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Risk management in the primary CDM market

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Summary

Carbon credit has played a significant role in the carbon markets in the last five years. A compliance player in the cap-and-trade scheme can meet the target cheaper by offsetting part of its emission with the carbon credits. The most popular carbon credit used as the offset is the Certified Emission Reductions (CERs) which is the carbon credit generated from the Clean Development Mechanism (CDM) project activity. As CER is not the allowance, it is not allocated in the cap-and-trade scheme. CER is however the credit issued from a project outside the scheme. The emission reduction generated by the CDM project must be verified by the third party before it can be certified and issued as CER. Generating CERs is a long process; it takes years for the success. With the nature of the project development, there are a lot of risks involved. A CDM investor must face not only the conventional risk from the implementation but also the regulatory risk arising from the regulation set by CDM EB. To understand and assess risks could therefore help the investor to prevent or mitigate loss in the market.

This thesis examines how to manage risk in the CDM market. Specifically, risks in the market are defined, categorized, and assessed in order to mitigate and manage them. Three categories of risks were found; 1) compliance risk, 2) non-creation risk, 3) volume risk. The top-down approach was applied to assess the risks by using the global CDM pipeline data as an input. In the end, the statistically analysis provides the result of assessment from each type of risk. The results show that project type and location have high correlation to the risks. For the regulatory risk, the energy efficiency project faces higher risk than other types of project as it has the highest failure rate in the CDM registration process in the past. It is also found that most projects faced a longer registration delay than expected for about 3 months. The median time required for registering a CDM project takes around13-14 months after the PDD is finished and entered into the pipeline. Regarding to the project performance, the landfill gas project has the highest volatility compared to others, meaning the highest risk as it is difficult to forecast the yield. On average, most projects have the volatility of the performance around 25%-40%. Therefore in order to manage the volume risk efficiently, the investor should apply risk factors to discount the expected number of CERs to reflect a risk profile of the project. Buying an option or insurance could also help to mitigate an unforeseen incident to the project.