Relationships between insurance variables representing the cash flows of the Czech insurance market can be effectively modeled using a dynamic system of linear simultaneous equations. The source of the underlying data to build such a model can be publicly available annual reports of the Czech Insurance Association. The resulting model can find its use mainly to predict the future development of financial flows based on historical observations and analysis of possible scenarios. It is this analysis of potential projections and their consequences which provides insight into how e.g. a future decrease of new insurance policies would affect the expected amount of claims costs and the volume of written premiums.