

Monetary Economics

(a.a. 2018/2019, 6 CFU)

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Lauree magistrali in: *Economics* (classe LM-56)
e *Quantitative Finance and Insurance* (classe LM-83)

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The course deals with some key themes of modern monetary and financial economics, exploring both the relevant theory and the econometric techniques used in applied research. The course is not based on a textbook. For each topic, some papers, marked with (*) below, will be directly referred to in the lectures; additional papers are suggested as complementary readings and as topics for class presentation at the end of the course. For each topic, lecture notes will be available on the web page of the course. The formal analysis of economic and financial models requires familiarity with the mathematical and statistical tools acquired in a suitable three-year undergraduate program. Moreover, a good knowledge of the contents of the *Econometrics* courses (at **both** the undergraduate and the master's level) is an essential requirement for this course.

1. Monetary policy analysis and VAR models


Lecture notes (available in the "Teaching Material" section):

first part [VAR_notes_1](#) - 


second part [VAR_notes_2](#) - 


third part [VAR_notes_3](#) -  (to be used together with J. Cochrane (1994) - )

Vector autoregressive (VAR) models are one of the main tools of applied econometric analysis in macroeconomics. A general (non technical) introduction to the use of VAR models (with some reference to monetary policy) is:


(*) Stock J. and M. Watson (2001) "Vector Autoregressions", *Journal of Economic Perspectives*, 15, 4, 101-115 -  - for replication: [data](#) used in the paper are available in [EViews workfile](#) format

One of the main applications of VAR techniques to monetary policy concerns the empirical analysis of the *monetary policy transmission mechanism*. The problem of "measuring" monetary policy actions and the associated empirical strategies for identifying monetary policy impulses are extensively analyzed (with US applications) by:


(*) Christiano L.J., M. Eichenbaum and C.L. Evans (2000) "Monetary policy shocks: what have we learned and to what end?", in J. Taylor and W. Woodford (eds.), *Handbook of Macroeconomics*, North-Holland, Volume 1A, 65-148 - working paper version 


(*) Bernanke B.S. and I. Mihov (1998) "Measuring monetary policy", *Quarterly Journal of Economics*, 113, 3, 869-902 - 

A general identification strategy based on long-run restrictions (that can be applied to monetary policy analysis) is provided by:


(*) Blanchard O. and Quah D. (1989) "The dynamic effects of aggregate supply and aggregate demand disturbances", *American Economic Review*, 79, 655-673 - 

More recent and complete treatments of the identification strategies are provided by:


Kilian L. (2013) "Structural vector autoregressions", in N. Hashimzade and M. Thornton (eds.), *Handbook of Research Methods and Applications in Empirical Macroeconomics*, Edward Elgar - 

Ramey V. (2017) "Macroeconomic shocks and their propagation" in *Handbook of Macroeconomics* vol. 2, North-Holland, chapter 2 -  (working paper version)

Insightful applications of VAR modelling (with cointegration) to the estimation of the permanent and transitory components in GDP and asset price fluctuations are given by:


(*) Cochrane J. (1994) "Permanent and transitory components of GNP and stock prices", *Quarterly Journal of Economics*, 109, 1, 241-265 -  (note that in the paper Figure II and Figure III are misplaced)


Lettau M. and S. Ludvigson (2004) "Understanding trend and cycle in asset values: reevaluating the wealth effect on consumption",


American Economic Review, 94, 1, 276-299 -  (the correct Figure 4 of the paper can be found [here](#))

The **Nobel prize for Economics 2011** was awarded to [T.J. Sargent](#) and [C.A. Sims](#) for their contributions to empirical macroeconomics; for the latter economist, particularly for the development of *Vector Autoregression* techniques and their application to policy: here are the prize [motivation](#) and [scientific background](#)


Further readings:

Bagliano F.-C. and C.A. Favero (1998) "Measuring monetary policy with VAR models: an evaluation", *European Economic Review*, 42, 6, 1069-1112 - 

Bagliano F.-C. and C.A. Favero (1999) "Information from financial markets and VAR measures of monetary policy", *European Economic Review*, 43, 6, 825-838 - 



Blanchard O.J. (1989) "A traditional interpretation of macroeconomic fluctuations", *American Economic Review*, 79, 5, 1146-1164 - 



Stock J. and M. Watson (1988) "Variable trends in economic time series", *Journal of Economic Perspectives*, 2, 3, 147-174 - 

King R., R. Plosser, J. Stock and M. Watson (1991) "Stochastic trends and economic fluctuations", *American Economic Review*, September - 

2. Empirical analysis of the term structure of interest rates


Lecture notes (available in the "Teaching Material" section):

first part [Term_notes_1](#) -  (to be used together with R. King e A. Kurmann (2002) - )


second part [Term_notes_2](#) -  (to be used together with F. Diebold F.X. e C. Li (2006) - )

The study of the links between interest rates on bonds with different maturities is crucial for monetary policy and the analysis of financial markets. In this course, the main modelling techniques and empirical estimation and forecasting of the term structure of interest rates will be presented in the perspective of the "expectations theory" of the term structure. Several empirical testing strategies of this theory have been implemented in the existing literature, leading in many cases to statistical rejections but uncovering in the data several empirical regularities predicted by theory.


A survey of results is provided by:

(*) King R. G. and A. Kurmann (2002) "Expectations and the term structure of interest rates: evidence and implications", *Federal Reserve Bank of Richmond Economic Quarterly*, 88, 4, 49-95 - 


A recent survey of terms structure analysis, with a focus on empirical anomalies with respect to the expectations theory are discussed by:


Gurkaynak R.S. and J. H. Wright (2012) "Macroeconomics and the term structure", *Journal of Economic Literature*, 50, 2, 331-367 - 

On the empirical modelling and forecasting of the yield curve:

(*) Diebold F.X. and C. Li (2006) "Forecasting the term structure of government bond yields", *Journal of Econometrics*, 130, 337-364 - 




Further readings:

Campbell J.Y. and R.J. Shiller (1991) "Yield spreads and interest rate movements: a bird's eye view", *Review of Economic Studies*, 58, 495-514 - 

Nelson C.R. and A.F. Siegel (1987) "Parsimonious modelling of yield curves", *Journal of Business*, 60, 4, 473-489 - 

3. Financial returns, risk and consumption choices in a macroeconomic perspective

Lecture notes (available in the "Teaching Material" section):

[ccapm_notes](#) -  (to be used together with Campbell (2003) -  and Mehra R. (2003) - )


The analysis of financial returns, risk factors and the determinants of return differentials among financial assets are key themes of the

literature developed from the *Consumption Capital Asset Pricing Model (CCAPM)*. Recent empirical studies provided evidence in contrast with the implications of the basic theory, motivating several extensions. In this course, both the basic models and more recent extensions will be presented, with a focus on empirical methodologies and results.

A thorough survey of theoretical models and empirical evidence is found in:

(*) Campbell J.Y. (2003) "Consumption-based asset pricing", in G. Constantinides, M. Harris and R. Stulz (editors), *Handbook of the Economics of Finance*, Elsevier, Volume IB, chapter 13, 803-886 - 

A multifactor model of return premia (with empirical application) is provided by:

(*) Campbell J.Y. (1996) "Understanding risk and return", *Journal of Political Economy*, 104, 2, 298-345 - 


Standard consumption-based asset pricing models and more recent extensions thereof are discussed by:


Schwartzmann F. (2014) "How can consumption-based asset pricing models explain low interest rates?", *Federal Reserve Bank of Richmond Economic Quarterly*, 100, 3, 209-240 - 


Further readings:


Campbell J.H., A.W. Lo and A.C. MacKinley (1997) *The econometrics of financial markets*, Princeton University Press, chapter 8


Cochrane J.H. (2005) *Asset Pricing*, Princeton University Press, 2nd edition, chapters 9 and 21


Cochrane J.H. (2011) "Presidential address: Discount rates", *Journal of Finance*, 66, 4, 1047-1108 - 

Campbell J.H. (2000) "Asset pricing at the millennium", *Journal of Finance*, 55, 4, 1515-1567 - 


Fama E.F. and K.R. French (2002) "The equity premium", *Journal of Finance*, 57, 2, 637-659 - 

Mehra R. (2003) "The equity premium: why is it a puzzle?", *Financial Analyst Journal*, January/February, 54-69 - 

Mehra R. and E.C. Prescott (2003) "The equity premium in retrospect", in G. Constantinides, M. Harris and R. Stulz (editors), *Handbook of the Economics of Finance*, Elsevier, Volume IB, chapter 14, 887-936 - 


Campbell J.Y. and J.H. Cochrane (1999) "By force of habit: a consumption-based explanation of aggregate stock market behavior", *Journal of Political Economy*, 107, 2, 205-251 - 


An up-to-date overview of macro-finance models, addressing the links between asset prices and economic fluctuations is provided by:


Cochrane J. (2017) "Macro-Finance", *Review of Finance*, 945-985 - 


Additional readings for class presentation:


(1) VAR models


Bernanke B.S. and I. Mihov (1998) "The liquidity effect and long-run neutrality", *Carnegie-Rochester Conference Series on Public Policy (Journal of Monetary Economics)*, 49, 149-194 - 


Giordani P. (2004) "An alternative explanation of the price puzzle", *Journal of Monetary Economics*, 51, 1271-1296 - 










Cover J.P., W. Enders and C. J. Hueng (2006) "Using the aggregate demand-aggregate supply model to identify structural demand-side and supply-side shocks: results using a bivariate VAR", *Journal of Money, Credit and Banking*, 38, 777-790 - 

Souza J. and A. Zaghini (2008) "Monetary policy shocks in the Euro area and global liquidity spillovers", *International Journal of Finance and Economics*, 13, 205-218 - 







Faust J., E. Swanson and J. Wright (2004) "Identifying VARs based on high frequency futures data", *Journal of Monetary Economics*, 51, 1107-1131 - 

Bernanke B.S. and K.N. Kuttner (2005) "What explains the stock market reaction to Federal Reserve policy?", *Journal of Finance*, 60, 2, 1221-1257 - 






Bagliano F.-C. and C. Morana (2003) "Measuring US core inflation: a common trends approach", *Journal of Macroeconomics*, 25, 197-212 - 

- Boivin J. and M. Giannoni (2002) "Assessing changes in the monetary transmission mechanism: a VAR approach", Federal Reserve Bank of New York *Economic Policy Review*, May, 97-111 - 
- Ludvigson S., C. Steindel and M. Lettau (2002) "Monetary policy transmission through the consumption-wealth channel", Federal Reserve Bank of New York *Economic Policy Review*, May, 117-133 - 
- Lettau M. and S. Ludvigson S.C. (2014) "Shocks and crashes", in *NBER Macroeconomics Annual 2013*, 293-354 - 
- Beaudry P. and F. Portier (2006) "Stock prices, news and economic fluctuations", *American Economic Review*, 96, 4, 1293-1307 - 
- D'Amico S. and M. Farka (2011) "The Fed and the stock market: an identification based on intraday futures data", *Journal of Business and Economics Statistics*, 29(1), 126-137 - 
- Coibion O. (2012) "Are the effects of monetary policy shocks big or small?", *American Economic Journal: Macroeconomics*, 4(2), 1-32 - 
- Barakchian S.M. and C. Crowe (2013) "Monetary policy matters: evidence from new shocks data", *Journal of Monetary Economics*, 60, 950-966 - 
- Maio P. (2014) "Another look at the stock return response to monetary policy actions ", *Review of Finance*, 18, 321-371 - 
- Gertler M. and P. Karadi (2015) "Monetary policy surprises, credit costs and economic activity", *American Economic Journal: Macroeconomics*, 7(1), 44-76 - 

(2) Term structure of interest rates

- Ellingsen T. and U. Soderstrom (2001) "Monetary policy and market interest rates", *American Economic Review*, 91, 6, 1594-1607 -  (companion paper: "Monetary policy and the bond market", working paper, 2003 - )
- Diebold F.X., G.D. Rudebusch and S.B. Aruoba (2006) "The macroeconomy and the yield curve: a dynamic latent factor approach", *Journal of Econometrics*, 131, 309-338 - 
- Carriero A., C.A. Favero and I. Kaminska (2006) "Financial factors, macroeconomic information and the expectations theory of the term structure of interest rates", *Journal of Econometrics*, 131, 339-358 - 
- Diebold F.X., C. Li and V.Z. Yue (2008) "Global yield curve dynamics and interactions: a dynamic Nelson-Siegel approach", *Journal of Econometrics*, 146, 351-363 - 
- Afonso A. and M.M.F. Martins (2012) "Level, slope, curvature of the sovereign yield curve, and fiscal behaviour", *Journal of Banking and Finance*, 36, 1789-1807 - 

(3) Returns, risk and consumption choices

- Campbell J.Y. and J.H. Cochrane (2000) "Explaining the poor performance of consumption-based asset pricing models", *Journal of Finance*, 55, 6, 2863-2878 - 
- Lettau M. and S. Ludvigson (2001) "Consumption, aggregate wealth and expected growth returns", *Journal of Finance*, 56, 3, 815-849 - 
- Bansal R. and A. Yaron (2004) "Risks for the long-run: a potential resolution of asset pricing puzzles", *Journal of Finance*, 59, 4, 1481-1509 - 
- Bansal R., R.F. Dittmar and C.T. Lundblad (2005) "Consumption, dividends and the cross-section of equity returns", *Journal of Finance*, 60, 4, 1639-1672 - 
- Duffee G.R. (2005) "Time variation in the covariance between stock returns and consumption growth", *Journal of Finance*, 60, 4, 1673-1712 - 
- Campbell J.Y., S.W. Giglio, C. Polk and R. Turley (2018) "An intertemporal CAPM with stochastic volatility", *Journal of Financial Economics*, 128, 207-233 - 