

An overview of the money and bond markets in New Zealand

Part 1: The Crown debt market

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Summary

This is the first of two articles that provide a broad overview of the structure and general characteristics of the money and bond markets in New Zealand. This first article briefly reviews the financial markets as a whole and describes the deregulation that has occurred in New Zealand's financial markets over recent years. Crown¹ securities on issue are examined in some depth and the article concludes with a review of the main developments in the Crown debt sector.

A second article, covering securities issued by local authorities and the private sector, is due to appear in the December 1995 Bulletin. That article will examine the derivatives market briefly. Both articles cover the major market participants as well as issues specific to the New Zealand market.

I Introduction

Financial markets perform a vital role in the economy, enabling the government, financial institutions, corporations and individuals to borrow and lend on terms and conditions acceptable to both borrowers and lenders. Open financial markets facilitate the flow of funds and the highly competitive nature of such markets ensures that the costs of participating in the financial markets are under strong downward pressure, to the benefit of the whole economy. This article provides an overview of the financial markets in New Zealand and their development since the deregulation of the New Zealand economy in the mid-1980s. The money and bond markets and Crown debt are examined in depth.

Appendix 1 contains a glossary of terms used throughout the article.

II The financial markets

Every sector of the economy, whether it be the household sector, the business sector or the government sector, receives and uses funds. Some sectors may have a surplus of funds (typically the household sector). Other sectors, such as the business and Crown sectors, may require funds. A borrower can obtain funds directly from, or sell equity claims (shares) to, those with surplus funds. An example of this is a business or government covering its deficit position by issuing new bonds to households or firms that are running surpluses. More often, though, funds flow from those with surplus funds to borrowers through financial intermediaries such as banks. A financial intermediary obtains funds by offering claims against itself such as demand and term deposits, in return for funds deposited with it. The funds that the financial intermediary receives are used to invest in the securities issued by funds deficit units.

In addition to the interactions of the participants in the domestic economy there is also a foreign or external sector that has an important impact on New Zealand markets. Domestic sectors with a funds deficit can borrow abroad either directly, or indirectly through financial intermediaries, and similarly domestic funds surplus units can invest abroad. These inter-country fund flows illustrate the increasingly integrated nature of the world's financial markets. The financial markets collectively facilitate the transfer of money from surplus units to deficit units in the domestic economy and between different economies throughout the world.

Financial markets can be divided into several parts or sub-markets. These sub-markets, specialising in particular types of financial instruments, are:

- The money market, where short-term (generally 12 months or less) financial instruments are traded;
- The capital market, which is a market for long-term (generally longer than 12 months) financial instruments. The majority of securities traded in the capital markets are bond market instruments;
- The derivatives market, which includes futures, options, swaps and forward instruments;

¹ The Crown is defined in this article as central government and the Reserve Bank.

- The foreign exchange market, which provides the link between domestic and international financial markets.

Each of these sub-markets is now well developed in New Zealand as a result of extensive financial market deregulation since the early 1980s. Prior to 1984 New Zealand's financial markets were heavily regulated and insulated from overseas markets. Foreign exchange and interest rate controls characterised an environment that was dominated by four large banks (known as the "trading banks") which acted as intermediaries between borrowers and lenders. Borrowers, whether large or small, were generally limited in terms of their borrowing sources to the traditional retail market instruments such as overdrafts, mortgages and secured loans which could be obtained from the trading banks. A restricted short-term money market was operated by finance companies who were able to avoid some of the stringent controls placed on the four banks. This limited money market provided short-term funds via instruments such as commercial bills, but the scale of the funding provided was small. New Zealand's financial markets at this time were relatively unsophisticated in comparison to markets in countries such as the United States and the United Kingdom.

After the 1984 General Election most controls and regulations on the financial system were progressively removed.² In July 1984 the New Zealand dollar was devalued by 20 percent and in December that year controls on foreign exchange transactions and overseas borrowing were removed. The floating of the dollar in March 1985 saw the almost complete deregulation of the foreign exchange market and fully exposed New Zealand's financial markets to international capital flows. Controls on interest rates and limits on credit growth were also removed over time. In February 1985 the compulsory reserve asset ratio system for financial institutions was abolished, giving these institutions freedom to invest how and where they liked. As a result, exchange rates and interest rates were determined by market forces rather than by the actions of the government.

The banking sector was also reformed as part of the changes made to the Reserve Bank of New Zealand Act in 1986 and again in the Reserve Bank of New Zealand Act 1989. In New Zealand any financial institution can operate as a financial intermediary, without Reserve Bank approval. However, any institution that wants to be registered as a bank and thus be able to include the word "bank" in its name must meet the criteria laid down in the

Reserve Bank Act 1989³. Part V of this Act requires the Reserve Bank to satisfy itself that the business carried on by the applicant to a substantial extent consists of borrowing and lending money and/or the provision of other financial services. In addition the Reserve Bank must have regard to the following criteria:

- the incorporation and ownership structure of the applicant;
- the size of the applicant's business or proposed business (as a guideline, the Reserve Bank considers that an applicant should have not less than \$15 million of capital);
- the standing of the applicant in the financial market;
- the law and regulatory requirements relating to the licensing, registration or authorisation of banks in the country in which the applicant's owner, head office or principal place of business is located;
- such other matters as may from time to time be prescribed by regulation;
- the ability of the applicant to carry on its business in a prudent manner.

After the change in regulation in 1986 the number of banks registered in New Zealand increased from only four, with a consequent increase in competition amongst financial intermediaries. This increased competition was caused in large part by the deregulation of the market and the fact that the market was opened to new entrants. There are currently fifteen registered banks following amalgamations and withdrawals in recent years. These banks are listed in appendix 3. While many of the currently registered banks offer a wide range of financial services, others have targeted particular sectors of the financial markets such as wholesale banking or retail banking.

New Zealand's financial markets developed rapidly following these reforms. The emergence of a broader range of wholesale securities and derivative instruments indicates that New Zealand's financial markets are becoming increasingly sophisticated. Large corporations have begun to issue their own securities as a means of raising finance, with financial institutions playing underwriting, distribution and investing roles in relation to these corporate securities. To some extent these securities have replaced traditional sources of finance such as bank loans, and their

² For a more detailed description of the deregulation process see Reserve Bank (1992).

³ For more information on the registration of a bank contact the Banking System Department of the Reserve Bank.

emergence is consistent with a worldwide move toward more direct financing by larger corporate organisations. However, loans from banks continue to be the major source of corporate and business finance.

While deregulation has benefitted participants in the financial markets, it has also exposed them to greater risk through variable interest and exchange rates. This exposure has prompted the increased use of derivative instruments as a means of hedging the increased financial risk. Derivative instruments typically take the form of forward contracts, futures, options and swaps. The New Zealand Futures & Options Exchange provides a number of standardised market based futures and option contracts that are traded on the Exchange. Financial intermediaries also sell over-the-counter derivative instruments tailored to the requirements of the institution that is purchasing the instrument. Derivative instruments will be discussed in more detail in the second article.

The above provides a general background on the role of financial markets and some of the key influences that have impacted on the development of New Zealand financial markets over the last decade or so. The remainder of this article examines the money and bond markets in New Zealand more closely.

III The money and bond markets

The money market involves the borrowing and lending of cash and the trading of short-term debt instruments with maturities of one year or less. The money market, as the trading place for short-term debt obligations, is very important for the functioning of the financial system and the economy as it provides those that need cash or short-term funds with a mechanism for obtaining them from those that have surplus cash.

The bond market generally deals in debt instruments with maturities greater than one year. It facilitates the transfer of longer term funds between borrowers and lenders. Such decisions require careful analysis of market risk and market conditions. The existence of a liquid secondary bond market is important to borrowers and investors as it allows them to alter their positions in response to changes in their circumstances and strategies, and to changes in market conditions. In New Zealand, government bonds can usually be readily traded on the secondary market. A number of non-government bonds, though, are not readily tradeable because of the relatively small size of the individual issues. Investors must be paid a premium to account for the lack of liquidity in these instruments. While the bond market is larger than the money market in terms of the value of securities on issue, many of the money

market instruments have superior liquidity in the secondary market.

The total size of the New Zealand bond market was estimated by Merrill Lynch & Co., in an October 1994 publication, to be NZ\$ 22.9 billion in 1993. Of this amount, NZ\$ 21.1 billion or 92.1 percent was government bonds, the remainder being issues by non-government organisations. The New Zealand bond market comprises only 0.1 percent of the total world market which was estimated at US \$18 trillion⁴.

The secondary market for these short and long-term instruments is made by market making organisations such as dealers and brokers operating at the wholesale level. Dealers “make a market” by quoting a price at which they would buy and sell an instrument at that point in time. The margin between these two prices, called the bid-offer spread, is one source of a dealer’s profit. A typical bid-offer spread in the inter-bank dealer market for a liquid government security is about 0.05 percent (on an annual yield basis). Large corporate customers may obtain narrower spreads, reflecting intense competition for corporate business. In addition the size of the bid-offer spread is significantly influenced by market conditions. In a liquid market with high volumes the spread may be reduced and, conversely, in an illiquid market with low volumes, the spread can increase.

Dealers also hold securities on their own account. They often take a view of where market prices are heading and take an overbought or oversold position in anticipation of making a capital gain on their holdings. The dealers in the market can be divided on the basis of the markets they operate in, as presented in Table 1(overleaf).

Dealers in the bond market quote prices almost exclusively for government bonds as these are the most liquid instruments traded. Dealers in the money market quote prices for Treasury bills and bank bills. The typical parcel size for government bonds is \$5 million and for Treasury and bank bills is about \$10 million.

Brokers facilitate trades between market participants in the secondary market. Confidentiality is a key reason why participants use brokers and brokers earn commission for providing this service. The size of the commission is dependent on a number of factors, including the parties involved and the size of the transaction. As a general rule brokers do not take positions in the market but act simply as a conduit between buyers and sellers.

⁴ Merrill Lynch & Co (1994). In this article a billion is defined as one thousand million. A trillion is defined as a million million.

Table 1

Dealers in the New Zealand bond and money markets
(An asterisk indicates that the institution is active as a price maker in that market)

Dealer	Bond market	Money market
AMP Society (New Zealand Branch)	*	
ANZ Banking Group (New Zealand) Limited	*	*
ASB Bank Limited		*
Bain and Company Limited	*	
Bank of New Zealand	*	*
Bankers Trust New Zealand Limited	*	*
Citibank NA	*	*
CS First Boston New Zealand Group	*	
Hong Kong and Shanghai Banking Corporation		*
The National Bank of New Zealand Limited	*	*
Trust Bank New Zealand Limited		*
Westpac Banking Corporation	*	*

Brokers can be separated into two types according to the method by which they communicate with market participants. The first group are screen brokers who bring buyers and sellers together using trading screens such as Reuters and Telerate. Screen brokers act almost entirely for the price makers to facilitate trade in the market. When using screen brokers confidentiality of who is buying and selling the security is maintained until a transaction has been made. Currently there are two screen brokers:

- Fixed Interest Securities (NZ) Limited, who offer a broking service on most domestically traded money market and bond market instruments as well as derivatives;
- G5 Financial Services Limited, who offer a broking service on, primarily, short-term money market instruments.

Non-screen brokers provide a broking service for all market participants (ie not solely the price makers) with the use of conventional communication links such as the telephone. The advantage of using these brokers is that they provide the client with total anonymity with regard to the trading that is taking place. These non-screen brokers provide a service mainly in government bonds. The five brokers in this category are:

- Bain and Company Limited;
- Buttle Wilson Limited;
- Cavill White Securities Limited;
- Garlick and Company Limited;
- Jordan Sandman Were Limited.

Dealers and brokers foster the trading of money market and bond market instruments in the secondary market and are essential for the ongoing health of the two markets.

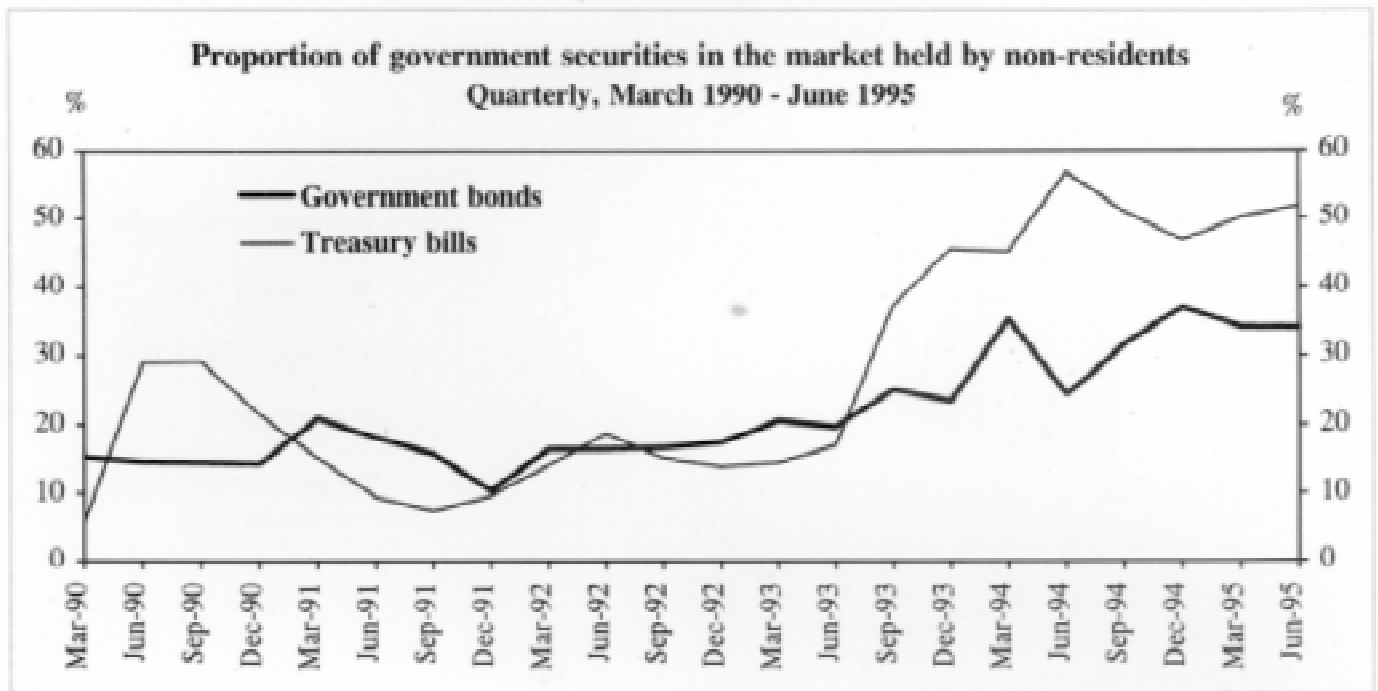
In the retail market sharebrokers offer retail amounts (less than \$500,000) of government bonds.

While historically investment in the money and bond markets has been dominated by domestic institutions, there is now a trend of increasing investment by non-residents. No reliable figures are available for non-resident holdings of non-government securities but, as indicated in figure 1, the proportion of Treasury bills and government bonds held by non-residents has increased markedly over the last five years.

The increased interest in New Zealand government securities over recent years can be attributed to a combination of influences. New Zealand's improved economic fundamentals and its commitment to maintaining price stability, fiscal responsibility, and a deregulated labour market are perhaps some of the most important reasons. The improved economic fundamentals have resulted in New Zealand government securities being viewed more favourably by overseas investors, and have reduced the risk premium on these securities compared with comparable securities issued by overseas governments. Treasury bills and government bonds offer overseas investors a means of obtaining either short-term or long-term exposure to the New Zealand markets with no risk other than New Zealand's country or sovereign risk.

In sum the Crown, local authorities, State Owned Enterprises (SOEs) and the corporate sectors of the economy are the major issuers of the debt instruments that are traded in the money and bond markets. Crown issues are described in this article and the remaining issuers will be described in the second article due to appear in the December *Bulletin*.

Figure 1



IV The Crown debt market

The Crown dominates the New Zealand debt market as indicated by the Merrill Lynch data discussed above.

Table 2 presents the composition of total Crown debt excluding that held by the Reserve Bank and the Treasury.

Figure 2 shows the proportions of central government debt instruments in the market as at the end of June 1995.

Table 2

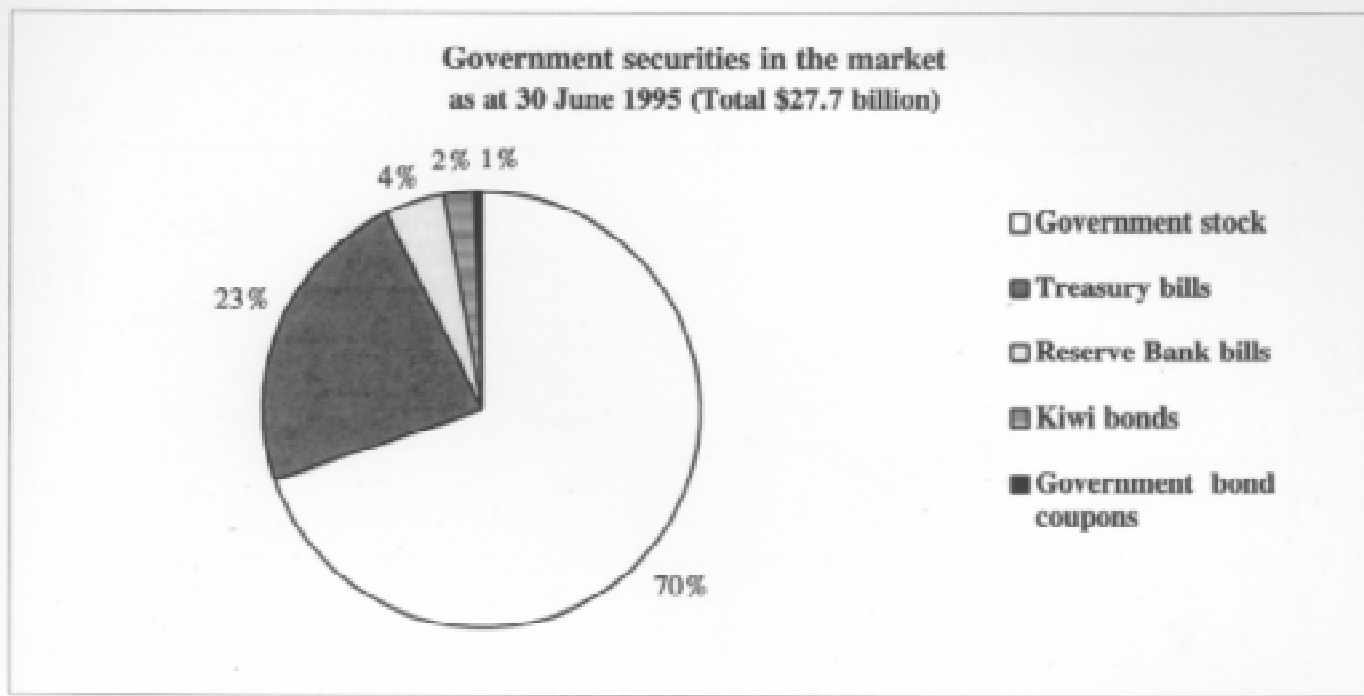
Crown debt instruments on issue
Yearly for the period June 1990 - June 1995
 (NZ\$ billions)

Date	Govt. bonds	Treasury bills	Reserve Bank bills	Kiwi bonds** coupons	Govt. bond securities	Indexed linked	Total
Jun-90	10.8	3.7	1.2	0.7	0.6	1.0	18.0
Jun-91	10.5	5.8	1.1	0.8	0.7	0.9	19.6
Jun-92	14.0	5.6	1.1	0.7	0.4	0.4	22.3
Jun-93	17.4	5.6	1.1	0.6	0.3	0.2	25.3
Jun-94	18.9	6.3	1.2	0.5	0.2	0.1	27.2
Jun-95	19.3	6.4	1.3	0.6	0.2	0.0	27.7

* includes indexed linked stock and inflation adjusted savings bonds (IASB)

** includes Kiwi stock and Our New Zealand (ONZ) bonds

Figure 2



The types of Crown debt on issue are examined individually below.

V Government bonds

Government bonds, officially known in New Zealand as government stock, are the long-term debt instrument used by the Crown to finance its borrowing requirements. The Crown is the most credit-worthy entity in New Zealand as it can meet its obligations through its ability to raise revenue from taxation. Thus, interest rates on government bonds (and all securities issued by the Crown) are lower than those of similar securities issued by non-government organisations and government bonds are the benchmark against which rates on other long-term domestic New Zealand securities are measured. The main characteristics of government bonds are presented in Box 1.

The government bond market can be sub-divided into two distinct markets: the primary market and the secondary market, each with its own characteristics.

Primary market

Prior to September 1983 government bonds were issued on demand, largely to those financial institutions which were required under the reserve asset ratio regulations to hold a proportion of their assets in government securities.

As no issue amounts were specified and interest rates were set by the government, the system was known as a “tap” system as the supply of bonds was turned on and off to meet the demands of the institutions.

In September 1983 the government introduced the current competitive bidding tender system⁵ for the issue of bonds. Initially, the government was unable to sell the desired quantity of bonds through the tenders at its desired interest rates and used the reserve asset requirements to force financial institutions to purchase bonds. But since June 1984 the tendering system has been largely successful in selling the desired quantity of bonds, helped by the government’s decision to fund the fiscal deficit wholly through domestic borrowing, thus increasing the liquidity of the market for government bonds. The removal of compulsory reserve asset requirements in February 1985 also contributed to the healthier operation of this market.

Figure 3 shows total government bonds on issue since the end of March 1990.

⁵ For a detailed discussion of the auction of government bonds see Griffiths and Harrison (1993).

Figure 3

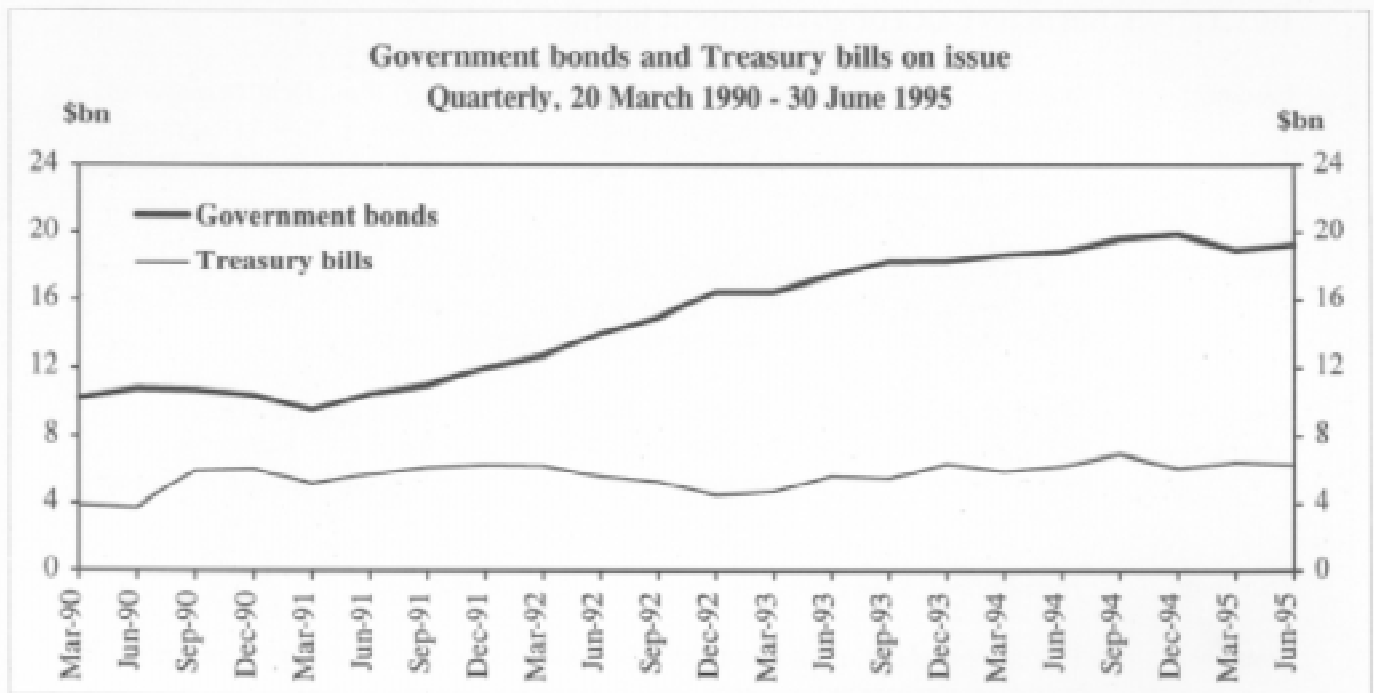
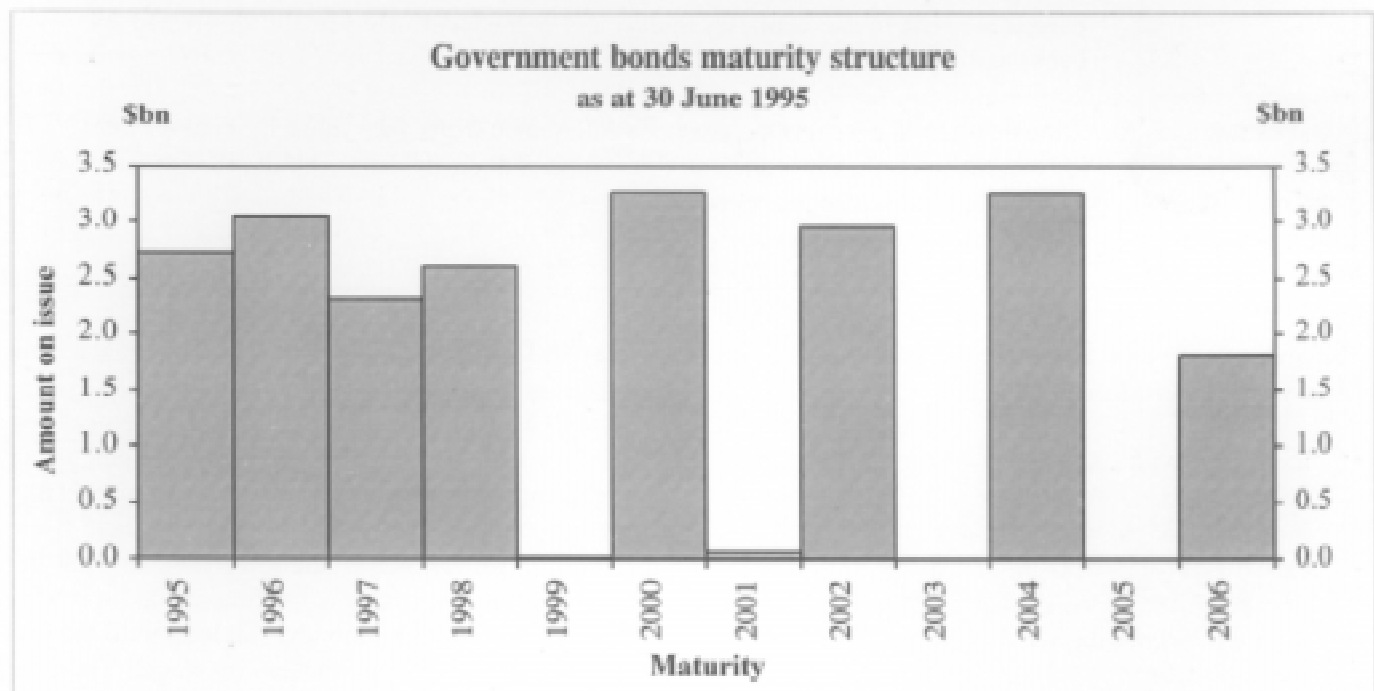


Figure 4



Box 1: Characteristics of government bonds

Issuance:	Bonds are issued on behalf of the Crown by the New Zealand Debt Management Office (NZDMO) through tenders conducted by the Reserve Bank in accordance with the prospectus. The NZDMO is the principal for the bond issue with the Reserve Bank acting as the agent.
Registration:	All government bonds are registered with the RBNZ Registry Limited, a wholly owned subsidiary of the Reserve Bank. Transfers of government bonds are made through the RBNZ Registry with electronic transfers done through Austraclear.
Maturity:	Government bonds always mature on the 15th day of the month of maturity (or on the next business day should the 15th fall on a weekend or a holiday). Current maturities of government bonds on issue range from 15 November 1995 through to 15 November 2006.
Principal:	The principal, or face value, is redeemable at par at maturity.
Coupons:	The coupon rate is specified when the bonds are issued and coupon payments are made by the government twice a year. The last coupon payment is made when the bonds mature. The coupon on the bonds is determined after consultation with the market and examination of the prevailing yields. The coupon is usually set so the bonds trade at or around par value when they are issued.
Sale:	Bonds are sold in competitive tender on a periodic basis throughout the year. Bids for these tenders can be made physically at the Reserve Bank in the tender boxes provided. However, the majority of bids are made electronically through Austraclear.
Amount:	The minimum bid amount is \$1 million and in multiples of \$1 million thereafter. Smaller parcels are sold in the secondary market and some retail size parcels are created by banks and other financial institutions.
Pricing:	The sale price of a government bond is determined by its face value, the coupon rate, the current market interest rate and the issue and maturity dates. A full description of the pricing is presented in appendix 2.

The quantity of bonds issued by the government in any fiscal year is determined broadly by:

- the government's fiscal position (i.e. the difference between government revenue and expenditure);
- maturation of outstanding bonds;
- expected receipts from the sale of state assets, and/or expenditure by the state on acquiring assets;
- the government's desired mix of foreign and domestic debt.

The gradual rise in the level of government bonds on issue since March 1990 is attributable mainly to the government running fiscal deficits during the period until the 1993/94 fiscal year. These deficits were funded largely by domestic borrowing via the issue of bonds.

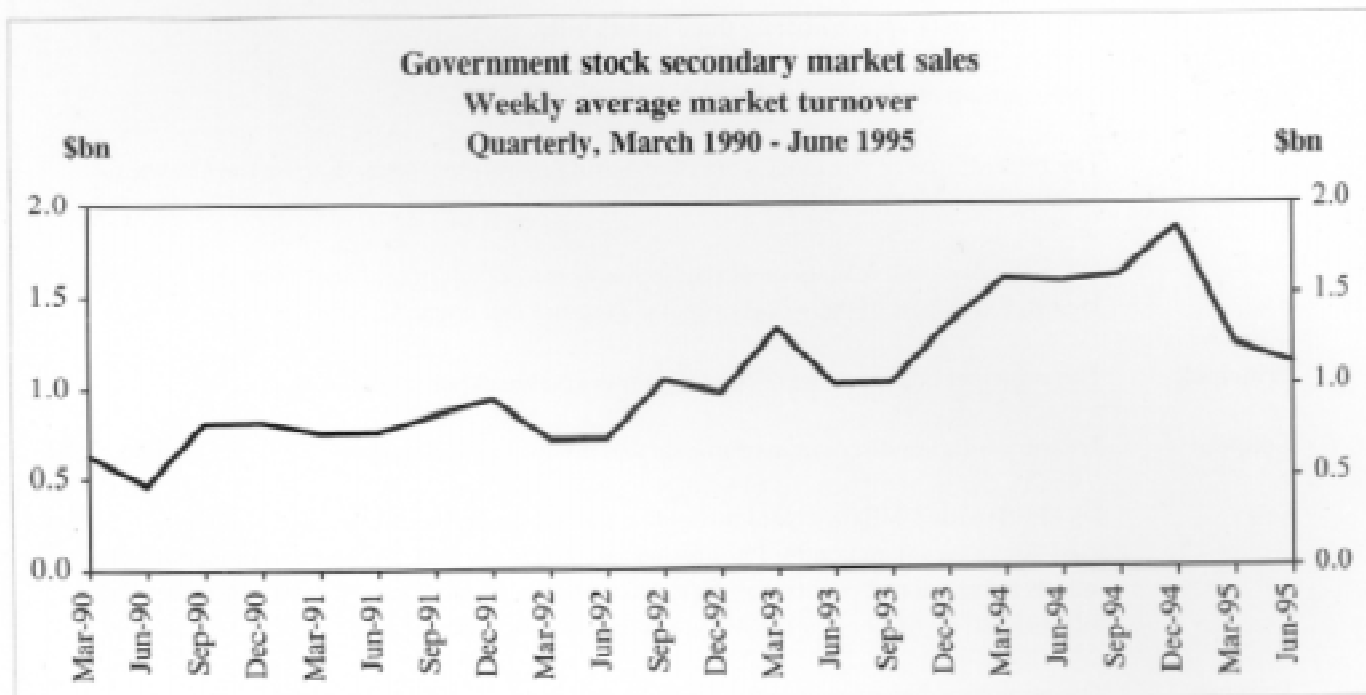
In the 1994/95 fiscal year a fiscal surplus was achieved and current fiscal projections indicate that the Government will have large fiscal surpluses over the next few years. This would normally imply that the amount of government bonds on issue would decline. However, the Government's decision in late 1994 to use these fiscal surpluses to retire foreign public debt means that the domestic bond programme will be maintained at around the current \$2.5 - 3.5 billion level, at least until the foreign debt retirement programme is completed. Thus, the bond issue programme will essentially refinance maturing domestic government debt and maintain the amount of bonds on issue and hence the liquidity of the bond market. Liquidity has also been assisted by a substantial reduction in the number of small volume maturities outstanding and their replacement by a relatively small

number of large volume “bench-mark” maturities. Figure 4 shows the maturity profile of government bonds on issue as at 30 June 1995.

Participants in the primary market for government bonds consist of a number of institutions registered as bidders with the Reserve Bank. Only bids from registered bidders are accepted by the Reserve Bank when bids are received for a particular tender. The process of becoming a registered bidder is relatively straightforward, but the list of registered bidders is confidential.

tions in the liquid wholesale market. The average weekly volume of secondary market sales of government bonds is presented in figure 5. The growth in sales that occurred up until December 1994 can be attributed in part to the establishment of the “bench-mark” maturities and increased participation in the market by overseas investors. However, recent reductions in price volatility in government bonds has seen a decline in the volume of secondary market turnover. Even so, the commitment by the New Zealand Debt Management Office to maintain a liquid 10 year government bond market should ensure that the volume of secondary market trading will continue at around current levels into the near future.

Figure 5



Secondary market

The on-sale of bonds sold in tenders takes place in the secondary market. It is here that smaller investors are able to obtain parcels of government bonds as small as \$10,000, and in multiples of \$1,000 above that, through the retail market. The process of splitting up large parcels of bonds is achieved simply by notifying the RBNZ Registry Limited of the details of the smaller investors who have purchased a portion of the original large parcel. These new investors are then added to the register in substitution for the original buyer, and thereafter receive their coupon and principal payments like any other holder of government bonds. The secondary market also involves larger quantities of bonds being traded between large organisa-

VI Treasury bills

The second largest component of government debt is Treasury bills. Treasury bills are short-term instruments for funding government expenditure and are sold in two ways. The main avenue is the weekly tenders in which regular maturity Treasury bills are issued. The second avenue is via the open market operations (OMOs) conducted by the Reserve Bank. The bills sold in OMOs are known as seasonal Treasury bills. The main characteristics of Treasury bills are presented in Box 2.

As with government bonds, it is useful to distinguish between the primary and secondary markets for Treasury bills.

Box 2: Characteristics of Treasury bills

Issuance: Treasury bills are issued on behalf of the Crown by the NZDMO through tenders and through the OMOs conducted by the Reserve Bank. The NZDMO is the principal for the bill issue with the Reserve Bank acting as the agent.

Registration: All Treasury bills are registered with the RBNZ Registry Limited. The transfer of ownership of Treasury bills can be effected through the RBNZ Registry with electronic transfers done through Austraclear.

Maturity: The maturity of the bills issued is dependent on whether they are issued through the weekly tender or in an OMO.

The weekly tender currently consists of:

- \$75 million of approximately three month bills;
- \$75 million of approximately six month bills; and
- \$50 million of approximately twelve month bills.

The bills offered in the OMOs are of differing maturities depending on the Crown's cash management requirements.

Occasionally, cash management requirements may result in seasonal Treasury bills being offered as part of the weekly regular Treasury bill tenders.

Principal: The principal or face value of the bill is redeemable at par on maturity.

Coupon: Treasury bills are discount instruments and do not pay a coupon.

Sale: All the Treasury bills are sold through a market based bidding system similar to that used for government bonds. Regular Treasury bills are sold by tender with the majority of bids being submitted electronically through Austraclear. Bids for Seasonal Treasury bills offered by tender in an OMO are taken by telephone.

Amount: The minimum bid amount in the Treasury bill tenders is \$1 million and in multiples of \$1 million thereafter.

Pricing: The pricing of Treasury bills follows the typical pattern of a discount security. See appendix 2.

Primary market

Treasury bills were first issued in New Zealand in September 1969 but became firmly established only in January 1985 when the regular Treasury bill tenders were introduced. Prior to this, Treasury bills were offered on a "tap" basis similar to that which had been used for government bonds. The current tenders are priced on a competitive basis and have resulted in increased interest in

Treasury bills by market participants, as they are sold at a market determined price.

The quantity of regular Treasury bills offered in the weekly tenders is determined mainly by a desire to maintain a liquid market for Treasury bills. The regular tenders provide the market with certainty as to the volumes of Treasury bills on issue. This certainty ensures that there is ongoing demand for bills.

Box 3: Characteristics of Reserve Bank bills

Issuance:	Reserve Bank bills are issued by the Reserve Bank as the only instrument discountable with the Reserve Bank.
Registration:	Reserve Bank bills are a security registered with the RBNZ Registry and are purchased predominantly by registered banks with settlement accounts at the Reserve Bank. The current registered settlement account banks in New Zealand are listed in appendix 3.
Maturity:	Reserve Bank bills are issued with a maturity of 63 days in twice-weekly tenders of \$70 million each.
Principal:	The face value of the bill is redeemable in full on maturity.
Coupon:	Reserve Bank Bills are discount instruments and do not pay a coupon.
Sale:	Reserve Bank bills are currently sold via phone tender in a similar manner to the sale of Treasury bills in an OMO. Currently there are plans to introduce electronic bidding for Reserve Bank bills via Austraclear.
Amount:	The minimum bid amount in the tenders is \$1 million and in multiples of \$1 million thereafter.
Pricing:	Reserve Bank bills are issued at a discount to face value using the same pricing formula as Treasury bills (appendix 2).

The amount of seasonal Treasury bills offered in the Reserve Bank's daily open market operations is determined by the government's forecast financing requirements on a particular day⁶. Treasury bills sold in open market operations are most commonly issued with maturities ranging from one to three months. The specific maturity dates offered are selected to correspond with those days when the Reserve Bank forecasts that government revenue will exceed government expenditure and the government will have the funds to repay the maturing bills. Figure 3 shows the quantity of Treasury bills on issue since the end of March 1990.

Treasury bills issued in the weekly tenders mature on one of three maturity dates (i.e three, six and twelve month maturities). In this way maturity tranches are created of a size (around \$600 million to \$750 million) that ensures the liquidity of the instruments. The maturity profile remains largely constant as a result of tender sales of regular Treasury bills. What does affect the maturity profile of Treasury bills, and particularly the profile of bills of

under three month maturity, is the amount of seasonal Treasury bills offered as part of the open market operations. The size and frequency of these issues follow no particular pattern other than that set by fluctuations in government revenue and expenditure.

Secondary market

Although the issuance of Treasury bills is aimed at providing a liquid secondary market, in practice the secondary market is relatively illiquid as half of the Treasury bills on issue are held by non-residents, who tend to hold the bills until maturity. As at the end of June 1995 almost 52 percent of Treasury bills in the market were held by non-residents.

VII Reserve Bank bills

Reserve Bank bills are short-term discount securities issued by the Reserve Bank, although the proceeds from the sale of Reserve Bank bills are on-lent to the government. They are similar to Treasury bills in terms of their structure and pricing. Reserve Bank bills, though, have

⁶ See Tait and Reddell (1991) for a detailed explanation of the role of seasonal Treasury bills in open market operations.

one important characteristic that distinguishes them from Treasury bills in that when they have a maturity of 28 days or less they can be sold back to the Reserve Bank (“discounted”) on demand by the holder. The ability to discount Reserve Bank bills with the Reserve Bank provides those registered banks with accounts at the Reserve Bank with a source of cash for transactions through these accounts. Reserve Bank bills play an important role as a monetary policy instrument and more detailed information on their monetary policy role can be found in the March 1991 *Bulletin*.⁷ The main characteristics of Reserve Bank bills are presented in Box 3. Again, the primary and secondary market will be examined separately.

Primary market

Reserve Bank bills have a relatively short history compared to the other government debt instruments. They were first issued in September 1988 largely as a means of simplifying the process of implementing monetary policy⁸. The ability to discount these bills with the Reserve Bank ensured their successful introduction and the initial tenders were fully sold as settlement banks established their holdings.

The supply of bills is determined as part of the Reserve Bank’s monetary policy settings. Currently there are two \$70 million tenders per week. The demand for Reserve Bank bills varies with market participants’ perceptions of their need for settlement cash, but the amount of bills on issue is not normally very far below the current maximum of \$1.26 billion.

Secondary market

The rare secondary market trading in Reserve Bank bills is carried out almost entirely between the settlement banks. The lack of secondary market activity in Reserve Bank bills is attributable to their status as the sole Crown security able to be discounted with the Reserve Bank for settlement cash, making banks more inclined to retain their Reserve Bank bills.

VIII Kiwi bonds

Kiwi bonds were first issued in 1985 to provide a default free retail instrument for small, mainly retail, investors. They followed on from previous issues such as Kiwi Savings bonds that were also aimed at attracting funds from smaller investors. The current issue of Kiwi bonds has

maturities of six months, one, two and four years and has options for interest to be paid quarterly or compounded quarterly and paid on maturity. The minimum investment is \$1,000 and in multiples of \$100 thereafter. No single bondholder is permitted to hold more than \$250,000 of any one issue. The interest rates on Kiwi bonds are set at a margin below that of government bonds of similar maturity. The amount of Kiwi bonds that have been on issue since they were first issued is shown in figure 6 and indicates that Kiwi bonds have been a relatively popular retail investment.

IX Government bond coupons

Government bond coupons are a relatively new debt security. They first appeared in April 1990 after the New Zealand Debt Management Office approved the “stripping” of coupons on longer term government securities. However, while bond coupons are derived from government bonds and inflation indexed bonds, they are not issued by the government. In simple terms the stripping of a security is the separation of the security into its principal and coupon interest components. This process effectively creates two new securities which can be traded separately. The new coupon security can be bundled and unbundled. Under the bundled option all coupons are paid to the owner of the new security. Under the unbundled option each coupon payable can be transferred to different investors. The decision on whether to bundle or unbundle the new coupon security is the decision of the holder of the original security who is doing the stripping.

The amount of government bond coupons on issue since April 1990 is presented in figure 6. The face value of the principal component of these instruments on issue has fallen from a high of around \$600 million in early 1990 to the current level of around \$170 million. Most of the current \$170 million have been stripped from the inflation-indexed bonds rather than government bonds.

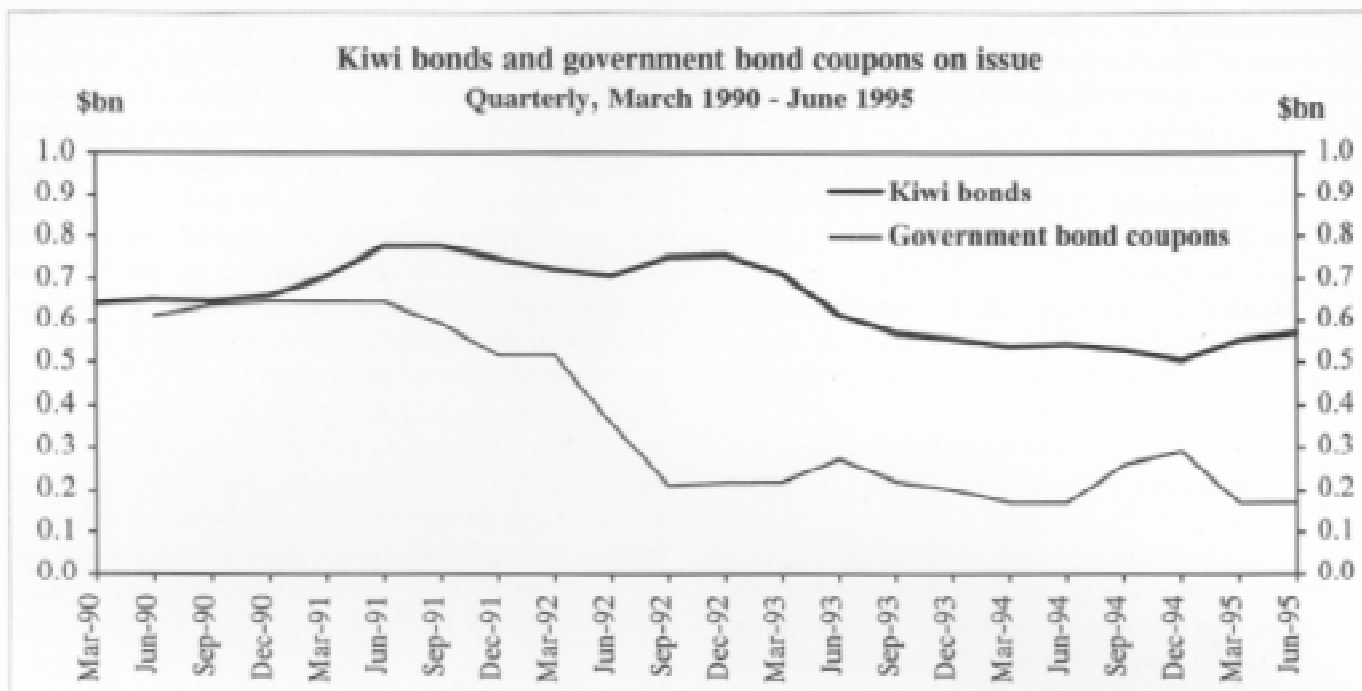
X Inflation-indexed bonds

Index-linked New Zealand government bonds, commonly referred to as inflation-indexed bonds, were first sold in 1977 until they were discontinued in 1984. A number of these bonds are still outstanding but the quantity outstanding is declining as issues mature. The coupon on these bonds is paid semi-annually and is divided into two components. The first component, the allotment, was set when the bonds were sold and is fixed for the life of the bond (it is similar to a coupon on a conventional bond). The second, indexed component, is calculated on a six monthly basis to reflect the percentage change in the Consumer Price Index (CPI). The tender sale of these securities was

⁷ See Tait and Reddell (1991).

⁸ For a full description see Harrison (1988)

Figure 6



similar to that used for ordinary government bonds, although the minimum purchase parcel was \$5000 and in multiples of \$1000 thereafter.

The Government announced in June 1995 its intention to make a new issue of up to \$300 million inflation-adjusted bonds (IABs) in the 1995/96 fiscal year. While details have not yet been finalised, it is likely that the bonds face value will be adjusted quarterly for inflation as measured by the CPI. In addition, the bonds are likely to have a fixed coupon which will be paid quarterly on the adjusted capital value. The bonds will be very long term with a likely maturity of around 20 years. The government will issue the bonds in the wholesale market, with provisions for the bonds to be broken down into smaller parcels for sale to retail investors. It is expected that this instrument will attract a range of institutional investors such as unit trusts and superannuation funds, as well as retail investors. The bond will provide protection against inflation for investors and will provide an additional source of financing for the Crown.

XI Conclusion

New Zealand's money and bond markets have developed rapidly since the extensive deregulation of the financial markets in the mid 1980s. The removal of interest rate controls, the floating of the New Zealand dollar and the abolition of investment restrictions have fully exposed participants to market forces and significantly increased

the influence of international capital flows and developments and innovations in overseas markets.

Over the same period there have been significant changes in the Crown debt market. The most notable have been the successful introduction of competitive tendering for Crown debt and the concentration on issuing a small number of large volume bonds with a commitment to maintaining a ten year bench-mark government bond. These, and the greater confidence engendered by the wider economic and fiscal reforms, have attracted non-resident investors into the domestic government debt market to the extent that, as at June 1995, around 38 percent of such debt is now held by non-residents compared with less than 15 percent only 5 years ago.

The major changes in New Zealand's financial markets over the last decade or more mean that participants in these markets now have a wide choice of financial instruments available which can be tailored to meet their individual requirements in terms of maturity, risk, cost and return. While the New Zealand markets are small in world terms, they now approach some of the major world markets in terms of the range of securities available and the sophistication of the market.

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Appendix 1

Glossary of Terms

Primary market

The primary market for securities is the market in which securities are first issued.

Secondary market

The secondary market covers all sales of a security apart from the initial issuance of that security.

Wholesale market

Wholesale financial markets are characterised by transactions of typically \$1 million or more. In the primary wholesale market the price of the instruments being traded is normally determined by tender. In the secondary wholesale market the price is determined by supply and demand. Wholesale markets cater for the investing and borrowing needs of large institutions (including the Crown, local governments, registered banks, other financial institutions and large companies).

Retail market

Retail markets involve smaller transactions, some less than \$1,000, tailored to the needs of smaller organisations, individuals, and others whose requirements cannot be met through the wholesale market. Interest rates in the retail market are usually set on a periodic basis by the institutions involved in that market and vary in line with wholesale rates. The same institutions usually participate in both the wholesale and retail markets. When trading in the retail market, institutions usually break the securities purchased in the wholesale market (eg government bonds) into smaller parcels to suit smaller investors. Some securities are aimed at the retail market only, for example the Kiwi bonds issued by the Crown. Some security issues target both the wholesale and the retail markets and are packaged to make them attractive to the investors in each market. The retail market also includes the traditional funding arrangements between borrowers and lenders that are organised through financial intermediaries such as banks.

Coupon securities

A coupon security is a long-term (greater than one year to maturity) instrument that provides fixed regular interest payments to the holder with principal repaid at maturity. The fixed regular interest payments are determined by the annual coupon rate on the instrument and its face value. The most common coupon security in New Zealand is the government bond issued by the Crown. Coupon securities are also issued by some state owned enterprises, local governments and a few large corporations.

Whether the coupon rate is above, equal to, or below the prevailing interest rate for a security will determine whether it is sold at a premium at par or at a market discount.

Par

A security issued at par is one for which the price paid is equal to the face value of the security. This situation occurs when the coupon on the security is equal to the prevailing market interest rate.

Discount

A security issued at a discount is one for which the price paid is below the face value of the security. This situation occurs when the market interest rate exceeds the coupon rate.

Premium

A security issued at a premium is one for which the price paid is above the face value of the security. This situation occurs when the market interest rate is below the coupon rate.

Discount securities

A discount security is a short-term instrument, with no coupon payments, sold at a price below its face value and should not be confused with a coupon security issued at a discount. The difference between the sale price and the face value is known as the discount on the instrument and is determined by the interest rate (yield) on the instrument. Discount instruments sold in New Zealand include the Treasury bills and Reserve Bank bills issued by the Crown, bank bills and certificates of deposit issued by banks and promissory notes issued by other market participants such as corporations.

Fixed rate securities

A fixed interest security in New Zealand has the following characteristics:

- a fixed maturity date;
- the payment of a fixed amount of interest at regular intervals in the case of coupon securities or a fixed discount rate in the case of discount securities;
- the payment of a fixed principal at maturity.

Floating rate securities

A floating rate security, as its name suggests, has a variable rate of interest on the face value of the instrument. The floating rate can move in line with market interest rates or can change in line with some other variable, such as the inflation rate. The rate can move continuously or be adjusted periodically, depending on the contract specifications pertaining to the security.

Hybrid securities

New instruments have blurred the distinction between traditional debt instruments and other types of securities. In particular, the issuance of subordinated notes and convertible notes in recent years has complicated the analysis of debt instruments.

Subordinated notes

Although a blend of debt and equity, subordinated notes are similar to other forms of debt securities in that they have a fixed coupon rate and a fixed maturity. However, subordinated notes rank below senior debt of the borrow-

ing organisation. This subordinated ranking means that in a winding up, this subordinated debt will be repaid only after other senior debt has been repaid. Thus there is a greater possibility that the subordinated note holders may not receive the face value of the notes. Such subordinated notes have some of the characteristics of shares (equity), as shares are repaid only after the debt obligations have been satisfied. The equity quality of the instrument clouds the boundaries between debt and equity.

Convertible notes

Convertible notes are corporate debt securities that contain an option for the holder to convert the note into the equity of the issuing company. Consequently, the convertible note also clouds the boundary between debt securities and equity securities.

Other terms

*Austraclear*⁹

Austraclear is a computerised trade matching, transfer, custody and settlements system that enables the trade of securities to occur without the physical transfer of the security documentation.

Derivative Securities

A derivative contract is defined as an instrument which derives its value from an underlying instrument and relates to the ownership or potential ownership of that underlying instrument. Examples of derivative instruments include options, futures, forward contracts and swaps. These contracts can be based on an underlying commodity such as gold or wool, or on a financial instrument such as an interest or exchange rate, or a stock exchange index.

Hedge

A hedge is a transaction to protect against potential financial loss through future price fluctuations. A hedge protects against the potential loss by taking an opposite or approximately opposite position to that of the original transaction thereby creating a form of insurance against the potential loss. A common means of hedging is through the use of derivative instruments.

⁹ For a full description of the Austraclear New Zealand System see Anderson (1993).

Appendix 2

Pricing coupon securities

The price of a government bond, as well as most other similar bond issues, is the present value of future cash flows accruing to the holder. This means that the basic annuity formula can be used for pricing after discounting the cash flows for the period between settlement and the first coupon payment. The bond formula can be represented as:

$$P = \left[\frac{1}{(1+i)^n} + \frac{r \left[c + \frac{1 - \frac{1}{(1+i)^n}}{i} \right]}{(1+i)^{\frac{a}{b}}} \right] N$$

Where: P = the settlement price of the bond (\$)
 N = the face or nominal value of the bond (\$)
 r = the annual coupon rate divided by two hundred, ie the semi-annual coupon (%)
 i = the annual yield divided by two hundred, ie, the semi-annual yield (%)
 c = the proportion of next interest payment that takes the value of 1 for the cum interest period 0 for the ex interest period
 n = the number of full half years between the next coupon payment and the maturity date
 a = the number of days from the settlement date to the date of the next coupon payment
 b = the number of days in the half year ending on the date of the next coupon payment

Pricing discount securities

The price of a Treasury bill is the present value of the face value. The bills are discount instruments and as such they sell at a discount to the face value on all days other than on the maturity date (assuming interest rates are positive). The bill formula can be represented as:

$$P = \frac{N}{1 + \frac{id}{e}}$$

Where P = the settlement price of the bill (\$)
 N = the face or nominal value of the bill (\$)
 i = the annual yield divided by 100 (%)
 d = the number of days to maturity
 e = the number of days in the year, ie 365

Appendix 3

Registered banks as at December 1994

ANZ Banking Group (New Zealand) Limited *
 ASB Bank Limited *
 Bankers Trust New Zealand Limited *
 Bank of New Zealand *
 Banque Indosuez
 BNZ Finance Limited
 Barclays Bank Plc *
 Citibank NA *
 Countrywide Banking Corporation Limited *
 Hong Kong and Shanghai Banking Corporation *
 The National Bank of New Zealand Limited *
 Primary Industry Bank of Australia
 Trust Bank New Zealand Limited *
 TSB Bank Limited *
 Westpac Banking Corporation. *

* indicates those banks with settlement accounts at the Reserve Bank