A Review on Science Based Target

Most countries are not hitting 2030 climate goals in Paris Agreement (Watson et al, 2019). IPCC (Intergovernmental Panel on Climate Change, 2018) warns that the knock-on effect of global warming bears high risks of extreme weather events and large area of land becoming inhabitable.

Governments may attempt to revert climate change by imposing heavy regulations but in the end, find themselves in a dilemma between climate commitments and economic development. In developing economy, authorities strive to lead country off poverty (Mukherijee & Mustafa, 2019); in democratic countries, elected parties often prioritise the later within their finite time as explained by *political short-termism* (Gavin Pearce, 2010). Hopes are now on private sectors. Science Based Target Initiatives (SBTi, 2020) wishes to fulfil regrets of Paris agreement by engaging private sectors.

## an attempt to engage private sectors

SBTi seeks to prevent climate catastrophe by assigning companies momentane targets that aligns long-term ambitions (Giesekam et al., 2021). CDP considers SBT to reflect best practices in target setting. In Bjorn et al. (2017)’s view, SBTi is an advancement because it links corporate target with wider ecological system limits. In a sense, SBT are the bottom line.

There are some short-term incentives for profit-making corporative to join the initiatives. Mostly they are concerning corporate reputation. From Nike to Coca-Cola, corporate social-environmental responsibilities manifest its impact on revenue and stock price. Customers are demanding more than Corporate likes to present themselves as green organisation to gain support from their customers. SBTi offers external, independent validation of those private sector’s commitment.

Companies who participate, must commit to a set of short-term (5 to 15 years) target. While those targets have to be approved by SBTi, companies retain flexibility to develop their own targets within 2 years’ time frame. They can either choose to set target as either a fixed percentage every year (*absolute emission contraction*); or reduction in emission based on production output (*sectoral decarbonisation approach*). In theory, both can lead to reduction in global temperature by 1.5 but due to the complexity, the second approach subscribe to more criteria and under through more scrutiny. Companies are more like to use absolute approach. Data from SBTi (2021) reviews Only 12 out of 571 companies (SBT, 2021) who have already set their targets includes keywords “intensity” on their target statement.

## engagement- enforcement paradox

There are no tangible penalties for withdraw from the initiatives nor not meeting the target. Nor wound SBTi make an announcement. Arguably one would wonder if company has any real incentives to keep up with targets.

Giesekam et al.(2021) who conducted independent review on SBTi reveals over 24% of the SBTi members were left behind achieving their target. Similar issues persisted 5 years after Paris agreement (2015): near 75% countries has unable to keep up their promise. Yale University economist William Nordhaus (Bertram, 2016) champions penalizing countries who do not meet their obligation.

Same could have apply to private sectors. It makes social sense for private sector to clean up their own emissions. Expense towards carbon reduction should have always been a necessary expense.

Yet, in reality the initiatives are rather powerless to by-passing corporate lobbies and budget limits. SBTi has to persuade private sectors to act and by putting potential penalty in the equation might just the drive company away. SBTi estimated in their report (2019) that on average, only 20% of high impacting company are taking actions through SBTi. That is, about 12% are actually making climate impact deducting a third of those company who were left behind in their target making. Had their sample included all companies, this figure could have been lower. SBTi is already in rather weak potion to demand compensation or penalty. Perhaps by removing penalty from the equation, it also removes incentives to fake GHG emission reporting.

## use system to save system

Should cost of reducing carbon emission out weight benefits, managers may be reluctant to make adjustments. Perhaps analytics can help amplify the consequences of global warming by covert it into a cost format that manager can understand.

The spirit and the beauty of SBT is that it is a joint public effort from all levels of value chain. It advocates social agents act collectively to mitigate effect of climate change. Environmental advocators could use this to their advantage.

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|  | Majority Suppliers enforced SBTi duty | Majority Supplier fails to enforce SBTi duty |
| Business Customers enforced SBTi duty | Best Scenario | Decreased demand of high carbon footprint products    Increased demand of low carbon footprint products  Create incentives for suppliers to provide low carbon footprint products.  Supplier are forced quit supply high carbon footprint products. |
| Business Customer fails to enforce SBTi duty | Decrease in supply of high carbon products,    Increase in supply of low carbon products,    Create incentives for business customers. Business customers automatically use low carbon product from suppliers. | Worst Scenario |

Above table elaborate four scenarios based on economy theory. Value chains are simplified to suppliers and business customers. The best scenarios are, of course, both parties are able to enforce their duty. In either case where majority of supplier or majority of business meet their target, they are able to create incentives for the other half to meet their target. This can potentially punish “outliners” who did not reinforce their duty through an automatic reward-penalty mechanism. Predictably, the forces of demand or supply for low-carbon foot-print product has to be strong enough. *CDP’s supply chain program* includes 3000 suppliers who are actively collaborating on reducing *scope 3 emission*(supplier carbon emission).

Analysists could use SBTi as a source of information as to predict and evaluate cost associated with use low carbon footprint supplies. This would inform governments and regulators to making decisions such as whether to increase carbon tax.

## call for public transparency

Little research has been done on SBTi. Walenta (2020) calls for more empirical research on the role SBTi. The most comprehensive review by far is probably from Giesekam et al. (2021), who found target that had been achieved often use earlier years as baseline, which, in Giesekam et al.(2021)’s word, “*question if target achievement is a function of strong action or weak ambition*”. They conclude: “*it is difficult to attribute emissions reductions to involvement in the SBTi* since *there is no counterfactual evidence”* .

SBTi is no sanctions. The spirit and the beauty of SBT is a joint public effort towards a common goal. The power of SBTi comes from the people, the general public who demands companies to take actions. Perhaps SBTi can empower general public to oversee private sector enforce their climate duties.

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