TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI
VICTORIA
UNIVERSITY OF WELLINGTON

School of Economics and Finance

FINA406 FIXED INCOME SECURITIES

Trimester 1, 2016

COURSE OUTLINE

Prescription

A discussion of current research questions in the analysis of fixed income securities. Topics include the term structure of interest rates, market efficiency, interest rate models, liquidity, credit risk models and investment behaviour.

Course Learning Objectives

By the end of this course, students should be able to:

C1. understand the difference between yield curve and term structure of interest rates.
C2. calibrate the term structure of interest rates from the observed bond prices.
C3. become familiar with the research questions about fixed income securities.
C4. learn the skills of presentation

Course Content

The content and timing of the course might differ slightly from the information given in the following table

Week	Topic
1	Introduction to stochastic process
2	Introduction to no arbitrage pricing
3	Term structure of interest rates
4	Term structure models
5	Credit risk
6	Credit risk
7	Bond market efficiency
8	Bond return predictability
9	Liquidity and behaviour issues
10	Presentation
11	Presentation
12	Presentation

Trimester Dates

Teaching Period: Monday 29th February – Friday 3rd June

Study Period: Monday 6th June – Thursday 9th June
Examination Period: Friday 10th June – Wednesday 29th June (inclusive)

Withdrawal from Course

1. Your fees will be refunded if you withdraw from this course on or before Friday 11th March 2016.

2. The standard last date for withdrawal from this course is Friday 13th May. After this date, students forced to withdraw by circumstances beyond their control must apply for permission on an '*Application for Associate Dean's Permission to Withdraw Late'* including supporting documentation. The application form is available from either of the Faculty's Student Customer Service Desks or online.

Names and Contact Details

Course Coordinator & Lecturer	Hai Lin hai.lin@vuw.ac.nz Office Hours: Thursdays 13:30-14:30 or by appointment.	RWW216	463 5239
Course Administrator	Debbie Turner Debbie.Turner@vuw.ac.nz Office Hours: Monday-Friday 9am-midday and 1-3pm	RWW111	463 6386

Class Times and Room Numbers

Lectures: Tuesdays 11:30 - 13:20 in RWW127

Course Delivery

The course will be delivered by one two-hour lecture per week.

Readings

See appendix

Mandatory course requirements

Presentation of a paper, submission of assignment, and attendance at final examination are compulsory.

If you cannot complete an assignment or sit a test or examination, refer to www.victoria.ac.nz/home/study/exams-and-assessments/aegrotat

Expected Workload

Overall it is expected that you will spend approximately 150 hours on completing this course. This includes the lecture time.

Assessment

The Assessment Handbook will apply to all VUW courses: see http://www.victoria.ac.nz/documents/policy/staff-policy/assessment-handbook.pdf.

- 15% Presentation. The paper to be presented must be chosen from those listed in appendix 1 and subject to the approval of the course co-ordinator. (CLO 1, 3, 4).
- 5% Class participation. Participation can arise in many ways, including: (a) attending lectures; (b) raising a question; (c) open debate; (d) bringing and sharing of material not covered in class; (e) providing feedback to the instructor in-class or out-of-class; (f) any other ideas that help improve the quality of experience. Participation will be judged on readiness, thoughtfulness, and contribution. (CLO 1, 2, 3, 4).
- 20% One assignment. Due at the end of week 11. (CLO 1, 2, 3,)
- 60% Three hour closed book final examination. (CLO 1, 2, 3)

A student's choice of paper is to be submitted by email to the coordinator no later than the end of week 8.

Examinations
Students who enrol in courses with examinations are obliged to attend an examination at the University at any time during the formal examination period. The final examination for this course will be scheduled at some time during the following period:

Friday 10th June – Wednesday 29th June (inclusive)

Penalties
Late submission of the assignment is not accepted

Use of Turnitin
Student work provided for assessment in this course may be checked for academic integrity by the electronic search engine http://www.turnitin.com. Turnitin is an on-line plagiarism prevention tool which compares submitted work with a very large database of existing material. At the discretion of the Head of School, handwritten work may be copy-typed by the School and submitted to Turnitin. A copy of submitted materials will be retained on behalf of the University for detection of future plagiarism, but access to the full text of submissions will not be made available to any other party.

Materials and Equipment
DATA:
New Zealand Treasury security data;
Chinese spot rate data;
U.S. Federal Reserve data;
Sovereign CDS data
Data from Bloomberg, DATASTREAM, etc.

SOFTWARE: Matlab, Sas. R, etc.

Student feedback

Student feedback on University courses may be found at
www.cad.vuw.ac.nz/feedback/feedback_display.php.

Class Representative
A class representative will be elected in the first class, and that person's name and contact details made available to VUWSA, the course coordinator and the class. The class representative provides a communication channel to liaise with the course coordinator on behalf of students.

Communication of Additional Information
Additional information will be conveyed to students via Blackboard.

Link to general information
For general information about course-related matters, go to
http://www.victoria.ac.nz/vbs/studenthelp/general-course-information

Note to Students
Your assessed work may also be used for quality assurance purposes, such as to assess the level of achievement of learning objectives as required for accreditation and academic audit. The findings may be used to inform changes aimed at improving the quality of VBS programmes. All material used for such processes will be treated as confidential, and the outcome will not affect your grade for the course.

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Appendix 1 (Papers to be presented)

Topic	*Paper*
Term structure of interest rate	Nelson and Siegel (1987), Svennson (1995)
Market efficiency	Hotchkiss and Ronen (2002), Kwan (1996), Hong, Li and Wu (2012).
Predictability	Baker, Greenwood and Wurgler (2003), Cochrane and Piazzesi (2005), Lin, Wang and Wu (2014), Lin, Wu and Zhou (2015).
Interest rate modelling	Dai and Singleton (2000), Hong, Lin and Wang (2010).
Liquidity	Dick-Nielsen, Feldhutter and Lando (2012), Chen, Lesmond and Wei (2007), Friewald, Jankowitsch and Subrahmanyam (2012).
Behaviour: Momentum	Gebhardt, Hvidkjaer and Swaminathan (2005), Jostova, Nikolova, Philipov and Stahel (2013).
Behaviour: On/off-the-run issue	Krishnamurthy (2002), Beber, Brandt and Kavaject (2008), Pasquariello and Vega (2009).
Credit risk: Information	Jorion and Zhang (2007), Blanco, Brennan and Marsh (2005).
Credit risk: Structure model	Vassalou and Xing (2004), Bharath and Shumway (2008), Huang and Huang (2012)
Credit risk: Intensity model	Duffee (1999), Duffie and Singleton (1999), K., 1999, Lonstaff, Mithal and Neis (2005).

Appendix 2 (reading list):

1. Basic concept
   (1) Lin, H., Wu, C., 2010. Term structure of default-free and defaultable securities: Theory and empirical evidence, *Handbook of Quantitative Finance and Risk Management*, eds C.F. Lee and A.C. Lee, Springer Publisher, 979-1005.
   (2) Cochrane, J. (CJ), 2005. *Asset Pricing*, Princeton University Press. (Chp.1 and Chp. 19)
   (3) Neftci, S.N., *An Introduction to the Mathematics of Financial Derivatives*, 2nd edition, Academic Press, 2000.
   (4) Campbell, J. Y., Lo, A. W., MacKinlay, A. C., 1997. *The Econometrics of Financial Markets*, Princeton University Press. (Chp. 10 and Chp. 11)
2. Term structure of interest rates
   (1) Hull, J., 2010. *Options, Futures, and Other Derivatives*, 8th Edition, Pearson publisher.
   (2) Mcculloch, J. 1971. Measuring the term structure of interest rates. Journal of Business 44, 19-31.
   (3) Carleton, W., Cooper, I., 1976. Estimation and uses of the term structure of interest rates. Journal of Finance 31, 1067-1083.
   (4) Shea, G., 1984. Pitfalls in smoothing interest rate term structure data: Equilibrium models and spline approximation. Journal of Financial and Quantitative Analysis 19, 253-269.
   (5) Nelson, C., Siegel, A., 1987. Parsimonious modelling of yield curves. Journal of Business 60, 473-489.
   (6) Svennson, L., 1995. Estimating forward interest rates with the extended Nelson-Siegel method. Quarterly Review, Sveriges Riksbank, 13-26.
   (7) BIS, 2005. Zero-coupon yield curves: Technical documentation.
3. Market efficiency
   (1) Fama, E., 1970. Efficient capital markets: A review of theory and empirical work. Journal of Finance 25, 383-417.
   (2) Fama, E., 1991. Efficient capital markets: II. Journal of Finance 46, 1575-1617.
   (3) Hasbrouck, J., 1993. Assessing the quality of a security market: A new approach to transaction cost measurement. Review of Financial Studies 9, 191-212.
   (4) Downing, C., Underwood, S., Xing, Y., 2009. The role of information efficiency of stocks and bonds: An intraday analysis. Journal of Financial and Quantitative Analysis 44, 1081-1102.
   (5) Hotchkiss, E., Ronen, T., 2002. The informational efficiency of the corporate bond market: An intraday analysis. Review of Financial Studies 15, 1325-1354.
   (6) Kwan, S., 1996. Firm-specific information and the correlation between individual stocks and bonds. Journal of Financial Economics 40, 63-80.
   (7) Hong, Y., Lin, H., Wu, C., 2012. Are corporate bond returns predictable? Journal of Banking and Finance 36, 2216-2232.
   (8) Boehmer, E., Wu, J., 2013. Short selling and price discovery process. Review of Financial Studies 26, 287-322.
4. Predictability
   (1) Fama, E., French, K., 1989. Business conditions and expected returns on stocks and bonds. Journal of Financial Economics 25, 23-49.
   (2) Baker, M., Greenwood, R., Wurgler, J., 2003. The maturity of debt issues and predictable variations in bond returns. Journal of Financial Economics 70, 261-291.

(3) Welch, I., Goyal, A., 2008. A comprehensive look at the empirical performance of equity premium prediction. Review of Financial Studies 21, 1455-1508.
(4) Campbell, J., Thompson, S., 2008. Predicting the equity premium out of sample: Can anything beat the historical average? Review of Financial Studies 21, 1509-1531.
(5) Rapach, E., Strauss, J., Zhou, G., 2010. Out of sample equity premium prediction: Combination forecasts and links to real economy. Review of Financial Studies 23, 821-862.
(6) Cochrane, J., Piazzesi, M., 2005. Bond risk premia. American Economic Review 95, 138-160.
(7) Lin, H., Wang, J., Wu, C., 2014. Prediction of corporate bond excess returns. Journal of Financial Markets 21, 123-152.
(8) Guo, B., Han, Q., Lin, H., 2014. Forecasting the term structure of implied volatilities. Working paper, Victoria University of Wellington.
(9) Lin, H., Wu, C., Zhou, G., 2015. Forecasting corporate bond returns: A regressed combination approach. Working paper, Victoria University of Wellington.

5. Interest rate modelling
(1) Lin, H., Wu, C., 2010. Term structure of default-free and defaultable securities: Theory and empirical evidence, *Handbook of Quantitative Finance and Risk Management*, eds C.F. Lee and A.C. Lee, Springer Publisher, 979-1005.
(2) Cox, C., Ingersoll, J., Ross, S., 1985. A theory of the term structure of interest rates. Econometrica 53, 385-408.
(3) Dai, Q., Singleton, K., 2000. Specification analysis of affine term structure models. Journal of Finance 55, 1943-1978.
(4) Heath, D., Jarrow, R., Morton, A., 1992. Bond pricing and the term structure of interest rates: A new methodology for contingent claims valuation. Econometrica 60, 77-106.
(5) Hong, Y., Lin, H., Wang, S., 2010. Modelling the dynamics of Chinese spot interest rates. Journal of Banking and Finance 34, 1047-1061.

6. Liquidity of fixed income markets
(1) Lin, H., Wang, J., Wu, C., 2011. Liquidity risk and expected corporate bond returns. Journal of Financial Economics 99, 628-650.
(2) Bao, J., Pan, J., Wang, J., 2010. The illiquidity of corporate bonds. Journal of Finance, forthcoming.
(3) Gebhardt, W.R., Hvidkjaer, S., Swaminathan, B., 2005. The cross section of expected corporate bond returns: Betas or characteristics? Journal of Financial Economics 75, 85-114.
(4) Chen, L., Lesmond, D.A., Wei, J., 2007. Corporate yield spreads and bond liquidity. Journal of Finance 62, 119-149.
(5) Dick-Nielsen, J., Feldhutter, P., Landon, D., 2012. Corporate bond liquidity before and after the onset of subprime crisis. Journal of Financial Economics 103, 471-492,
(6) Friewald, N., Jankowitsch, R., Subrahmanyam, M.G., 2012. Illiquidity or credit deterioration: A study of liquidity in the US corporate bond market during financial crisis. Journal of Financial Economics 105, 18-36.

7. Behaviour in fixed income markets
i. Momentum
(1) Gebhardt, W.R., Hvidkjaer, S., Swaminathan, B., 2005. Stock and bond market interaction: does momentum spill over? Journal of Financial Economics 75, 651-690.

(2) Khang, K., King, T. D., 2004. Return reversals in the bond market: Evidence and causes. Journal of Banking and Finance 28, 569-593.

(3) Jostova, G., Nikolova, S., Philipov, A., Stahel, C., 2013. Momentum in the corporate bond returns. Review of Financial Studies, forthcoming.

(4) Lin, H., Wang, J., Wu, C., 2013. Liquidity risk and momentum spillover from stocks to bonds. Journal of Fixed Income 23, 5-43 (lead article).

ii. On/off the run issue.

(1) Beber, A., Brandt, W., Kavaject, K., 2008. Flight-to-quality or flight-to-liquidity? Evidence from the Euro-area bond market. Review of Financial Studies 22, 925-957.

(2) Pasquariello, P., Vega, C., 2009. The on-the-run liquidity phenomenon. Journal of Financial Economics 92, 1-24.

(3) Amihud, Y., Mendelson, H., 1991. Liquidity, maturity, and the yields on US Treasury securities. Journal of Finance 46, 1411-1425.

(4) Warga, A., 1992. Bond returns, liquidity, and missing data. Journal of Financial and Quantitative Analysis 27, 605-617.

(5) Kamara, A., 1994. Liquidity, taxes, and short-term Treasury yields. Journal of Financial and Quantitative Analysis 29, 403-417.

(6) Krishnamurthy, A., 2002. The bond/old-bond spread. Journal of Financial Economics 66, 463-506.

(7) Boudoukh, J., Whitelaw, R., 1993. Liquidity as a choice variable: A lesson from the Japanese government bond market. Review of Financial Studies 6, 265-292.

8. Credit risk and derivatives

(1) Lin, H., Wu, C., 2010. Term structure of default-free and defaultable securities: Theory and empirical evidence, *Handbook of Quantitative Finance and Risk Management*, eds C.F. Lee and A.C. Lee, Springer Publisher, 979-1005.

(2) Hull, J., 2010. *Options, Futures, and Other Derivatives*, 8th Edition, Pearson publisher.

i. Information

(1) Hull, J., Predescu, M., White, A., 2004. The relationship between credit default swap spreads, bond yields, and credit rating announcement. Journal of Banking and Finance 28, 2789-2811.

(2) Jorion, P., Zhang, G., 2007. Good and bad credit contagion: Evidence from credit default swaps. Journal of Financial Economics 84, 860-883.

(3) Blanco, R., Brennan, S., Marsh, I., 2005. An empirical analysis of the dynamic relation between investment-grade bonds and credit default swaps. Journal of Finance 60, 2255-2281.

(4) Cathacart, L., EI-Jahel, L., Evans, L., 2010. The correlation structure of CDS market: An empirical investigation. 2011 AFA conference paper.

(5) Zhang, F., 2003. What did the credit market expect of Argentina default? Evidence from default swap data. Federal Reserve Board.

(6) Carr, P., Wu, L., 2007. Theory and evidence on the dynamic interactions between sovereign credit default swaps and currency options. Journal of Banking and Finance 31, 2383-2403.

(7) Fontana, A., Scheicher, M., 2010. An analysis of Euro area sovereign CDS and their relation with government bonds. Working paper, European Central Bank.

(8) Srivastava, S., Lin, H., Premachandra, I.M., Roberts, H., 2014. Global risk spillover and the predictability of sovereign CDS spread: International evidence. Working paper, Victoria University of Wellington.

ii. Structure model:

(1) Black, F., Cox, J., 1976. Valuing corporate securities: Some effects of bond indenture provisions. Journal of Finance 31, 351–367.

(2) Merton, R., 1974. On the pricing of corporate debt: The risk structure of interest rate.

(3) Zhou, C., 1997. A jump-diffusion approach to modelling credit risk and valuing defaultable securities. Federal Reserve Board.

(4) Vassalou, M., Xing, Y., 2004. Default risk in equity returns. Journal of Finance 59, 831-868.

(5) Bharath, S.T., Shumway, T., 2008. Forecasting default with the Merton distance to default model. Review of Financial Studies 21, 1339-1369.

(6) Huang, J., Huang, M., 2012. How much of the corporate-Treasury yield spread is due to credit risk? Review of Asset Pricing Studies 2, 153-202.

iii. Intensity (reduced-form) model

(1) Duffee, G., 1999. Estimating the price of default risk. Review of Financial Studies 12, 197-226.

(2) Duffie, D., Singleton, K., 1999. Modelling term structures of defaultable bonds. Review of Financial Studies 12, 687-720.

(3) Liu, S., Shi, S., Wang, J., Wu, C., 2007. How much of the corporate bond spread is due to personal taxes? Journal of Financial Economics 85, 599-636.

(4) Lonstaff, F., Mithal, S., Neis, E., 2005. Corporate yield spreads: Default risk or liquidity? New evidence from the credit default swap market. Journal of Finance 60, 2213-2253.

(5) Lin, H., Liu, S., Wu, C., 2010. Dissecting corporate bond and CDS spread. Journal of Fixed Income 20, 7-39 (lead article). Abstract appears in The Finance Professionals' Post, January 13, 2011, and CFA Digest, May 2011, Vol. 41, No. 2.

(6) Chen, R., Lin, H., Yuan, Q., 2013. On-/off-the-run yield spread puzzle: Evidence from the Chinese Treasury market. Handbook of Financial Econometrics and Statistics (edited by C.F. Lee and A. Lee), Springer publisher.