

FIXING FAILING CARBON OFFSET MARKETS

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The world is gearing up for the greatest effort in modern times: achieving net zero greenhouse gas emissions. Government support, carbon prices, industrial strategies, new standards and regulations, behavioural nudges, shoves and winks are all being brought into play in this effort. One tool is noticeable for its absence: a reputable currency. Imagine trying to recreate the world we live in without any recognised currency. That appears to be what is being attempted in efforts to reach net zero.

Carbon offsets could play a central role but they are not. They have suffered from the same disease that plagues all devalued currencies: lack of credibility. By-and-large prices are low and universally the prices are unpredictable. They have ranged from \$0.45 per tonne to \$59.17 in one of the official international currencies, the [Clean Development Mechanism](#) set up under the international Kyoto Agreement that preceded the Paris Agreement; from \$4.94 per tonne to \$47 per tonne under the [Gold Standard](#), an offset accreditation process set up by a group of reputable NGOs. There are many other schemes, registries and accreditation mechanisms. Prices fluctuate widely often for the same projects. This is a currency without a central bank.

Carbon offsets could help to ensure the least cost options to reduce emissions are done first. Individuals, companies and countries could compare like-with-like to ensure the path to net zero is cost efficient and to provide financial support to lower income countries where many of the lower cost options are located. Various estimates put the size of such a market at between 50 and 100 billion USD annually by 2030.

COP26 – to be hosted by the UK in November – provides a real opportunity to move forward and create a credible market for carbon offsets. So-called “Article 6” discussions are about how to implement the one dormant part of the Paris Agreement: a credible carbon market. Early efforts are now underway – suitably enough led by a central banker. Mark Carney’s [Task Force on Scaling Voluntary Carbon Markets](#) is the latest effort to create credible carbon offsets. However, they too will fail if it does not

recognise who benefits from the current system and overcomes the resistance of those incumbents.

CARBON OFFSETS

Carbon offsets are essentially payments to a third party to take on some form of pollution-offsetting action. Historically, these actions have ranged from planting forests to renewable energy projects. With more and more companies, and countries, having to pay for net zero pledges the temptation to pay a low price for someone else to make reductions on your behalf is increasingly appealing.

There are two types of carbon markets: voluntary and compliance.

The voluntary market is a large portfolio of small brokerages that sell the carbon credits (offsets) created by green projects (mostly in the developing world) to buyers (who are mostly in the developed world). The buyers are often businesses that want to reduce their emissions but are practically or financially constrained. By buying carbon credits they can offset emissions, and as the narrative goes, reduce their net carbon footprint.

Compliance markets, in contrast, are more formally regulated at the national level and typically involve a restricted group of buyers and sellers with careful monitoring. Examples include the EU Emissions Trading System and the UN's Clean Development Mechanism. Compliance markets are becoming increasingly important but their reach is limited – often focused on manufacturing and some transport services. Voluntary markets, on the other hand, can be applied anywhere – and increasingly they are.

THE STATE OF PLAY IN THE CURRENT MARKET

The current voluntary markets are the result of a race to the bottom. In the absence of a rigorous mechanism to check whether the claims of a particular vendor of carbon credits are real, any faintly credible scheme has found buyers. This has led to a “low quality, low price” equilibrium: unable to verify quality, providers of credits are selling large volumes at low prices. To paraphrase a famous economist: it is a market for lemons. When buyers cannot judge quality they are sold “lemons” – poor quality products. Those selling the lemons (in this case carbon credits) make money because their actions are less expensive than the price paid – but those actions often do not result in a reduction in emissions. This leads to charges of “greenwashing” by those who do not want actions that only appear to tackle climate change without actually doing so (e.g. see “Carney task force confronts concerns over carbon credits market” Financial Times, January 27, 2021).

To move to a market where high quality offsets are available there needs to be a regulatory or oversight authority which certifies the quality of offsets and establishes standards. This will ensure that only high quality offsets make it on to the market where they are available to be purchased.

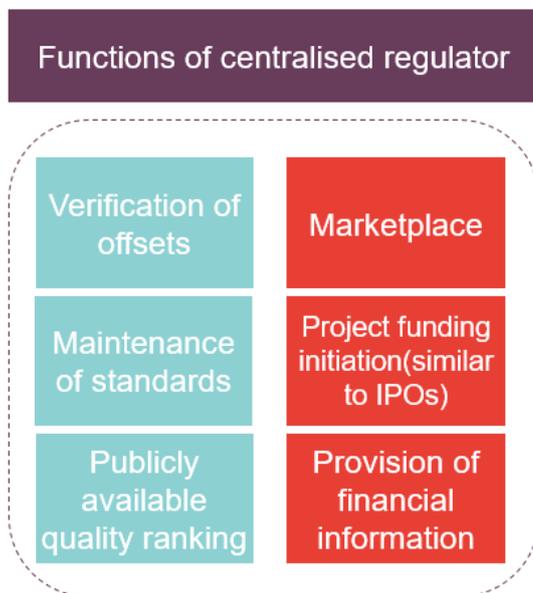
There also needs to be a reason for those who benefit from the current approach to agree to a change: countries that currently earn considerable sums from selling (large numbers of low price, low quality) carbon credits need to be reassured that they will still earn considerable sums by selling fewer credits at higher prices under the new regime. Uncertainty over whether that would be the case has stymied international agreement on the design of a credible market.

If we were to assume such a mechanism were viable, how would the dynamics of the offset market be affected?

THE NEW MARKET: FROM LEMONS TO MANGOES

We model a hypothetical change to the current voluntary carbon offset market (a market for lemons) to show that it can operate in an effective way: high price, high quality (a market for mangoes). Such a change would require the creation of a regulatory mechanism that fulfils the functions described in the figure below (for more see our [wider climate work](#)).

FIGURE 1 FINANCIAL (RED) AND NON-FINANCIAL (BLUE) OBLIGATIONS OF A CENTRALISED REGULATORY BODY



Source: Frontier Economics

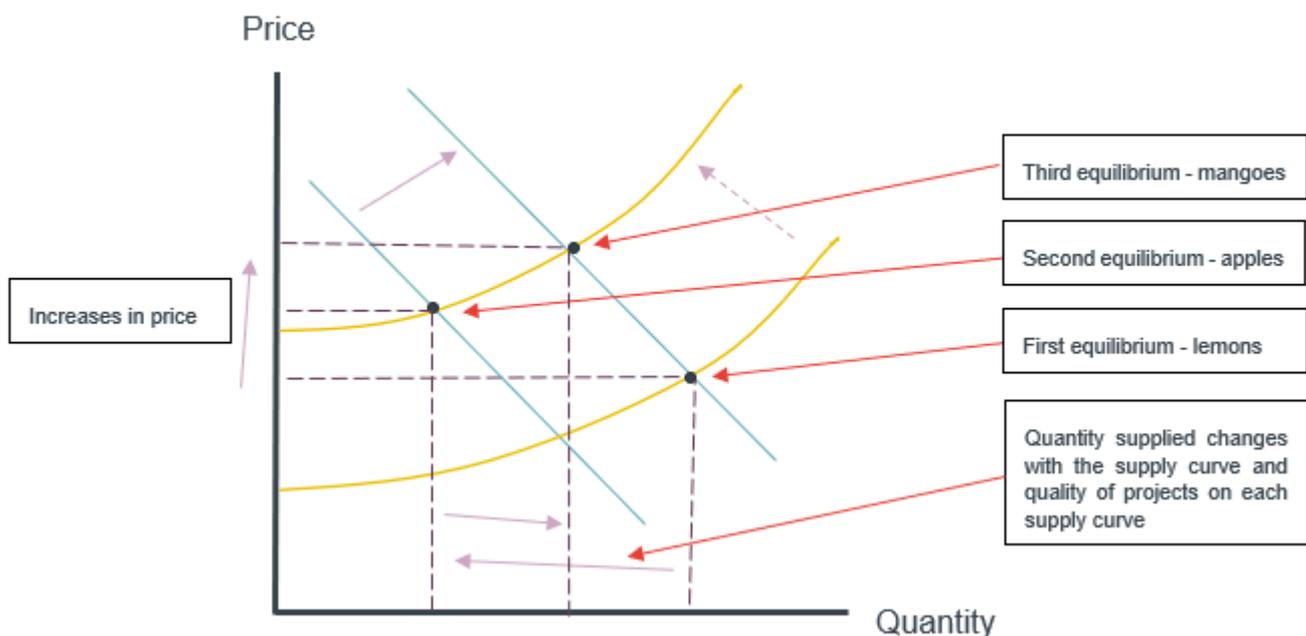
An offset is considered higher quality if there is more confidence that it will have additionality i.e. remove carbon that would otherwise have been emitted, or remained in the atmosphere). We are assuming that each offset on the market will lead to genuine additionality. A project which costs 1 million Euros and is expected to lead to an additionality of 10,000 tons of CO₂ will thus be priced at 100 Euros per metric ton offset. While this may be a strong assumption at present, the changes to the market conditions that we propose will make it reasonable that a majority of the offsets in this future voluntary market will have additionality.

There is a price at which it becomes efficient and profitable for a supplier or an offsetting project to start selling permits in the market. The supply curve curves upwards as the price increases above the minimum efficient price (for projects at the same level of quality), and the quantity of offsets (of the same quality) supplied increases.

The figure below illustrates how the supply curve *shifts up as the quality of offsets improves*, and vice versa. Higher quality projects are more costly (thus with higher priced offsets) than lower quality projects. The demand curve shifts up as the demand for offsets increases (as more buyers participate in the market).

In the figure below the market shifts from a market for lemons to one for apples (as quality rises) to one for mangoes (as demand rises). Suppliers or green projects that previously sold many low cost and poor quality credits now sell fewer but higher priced credits.

FIGURE 2 FROM LOW QUALITY (MARKET FOR LEMONS) TO HIGHER QUALITY (MARKET FOR MANGOES) IN THREE STEPS



Source: Frontier Economics

RISING TO THE CHALLENGE

We have looked at the modelling: there are clearly realistic carbon offset prices at which suppliers or green projects are better off selling high quality, higher cost credits than the current market for lemons - and those buying the credits will also be better off knowing they have bought real reductions in emissions and not just the appearance of doing good. Perhaps the greatest challenge for the world, [when it gathers in the UK](#) to develop the next big step since the Paris agreement, is to implement the mechanisms that will allow a movement from our low quality to a higher quality equilibrium in the market for carbon offsets.

Instituting a voluntary system requires a strong institutional framework. One of the biggest reasons the EU ETS works well is that there is a central and reliable institutional setting that encourages compliance. So if a voluntary market were to be established within a country, a regulator would have to follow the framework we set up in Figure 1. Like a compliance market, it would require all participatory projects to submit annual emissions reports. The costs of permits traded on such a market would correspond to the



structural demand and supply of permits, and the cost of the marginal abatement measures. The contribution of carbon offsets to our global goal to reaching net zero is clear, we will be closely watching how things unfold at COP 26 in November and will be updating our [Green Futures](#) hub with our insights.

AUTHORS

MATTHEW BELL

Director

MIHIR BAXI

Analyst

WANT TO KNOW MORE?

WWW.FRONTIER-ECONOMICS.COM

HELLO@FRONTIER-ECONOMICS.COM

+44 (0) 207 031 7000