thoughts

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INVESTMENTS AND PLANNING

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The Race To Innovate...

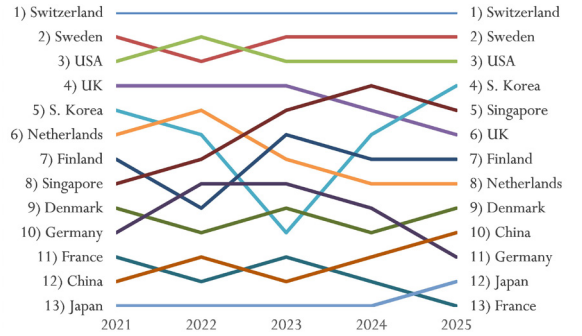
The financial press often uses the term "innovation" in vastly different ways. Many financial innovations, such as mortgage-backed securities, are simply new methods to monetize other products, creating fees and often problems in their wake. Innovations can also encompass more useful products. Thomas Edison's lab tested thousands of filament designs before finding the one best suited for commercialization of the incandescent light bulb. Wikipedia, one of my favorite places to visit, provides little help in clearing up the confusion by offering up nine different definitions for innovation.

Even with the lack of clarity, innovation remains important to businesses and governments alike given its leading role in driving economic growth. But how best to spark innovation? Rather than the flash of brilliance from a singular "beautiful mind," innovation is often the product of the numerous attempts from a multitude of people. Edison and his team, for example, did not create the incandescent light bulb but instead were the first to find its practical implementation. To spark innovation in a more structured manner, Edison launched the first industrial research laboratory in Menlo Park, NJ which helped develop many of his 1,093 patents. More recent research efforts include Bell Labs, Xerox PARC, and Google's Area 20% project that created AdSense and Google News.

The U.S. government has also spent billions to fund research and labs for science, military, and space exploration. Some of this funding has gone to government labs like the Defense Advanced Research Projects Agency (DARPA), best known for contributions to GPS and the internet. However, much of the funding has gone to private labs and universities with limited oversight. This combination of private and federal spending on innovation has helped drive America's rise to its spot as a global economic superpower.

The Global Innovation Index (GII) from the World Intellectual Property Organization (WIPO) examines around eighty different indicators to rank the innovation performance of approximately 130 different countries. While the U.S. ranks in third place behind Switzerland and Sweden, the more interesting changes have happened at the bottom of the top ten. China, which ranked in 35th place in 2013, ascended into the top ten for the first time in 2025, displacing Germany. So, what helped to spur the change?

TOP 13 GII INNOVATORS: 2021-2025



Source: WIPO Global Innovation Index 2025

Like its U.S. counterpart, the Chinese government spends billions on research. Its state-run labs and universities serve as the starting line for an "innovation chain" that transforms ideas into marketable products. Over 2,000 government-guided investment funds underpin this chain, and local governments help spur not only innovation but entire ecosystems and supporting supply chains. The model has driven the tremendous advancements over the last 15 years in EVs, lithium batteries, and robotics, areas in which the U.S. now lags. Despite sparking the tremendous innovation gains, the Chinese model does have some downsides. Local governments and funds often crowd into similar markets resulting in overproduction and price wars as competitors try to gain share at any price. Less appealing but still important industries, like commercial aviation, too may struggle to attract funding.

The U.S. is unlikely to adopt China's government-centric innovation model. But adapting aspects from both models may help lower-middle income countries move up WIPO's innovation list. For countries like India (#38), Vietnam, (#44), and the Philippines (#50), the list and its methodology offers important lessons about how to create durable ecosystems to foster innovation.

- Neil Macker

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HOUSING

By Evan Pemberton

Staying Warm in the Winter Without Burning Through All Your Cash…

The first flakes of the season just fell outside our office window — the kind that sticks to the trees and reminds you that winter is officially here. As the cold settles in, the familiar office banter begins: "Have you turned on your heat yet?"

For many, this comment is half joke, half challenge. But beneath that friendly competition sits a real question homeowners face: how do you keep your home warm without burning through your savings?

As the temperatures dip, conversations in colder areas of the country turn to the relative merits of different heating systems. Should you switch to natural gas or propane? Invest in heat pumps? Add a woodstove to the mix? No matter the path, two themes dominate the conversation — cost and efficiency.

The accompanying chart makes one thing clear: since 2000, heating oil has experienced the steepest and most volatile inflation. Natural gas and propane have had their swings as well, but both ended the period at far lower cumulative inflation levels, with stretches of net deflation along the way. Interestingly, despite bouncing around, propane's cumulative, long-term inflation ended up almost identical to the blended firewood index — both landing in the high 70% range. Wood, meanwhile, demonstrated slow and steady, inflation rates, a rarity in the energy world.

Where you live dramatically influences your heating options. While natural gas is the dominant fuel source in most of the country, home heating oil dominates in New England. And in more rural areas of the region like Vermont, the limited pipeline infrastructure, challenging geography, and frigid winters mean homeowners must rely heavily on delivered fuels like propane and wood (*see chart below*).

ENERGY SOURCE USED FOR HOME HEATING

(Share of households)	Vermont	U.S.
Natural Gas	17.2%	46.0%
Fuel Oil	36.5%	3.7%
Electricity	10.0%	41.7%
Propane	19.6%	5.0%
Other/None	16.7%	3.5%

Source: U.S. Energy Information Administration

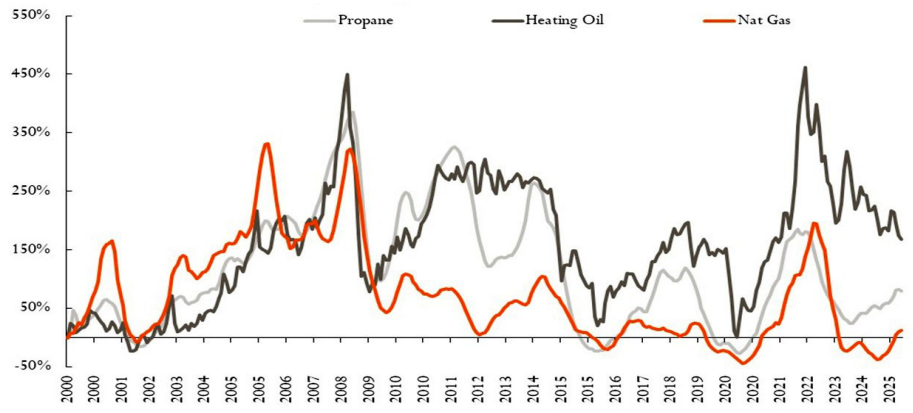
In high school and college, I worked alongside my father installing heating systems — including the not-so-glamorous job of cutting an old oil tank in half so it could be hauled out of a basement. Switching heating sources isn't just a technical decision; it's a financial one. For many economically challenged families, such upfront costs can be a major barrier to making the change they want.

Here In the Northeast, winters can feel like an extreme sport, often involving sub-zero temperatures. Until recently, the climate made electric heat a poor choice as it relied on inefficient resistance-based systems like space heaters or baseboard heat. Heat pumps have changed that story, but only recently. Early systems struggled in extreme cold. The newest generation, however, performs efficiently at much lower temperatures making them a viable electric option for more of the year. And heat pumps offer a major bonus: cooling in the summer.

We recently installed a heat pump in our home and love it, and plan to add more as our budget allows. Despite Vermont's reputation, the weather can be brutally hot and humid. In 2025, the state experienced a temperature swing from –29°F in February to 99°F in June — a staggering 128-degree range. Our heat pump works well in these conditions and also during the shoulder seasons of fall and spring. We often run ours instead of firing up the main heating system, helping to cut costs. With our solar panels helping offset electricity costs, there's also a small environmental benefit from using less fossil fuel.

In the end, there's no single "right" way to heat your home — only the solution that best fits your budget, your house, and your tolerance for winter's extremes. What the data makes clear is that our choices are evolving, and technologies like modern heat pumps are giving homeowners more flexibility than ever. As prices shift and efficiencies improve, the smartest approach is simply staying informed and choosing the mix that keeps your home comfortable without stretching your wallet.

CUMULATIVE INFLATION SINCE 2000 BY HEATING SOURCE



Sources: U.S. Bureau of Labor Statistics, Federal Reserve Bank of St. Louis FRED

HEALTHCARE

By Art Wright

The Medicare (Dis)Advantage

Big changes are coming to the Medicare Advantage marketplace, and if you're over 65, it's worth paying attention to the notices you may be receiving in the mail. The last thing anyone wants is a surprise coverage gap.

Let's start with the basics. Medicare covers people 65 and older. Part A handles hospital stays and some nursing care. Part B covers doctor visits and outpatient care. Part C, or Medicare Advantage, bundles A and B together, often with drug coverage and extras like dental or vision. Part D is prescription coverage you can add if you're on regular Medicare.

Now here's the problem: Medicare Advantage. Lower government reimbursement rates and rising medical costs are causing the private insurers who sell these plans to cut their offerings. The reductions are hitting less populated and rural areas particularly hard especially in states with more Medicare enrollees. Consider the case of Vermont. The state has around 170,000 people on Medicare with a third on Advantage plans. These plans were convenient and more affordable than the supplemental Medigap coverage. In 2025, for example, the average monthly premium for an Advantage plan in the state was about $31 versus $165 per month for Medigap. One downside to the plans, however, was that they required you to stay "in-network" when seeking care. This could become an issue for patients seeking specialized care or wanting to see a specific out-of-network provider.

That's changing fast. Many insurers are shrinking their service areas. Vermont Blue Advantage, for instance, won't have any plans after 2025. Some counties might not have any Advantage options at all.

Why? Costs are rising with older populations and the increased paperwork and rules, pressuring profits. The insurers are making business decisions, but for the rest of us, it's a headache.

Why did people like these plans? Convenience. Everything together, one company, one bill. Now, many Vermonters will have to piece coverage back together. That means going back to Original Medicare -- Part A (usually free) and Part B (about $206.50 a month in 2026) -- and then adding Medigap to cover out-of-pocket costs. Medigap can cost $150 to $250 a month, depending on your health and the plan you pick. Then there's a separate Part D drug plan, which can be anywhere from $8 to $100 a month.

It adds up fast, and it's confusing. What used to be one bundled plan becomes a mix of different companies, bills, and deadlines. Most people will see premium costs go up; others might see a reduction in benefits, which could risk unforeseen gaps in coverage.

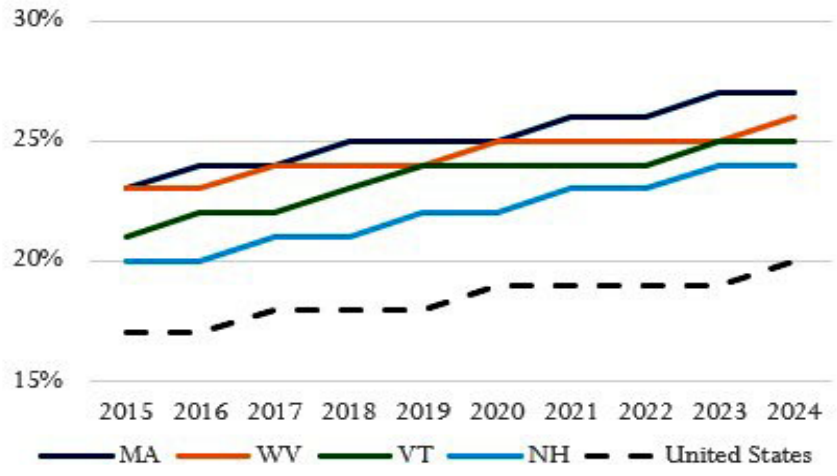
So, what should Medicare Advantage policyholders facing these changes do? First, don't panic. But don't wait either. Find someone who can talk clearly through your options. That might be an insurance broker, but make sure you trust them — they're usually paid for the plans they sell, so double-check the info. Ask questions, compare options, and don't rush.

The timing is important. The regular Medicare open enrollment period is October 15 to December 7. But because of these plan cancellations, anyone who loses an Advantage plan has a special window to sign up for a Medigap policy without being denied for health reasons. That window runs until March 6, 2026. After that, insurers can resume reviewing health history. So, don't wait; get your coverage lined up sooner rather than later.

There are resources to help. Many affected states are ramping up resources. Here in Vermont, for example, the State Health Insurance Assistance Program (SHIP) offers free guidance at 1-800-642-5119. The Vermont Department of Financial Regulation can also help, or you can call 1-800-MEDICARE or visit Medicare.gov for federal info.

Many insurance companies are finding it hard to make money in smaller, rural communities with aging populations. The result means fewer choices and higher costs for most insurance offerings. It's frustrating and not how it should be, but that's the reality. The best thing you can do is pay attention, ask questions, and get your coverage sorted before any gaps happen.

MEDICARE BENEFICIARIES AS A SHARE OF TOTAL POPULATION



Sources: KFF State Health Facts

CAPITAL MARKET

By Neil Macker

Behind The Curtains of IPOs...

The recent $7.5 billion IPO of South Burlington's own Beta Technologies intrigued many of our clients at Hanson + Doremus, particularly those in Vermont, a state which rarely generates new sizable public companies. While the hype and excitement surrounding IPOs have been a staple of both the financial and general media since the dotcom boom, the actual mechanics, processes, and outcomes for IPOs remain hidden behind the curtains for many investors. I'll try to raise those curtains to shed a little light.

An Initial Public Offering or IPO endures as the most conventional method in the U.S. for private companies to access public equity capital. The reasons for undergoing this process can vary but commonly include raising money to run or expand the business instead of issuing new debt and offering a more liquid market for the current investor base to monetize all or some of their stakes in the firm.

Whatever the rationale, the decision to "go public" also comes with some potential downsides. These include increased public scrutiny; greater emphasis on short-term financial performance; a larger board with increased power; potential loss of control of the firm; and the increased time and money spent on financial reporting and investor relations.

Firms begin the IPO process by first selecting investment banks that provide due diligence, valuation, underwriting and marketing services. They must also issue an S-1 Registration Statement (also known as a prospectus), undergo due diligence from their key regulator, the Securities and Exchange Commission (SEC), and go on a roadshow to market the shares to institutional investors like mutual funds and hedge funds. This part of the process can take a few months to over a year depending on the market conditions and the back and forth with the SEC.

As the effective trading date draws closer, the underwriters (i.e. investment banks) use the prospectus, roadshow, and their own client networks to gauge interest from potential investors about not only pricing but also on the offering size. For example, Beta planned to sell 26 million shares for between $27 to $33 per share for its IPO. Due to the IPO being oversubscribed, the firm and its bankers priced the stock at $34 per share and increased the number of shares to 29.9 million shares.

So, how do investors get allocated shares in an IPO? The first key is to look at the cover page of the prospectus (*see below*). The banks are ranked in importance there with top as most important and then by left to right position. The actual fees generated also follow this same pattern with the majority accruing to the top line. So, for Beta, its lead underwriters were Morgan Stanley and Goldman Sachs. Clients, both institutional and retail, of those two banks had the best chance of gaining access to the Beta shares. While some companies prefer to sell to institutional clients for a more stable ownership base, other companies like to spread out the wealth to retail clients. Beta asked its underwriters to allocate shares to the roughly 1,000 Vermonters who indicated interest via its banking partners.

After this long process, the IPO becomes effective and starts trading on an exchange. One oddity is that trading on the "effective date" rarely starts at the open, but around midday or later. Beta began trading on November 4 at around 1:50 pm Eastern. The double-digit opening day pop for IPOs was typical during the dotcom boom and the more recent "unicorn" era of Uber, Airbnb, and Pinterest. However, more than a few IPOs subsequently trade at or near their IPO price including Beta, which closed up around 6% on the day.

Longer term, the case for getting in early on any IPO is shaky. A study from Nasdaq Economic Research found that roughly 64% of IPOs from 2010 to 2020 underperformed by 10% or more versus the relevant index at three years after their IPO date. Even within six months, 42% were more than 10% down versus the index. However, the range of outcomes is skewed towards the names we remember the most, with top 10% of IPOs in the study earning an average market-adjusted return of over 300%. For most investors, a diversified portfolio would likely outperform one made up of IPOs.

INVESTMENT BANKS THAT LED THE BETA IPO

Morgan Stanley — *Goldman Sachs & Co. LLC*

BofA Securities — *Jefferies* — *TPG Capital BD, LLC* — *Citigroup*

Cantor — *BTIG* — *Needham & Company*

Source: Beta Technologies S-1