INTEREST RATE RISK OF AUSTRALIAN FINANCIAL FIRMS

By

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Doctor of Philosophy

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Statement of Originality

The thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. I give consent to the final version of my thesis being made available worldwide when deposited in the University’s Digital Repository, subject to the provisions of the Copyright Act 1968.

Md. Akhtaruzzaman
Statement of Authorship

I hereby certify that the work embodied in this thesis contains a published paper/s/scholarly work of which I am a joint author. I have included as part of the thesis a written statement, endorsed by my supervisor, attesting to my contribution to the joint publication/s/scholarly work.

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Abul F.M. Shamsuddin
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Statement on the papers contained in the thesis

The chapters presented in this thesis are largely a series of unpublished papers that I have completed on the topic. The following unpublished papers are listed in the order in which they are presented in the thesis.


My co-authors certify that I am a primary contributor to each of these papers. I have initiated the research idea, undertaken the literature review, conducted data analysis, and written the first draft of all of these papers. My co-authors provided me with guidance regarding the topics and literature, reviewed drafts of each paper, and provided feedback.
Abstract

The Australian financial system has undergone major regulatory changes during the 1970s and 1980s. The most notable deregulatory measures include the removal of interest rate ceilings on bank deposits and loans, the liberalization of foreign bank entry restrictions, and the introduction of a floating exchange rate system, among others. These deregulatory measures have increased competitive pressure on financial firms from both home and abroad and reduced net interest margin, making financial firms more vulnerable to interest rate changes. The main purpose of this thesis is to examine the exposure of Australian financial firms to domestic and foreign interest rate risk during the post-deregulation period from 1993 to 2011. The exposure of financial firms to interest rate risk is of crucial importance to practitioners, academics, and regulators, as changes in interest rates may adversely affect the value of a firm as well as the stability of the financial system. The thesis contains three inter related empirical studies on the interest rate risk exposure of Australia financial firms.

The first empirical study develops a novel interest rate term structure model for Australia in terms of three underlying factors: level, slope, and curvature and evaluates Australian financial firms’ exposure to these factors in a GARCH-M framework. The value of financial firms are found to be negatively affected by the change in interest rate level factor, while the value of non-financial firms are positively affected by the change in interest rate level factor. Small banks and insurance companies demonstrate positive exposure to the change in the slope factor. Real estate firms exhibit negative sensitivity to the change in the curvature factor. Though the interest rate level is found to be the most important factor, ignoring the
slope and curvature factors could lead to an underestimation of the interest rate risk exposure of financial firms. These findings are robust to controlling for the orthogonalised market return, time-varying equity risk premium and financial crises.

The second study is the first attempt to examine whether interest rate factors are priced in financial stock returns in an augmented Fama-French (1993) model. This study examines the pricing of Australian financial firm stocks using five common risk factors: the market risk, firm size, book-to-market ratio, long-term interest rate and term premium. The latter two factors have not been previously considered for pricing Australian stocks within the Fama-French framework. The market risk and term premium are priced in equity returns of financial firms, but the size and book-to-market factors are not priced in their equity returns.

The third study provides new evidence for the transmission of global interest rate and return shocks to Australian financial stock returns using a Dynamic Conditional Correlation (DCC) GARCH model. Australian banks exhibit negative exposure to changes in both domestic and US interest rates, while US banks have only negative exposure to domestic interest rates. In addition, US interest rate volatility is found to be an important predictor of Australian bank stock return volatility. The time-varying conditional correlation between Australian and US financial stock returns is explained in terms of economic fundamentals and international financial crises. The results suggest that conditional return correlation increases during financial crises. The conditional correlation increases during the contractionary periods of the US economic cycle. Further, the net capital flow between Australia and the US is found to have a positive influence on the conditional correlation.
This thesis extends the literature through an in-depth analysis of the domestic and foreign interest rate risk exposure of Australian financial firms. This research is important for the managers of financial firms and investors in order to design interest rate risk management strategies to cope with domestic and foreign interest rate movements. The findings of this thesis are also relevant to regulators for assessing the vulnerability of the Australian financial sector to global financial shocks.