

This is a Fancy and Descriptive Thesis Title

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Abstract

Here follows a max 150–200 words abstract that particularly highlights the contributions, what is new, etc., and the main findings.

Key words: here you put key words, separated by commas, and ended with a final point.

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1 Introduction

A good intro typically has the following set-up (compare intros from *Econometrica*, *Journal of Econometrics*, *Journal of Applied Econometrics*):

1. Paragraph 1: what is this paper about; what is the relevance and motivation of the area;
2. Paragraph 2: within this field, which problem has not received enough attention and why;
3. Paragraph 3: that you will fill this gap in the literature (and why), and what your contribution is precisely compared to the existing literature;
4. Paragraph 4: how you will fill this gap (what method, technique, ...)
5. Paragraph 5(–6): What are the main findings that come out of your research;
6. Paragraph 6: briefly how your research compares to existing lines of literature (or possibly alternatively refer forward to a literature review section);
7. Paragraph 7: how the rest of the thesis is set up; something like

The rest of this thesis is set up as follows. In Section 2 I review the literature. In Section 3, I explain the statistical model and its time series properties. Sections 4 and 5 present the simulation and empirical results, respectively. Finally, Section 6 concludes.

The sections below are for illustration of course. In your thesis, it might be the case that a different set-up works better and results in a clearer message to the reader.¹

As a final remark: do not fall into the trap of thinking more pages is better and results in a higher grade. Typically the opposite happens if the pages are full of redundant material. Be sharp, dense, clear, and concise in your writing style!

2 Literature review

When you include references, do not hard-code them, but use BiBTeXreferencing, such as [Arnade and Vocke \(2016\)](#). Sometimes, you want to cite in parentheses, like this (see the last page of [Arnade and Vocke, 2016](#), pg. 1033).

¹It might be good to have in mind a reader that is in the same MSc Econometrics program as you, and therefore has the same background, but does a thesis on an entirely different topic. It helps you decide what to explain, and what can be taken as common knowledge.

3 Model

If you use a numbered equation like

$$y_t = \phi y_{t-1} + \varepsilon_t, \tag{1}$$

then refer to it as equation (1) with relative referencing. Similarly, for sections, figures, tables, subsections, etc., use relative referencing as well. If the number follows, then capitalize the word, so: “We see the model in Section 3.”²

4 Simulations or Theory

Note that figures and tables should be stand-alone. The reader must be able to understand everything in the table without reading any of the surrounding text. Also, let tables and figures float to the top of the page or to the next page. Figure 1 is an example. A table example is given in Appendix B. See real journal papers for other good examples.

As a general guideline, think carefully about your figures and tables and make them in such a way that many results are in there at once: this is good for the overview of the results for the reader.

5 Empirical results

6 Conclusion

References

Arnade, C. and Vocke, G. (2016). Seasonal variation in the price discovery process of international wheat. *Agribusiness*, 32(1):16–32.

²So ... **not** “We see the model in section 3.”

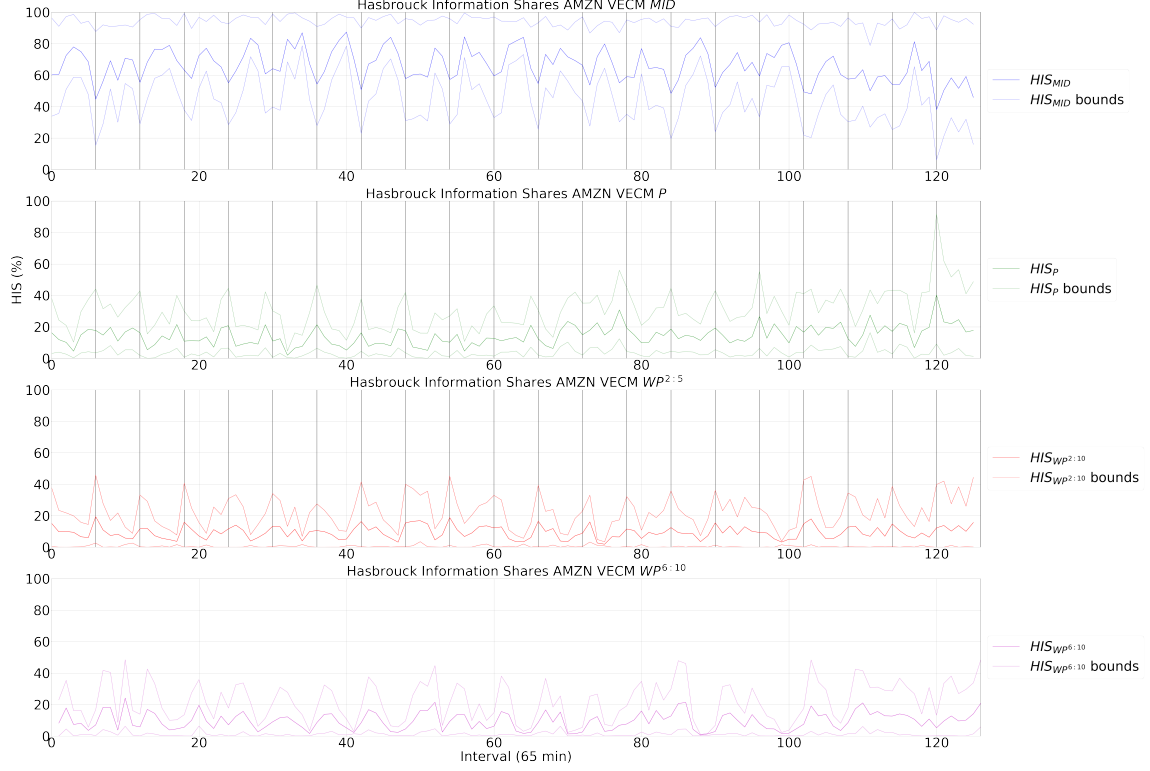


Figure 1: Information Shares for Amazon

Note: HIS for each interval of AMZN high frequency data sampled every second. Period ranging from 02-01-2020 to 31-01-2020. Each vertical black line represents the start of a new trading day. The information shares are calculated on a 65 minute basis, this results in days being split up in six parts. The mean of all possible orderings of y_t are plotted as well as the upper and lower bounds. The model used is the VECM:

$$\Delta y_t = \alpha \beta' y_{t-1} + \sum_{j=1}^k \Gamma_j \Delta y_{t-j} + \epsilon_t.$$

Where $y_t = (MID_t, P_t, WP_t^{2:5}, WP_t^{6:10})'$. MID represents the mid price, calculated by taking the midpoint of the best BAP. $WP^{n1:n2}$ is the weighted price statistic of the $n1$ to the $n2$ level of the Limit Order Book (LOB). P denotes the most recent transaction price. k , the number of lags used in the VECM is selected based on the AIC (Akaike information criterion).

A Additional derivations

B Additional empirical results

Table 1: Parameter estimates for the tail shape model

Parameter estimates for the dynamic tail shape model. The second and third columns refer to the first application (equity log-returns). Columns labeled S&P500 and IBM refer to daily log-returns associated with either time series. Estimation samples range from 3 July 1962 to 31 December 2020 for the S&P500 index, and from 2 January 1926 to 31 December 2020 for IBM stock. The fourth and fifth columns refer to the second application (changes in sovereign bond yields). Columns labeled IT 5y and PT 5y refer to changes in sovereign yields for Italy and Portuguese five-year benchmark bonds, sampled at the 15-minute frequency. Estimation samples range from 4 January 2010, 8AM to 31 December 2012, 5PM. Standard error estimates are reported in round brackets. P-values are in square brackets. Standard errors and p-values are based on a sandwich covariance matrix estimator for the first two columns (first illustration), and are based on a bootstrap procedure for the last two columns (second illustration).

	First illustration		Second illustration			
	S&P500	IBM	IT 5y yield		PT 5y yield	
ω^ξ	-0.001 (0.001) [0.116]	-0.001 (0.000) [0.036]				
ω^δ	-0.008 (0.002) [0.000]	-0.006 (0.002) [0.001]				
a^ξ	0.024 (0.009) [0.004]	0.023 (0.004) [0.000]	0.019 (0.002) [0.000]	0.019 (0.002) [0.000]	0.037 (0.002) [0.000]	0.042 (0.005) [0.000]
a^δ	0.139 (0.013) [0.000]	0.126 (0.017) [0.000]	0.081 (0.003) [0.000]	0.078 (0.003) [0.000]	0.099 (0.005) [0.000]	0.095 (0.004) [0.000]
b^ξ	0.9996 (0.000) [0.000]	0.9997 (0.001) [0.000]				
b^δ	0.991 (0.002) [0.000]	0.988 (0.004) [0.000]				
c^ξ				-6.187 (1.763) [0.000]		-21.629 (8.299) [0.009]
c^δ				-1.114 (0.675) [0.099]		-14.964 (3.774) [0.000]
λ	0	0	$0.05^{1/32}$	$0.05^{1/32}$	$0.05^{1/32}$	$0.05^{1/32}$
a^τ	0.231	0.306	0.341	0.341	0.566	0.566
c^τ			-0.041	-0.041	0.040	0.040
T	14,726	25,028	24,416	24,416	24,576	24,576
T^*	1,474	2,504	2,447	2,447	2,457	2,457
loglik	-21,895.1	-62,683.4	-81,057.0	-81,030.1	-198,641.8	-198,605.8
AIC	43,802.2	125,378.8	162,122.1	162,068.2	397,291.6	397,219.6
BIC	43,847.8	125,427.6	162,154.5	162,100.2	397,324.0	397,252.0