Path of Exile Market Analysis

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Intro: What is PoE

Path of Exile, or PoE, is an Action-Roleplaying Game by New Zealand based Game Developers Grinding Gear Games.

Game was first released in October 2013.

Started in a garage and now set it's new personal record this past challenge league launch with 321,180 peak concurrent players.

Currency Orbs

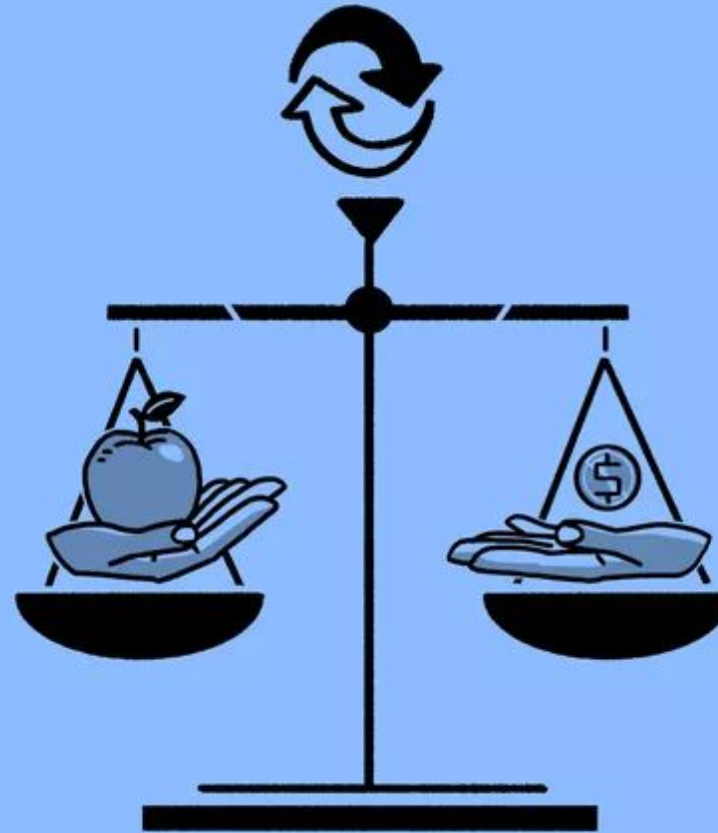The economy of the game revolves around Currency Orbs.

The Supply of these orbs come as drops as rewards for playing through content.

The demand comes from the uses the orbs have in crafting powerful items.

Trade is Born

With an existing supply and demand for each currency, a trading focused economy is born.

Chaos Orb

The Dollar Bill of the economy.

Everything is priced around it's value.

Conqueror's Orbs

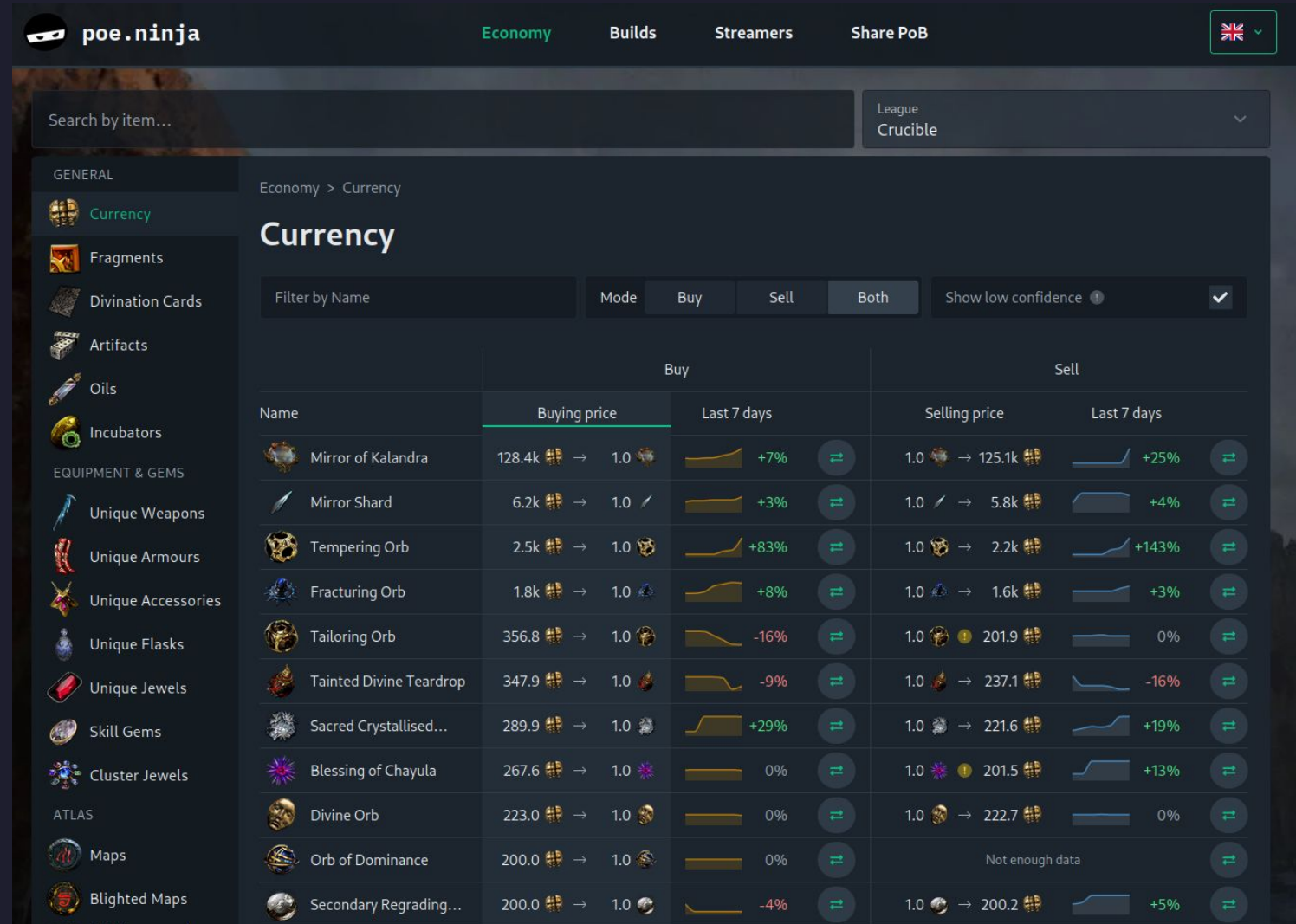The Currencies being researched are the boss specific currencies

- Hunter's Exalted Orb
- Redeemer's Exalted Orb
- Warlord's Exalted Orb
- Crusader's Exalted Orb
- Awakener's Orb

Data Collection

Data originates from poe.ninja, a website that has been tracking the economy since Essence League in September 2nd, 2016

Our currencies were added in Metamorph League in December 13, 2019.

Leagues?

Here's the cool part, economies are temporary!

But also permanent.

But what are we doing?

We're going to try and see if we can come up with a good way to predict trade ratios.
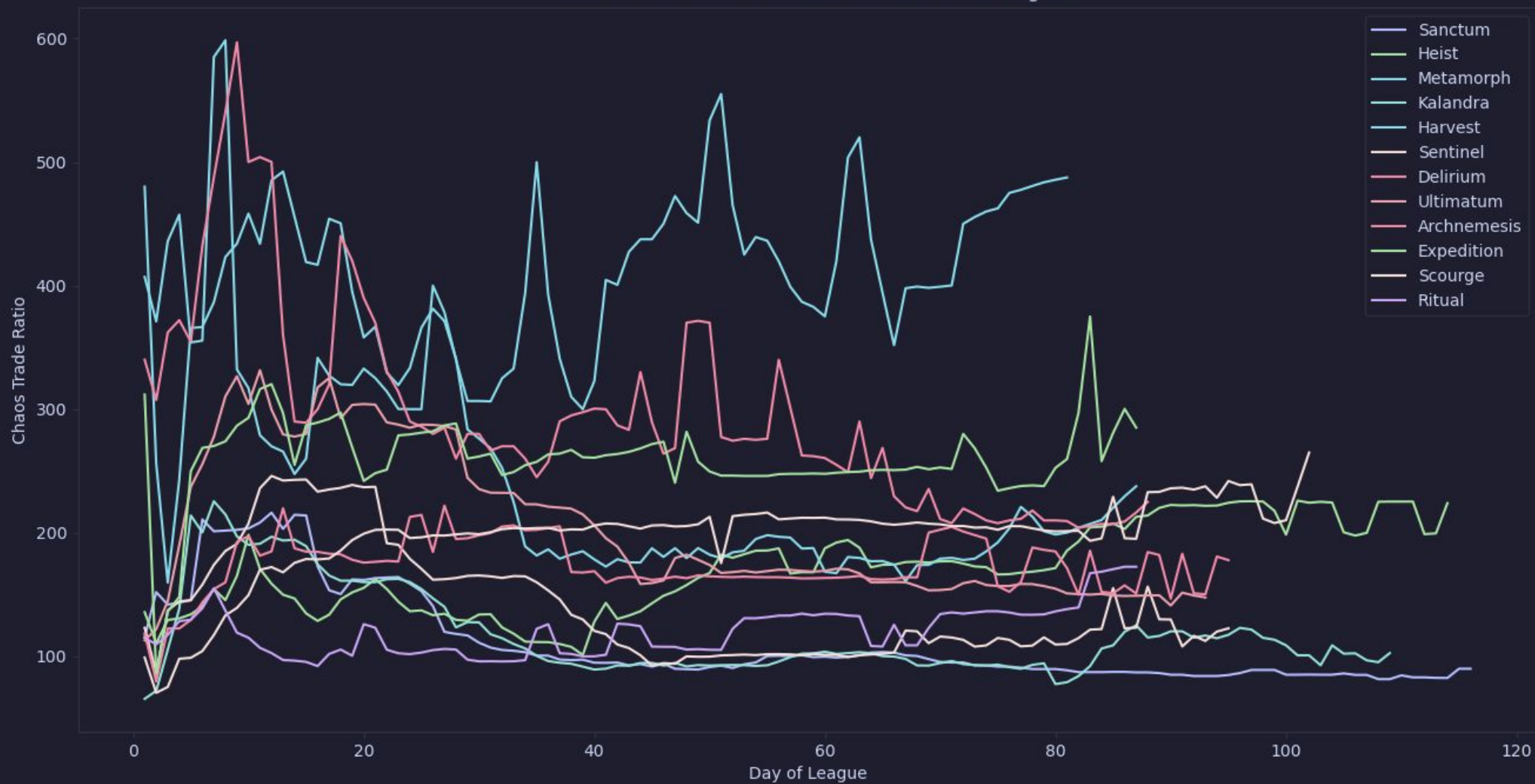
Knowing the future can help us get rich.
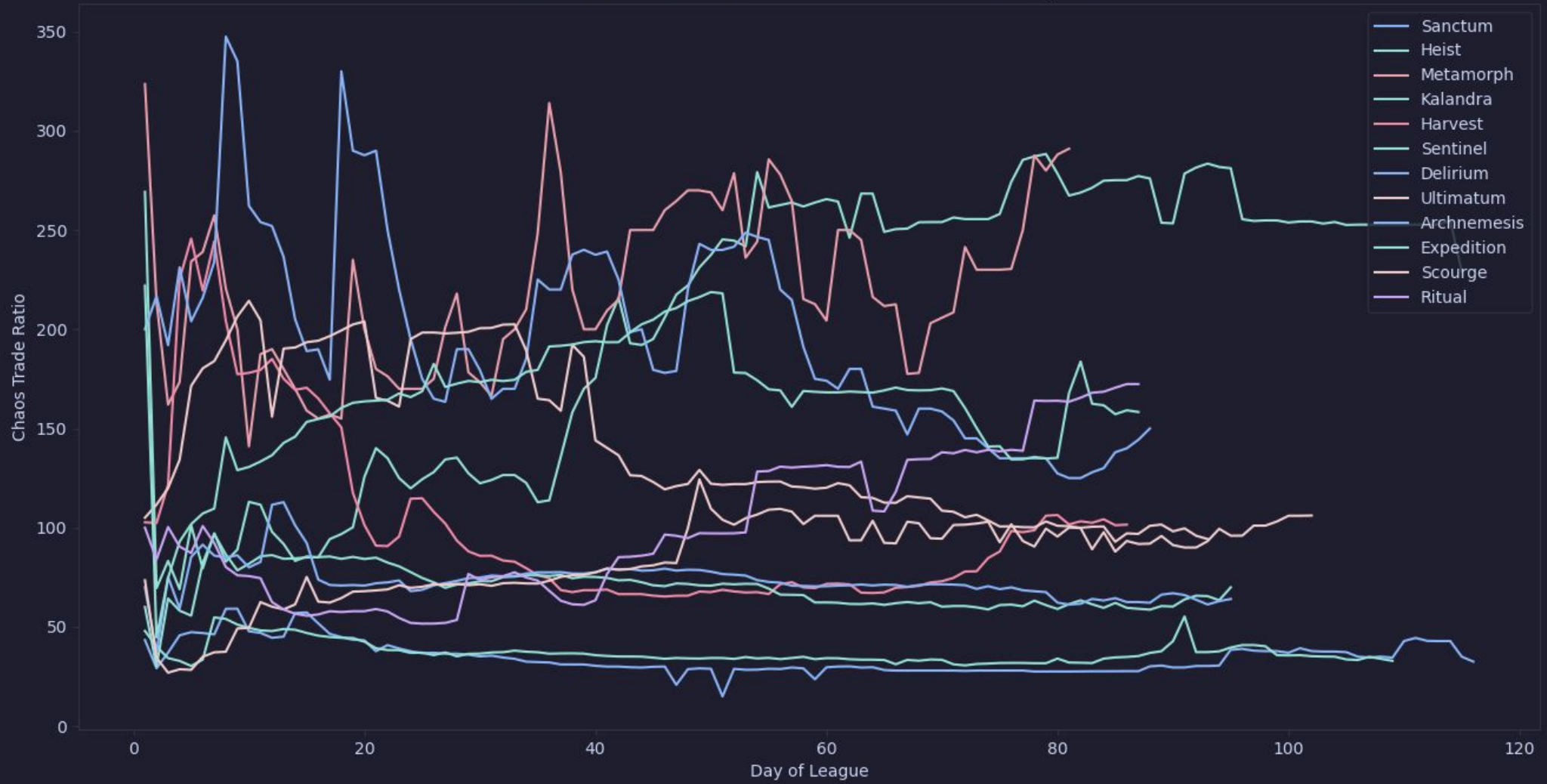
EDA: Exploratory Data Analysis

Now that we know the important parts of how the economy works, we can begin to actually study it!

Because every league starts with a fresh economy, we can look at all league starts together.
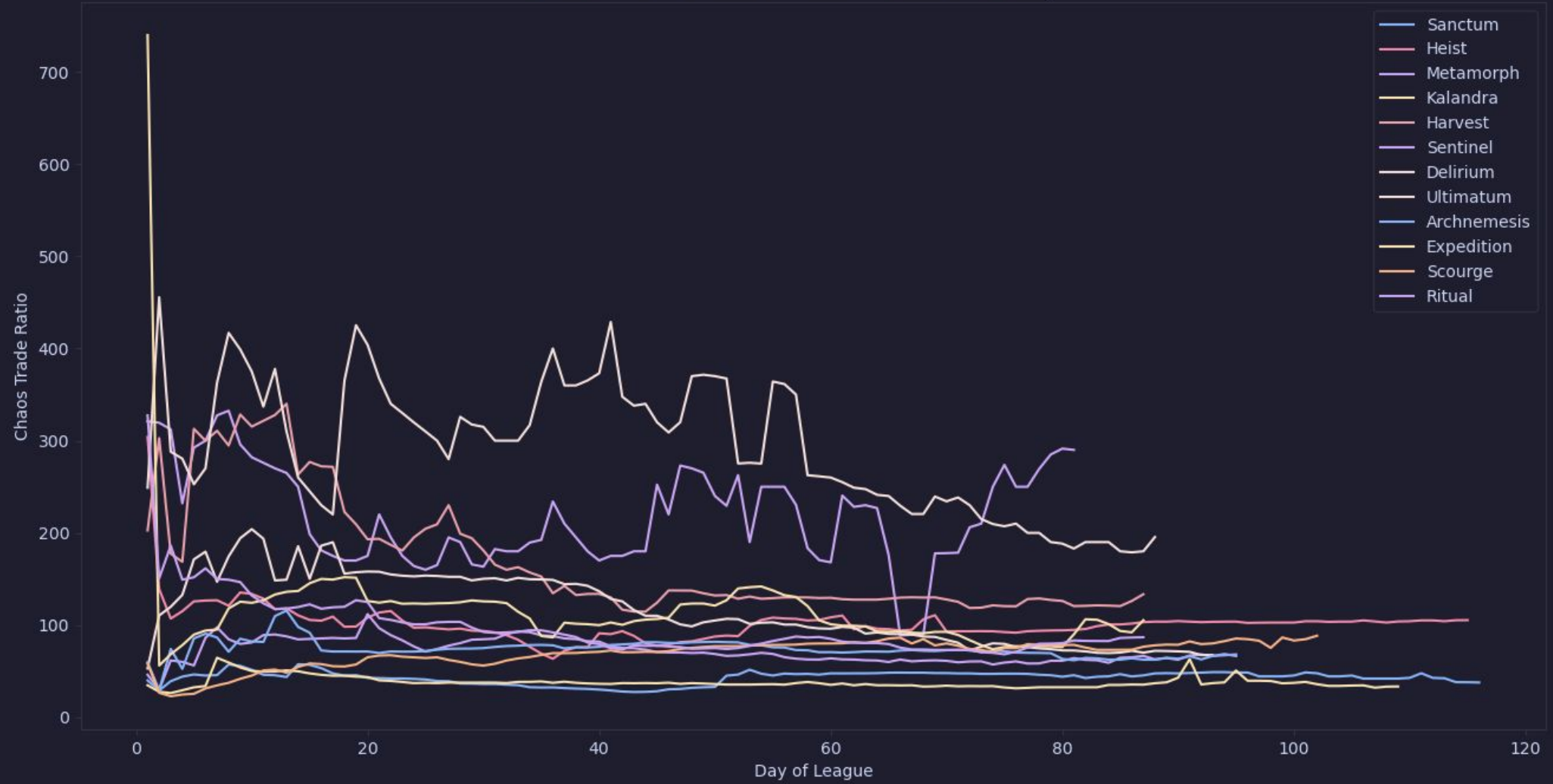
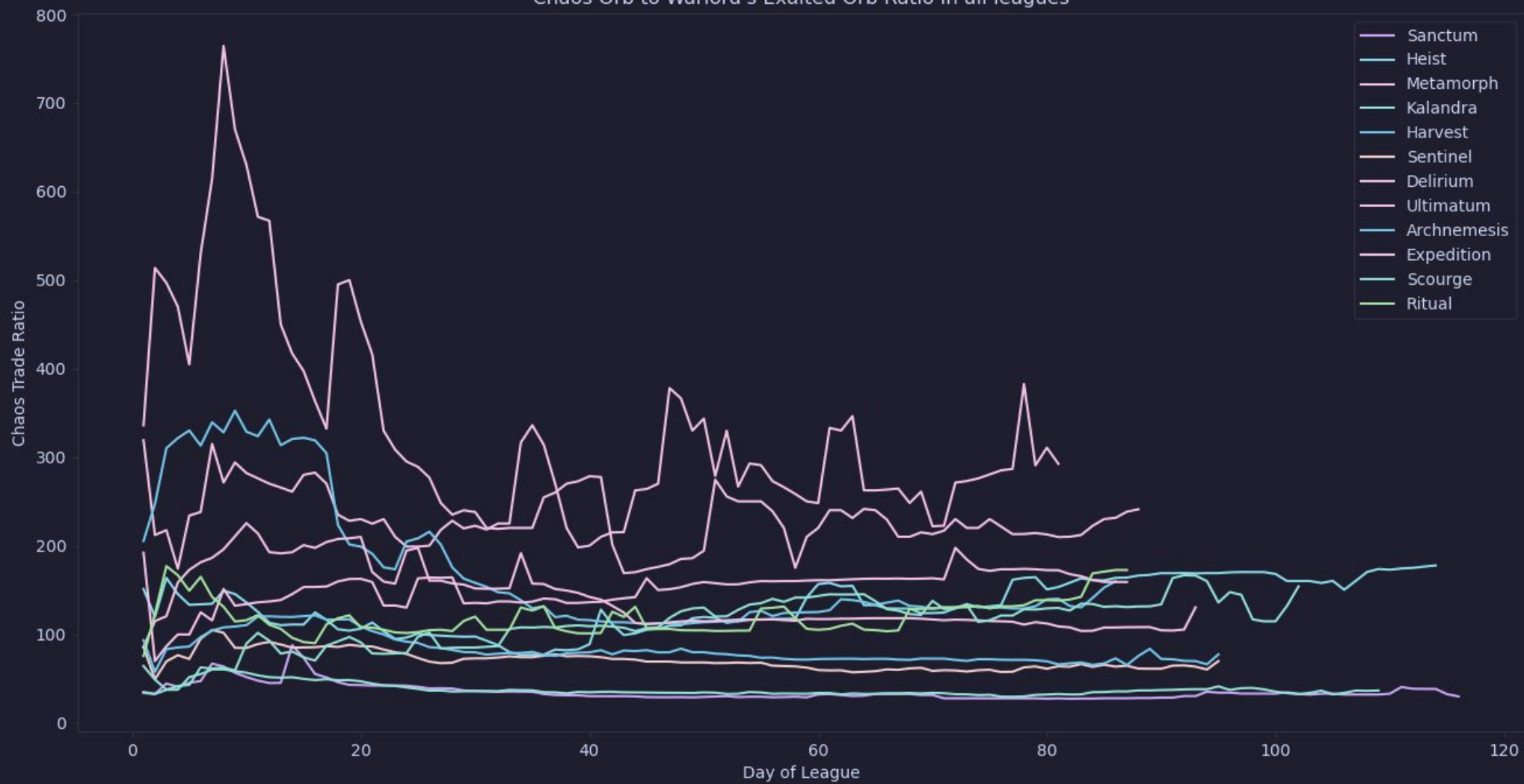Chaos Orb to Hunter's Exalted Orb Ratio in all leagues

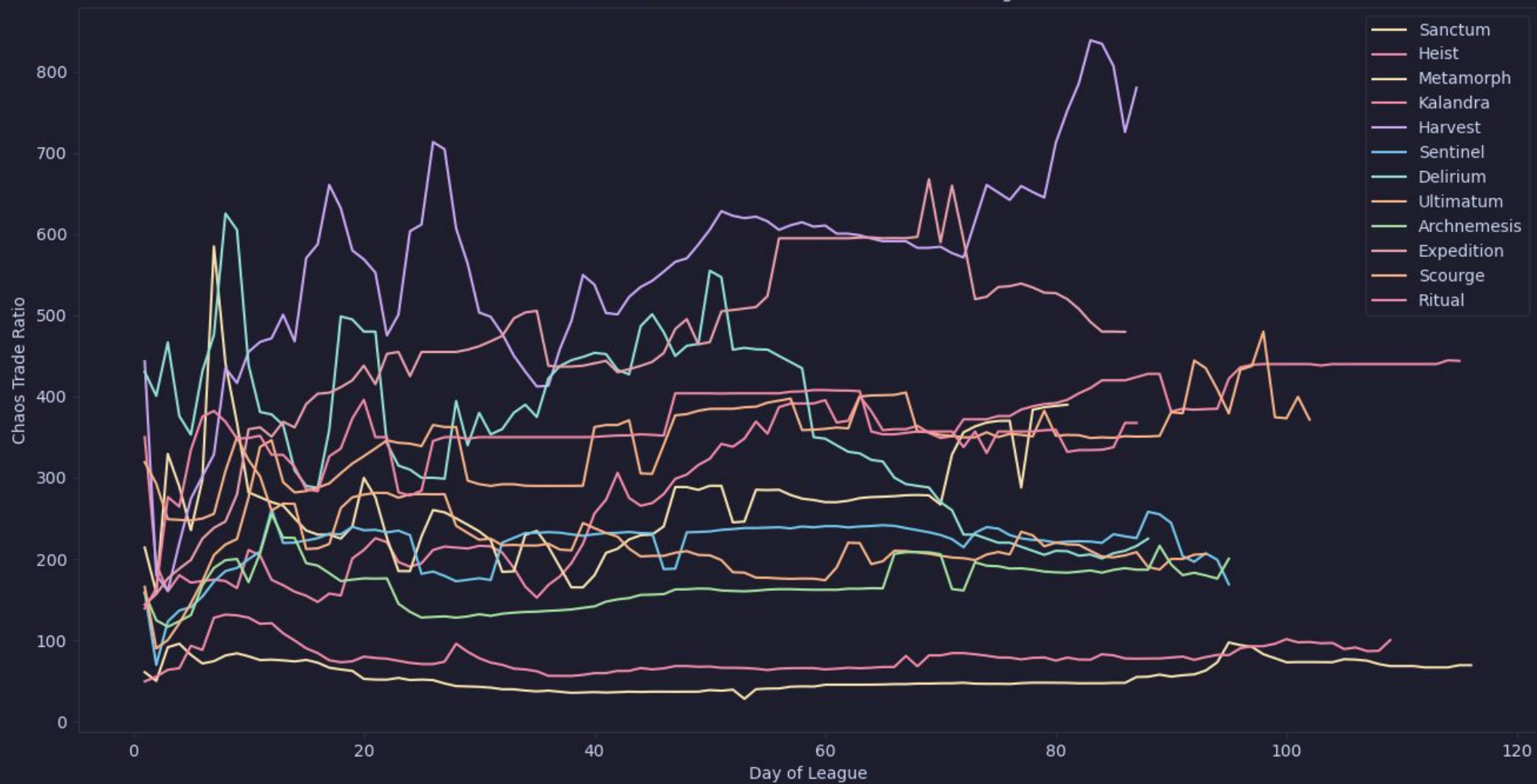Chaos Orb to Redeemer's Exalted Orb Ratio in all leagues

Chaos Orb to Crusader's Exalted Orb Ratio in all leagues

Chaos Orb to Warlord's Exalted Orb Ratio in all leagues

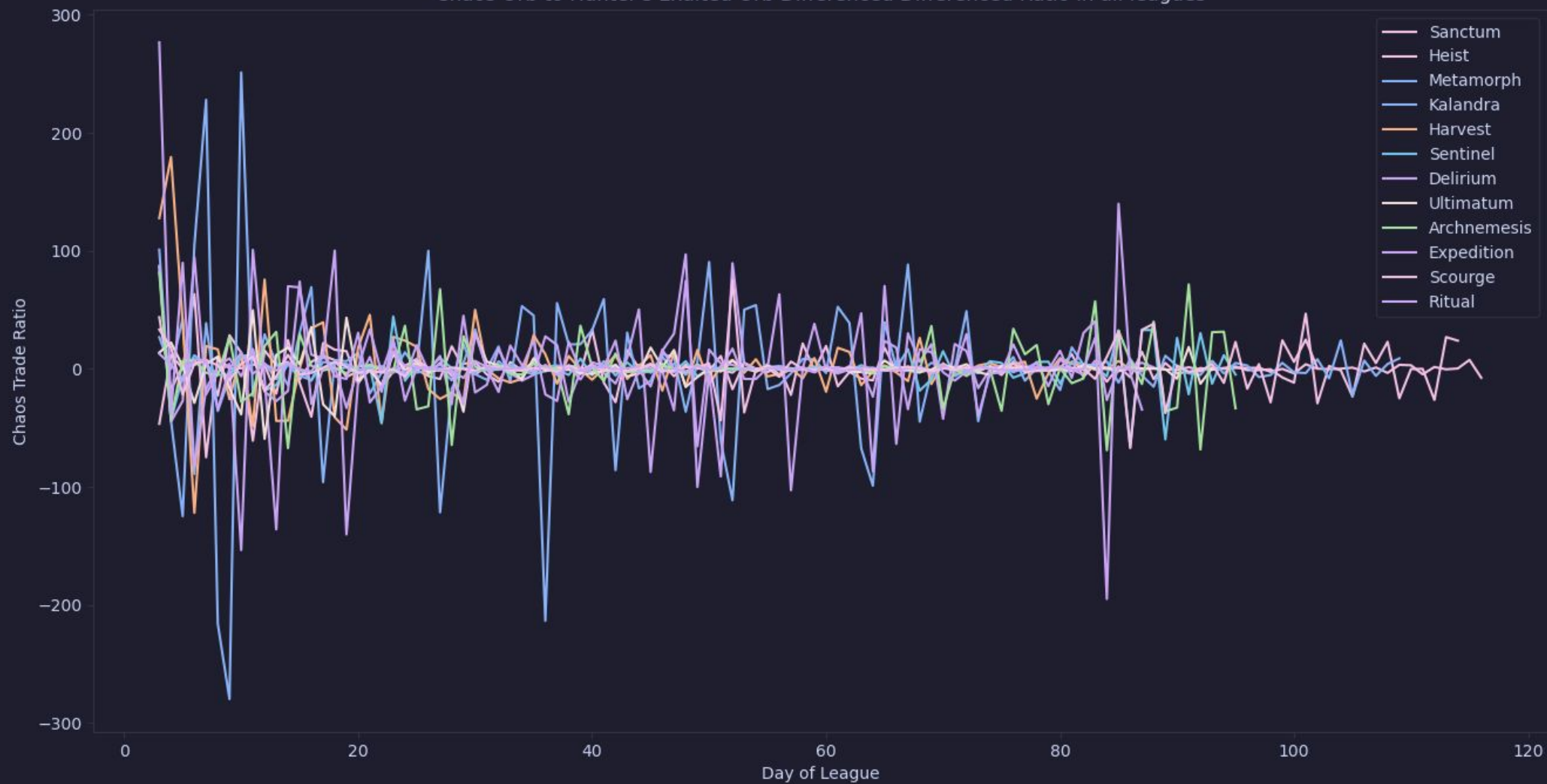Chaos Orb to Awakener's Orb Ratio in all leagues

Patterns? Good Luck

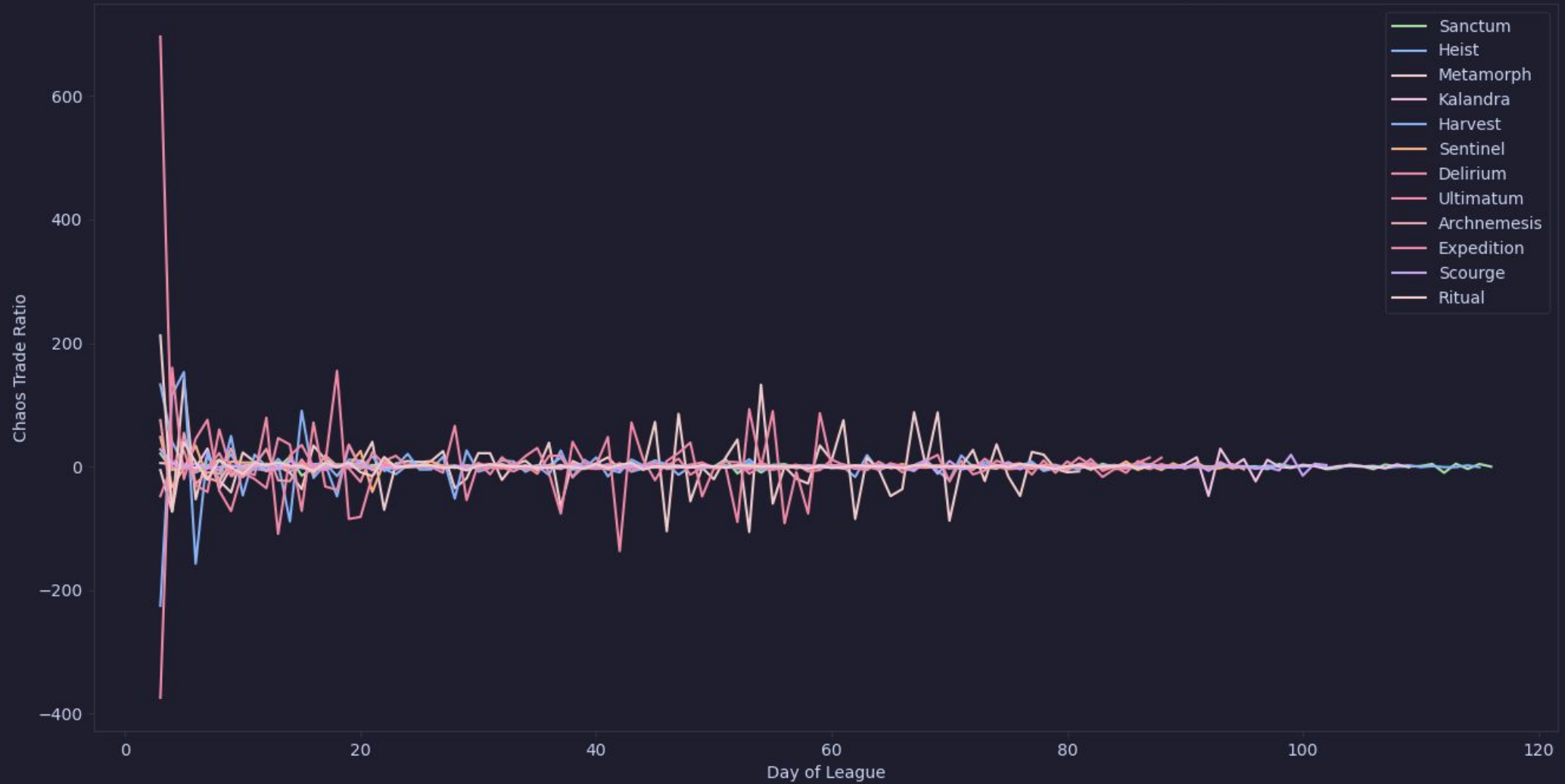Just like a real life economy, many of the currencies show erratic trends.

What's worse is that they are different per league!

Crusader's Exalted Orb stands out though,

Chaos Orb to Hunter's Exalted Orb Differenced Differenced Ratio in all leagues

Chaos Orb to Crusader's Exalted Orb Differenced Differenced Ratio in all leagues

Modeling: Let's Get Rich?

Based on the EDA, modeling doesn't look too promising.

The inconsistent trends between leagues also dissuade use from making a general model.

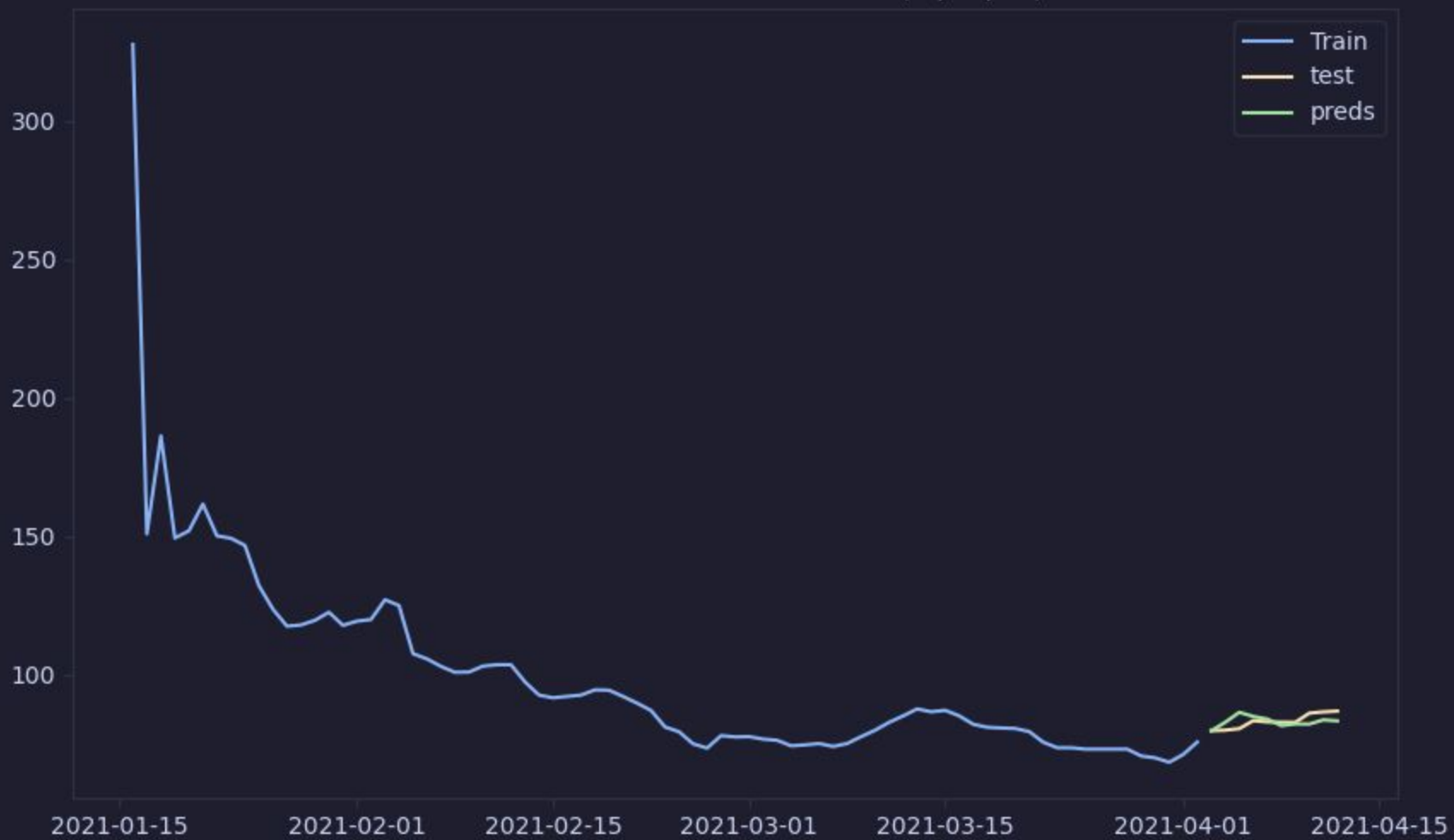So we'll have to pivot to seeing if we can at least predict the end of a league.

The Good?

Heist Awakener's Orb ARIMA(2, 2, 3) Predictions

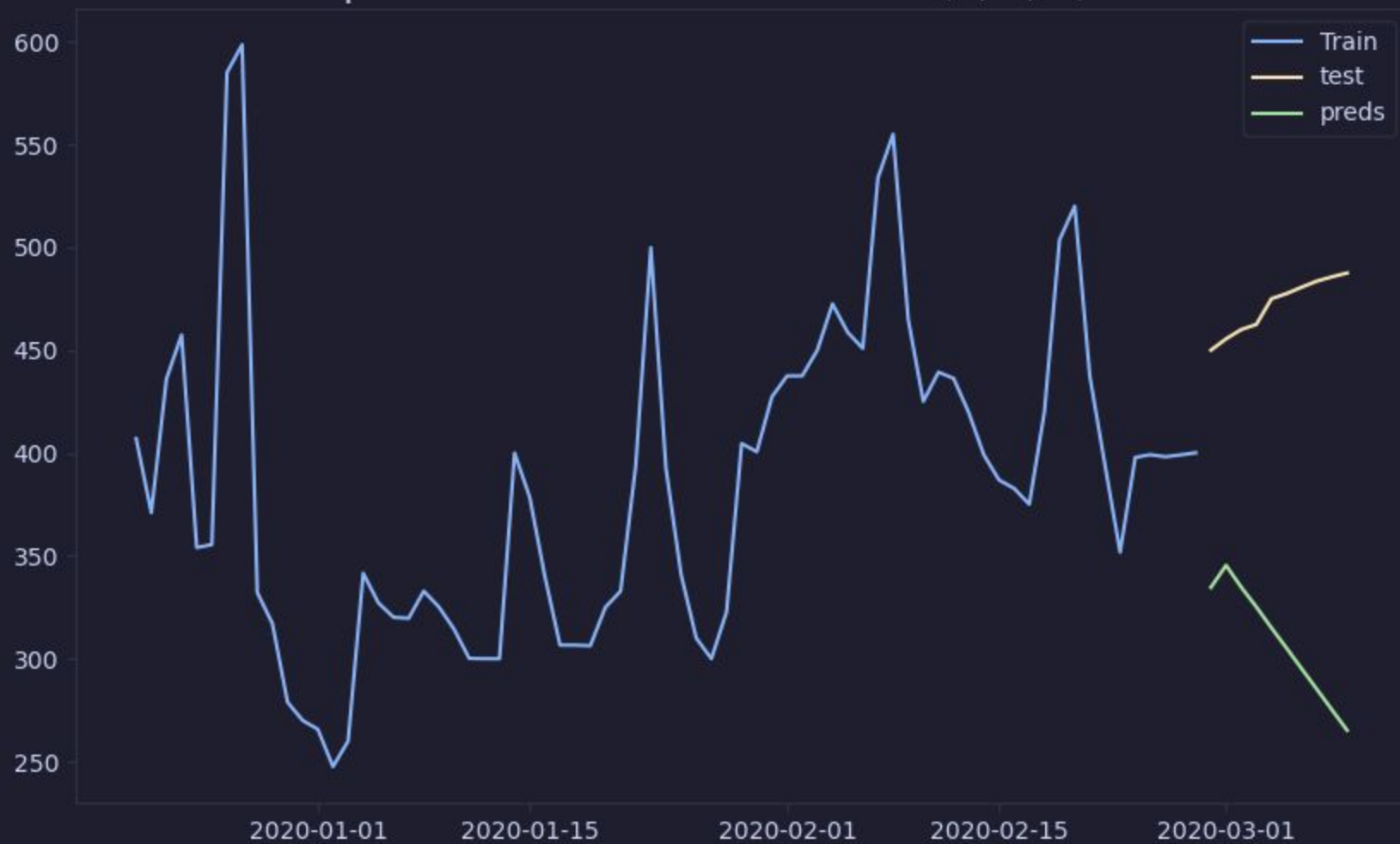Heist Crusader's Exalted Orb ARIMA(2, 1, 4) Predictions

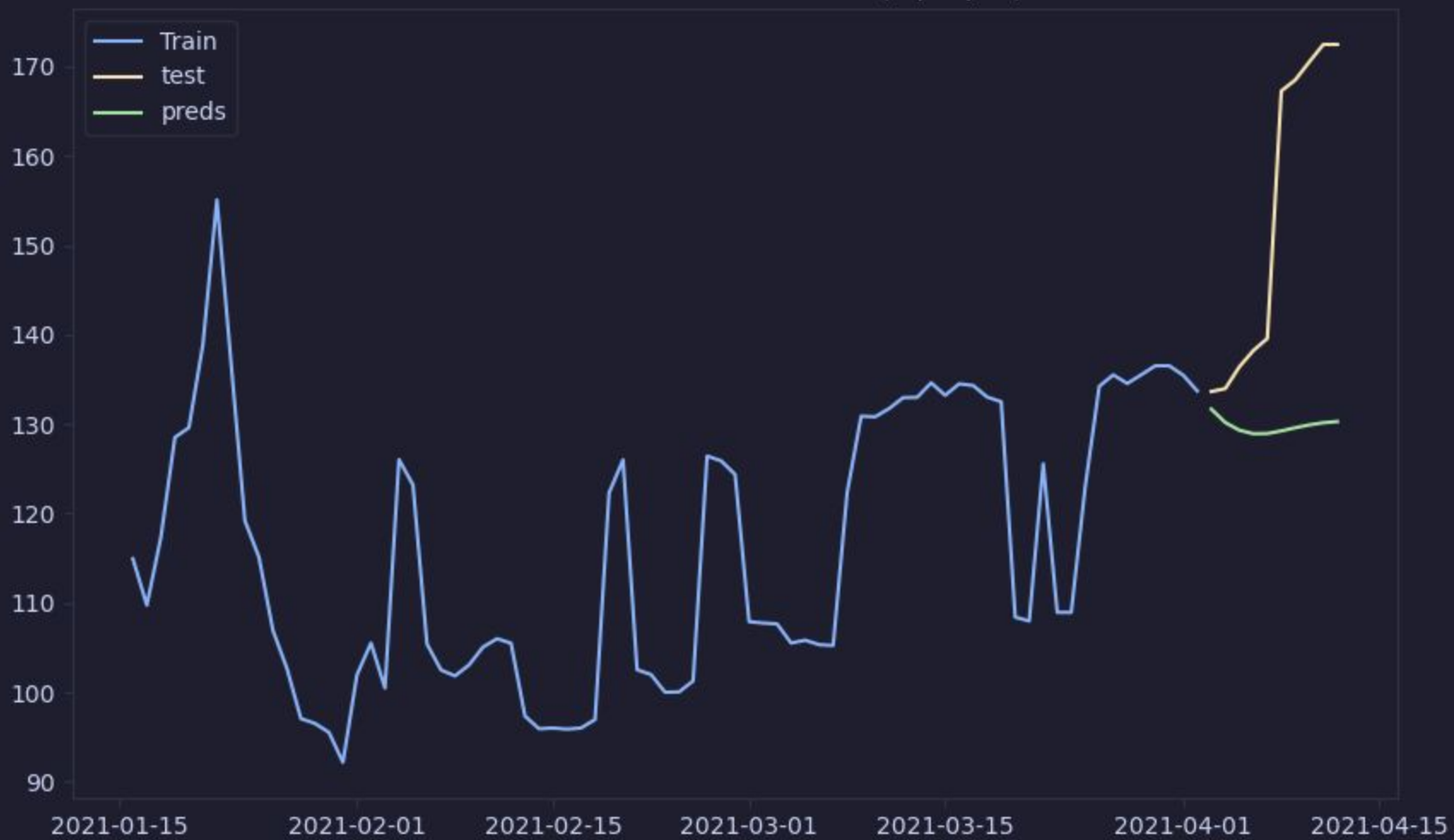Ritual Crusader's Exalted Orb ARIMA(4, 1, 4) Predictions

The Bad

Metamorph Hunter's Exalted Orb ARIMA(1, 2, 4) Predictions

Ritual Hunter's Exalted Orb ARIMA(4, 1, 1) Predictions
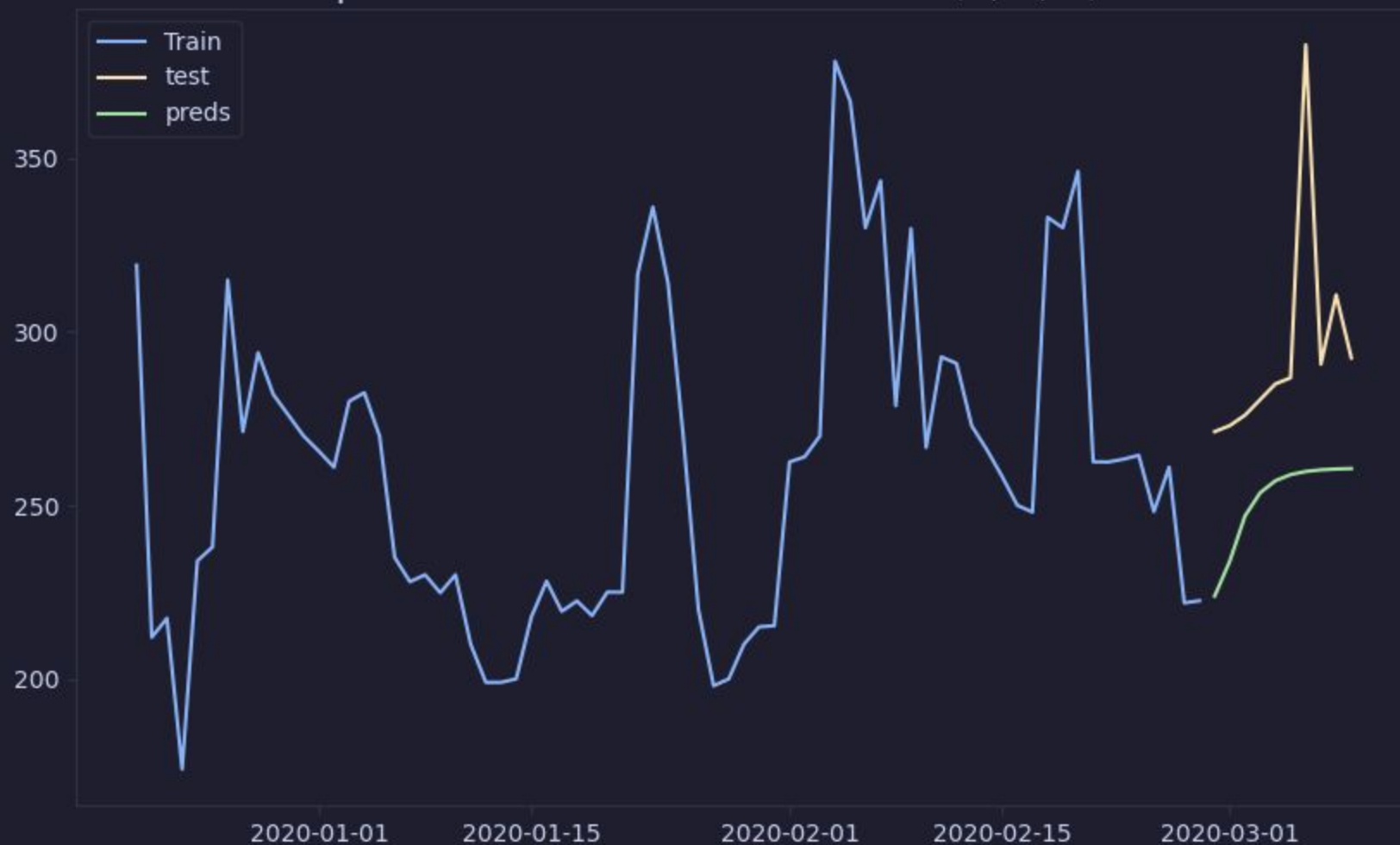
Kalandra Redeemer's Exalted Orb ARIMA(2, 2, 2) Predictions

Heist Warlord's Exalted Orb ARIMA(1, 2, 2) Predictions

Metamorph Warlord's Exalted Orb ARIMA(1, 1, 3) Predictions

The Weird

Expedition Crusader's Exalted Orb ARIMA(4, 2, 0) Predictions

Results: Bust!

Whether it's real or make believe, a market is pretty hard to solve.

Not becoming the Warren Buffet of PoE any time soon.

Wouldn't recommend these modeling ideas to anyone…. yet!

The Future

Attempt a model that allows exogenous variables, and attempt to somehow dummy variable various market/crafting parameters.

Switch from last 10 days to something shorter, and focus on more real time predictions.

Incorporate trade API to get real time data from current league.

Questions?