
Yield Curve Dynamics Documentation

Release 0.2.0

luphord

Apr 03, 2019

Contents:

1	Yield Curve Dynamics	1
1.1	Credits	1
2	Installation	3
2.1	Stable release	3
2.2	From sources	3
3	Usage	5
4	yield_curve_dynamics	7
4.1	yield_curve_dynamics package	7
5	Contributing	9
5.1	Types of Contributions	9
5.2	Get Started!	10
5.3	Pull Request Guidelines	11
5.4	Tips	11
5.5	Deploying	11
6	Credits	13
6.1	Development Lead	13
6.2	Contributors	13
7	History	15
7.1	0.2.0 (2019-04-03)	15
7.2	0.1.0 (2019-03-21)	15
8	Indices and tables	17
	Python Module Index	19

Yield Curve Dynamics

A cursory look at the dynamics of zero coupon bond yield curves.

- Data source: Zero coupon bond yield curve data published by European Central Bank (ECB)
- Visualization: Animated plot shows a video of historic yield curves
- Analysis: Principal Component Analysis (PCA) is applied to (shifted) log diffs of keyrates in order to reduce the dimensionality of curve movements
- Key insight: Three factors (parallel shift, steepening and hump) can capture the majority of curve movements
- Structure: Functionality is contained in the *yield_curve_dynamics* Python package, presentation is performed using Jupyter notebooks in the *notebooks* directory
- Free software: MIT license
- Documentation: <https://yield-curve-dynamics.readthedocs.io>.

1.1 Credits

This package was created with [Cookiecutter](#) and the [audreyr/cookiecutter-pypackage](#) project template.

2.1 Stable release

To install Yield Curve Dynamics, run this command in your terminal:

```
$ pip install yield_curve_dynamics
```

This is the preferred method to install Yield Curve Dynamics, as it will always install the most recent stable release.

If you don't have `pip` installed, this [Python installation guide](#) can guide you through the process.

2.2 From sources

The sources for Yield Curve Dynamics can be downloaded from the [Github repo](#).

You can either clone the public repository:

```
$ git clone git://github.com/luphord/yield_curve_dynamics
```

Or download the [tarball](#):

```
$ curl -OL https://github.com/luphord/yield_curve_dynamics/tarball/master
```

Once you have a copy of the source, you can install it with:

```
$ python setup.py install
```


CHAPTER 3

Usage

To use Yield Curve Dynamics in a project:

```
import yield_curve_dynamics
```


4.1 yield_curve_dynamics package

4.1.1 Submodules

4.1.2 yield_curve_dynamics.animate module

4.1.3 yield_curve_dynamics.cli module

4.1.4 yield_curve_dynamics.data module

4.1.5 yield_curve_dynamics.keyrates module

4.1.6 yield_curve_dynamics.pca module

4.1.7 yield_curve_dynamics.video module

4.1.8 yield_curve_dynamics.yield_curve_dynamics module

Main module.

4.1.9 Module contents

Top-level package for Yield Curve Dynamics.

Contributions are welcome, and they are greatly appreciated! Every little bit helps, and credit will always be given. You can contribute in many ways:

5.1 Types of Contributions

5.1.1 Report Bugs

Report bugs at https://github.com/luphord/yield_curve_dynamics/issues.

If you are reporting a bug, please include:

- Your operating system name and version.
- Any details about your local setup that might be helpful in troubleshooting.
- Detailed steps to reproduce the bug.

5.1.2 Fix Bugs

Look through the GitHub issues for bugs. Anything tagged with “bug” and “help wanted” is open to whoever wants to implement it.

5.1.3 Implement Features

Look through the GitHub issues for features. Anything tagged with “enhancement” and “help wanted” is open to whoever wants to implement it.

5.1.4 Write Documentation

Yield Curve Dynamics could always use more documentation, whether as part of the official Yield Curve Dynamics docs, in docstrings, or even on the web in blog posts, articles, and such.

5.1.5 Submit Feedback

The best way to send feedback is to file an issue at https://github.com/luphord/yield_curve_dynamics/issues.

If you are proposing a feature:

- Explain in detail how it would work.
- Keep the scope as narrow as possible, to make it easier to implement.
- Remember that this is a volunteer-driven project, and that contributions are welcome :)

5.2 Get Started!

Ready to contribute? Here's how to set up *yield_curve_dynamics* for local development.

1. Fork the *yield_curve_dynamics* repo on GitHub.
2. Clone your fork locally:

```
$ git clone git@github.com:your_name_here/yield_curve_dynamics.git
```

3. Install your local copy into a virtualenv. Assuming you have virtualenvwrapper installed, this is how you set up your fork for local development:

```
$ mkvirtualenv yield_curve_dynamics
$ cd yield_curve_dynamics/
$ python setup.py develop
```

4. Create a branch for local development:

```
$ git checkout -b name-of-your-bugfix-or-feature
```

Now you can make your changes locally.

5. When you're done making changes, check that your changes pass flake8 and the tests, including testing other Python versions with tox:

```
$ flake8 yield_curve_dynamics tests
$ python setup.py test or py.test
$ tox
```

To get flake8 and tox, just pip install them into your virtualenv.

6. Commit your changes and push your branch to GitHub:

```
$ git add .
$ git commit -m "Your detailed description of your changes."
$ git push origin name-of-your-bugfix-or-feature
```

7. Submit a pull request through the GitHub website.

5.3 Pull Request Guidelines

Before you submit a pull request, check that it meets these guidelines:

1. The pull request should include tests.
2. If the pull request adds functionality, the docs should be updated. Put your new functionality into a function with a docstring, and add the feature to the list in README.rst.
3. The pull request should work for Python 2.7, 3.4, 3.5 and 3.6, and for PyPy. Check https://travis-ci.org/luphord/yield_curve_dynamics/pull_requests and make sure that the tests pass for all supported Python versions.

5.4 Tips

To run a subset of tests:

```
$ python -m unittest tests.test_yield_curve_dynamics
```

5.5 Deploying

A reminder for the maintainers on how to deploy. Make sure all your changes are committed (including an entry in HISTORY.rst). Then run:

```
$ bumpversion patch # possible: major / minor / patch
$ git push
$ git push --tags
```

Travis will then deploy to PyPI if tests pass.

6.1 Development Lead

- lumphord <lumphord@protonmail.com>

6.2 Contributors

None yet. Why not be the first?

7.1 0.2.0 (2019-04-03)

- Ready for lightning talk

7.2 0.1.0 (2019-03-21)

- First release on PyPI.

CHAPTER 8

Indices and tables

- `genindex`
- `modindex`
- `search`

y

yield_curve_dynamics, [7](#)
yield_curve_dynamics.yield_curve_dynamics,
[7](#)

Y

`yield_curve_dynamics` (*module*), 7
`yield_curve_dynamics.yield_curve_dynamics`
(*module*), 7