Introduction to LaTeX

Put subtitle here

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Abstract

Ha ha ha what a funny abstract!

1 What a funny section!

LaTeXuses a "markup language" in order to convert text, combined with the markup, into a high quality document. For example, web pages work in a similar way: the HTML (Hyper Text Markup Language) is used to style the text document, and the browser presents it in its full glory — with different colors, fonts, sizes, etc. Each of the LaTeXcommands begin with a backslash. This is LaTeX's way of knowing that whenever it sees a backslash, to expect some commands. Comments are not classed as a commands.

You can force a new line using

this is the "right" way
this is the "wrong" way

The section with no number

That's how you do it — with a star!

1.1 Subsection

Here is my subsection

In order to have a subsection without a name, just use the old trick — attach a star to the end of the command:

1.1.1 This is my subsubsection

Again, use the star in the relevant command to omit natural numbering of sections.

Now let us introduce equations, since that's what we're here to learn!

2 Support for Mathematics

You can generate equations via the following "environment" — the equation environment enclosed in the "begin" and "end" equations:

$$\int_0^\infty e^{-\rho}\rho^{2l}\left[L_{n+l}^{2l+1}(\rho)\right]^2\rho^2 d\rho = \frac{2n\left[(n+l)!\right]^3}{(n-l-1)!} \tag{1}$$

$$\sum_{i=0}^{i=\infty} f^2$$

Needless to say you can generate any equation of any arbitrary complexity and it is guaranteed to be rendered beautifully.

If you don't want the equation numbers you can use a star after the word "equation" above. TeXstudio prompts you anyway regarding that.

Yet another way to generate anonymous equations is the following operator:

$$\bar{N}_j^g = \frac{\sum\limits_k N_{jk}W_k}{\sum\limits_K W_k}$$

You can also use equations inline by using the dollar signs and squeezing all mathematics within them. For example, ♯ a markup/typesetting language

better than LaTeXand it's as easy to see as $x^2 + x_1 + x = g(\cdot)$.[1]

2.1 Subequations

Let's now add subequations to complete the discussion

$$e^{i\pi} + 1 = 0 \tag{2a}$$

$$\nabla \times \mathbf{H} = \frac{\varepsilon}{c}\frac{\partial \mathbf{E}}{\partial t} \tag{2b}$$

More mathematics:
$\sqrt[3]{5}$
$\frac{x}{y}$
$\frac{\int_0^\infty f g d\mu}{\frac{\varepsilon}{c}}$
$A^x y$
$\sum k = 1^n k$
$2 \neq 4$
$\phi \in \Psi$
$\hat{\imath} \times \hat{\jmath} = \hat{k}$
$f'(\xi)$
180°C

3 Figures

To include figures in a document the package graphicx is required, so the command must be written in the preamble. To add a figure one can write the following commands.

In general we wish to add labels to figures, sections, tables etc. since it is very handy to be able to refer to them as and when needed using the

[1] Let's add a footnote for fun!

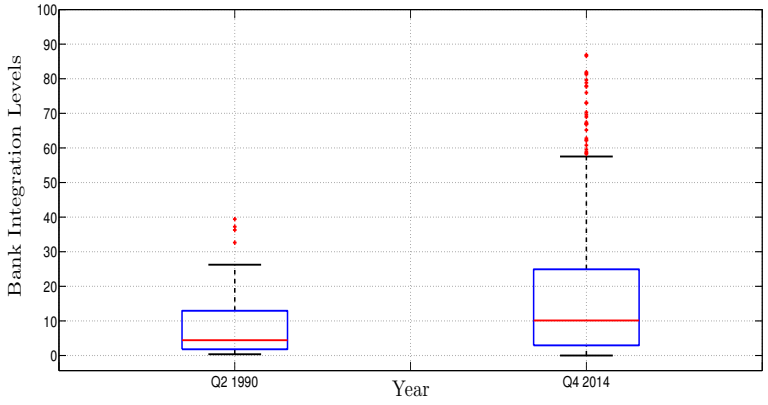

Figure 1: Add fancy captions here

backslash ref command. You can use labels to refer to the section maybe a hundred pages later by using it to go back to section 1.

[h!] is an option of the figure environment. This tells LaTeXto put this image in the next available space. Therefore if the image does not fit where it was written in the .tex document, LaTeXwill move the float to the next page and shift some text on top of it to minimise empty spaces.

Another example:

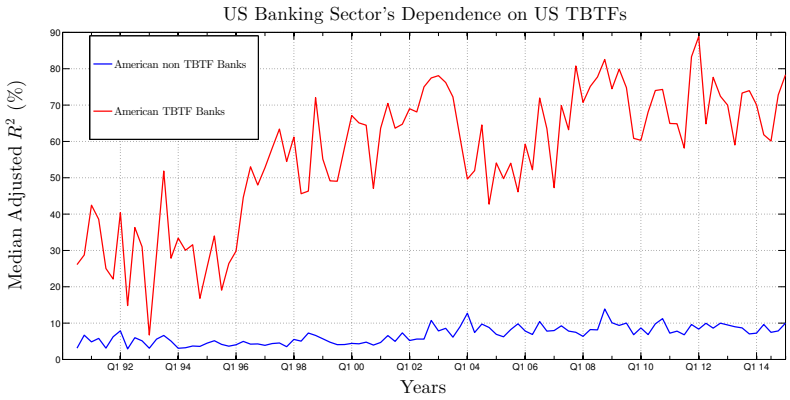

Figure 2: Add fancy captions here

4 Typeface Styles

Have a look!

4.1 Typeface

Text, **Text**, `Text`, Text, Text, TEXT, *Text*

4.2 Size

Text, Text, Text, Text, Text, Text, Text, Text, Text, Text

4.3 Alignment

put things here for fun

5 Lists

There are two main types of lists that are popular — bullet points and numbered lists

Here is how you use the bullet points:

- this is one item
- this is another item

To generate numbered lists:

1. this is one item
2. this is another item

also, you can use whatever symbol you wish!

◇ this is one item

◇ this is another item

Table 1: Several types of tables can be accommodated

G-SIB	**D-SIB**
Bank of America	BB&T
JP Morgan Chase	Comerica
Wells Fargo	Huntington Bancshares
State Street	M&T Bank
Morgan Stanley	PNC
Goldman Sachs	Regions
Bank of New York Mellon	Zions
Citigroup	Fifth Third
	SunTrust
	US Bancorp
	KeyCorp

6 Tables

Let's try some more tables:

Trial	n	t
1	23	2
2	15	10
3	100	20

7 References

Finally let's see how to build bibliography:

My hero Sergiu Hart: Foster and Hart (2009)

Other types of citation include (Federal Reserve Board, 2003), Brownlees and Engle (2015), Haas and Pigorsch (2009), Rachev *et al.* (2005), etc.

References

Brownlees, C. and Engle, R. (2015). SRISK: A conditional capital shortfall index for systemic risk measurement. Working paper. 6

Fahlenbrach, R., Prilmeier, R., and Stulz, R. M. (2016). Why does fast loan growth predict poor performance for banks? NBER Working Paper number 22089.

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Foster, D. P. and Hart, S. (2009). An operational measure of riskiness. *Journal of Political Economy*, *117*(5), 785–814. 6

Haas, M. and Pigorsch, C. (2009). *Complex Systems in Finance and Econometrics*, New York: Springer, chap. Financial Economics, Fat-Tailed Distributions. 308–339. 6

Rachev, S. T., Stoyanov, S., Biglova, A., and Fabozzi, F. (2005). *Data Analysis and Decision Support*, Berlin: Springer, chap. An Empirical Examination of Daily Stock Return Distributions for US Stocks. 6