PRODUCTIVE BUBBLES

PUBLISHED ON NOEMA MAGAZINE ON JULY 27, 2021

DOWNLOAD ARTICLE

Occasionally, financial speculation fastens onto transformational technologies that have the potential to create a genuinely new economy.

The persistent recurrence of speculative excess is a defining feature of financial capitalism wherever and whenever investors have the opportunity to trade assets. For the last 500 years, from tulip bulbs in the 1630s to cryptocurrencies today, the prices of assets have been subject to waves of herding behavior and momentum investing, with prices decoupling from any relationship to past, present and prospective cash flow. The economic historian Charles Kindleberger and the economist Robert Aliber summarized the phenomenon in their book on financial crises:

Investors have speculated in commodity exports, commodity imports, agricultural land at home and abroad, urban building sites, railroads, new banks, discount houses, stocks, bonds (both foreign and domestic), glamor stocks, conglomerates, condominiums, shopping centers and office buildings.

At the extreme, such speculation has come to be characterized as a bubble, a term associated with the iconic South Sea Bubble in London in 1720. As has often been the case, speculation in the shares of the newly chartered South Sea Company began with a plausible story: the opportunity for British merchants to take over the lucrative returns generated by trade with the new world from the fading Spanish Empire.

None other than Isaac Newton joined the fray, having transformed himself from the progenitor of mathematical physics in Cambridge to the wealthy master of the Royal Mint. Newton bought in early and cashed out for a healthy profit — but then as the bubble accelerated he could not stand it and reinvested at the top, shortly to lose everything. He is supposed to have remarked: "I can calculate the motions of the planets, but I cannot calculate the madness of men."

Bubbles are ubiquitous. In his history of the city of London since the end of the Napoleonic Wars, David Kynaston chronicles a speculative "bull run" in every decade up to World War I. When New York then emerged as London's successor, the great bull market of the Roaring Twenties followed. A long generation of "financial repression" followed the Great Depression and World War II, but then came the "money game" years of the 1960s. And stagflation in the 1970s yielded to a generation-long "super-bubble," as George Soros characterized it, which peaked first with the dot-com bubble of the later 1990s and then in the derivatives-fueled credit bubble that exploded in the global financial crisis of 2007-8.

But not all bubbles are the same. When financial speculation is limited to the relatively unleveraged equity markets, the consequences of the inevitable bust are limited. But when speculation is fueled by credit and infects the core banking system, the consequences are likely to be devastating, as in the recession that followed 2008.

Occasionally, financial speculation fastens on to a transformational general purpose technology (GPT) that has the potential to create a genuinely new economy. Call it a productive bubble. The British railway manias of the 1830s and 1840s — when the GPT of steam power was applied to locomotion — were the first fully documented productive bubbles. The railways were built by newly created companies, endowed by Parliament with special privileges: Eminent domain enabled them to take land for their rights of way in return for fair compensation, while limited liability protected investors from losses beyond their actual investment.

"NOT ALL BUBBLES ARE THE SAME."

First in the 1830s (the "little mania") and then with substantially greater vigor a decade later (the "great mania"), a doubling of share prices induced the mobilization of funding to build out the railway network. When share prices collapsed, many of the promotional ventures became bankrupt, but no one tore up the railways. A financial fiasco left real assets in place, as

it did a decade later when London financed a railroad boom in the United States of comparable dimensions.

In New York, the bull market of the 1920s encompassed massive investment in electricity generation and distribution. Public utility holding companies served as vehicles both for raising needed finance and providing necessary technical expertise. By the time the Great Depression took hold in 1929, installed generating capacity in the U.S. had increased from 13 to 33 million kilowatts.

Looking back in 1931 on the frenzied investment of 1925-1929, John Maynard Keynes highlighted the productive consequences of unsustainable speculation:

While some part of the investment which was going on in the world at large was doubtless ill-judged and unfruitful, there can, I think, be no doubt that the world was enormously enriched by the constructions of … 1925 to 1929; its wealth increased in these five years by as much as in any other 10 or 20 years of its history. The expansion centered round building, the electrification of the world and the associated enterprises of roads and motor cars. … The capacity of the world to produce most of the staple foodstuffs and raw materials was greatly expanded; machinery and new techniques directed by science greatly increased the output of all the metals, rubber, sugar, the chief cereals, etc.

In our own day, the dot-com bubble of the late 1990s both accelerated the build-out of the physical internet and funded the first wave of quasi-Darwinian exploration of this new economic space in search of commercially relevant and financially sustainable ventures. Of course, as always, proof of the last could only come once the bubble had burst and operating losses could no longer be covered by speculative investment. Amazon survived; pets.com did not.

THE UNICORN BUBBLE

Today, speculation has been reignited in a very different financial regime from any we can observe historically. Since the global financial crisis, risk-free real interest rates have been driven to negative levels and held there by central banks around the world. In response, capital has flowed in large quantities to private, venture-backed new companies at extraordinary valuations — the “unicorns” — as well as into an array of innovative digital assets, from cryptocurrencies to non-fungible tokens.

As and when the financial regime reverts to historical norms of real returns and terms and credit spreads, much of this investment is likely to prove unproductive: New consumer-oriented digital services that could never find a sustainable revenue model and digital assets of questionable sponsorship and problematic regulatory legitimacy will fade away.

During the current wave of speculation, however, it is possible to read the signs of another nascent productive bubble: a green one. The promise is exemplified by Tesla. Bloomberg estimates that, in one form or another, Tesla has raised some $14 billion of risk capital while, over the past three years, its stock price has risen by more than a factor of 10. Pulled along in Tesla's wake have been a variety of electric vehicle and related ventures. A number of these have secured capital through acquisition by special purpose acquisition companies (SPACs): Since March 2020, $120 billion has been invested in SPACs that pledged to merge with renewable energy, electric-vehicle and other environmentally sustainable businesses.

Unfortunately, commitment of capital to the sort of blind pools represented by these blank check companies marks the degenerate stage of financial speculation when, literally, anything goes. And so far, a green bubble lacks a critical enabling factor from outside the financial sector: an actively supportive, mission-driven state whose funding is unconstrained by the narrow calculus of cost-benefit analysis.

During the current wave of speculation, it is possible to read the signs of another nascent productive bubble: a green one.

In Britain, remember, the promoters of railway ventures gained parliamentary sanction and necessary powers for their speculative ventures based on detailed economic forecasts that only occasionally and often by accident were actually confirmed by results. In the U.S., railroad development was directly subsidized, first at the state and then at the federal level, by grants of public land seized from Native peoples and publicly administered until transferred for private profit.

Electrification depended upon a very different form of government intervention. The enormous upfront investment required to construct generating stations was accompanied by very low marginal operating costs: the cost of delivering the incremental electron asymptotically approaches zero. Under competitive conditions, with prices driven towards marginal costs, electric utilities would invariably run at a loss. The answer was to restrict competition through establishing electricity providers as regulated public utilities, enjoying local or regional monopolies in exchange for constraints on pricing and rates of return.

In the decades following World War II, all the components of the digital revolution — from silicon to software — were sponsored and accelerated by the U.S. Department of Defense. DOD funded both upstream research and development and served as the first, collaborative customer, pulling the supply side of the sector down the learning curve to low-cost, reliable production. By 1980, venture capital and public equity markets could fund at scale the new ventures that were founded to address the commercial and industrial markets for computers.

"So far, a green bubble lacks a critical enabling factor from outside the financial sector: an actively supportive, mission-driven state."

When it comes to climate change, however, up until January, the U.S. federal government has been missing in action. At the margin, the American Recovery and Reinvestment Act of 2009 included small gestures toward public investment in response to climate change. But the loan guarantees offered to a handful of startups were not only too narrowly focused, they were also radically misconceived. These companies need procurement contracts, not loan guarantees, to support their development: procurement contracts like those DOD gave to the new semiconductor companies of the 1960s, which were renewable and expandable based on performance.

Tesla was able to repay its federally guaranteed loans from the flood of capital Elon Musk attracted. But the battery company A123 and the solar panel company Solyndra subsequently filed for bankruptcy. The embarrassment of the ARRA loan guarantee program became a weapon in the hands of climate deniers and opponents of the Obama administration generally.

The Biden administration appears firmly determined to promulgate a green agenda, if not a full-blown Green New Deal. It can look back no more than a year to find a relevant instrument for attracting investment in target technologies, such as novel energy storage systems. In response to the COVID-19 pandemic, advanced procurement contracts sped vaccine development at an unprecedented pace, building on prior investments by the National Institutes of Health in the science of mRNA therapeutics.

Governments cannot summon a productive bubble into existence on command. But by upstream investment in science and enabling technologies, augmented by broad-based, experimental procurement of the fruits of such investment before they are ready for commercial primetime, governments can tee up potentially productive targets for speculative focus. Along with such direct financial commitments, deliberately shifting the regulatory environment to tilt private sector demand in the desired direction is also available.

MONITORING BUBBLES

Correctly reading a bubble in flight is, of course, a problematic exercise. The powers of rationalization among investors who are making money, urged on by charismatic promoters, have proven to be formidable too many times to count. But there is an equivalent of one of those tells that successful poker players look for. The tell of a bubble can be seen when demand curves invert — that is, when increased price is accompanied by increased demand.

When the laws of supply and demand are reversed, trading volume rises with the price of the asset as more investors are sucked into the speculative vortex. Less quantitatively specific signals can be observed as successively less credible ventures draft behind an evident winner, like the variety of electric vehicle companies hoping (in some cases in desperation) to be qualified as "the next Tesla."

The parallel challenge is to track the extent to which an asset bubble is supported by leverage. Here the regulators have a primary responsibility. Innovation in finance is constant, and the game between financial entrepreneurs and regulators is neverending.

Relatively unleveraged waves of speculation are best left to run themselves out. The longer-term productive benefit of an innovation that attracts speculative attention is by no means always evident at first glimpse. And even if there appears to be no possible productive benefit, killing the speculative impulse at birth does have the potential to create a negative externality: an absence of enthusiastic investor response when a genuine productive bubble could generate social benefits.

The ongoing games playing out on the Robinhood brokerage platform is a case in point, best addressed with a time-honored meme offered years ago by an acquaintance who was a professional outside director of the sort of companies headquartered in the Cayman Islands. "Had God not made them sheep," he opined of his minority stockholders, "they would not have been born to be shorn."