
Research Summary: Forward Risk Premia in Long- term Transmission Rights: the Case of Electricity Price Area Differentials (EPAD) in the Nordic electricity market

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Forward risk premia are systematic differences between the trading prices of electricity future contracts and the spot prices observed on the date of delivery. Forward risk premia are important because they impact the costs of mitigating price risks and reveal information on hedging behaviour of electricity producers and retailers. Forward risk premia can be understood as mark-ups, or compensation in derivative contracts charged either by suppliers or consumers for bearing the demand and price risk for the underlying commodity (electricity). The emergence, magnitude, and behaviour of forward risk premia in power derivative contracts are the focus of this paper.

The research topic of forward risk premia is of importance to 1. *power producers and consumers*, 2. *policymakers*, as well as academic 3. *researchers*.

1. The absolute and dynamic differences between today's forward price and the expected spot price of electricity have direct impacts on the market participants' (hedgers and speculators) cash flows. That is, by paying a very high or very low risk premia, market participants are exposed to additional uncertainty and financial risks. These financial risks generate market frictions and contribute to increased transaction costs, which adversely affect the competitiveness of factor markets.
2. Policymakers ought to sustain a competitive electricity market, so an awareness of the problems of risk premia in



electricity financial contracts is needed. Presence of negative or positive risk premia, in forward contracts does not immediately point to anticompetitive behaviour. Instead, it highlights the exerted pressures from the supply or demand side of the market, and measures the costs for bearing such pressures.

3. Recent studies predict both positive and negative risk premia that are mainly determined by the behavioural interaction between buyers and sellers, as well as, their risk considerations during different trading periods. In this study we test the current theory which predicts decreasing values of risk premia (eventually becoming negative) when the time-to-maturity increases.

Highlights

- Mechanics of hedging the area price risks in the Nordic electricity market are explained.

- Forward risk premia impact hedging costs and reveal information on hedging pressures.
- Magnitudes, directions, and significance of forward risk premia in power derivative contracts called electricity price area differentials (EPAD) are quantified.
- Negative relationship of forward risk premia and time-to-maturity is only partially supported.
- Supply risks may impact the magnitude and direction of forward risk premia in EPAD.

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