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PASI NEWS

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Professional Advisory Services, Inc.
2770 Indian River Blvd. – Suite 204 • Vero Beach, FL 32960
(800) 847-7274 • (772) 778-0552 • fax (772) 770-2979

Market Update –*A Year from the History Books*

by David A. Jaffe, M.D.

When I was in high school in the early ‘70’s, a record album sold for $4. Gas was widely available at 29¢ per gallon. Two years later, I was sitting in a college classroom in the midst of a New Hampshire winter wearing gloves to take notes, as the school fixed thermostats at 55 degrees in an effort to temper ballooning heating costs. The oil embargo of 1973-74 had struck, the price of a record album quadrupled (transport and petroleum-based raw materials to blame), and a gallon of gas sold for a precious 81 cents. While Gerald Ford’s “Whip Inflation Now” campaign was largely ineffective, I do still have my WIN button!

The inflation of that period and then Fed Chairman Paul Volcker’s manipulation of interest rates represent the last time the U.S. economy has faced anything like the current battle being fought by the Fed to tame rising prices. But we can only hope that that’s where the similarities end, as Volcker’s actions precipitated two severe recessions in the early 80’s before inflation began to ease. And yes, there are considerable differences.

The roots of the 1970’s inflation were complex and multi-factorial. Spending on the Vietnam War, social programs, and loose monetary policy of the prior decade set the stage. The Nixon administration abandoned the gold standard, with complex and adverse short-term consequences. Price controls were imposed, well known today to be counter-productive. Next came the oil embargo with its jump in energy costs. Ultimately, inflation peaked at an annual rate of 14.8%, that dramatic number only exceeded by Paul Volcker’s cure – the Federal Funds rate briefly touched 20% in June of 1981. That harsh medicine precipitated two recessions and an unemployment rate of over 10%, but it worked. By 1983 inflation had eased to an annual rate under 3%.

The common explanation for inflation is *too many dollars chasing too few goods*. Our current environment is a great example, the flood of dollars from record low borrowing costs since the 2008 financial crisis, government aid through the pandemic, and the “wealth effect” of the

stock market boom from 2009-2022. Meanwhile, the pandemic created well known shortages due to supply chain disruptions; then along came the Ukraine war constraining energy, food, and fertilizer supplies for starters.

There are tremendous differences between the current situation and the environment of Volcker's day. The U.S. economy has been strong, unemployment is at record lows, and perhaps most important, the majority of the population in the U.S. has never experienced inflation before and as such is willing to believe that inflation can be tamed with *relative* ease. And it is those inflationary expectations which are critical, because expectations of high inflation become a self-sustaining phenomenon as workers and consumers anticipate rising prices and behave accordingly.

Of course, the entity which was recently most complacent is the same entity tasked with addressing the problem. After a year of declaring inflation "transitory", current Fed Chair Jerome Powell has made a dramatic course reversal, raising the Fed Funds rate *seven* times in 2022, from the historically low target of 0.0% - 0.25% to the current target range of 4.25% - 4.50%. Further, he has now voiced his commitment to controlling inflation regardless of the economic impact.

The financial market consequences of the Fed's action have been a bear market in stocks and the worst year on record for bonds, as measured by the 10-year US Treasury (such records date to 1977). Bond prices move inversely to interest rates, which in the case of the 10-year Treasury rose from a low of 1.5% last year to a high of 4.2% in October, a huge short-term move. Rising rates not only increase the cost of money, but also offer conservative investors a less volatile alternative to stock ownership, contributing to the fall in demand for stocks and therefore stock prices.

Despite a modest rebound from mid-year lows, the S&P 500 ended 2022 slumping 18.11%. With a decrease of 17.98%, the PASI stock portfolio[1] narrowly outperformed the S&P 500. The Bloomberg U.S. Corporate Bond 1-5 Year index fell 5.62% for 2022 compared to a total return on the PASI corporate bond portfolio[1] declining 5.78% during the period. It's worth emphasizing that our strategy for bond investment has always been to keep maturities relatively short (usually five year or less) and in most instances, hold bonds to maturity. We know with a high degree of certainty (barring default) what the total return will be for a bond from the day it is purchased. Meanwhile, as our current bonds mature, with yields in the ranging up to 2.5% over the last five years, we are replacing those bonds with issues yielding closer to 4.9% (the PASI weighted average yield as of December 2022).

For fiscal year 2022, the composite benchmark was down 13.01%, while PASI balanced accounts[1] declined 13.04% gross and 13.59% net of fees. This has been a highly unusual environment for balanced (stock and bond) accounts because of the marked decline in bond prices coincident with stocks. In most circumstances, a stock market correction is triggered by

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[1] **Please see disclosure on page 12 of this newsletter** in compliance with the requirements of SEC Marketing Rule with amendment 206(4)-1, effective 11/4/2022 for discussion of all portfolio and market performance reporting.

worries about economic contraction and shrinking corporate profits. Investors flee to the safety of bonds, increasing demand, while the Federal Reserve lowers interest rates to help bolster the economy, further supporting bond prices. The current environment is in fact just the opposite, with the Fed raising rates in an effort to slow the economy. Bond and stock prices both suffer.

The good news is that there is widespread evidence that inflation is beginning to moderate. Pandemic-induced supply chain problems are largely resolved, energy prices are well off their highs, the housing market has slowed substantially with associated improvement in housing costs (purchase or rental), and the November Purchasing Manager's Index (a measure of U.S. manufacturing strength), is predicting economic contraction. December employment remained strong, but wage growth slowed significantly. The Fed should find this ideal, suggesting a modest softening of the tight jobs market, while the hope of a "soft landing" without causing a recession seems viable.

It is also worth noting that if the Fed does precipitate a recession in 2023, further stock market decline is by no means a certainty. In fact, looking at market history from 1930-2021, stock performance is very similar whether corporate earnings are up year-over-year or down, with positive returns in over 70% of instances. The simplest explanation is that investors are looking beyond the current negatives with expectations for a modest economic decline, continued low unemployment, and ultimately normalization of interest rates. And if earnings don't collapse, stock prices are a whole lot cheaper today than they were a year ago.

Unstuck: *Artificial Intelligence and Humanity's Next Big Leap*

by Nathan Polackwich, CFA

Technology marches on
Incessant and unyielding
Transforming the world we know
Leaving the past revealing

I didn't write the poem above. No one did. It was written by an artificial intelligence called ChatGPT in response to my prompt to write a four-line poem about technological change. ChatGPT is a type of artificial intelligence called a language learning model (LLM) that's "trained" on massive amounts of data to understand the patterns and structure of language in order to perform various tasks. Recently, such models have become frighteningly capable.

For instance, aside from poetry, in a matter of seconds ChatGPT can write surprisingly good stories, screenplays, essays, and legal documents; summarize books and articles; write and fix computer programming code; and solve complex math problems. It can tell you everything from Seneca's contribution to Stoicism to the factors and formulas that determine the distance of a golf shot (which it will calculate). It can ably discuss any topic and remember and refer back to earlier parts of your conversation.

ChatGPT was created by OpenAI, a research organization founded in 2015 and backed by Microsoft as well as Elon Musk and other tech luminaries. In addition to ChatGPT, OpenAI also built an artificial intelligence called Dall-E that learns from digital images to generate new pictures – everything from realistic looking photographs to artwork – given just a simple text description. For instance, you could ask Dall-E to generate an image of a dog surfing in Hawaii in the style of van Gogh. The result is better than anything I could ever do (admittedly, not saying much).

ChatGPT and other language learning models like Google's LaMDA (a closely guarded technology supposedly orders of magnitude more powerful than ChatGPT) are already incredibly useful, but still suffer from what programmers refer to as "hallucinations." That is, they will occasionally invent highly plausible though entirely fictitious statements of fact.

This happens because the models don't actually understand what they're saying but rather just predict the next word or sequence of words from patterns they've perceived in the data on which they've trained. As an example, if you feed a learning language model books and articles on the history of baseball and ask it who has the most career home runs, the model – because it's identified which words and phrases tend to follow such questions – can construct a coherent sentence and answer that it's Barry Bonds.

However, for more difficult or complex questions, learning language models sometimes see patterns where they don't exist. And because the models can't provide direct sources for their assertions, it's difficult to be sure what they're saying is true without confirming the information for yourself.

This tendency to hallucinate (though confidently and eloquently) is why Google, being highly protective of its search engine's reputation for accuracy, has yet to release LaMDA to the public. But the rapid success and adoption of ChatGPT despite its flaws may soon force the

Company's hand. It took Netflix 3.5 years to reach one million users, Facebook ten months, and Instagram 2.5 months. ChatGPT achieved this feat just 5 days after launch. In many cases people would prefer one (correct) answer to their questions rather than a list of search results to sift through. And while AIs may still make mistakes they'll keep improving at an accelerating rate.

So where is this all heading? Technology analyst Ben Thompson, writer of the highly regarded Stratechery blog, believes we're rapidly moving towards a state he calls "zero marginal content" that could have as significant an impact on humanity as the printing press.

According to Thompson, "the evolution of human communication has been about removing whatever bottleneck is in the value chain." Language gave us the ability to exchange ideas on a much deeper level, but information could only be conveyed to those within earshot. The invention of writing expanded the distribution possibilities but was still a laborious process limiting the quantity of ideas worth recording as well as those who could afford to consume them. Then came the printing press, with its ability to mass produce text, which overcame the labor-intensive nature of writing by hand, dramatically increasing the amount of information economical to produce.

But there remained the distribution bottleneck – how to transport the printed word. Economies of scale would be required. You couldn't build the infrastructure to profitably ship a single book or newspaper from one place to another. But if you were publishing thousands of books or delivering tens of thousands of newspapers, suddenly a profit could be made despite the expense of getting them into stores and onto front doorsteps.

Of course, those controlling the means of content distribution – newspaper companies and book publishers – ultimately developed great power as the gatekeepers exercising absolute control over the ideas disseminated to readers. Record labels and radio stations later played a similar gatekeeping role following the invention of audio recording while TV broadcasters, cable TV companies, and movie studios did the same for video. Then the Internet came along and made the cost of content distribution effectively zero. Suddenly, the old gatekeepers lost their grip on which information was distributed and, by extension, our media and culture (more on this later).

The final bottleneck, which AIs like ChatGPT, LaMDA, and Dall-E are poised to solve, is the creation of new information and content at little to no cost (what Thompson at Stratechery calls "*zero marginal content*"). Released in 2018, the popular video game Red Dead Redemption 2, for instance, cost $500 million and took over 3,000 people eight years to produce. Thanks to AI, making a game of similar quality will soon require a tiny fraction of the time and expense.

I see the advent of zero marginal content as having two huge implications: 1) it will deliver the *coup de grâce* to the legacy mainstream media gatekeepers, and 2) it opens up markets from television shows to video games to product design and more to the creators with the best ideas (or ability to recognize them from AI generated content) rather than just those with the capital to make them a reality. Are you a brilliant 16-year-old with an idea for a television

series, living in the middle of nowhere, whose only connection to the outside world is the Internet? Well, with the help of AI what you can share with the world will be limited only by your imagination.

The Gatekeepers Are Dead, Long Live the Gatekeepers!

There's a concept gaining increasing currency that our culture has become "stuck" over the last 20 years or so.[2] Drop someone off in 2006 and the only way they'd know they were in a different time would be the primitiveness of the cellphones. The clothes, music, movies, and general style are basically the same as today. Now think about how distinctly different the music and fashions of each decade from 1950-2000 were. It seems that the more online our lives become, the less the world around us changes. Why?

A leading theory is the lost power of the legacy gatekeepers – the record labels, the movie studios, the cable companies, the broadcast networks, the newspaper publishers, etc. Before the Internet these entities' dominance ensured that we all watched the same handful of TV shows (at the same time), the same movies, saw and read the same news, and listened to the same music. Accordingly, new trends could spread rapidly and have a far-reaching impact on our culture. These gatekeepers' control of media is what created a "mainstream." Thanks to them, musicians became rockstars and popstars, actors became movie stars, athletes became well-known celebrities, and even models became supermodels.

The Internet, however, has fragmented our media into millions of pieces. Very little new music, movies, fashion, news, or much else becomes mainstream anymore. Thus, despite (or perhaps because) content distribution costs are approaching zero, every year it gets harder for something new to reach critical mass and change our culture. Name a great young musician or movie star who became world famous in the last five years. The best I can come up with is the popstar Billie Eilish and the actor Timothée Chalamet, but even they don't come close to the name recognition (in their own times) of older musicians like Michael Jackson, Madonna, and Prince or actors like Tom Cruise, Brad Pitt, or Julia Roberts – i.e. those who became famous before the Internet fractured our media.

The result is a stuck culture. All the biggest movies are Marvel or remakes like Top Gun, Jurassic Park, and Avatar. The highest grossing music tours are bands like Coldplay (first big album released in 2002), Def Leopard (1980), the Red Hot Chili Peppers (1991), Guns & Roses (1987), and the Rolling Stones. In eight of the last nine years, the best-selling album was released by either Taylor Swift or Adele, and they've both been stars for 15 years. It would have been inconceivable in 2000 for the two most popular musicians to have been out since 1985.

So how does AI fit into this story? Ironically, it may, at least at first, cause our culture to become even *more* stuck! AIs mostly train on information and content that humans have already produced; their output is merely an amalgamation of existing patterns rather than anything wholly original (at least not yet). Further, as more and more of what's on the Internet

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[2] Originated by the writer, Paul Skallas.

is generated by AI, eventually we may find ourselves in a strange loop where the models are learning from content that they themselves produced!

That said, I believe that just like language, the written word, the printing press, and the Internet, people will use AI as a tool to bring ideas and creations to life that previously would never have been possible. There will be an even greater flood of content (some of it really good!) to enjoy, but most will probably only reach smaller, more niche audiences.

Another observation is that while the old gatekeepers have been vanquished, new ones have emerged – the companies that organize the Internet's content. The algorithms of tech giants from Meta (Facebook) to TikTok to Twitter to Google (which also owns YouTube) determine what content we're most likely to see in our news feeds or when we search for something. Their dominance is now arguably greater than what the legacy gatekeepers achieved, with the result that their businesses have become political battlegrounds and the target of regulators globally.

The rise of competent AI is rapidly ushering us into a new era. Many existing business models will be upended as even more opportunities emerge – this is a time when investors will need to be especially wary of complacency. The automobile may have made the horse and buggy obsolete, but it led to a Cambrian-like explosion of new industries and businesses from auto repairs to gas stations to roadside motels (travel now far more affordable) to car insurance to petroleum exploration and refining. No one can predict where AI will take us next, but the journey promises to be among the most fascinating in human history.

The Art of Giving

by Jeremy Goldberg, CFA, CFP®

Most of us spend more time building up our net worth than we do in figuring out how to give it away for maximum benefit. Nobody argues with the fact that you can't take it with you, but a lot of people try to delay letting go of it right up to their date of departure. Consequently, charity begins not at home, but at the reading of the will. – Peter Lynch, Bestowing Gifts, May 1993

Founding Father Benjamin Franklin was the first to say, "nothing is certain except death and taxes." His wisdom holds true today, and while we can't control the former, we certainly can plan for the latter. Sadly, only one in three American adults have wills or living trusts.[3] If one dies intestate (without a will), the laws of the decedent's state of domicile will determine how assets are distributed.

In all cases, the first step is to draft a will. Once the will is in place, the assets must go through a legal process called "probate." A pre-existing will can make probate less painful, but it is generally accompanied by distribution delays, additional costs (attorneys and court fees), and public scrutiny (probate records are public).

[3] Caring.com's 2022 Wills and Estate Planning Study.

Traditional individual retirement accounts (IRAs), Roth IRAs, employer-sponsored plans, and life insurance avoid probate because a beneficiary must be on record for the account owner to open the account. Non-retirement investment accounts, however, are subject to the probate process unless they are part of a revocable living trust or have an account type that specifically allows for a designated beneficiary – such as an individual "Transfer on Death" account or a "Joint Tenants by Entirety" account. To further complicate matters, tax laws are always subject to change, so it's clear estate planning is paramount. We recommend planning early and revisiting regularly to ensure your funds will be distributed how you wish within the boundaries of current tax laws. Fortunately, what used to be one of the biggest concerns for estates – the inheritance tax – has become far less cruel.

In 1997, only the first $600,000 of an estate (or $1.2 million for a married couple) was exempt from inheritance taxes. Above this exemption amount, Uncle Sam carried a top federal tax of 55%. Now, the top federal tax bracket is 40% and the estate exemption amount is a **whopping $12.92 million ($25.84 million for a married couple)**. Expectedly, breaching the estate tax exemption amount is not a concern for most retirees nowadays; it's worth noting that this limit is scheduled to "sunset" at the end of 2025 and fall to $6.2 million ($12.4 million for a married couple). Still, estate planning is vital for estates of any size because it assures the assets will be distributed as desired without unexpected costs or delays, and potentially avoids probate.

Required minimum distributions (RMDs) are annual distributions mandated by the Internal Revenue Service for owners of traditional IRAs and traditional 401(k)s who are at least 73 years old.[4] The RMD starts as a small percentage of the retirement account's market value and increases with age, and is taxed at the owner's marginal tax rate. Even if the account owner does not need the RMD, it is still required to be distributed. If one fails to take their RMD in time, Congress imposes a 25% penalty on the amount not taken (it was a 50% penalty prior to the January 1, 2023 enactment of the "SECURE Act 2.0"). A common strategy to satisfy the RMD for those who do not need the funds is to simply transfer it to a personal after-tax investment account. That way, assets can remain invested and continue to grow. Of course, the Government still gets its cut.

Qualified charitable donations (QCDs). To avoid Federal income tax on an IRA distribution, consider QCDs. Beginning at age 70 ½, a traditional IRA owner can distribute up to $100,000 annually from their traditional IRA to a qualified charity free of taxes.[5] For those subject to a Required Minimum Distribution (RMD), this can help satisfy the RMD mandate.

Highly appreciated stock. For clients with charitable intent who own highly appreciated stock, the advantages of donating these shares cannot be overstated. When shares of individual stocks are donated from any type of after-tax account, the fair market value of the stock donation is fully deductible.[6] If an individual in the 37% tax bracket donated $10,000 of cash to a charity, they can deduct $3,700 from their taxes, making the donation cost

[4] 401(k) participants who are full-time employees can defer their RMD unless they own 5% or more of the company.
[5] A qualified charity is any registered 501(c)(3) non-profit organization.
[6] Up to 30% of adjusted gross income with excess carried forward up to five years.

effectively $6,300. If that same individual had $10,000 worth of stock XYZ that they initially purchased for $1,000, they could donate the shares in-kind, write-off the $3,700 as with the first case, and also forgo the associated maximum capital gains tax liability of $2,142 ($9,000 of capital gains x 23.8% long-term capital gains tax rate and net interest income surtax). [7] In this example, the XYZ stock donation had an effective cost of $4,158 instead of $6,300 if the donation were made with cash.

Donating highly appreciated stock isn't suitable for everyone: In most cases, the cost basis for shares under consideration will "step-up" when the account owner dies. If the account owner is older, it likely makes sense to hold those shares until the assets are bequeathed and "stepped up" rather than donating the shares to charity.

Donor-advised funds (DAFs). Conducting QCDs or donating stock has never been easier! What used to be an onerous and expensive task of establishing a foundation, a DAF is a charitable account that can accept donations in the most favorable form for the donor, whether cash or assets in-kind and from either retirement or non-retirement accounts. The contribution is irrevocable and thus tax deductible in the year it occurs. At the donor's discretion, they can direct the DAF to distribute funds to a qualified charitable organization; timing and amount are subject to the donor's preference.

For example, PASI's own senior analyst and nutrition maven Nathan Polackwich can mail a $5,000 check to a foundation committed to ending the production of vegetable oils (of which he is particularly passionate). If that foundation doesn't yet exist but he wants the tax write-off today, he can donate $5,000 of cash or stocks to "Nathan's Donor-Advised Fund." In both cases, he gets the immediate tax deduction, but with Nathan's DAF, he can then let the $5,000 grow unencumbered by tax consequence, outside of his estate, for what could be decades before finding a suitable and qualified non-profit for the proceeds.

Annual gifting. Of course, charity doesn't have to start in retirement, and it doesn't need to be to a not-for-profit organization. In 2023, adults can gift $17,000 annually to any individual without Federal gift tax consequences, and couples can gift $34,000; the limit is adjusted annually. Gifting to children and grandchildren is an incredibly useful strategy to move assets out of your estate without owing taxes to the Government. These types of annual gifts can be contributed directly into after-tax Custody accounts, can be held for the benefit of minors (UTMA accounts or trusts … see below), or can be used to fund a 529 plan.

529 plans. A 529 plan is a tax-advantaged educational account. Funds can grow and be distributed tax-free if used for qualified expenses, or transferred to a qualifying family member if not depleted by the original beneficiary. Each year, individuals and couples can contribute up to the annual gift amount without incurring gift tax liability. They could also "superfund" a 529 plan by contributing up to five years' worth of contributions in one lump sum: $85,000 for individuals and $170,000 for couples (in 2023). Of note, 529 plans are typically run by states. You can choose any plan you want, but if your state offers a tax

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[7] 23.8% rate calculated as maximum long-term capital gains rate of 20% plus an additional 3.8% for those subject to the net interest income tax.

deduction, it's likely best to contribute to the state plan. It's always worth comparing all states and all options regardless.

Uniform Transfer to Minors Act (UTMA) account. Gifts do not have to be confined to education expenses. Consider an after-tax account for minors like a UTMA account.[8] Gifts to UTMA accounts are irrevocable, and unlike 529 plans, funds can be withdrawn at any time without restriction if the money is used to benefit the minor. A couple can donate $34,000 every year to their children and spouses, and their children's children, and so on, all without tax consequence. Unlike 529 plans, these accounts are subject to income and capital gains taxes.[9] UTMA accounts offer incredible flexibility for wealth transfer purposes, but they do impact college financial aid considerations to a much greater degree than 529 plan assets. Also keep in mind that UTMA accounts officially transfer to the minor at the age of majority, either age 18 or 21, as determined by the state. If longer term control of assets gifted to a minor is a concern, consider creation of a trust for the minor which will allow comparable gifting but adds more options regarding control.

Whether you are interested in qualified charitable distributions, donating low-cost basis stock, establishing your own donor-advised fund, or setting your grandchildren up for financial success, we are here to help. PASI is fully equipped to manage DAFs and UTMA accounts with the same level of diligence and care as your current accounts. Please reach out to any Portfolio Manager if you're interested in learning more!

We recommend discussing all tax implications with your accountant and estate planning implications with your attorney. We are always happy to work together with other professionals to ensure we are meeting your financial goals holistically.

Disclosure

Professional Advisory Services, Inc. may, from time to time, have a position in securities mentioned in this newsletter and may execute transactions that may no longer be consistent with this presentation's conclusions. Reference to investment performance of the PASI composite stock portfolio is made gross of expenses. For formal performance disclosure with net returns please contact our office.

[8] The UTMA was designed to replace the Uniform Gift to Minors Act (UGMA) account.
[9] Depending on the timing and amount of withdrawals, income is subject to the child's tax rate up to a certain limit and then subject to trust tax rates. Capital gains are subject to regular short-term and long-term capital gains tax treatment.

S.E.C. Compliance

Pursuant to the Investment Act of 1940 and specifically Rule 204-3 thereunder, a registered investment adviser shall annually deliver or offer in writing to deliver upon written request to each of its advisory clients a disclosure statement prepared in compliance with the requirement of this rule. Part II of Form ADV complies with this rule and you may request a copy by calling or writing our office.

In February 2003, the SEC also adopted new rules requiring investment advisers to annually offer a copy of their Proxy Voting Policy. In January 2021 Professional Advisory Services, Inc. contracted with Broadridge Financial Solutions to vote proxies with respect to client holdings. Voting will be solely in the client's best interest with the primary goal of long-term enhancement of shareholder value. Records of each proxy vote will be retained for five years. You may request a copy of our complete Proxy Voting Policy and details of the service from Broadridge by calling or writing our office.

Under SEC Rule 204A-1, Investment Advisers are required to adopt a Code of Ethics. Professional Advisory Services employs a Code of Ethics and Business Conduct which outlines our standards of conduct in dealings with clients, staff, regulators and business associates. The Code provides guidelines to prevent the misuse of material non-public information. All officers and employees receive a copy of the Code, which they acknowledge in writing. They are educated in the meaning of all aspects of the Code through compliance meetings and are required to comply with it. Individuals are instructed to raise issues internally if they believe malpractice has occurred or is likely to occur, without fear of recrimination. Professional Advisory Services is committed to maintaining and enforcing the Code. Records relating to the Code will be retained five years beyond effective dates of use per current SEC regulations. You may request a copy of our Code of Ethics and Business Conduct by calling or writing our office.

Additionally, the SEC issued Regulation S-P on June 22, 2000. The operating premise of this ruling is to effect compliance with the Gramm-Leach-Bliley Act which prohibits the sharing of any nonpublic personal information with any nonaffiliated third party unless the firm has provided initial notice of its privacy policies. The ruling requires we provide a copy of our Privacy Policy to our customers on an annual basis. A copy of our Privacy Policy is included with this newsletter.

The following disclosure is provided in compliance with the requirements of SEC Marketing Rule with amendment 206(4)-1, effective 11/4/2022.

The **PASI stock portfolio and PASI corporate bond portfolio** includes the reinvestment of dividends and interest; and is reduced by brokerage commissions but is gross of Professional Advisory Services, Inc. fee, which is described in Part II of form ADV, available upon request. Our fee is a maximum of 1% and decreases based on assets under management. As an example of fee impact, over a ten-year period, $100,000 invested in stocks growing at 8% per year would increase at the end of ten years to $205,419 net of 1% fee versus $220,804 gross return. A similar ten-year investment in corporate bonds growing at 4% per year would increase at the end of ten years to $136,558 net of 1% fee versus $148,886 gross return.

The composite benchmark is comprised of the reinvested S&P 500 Index for stocks and the Bloomberg U.S. Corporate Bond 1-5 Year index for bonds. While our holdings closely mirror their respective indices, the benchmark does not reflect our inclusion of cash and, where applicable for the client, municipal bonds. The S&P 500 Index is an unmanaged index of the common stock prices of approximately 500 widely held US stocks, which includes reinvestment of dividends but does not reflect brokerage commissions. The Bloomberg U.S. Corporate Bond 1-5 Year index measures the reinvested returns of investment grade, fixed rate, taxable corporate bonds with 1-5 year maturities. The Benchmark is intended only as an estimate of comparative performance.

PASI balanced accounts data reflects all accounts included in billing for the full year. Monthly aggregate returns are linked to produce a time-weighted annual return. Some managed accounts hold non-standard positions at a client's request that are included in the returns above but represent a very small percentage of overall holdings. The percentage of stocks and bonds used in the Composite Benchmark matches the weighted average target asset allocation managed by PASI each month. For 2022, the annual average stock allocation was approximately 61%, individual performance results will vary based on their respective allocation.

PROFESSIONAL ADVISORY SERVICES, INC.

PRIVACY POLICY FOR CLIENTS

While information is the cornerstone of our ability to provide superior service, our most important asset is our clients' trust. Keeping client information confidential and using it only as our clients would want us to are top priorities for all of us at Professional Advisory Services, Inc.

Clients will be provided with our Privacy Policy annually. Potential clients will receive a copy of our Privacy Policy.

1) We will safeguard, according to strict standards of security and confidentiality, any information our clients share with us. We maintain physical, electronic and procedural safeguards to guard your nonpublic personal information. These safeguards include password protection for server and workstations, 24/7 video surveillance, encrypted data back-up, a virtual private network (VPN) for secure remote access to the PASI network by authorized PASI personnel, secure ShareFile utility for emailing sensitive documents, and monitored secure shredding for document destruction.

2) We will permit only authorized employees, who are trained in the proper handling of client information, to have access to that information. Employees who violate our Privacy Policy will be subject to company sanctions.

3) We gather nonpublic personal information about you from the following sources:
   - Information we receive from you on an application or other form
   - Information you provide us in client meetings or other forms of communication such as fax, e-mail, letter, and telephone
   - Information about your transactions with us and your designated custodian

4) We will not reveal nonpublic client information about you to anyone, except as permitted by law.

5) Whenever we hire other organizations (third party) to provide support services, we will require them to conform to our privacy standards or agreed upon privacy standards in writing.

6) We will strive to keep client files complete, up-to-date, and accurate. We will provide our clients with this account information when requested.

7) If you decide to close your account(s) or become an inactive customer, we will continue to adhere to the policies and procedures as described in this notice.