



DUFF & PHELPS
INVESTMENT MANAGEMENT CO.

2023 OUTLOOK

LISTED REAL ASSETS

December 2022



David Grumhaus

President and Chief Investment Officer

After three years of double-digit gains, the stock market struggled in 2022, with both the S&P 500 and the MSCI World Index falling double-digits for the year. Investors are anxious to move beyond this year's inflation and rising interest rates, but we think 2023 will require more patience. The market wants everything to happen quickly and can be petulant if it does not, but we think things are going to play out slowly in 2023. As a result, we expect the market to show its displeasure for at least the first half of 2023 before finding some footing in the back half.

The market wants the Federal Reserve to not only pause interest rate increases but to cut rates later in 2023. We expect the Fed to stay vigilant. While we think the Fed will pause in February or March, we expect them to hold at that peak rate through 2023. The driver of this, of course, is inflation. Like a model rocket, inflation shoots up quickly but parachutes down slowly, and we do not expect this time to be any different, especially given the very strong labor market.

The Fed will have to work very hard to get wages back in check, with Fed members openly discussing the need to push the unemployment rate meaningfully higher. We think the additional tightening will be the final nail in the recession coffin. Highly



inverted yield curves indicate that the bond market expects a recession, and the Conference Board's Leading Economic Indicators are certainly pointing to one as well. The market is still holding out for a soft landing, but we think it is discounting the lag effects of significant rate hikes. The market is also underestimating what a recession will mean, perhaps most importantly a big cut to S&P earnings. Consensus 2023 adjusted earnings are still forecasted at 5% above 2022 numbers, but we expect a 10%-20% drop, which would nonetheless be less negative than what we have generally seen in past recessions. We think this level of earnings will send the market back to new lows.

Earnings recessions are typically slow to play out. The market will likely rally before the earnings trough, but we do not see this happening until at least mid-year. As noted, we think the Fed will be the key driver, both in words and actions. The Fed wants to avoid a repeat of the 1970s when they backed off too early. Globally, we will be keeping a close eye on Europe and China. An end to the Russia-Ukraine war would certainly be a positive catalyst, but we think the damage to European energy policy has already been done, all but assuring a European recession alongside the one

we expect in the U.S. The end of China's zero-Covid policy should lead to an attendant economic resurgence, but this will take multiple quarters. China's immuno-protection needs to catch up to the rest of the world and they likely still face more significant Covid outbreaks before they get there.

We enter 2023 preaching patience, but if we have learned one thing since the start of the pandemic three years ago, it is to stay flexible. At this time last year, we were skeptical that Russia would attack Ukraine, but when it did, we pivoted quickly. 2022 was a year to play the ranges, and we expect the same in 2023. We also expect that our more defensive, inflation-protected real asset strategies should once again fare well versus the broader markets. The defensive characteristics and strong income of Global Listed Infrastructure should do well, and the large discounts to NAV for Global Real Estate look attractive. Also, the long-term secular drivers of growth for Water and Clean Energy still look to be in place. Real returns and non-correlated asset classes are attractive to investors in this environment, and, as such, we expect listed Real Assets overall to continue to garner investor's attention in the year to come.

The following sections provide in-depth views by Duff & Phelps Investment Management Co.'s portfolio managers on their respective areas of expertise.

OUTLOOK: GLOBAL REAL ESTATE SECURITIES

By Geoffrey Dybas, CFA and Frank Haggerty, CFA

2022 RETROSPECTIVE

“OVERALL, GLOBAL REAL ESTATE FUNDAMENTALS REMAIN SOLID EVEN AS THEY ARE IMPACTED BY SLOWING GLOBAL ECONOMIC GROWTH AND HIGHER REFINANCING RATES...”

As a result of aggressive central bank policy in most developed markets (outside of Japan), which drove short- and long-term interest rates meaningfully higher, global equities including listed real estate underperformed notably in 2022.

All countries delivered negative total returns in U.S. dollar terms, with the U.S. performing in line, Asia outperforming (led by Singapore, Hong Kong, and Japan) and Europe underperforming (weighed down by Germany, Sweden, and the U.K. among the larger countries). Currencies were notably volatile during the year, with the U.S. dollar outperforming for the first three quarters before exhaling in the last quarter as central banks moved beyond peak hawkishness.

On a property sector basis, only the specialty property sector delivered positive total returns, driven by the solid performance of the U.S. gaming REITs. The lodging and retail property sectors outperformed on a relative basis as well, benefiting from further normalization in their underlying operating performance following the pandemic. The residential,



office, and industrial property sectors were the larger laggards, with residential and industrial giving back some of their material outperformance from 2021 and office continuing to suffer from subpar utilization as employers continued to adjust workplace strategies.

Cash flow and dividend growth for listed global real estate companies remained solid, particularly across shorter-lease property sectors, such as lodging, self-storage, industrial and residential, but only lodging outperformed on a relative basis in this

group as significant multiple compression across the others led to underperformance. Public-to-public and privatization merger and acquisition activity was robust in the first half of 2022 on a global basis and across multiple property sectors. However, with the rise in cost of capital and more uncertainty in the debt markets, this activity materially slowed down in the second half of the year.

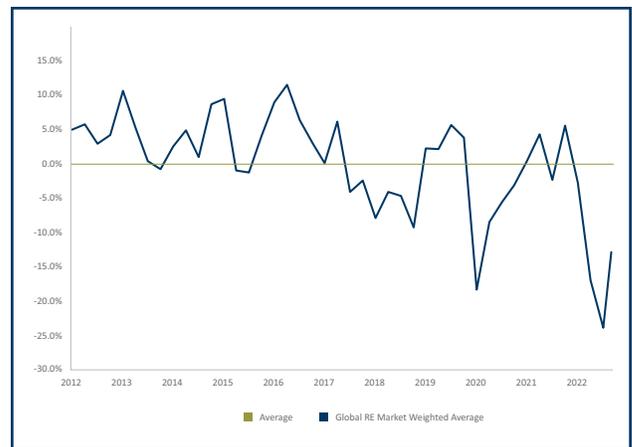
Global listed real estate ended the year trading at a notable discount to NAV estimates on private valuations.

2023 Outlook

The Duff & Phelps Global Real Estate Securities Team expects global economic growth to slow in response to higher interest rates. One of the key debates is whether central banks can orchestrate a soft landing or if we will see a more meaningful contraction in the global economy. The pace of interest rate increases is expected to slow and may be joined by reduced quantitative tightening, which makes a significant further correction in cash flow multiples less likely.

Global listed real estate cash flow and dividend growth are expected to decelerate as the post-Covid operating performance normalization process has largely played out and as companies absorb the higher financial and operating costs to their businesses. Nonetheless, at this point the team believes global cash flow and dividend growth will remain positive. Quality and resiliency in the form of well-positioned balance sheets and sustainable growth in cash flow and dividends will

Listed Global Real Estate Weighted Average Premium/(Discount) to NAV



Source: FTSE EPRA Nareit, Bloomberg Finance L.P., S&P Capital IQ, Duff & Phelps. As of November 30, 2022

likely be preferred by investors as we continue to face an uncertain economic environment.

Fundamentally, secular growth drivers should continue to benefit logistics and communications infrastructure (data centers and cell towers). Self-



storage and residential growth should remain positive, but to a lesser degree. Certain aspects of health care should continue to recover, such as senior housing operating properties in the U.S. Conversely, the office property sector will likely remain the most challenged on a global basis.

Given the capital that has been raised by private equity sponsors on a global basis, the D&P Global Real Estate Securities Team expects M&A activity to resurface, particularly if the availability and pricing in the debt markets improve and global listed real estate continues to trade at discounted valuations.

Looking forward, the team has a positive view on listed global real estate due to what they believe are oversold valuations. The Federal Reserve and its global central bank peers are moving past

peak hawkishness, which should facilitate more active debt markets. Overall, global real estate fundamentals remain solid even as they are impacted by slowing global economic growth and higher refinancing rates. In our view, listed global real estate has shown an ability to outperform when central banks are pursuing a more reasonable path of increasing interest rates, in terms of both magnitude and frequency. This was clearly not the case in 2022 as central banks played catch-up with inflation. With an abundance of private capital on the sidelines and discounted pricing (arguably wholesale prices) available, we see listed real estate as much more attractive than private real estate. This supports the adage that real estate is cheaper on Wall Street, or on global exchanges, than it is on Main Street.

OUTLOOK: GLOBAL LISTED INFRASTRUCTURE

By Steven Wittwer, CFA and Connie Luecke, CFA

2022 REFLECTIONS

“DESPITE THIS LAUNDRY LIST OF CHALLENGES, GLOBAL LISTED INFRASTRUCTURE PROVIDED SOME RELIEF AS IT OUTPERFORMED THE BROADER GLOBAL EQUITY AND FIXED INCOME MARKETS.

Investors will not be anxious to repeat the experience of 2022. Global equity and fixed income markets struggled, weighed down by high inflation, rising interest rates, a war in Ukraine, a developing energy crisis, and the overhang of China's zero-Covid policy. Despite this laundry list of challenges, global listed infrastructure provided some relief as it outperformed the broader global equity and fixed income markets. Outperformance was driven by attractive relative valuations for infrastructure assets as well as durable business models designed to withstand challenging economic conditions.

The energy infrastructure sector led performance with improving company fundamentals supported by solid commodity prices and robust volume growth. The sector experienced substantial increases in cash flow while management teams maintained capital discipline, which led to stronger balance sheets and a return of cash to shareholders. Utilities and transportation stocks performed in line with the infrastructure benchmark and substantially better than the broader market. Utilities provided another year of steady growth as they continued to



benefit from strong capital programs and efficient operating-expense management. Transportation stocks were bolstered by encouraging volume growth across the sector. The communications sector was the worst performer, as higher interest rates took a toll on the tower stocks.

Looking Forward

The year ahead will present challenges as industries adjust to higher interest rates and commodity prices as well as continued political uncertainties.

Communications

Wireless tower activity in the U.S. remained robust in 2022 as the big three carriers built out their networks and deployed new spectrum to accommodate the increased demand for data and video. We expect this to continue in 2023 and beyond as carriers shift from the initial stages of 5G buildout and blanket coverage to focus on more targeted network densification.

In Europe, M&A was robust in 2022 with private-equity firms dominating the deal activity due to their willingness to pay higher multiples than the public companies. A solid level of organic growth underpins these transactions as wireless data demand continues to be robust. We expect healthy organic activity to continue into 2023 as the tower companies benefit from 5G expansion as well as inflation-linked escalators embedded in their contracts.

We believe the 5G buildout and predictable cash flows provided by long-term contracts will make the tower companies more resilient to the macro-economic challenges that may be ahead in 2023.

We are optimistic that listed infrastructure companies will display the resiliency of their business models as they weather these headwinds. We believe that secular trends support continued progress within each sector. Asset renewal, energy security, decarbonization, and data growth are driving durable, long-term investment cycles that will continue for years to come despite negative short-term economic developments.

As we look forward to 2023, we see the following trends in each of the infrastructure sectors:

Utilities

Utilities benefit from long-term capital plans that increase their regulated assets while also improving reliability and safety. In addition, decarbonization of the economy creates a win-win for utilities as they improve their environmental profile while also increasing earnings. The transition to renewable energy and renewal of assets provide positive tailwinds that should last for more than a decade. Higher interest rates and commodity prices provide near-term challenges that must be overcome, but we believe these obstacles are a speed bump rather than a dead end. In fact, the Inflation Reduction Act of 2022 provides strong financial support for the energy transition in the United States and should help offset short-term headwinds.

For European utilities, the war in Ukraine and the loss of Russian natural gas remain the greatest hurdles. Higher natural gas prices have led to consumer affordability issues and potential political intervention. To date, European governments have



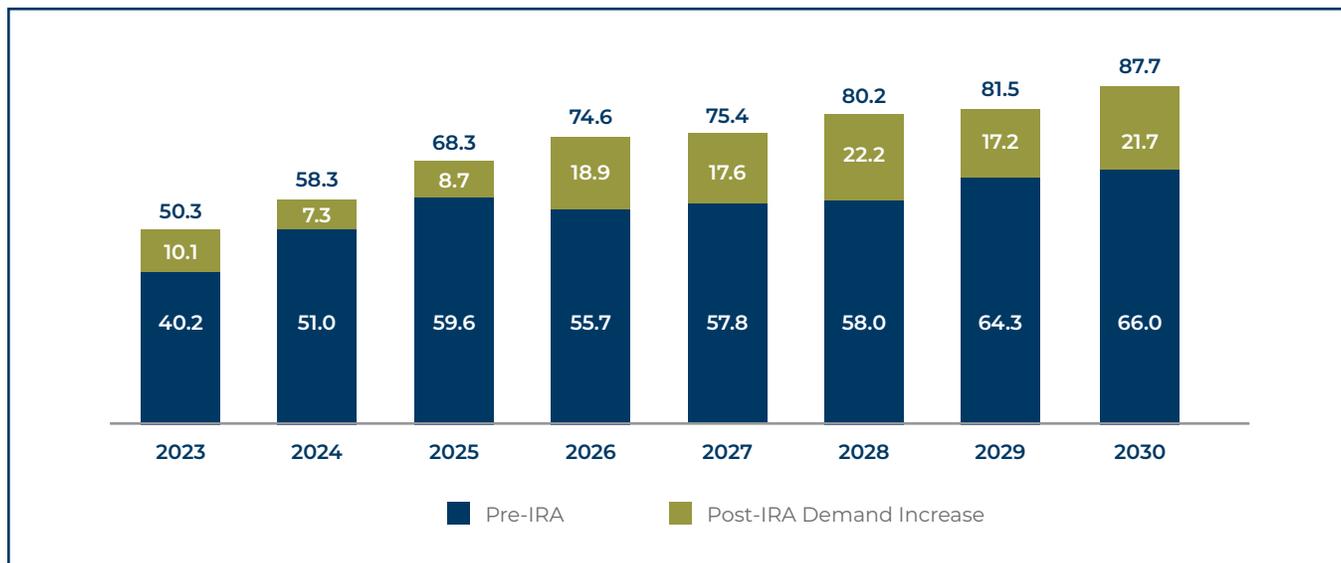
Utilities (cont.)

managed affordability with power price “caps” and windfall taxes on energy companies. While we find valuations of European utilities attractive, our enthusiasm is tempered by potential fallout from even higher energy prices if weather conditions are

extreme over the coming months. Ultimately, we believe that Europe will secure adequate energy resources for 2023 and an acceleration of renewable energy deployment will be part of the solution.

Inflation Reduction Act (IRA) is a Significant Accelerant to Growth of US Renewables Market

Projected Capacity Additions in GW



IRA Demand Outlook

	2023	2024	2025	2026	2027	2028	2029	2030	Total
Pre-IRA Demand (GW)	40.2	51.0	59.6	55.7	57.8	58.0	64.3	66.0	452.6
Post-IRA Demand (GW)	10.1	7.3	8.7	18.9	17.6	22.2	17.2	21.7	115.7
% Increase	25%	14%	15%	34%	30%	38%	27%	33%	27%

Source: Bloomberg NEF.



Transportation

Toll road volumes have shown resiliency with many roads already exceeding pre-pandemic traffic levels. Investor concerns over Covid-19 variants have significantly waned in the countries where we invest. Toll roads are stable businesses with inflation-linked tolling regimes and efficient cost structures. Therefore, we foresee another steady year of operations ahead.

North American railroads are beginning to emerge from the service issues induced by the global supply chain disruption. Railroads provide critical, reliable transportation for manufacturers, retailers, and other rail customers. The essential nature of rail service translates into strong pricing power. In 2023, we expect strong pricing gains, which can act as a powerful hedge to inflation headwinds. Furthermore, rising global political tensions have disrupted the supply of essential commodities. We see railroads' best-in-class network as part of the solution, shipping commodities to meet elevated demand.

Airport traffic saw a sharp recovery in 2022. Pent-up demand for leisure travel has fueled "revenge travel" and businesses are eager to reconnect with customers in person, but we see signs of a potential slowdown in 2023. Higher prices for jet fuel and airline tickets may weigh on leisure travel, while business travel is likely to face continued competition from video conferencing and corporate ESG objectives. Airport stocks are likely to remain volatile until there is more certainty around travel trends.

Midstream Energy

Midstream energy was the best-performing infrastructure sector in 2022 and we remain constructive on the outlook for 2023. Although crude oil, natural gas, and NGL prices are off their peaks set earlier this year, commodity prices remain at levels that encourage producers to increase volumes. The disruption of Russian oil and gas supplies due to the war and resulting embargoes provides support for U.S. supply growth. A loosening of China's zero-Covid policy and a replenishment of the U.S. Strategic Petroleum Reserve present demand-side variables that are likely to keep the market tight in 2023. Supply-side constraints should continue to drive the fundamental story, and while we may see some modest pullback on energy demand, we do not see this as an impediment to the strong financial setup for midstream.

The midstream sector continues to be well-positioned to weather high inflation and commodity price volatility. Midstream balance sheets are significantly stronger and dividend payouts are at sustainable levels. Most companies are at or near targeted leverage metrics and have pivoted to shareholder-friendly capital allocation policies. The sector is more insulated than it has been in prior downturns, which gives us a higher degree of comfort amid an uncertain macro backdrop.



OUTLOOK: GLOBAL CLEAN ENERGY

By Benjamin Bielawski, CFA and Eric Fogarty, CFA

2022 REFLECTIONS

“...THE UNDERLYING FUNDAMENTAL DRIVERS FOR CLEAN ENERGY REMAIN INTACT: AN ACCOMMODATIVE POLICY BACKDROP, PRIVATE SECTOR DEMAND, ATTRACTIVE ECONOMICS, AND ‘SECURITY OF SUPPLY.’”

2022 began with lingering inflationary and supply chain complications, largely driven by excess demand as economies bounced back from COVID-19. Russia’s invasion of Ukraine in February exacerbated these issues, this time on the supply side. Energy imports from Russia were essentially shut off and many countries started to prepare for a shift from globalization to “regionalization.” As a result, supply chain conditions became tighter. The rise in global interest rates added market pressure as central banks attempted to curb inflation.

A positive surprise for clean energy came in late July with the passage of the Inflation Reduction Act (IRA) in the U.S. The IRA is a reincarnation of the much-discussed Build Back Better legislation, which the market believed was untenable. The IRA will set in motion a long-term wave of clean-energy investments and potentially puts the U.S. at the forefront of the global clean-energy transition.

Looking Forward

The macro headwinds that plagued 2022 could persist into 2023. However, as noted, the IRA is a boost for clean energy in the U.S. The IRA provides a package of financial incentives for established technologies such as wind and solar power generation as well as new technologies, namely hydrogen. These incentives are already driving renewable investment by traditional utility companies, developers, industrials, and residential consumers. Moreover, the IRA provides visibility and longevity for clean energy, which is vital to long-term capital investment decisions. In fact, foreign clean-energy firms are dedicating more capital to the U.S., given the country's relatively attractive investment and incentive backdrop.

Europe's efforts to move the energy transition forward have been slowed by crippling energy prices brought on by Russia's invasion of Ukraine and subsequent severing of energy supplies. Due to the EU's unique circumstances, policymakers are caught in a "trilemma" of keeping energy affordable, ensuring adequate supply, and continuing the transition to a clean-energy economy. The latter appears to be on pause as the EU seeks to replace Russian energy. The coming winter season will be critical in many ways. The EU is moving to fast-track renewable energy permitting to help wean the continent off Russian energy as quickly as possible. Energy independence is paramount for Europe and we believe this should drive policy promoting clean energy for many years to come.

While the U.S. and the EU appear to be on diverging paths, the underlying fundamental drivers for clean energy remain intact: an accommodative policy backdrop, private sector

demand, attractive economics, and 'security of supply.' All have arguably strengthened in 2022. Macroeconomic and fiscal factors will continue to influence markets, but we remain very constructive on the global outlook for clean energy. The pace of the energy transition may vary, but when clean-energy deployment slows, pent-up demand could cause significant subsequent momentum.

This backdrop is also driving increased adoption of newer technologies. For example, hydrogen is a clean-energy source to watch in 2023, in part due to significant backing in the IRA. Combined with ITCs (Investment tax credits), last year's Infrastructure Investment and Jobs Act, and the Department of Energy's 'hydrogen hubs' initiative, critical infrastructure for hydrogen could be available as early as 2025 in the U.S. We anticipate that nuclear power will play a leading role in the electrolysis process of green hydrogen. In the EU, countries and companies are moving forward with plans to utilize existing natural gas infrastructure for the transportation of hydrogen. The continent's main gas transmission companies are starting to prepare their networks to blend in hydrogen and interconnect with the individual EU countries that are more vulnerable to gas shortages. The EU recognizes hydrogen's role in helping to solve the "trilemma."

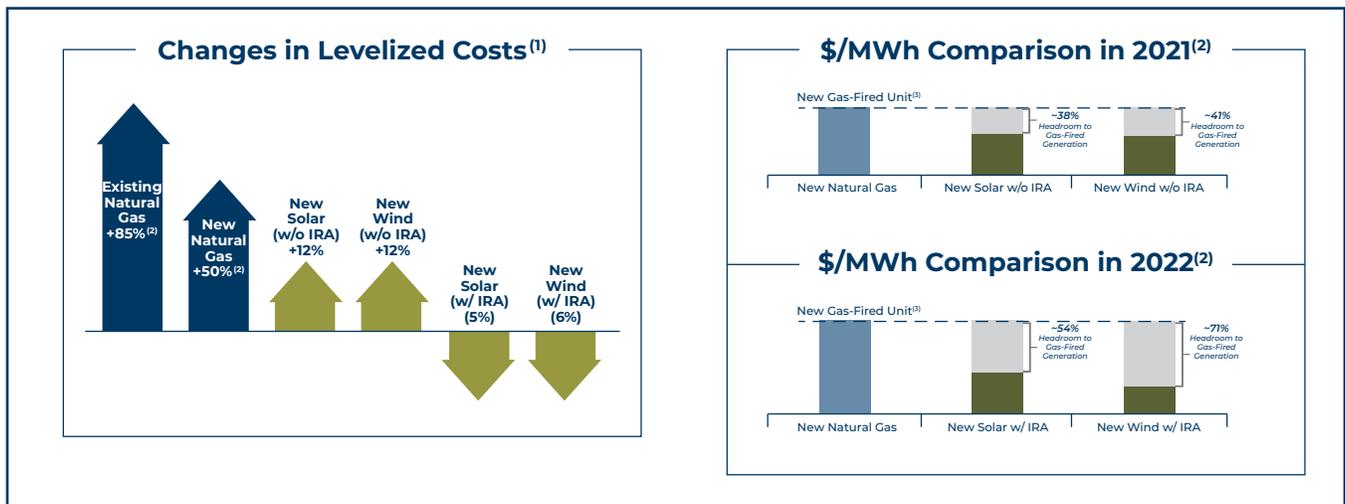
While 2023 could see an extension of 2022 headwinds, we believe the long-term attraction of clean energy continues to strengthen. One of clean energy's main economic characteristics is relative cost, especially in an environment with rising commodity prices. Simply put, renewable energy is deflationary for consumers, and the



higher energy commodity prices go, the greater the attraction of renewables. An analysis by NextEra Energy shows that new solar and wind power generation is now 54% and 71% cheaper respectively versus new natural gas fired power plants. Even before factoring in the IRA's incentives and the run-up in natural gas prices, solar and wind

were 38% and 41% cheaper. As we look to 2023 and beyond, the economic, geopolitical, and societal benefits of switching to clean energy will become more apparent. We believe long-term investors will be rewarded by owning a basket of clean-energy market leaders at the vanguard of this transition.

Market and Policy Impacts on Levelized Costs¹



Source: NextEra Energy, Inc.

- 1) NextEra Energy Resources estimate; Levelized cost of energy comparisons from January 2021 to September 2022
- 2) Comparison based on ERCOT pricing
- 3) Includes fixed and variable O&M and fuel; existing natural gas assumes a 7,500 Btu/kWh heat rate; new natural gas assumes 6,800 Btu/kWh heat rate and capital recovery



OUTLOOK: WATER

By David Grumhaus and Evan Lang, CFA

2022 REFLECTIONS

WATER “
LIKE THE EQUITY MARKETS,
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Global equity markets experienced a tumultuous year in 2022, with elevated inflation, rising interest rates, and geopolitical tensions. The water sector was not immune and declined during the year, despite constructive fundamentals and an attractive long-term outlook. Over a longer period, performance in the water sector, as represented by the S&P Global Water Index, remains compelling, outpacing global equities, as measured by the MSCI ACWI, in the last 3-, 5-, 10-year time periods by an average of ~224bps for the three periods.

Like the equity markets, communities across the globe had a tumultuous year as they continued to grapple with water challenges stemming from pervasive droughts and floods, deteriorating infrastructure, and contamination. Today, 75% of the U.S. is battling drought or abnormally dry conditions and Europe is facing its worst drought in 500 years. Conversely, some parts of the U.S. and countries such as Pakistan and Australia are still recovering from unprecedented flooding during the year. Poor infrastructure is compounding these issues, as evidenced by the crisis in Jackson, Mississippi, where decades of underinvestment culminated in the city losing access to clean water after a significant storm.



Given these ongoing challenges, governments and businesses are increasing their attention to water. The U.S., for example, had a banner year supporting the sector with the passing of the Infrastructure Investment and Jobs Act, the Inflation Reduction Act, and the CHIPS and Science Act, all of which provide tailwinds for investment in water infrastructure and technology. Businesses continued to advance water sustainability initiatives in 2022, with Proctor & Gamble the latest company to announce a “water positive” target by 2030. These initiatives underpin growth for companies offering

water efficient equipment, treatment that enables reuse, and digitally connected systems that measure and optimize water use.

With these tailwinds, along with supportive fundamentals, earnings in the water sector remained resilient during the year, with companies reporting strong results and unwavering projections of attractive growth in the near-to-medium term. Despite the resilient earnings, multiples contracted due to broad market headwinds, driving the negative return on the year.

2023 Outlook

We remain constructive on the outlook for the water sector into 2023, and our conviction remains high that secular tailwinds will produce attractive risk-adjusted returns over the long term. We believe water infrastructure and equipment and technology companies are well positioned headed into the new year.

Within water infrastructure, water utilities offer defensive positioning as the economy slows and a potential recession looms. Water utilities feature resilient cash flows supported by stable demand, regulated returns, and favorable regulatory constructs. Growth potential is driven by a robust slate of capital projects. In the developed markets, utilities are rehabilitating overaged pipes and treatment plants that clearly require attention, with water main breaks occurring every two minutes in the U.S. Emerging markets are focused on building out needed infrastructure to expand connectivity,

improve water quality, and reduce pollution.

These initiatives remain vital as 80% of wastewater currently goes untreated across the globe.

The water equipment and technology subsector is set to continue its growth trajectory, albeit unevenly across end-markets. The municipal end-market, comprised of investor- and government-owned utilities, remains the stalwart of the subsector with stable demand and visible growth. Utility budgets are flush following strong economic growth, rising water rates, and government support, with ~70% of project activity related to break-and-fix activity. Growth in the end-market is further supported by adoption of digital technologies that detect, communicate, and reduce water loss at compelling economics, as well as upcoming regulation on PFAS that decreases allowable limits in water. This represents a significant growth opportunity for companies offering technology that detects,



treats, and removes the chemicals as more than 200 million Americans may be drinking water contaminated with PFAS. The agriculture end-market is another bright spot, supported by elevated commodity prices, rising farm incomes, and an increased focus on resiliency following food shocks in 2022. These tailwinds provide support for irrigation equipment and technologies that reduce water use and increase crop yields. The industrial and commercial end-markets are currently constructive, with strength for water services in micro-electronics, life sciences, and food and beverage, though these end-markets may be exposed to a slowdown if the economy softens.

The residential end-market faces headwinds as activity slows due to affordability challenges and a weakening consumer.

Entering 2023, equity markets face several uncertainties, including high (albeit declining) inflation, hawkish central banks, continued geopolitical tensions, and uneven economic growth with an elevated probability of recessions. We remain focused on companies that provide leading solutions in improving water supply, quality, and efficiency and are positioned to execute on secular growth and outperform through an economic cycle. As this occurs, we believe water investments will be rewarded over the long term.

WATER

For more information about Duff & Phelps Investment Management Co. strategies please visit: www.dpimc.com or contact Susan Ford.



Susan Ford

Susan.Ford@dpimc.com

312-917-6538

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