

School of Economics and Finance

FINA 406 FIXED INCOME SECURITIES

Trimester 2, 2015

COURSE OUTLINE

Names and Contact Details

Course Coordinator & Lecturer	Hai Lin hai.lin@vuw.ac.nz Office Hours: Thursdays 13:30-14:30 or by appointment.	RH 301	463 5239
Course Administrator	Debbie Turner Debbie.Turner@vuw.ac.nz Office Hours: Monday-Friday 9am-midday and 1-3pm	RH 321	463 6386

Trimester Dates

Teaching Period: Monday 13th July – Friday 16th October

Study Period: Monday 19th October – Thursday 22nd October

Examination Period: Friday 23rd October – Saturday 14th November (inclusive)

Withdrawal from Course

1. Your fees will be refunded if you withdraw from this course on or before Friday 24th July 2015.
2. The standard last date for withdrawal from this course is Friday 25th September 2015. 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*' form including supporting documentation. The application form is available from either of the Faculty's Student Customer Service Desks or [online](#).

Class Times and Room Numbers

Lectures: Fridays 09:30 - 11:20 in RWW128

Course Delivery

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

Expected Workload

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

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 Term break
7	Bond market efficiency
8	Bond return predictability
9	Liquidity and behaviour issues
10	Presentation
11	Presentation
12	Presentation

Readings

See appendix

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.

Assessment

The Assessment Handbook will apply to all VUW courses: see

<http://www.victoria.ac.nz/documents/policy/staff-policy/assessment-handbook.pdf>.

- 20% Presentation and class preparation. 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).

Participation can arise in many ways, including: (a) devoting time to readings and the previous class's notes, as well as completing assigned homework; (b) the raising of 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

- 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 project topic, along with a brief indication of the scope and nature of the project, are to be submitted by email to the coordinator no later than the end of week 4. Projects are due at the end of week 11.

Penalties

Late submission of the project report 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.

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 23rd October – Saturday 14th November (inclusive)

Mandatory Course Requirements

Attendance at the final examination and submission of assignment 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

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.

Student feedback

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

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.

Appendix 1 (Papers to be presented)

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