds, potentially slowing improvement in margins. However, strong balance sheets and robust demand for services should be more than adequate to shield most hospitals from any severe erosion in credit quality. As a sector, hospitals remain solid and well-positioned to adjust to changing circumstances.

As usual, small, rural hospitals are most at risk, with weaker balance sheets and other resources, as well as less flexibility to adjust to revenue/volume disruptions and cost spikes. Those that cannot partner with larger providers are likely to struggle and face increased ratings pressure.

TOLL ROADS REACH PRE-PANDEMIC LEVELS

Toll roads recovered relatively quickly from the pandemic, with traffic levels rebounding faster than anticipated once government restrictions were eased. Vehicle miles traveled (VMT) in America during April 2020 declined 39% versus the prior year and reached the lowest level reported since 1994. As economic activity steadily improved over the ensuing 12 months, VMT during April 2021 had already rebounded to 95% of April 2019 activity.

Coming into calendar year 2022, many experts forecasted that traffic levels nationwide would finally reach pre-pandemic levels. Despite rising gasoline prices during the first half of 2022, VMT through the first five months of 2022 was at 99% of activity shown during the first five months of 2019.



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Almost all public toll roads are classified as mature entities, with lengthy operating histories and a track record of surviving prior downturns. Annual traffic growth generally correlates to overall GDP, so we anticipate traffic levels and revenue generation should deteriorate somewhat during any forthcoming recessionary environment. Most seasoned toll roads have unconstrained legal capacity to raise toll rates and generally demonstrate good elasticity of demand after doing so.

Toll roads that rely heavily on commuter traffic are most susceptible to an economic downturn if job losses are greater than expected. Looking ahead, however, we believe the implementation of autonomous vehicles in America will likely increase VMT on our nation's toll roads. Longer journeys will be more tenable for commuters if they can complete other tasks while not having to drive. Also, autonomous vehicles travel more precisely and safely than a conventional car and should reduce traffic congestion and induce greater demand. Time savings from reduced congestion could draw users from other forms of transportation.

PORTS MANAGE HIGH LEVELS OF CARGO

The strong global demand for goods translated into record cargo volumes at the nation's major container ports. Import volume through the first six months of 2022 totaled 15.17 million shipping containers, for a 5.0% gain over the same point of 2021. While imports may slow in the second half of this year and into 2023, congestion remains an issue at the primary ports, and overall cargo volume for 2022 is expected to be above last year's annual record.

High volumes of cargo have led to strong port revenue and record profitability. Cruise activity has also ramped up, although passenger levels remain below the pre-pandemic peak.

U.S. ports did not receive stimulus funding directly from the federal government under the CARES Act or ARPA. In some instances, public ports received a share of money from their state's allocation of federal Covid relief funds. For example, state lawmakers in both California and Florida set aside \$250 million of their ARPA allocation to help the state's seaports.

Falling consumer demand for goods may help ease supply chain pressures, but it will take time for shipping rates to normalize and the backlog at ports to diminish. The port sector is facing additional stress from labor unrest and contract negotiations with dockworkers, railroad unions and truckers. Worker stoppage is likely to impede the flow of trade, decrease port productivity and increase labor costs.

Port credits are generally unaffected by short-term labor disputes or temporarily reduced throughput levels. Contractually guaranteed revenues protect ports from volatility during an uncertain operating environment. As much as 70% or more of a port's operating revenues may be covered through minimum annual guarantees. Many U.S. ports have strong cash positions, which also provide financial flexibility in a downturn.

AIRPORTS ENJOY A STRONG RECOVERY

The airport sector took longer than many ground transportation sectors to see passenger traffic recover from the Covid lows, but airports are now in the midst of a strong recovery. Most airports are observing passenger traffic at or near pre-pandemic levels. Domestic leisure travel is now exceeding pre-Covid levels at many airports, while international and business-related travel are beginning to show signs of growth. TSA daily checkpoint travel data during June 2022 was approximately 90% of the June 2019 average.



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Liquidity was strong heading into the pandemic in early 2020, further bolstered by three rounds of federal financial support totaling \$20 billion. The strong liquidity provided flexibility for airports to manage the significant shock to revenue and cash flow, which are now recovering.

While a recessionary environment may reduce the pace of recovery in air travel, pent-up demand should support a continued gradual recovery in passenger volumes.

In typical recessionary environments, the airport sector has experienced reduced volumes and revenues. However, given the ongoing pent-up demand for air travel supporting the current recovery, we expect the airport sector should experience a level of resiliency in the near term, compared to historical recessionary environments.

Airports with robust liquidity and lower debt metrics that are located in regions of the U.S. with solid demographic trends should be less impacted by a recession versus highly leveraged airports with high exposure to international and business travel.

AIRLINES BENEFIT FROM PENT-UP DEMAND

The airline sector continues to recover from Covid-induced lockdowns, with capacity and revenue levels at or above pre-pandemic levels. However, high fuel prices, wages and other operational costs are negatively impacting EBITDA and margins relative to pre-pandemic levels. That said, the airline sector bolstered balance sheets with federal support, receiving \$14 billion from the ARPA, \$25 billion from the CARES Act and \$15 billion under CRRSA.

In 2020 and 2021, the airline sector benefitted from secondary market support from the Federal Reserve, which led to attractive opportunities to raise capital in both the debt and equity markets to support liquidity until more normal air travel volume resumed. United, Delta and American raised billions of dollars by securitizing their frequent flyer rewards program in a new debt security structure.

While a recession would typically lead to reduced airline volume and revenue, the pent-up demand and ongoing robust recovery from two years of significantly reduced passenger traffic continue to offset recession risk. This demand side recovery should result in a level of resiliency relative to historical recessionary environments.

Most airline bonds finance airport-related facilities that are essential to airline operations, even when these operations are downsized. Many of these airline bonds have security interests in the essential facilities financed by these bonds. This key feature has supported the resiliency of these types of bonds through previous economic downturns and airline bankruptcies.

INDUSTRIAL DEVELOPMENT REVENUE/POLLUTION CONTROL REVENUE (IDR/PCR) REACTS DIFFERENTLY IN A RECESSION

While commodity prices in general have declined from post pandemic highs, most remain above historical averages. The elevated environment supports the revenues of many corporate-backed industrial development revenue bonds where the borrower benefits from a strong commodity pricing environment. Some examples include steel, power, fertilizer, refined products and chemicals.

Many corporations have taken advantage of the robust free cash flow environment to pay down debt and improve balance sheets. U.S. Steel, for example, generated more than \$3 billion in free cash flow during 2021, leading to debt reduction and increased cash on the balance sheet.

A broad based recession, or even a stagflation environment, could ultimately lead to some demand pressure and less pricing power for the IDB sector. The sector is generally cyclical and sensitive to the overall U.S. economy. Should the

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**FEDERAL STIMULUS
SUPPORT TO AIRLINES**

U.S. economy continue to show negative GDP in the coming quarters, we would expect the IDB sector to experience a pullback in earnings.

In a recessionary environment, we expect pollution control revenue (PCR) bonds issued by regulated utilities to be less impacted compared to the more GDP-sensitive IDR segment. Regulated utilities provide a necessary end product (electricity and gas delivery) and generally have good working relationships with regulatory authorities that provide for cost recovery.

LAND-SECURED BENEFITS FROM CHANGING BUYER PREFERENCES

The credit quality of the land-secured sector is generally correlated with the strength of the housing market. As such, the sector has been on a relatively stable path since the Great Recession. Since the start of the pandemic, the housing market has experienced a significant upturn, primarily due to the federal government's response and a change in buyer preferences as a result of work from home mandates.

The average home price in the United States increased by 41% from the fourth quarter of 2009 through the fourth quarter of 2019 (4.1% annualized rate). We believe that indirect benefits to consumers from federal fiscal stimulus and low interest rates helped spur housing demand since the beginning of the pandemic. For reference, the average home price in the United States increased by 37% from first quarter 2020 through first quarter 2022 (a 14.8% annualized rate).

We believe that the housing market will react differently in a recession now versus during the Great Recession, as some factors leading to the collapse of the housing market in the previous recession are not prevalent today. Further, pent-

up housing demand should provide a key level of support to the housing market.

While new home construction activity has experienced strong growth in recent years, it has failed to keep pace with the rapid increase in new household formations. Roughly 3.88 million new single-family homes were constructed throughout the country from 2018 through 2021, falling well short of the 7.28 million in new household formations over the same period (new construction meeting approximately 53% of demand).

Preliminary data from 2022 show improved support, with construction supporting 72% of new household formations for the year. Many developments are setting new records for construction pace to meet strong buyer demand.

Credits of more seasoned developments in strong locations should remain resilient through a recession, whereas newer developments in tertiary locations will be more at risk. Further, land-secured deals structured as limited tax bonds may be more at risk, as they depend on a certain amount of homes to be constructed at a certain price to generate a sufficient tax base to pay debt service relative to the more standard land-secured bonds that are paid from special assessments where payment is not dependent on such factors.

CHARTER SCHOOLS SHOW INCREASED ENROLLMENT

Charter schools fared quite well during the pandemic, with stable to slightly improving credit quality. Though the pandemic posed challenges for education in general, charter schools benefited from some of the instability seen in their public school districts. In the 2020-21 school year, enrollment at charter schools increased 7% while enrollment at public district schools declined 3%.

Liquidity and revenues are up due to sizeable federal stimulus relief funding during the pandemic. Charter schools, as part of the K-12 education system, received a total of nearly \$190 million in federal stimulus funding (known as ESSER funding). They also received funding in the form of Paycheck Protection Loans, which were largely forgiven and thus directly boosted liquidity.



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State per pupil funding – charter schools’ largest revenue source – flowed without interruption in FY20 and FY21 as states also received significant federal support for K-12 education. State per pupil funding is generally up for FY22 and FY23 due to a stronger than expected economic recovery and state revenues exceeding expectations.

With such a heavy reliance on state funding for revenues and no taxing authority, charter schools could be adversely impacted by reduced state funding in a recession. Unlike 15 years ago, however, states have more cushion to withstand revenue declines, delaying the need for cuts. On the expense side, wage inflation is a concern, particularly with teacher shortages and the challenges in attracting and retaining teachers. Favorably though, public schools (which includes charter schools) have until FY24 to spend ESSER monies, and the third round of ESSER funding was also the largest at \$122 million.

According to a recent study conducted by the U.S. Department of Education, as published in *The Wall Street Journal*, public K-12 schools across the country cumulatively have about 93% of their ESSER III money left to spend through September 2024. This unspent money, along with higher cash levels, gives charter schools some financial flexibility to withstand potential revenue and inflationary expense pressure if the economy were to go into a recession.

While federal relief funding was instrumental in helping charter schools withstand the challenges of the pandemic, it is onetime in nature and does not mask structural issues. As ESSER funds are spent, schools that suffered from declining enrollment and weak finances prior to the pandemic will likely be the most challenged as enrollment is the primary revenue driver.

Schools with above-average debt financing costs relative to revenues may also be the most impacted in a recession, particularly given the current inflationary environment, as this leaves less money available to spend on operations. Another area of vulnerability includes schools that spent significant portions of ESSER money on recurring expenses, as they will have to absorb these costs into their budget without a corresponding revenue source.

LONG-TERM CARE FACES CHALLENGES

2022 is likely to be a challenging year. Occupancy is slowly recovering but continues to lag and inflation is weakening credit strength. Ultimately, we expect a return to normalcy given strong demographics, but not all credits will make it through without disruption.

While long-term care benefitted from the first round of Covid supplementary funding, the industry was generally ignored through the second and third rounds of federal stimulus. Senior living facilities, which provide housing to the most vulnerable population, bore the brunt of the impact. While some communities have weathered the storm with minimal impact, most have seen occupancies decline in all levels of care (especially health care). This has pushed down revenues and forced many communities to dip into cash reserves.

Additionally, the cost of labor, especially nursing, started to spike dramatically toward the end of 2021. With hospitals scrambling for nurses, long-term care facilities were unable to compete, forcing some to reduce capacity and others to swallow a significant spike in labor costs.

Bad press during the initial months of the Covid outbreak generated increased political and regulatory oversight. While most not-for-profit borrowers were already staffing at levels above the minimums, some now face increased staffing mandates without any additional funding.

After initially announcing cuts, Medicare recently announced a surprise 2.7% increase to nursing home reimbursements in 2023. While welcome, this increase falls short of inflation and well below what the American Health Care Association requested. Most state Medicaid programs have also failed to keep pace with the cost of nursing care.



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The sector still poses significant downside risk and we expect to see another round of defaults in the coming year, but there may be some opportunity in the sector for credits with sufficient cash and good enough management to weather the storm.

PUBLIC POWER REMAINS DEFENSIVE

The pandemic did not have a significant impact on the public power sector as a whole due to the essential nature of these services. While many investors were concerned about declines in commercial and industrial sales, these declines were largely offset by increases in residential sales. Sales have recovered as the pandemic restrictions have eased.

Climate change has been a significant factor for the sector, as extreme weather events (most notably in Texas and in the West) have driven fuel price volatility, liability for wildfires and lower power production at hydroelectric projects. As states ramp up requirements for carbon free power sources with higher renewable portfolio standards (RPS), public power borrowers will need to increase capital expenditures. Similarly, borrowers will undertake transmission projects to access renewable energy sources, such as wind and solar projects.

Recent volatility in oil and gas prices has increased costs for electric utilities. Natural gas has become the largest fuel source, reaching a high of 38% of total U.S. generation in 2021. At the same time, coal has declined, accounting for just 22% of generation. As a result, higher gas prices will have a larger impact on power costs than in the past. Most borrowers can pass through costs to customers,

often via automatic fuel cost rate adjustments. The vast majority of public power borrowers have autonomous rate making authority so they are able to raise rates as necessary to cover costs. But nevertheless it may be difficult politically for some utilities to raise rates.

We do not expect public power to see significant deterioration with a recession. In fact, if a recession results in declining oil and gas prices, electric utilities can pass savings on to customers, and have more flexibility to raise rates to cover other costs if necessary. If public power borrowers see declines in demand because of a recession, they would have the ability to raise rates to maintain required debt service coverage levels.

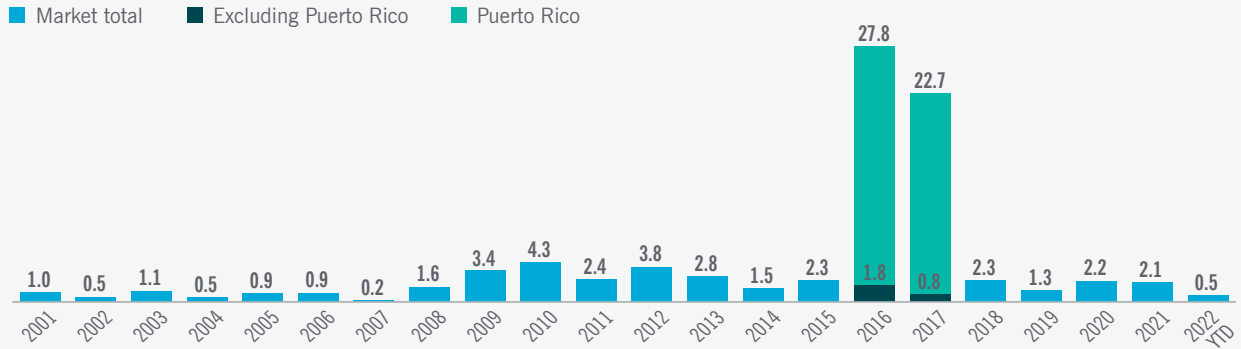
We consider the public power sector to be pretty defensive in a recession. There are a handful of electric utilities that have revenue concentration in a small number of industrial customers; if the recession resulted in closures of those businesses, there could be a negative credit impact on those borrowers.

MUNICIPAL ISSUERS HAVE FUNCTIONED WELL THROUGH VARYING ECONOMIC CYCLES

Municipal defaults tend to be idiosyncratic and represent a very small percentage of the overall market. Only \$2.1 billion par value defaulted in 2021, or only 0.05% of the \$4 trillion municipal market (Figure 1). In general, we believe downgrades are more likely than defaults. In fact, the percentage of ratings upgrades have exceeded downgrades since 2015 (Figure 2).

Figure 1: Defaults remain in line with historical trends

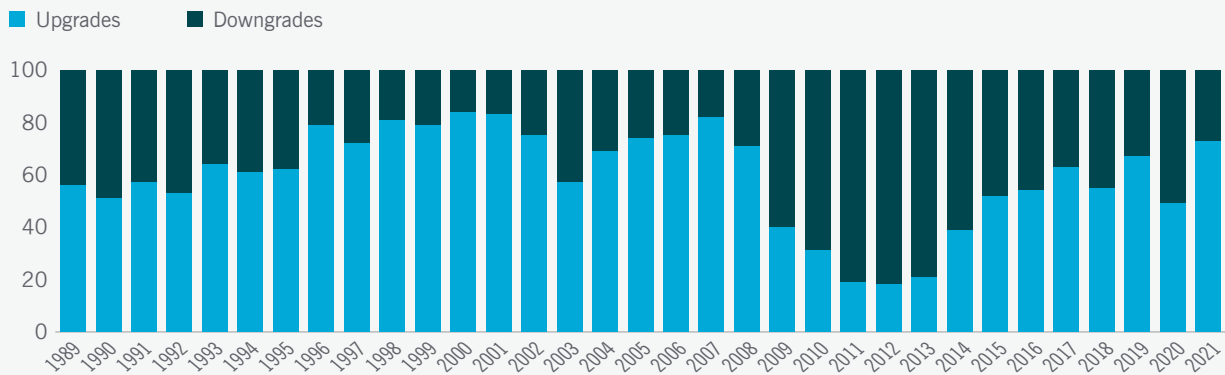
Municipal payment defaults (\$ billions)



Data sources: Bank of America/Merrill Lynch Research, 08 Jul 2022, default data as of 30 Jun 2022. Past performance does not predict or guarantee future results. Data represents defaults on the entire universe of bonds, both rated and unrated, and includes Puerto Rico defaults.

Figure 2: Ratings upgrades have continued to exceed downgrades in recent history

Percentage of rating changes for public finance



Data sources: Moody's Investors Service, Quarterly and Annual Municipal Rating Revisions, 1989 - 2021. Past performance does not predict or guarantee future results.

For more information, please visit nuveen.com.

Endnotes

Sources

State and local tax information: U.S. Census Bureau; state and local balance sheets: Moody's May 2022 Median Report); undergraduate enrollment: National Student Clearinghouse Research Center; vehicle miles traveled: Federal Reserve Economic Data; U.S. home prices: Saint Louis Federal Reserve;

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