

Digital Tools for Finance:  
A fancy LATEX template for group projects  
or for a future masterthesis

**Project**  
for the course

**Digital Tools for Finance**  
**at the University of Zurich**

by  
Igor Pozdeev and Dimitry Borisenko  
to obtain 'Master of Try&Error in DTfF'

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## **Abstract**

Flash Eurozone PMIs for September and their signal with respect to the business cycle. Purchasing Managers Index (PMI) is a survey that measures firms' business activity. The surveys ask respondents (managers) to report the change in each variable (like output or employment) compared to the prior month, noting whether each has risen/improved, fallen/deteriorated or remained unchanged. Flash reading is an advanced estimate of the final PMI number based on 85% of total responses. It's published about a week earlier. If PMI is 50 then nothing changed with respect to the last month. More than 50 - increased business activity. Less than 50 - decreased activity. In addition, PMIs can be used to forecast GDP.

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# 1 Introduction

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## 2 Chapter

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### 2.1 Chapter Table

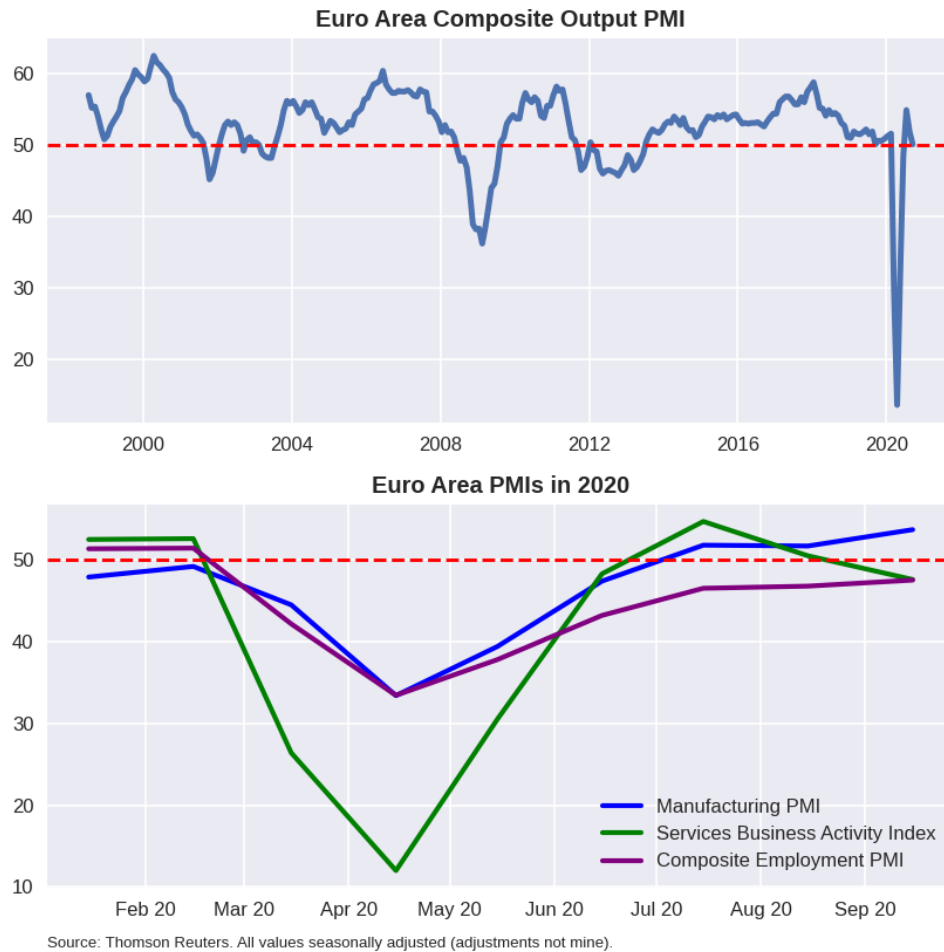
Table:

| Table 1: Monte-Carlo-Simulation |                 |           |             |           |
|---------------------------------|-----------------|-----------|-------------|-----------|
| Gruppe                          | Exponential CEF |           | Quadric CEF |           |
|                                 | $\beta_1$       | $\beta_0$ | $\beta_1$   | $\beta_0$ |
| $c$                             | 5               | 5         | 23          | 23        |
| $x_1$                           | 0.3             | 0.36      | 3.5         | 4.55      |
| $x_2$                           | 0.2             | 0.24      | 3.5         | 4.55      |

*Note:*  $c$  is a constant,  $x_1$  is continuously distributed as  $N(0,1)$  and  $x_2$  is a binary dummy variable with  $P(x_2 = 1) = 0.5$ .

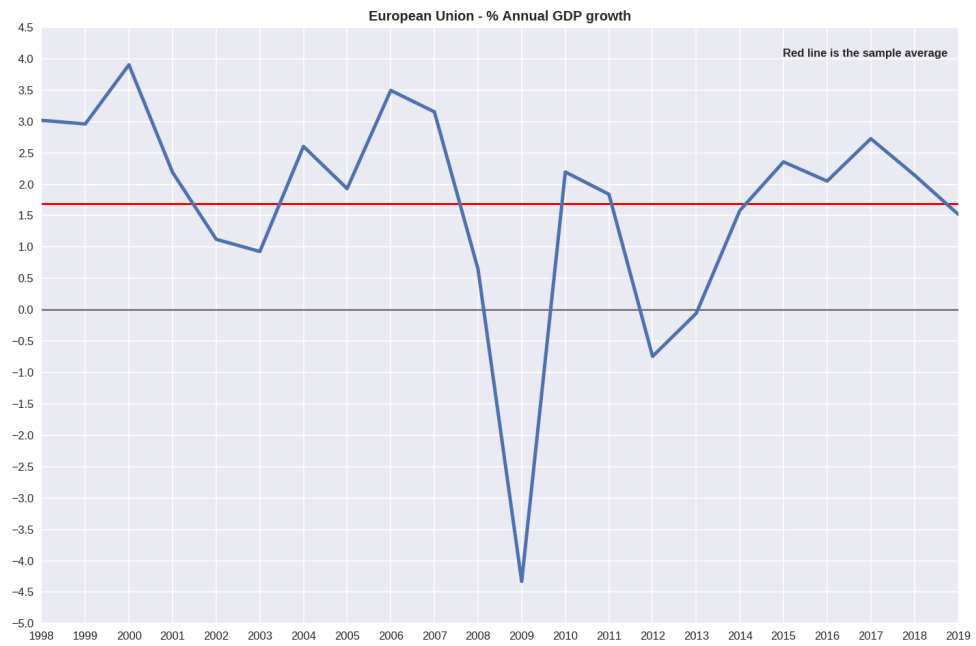
## 2.2 Chapter Graphics

Figure 1: Euro Area PMI



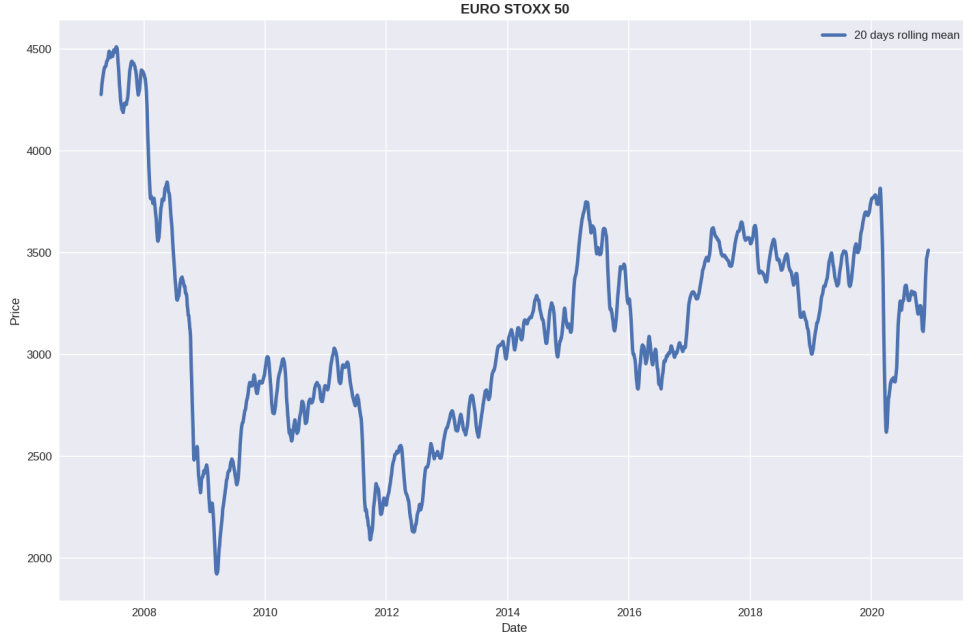
*Source: Thomson Reuters*

Figure 2: Europe GDP



Source: Worldbank

Figure 3: STOXX50E



*Source: Yahoo*

## 2.3 Chapter Citation

The working paper Koenig et al. (2002) says using the purchasing managers' index to assess the economy's strength and the likely direction of monetary policy. The published paper Harris et al. (1991) mentioned something about tracking the economy. The paper Afshar, Arabian, and Zomorrodian (2007) shows correlations between stock return, consumer confidence, purchasing managers index and economic fluctuations. However, Pelaez (2003) argues that there is a better option than the PMI.

## 2.4 Chapter Formulas

Formulas

$$y_i = x_i' \beta + u_i \quad (1)$$

$$PMI = (P_1 * 1) + (P_2 * 0.5) \quad (2)$$



### 3 Conclusion

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## 4 Bibliography

### References

- Afshar, Tahmoures, Ghodratollah Arabian, and Reza Zomorrodian (2007). “Stock return, consumer confidence, purchasing managers index and economic fluctuations”. In: *Journal of Business & Economics Research (JBER)* 5(8).
- Harris, Ethan S et al. (1991). *Tracking the economy with the purchasing managers index*. Federal Reserve Bank.
- Koenig, Evan F et al. (2002). “Using the purchasing managers’ index to assess the economy’s strength and the likely direction of monetary policy”. In: *Federal Reserve Bank of Dallas Economic and Financial Policy Review* 1(6), pp. 1–14.
- Pelaez, Rolando F (2003). “A new index outperforms the purchasing managers’ index”. In: *Quarterly Journal of Business and Economics*, pp. 41–55.

# A Appendix

Additional material...

# Declaration of independence

I hereby declare that I am writing this paper independently and that I do not other than the given sources. I have marked as such all passages that were taken literally or analogously from sources. I am aware that otherwise the Senate, in accordance with Article 36 paragraph 1 letter o of the Law of 5 September 1996 on the University, will withdraw the title conferred on the basis of this work is authorized.

Zürich, DD.MM.YYYY

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(Unterschrift)