

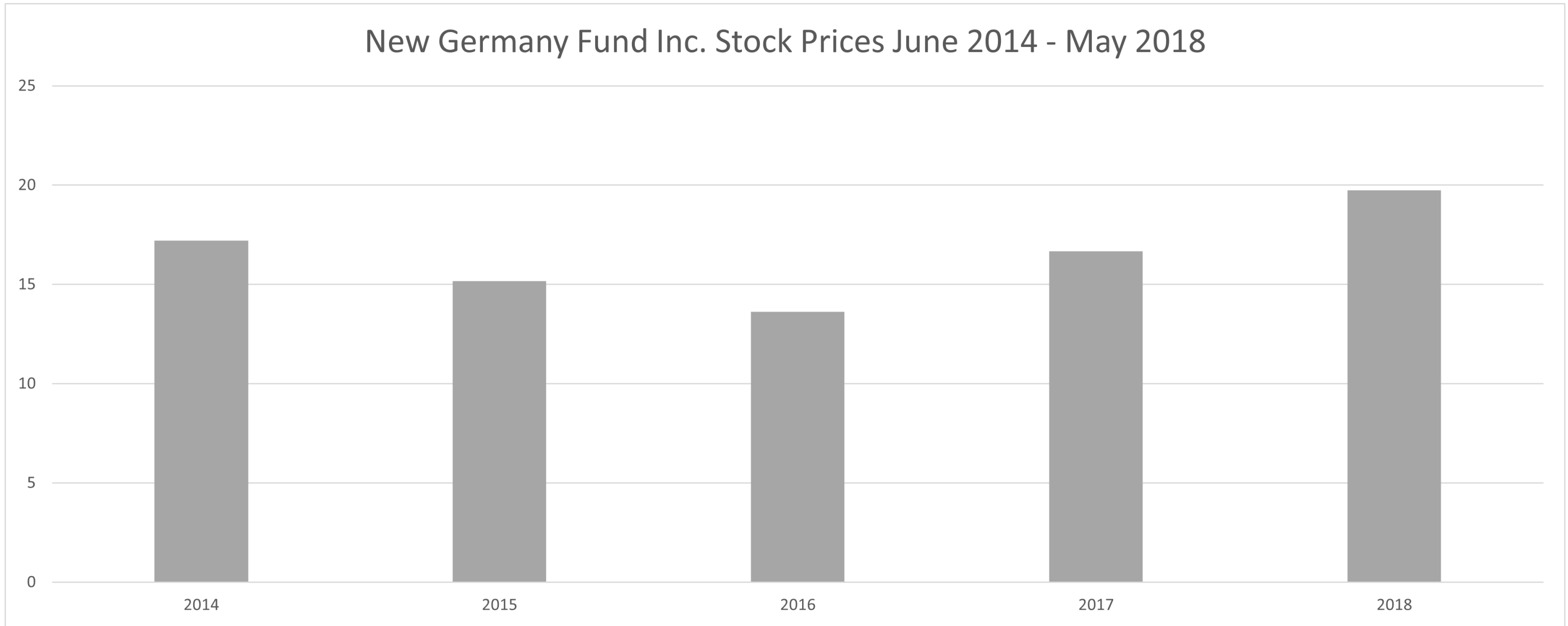
# Time series run chart

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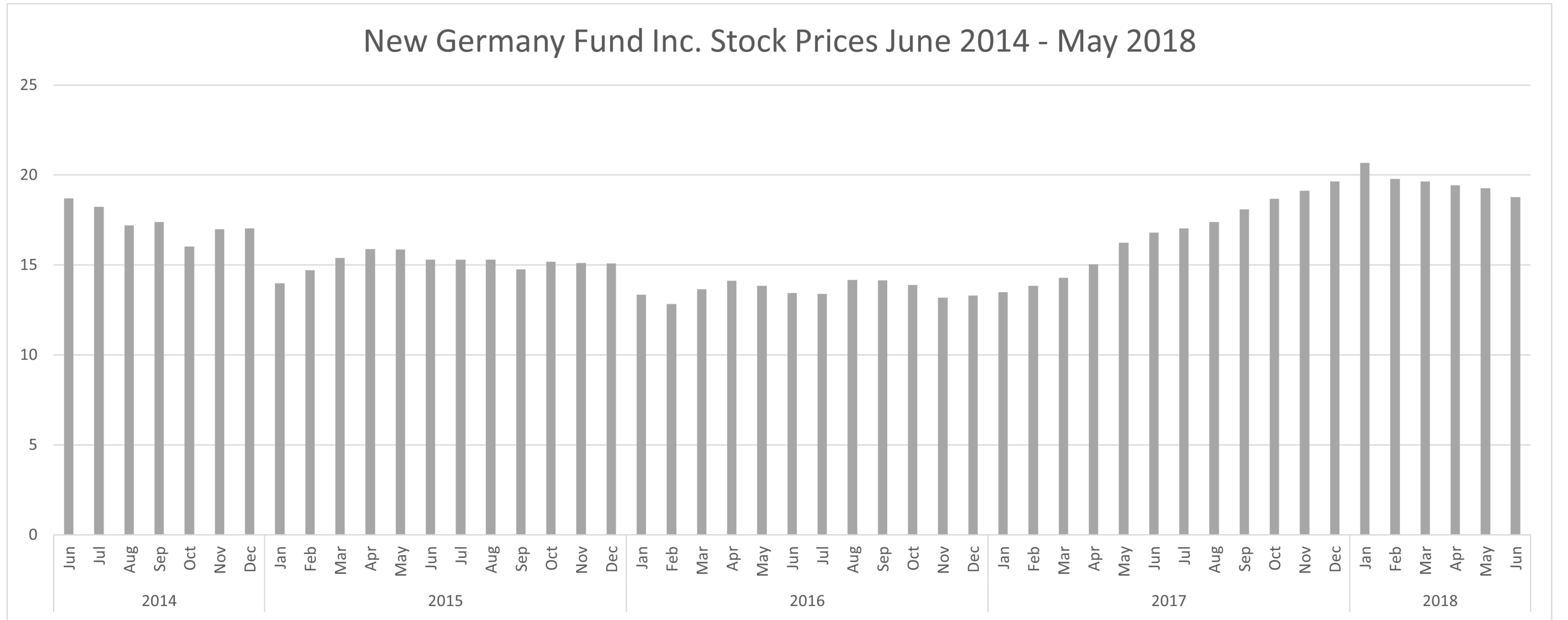


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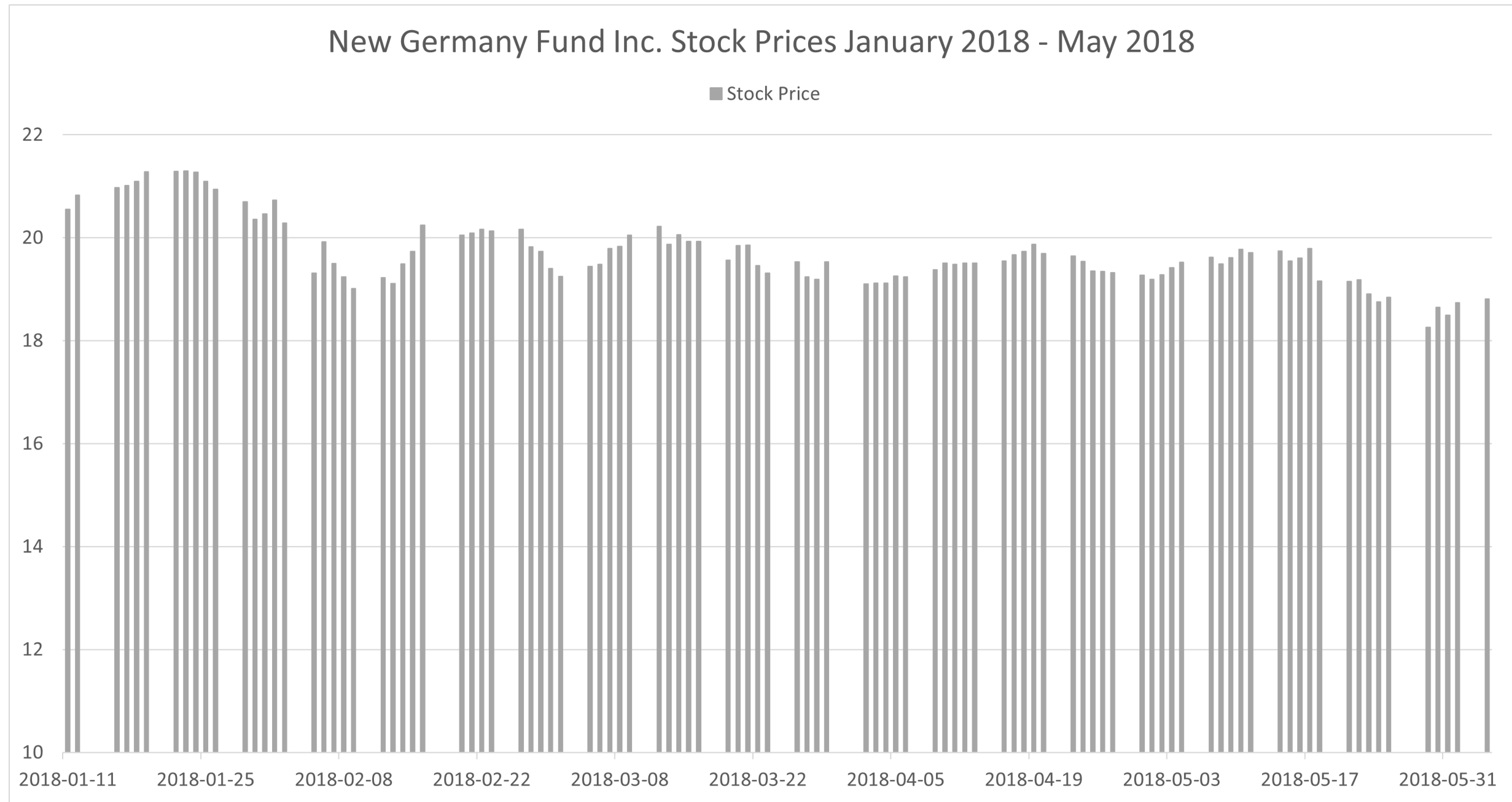
# Visualizing a time series



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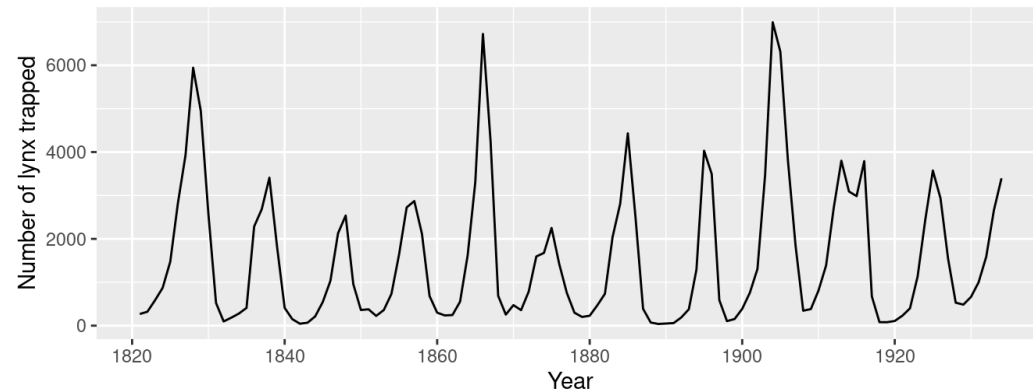


# What is a run chart?



# Patterns in a time series

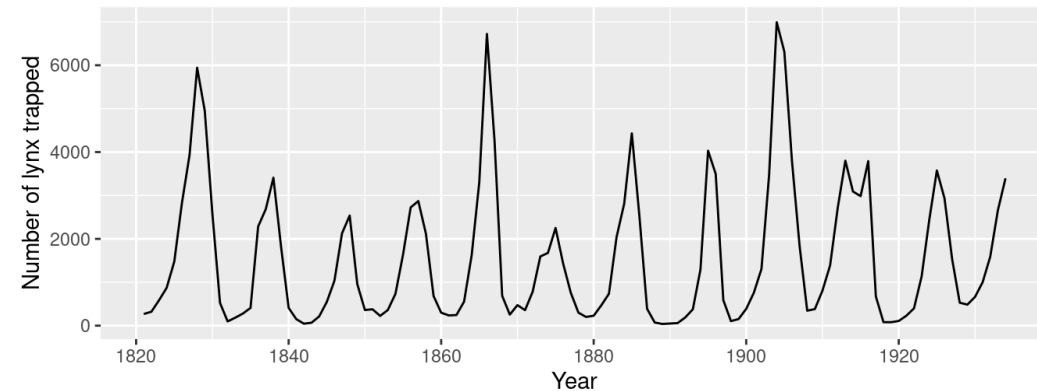
## Cyclical



- Rise and fall patterns
- No fixed time period
- Pattern typically longer than a year in length
- Less predictable

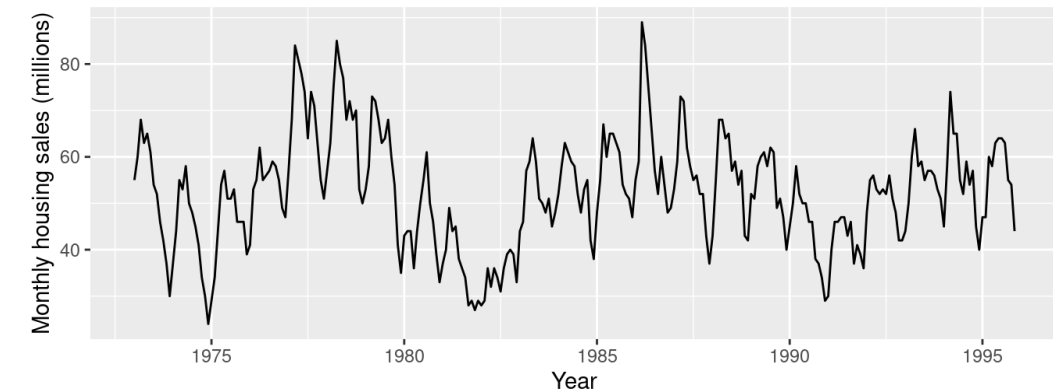
# Patterns in a time series

## Cyclical



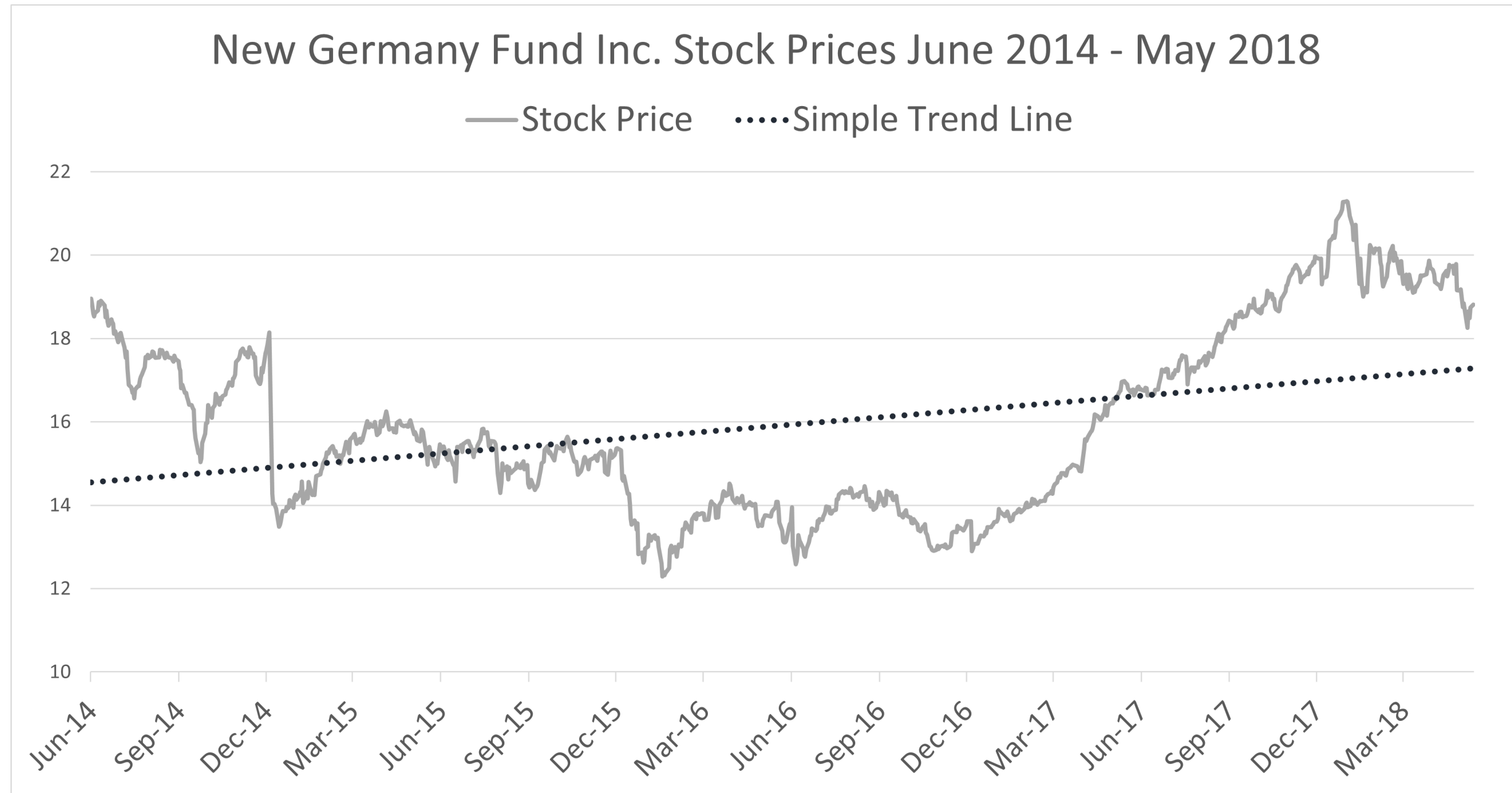
- Rise and fall patterns
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## Seasonality



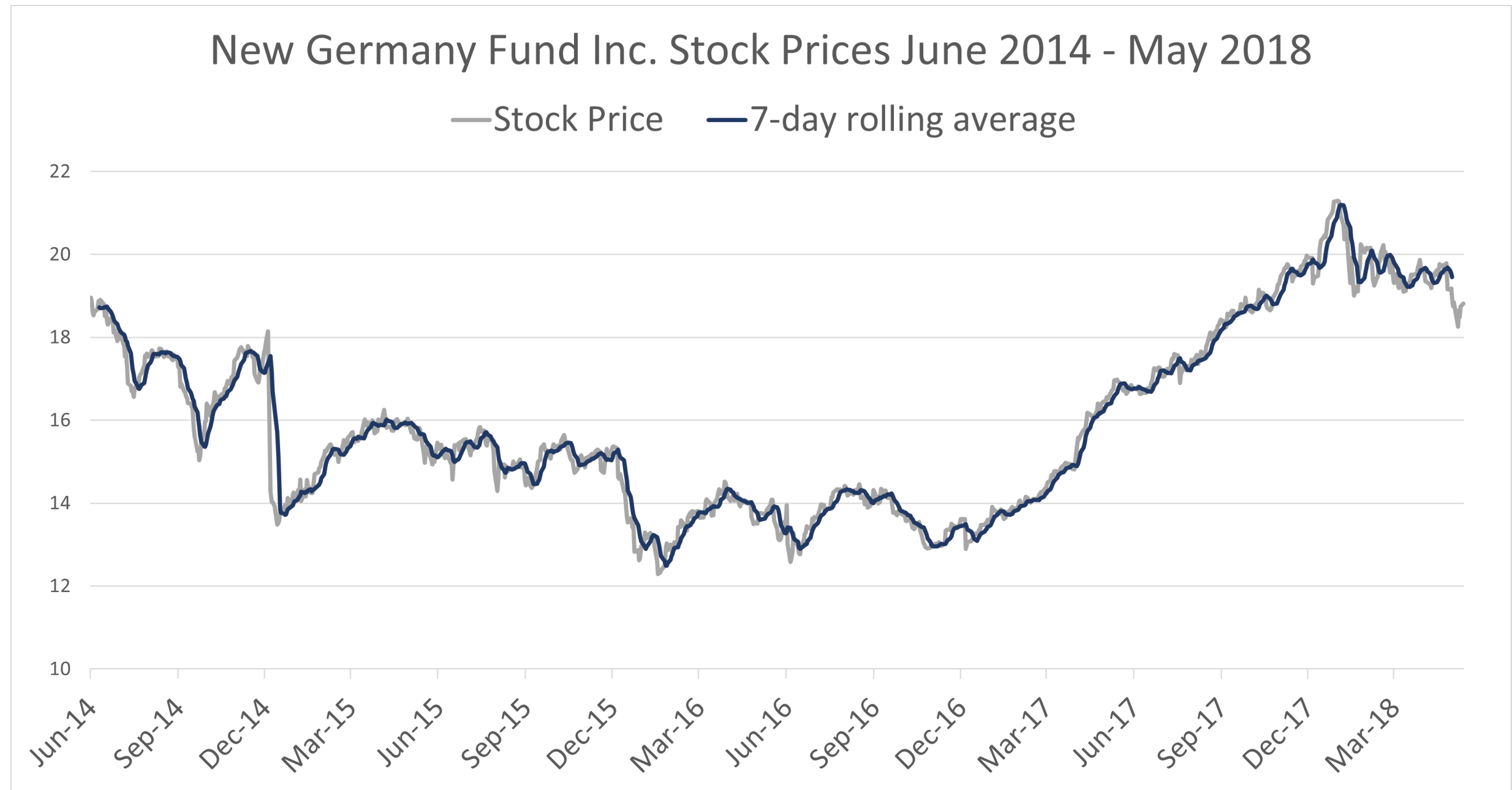
- Pattern is influenced by the season (ex. holiday spending)
- Fixed time periods
- Pattern typically occurs over less than a year

# Evaluating the trend in the time series

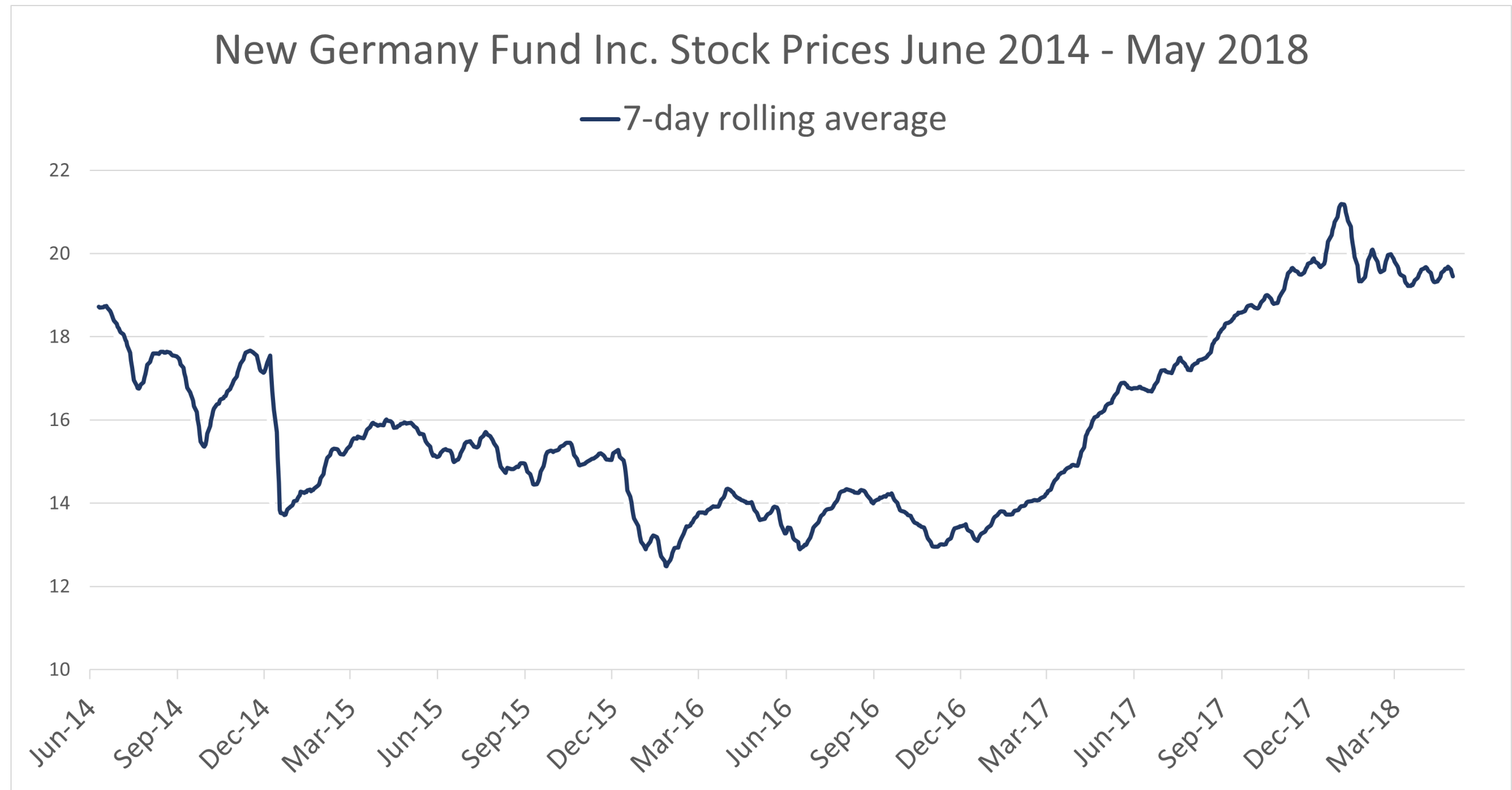




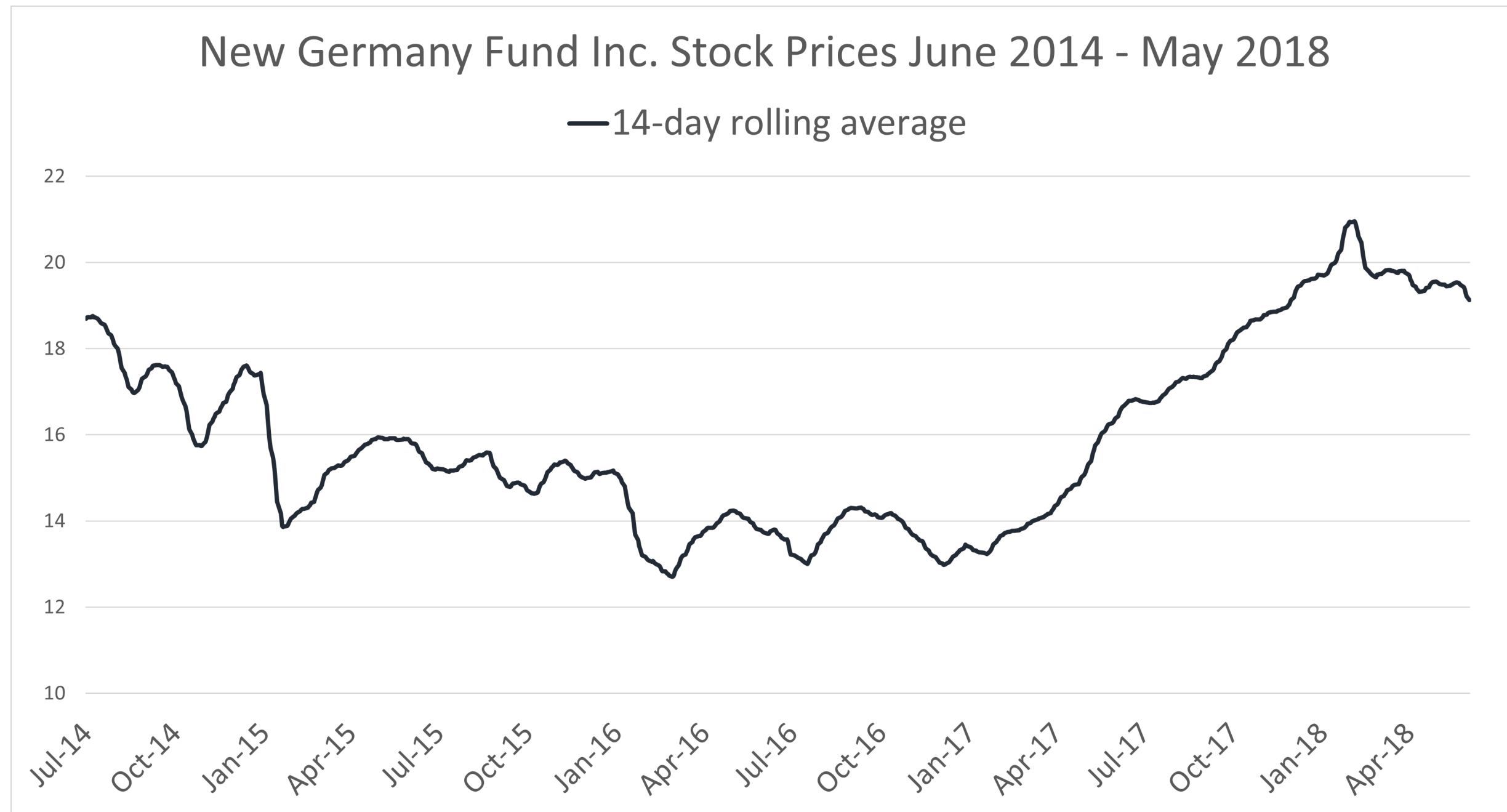
# Trends with rolling averages



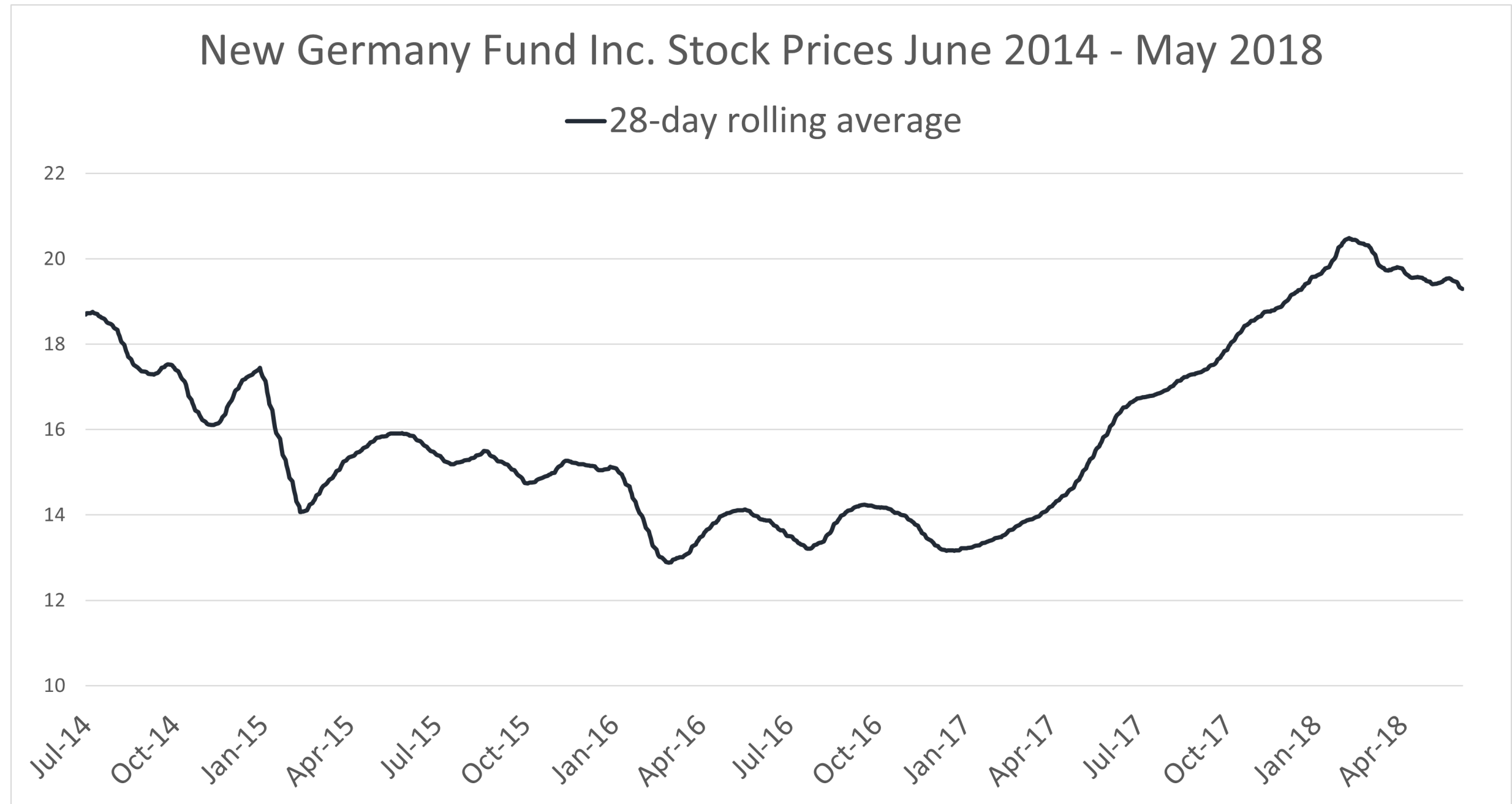
# Smoothing with rolling averages



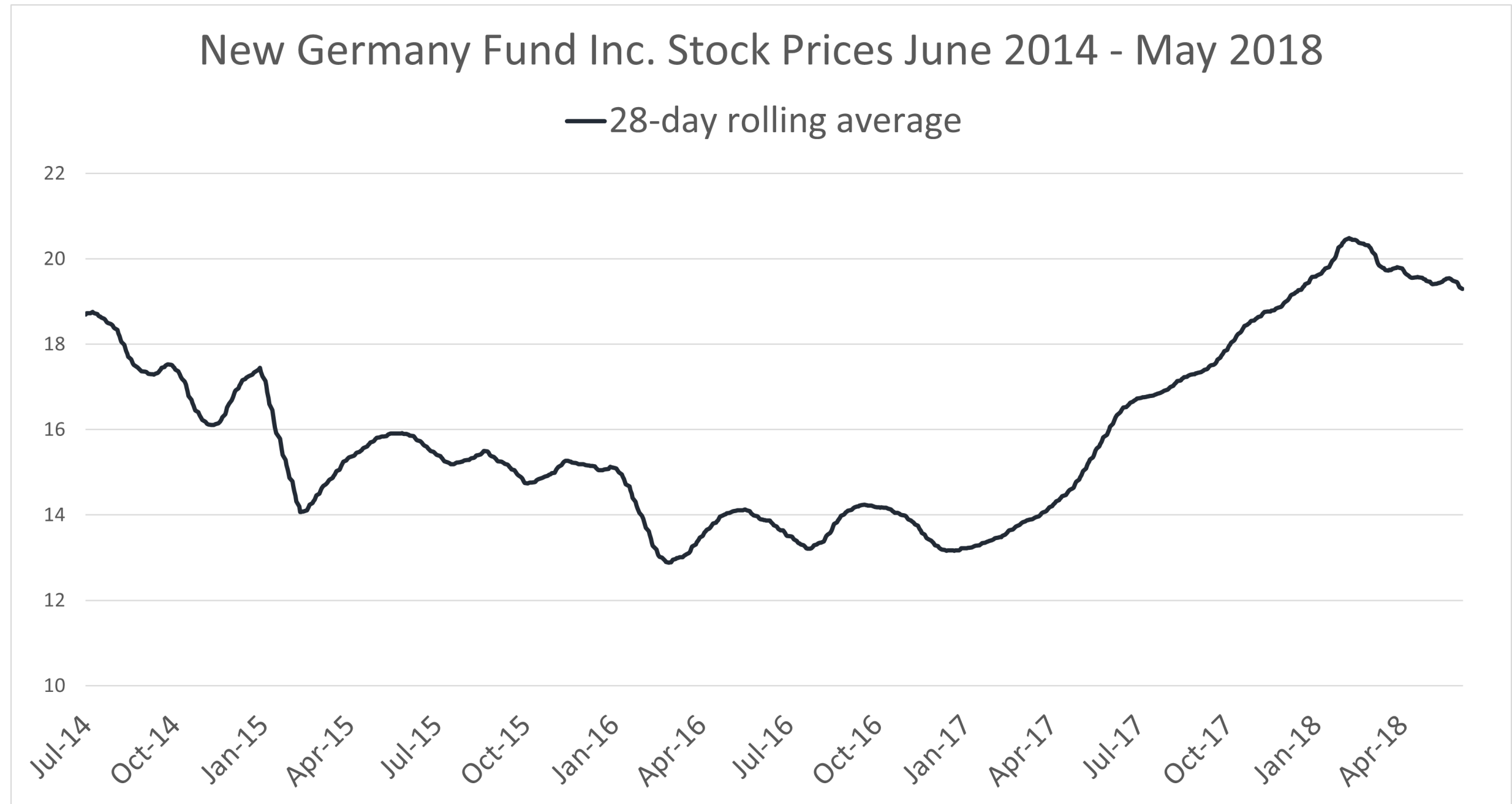
# Smoothing with rolling averages



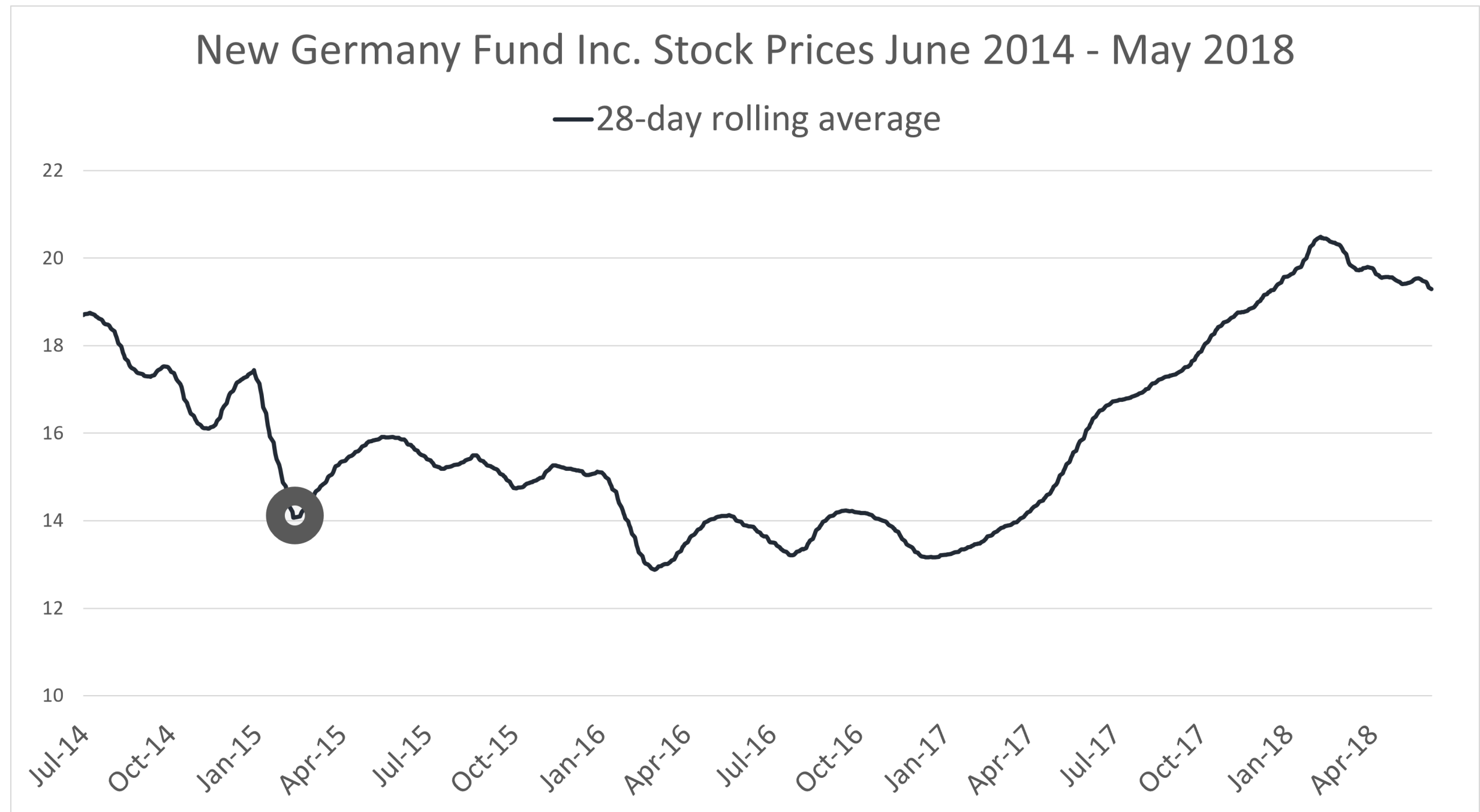
# Smoothing with rolling averages



# Anomalies in a time series



# Anomalies in a time series



**Let's practice!**  
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# Analyzing Glassdoor reviews over time

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