New Zealand as an exploration destination: 2000 update

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Abstract

This paper provides an update to a paper by the author on an overseas explorer's perception of New Zealand, presented at the 1997 New Zealand Minerals & Mining Conference. New Zealand has one of the most open and internationally competitive economies in the world. The petroleum exploration industry in New Zealand is booming with a record number of wells planned for 2000. New Zealand is keen to encourage investment in mineral exploration to develop its natural resources.

A study of the mineral potential of New Zealand estimated the value of known and potential resources of metals at $86 billion. Gold has the greatest potential, estimated at $33.5 billion. The price of gold has averaged NZ$554 since the beginning of 1998, and NZ$593 in the last year, which is very competitive with other countries.

An assessment of country risk was made by comparing New Zealand with twenty other countries in ten risk categories: sovereign risk, land access, environmental issues, land claims, mining legislation, social risk, infrastructure, civil unrest, natural disasters and workforce. New Zealand was ranked fifth, showing it has low country risk. This provides a high degree of certainty for investment, which is important for the perception of New Zealand as an exploration destination. Corruption was considered separately, and New Zealand ranked third out of ninety countries, showing it is one of the least corrupt countries in the world.

New Zealand has a favourable business environment, good geological potential, low country risk and no corruption. Despite this, New Zealand has not registered on the radar screens of overseas mineral explorers, and the positive factors appear to have been overlooked. New Zealand has considerable undeveloped mineral potential, and with the current rise in commodity prices, it is hoped New Zealand can participate in a resurgence in mineral exploration.

Introduction

This paper provides an update to a paper by the author on an overseas explorer's perception of New Zealand, presented at the 1997 New Zealand Minerals & Mining Conference (Price, 1997). This discussion of New Zealand as an exploration destination comprises: a summary of recent developments since 1997, a review of geological potential and an assessment of risk factors for investment including corruption.

New Zealand has one of the most open and internationally competitive economies in the world. The business environment is attractive to foreign investment and is favourable towards foreign ownership of projects. The Government encourages new investment from overseas companies. New Zealand has low country risk, similar to Australia, which is conducive to investment. This guarantees sufficient security to ensure that the exploitation of a mineral discovery is possible within reasonable terms.

As an example, the petroleum exploration industry in New Zealand is booming with a record 26 wells planned for 2000, compared with 10 wells in 1999. Overseas petroleum exploration companies will drill sixteen of the wells, and other international companies will be participants in a number of the other wells.

New Zealand is also keen to encourage more investment in mineral exploration to develop its natural resources.

Recent developments since 1997

Exploration activity since 1997 has been at a low level, with little new exploration investment during this period. Investment has been mainly by companies with operating mines for expansion of existing mining operations and the development of known resources. Other companies have also undertaken some exploration. Gold is the most valuable mineral commodity produced in New Zealand. Much of the

mineral exploration in recent years has been for gold, but there has also been interest in platinum.

Gold and silver

Waihi Gold Mining undertook construction in 1999 for an expansion of the Martha gold-silver mine at Waihi. Gold production was increased from 85,000 ounces per year to 110,000 ounces per year. The pit was extended to provide for the extraction of an additional 800,000 ounces of gold (7.5 Mt at 3.3 g/t) and 6.4 million ounces of silver (7.5Mt at 26 g/t silver) (Bull, 2000). The expansion increased reserves to 930,000 ounces of gold as at 30 June 1999. Gold recovery will also increase. The extension will increase mine life by seven years to 2007. Production for 1998-99 was 95,492 ounces of gold and 692,299 ounces of silver (Clark, 1999d).

Gold and Resource Developments is undertaking an upgrade of the Macraes Gold Project in Otago. The first stage was upgrading of the mill and installation of new pressure oxidation technology to improve gold recovery. This was commissioned in September 1999 to increase gold recovery by 20% from 70% to 84%. Gold production will increase by 33% from 125,000 to 165,000 ounces per year. At 31 December 1999, the resource was 4.1 million ounces (83.0 Mt at 1.53 g/t) and the reserve was 2.2 million ounces of gold (41.8 Mt at 1.65 g/t). Production for 1999 was 124,940 ounces of gold. Exploration drilling has continued along strike (Gold and Resource Developments NL, 2000).

The Golden Cross mine near Waihi, owned by Coeur Gold (NZ) and Viking Mining, was closed in April 1998. The open-pit and underground operations produced more than 600,000 ounces of gold and over 2 M ounces of silver during its seven-year life (Barker, 1999). A three-year rehabilitation programme is in progress.

The Normandy Mining - Otter Gold Mines joint venture has undertaken exploration drilling at Gladstone Hill near Waihi. Additional gold resources have been discovered, including a new high-grade lode (Moonlight Lode). There is potential for a small mining operation that could be operated in conjunction with the Martha Mine. Inferred resource is 2.9 Mt at 2.1 g/t gold (Clark 2000d).

Gold and Resource Developments has restarted the Reefton Gold Project on the West Coast, after work was suspended at the end of 1997. A drilling programme has been undertaken to prove further reserves. The aim of current work is to improve project economics and to enable a development decision by July 2001. The resource is currently 1.36 million ounces of gold (17Mt at 2.48g/t) (Gold and Resource Developments NL, 2000).

Delta Gold was active in the southern Coromandel and central North Island areas, including drilling at Ohakuri, north of Taupo, but ceased exploration at the end of June 2000.

L & M Mining, New Zealand's largest alluvial gold mining company, has undertaken an active exploration programme that has increased reserves by five times. L & M Mining is continuing to mine in the Arahura Valley, West Coast (1999 production 0.30 tonnes or approximately 9,600 ounces), where over 100,000 ounces has been produced so far. The Glenore mine in Otago (1999 production 0.43 tonnes or approximately 13,800 ounces) was a short-term operation. A new mine at Quinns Terrace near Kumara on the West Coast began production in November 1999. L & M Mining has taken over the Earnscleugh alluvial gold project in Central Otago, which has a resource of 200,000 - 400,000 ounces. L & M Mining is planning to mine the 180,000 ounce Waikaka alluvial gold project in Southland, where development is proceeding, with production expected to commence by the end of 2000 (Clark, 1999c).

There are about 30 alluvial gold mining operations, all in the South Island. Total alluvial gold production for 1999 was about 56,000 ounces, mainly by L & M Mining. (Barker, in press) Other alluvial gold operations include Birchfield Minerals' Grey River dredge (1999 production 0.14 tonnes or approximately 4,500 ounces) and Birchfield Ross Minings' open pit mine at Ross (1999 production 0.20 tonnes or approximately 6,400 ounces), both located on the West Coast.

Total production for 1999 was 8.6 tonnes of gold and 24.3 tonnes of silver, mainly from the Martha and Macraes mines.

Platinum

The global increase in demand for platinum has encouraged exploration of platinum prospects in the South Island. In 1997 permits were sought over all ultramafics in the South Island that had potential for platinum. Anzex Resources drilled four diamond holes in the Longwood Complex in Southland in 1998. The holes intersected minor platinum and palladium in mafic and ultramafic rocks.

Coal

The most significant development in the New Zealand minerals industry since 1997 is Greymouth Coal's new underground coal mine at Spring Creek near Rapahoe on the West Coast. The recoverable resource is over 100 million tonnes of premium bituminous coal with low ash (target ash of 5.5%), low sulphur and high calorific values. The total resource is 250 million tonnes. The mine will produce 500,000 tonnes per year of high-quality semi-soft blendable coking coal for steelmaking, and steaming coal suitable for electricity generation and domestic industrial use. It has the potential to produce 1.5-2 million tonnes of coal a year. The Spring Creek mine opened in March 2000 and has a projected life of 30-40 years. (Clark, 1999b)

Solid Energy exported 1.4 Mt of coal from the West Coast in 1999, sourced from the Stockton (1999 production 1.05 Mt) and Strongman (1999 production 0.34 Mt) mines. This is high quality coking coal with low ash and low phosphorus, most of which is used for steelmaking where it is blended with high ash coal from other countries. Solid Energy installed a new blending plant at the Rotowaro coal mine near Huntly

(1999 production 0.8 Mt), capable of processing 3 Mt per year, which was opened in March 1997. The mine supplies coal for steelmaking at the Glenbrook steel mill, electricity generation and industrial use. Production also continued from the Huntly East and West mines (1999 production 0.33 Mt).

The Pike River Coal Company undertook a feasibility study of the Pike River coal deposit, north of Greymouth, which is a low ash coking coal. The recoverable resource is about 20 Mt of high quality coking coal. Export markets are being investigated (Barker, in press).

There are other smaller coal mines. Total coal production for 1999 was 3.5 million tonnes. The largest coal producer is Solid Energy, a state-owned enterprise, whose output was more than 70% of total production.

Ironsand

BHP New Zealand Steel continued to mine titanomagnetite ironsand from Taharoa (1999 production 1.3 Mt of concentrate), for export, and from Waikato North Head (1999 production 1.0 Mt of concentrate), for steelmaking at Glenbrook, south of Auckland. (Bull, 2000) Total production of titanomagnetite ironsand concentrate for 1999 was 2.3 million tonnes. A $25m upgrade for smelting at the Glenbrook steel mill has been approved.

Aluminium

Comalco's production of aluminium for 1999 at the Tiwai Point smelter, from bauxite imported from Australia, was 259,400 tonnes.

Geological potential

New Zealand is located on an active plate boundary between the Pacific and Indian-Australian plates, with varied geology and a wide range of mineral deposits. "New Zealand contains a wide variety of mineral deposits that reflect its diverse geology and its dynamic tectonic history. While New Zealand is best known for its gold production … there is also production of silver, ironsand, coal, aggregate, limestone, clay, dolomite, pumice, salt, sepentinite, zeolite and bentonite. In addition, there are resources or potential for deposits of titanium (ilmenite beachsands), platinum, sulphur, phosphate, silica and mercury" (Brathwaite et al, 1998, p16).

The New Zealand mineral industry currently produces about $1 billion worth of mineral products annually, excluding petroleum and water. This contributes approximately one percent to a GDP of NZ$100 billion (Crown Minerals, 1999). There is potential to double mineral production over the next ten years to $2 billion per year. The increase would comprise base and precious metal production, niche market industrial minerals and import substitution for minerals used in fertilisers (Christie & Brathwaite, 1999).

The Institute of Geological & Nuclear Sciences undertook a study in 1999 of the mineral potential of New Zealand. The study showed that New Zealand's mineral potential is high, and estimated the value of known and potential resources of metals at $86 billion. "An inventory of New Zealand's mineral resources was made by assembling existing information on resources of individual minerals and by making estimates of undiscovered mineral resources. A unit regional value comparison of New Zealand's mineral production with several other countries and states indicates that New Zealand has considerable undeveloped mineral potential, with total past production lagging behind other areas of the world. … New Zealand contains a wide variety of mineral deposit types and metals, with a total worth of about NZ$86 billion" (Christie & Brathwaite, 1999, p1).

Table 1 and Figure 1 provide a summary of resources (known and estimated potential) and value of metals totalled from different geological environments given by Christie & Brathwaite (1999, Table 5, p16-17).

Gold has the greatest potential, estimated at $33.5 billion. Total recorded gold production is 998 tonnes to December 1999. In addition, there was a large amount of gold undeclared in the early gold rushes. New Zealand has a long history of gold mining in many parts of the country, since the early nineteenth century. Gold occurs in a wide range of geological environments (Christie & Brathwaite, 1997), and there is good

Metal	Total Resource	Total Value
Gold	52,739,048 oz	$33,542m
Titanium	41,778,000 t	$17,862m
Iron	913,650,000 t	$13,707m
Copper	3,216,450 t	$9,328m
Molybdenum	98,600 t	$2,958m
Zinc	1,632,631 t	$2,823m
Platinum	5,763,537 oz	$2,092m
Chromium	61,180 t	$1,224m
Silver	108,945,000 oz	$981m
Lead	709,740 t	$633m
Rare earths	260,000 t	$272m
Tungsten	16,340 t	$209m
Tin	13,700 t	$149m
Antimony	53,950 t	$127m
Nickel	11,804 t	$85m
Mercury	725 t	$6m
	Total	**$85,998**

Table 1. Total resources (known and estimated potential) and value of metals (modified from Christie & Brathwaite, 1999, Table 5, p16-17).

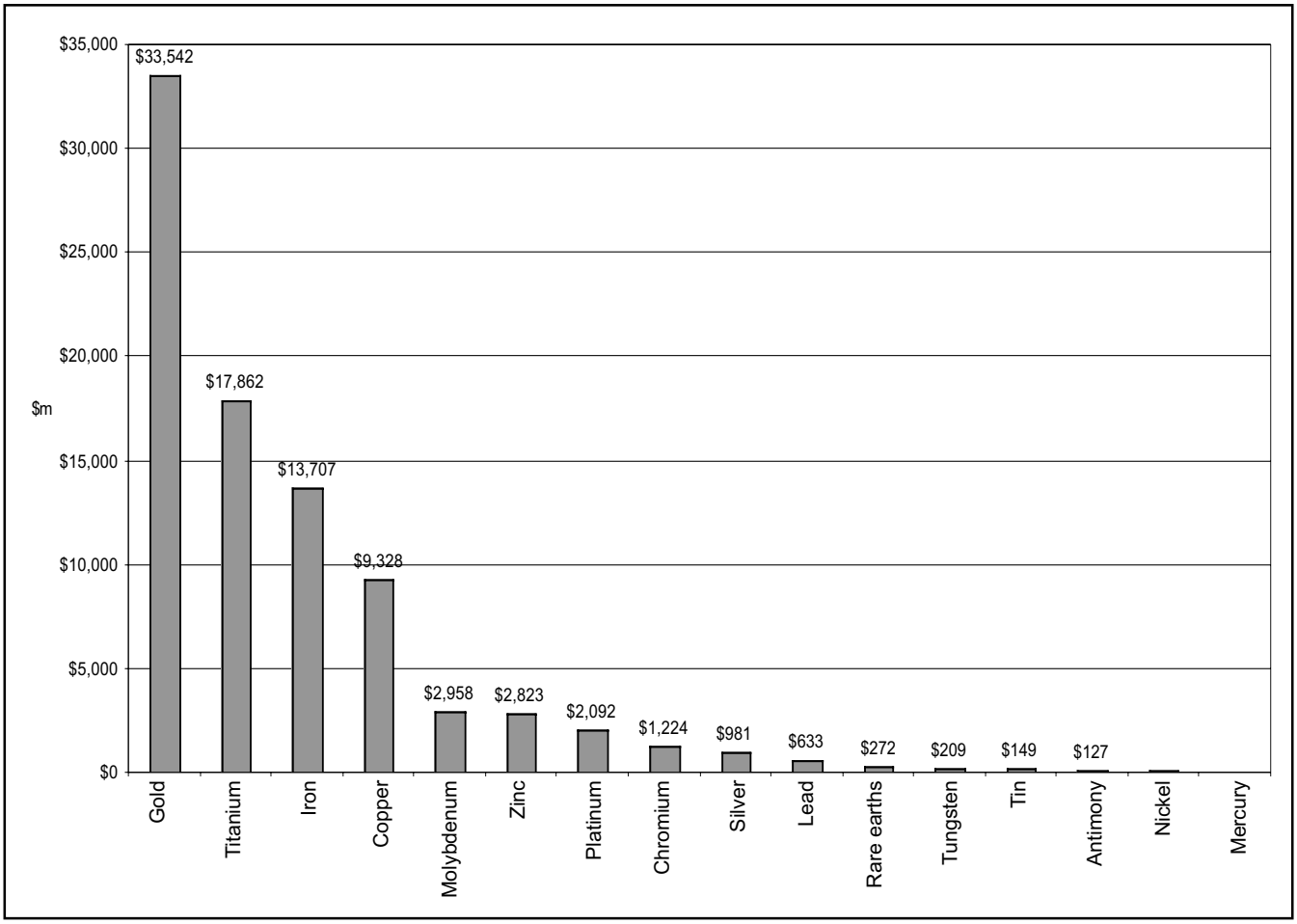

Figure 1. Value (in $ millions) of metals (known and estimated potential) (modified from Christie & Brathwaite, 1999, Table 5, p.16-17).

potential for new discoveries of significant size. New Zealand has two gold deposits, namely Martha and Macraes, that are of significant size in Australasia.

The Martha deposit, located in the Coromandel, is an epithermal gold-silver deposit, with total production of gold and silver (including historical production) valued at over $4 billion. There is potential for other epithermal deposits in the Coromandel, Northland and central North Island areas.

The Macraes deposit, located in Otago, is one of the largest gold deposits in Australasia. The total resource of the Macraes goldfield was 4.1m ounces of gold as at the end of 1999, with potential for the resource to increase further. In addition, the Macraes gold project has produced in excess of one million ounces of gold during ten years of operation. There is potential for other similar deposits elsewhere in Otago.

The discovery cost of gold in New Zealand is about NZ$10 per ounce, which is very low by comparison with other countries, including Australia, where the discovery cost is about A$40 per ounce. The New Zealand dollar makes gold projects very attractive as most operating costs are in local currency. Improved margins can be achieved without an increase in the gold price, by operating in a country like New Zealand with a higher gold price in terms of local currency.

The price of gold has averaged NZ$554 per ounce since the beginning of 1998, and NZ$594 per ounce in the year to 30 September 2000, which is very competitive with other countries (see Figure 2).

Platinum occurrences are known from a number of mafic - ultramafic complexes in the South Island. Alluvial platinum is known to occur in Nelson, and there has been minor historic production in Southland. The price of platinum has averaged NZ$819 per ounce since the beginning of 1998, and NZ$1,052 per ounce in the year to 30 September 2000 (see Figure 3).

New Zealand has a well established coal mining industry, and good potential for further coal mines. “New Zealand has some 42 separate coalfields with a total resource estimated at 8,600 Mt of potentially recoverable coal...” (Mining Journal, 1995)

New Zealand is also prospective for other metals and industrial minerals. In particular, there are large resources of titanium and iron as titanomagnetite and ilmenite coastal sands.

Risk factors for investment

An assessment of country risk was made by comparing New Zealand with the 2000 World Investment Risk Survey (Resource Stocks, 2000). This is an annual survey of

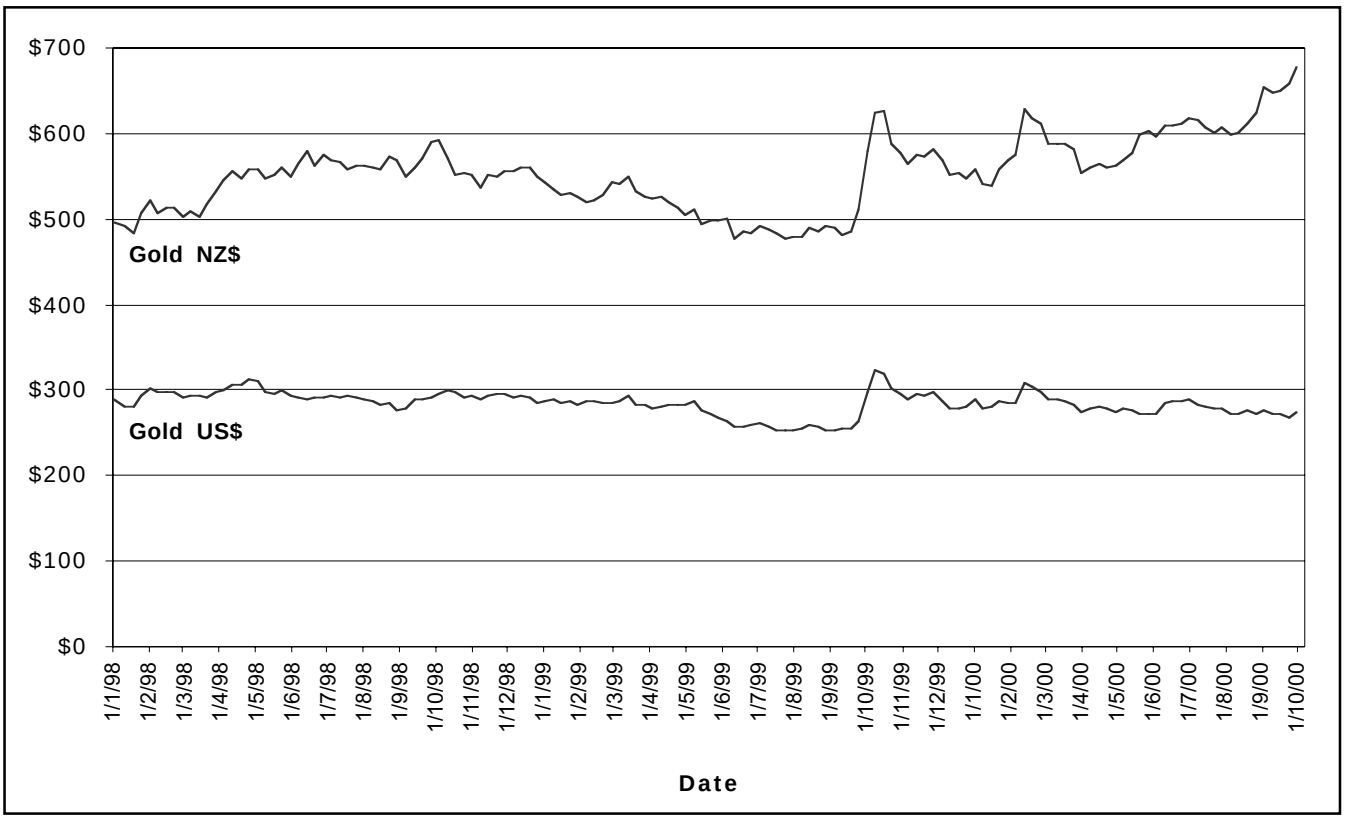

Figure 2. Graph of gold price (per ounce) in US dollars and NZ dollars since the beginning of 1998.

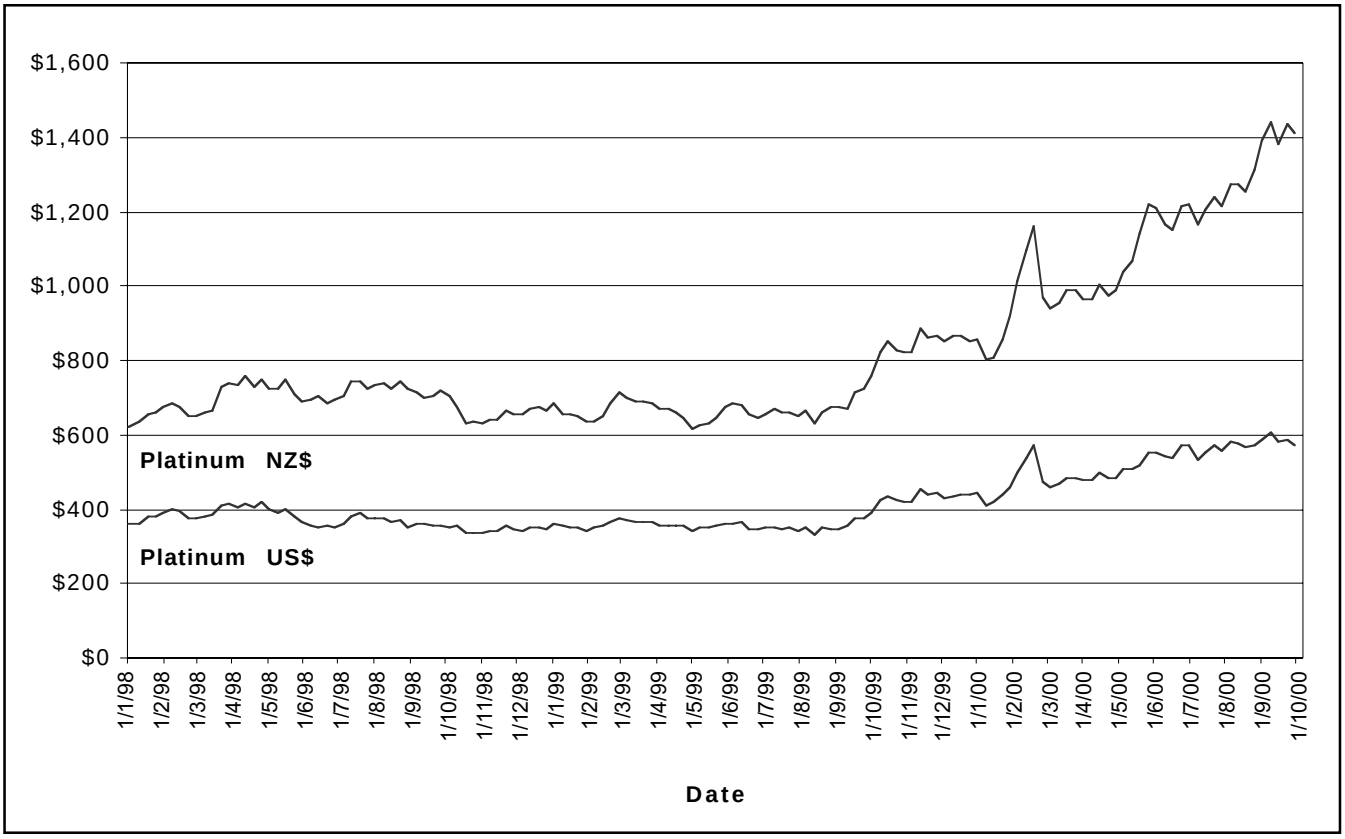

Figure 3. Graph of platinum price (per ounce) in US dollars and NZ dollars since the beginning of 1998.

Australian mining companies and how they rate twenty countries in ten risk categories. Each risk category is weighted according to importance, from 0 = least important to 5 = most important (see Table 2).

New Zealand was not included in the survey, but it is useful to assess New Zealand on these categories (see Table 3), as these affect the perception of New Zealand as an exploration destination. The author has worked in or visited 10 of the countries surveyed. Scores for New Zealand for each risk category were estimated by a subjective comparison with these countries, in particular Australia, the United States, Canada and Argentina. The author accepts that his perception of risk in New Zealand is from an internal viewpoint and may differ from overseas investors' perceptions from an external point of view.

New Zealand was ranked fifth, showing it has low country risk. This provides a high degree of certainty for investment, which is important for the perception of New Zealand as an exploration destination. Chile was ranked the least riskiest country, with Australia a very close second, the United States third and Argentina fourth. It is interesting that several countries that have been favoured exploration destinations are ranked near the bottom of the table, and are seen as having high risk, for example, Philippines, Indonesia and Papua New Guinea.

Sovereign Risk

Sovereign Risk is the threat of governments seizing or closing down assets, and has a weighting of 4.5 as the most important category. New Zealand has low sovereign risk, but possibly a little higher than Australia, the United States and Canada, and was scored at 1.5.

There have been a few examples in New Zealand where mining and exploration projects have been prevented from proceeding. Helen Clark, as Minister for Conservation in the 1980s, prevented the proposed underground Monowai mine in the northern Coromandel from proceeding. The Kahurangi National Park was declared over northwest Nelson where there were existing exploration licences. More recently, the northern Coromandel, where there were existing exploration permits, was closed to exploration and mining.

Category	Weighting
Sovereign Risk	4.5
Land Access	4
Environmental Issues (Green Tape)	3
Land Claims	4
Mining Legislation (Red Tape)	3
Social Risk	3
Infrastructure	3
Civil Unrest	4
Natural Disasters	2
Labour Relations	2

Table 2. 2000 World Investment Risk Survey - risk categories and category weightings (Resource Stocks, 2000).

Land access

Land access is regarded as an important issue, and has a weighting of 4. The issue of access to mineral resources in New Zealand is similar to other developed countries, and is scored at 3. Land access is undoubtably an issue in New Zealand, but is also becoming more difficult in Australia and other developed countries.

Current legislation provides for landowners (including government departments) and occupiers to control access to Crown owned minerals. Access to land is through access arrangements, which can be difficult and expensive to obtain. These are commercial agreements obtained through negotiation. The success in gaining access generally depends on the effort made and the attractiveness of the agreement. Some explorers feel this has made access more difficult than previously, as landowners can veto access to Crown minerals.

Access to private or Maori land can usually be gained relatively easily. However, access to Crown land administered by the Department of Conservation is an issue, as the department is not favourably disposed towards exploration and mining. About one third of New Zealand's land area is controlled by the Department of Conservation, and contains up to 70% of the country's mineral resources. National parks and other reserves total about 15% of the land area, and contain a large proportion of New Zealand's mineral potential that is not available for exploration.

Environmental issues (green tape)

Environmental issues are regarded as less important than sovereign risk and land access, and has a weighting of 3. New Zealand was scored at 4, being more difficult than Australia and probably similar to the United States and Canada.

Overseas companies regard environmental issues in New Zealand as significant, due to perceptions of a powerful environmental lobby. Anti-mining sentiment has been well publicised by the media, giving the impression that exploration and mining are very difficult. However, the stories of anti-mining sentiment are mainly confined to the northern Coromandel, and do not reflect a widespread attitude in New Zealand. There are other areas of low sensitivity that are just as prospective as the Coromandel.

The Macraes and Martha gold mines show that it is possible to operate a mine in New Zealand's regulatory environment. The Martha mine has been especially successful in operating in the middle of a Coromandel town, due to a good public relations campaign, high standards for environmental work, and a socially responsible approach.

		Investment Risk Categories	Sovereign risk	Land access	Green tape	Land claims	Red tape	Social risk	Infrastructure	Civil unrest	Natural disasters	Labour relations
		Weighting	4.5	4	3	4	3	3	3	4	2	2
Rank	**Country**	**Weighted Totals**										
1	Chile	59.0	2	2	2	1	2	2	2	1.5	2	2
2	Australia	59.3	0.5	3	3	4	2	1	1	0.5	1	2
3	United States	62.5	1	3	4	2.5	2	2	1	1	1	1.5
4	Argentina	64.0	2	2	2	2	3	2	2	1	2	2
	New Zealand	**66.8**	**1.5**	**3**	**4**	**2**	**2.5**	**2.5**	**1**	**0.5**	**2**	**2**
5	Malaysia	68.0	2	2	2	2	3	2	2	2	2	2
6	Peru	68.0	2	2	2	2	2	2	3	2	2	2
7	South Africa	68.0	2	2	2	2	2	3	2	2.5	1	2
8	Canada	69.5	1	3	4	4	2.5	1.5	1	1	1	2
9	Ghana	71.0	2	2	2	2	2	2	4	2	2	2
10	Mexico	74.0	2	2	2	2	3	3	3	2	2	2
11	Tanzania	74.0	2	2	2	2	3	2.5	3.5	2	2	2
12	Brazil	75.0	2	2	2	3	3	2	3	2	2	2
13	Vietnam	84.0	3	3	2	2	3.5	2.5	3.5	2	2	2
14	India	85.5	3	3	2	2	4	3	3	2	2	2
15	Zimbabwe	86.5	3	3	2	2	3	3	3	3	2	2
16	China	90.0	4	3	2	2	4	3	3	2	2	2
17	Philippines	93.5	3	3	3	3	3	3	3	3	2	2
18	Indonesia	95.0	4	3	2	2	3	3	3	4	2	2
19	PNG	96.5	3	3	2	3	3	4	4	3	2	2
20	Russia	99.0	4	3	2	2	4	3	4	3	2	3

Table 3. 2000 World Investment Risk Survey including an assessment of New Zealand (modified from Resource Stocks, 2000, p19).

Land claims

Land claims is also regarded as an important issue, and has a weighting of 4. Areas under claim are subject to uncertainty for the minerals industry, and occasionally activism. New Zealand was scored at the median value of 2, and much lower than Australia where concern with Native Title is adversely affecting mineral investment. Although there are some similarities in New Zealand, the situation is quite different. Land claims are relatively unimportant for the mineral industry, despite a large number of land claims being made. The prospectivity of areas under claim is generally low, so this issue is not significant to the minerals industry in New Zealand.

There is an established process for determining claims, which is less complex than in Australia. Maori land claims are considered by the Treaty of Waitangi Tribunal, which is completely separate from the Crown Minerals Act. Claims are determined under the Treaty of Waitangi, 1840 and subsequent legislation: Waitangi Treaty Act, 1975 and Waitangi Treaty Amendment Act, 1985.

"From information which is rather difficult to quantify approximately six per cent of New Zealand land area would appear to be under Native Title (over 14 per cent in Australia in 1993). … A recent report stating that Australia spends seven dollars per capita to every one dollar spent in New Zealand in addressing native title issues demonstrates the relative magnitude and complexity of the problem in the two countries" (Buckenham, 1997, p51). There is a view that gaining access to Maori land for mineral exploration is much easier than for conservation land. "In this respect the success of future Maori claims over some of these and related land areas may in fact be welcomed" (Buckenham, 1997, p52).

Mining legislation (red tape)

Legislation in New Zealand is more difficult than in Australia, but is easier than in Argentina, so New Zealand has been scored at 2.5. The legislation is regarded as cumbersome and costly, in particular applications for resource consents. A large number of resource consents may be required and these could take up to a year to be granted, or longer if referred to the Environment Court. The Crown Minerals Act 1991 provides for granting of permits relatively quickly, but often there are delays.

The Resource Management Act 1991 requires resource consents from Regional and District Councils for activities that disturb the land surface. These will usually be granted if information is well prepared and adequate consultation is taken with all affected parties. However, the requirements of Regional and District Council plans vary in different regions. The requirement for different consents is time consuming and expensive. However, "… the end result is often a better informed community which gives a better acceptance of a project in their back yard" (Bull, 1996, p462).

A review of the Resource Management Act was undertaken in 1998 with the aim of streamlining procedures and reducing compliance costs. A parliamentary select committee considered proposed amendments (RMA Amendment Bill) in late 1999 and 2000. The select committee will now make recommendations to the government.

Social risk

Social risk is the risk from other land users, where approvals from local communities are required for development. Social responsibility contributing to the development of a community is required in addition to environmental responsibility. New Zealand has been scored at 2.5, significantly higher than Australia, and higher than the United States, Canada or Argentina. Community participation is essential for successful development, as the productivity and the success of an operation depend on a prosperous community, for example, the town of Waihi and the Macraes Flat area.

In New Zealand, social risk is not an issue for well prepared companies that consult with all stakeholders in the community and are prepared to negotiate and modify proposals to take community concerns into account. New Zealand has much lower social risk than some countries, where just paying money (compensation and rent or royalty payments) is often not sufficient and providing services is required. This may involve companies providing housing, education and training, and medical services to local communities, even though these services are the responsibility of government. This is not the case in New Zealand.

Infrastructure

New Zealand was scored at 1, as infrastructure is excellent with modern services similar to Australia, the United States and Canada, and better than in Argentina. Good infrastructure is an advantage to investors, as they do not have to bear the cost of establishment. The quality of infrastructure in New Zealand is attractive compared to developing countries.

Power is plentiful and relatively inexpensive, which is why the Comalco aluminium smelter was built in New Zealand. Natural gas is reticulated throughout most of the North Island. Water is generally plentiful. The transport system is modern and efficient, with a good network of roads, railways, ports and airports. Communication systems are among the best in the world. Towns and service industries exist throughout the country and are generally close to project areas. A wide range of technical, financial and contracting services is also available (Mining Journal, 1995).

Civil unrest

Civil unrest is another important issue, and has a weighting of 4. Civil unrest is not an issue in New Zealand, and has been scored at 0.5, as the risk is comparable to Australia. There have been no riots, as have occurred in the US and other countries. Recently, there has been no unrest due to recent fuel price rises, such as that which paralysed the UK and much of Europe. This is despite NZ being one of the worst affected countries due to a falling currency.

Natural disasters

Natural disasters are a less important issue, and have a weighting of 2. New Zealand was scored at 2, as the risk is slightly higher than in Australia, the United Sates or Canada, which have large areas of stable continental crust. This is due to New Zealand's location on an active plate boundary with potential for problems due to earthquakes, steep terrain, heavy rainfall and volcanic activity. However, this is no worse than for other Pacific Rim countries in similar plate margin locations.

Labour relations

Labour relations are also regarded as a less important issue, and have a weighting of 2. New Zealand was scored at 2, the same as for most other countries. The workforce in New Zealand is well skilled with good education and training. This is a significant advantage compared to developing countries where there is a shortage of trained people. Most of the workforce has English as a first language, which provides for good communication in the workplace. New Zealand is also culturally similar to Australia and North America, which is a benefit to companies from these countries.

The former Employment Contracts Act 1991 was well regarded by employers. It stimulated investment, which created 250,000 new jobs. The key advantage of the Employment Contracts Act was that it encouraged employers and workers to work together rather than through third parties. Initially the Courts were harsh in their treatment of employers, but this changed with the appointment of the current President of the Court of Appeal.

The Employment Contracts Act has been repealed and replaced with the Employment Relations Act 2000, which came into effect on 2 October 2000. Employers were initially hostile towards the new legislation at the bill stage. The bill was badly drafted, created major operating concerns for employers, and reinforced the role of unions as key players in employers' relationships with staff. It was also passed through parliament under urgency, with little opportunity for submissions by employers. However, the act appears to be a significant improvement on the first draft of the bill, and it remains to be seen how well it will operate.

Corruption

Corruption was not considered as a separate category in the 2000 World Investment Risk Survey (Resource Stocks, 2000). However, corruption has become an issue of increasing importance to investors in the last ten years, and is an issue for the mining industry. So, corruption was considered separately in this paper.

An OECD Convention (February 1999) that has declared bribery of foreign public officials to be a crime has been ratified by more than 30 countries. In Australian law, participating in corruption is now illegal under the Criminal Code Amendment (Bribery of Foreign Public officials) Act 1999, which came into force in December 1999. Australian companies operating overseas now have to comply with this legislation.

Similar legislation is being introduced in New Zealand to make it a criminal offence to bribe foreign officials. A parliamentary select committee is currently considering a draft law, as part of the Crimes Amendment Bill, to bring New Zealand legislation into line with the OECD Convention.

A measure of the perception of corruption is provided by the Corruption Perceptions Index (CPI) produced by Transparency International. The Corruption Perceptions Index is a measure of the degree to which corruption is perceived to exist among public officials and politicians in various countries. The 2000 Corruption Perceptions Index of ninety countries is shown in Table 4, as well as 1997 rankings and scores for comparison (Transparency International, website).

New Zealand was ranked third (equal) out of ninety countries, showing it is one of the least corrupt countries in the world. By comparison, Australia is ranked at No. 13. Some countries that have been favoured exploration destinations in recent years rank near the bottom of the table, for example: Philippines (69=), Vietnam (76=) and Indonesia (85=) out of 90 countries. Africa is also a favoured exploration destination, despite corruption being a major issue in Africa. African countries had a low ranking, for example: Ghana (52=), Zimbabwe (65=) and Tanzania (76=) out of 90.

New Zealand has consistently ranked highly since the index was introduced in 1995, and ranked no. 1 in 1995 and 1996 (see Table 5).

Corruption is not an issue in New Zealand, and the consistently high ranking is a good reflection of the country's image in the international community. Companies do not have to indulge in backhanders and bribes. This provides a high degree of certainty for investment, which is necessary for the development of mineral deposits over a long period of time. This would indicate New Zealand is a favourable exploration destination on the basis of its high score on the Corruption Perception Index.

Conclusion

New Zealand has considerable undeveloped mineral potential, and is under-explored, with large areas being relatively unexplored. There is a perception by overseas companies that New Zealand does not have the potential for significant deposits. However, the fact that there are deposits of significant size by Australasian standards (for example, Martha and Macraes) has been overlooked. So the potential is greater than previously thought.

New Zealand ranked well by comparison with the 2000 World Investment Risk Survey. There are issues with difficult land access and the legislative regime, which have deterred exploration and are one of the reasons for the lack of new investment. These need to be addressed to improve New Zealand's attractiveness to overseas investors. Environmental issues and social risk also are also contributing factors to a negative image of New Zealand, however, these are not significantly worse than in other developed countries.

Countries in Asia, South America and Africa have been regarded as better exploration destinations due to their mineral potential, despite the higher country risk. New Zealand has been bypassed. For example, North American companies have looked favourably at New Zealand, but decided to invest in higher risk African countries. However, countries such as Papua New Guinea, Indonesia and the Philippines are not as attractive for investment as previously thought.

New Zealand has a favourable business environment, good geological potential, low country risk and no corruption. Despite this, New Zealand has not registered on the radar screens of overseas mineral explorers. Overseas companies have had a pessimistic view of New Zealand, and positive factors appear to have been overlooked.

There are signs of a recovery in mineral exploration overseas following the rise in commodity prices. New floats of junior companies in Australia and an increase in exploration expenditure for the June quarter shows there is renewed interest from investors. It is hoped New Zealand can participate in a resurgence in mineral exploration, as it has potential for considerable growth.

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2000 Score	2000 Score	Country	1997 Rank	1997 Rank
1	10.0	Finland	2	9.48
2	9.8	Denmark	1	9.94
3=	9.4	New Zealand	4	9.23
3=	9.4	Sweden	3	9.35
5	9.2	Canada	5	9.10
6=	9.1	Iceland		N.S.
6=	9.1	Norway	7	8.92
6=	9.1	Singapore	9	8.66
9	8.9	Netherlands	6	9.03
10	8.7	United Kingdom	14	8.22
11=	8.6	Luxembourg	10	8.61
11=	8.6	Switzerland	11	8.61
13	8.3	Australia	8	8.86
14	7.8	USA	16	7.61
15=	7.7	Austria	17	7.61
15=	7.7	Hong Kong	18	7.28
17	7.6	Germany	13	8.23
18	7.4	Chile	23	6.05
19	7.2	Ireland	12	8.28
20	7.0	Spain	24	5.90
21	6.7	France	20	6.66
22	6.6	Israel	15	7.97
23=	6.4	Japan	21	6.57
23=	6.4	Portugal	19	6.97
25	6.1	Belgium	26	5.25
26	6.0	Botswana		N.S.
27	5.7	Estonia		N.S.
28=	5.5	Slovenia		N.S.
28=	5.5	Taiwan	31	5.02
30=	5.4	Costa Rica	22	6.45
30=	5.4	Namibia		N.S.
32=	5.2	Hungary	28	5.18
32=	5.2	Tunisia		N.S.
34	5.0	South Africa	33	4.95
35	4.9	Greece	25	5.35
36	4.8	Malaysia	32	5.01
37=	4.7	Mauritius		N.S.
37=	4.7	Morocco		N.S.
39=	4.6	Italy	30	5.03
39=	4.6	Jordan		N.S.
41	4.4	Peru		N.S.
42	4.3	Czech Republic	27	5.20
43=	4.1	Belarus		N.S.
43=	4.1	El Salvador		N.S.
43=	4.1	Lithuania		N.S.
43=	4.1	Malawi		N.S.
43=	4.1	Poland	29	5.08
48	4.0	South Korea	34	4.29
49	3.9	Brazil	36	3.56
50	3.8	Turkey	38	3.21
51	3.7	Croatia		N.S.
52=	3.5	Argentina		N.S.
52=	3.5	Bulgaria		N.S.
52=	3.5	Ghana		N.S.
52=	3.5	Senegal		N.S.
52=	3.5	Slovak Republic		N.S.
57=	3.4	Latvia		N.S.
57=	3.4	Zambia		N.S.
59	3.3	Mexico	47	2.66
60=	3.2	Colombia	50	2.23
60=	3.2	Ethiopia		N.S.
60=	3.2	Thailand	39	3.06
63=	3.1	China	41	2.88
63=	3.1	Egypt		N.S.
65=	3.0	Burkina Faso		N.S.
65=	3.0	Kazakhstan		N.S.
65=	3.0	Zimbabwe		N.S.
68	2.9	Romania	37	3.44
69=	2.8	India	45	2.75
69=	2.8	Philippines	40	3.05
71=	2.7	Bolivia	51	2.05
71=	2.7	Côte-d'Ivoire		N.S.
71=	2.7	Venezuela	44	2.77
74=	2.6	Ecuador		N.S.
74=	2.6	Moldova		N.S.
76=	2.5	Armenia		N.S.
76=	2.5	Tanzania		N.S.
76=	2.5	Vietnam	43	2.79
79	2.4	Uzbekistan		N.S.
80	2.3	Uganda		N.S.
81	2.2	Mozambique		N.S.
82=	2.1	Kenya		N.S.
82=	2.1	Russia	49	2.27
84	2.0	Cameroon		N.S.
85=	1.7	Angola		N.S.
85=	1.7	Indonesia	46	2.72
87=	1.5	Azerbaijan		N.S.
87=	1.5	Ukraine		N.S.
89	1.3	Yugoslavia		N.S.
90	1.2	Nigeria	52	1.76
	N.S.	Uruguay	35	4.14
	N.S.	Pakistan	48	2.53

Table 4. Transparency International Corruption Perceptions Index. 52 countries surveyed. 2000 90 countries surveyed. Score maximum 10.0. N.S. Not surveyed or insufficient data.

Year	Rank	Score
2000	3=	9.4
1999	3=	9.4
1998	4	9.4
1997	4	9.2
1996	1	9.4
1995	1	9.5

Table 5. New Zealand's Corruption Perceptions Index - rank and score, 1995-2000 (Transparency International, website).

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