EXPLAINING THE INTERPLAY OF THREE MARKETS: GREEN CERTIFICATES, CARBON EMISSIONS AND ELECTRICITY
Sandra Schusser, Swedish University of Agricultural Sciences, Umeå, sandra.schusser@slu.se
Jurate Jaraite, Umeå University, jurate.jaraite@econ.umu.se

Overview
The European Union's Emission Trading System (EU ETS) and the Swedish-Norwegian Tradable Green Certificate System (Swedish-Norwegian TGC system) are two market-based instruments that have the overlapping goal to mitigate greenhouse gas (GHG) emissions by shifting economies to cleaner energy sources. Understanding the price signals and interactions of these two newly created markets is essential for all decision makers – regulators and direct market participants – who aim to reach the predefined environmental policy goals in the most efficient manner. The interaction between these policy instruments has been widely examined from the theoretical perspective. This research contributes to the literature by empirically examining the interplay between the prices of three markets: (1) the price of tradable green certificates in the Swedish-Norwegian TGC system, (2) the price of carbon in the EU ETS and (3) the price of electricity in Nordpool.

Methods
We use a multivariate vector-autoregression (VAR) approach to take into account the endogenous relationships between the three prices. Based on the literature, it can be hypothesised that these prices are closely related to and influence each other in a circular way. Moreover, these market prices capture fluctuations of other determining factors.

Results
To date, our empirical results do not support the theoretical considerations that the impacts of carbon price on green certificate prices and on renewable electricity production are negative. Contrary, we find that increases in carbon prices positively affect green certificate prices at least in the short-run.

Conclusions
The results imply that the goals of the EU ETS do not undermine the goals of the Swedish-Norwegian TGC system. The EU ETS actually supports long term investment decisions in renewable electricity production because it has a positive effect on TGC price.

References


