2019
2ND QUARTER
QUARTERLY COMMENTARY

Angeles

David Teniers the Younger (1610 - 1690) The Alchemist, c. 1650, Mauritshuis Museum

Sustain

Gold is one of the handful of metals found "free," just lying around to be collected. Traces of gold are found in Spanish caves dating more than 40,000 years ago, but it took humans a very long time to figure out how to extract and use other metals.

Most metals, such as copper, lead and tin, must be separated from their ore through heat, a process known as smelting. This first occurred about 8,000 years ago. The next technological leap forward happened 2,000 years later with experiments in combining different metals together to create alloys.

Most important was the mixture of copper and tin to form bronze, a particularly strong and malleable alloy, so significant to human history we denote this development as the beginning of the Bronze Age.

Bronze is harder than copper alone, but also more ductile, and oxidizes only superficially. Its value to the ancient world was immeasurable, from cooking to weapons to a store of wealth. Bronze could not have been possible without trade, because copper and tin are not found together anywhere

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in the world.[1] It is no surprise, then, that the Bronze Age began in the city of Sumer, in Mesopotamia, the crossroads of the ancient world.

Since that first Sumerian mixed copper with tin to form bronze, humans have not stopped experimenting with combinations of metals. Alchemy, which literally means the transmutation of metals, became the basis of much of our understanding of chemistry, driven largely by an attempt to forge "base" metals, like lead, into "noble" metals, such as gold. That trick has yet to be performed,[2] but alchemists' experiments contributed to our knowledge of the material world and, along the way, created more versatile, functional and beautiful objects.

One immediately noticeable property of bronze is its timbre when struck with another object. Bronze discs were used in ancient religious rituals to summon the spirits, signify a sacred rite or merely set the literal ceremonial tone. Large bronze discs were also used in battle to create a cacophony of noise to frighten the opponent. Only much later were these discs used for musical purposes, where greater clarity and richer tones were demanded.

Janissaries were the elite infantry of the Ottoman Sultan. They also formed the first military bands, and carried their bronze discs they called *zil*, from the battlefield to the parade ground. Of course, the Sultan employed alchemists to meet his many needs for metal goods, including *zil*. Four hundred years ago,[3] one of the royal alchemists, a man named Avedis, mixed an alloy of copper, tin and traces of silver to create a *zil* of astonishing power and resonance, a leap in orders of magnitude to anything in existence at the time. The Sultan bestowed upon Avedis the honorific of *Zil-dj*, meaning cymbal maker, and in1623, gave him 80 gold pieces and permitted him to start his own business.

Avedis prospered because his secret formula for bronze alloy was precisely the mix that allowed a metal disc to be struck violently and yet produce a sound that was simultaneously powerful and mellifluous, loud, but with clarity, abrupt, but also long-sustained.

Sustained. This word applies not only to the rich sound Avedis coaxed from his *zil*, but also to the business empire he created. For investors, the word has always been the central consideration in striking the optimal balance between short-term needs and long-term goals. Avedis, and his many progeny, found that magic formula, and it is his example that inspires us to try to do the same.

Intergenerational equity is the principle guiding the spending policies of investors with perpetual horizons. All generations, current and future, of beneficiaries are to be neither favored nor disadvantaged with more, or less, spending. This principle

[1] There are three exceptions: Cornwall in Britain, one site in Thailand and one in Iran.

[2] And never will be.

[3] In 1618.

goes beyond merely sustaining an organization in perpetuity which, of course, could be achieved by spending nothing today and allowing assets to grow. This would benefit future generations at the expense of the current one, and thereby contradicts the mission of endowments and foundations to support both current and future recipients. Of course, the reverse is equally true, spending too much today imperils the ability to fund future grants. The intergenerational equity principle is equally violated in both cases.

Thus, we define the sustainability of a perpetual organization as more than its mere continuity. It is the ability to fulfill its mission across all generations, current and future, without favor, in perpetuity.

Balancing the sometimes complementary, but often competing, needs of current and future beneficiaries is the difficult task of fiduciaries. Crafting an investment approach that weighs the multiple risks of liquidity, volatility and (hoped-for) returns in the current political and socio-economic environment while being attuned to unknown (and unknowable) perils and opportunities, is an enormous challenge. This is what defines successful investing.

Investing is the art (and a little science) of allocating risks. To simplify greatly, the risk profile of an investment portfolio is correlated, in the long-run, to the returns that portfolio will earn. Investors must assess the risks and opportunities in the current market, be prepared for this equation to change as market conditions shift, and tie this all back to the risk appetite, and needs, of the organization they steward. Then, in a probabilistic framework, can we estimate a range of expected portfolio returns.

Complicating this already daunting task for investors is not just *what* return can be earned, but *how* those returns are generated. That is, increasingly, investors seek, at a minimum, to avoid having their capital used to further social evils, and preferably, seeing their capital used to promote social goods. This has long been the case for organizations founded on strictly moral, often religious, bases, but has come to be embraced by a much wider set of investors who define their mission in the broader context of social responsibility to a wider community. This larger goal is usually expressed as in addition to, not in lieu of, earning a return commensurate with sustaining an organization in perpetuity.

The first attempts to express sociopolitical goals through investment strategies began decades ago with efforts to fight apartheid laws in South Africa. In 1977, Hampshire College was the first institution to vote to divest from South Africa. A year later, the City and County of San Francisco became the first municipality to bar investing in any companies doing business in South Africa. Many more endowments and pension funds followed. In subsequent decades, divestment campaigns were targeted against other countries, such as Burma (Myanmar) and Sudan (among others), and industries such as tobacco,[4] firearms and fossil fuels (among others).

Divestment is an attractive approach for many investors because it is straightforward to implement and confers moral clarity.[5] But investors should ask two further questions of divestment strategy: is it effective in changing the undesirable behavior of its target, and does it come with a cost to investors?

The theoretical effectiveness of divestment as a mechanism to affect behavior is through raising the cost of capital of target companies by restricting its availability. South Africa is the most prominent case of divestment because it lasted a long time,[6] garnered hundreds of adherents and was deemed a success when the regime eventually collapsed in 1994.

Establishing causality from a single factor in a highly complex sociopolitical development over decades is impossible. Perhaps divestment was a contributory factor, but divestment is supposed to work by raising the cost of capital, and that can be measured. The most detailed study of the impact of US divestment actions on the South African financial market and share prices of US companies with South African operations found "no discernable effect on the valuation of banks and corporations with South African operations or on the South African financial markets."[7] Studies of divestment campaigns in other industries, such as weapons and gambling, also found little or no impact on share prices. There is little evidence that the cost of capital is higher for companies targeted for divestment.

Excluding "sin" stocks from portfolios has generally carried opportunity costs for investors. A study ten years ago found that "sin" stocks outperform the market by 2.5% per year.[8] In December 2016, CalPERS staff recommended rescinding its ban on tobacco companies, which its consultant calculated cost the system more than $3.5 billion over 16 years. The board declined to remove the tobacco ban, but continues to evaluate lifting all limitations on investments, even as it hears demands to add more restrictions.[9]

The moral appeal of divestment is strong, and for organizations founded on explicit moral principles, entirely consistent with their mission. But divestment strategies carry opportunity costs, and may likely be ineffective in promoting the desired change. So what are our options as investors to promote social good effectively without sacrificing returns and the long-term sustainability of our organizations?

[4] Harvard and City University of New York were the first endowments to divest of tobacco holdings in 1990.

[5] Which is not necessarily conceding its morality.

[6] From 1977 with the first divestment by an institutional investor, to the collapse of the apartheid regime in 1994.

[7] Siew Hong Teoh, Ivo Welch, and C. Paul Wazzan (The Effect of Socially Activist Investment Policies on the Financial Markets: Evidence from the South African *Boycott*, Journal of Business, 1999, vol. 72, no. 1).

[8] Harrison Hong and Marcin Kacperczyk, (*The price of sin: The effects of social norms on markets*, Journal of Financial Economics 93 (2009) 15–36).

[9] Such as on Turkish companies in order to force Turkey to admit complicity in the Armenian genocide of the early 20th century (https://www.wsj.com/articles/calpers-dilemma-save-the-world-or-make-money-11560684601).

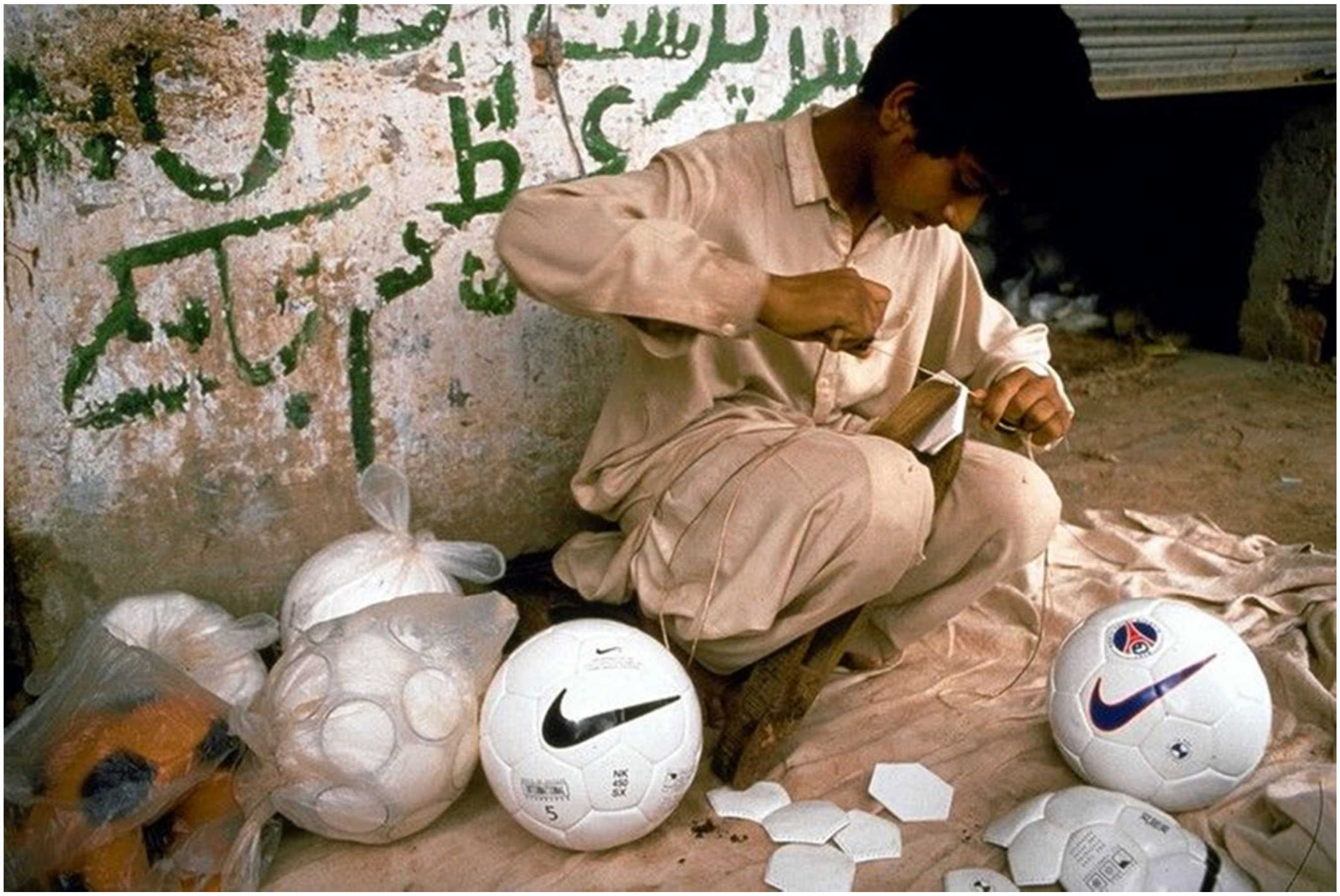


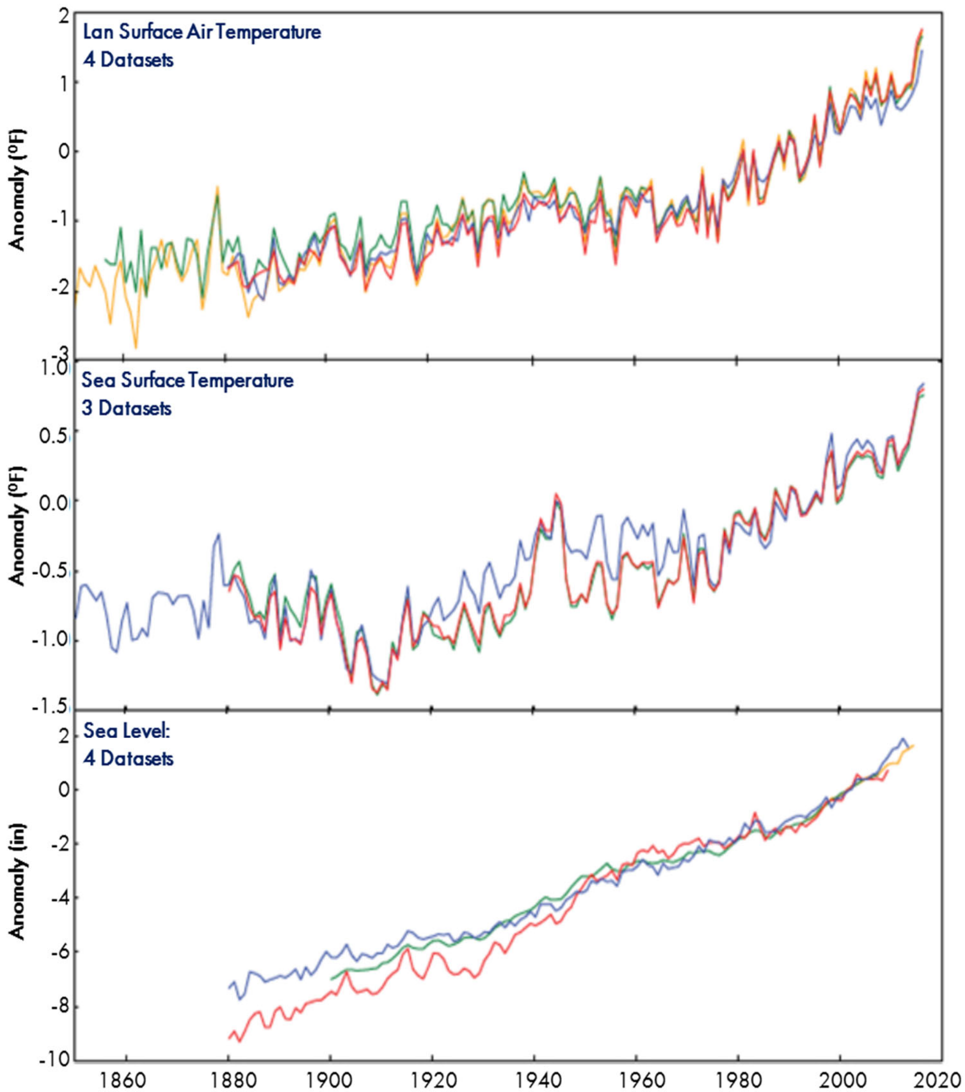
Photo by Marie Dorigny, Life, June 1996.

Engagement. Campaigns to change corporate behavior can be, and have been, effective. One of the earlier efforts started in the 1990s targeting labor abuses by suppliers of Nike. In 1996, *Life* magazine published an article, "Six Cents an Hour," with this photo of a Pakistani boy sewing a Nike soccer ball. Two years later, Phil Knight, Nike's CEO, acknowledged that "the Nike product has become synonymous with slave wages, forced overtime and arbitrary abuse," and vowed changes. Today, Nike is one of the world leaders in fair labor practices and makes public the inspection reports from its contract factories.

Angeles

Chart 1 **Air, Sea Temperature and Sea Level Changes**

1850-2017



Source: Fourth National Climate Assessment

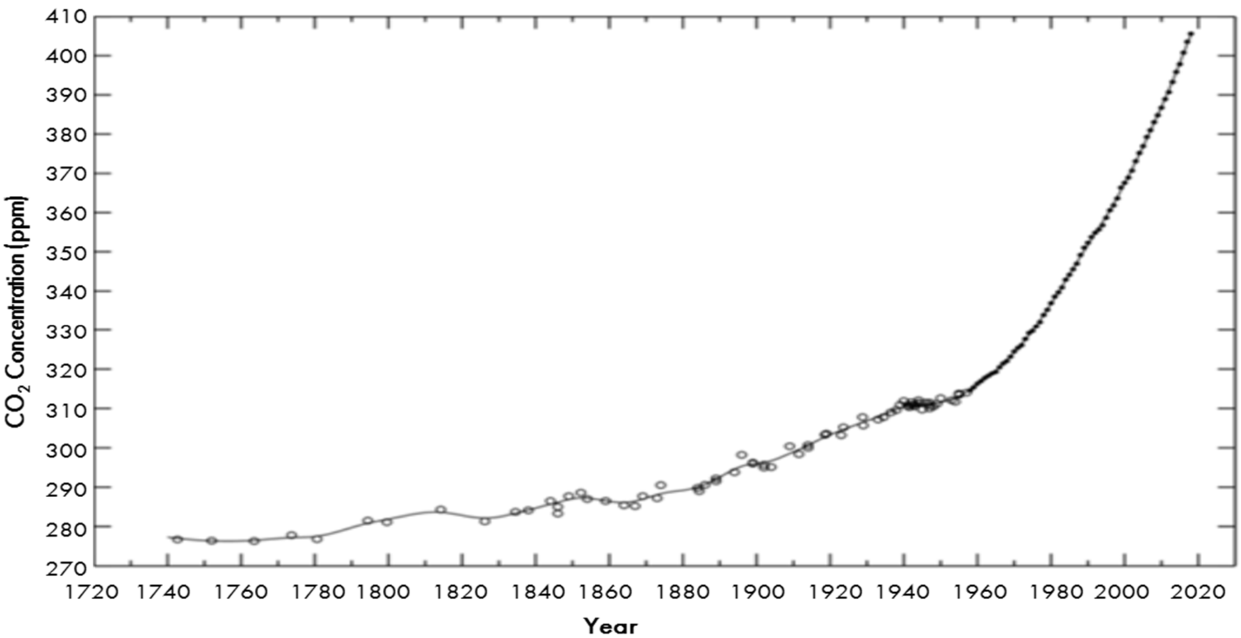
Climate change is an existential crisis. The ecological impact is, and will be, substantial, as the US government's own report establishes.[10] Air and sea temperatures have risen more than 1° Celsius in the past century to the warmest in human history, and sea levels have risen nearly eight inches (see Chart 1). Carbon dioxide (CO_2) levels are projected to rise to 500 ppm, a level last seen about three million years ago when the earth was a cauldron (Chart 2).

Heatwaves, fires and floods will cause greater property damage and more deaths. A study by two Stanford economists showed a negative correlation between economic growth and temperature (Chart 3),[11] and two USC economists found a positive correlation between

[10] https://science2017.globalchange.gov/

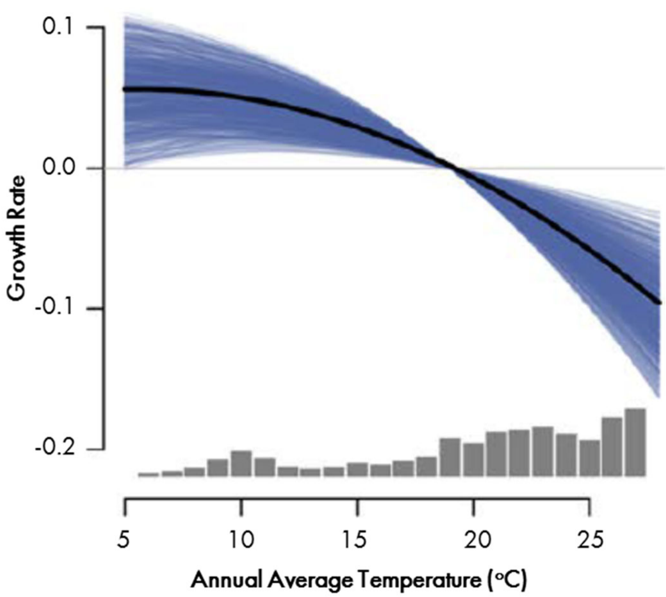
[11] And Burke, Marshall and Vincent Tanutama, "Climatic Constraints on Aggregate Economic Output," NBER Working Paper 25779, April 2019.

Chart 2 **Merged Ice-Core Record** *(Last Updated June 2019)*



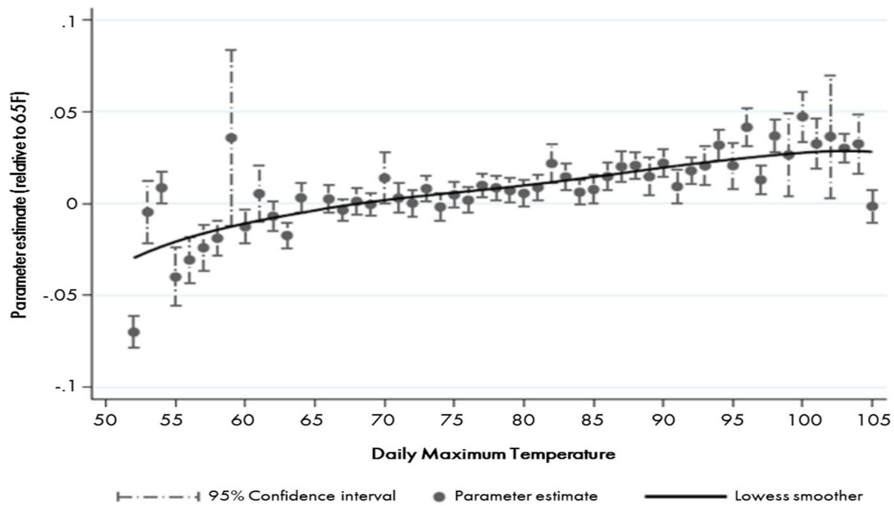
Source: http://scrippsco2.ucsd.edu/data/atmospheric_co2/icecore_merged_products

Chart 3 **Quadratic Response of Growth in GDP per capita to Annual Temperature Fluctuations.**



temperature and crime (at least in Los Angeles—Chart 4).[12] The consequences of climate change are far-reaching.

Chart 4 **Marginal Effect of Temperature on Crime**



Companies are responsive to customer and shareholder actions. In December 2018, Xcel Energy, a Minnesota-based utility, became the first utility in the country to pledge to be carbon-free in its generation of electricity by 2050. CEO Ben Fowke cited customer demand for this move. California law, signed in September last year, mandates that all of the state's electricity come from renewable sources by 2045. Last December, an investor group, led by the Church of England, pressured Royal Dutch Shell to commit to firm emissions reduction and to tie executive compensation directly to achieving this goal.

Of course, much more needs to be done. Most economists propose a carbon tax as the most efficient mechanism for raising the price of carbon emissions, thus reducing demand and spurring technological alternatives. A World Bank report in 2017 recommended a tax of \$50-\$100/tCO_2 by 2030.[13] A more recent study by five prominent economists, including Laurence Kotlikoff of Boston University and Jeffrey Sachs of Columbia, proposed an "optimal uniform welfare increasing" tax of \$30/tCO_2, rising 1.5% per year, as ideally balancing the costs and benefits across current and future generations.[14] In order to enforce a tax on carbon emissions, and to avoid the "free-rider" problem of non-compliers, William D. Nordhaus of Yale, in his Nobel lecture in December 2018, proposed creating a Climate Club, where members pay "dues" for emissions abatements, similar to the tax proposed above, and non-members are penalized through tariffs.[15]

12 Heilman, Kilian and Matthew E. Kahn, "Neighborhood Quality of Life Dynamics During Extreme Heat: Implications for the Distributional Effects of Climate Change," January 2019.

13 "Report of the High-Level Commission on Carbon Prices," World Bank, May 2017.

14 Kotlikoff, Laurence J., Felix Kubler, Andrey Polbin, Jeffrey D. Sachs, and Simon Scheidegger, "Making Carbon Taxation a Generational Win Win," NBER Working Paper No. 25760, April 2019.

15 Nordhaus, William D., "Climate Change: The Ultimate Challenge for Economics," Nobel Lecture in Economic Sciences, Stockholm University, December 8, 2018.

These are big ideas, worthy of serious consideration. But there are many other actions, all within our control, we can take immediately, individually and collectively, personally and professionally.

To this latter point, at Angeles, we have long worked with faith-based organizations to craft strategies consistent with their religious principles. In recent years, as signatory to the United Nations -sponsored Principles of Responsible Investing,[16] we have incorporated these environmental, social and governance (ESG) issues into our investment analyses on multiple levels of firms we invest with, as well as into our own practices. We have evolved, and believe the investment industry needs to evolve, from understanding and recording how ESG principles are being implemented, to quantifying and holding investors and companies accountable for making progress toward these goals.

It is no longer sufficient to consider ESG principles as simply a factor in an investment decision. If reducing carbon emissions is important (it is), companies must be engaged and held accountable for measurable goals, as the Church of England did with Shell. If diversity of management is an important governance issue (it is), it must be promoted and measured.

[16] https://www.unpri.org/

The principles apply not only to the investment approach but also to the firms we work with: how they promote and measure ESG principles in their own firm. And these principles apply to ourselves as well. We seek a diversity of backgrounds and perspectives in our own decision-making and, as importantly, to have a culture that encourages that input. We look to reduce our own carbon footprint.[17] We can all do this.

Avedis died in 1651 and passed his secret formula for his special bronze alloy to his son, who passed it to his son, and so on.

The early 20th-century was a time of political upheaval in Turkey, and the head of the family, Aram, was forced to flee to Bucharest for a time.[18] His nephew, Avedis (III), had moved to America where he established a successful candy business, but in 1927 Aram told Avedis to return to Turkey to take over the cymbal business. Avedis protested, the candy business was good in America, but agreed to take over the family business, and be the keeper of the secret formula, if Aram would agree to move to the United States. The two of them opened a cymbal factory in Quincy, Massachusetts in 1929.

Cymbals were rarely used in music, but a new form of music, jazz, was developing, and a drum set, with cymbals, became part of every jazz combo. Avedis became friends with the great drummers of the day, Gene Krupa, Jo Jones, Buddy Rich, and others, working with them to develop varieties of cymbals for different purposes. The ride, the crash, the hi-hat, all standard items in today's drum kits, were invented by Avedis with input from these great drummers.

[17] In our own modest way, we switched from bottled water and sodas to a machine dispenser, and our small company of less than 30 people has eliminated the use of about 9,000 cans and bottles annually. We measure it.

[18] Aram had joined the Armenian National Movement, which was fighting the Ottomans for political freedoms.

When Avedis passed in 1979, his eldest son Armand assumed control of the company, but Armand's brother Robert felt slighted and the family split. Armand kept the company and the factory in Quincy, Robert took a second factory in Canada and started his own label, Sabian.

In 1999, Armand passed the secret formula and control of the company to his daughter Craigie, who runs the company today with her sister Debbie. Their three daughters all work at the company, the 16th generation of the Zildjian family to work in the business. They still produce most of the cymbals in the world today.

Whether luck or brilliance, in 1618 Avedis created a sustained sound from a bronze alloy that was immediately recognized as vastly superior to anything available at the time.

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