Stranded Asset Risk and Political Uncertainty: The Impact of the Coal Phase-out on the German Coal Industry

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To comply with the Paris Climate Agreement (COP21), the German government convened the Coal Commission to find a solution for coal-fired power plants, the largest emitters of carbon dioxide in Germany. It involved the most important stakeholders from society, industry and environmental associations. The Commission suggested to phase-out coal-fired power plants by 2038. This raises the question about how the coal-phase-out would impact the German coal industry valuation.

Within this context, our study aims at assessing the value of stranded coal-fired power plants in Germany based on a scenario comparison which compares three scenarios (a slow decommissioning at the end of the technical lifetime in 2061, the highly probable phase-out by 2038, and an accelerated phase-out by 2030). For each scenario, we run a simplified market model along with an integrated Monte Carlo simulation to reveal the uncertainty of future developments. Based on the different valuations of the coal-fired power plants in each scenario, we calculate the loss in valuation due to the (earlier) phase-out.

The results show an overall stranded asset value of €2.6 billion given the phase-out by 2038 and additional €11.6 billion if the phase-out is brought forward by 8 years from 2038 to 2030. In particular, lignite-fired power plants cause the highest loss in valuation due to an early phase-out in 2030. Higher carbon prices lead to their loss in base load position in the merit-order, making them unable to cover their fixed costs when operating only during peak load times. A coal phase-out by 2038 as proposed by the Coal Commission would thus help German hard coal and lignite industries to save €11.6 billion, but Germany will not be able to meet its emission reduction goals set in the 2015 Paris Climate Agreement. Our scenario analysis also demonstrates that the feed-in from renewable energy sources (and thus a decline in the residual base load) and higher carbon prices would lower the hard coal and lignite industry valuations.

Our study shows two important implications of stranded assets. First, physical assets become stranded through losses in revenues, as outlined within the case study on the coal phase-out in Germany. This contributes to a broader understanding of stranded assets that are shifted from unanticipated write-downs to rather cash-effective valuation impacts. Second, we evidence the interconnection between physical assets and financial assets, which adversely affects carbon-intensive sectors. The devaluation of examined shares poses a significant financial risk to companies, financial institutions, and investors. Due to this political uncertainty of the pathways and in progressive policy measures, these climate-related risks would have to be incorporated into the investment decision-making process.

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