



Let's Make 'Green Finance' Less Special

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What We Have Here Is A Failure To Pay

We don't talk about 'shoelace' finance. We haven't developed 'cookware' finance. We don't need 'livestock' finance. So what's so special about 'green' finance? Green is characterised as an area where externalities, i.e., uncosted effects such as pollution, roam wild. Yes, there are many areas of green, climate change, forestry, water, biodiversity. Yes, we have shades of green, brown, and recently olive. But let's narrow in on climate change and how to change the investment climate to eliminate CO₂-equivalent emissions.

I began researching environmental issues in the 1970's and moved into the financial world of the City of London in 1984. What probably surprised me most when I first began working in the City was having a decent debate on climate change, 37 years ago. It shouldn't have been that surprising. The City hosts some of the brightest analysts; greenhouse gas theory dates from the late 1800s; we've been collecting compelling CO₂ data from Mauna Loa, Hawaii since 1958 charting the rise of CO₂. Not only did the City see the issue of emissions since the early 1950s, it did something about them. The first UK clean air act was passed by the City of London in 1953. Yet that 1984 debate ended where it would end today, does society really want to pay to avert climate change?

The costs are not insignificant. There are other greenhouse gases, but let's stick with CO₂ on its own. The average EU citizen emits just over 7 tonnes of CO₂ per year and the current price of emitting a tonne of CO₂ on the EU Emissions Trading System is approximately €40/tonne (April 2021). €280 per person per annum is not a silly way to estimate of the cost of zero emissions, putting the cost at close to 1% of EU GDP per year. Many believe that price is too low. In 2006 Sir Nicholas Stern estimated global costs at 1% but revised that upwards to 2% in 2008, about €700 per capita per annum. In 2019, Morgan Stanley analysts estimated that the world needs to spend \$50 trillion in five areas of zero-carbon technology between now and 2050, again about 2% of global GDP per year. That implies tighter restrictions on emissions as most emission trading schemes seem to cover about 40% of emissions, and perhaps prices in the EU ETS rising to €80 per tonne, €560 per person per annum. So €500 to €700 per capita per annum, €2,000 to €2,800 per family of four. You don't hear these numbers from politicians, so global emissions, covid-19 aside (a temporary 6% reduction in 2020), continue to rise.

Four decades of delay may be coming to an abrupt end. We have set targets, most notably the 2050 Net Zero Carbon target increasingly echoed by countries round the world. This target implies that in 2050 we will emit no new net carbon. Against what little we do emit we will extract from the atmosphere a compensating amount and sequester it somewhere. If our commitments are true, then we are moving in 29 years from EU emissions around 3.3 billion tonnes and global emissions around 35 billion tonnes of carbon dioxide equivalent gases to nil. Steep changes ahead.



Solving Pollution Problems

Faced with 'market failure' economists typically invoke agency problems, information asymmetries, lack of competition, or excessive leverage. When faced with market failure such as pollution, the core economic analysis invokes 'externalities'. Externalities are industrial or commercial activities that affect other parties without costing or benefitting the person conducting the activity. A positive externality is a beekeeper's bees pollinating surrounding crops. A negative externality is a factory owner's smokestack belching poisons over surrounding neighbourhoods. Charging for an externality reverses it; economists call this 'internalisation', making people pay the right price for the costs they impose on others.

Internalising, i.e. charging for emission permits, had been used successfully in the USA for sulphur dioxide emissions in the early 1990s. COP3, the 1997 Kyoto Protocol, agreed to use this traditional economic tool, charging for an externality too. The Kyoto Protocol wanted to charge for emissions permits, and let those permits be traded. By 1999, the City of London had started building the world's first carbon trading market.

In addition to suggestions of charging for pollution, other mechanisms are trendy, ESG ratings and green bonds. The financial sector has pursued environmental, social, and governance (ESG) ratings. People have created standards for green and climate bonds. The basic theory here is that by increasing the cost of capital for 'bad' firms investors decrease the cost of capital, equity and debt, for 'good' firms.

So, problem solved, no?

Uniquely Green

A green energy project is still an energy project subject to normal financial analyses of energy price forecasts, cost of capital, construction, and maintenance.

What makes green finance special is its extreme sensitivity to government policy. Government has undue influence on the environment that will set the energy price, provide any subsidies, charge for externalities, or award planning permission. Government policy has an untoward influence on the development of the markets for nuclear, solar, onshore wind, offshore wind, batteries, hydrogen, or energy storage. Yet, after decades of government lip service to 'green', government policy remains unstable, and thus green markets remain unstable.

Meanwhile, client pressure has the investment management industry focusing on a theory that raising the cost of capital through non-financial environmental, social, and governance (ESG) measures might make a difference. Why don't we just cost the externality of carbon, i.e., bear the real cost through an auctioned emissions trading scheme? Why isn't government policy more stable? Can we make green finance 'normal'?

This chapter contends that by focusing on two simple things, 'policy performance bonds' and charging carbon emission costs, we can make green finance indistinguishable from normal finance, while a third, 'trendy', well-meaning approach, of measuring ESG is either



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of marginal benefit or irrelevant. Equally, a fourth, well-meaning approach, the certification of 'use of proceeds' green bonds is also either of marginal benefit or irrelevant.

Uniquely Government

Back to green energy, there tend to be two distinguishing characteristics beside policy risk. First, renewable energy projects tend to have higher 'up front' costs and lower 'in production' costs. Marginal production costs tend to be low. Second, traditional fossil fuel competitors come with 'embedded storage'; a barrel of oil is still available to burn a century from now while a wind turbine's energy must be used immediately. Up front costs are a fact of finance. The embedded storage gap could be filled with an energy storage market.

Yet policy risks loom larger. Governments don't just favour 'green' projects. Traditional fossil fuel competitors get subsidies of their own. Changeable and moody, the public welcomes pronouncements, but doesn't like the costs. Most recently, 'net-zero emissions by 2050' has become popular. It's a great target, but where were such targets just a few years ago? What can come quickly can go quickly.

The privatisations of the 12 UK regional electricity companies in 1990 led to a structure focused on half hour spot prices. A more sophisticated structure that included baseload prices would have required supply contracts going out for a longer period, say 18 months, proving a regional electricity company had supplies say 80%, for its energy needs. A baseload market might have given nuclear and storage firms a role. Instead, the UK experienced a 'dash for gas'. Gas was the most competitive in a market where supply needed to rapidly meet changing demand. This did lead to reduced CO2 emissions, but also meant a grid optimised for short term supply.

The UK claimed to have set 'legally binding' targets via the Climate Change Act 2008 that committed the UK to an 80% reduction in carbon emissions relative to the levels in 1990, to be achieved by 2050. In June 2019, secondary legislation was passed that extended that target to "at least 100%", 'net-zero emissions 2050'. In the Climate Change Committee's (CCC) 2021 "Progress in Reducing Emissions" report to parliament, the CCC said policies are lacking for four-fifths of the emissions reductions needed to attain the legally-binding target of a 78 % emissions reduction by 2035. And if the UK government doesn't achieve that target, it takes itself to court and gives itself a slap on the wrist in 2051. Not a particularly compelling argument for today's investors to make a three-decade commitment.

Other governments are little or no better.

ESG Bonds vs Policy Performance Bonds

A series of ESG bond 'flavours' seem to be emerging, in increasing order of sophistication:

- green bonds that claim proceeds will be applied to green projects;
- sustainability or ESG bonds that claim proceeds will be used for wider ESG goals;
- sustainability or ESG bonds where the issuer will report directly on the target(s), e.g. Alphabet/Google's US\$5.75 billion 2020 bond issue will report on progress of project investments in energy efficiency, renewable energy, green buildings, clean



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transport, circular economy & design, affordable housing, racial equality, and support for small businesses in the wake of Covid-19;

- policy performance bonds where interest rates are linked to achievement.

A policy performance bond is a fixed income instrument that represents a loan made by an investor to a borrower where the interest rate is tied to a policy outcome. Policy performance bonds are different from green or ESG bonds. They are 'linked', i.e. the issuer is putting its money where its mouth is on guaranteeing outcomes. Unlike green bonds, policy performance bonds are relatively agnostic about how the funds raised are applied, but care enormously about achieving targeted outcomes. These instruments are less expensive to administer and harder-hitting on underperformance than 'use of proceeds' green bonds. Terminology is still evolving with policy performance bonds also known as 'positive incentive' or 'sustainability-linked' loans.

Starting in 2018, policy performance bonds have emerged strongly from the green bond movement background, issued by firms such as Danone, Luis Vuitton, Enel, MásMóvil, Wilmar, Bunge, and COFCO. A good example might be BNP Paribas raising a US\$1,200 million, four year, syndicated revolving credit facility for WSP in 2020 with terms of up to four years tied to (a) reduction in market-based greenhouse emissions across global operations; (b) increased percentage of "Green" revenues from services having a positive impact on environment; and (c) increase in the percentage of management positions held by women. This last target shows the full ESG potential for such bonds. Another example comes from The Renewables Infrastructure Group, TRIG (2021), a £500 million revolving credit facility with interest linked to (1) environmental: increase in the number of homes powered by clean energy from TRIG's portfolio; (2) social: increase in the number of community funds supported by TRIG; (3) governance: maintaining a low Lost Time Accident Frequency Rate (LTAFR). Again, the last target shows the power of the idea. Any policy with clear goals can set an interest rate, ranging from percentage of renewable energy generation, through to carbon prices, forestation, or sustainable development goals to educational attainment levels.

Bond-Cuffing Policy - How Government Finance Can Draw In Private Finance

If green is to be the 'new normal', then policy needs to be stabilised, demonstrably so. Government inflation-linked or inflation-indexed bonds are long-standing examples of policy performance bonds. A government issues the bond for a specific inflation target, say 2%, and pays interest above that based on inflation. If inflation is 5%, the bond might pay 3%. The first known inflation-linked bond was issued by the Massachusetts Bay Company in 1780. Modern inflation-linked bonds emerged anew in the UK in 1981, followed by Australia in 1985, then Canada in 1992 and Sweden in 1994. Basically, inflation-linked bonds had to be issued when investors didn't believe government policy would work.

Today's investment portfolios have to hedge government policy risk. In the case of green finance, that means making sure the portfolio also has some brown finance, at the moment quite a bit of brown finance, frequently as high as 8:1 brown:green. A portfolio manager just can't take the risk that capricious government policy changes again and perhaps favours fossil fuels. Governments don't incur financial charges when they change their strategies.



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Nobody compensates investors who follow government policy today only to find themselves wrong-footed tomorrow.

However, with a government policy performance bond, investors can hedge government policy risk, just as they do with inflation policy risk. For example, a UK government bond tied to net-zero emissions 2050 implies around a 3.5% annual reduction over the next 28 years. If two years from now emissions are at today's levels, rather than at a 93% policy target for two years hence, such a bond would pay 7% interest. If emissions are below 93% two years hence, then it is an interest-free loan to the government.

The impact on investment would be profound. Investors who don't trust governments to achieve the net-zero emissions 2050 policy can hedge their portfolios with such bonds, not necessarily with fossil fuel investments. For investors with just a smidgeon of mistrust, they can purchase such bonds in proportion to their lack of faith. For all investors, such a strong signal by government that policy will be stable and portfolio investors will have the opportunity to be compensated should 'close down' fossil fuel scenarios and redirect that investment into green energy.

Back To The Future – Cap & Trade

Emissions trading systems (ETSs), aka cap & trade schemes, are market-based approaches to controlling pollution by providing economic incentives for reducing emissions. ETSs have been used to reduce sulphur dioxide and nitrogen oxide emissions successfully. ETSs were adopted as the market-based approach for greenhouse gas emissions at COP3 in Kyoto in 1997.

Following COP3, several people contributed to a City of London Corporation research report the opportunity for carbon trading – "[Trading Emission Permits – A Business Opportunity For The City?](#)" (January 1999). The City of London set up a shadow carbon emissions trading scheme, and then worked with the Department of Trade & Industry (today's BEIS) to expand it nationally. In 2003 the EU adopted the UK shadow carbon trading scheme as the framework for the EU Emissions Trading System (EU ETS). The EU ETS was launched in April 2005.

ETSs have not been without their problems. Registry and permit over-allocations dogged the early days of the EU ETS, particularly in 2007, while a permit theft at scale in 2011 dented confidence. The EU ETS has experienced the re-sale of used carbon offsets, phishing & hacking scams, and VAT fraud. Following Brexit, a UK Emissions Trading Scheme (UK ETS) replaced the UK's participation in the EU ETS on 1 January 2021.

National ETS schemes exist in Mexico, Kazakhstan, and New Zealand, with many more proposal under consideration or being implemented. In the USA and Canada, in the absence of national ETSs, several states and provinces have created sub-national cap-and-trade programs. Quite significantly, China, which has a number of regional ETSs, launched a national ETS on 1 February 2021.

With so many connections being made, and reformed, this is an ideal time to re-examine the emergence of global trading among so many schemes. The financial significance of the



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schemes is increasing due to the rising coverage, e.g., the Chinese and EU ETs cover approximately 40% of the emissions of over 2.4 billion people, and a rising carbon price, e.g., the EU ETS price for a one-tonne allowance has risen from under €10 in 2018 to over €40 today.

Trading will be strongly influenced by the structure of rules governing, for example, multi-nationals, carbon & greenhouse gas equivalence calculations, carbon border adjustments, taxonomies, or voluntary carbon markets. Higher prices lead directly to lower emissions, and whether auctioned or priced lead to tax revenues that can be used to offset transition costs.

For & Against

The need to avert climate change becomes increasingly urgent. I am against nothing that might work. However, if I have to pick two then emissions trading schemes/systems at a sensible price for carbon, combined with policy performance bonds issued by governments, seems a good combination.

If I have to ditch two? ESG ratings have been going for two decades. Yet they remain an alphabet soup of competing schemes. As the MIT 'Aggregate Confusion' project found, companies could be in the top 5% on one ESG rating algorithm and the bottom 20% on another. For brown companies with good cashflow, the ratings merely drive them off the capital markets into the hands of private equity firms. ESG ratings are so indirect they are probably doing more misdirection at high costs than could ever be justified. But heck.

Green bonds equally are supposed to attract capital at lower cost. Sometimes, such bonds can have a lower cost of capital, though corporates take certification costs into account. Corporates can issue ESG-certified bonds on their use of proceeds for marketing purposes, but I doubt it will make much difference. But heck.

Forward To The Future

Recognising that what currently makes 'green' finance special is actually impeding our climate change goals can lead to myriad benefits. By focusing on sensible carbon prices and policy performance bonds, governments can create a stable and attractive investment environment. Investors in green projects, or portfolio managers such as insurers, can hedge government policy risk across political cycles. Countries can be compared internationally on the scale and certainty of their commitments by examining the quantity of bonds issued (as a percentage of debt and/or GDP) alongside market prices. Against a background of discussion on trade and 'border carbon adjustment mechanisms', tariff rates could be set in line with outcomes based on market prices, thus avoiding the need for interference in 'how' countries achieve 'net zero 2050'.

If governments did issue adequate amounts of bonds linked to carbon targets, then the global carbon price would converge appropriately, clean-up costs would be borne locally, and there would be little need for carbon tariffs. Sovereign policy performance bonds linked to sustainability targets are 'bond cuffs' that would inspire more confidence in



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binding government targets than a government's commitment to a 'legally binding' slap of its own wrist three decades hence.

About the author

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