
DISCUSSION PAPERS

DP2010/11

A theoretical foundation for the Nelson and Siegel class of yield curve models, and an empirical application to U.S. yield curve dynamics

Leo Krippner

This article establishes that most yield curve models within the popular Nelson and Siegel (1987, hereafter NS) class may be obtained as a formal Taylor approximation to the dynamic component of the generic Gaussian affine term structure model outlined in Dai and Singleton (2002). That fundamental theoretical foundation provides an assurance to users of NS models that they correspond to a well-accepted set of principles and assumptions for modeling the yield curve and its dynamics. Indeed, arbitrage-free NS models will parsimoniously and reliably represent the data generated by any Gaussian affine term structure model regardless of its true number of underlying factors and specification, and even non-arbitrage-free NS models will adequately capture the dynamics of the state variables. Combined with the well-established practical benefits of applying NS models, the theoretical foundation provides a compelling case for applying NS models as standard tools for yield curve modeling and analysis in economics and finance. As an illustration, this article develops a two-factor arbitrage-free NS model and applies it to testing for changes in United States yield curve dynamics. The results confirm those of Rudebusch and Wu (2007) based on a latent two-factor essentially affine term structure model: there was a material change in the behaviour of the yield curve between the sample prior to 1988 and the sample from 1988 onwards.

DP2010/12

Monetary policy implementation and uncovered interest parity: empirical evidence from Oceania

Alfred Guender and Bevan Cook

The close integration of Australian and New Zealand financial markets and the similarity of the monetary policy regimes provide the perfect backdrop for testing the

empirical relevance of uncovered interest rate parity (UIP) in Oceania. We find that changes in the bilateral exchange rate have become more sensitive to the short-term interest differential over time. Most important, after the introduction of the Official Cash Rate regime in New Zealand, the responsiveness of the exchange rate has accelerated to such an extent that it is incompatible with UIP. Evidence on UIP over longer horizons is mixed with a 10-year horizon since 1990 providing the strongest support for the theory.

DP2010/13

What drives core inflation? A dynamic factor model analysis of tradable and non-tradable prices

Michael Kirker

I develop a new estimate of core inflation for New Zealand and Australia based on a dynamic factor model. By using an over-identification restriction, the factors of the model are classified as tradable and nontradable factors. This innovation allows us to examine the relative contributions of tradable and nontradable prices towards core inflation. The results show that core inflation in both countries is primarily driven by the nontradable factor. The nontradable factor also explains significantly more of the variance in headline inflation relative to the tradable factor. Finally, both the tradable and nontradable factors show similar profiles across both countries suggesting common drivers.

DP2010/14

Monetary Policy, inflation and unemployment

Nicolas Groshenny

To what extent did deviations from the Taylor rule between 2002 and 2006 help to promote price stability and maximum sustainable employment? To address that question, this paper estimates a New Keynesian model with unemployment and performs a counterfactual experiment where monetary policy strictly follows a Taylor rule over the period 2002:Q1–2006:Q4. The paper finds that such a policy would have generated a sizeable increase in unemployment and resulted in an undesirably low rate of inflation. Around mid-2004,

when the counterfactual deviates the most from the actual series, the model indicates that the probability of an unemployment rate greater than 8 percent would have been as high as 80 percent, while the probability of an inflation rate above 1 percent would have been close to zero.

DP 2011/01

Any port in a storm? The impact of new port infrastructure on New Zealand exporter behaviour

Richard Fabling, Arthur Grimes, and Lynda Sanderson

This paper investigates the impact of port infrastructure on exporter behaviour, focusing on the opening of Metroport,

a new inland port in Auckland. We model adoption of the new port facilities among local firms, and then relate uptake to future export growth performance. We find that the main determinants of uptake are product- and firm-related, rather than location-specific. Firms use the new port infrastructure in conjunction with the existing port in order to mitigate capacity constraints and/or access a greater range of transport options. We take early adoption of Metroport as a signal of an existing capacity constraint and analyse the effect of the new port on subsequent export growth, finding a positive but insignificant impact on export volumes.

NEWS RELEASES

Reserve Bank Bulletin released

16 December 2010

The Reserve Bank today released the December 2010 issue of the Reserve Bank of New Zealand Bulletin.

Set against the backdrop of the Bank's expanded regulatory responsibilities, the first two articles look at aspects of these new functions. The lead article explains rules introduced for non-bank deposit taking institutions (NBDTs) such as building societies, credit unions and finance companies aimed at further advancing the soundness and efficiency of New Zealand's financial system.

The second article is dedicated to another arm of the Bank's bolstered regulatory duties, detailing the Insurance (Prudential Supervision) Act 2010. As the failure of an insurer can have a significant impact on large numbers of policyholders, the new Act is aimed at bringing minimum prudential standards to the sector. The article explains the rationale behind the legislation, its objectives and how the Reserve Bank plans to achieve these.

The final two articles in the December *Bulletin* delve into currency trading trends during the global financial crisis and New Zealand's imbalances in a cross-country context.

The currency trading article notes continued growth in the daily turnover of foreign exchange, although this growth has more recently slowed. It also highlights a fall in the popularity of the 'carry trade' and in the international focus on the New Zealand dollar.

The final piece examines New Zealand's net international investment position in a cross-country context. New Zealand's net international investment position is the counterpart of running persistent current account deficits. This makes New Zealand vulnerable to changes in the availability of offshore finance although market pressures and the Reserve Bank's Prudential Liquidity Policy have helped to improve New Zealand's debt maturity recently. The paper also looks at the potential effect of fiscal consolidation on economic rebalancing.

New rules finalised for bank corporate governance

22 December 2010

The Reserve Bank has released its new corporate governance requirements for registered banks, following consultation.

The Bank issued a consultation paper on corporate governance in June 2010, aimed mainly at strengthening the independence of locally-incorporated banks. It has now adapted those proposals in response to feedback.

Deputy Governor Grant Spencer said the overhaul complements changes the Reserve Bank has already made in other areas, such as its local incorporation and outsourcing policies.

"The governance changes are aimed at reinforcing the expectation that overseas-owned locally-incorporated banks will operate independently, in a way more likely to protect New Zealand's financial stability in a crisis," he said.

Key changes to the existing corporate governance regime include:

- imposing a minimum board size of five;

- requiring at least half of the directors on a board to be independent and at least half of those independent directors to be resident in New Zealand;

- tightening the definition of an 'independent' director; and
- providing guidelines around the individual and collective knowledge and experience required from bank boards.

Mr Spencer said the new rules will apply to all locally-incorporated banks; however, the Reserve Bank does not anticipate significant changes will be required to existing bank boards.

Consultation on changes to banks' Conditions of Registration – required to bring the changes into effect for each bank – will be carried out in the first quarter of 2011, after which a one-year transition period will apply.

The new policy document, along with a feedback statement and regulatory impact assessment, can be downloaded from the Reserve Bank's website.

Update on covered bonds

21 January 2011

The Reserve Bank has announced that a regulatory limit will be applied to the issuance of covered bonds by New Zealand banks.

It will set an initial limit of 10 percent of the total assets of an issuing bank, with this limit calculated on the value of assets encumbered for the benefit of covered bond holders.

The move follows the completion of a consultation initiated last October on the introduction of a regulatory framework for covered bond programmes developed by New Zealand banks.

Deputy Governor Grant Spencer said: "An initial limit of 10 percent will allow banks to develop covered bond programmes, whilst providing a conservative ceiling on issuance in the short term".

Mr Spencer said the Bank will review the appropriateness of this limit within the next two years, taking into account evidence as it emerges in the market.

The Reserve Bank will write to banks shortly to update their Conditions of Registration to give effect to the change.

Consultation on the appropriate regulatory framework supporting covered bond issuance was also carried out by the Bank. Further announcements on the form of the legislative support and the relevant disclosure requirements, will follow later this year.

The original consultation paper on covered bonds is available on the Reserve Bank website at <http://www.rbnz.govt.nz/finstab/banking/4206833.pdf>

OCR unchanged at 3.0 percent

27 January 2011

The Reserve Bank today left the Official Cash Rate (OCR) unchanged at 3.0 percent.

Reserve Bank Governor Alan Bollard said: "The outlook for the New Zealand economy remains consistent with the projections underlying the December *Monetary Policy Statement*.

"Domestic economic activity was weaker than forecast through the second half of 2010. September quarter GDP declined unexpectedly, and retail spending appears to have fallen in the December quarter.

"Forward indicators of activity have firmed somewhat. Trading partner activity continues to expand and New Zealand's export commodity prices have increased further. Within New Zealand, business confidence, across a range of industries, has picked up and imports of capital equipment have grown. Furthermore, there are tentative signs that housing market activity has stabilised, after having trended lower for some months.

"The recent increase in the rate of GST has caused headline CPI inflation to spike higher as expected, but underlying inflation remains comfortably inside the target band.

"As noted previously, while interest rates are likely to increase modestly over the next two years, for now it seems prudent to keep the OCR low until the recovery becomes more robust and underlying inflationary pressures show more obvious signs of increasing."

Looking into the crystal ball: A forecast and some risks for the year ahead

28 January 2011

Reserve Bank Governor Alan Bollard today said the recovery is expected to pick up, but a wide range of scenarios could impact upon the economy in the year ahead.

Speaking to the Canterbury Employers' Chamber of Commerce this afternoon, Dr Bollard said the behaviour of people and businesses had changed significantly since the Global Financial Crisis, making economic forecasting particularly difficult.

"We have little from history to guide us about how enduring or deep these changes may be. In addition, the recovery has been rocky and fragile," he said.

Dr Bollard described the Global Financial Crisis as "a deep and damaging event".

"Even in New Zealand where we have been less affected, recovery has been slow and patchy. In fact 2010 was a

disappointing year: we initially saw recovery happening, but the second half went unexpectedly soft (as it did in many OECD countries). During 2011 we expect the recovery to pick up and gradually become more secure.”

Dr Bollard said several international dynamics could impact on people and businesses in the year ahead, including further economic ‘gloom’ in the US. However, it was just as possible the US could surprise us with economic strength in 2011, he said.

“In this scenario, the US dollar would presumably appreciate, taking some pressure off the New Zealand dollar and providing an improved opportunity to rebalance our economy towards export growth,” Dr Bollard said.

Other international risks included sovereign debt reaching crisis point, emerging markets over-heating and an intensification of the commodity boom.

“New Zealand farmers are still recovering from the last commodity boom when some over-committed, and are still looking to reduce the debt they built up. A more measured reaction this time is important,” Dr Bollard said.

However, he believed New Zealand was well placed to benefit from some of these changes through 2011, but warned a continued escalation of oil prices would cause world growth to suffer again, as well as adding inflationary pressure globally.

Closer to home, Dr Bollard said domestic risks with the potential to derail the Bank’s forecasts included further fragility in the financial markets and New Zealanders continuing to save and not spend – beyond what might be expected after a marked recession.

“This would cast a pall of gloom over the market, with homeowners keeping houses off the market, not re-building and trying to pay off mortgages faster, saving more, and spending less. The construction and retail sectors would suffer as a result,” Dr Bollard said.

However, the positive side of this was an acceleration of New Zealand’s much discussed rebalancing, reducing the current account deficit, improving competitiveness, reducing exchange rate pressure, relieving pressure on funding markets, and reducing our external vulnerability generally.

Dr Bollard said a potential positive factor for New Zealand businesses was a construction boom, driven by reconstruction following the Christchurch earthquake and relatively strong inward migration.

The Rugby World Cup also had the potential to affect forecasts in a positive way.

“We think the event will add about \$700 million to the New Zealand economy over the six weeks of the event, contributing approximately a third of a percent to GDP. More optimistic assumptions about multiplier effects would suggest a stronger impact, during months which are normally a tourist down-time,” Dr Bollard said.

Reserve Bank responding to Christchurch earthquake

23 February 2011

The Reserve Bank said today it is working closely with authorities and financial institutions to ensure financial services are available to people and businesses in Christchurch following the damaging earthquakes yesterday.

Reserve Bank Governor Alan Bollard extended sympathy to the people of Christchurch affected by the disaster.

“We can only imagine how difficult this is with the loss of lives, homes and buildings, the injuries and dislocation for people in Christchurch. The Reserve Bank is working hard to assist the recovery as fast as possible in terms of access to financial services, and ensuring markets remain stable,” Dr Bollard said.

The Reserve Bank is coordinating its assistance in the recovery efforts with the Government’s National Crisis Management Centre in Wellington.

“We are also working with affected banks and cash-in-transit companies to ensure the availability of cash in Christchurch. The Reserve Bank is ready and able to supply any cash required by banks. We have ample cash reserves and will issue cash to banks on any day required during this emergency situation.”

The Bank understands that some ATMs are operational. It is working closely with banks through issues of accessibility,

electricity and telecommunications to ensure cash is available.

Dr Bollard said the Bank is monitoring financial markets, noting that New Zealand has well-established emergency procedures and insurance protocols.

“We have also been informed by banks that they are reinstating the loan assistance policies that were put in place after the September 2010 earthquake, and that the four major banks have each donated \$1 million to support the immediate and long-term recovery.”

No problems have been reported with the national payments and settlement systems that the Bank operates (ESAS and NZClear).

OCR reduced to 2.5 percent

10 March 2011

The Reserve Bank today reduced the Official Cash Rate (OCR) by 50 basis points to 2.5 percent.

Reserve Bank Governor Alan Bollard said: “The Reserve Bank extends its sympathies to all those affected by the Christchurch earthquake. Our condolences go especially to those who have lost family, friends and colleagues.

“The earthquake has caused substantial damage to property and buildings, and immense disruption to business activity. While it is difficult to know exactly how large or long-lasting these effects will be, it is clear that economic activity, most certainly in Christchurch but also nationwide, will be negatively impacted. Business and consumer confidence has almost certainly deteriorated.

“Even before the earthquake, GDP growth was much weaker than expected through the second half of 2010. Households have continued to be very cautious, with retail spending volumes and residential investment both declining. The export sector has benefited from very high commodity prices, however, farmers have focused on repaying debt rather than increasing spending. Also the early summer drought constrained farm output through this time. Signs that the economy was beginning to recover early in 2011 have been more than offset by the Christchurch earthquake.

“In putting together the forecasts underlying this Monetary Policy Statement, the Bank has had to make many important assumptions based on limited information. Over the coming weeks and months, these judgments will be tested as new information comes to hand. For now, GDP growth is projected to be quite weak through the first half of the year. This will gradually build up to a very large reconstruction programme by 2012 that will last for some years and contribute to a period of relatively strong activity.

“Future monetary policy adjustments will be guided by emerging economic data. We expect that the current monetary policy accommodation will need to be removed once the rebuilding phase materialises. This will take some time. For now we have acted pre-emptively in reducing the OCR to lessen the economic impact of the earthquake and guard against the risk of this impact becoming especially severe.”

Pre-positioning for Open Bank Resolution

14 March 2011

The Reserve Bank today released a consultation paper (PDF 146KB) on the pre-positioning requirements that banks will be expected to comply with to fully implement the Open Bank Resolution (OBR) policy, as referred to by the Minister of Finance in his statement on 11 March 2011.

Open Bank Resolution is a long-standing policy option aimed at resolving a bank failure quickly, in such a way that the bank can be kept open for business, thus minimising stresses on the overall banking and payments system.

Reserve Bank Deputy Governor Grant Spencer said: “The OBR policy provides for continuity of core banking services to retail customers and businesses, while placing the cost of a bank failure primarily on the bank’s shareholders and creditors rather than the taxpayer.

“The global financial crisis highlighted the potentially enormous fiscal cost associated with supporting troubled banks. The government therefore needs OBR to be an operational and effective policy option for containing the cost of a bank failure, while not threatening the safety of the overall financial system.”

Banks are being consulted on the systems requirements that are needed to ensure the concept can be put into operation.

Mr Spencer said: "The design of major Reserve Bank prudential policies such as outsourcing and local incorporation will help to facilitate the implementation of OBR. The pre-positioning of banks' internal systems represents the next stage in that implementation process."

Submissions for the consultation paper close on 30 June 2011.

The consultation paper can be accessed on the Bank's website <http://www.rbnz.govt.nz/finstab/banking/>.

Macro-prudential tools may bolster financial system

25 March 2011

Macro-prudential instruments may help bolster financial system resilience and possibly moderate credit cycles, but expectations need to be realistic about what can be achieved, Reserve Bank Governor Alan Bollard told a conference on Basel 3 in Sydney today.

Dr Bollard said a strong micro-prudential framework – focused on ensuring the balance sheets of individual institutions are robust to shocks – is still essential for a robust financial system, and remains at the heart of New Zealand's efforts to maintain stability in the financial system.

"However, the Global Financial Crisis showed that a micro-prudential approach may on its own not guarantee system-wide financial stability," he said. "Policymakers are increasingly looking at macro-prudential instruments – policy tools that might be used to promote a more stable and resilient financial system and help smooth the credit cycle, reducing the risk of boom-and-bust cycles."

Dr Bollard said there has not been a pressing need for the use of such tools given recent weakness in the credit cycle. "However, we do need to keep preparing for how we might deal with credit and asset price booms when they recur in the future."

Dr Bollard said the Reserve Bank has undertaken a review of macro-prudential tools and identified several that it would

contemplate using in appropriate circumstances, while keeping expectations realistic. These include credit-based measures, accounting tools, liquidity instruments and capital buffers.

"While none would be a silver bullet in terms of moderating the credit cycle, we believe some could make a useful contribution," he said.

Moreover, the Bank considered that macro-prudential tools could be employed more effectively to influence the credit cycle by adopting a multi-pronged approach where several tools are employed in tandem. "For example, faced with evidence of excessive credit growth, counter-cyclical capital requirements could be used alongside increases in the Bank's own Core Funding Ratio, and this might represent a more even-handed approach than focussing on either one alone".

The Bank would expect to use such tools infrequently. "The Basel Committee has suggested that some countries might only use the counter-cyclical capital buffer once every 10 to 20 years when faced with exceptionally strong credit growth. We think this is a useful perspective," Dr Bollard commented.

"The world has little practical experience with some of the macro-prudential tools currently under consideration. There will be an important learning period ahead as countries start to use these instruments and develop their implementation frameworks. We can expect our understanding of this broad area to have evolved significantly in five or 10 years' time."

PUBLICATIONS

Regular publications

Annual Report

Financial Stability Report

Monetary Policy Statement

Reserve Bank of New Zealand Statement of Intent, 2010-2013

Published in October each year.

Published six-monthly. A statement from the Reserve Bank on the stability of the financial system.

Published quarterly. A statement from the Reserve Bank on the conduct of monetary policy.

Recent Reserve Bank Discussion Papers

2010

- DP2010/01 Evaluating household expenditures and their relationship with house prices at the microeconomic level
Mark Smith
- DP2010/02 All together now: do international factors explain relative price co-movements?
Özer Karagedikli, Haroon Mumtaz and Misa Tanaka
- DP2010/03 Multi-period fixed-rate loans, housing and monetary policy in small open economies
Jaromír Beneš and Kirdan Lees
- DP2010/04 Internationalised production in a small open economy
Aurélien Eyquem and Güneş Kamber
- DP2010/05 Using estimated models to assess nominal and real rigidities in the United Kingdom
Güneş Kamber and Stephen Millard
- DP2010/06 Sharing a risky cake
David Baqaee and Richard Watt
- DP2010/07 Exporting and performance: market entry, expansion and destination characteristics
Richard Fabling and Lynda Sanderson
- DP2010/08 Intertemporal choice: a Nash bargaining approach
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Emmanuel De Veirman and Ashley Dunstan
- DP2010/10 Does the Kiwi fly when the Kangaroo jumps? The effect of Australian macroeconomic news on the New Zealand dollar
Andrew Coleman and Özer Karagedikli
- DP2010/11 A theoretical foundation for the Nelson and Siegel class of yield curve models, and an empirical application to U.S. yield curve dynamics
Leo Krippner
- DP2010/12 Monetary policy implementation and uncovered interest parity: empirical evidence from Oceania
Alfred Guender and Bevan Cook
- DP2010/13 What drives core inflation? A dynamic factor model analysis of tradable and non-tradable prices
Michael Kirker
- DP2010/14 Monetary Policy, inflation and unemployment
Nicolas Groshenny

2011

- DP 2011/01 Any port in a storm? The impact of new port infrastructure on New Zealand exporter behaviour
Richard Fabling, Arthur Grimes, and Lynda Sanderson

A full list of Discussion Papers is available from Administration, Economics Department.

Selected other publications

Testing stabilisation policy limits in a small open economy: proceedings from a macroeconomic policy forum
Finance and Expenditure Select Committee inquiry into the future monetary policy framework: submission by the Reserve Bank of New Zealand

Pamphlets

Explaining Currency
Explaining Monetary Policy
The Reserve Bank and New Zealand's Economic History
This is the Reserve Bank
Your Bank's Disclosure Statement – what's in it for you?
Snakes and Ladders – a guide to risk for savers and investors, by Mary Holm

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Articles in recent issues of the Reserve Bank of New Zealand *Bulletin*

Vol. 73, No. 1, March 2010

The crisis and the Reserve Bank's stabilisation rate

Twenty years of inflation targeting

Inflation targeting, the financial crisis and macroeconomics: an interview with Mark Gertler

How may the new architecture of financial regulations develop?

Lessons from previous US recessions and recoveries

The crisis and monetary policy: what we learned and where we are going

Recent trends and developments in currency

Vol. 73, No. 2, June 2010

The Reserve Bank and macro-financial stability

Financial sector amplification and credit cycles in New Zealand

World trade interdependencies: a New Zealand perspective

The Reserve Bank's new approach to holding and managing its foreign reserves

Vol. 73, No. 3, September 2010

Connecting the dots: a yield curve perspective on New Zealand's interest rates

The New Zealand dollar through the global financial crisis

Anti-money laundering and countering the financing of terrorism - the Reserve Bank's responsibilities and approach

The currency denomination of New Zealand's unhedged foreign reserves

Vol. 73, No. 4, December 2010

Regulating non-bank deposit takers

Bringing financial stability legislation to the insurance industry - the Insurance (Prudential Supervision) Act 2010

Global currency trends through the financial crisis

New Zealand's imbalances in a cross-country contest