

**The Magnitude of Base Erosion and Profit Shifting of
Multinational Enterprises with their Business Operations in New Zealand**

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Abstract

The concept of base erosion and profit shifting (BEPS) was first introduced by the Organisation for Economic Co-operation and Development (OECD) in 2013. BEPS refers to tax avoidance practices employed notably by multinational enterprises (MNEs) to achieve a lower tax base through shifting profits to low or no tax jurisdictions.

This study seeks empirically to determine the BEPS issues in a New Zealand context by focusing on two groups of multinational firms, (1) New Zealand subsidiaries owned by foreign MNEs (NZSOFMs) and (2) New Zealand domestically owned MNEs (NZDOMs) with overseas subsidiaries, using two methods of estimation.

The first part of the study is designed to uncover indirect indications of profit shifting by estimating the percentage change in profits, in response to a percentage point change in the statutory corporate tax rate, using the measure of semi-elasticity of profits. An ordinary least squares (OLS) firm fixed effects model is employed to analyse the micro-panel data collected for the years 2008 to 2017.

In addition to the indirect approach of observing the reported profitability of MNEs, the debt structure and transfer price of a company also reveal certain traits of profit shifting. The second part of the study regresses eight specific ratios related to debt, distribution of operating income and transfer pricing on foreign ownership, controlling for size and industry, to capture profit shifting driven by the differential in domestic tax treatment of foreign ownership as compared to domestic ownership. The observations in the second part include NZSOFMs sampled in the first part of study and New Zealand domestically owned companies (NZDOCs) with only domestic subsidiaries or with at least one wholly owned foreign subsidiary. The cross-sectional

data collected in 2015, when the final reports on OECD's BEPS Action Plan were released, is examined using the simple OLS method.

The samples in this study are selected using the full list of the companies registered in New Zealand provided by the New Zealand Companies Office. Basic firm-level financial data is employed to construct the variables needed for the estimation model. The data is collected and consolidated manually from the financial statements published on the website of New Zealand Companies Office. The commercial database Orbis, which provides financial data and ownership information, is used as an additional source of company information.

The first part of the study on profit shifting suggests that the reported pre-tax profits of NZSOFMs are more responsive to the single corporate tax rate of the host country (New Zealand). The tax rate differences between NZSOFMs and their immediate parents have little impact on the reported profits of NZSOFMs in New Zealand. On the other hand, the statistical results of NZDOMs are not discussed in detail, but presented in the appendix, due to the relatively small sample size of 16 NZDOMs which is highly unrepresentative of the population.

The estimation results in the second part of the study indicate that NZSOFMs have lower interest-bearing debt, higher short-term debt, and lower long-term debt relative to total assets, than do NZDOCs. Nonetheless, the income tax expense and net profit of NZSOFMs are relatively higher than those of the NZDOCs, and the interest expense of NZSOFMs is lower than NZDOCs. Lastly, there no significant difference has been identified in terms of the ratio of earnings before interest and taxes (EBIT) to sales for NZSOFMs and NZDOCs.

Keywords: International tax; Profit shifting; Base erosion; New Zealand

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Table of Abbreviations

ACC	Accident Compensation Corporation
AIL	Approved issuer levy
ANZCERTA	Australia-New Zealand closer economic relations trade agreement
ANZSIC	Australian and New Zealand standard industrial classification
ASFM	Australian subsidiaries of foreign MNE
ASIC	Australian Securities and Investment Commission
ATO	Australian Taxation Office
BBLR	Broad base low rate
BEA	(US) Bureau of Economic Analysis
BEPS	Base erosion and profit shifting
BIC	Business industry classification
BOP	Balance of payments
BvD	Bureau van Dijk
CbC	Country-by-country
CbC MCAA	Multilateral competent authority agreement on the exchange of country-by-country reports
CDROM	Compact disc read-only memory
CEPALSTAT	ECLAC databases and statistical publications
CER	Closer economic relations
CFA	Committee on Fiscal Affairs
CFC	Controlled foreign company
COVID-19	Coronavirus
CPI	Corruption perceptions index
CUP	Comparable uncontrolled price
DOLAC	Domestically owned listed Australian company
DTA	Double taxation agreement
EBIT	Earnings before interest and taxes
EBITA	Earnings before interest, taxes, depreciation, and amortisation
EC	European Commission
ECLAC	Economic Commission for Latin America and the Caribbean
ESR	Earning stripping rules
EU	European Union
EUR	Euro

FDI	Foreign direct investment
FIF	Foreign investment fund
FITC	Foreign investor tax credit
FMC	Financial Markets Conduct
FRA	Financial Reporting Act 2013
G7	Group of Seven
G20	Group of Twenty
GAAR	General anti-avoidance rule
GDP	Gross domestic product
GPFR	General purpose financial report
GRD	Government revenue database
GST	Goods and services tax
HNWI	High-net-worth individual
ICTD	International Centre for Tax and Development
IMF	International Monetary Fund
IMF CDIS	IMF coordinated direct investment survey
IRD	Inland Revenue Department
ITA	Income Tax Act 2007
MBIE	Ministry of Business, Innovation and Employment
MiDi	(German Bundesbank) Micro database on direct investment
MFAT	(New Zealand) Ministry of Foreign Affairs and Trade
MLI	Multilateral instrument
MNE	Multinational enterprise
NGO	Non-governmental organisation
NRCC	Non-resident controlled company
NRPI	Non-resident passive income
NRWT	Non-resident withholding tax
NZD	New Zealand dollar
NZDOC	New Zealand domestically owned company
NZDOM	New Zealand domestically owned MNE
NZSOFM	New Zealand subsidiaries owned by foreign MNE
NZX	New Zealand exchange
NZ Co-op	New Zealand co-operative company
NZ GAAP	New Zealand generally accepted accounting practices
NZ IAS 1	New Zealand equivalents to international accounting standard 1

NZ IFRS	New Zealand equivalents to international financial reporting standards
NZ IFRS RDR	NZ IFRS reduced disclosure regime
NZ LTD	New Zealand limited company
NZ ULTD	New Zealand unlimited company
ODI	Outward foreign direct investment
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary least squares
PDF	Probability density function
PE	Permanent establishment
PSM	Propensity score matching
R&D	Research and development
RCC	Resident controlled company
SOE	State-owned enterprise
SPE	Special purpose entity
TAA	Tax Administration Act 1994
TCJA	Tax Cuts and Jobs Act 2017
TI	Transparency International
TIFA	Trade and investment framework agreement
UK	United Kingdom
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
US	United States
USD	United States dollar
WGI	Worldwide governance indicators
WRDS	Wharton research data service
WTO	World Trade Organization

Chapter 1 Introduction and Background

1.1 Introductory Remarks

Corporate tax avoidance is prevalent throughout the world and remains a controversial topic debated in academic and political circles. In recent years, the international tax avoidance of the world's largest listed companies has received unprecedented levels of interest, especially since the financial crisis of 2007–2009. The unfavourable economic distress resulting from the Coronavirus (COVID-19) crisis which began in 2020, has once again turned the spotlight on multinational corporations for not paying enough global tax revenue, which could be used to assist with meeting the costs of the pandemic.

In 2012, the Organisation for Economic Co-operation and Development (OECD) and the Group of Twenty (G20)¹ worked together in the base erosion and profit shifting (BEPS) project in response to aggressive tax avoidance of multinational enterprises (MNEs). BEPS was first introduced in the report *Addressing Base Erosion and Profit Shifting* published by the OECD in February 2013 (OECD, 2013a). The OECD describes BEPS as “tax planning strategies used by multinational enterprises that exploit gaps and mismatches in tax rules to avoid paying tax” (OECD, n.d.). The OECD has estimated the scope of avoidance by multinational corporations at between USD 100 and USD 240 billion per year (in 2014 figures). Following this, the 15-point OECD BEPS Action Plan released in 2016 focuses on battling against undesirable tax avoidance especially by MNEs with complex networks of offshore affiliates.

Undoubtedly, taxing domestic enterprises that keep their business affairs in a single (home) country is relatively simple and straightforward. However, as time progressed, traditional

¹ The G20 is a premier forum for its members for international economic co-operation and decision-making. The members of the G20 comprise the European Union (EU) and 19 other countries: Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, the United Kingdom (UK), and the United States (US).

businesses began to evolve into international businesses, which could now operate across multiple jurisdictions with different tax systems, tax incentives and tax regulations. The inconsistencies in tax legislation between different locations can be exploited by MNEs to their advantage to reduce their overall corporate tax payments.

Tax revenue collected by a government can be transformed into public expenditure, which, in turn, contributes positively to the social and economic development of the country. The major areas of government spending for the 2019/20 financial year include social security and welfare (NZD 44 billion), health (NZD 19.9 billion), and education (NZD 16.3 billion) (The Treasury, 2020).

New Zealand collects substantial revenues from three major tax bases: personal income tax, company income tax and goods and services tax (GST) (Inland Revenue Department [IRD], 2017c). The revenue collected from taxes, especially income tax, has been the primary source of government revenue in New Zealand since the imposition of income tax in 1891 (Smith, 2010). A total of NZD 85.1 billion out of NZD 116 billion of the core Crown revenue has been sourced from tax for the financial year of 2019/20 in New Zealand (The Treasury, 2020).² However, government revenue can be undermined by tax planning of MNEs, which will in turn lead to economic efficiency problems (Johansson, Skeie, Sorbe, & Menon, 2017).

In today's highly competitive business world, companies are competing intensely in a global business environment. From a business perspective, tax is perceived as a significant expenditure for companies. Therefore, many companies strive to pay the least possible tax in order to maintain growth and profitability. Tax planning is a commonly accepted practice

² In addition to tax collected, Crown revenue also comprises sales of goods and services, investment income and other revenue. The term "sales of goods and services" was specially used in the financial statements of the government of New Zealand.

undertaken by companies to arrange their tax affairs in order to utilise tax advantages within the legislative framework and minimise the corporate tax burden.

Johansson et al. (2017) describe tax planning as situations where the location of real activity disconnects from the location of profits. The avenues of tax planning covered in the study of Johansson et al. (2017) are profit shifting and the exploitation of mismatches between tax systems. The main profit shifting channels include locating internal and external debt in high-tax countries, allocating intangible assets to low-tax countries, and through the manipulation of transfer prices (Johansson et al., 2017). On the other hand, the exploitation of mismatches between tax systems can be achieved through preferential tax treatment, hybrid entities, hybrid instruments and transfers, as well as negotiated tax rates (Johansson et al., 2017). In general, the tax planning schemes covered in their study overlap with the OECD's BEPS behaviours, which involve "arrangements that achieve no or low taxation by shifting profits away from the jurisdictions where the activities creating those profits take place", and "instances where the interaction of different tax rules leads to double non-taxation or less than single taxation" (OECD, 2013b, p. 10).

To fully comprehend the concepts of tax planning, it is crucial to distinguish between the two deceptively similar concepts of tax avoidance and tax evasion (Hoffman, 1961). The distinctions between these two concepts have been the subject of debate since 1900.³ However, it is not easy to distinguish tax avoidance from tax evasion (Sikka & Willmott, 2010). The media and the public even conflate the two terms tax evasion and tax avoidance as if they were the same (Christians, 2017). According to Christians (2017), it is important that tax evasion should be treated differently from tax avoidance as they require distinct regulatory responses. Mainly, tax evasion can be considered as non-compliance with tax laws consciously and

³ See *Bullivant v. Attorney General for Victoria* (1901) for differences between tax avoidance and tax evasion.

wilfully, and it is regarded as a criminal offense (United Nations [UN], 2011). On the other hand, tax avoidance can be defined as an arrangement to minimise one's tax burden by exploiting the ambiguities and weaknesses in national tax systems (UN, 2011).

In New Zealand, the definition of "evasion" and associated penalties is provided in Sections 141E and 143B of the Tax Administration Act 1994 (TAA). "Evasion" represents the highest level of culpability and a taxpayer involved in evasion under Section 141E of the TAA is subject to tax shortfall penalties (150 percent penalty). A taxpayer who fails to fulfil their tax obligations under Section 143B of the TAA can face a jail sentence of up to five years or a monetary fine of up to NZD 50,000 or both.

Conversely, the law of tax avoidance, by its nature, is uncertain. The function of tax laws is to provide a taxpayer with an opportunity to attain tax benefits in order to fulfil the socioeconomic needs of society. That is arguably why the statutory definition of "tax avoidance" under Sections BG 1 and YA 1 of the Income Tax Act 2007 (ITA) has been left deliberately general. Instead of relying on the ITA to provide a fully comprehensive definition of "avoidance", a parliamentary contemplation test introduced by the New Zealand Supreme Court in the *Ben Nevis* decision has been in place since 2008 (IRD, 2013). Under this test the courts have to identify and to determine if tax avoidance exists by considering if the specific provisions used by taxpayers in a plan or scheme are within Parliament's contemplation.

The case of *Ben Nevis*, the leading case on tax avoidance in New Zealand, demonstrates the approach to New Zealand's general anti-avoidance rule (GAAR). Section BG 1, which is the general anti-avoidance provision of the ITA, will be employed when other specific provisions of the Act do not apply. A tax arrangement which is fully compliant with specific provisions of the ITA can be overturned under the GAAR if the arrangement conflicts with the "scheme and purpose" of the ITA. In the case of *Ben Nevis*, a tax deduction claimed by the taxpayers which was fully within the scope of a specific statutory provision, had been determined as an

arrangement outside Parliament's contemplation and was constituted tax avoidance. Subsequently, the Supreme Court applied this Parliamentary Contemplation Test in the case of *Penny and Hooper*.

The public expectation of tax compliance of large corporations puts pressure on governments and revenue authorities to identify large corporations involved in tax avoidance on a global scale. In June 2014, the European Commission (EC) commenced an in-depth state aid investigation into Apple, Starbucks and Fiat Finance and Trade. The EC had been investigating the individual tax rulings issued by the Irish, Dutch and Luxembourg tax authorities, respectively, following media reports claiming that certain member states of the European Union (EU) have granted tax benefits to the powerful multinationals to reduce the corporate's tax burdens. The investigations were carried out by Margrethe Vestager, the European Commissioner for Competition, and her team of 900-investigators.

In June 2015, the EC ruled that Starbucks and Fiat had received illegal state aid and ordered Starbucks and Fiat to pay a tax bill of up to EUR 30 million to the Netherlands and Luxembourg, respectively.⁴ Following this, Margrethe Vestager presented her verdict in 2016 that the tax benefits of Apple in Ireland were illegal as well. The EC decided that Apple had received state aid from the Irish government and Apple must repay to Ireland a tax bill worth up to EUR 13 billion.⁵ The unfair tax breaks granted by the international tax authorities to the multinational firms reflect the intervention by state governments in re-writing the tax rules to facilitate powerful companies (Evertsson, 2016).

⁴ In 2019, the EU General Court upheld the decision of the EC that Fiat will have to make a repayment of unpaid taxes to Luxembourg. At the same time, the EU General Court dismissed the tax ruling case of Starbucks in the Netherlands.

⁵ In 2020, the EU General Court overturned the EC's ruling, that ordered Apple to return the underpaid taxes to Ireland.

Apart from that, a list of international tax havens was published by the EU for the first time on 17 June 2015.⁶ It consists of the top 30 non-cooperative jurisdictions among which are Brunei, Andorra, Monaco, Guernsey, and the Caribbean havens, including the British Virgin Islands and the Cayman Islands. The list is a part of the tax reform of the EU to clamp down on tax evasion and tax avoidance. This blacklist of global tax havens was one of the EU's tax proposals in response to the "LuxLeaks" scandal in November 2014. The "LuxLeaks" revealed that the tax rulings created by Luxembourg's Tax Office provide tax relief for more than 350 multinational corporations including Apple, IKEA, Amazon, Pepsi, and others.⁷

In 2016, an analysis published by the *New Zealand Herald*, one of the New Zealand's major daily newspapers, sparked renewed interest in tax compliance issues. Nippert (2016a, 2016b) studied 103 multinational companies with subsidiaries in New Zealand.⁸ He compared profit margins (the ratio of pre-tax profit to revenue) between New Zealand subsidiaries and their parent companies and found a significant difference in profit margins between them. This investigation reveals that 20 multinational companies, including Apple, Facebook, Google, Pfizer, Methanex and Chevron, recorded an average local profit margin of 1.3 percent, as compared to the average profit margin of more than 20 percent recorded by their listed parents. The 20 multinational companies together paid income tax of NZD 1.8 million despite earning revenue of NZD 10 billion in this country (Nippert, 2016a, 2016b). It is reasonable to believe that these companies were shifting profit aggressively out of New Zealand (Nippert, 2016a, 2016b).

⁶ For the full list of international tax havens, visit the website <https://www.eubusiness.com/news-eu/economy-politics.120n> and <https://www.europarl.europa.eu/cmsdata/147404/7%20-%2001%20EPRS-Briefing-621872-Listing-tax-havens-by-the-EU-FINAL.PDF>

⁷ A full list of companies that allegedly have "shady" tax deals with Luxembourg can be found on <https://www.businessinsider.com.au/full-list-every-company-named-in-the-luxembourg-secret-tax-deal-database-2014-11?r=UK&IR=T>

⁸ The *New Zealand Herald*'s analysis was guided by Dr Don Trow, Emeritus Professor of Accounting at Victoria University and Adam Hunt, former IRD senior manager (Nippert, 2016a, 2016b).

1.2 An Overview of New Zealand’s International Tax Law

The tax policy framework of New Zealand is characterised by the broad base low rate (BBLR) approach, intended to eliminate any tax biases towards certain preferred income sources or investments (Tax Working Group, 2010). New Zealand income tax is imposed under the source and residence principles in accordance with the ITA which is administered by IRD under the TAA (Smith, 2010). Section 1.2 provides a brief summary of the New Zealand international tax system that taxes non-resident companies on income with a New Zealand source and resident companies of New Zealand on offshore income. The domestic income of New Zealand resident companies is taxed under the domestic tax laws.

Table 1.1

New Zealand Resident and Non-resident Companies

New Zealand non-resident companies (for tax purposes)	New Zealand resident companies (for tax purposes)	
Foreign ownership	Foreign ownership	Domestic ownership
New Zealand branches of foreign MNEs	New Zealand subsidiaries of foreign MNEs	New Zealand owned enterprises

A company is considered a resident in New Zealand if it satisfies any one of the criteria in Section YD 2 (1) of the ITA.⁹ Table 1.1 shows that New Zealand subsidiaries that are majorly or wholly owned by non-resident shareholders are considered as New Zealand resident companies for tax purposes. A New Zealand resident company is obliged to pay tax to the New Zealand government

⁹ A company is deemed as a New Zealand resident if:

- The company is incorporated in New Zealand.
- The head office of the company is in New Zealand.
- The company has its centre of management in New Zealand.
- The directors of the company exercise control of the company in New Zealand even if the decision-making also occurs outside New Zealand.

on its New Zealand income, its foreign sourced income, and its worldwide income, while a non-resident company is only taxed on the income which has a source in New Zealand (under Section YD 4 of the ITA).

1.2.1 New Zealand's Permanent Establishment Rules

A foreign company will only be subject to taxation in the jurisdictions where a permanent establishment (PE) exists. In New Zealand, the domestic law, together with double taxation agreements (DTAs), determine the taxing right of the New Zealand government on sales incomes of non-residents attributable to a PE. Under New Zealand's DTAs, New Zealand has the right to tax business profits of non-resident entities with a PE in New Zealand only.

Article 5 of the OECD Model Tax Convention defines the concept of PE and this concept has significantly influenced New Zealand's domestic tax rules in defining a PE. Generally, a non-resident will be considered to have a PE in New Zealand if the non-resident has an established business place in New Zealand or a dependent agent has been authorised to exercise, negotiate, and conclude contracts on behalf of non-resident, even though the contracts are executed offshore.¹⁰ However, there is no single definition of PE as it differs between DTAs.

Transfer pricing and permanent establishment avoidance is a specific BEPS strategy used by non-resident multinationals to avoid tax on sales incomes in a country such as New Zealand despite having significant economic activities in New Zealand. This happens when non-resident companies structure their business in New Zealand so as not to give rise to a PE in New Zealand.

¹⁰ The IRD has outlined more detailed criteria of PE. Visit: <https://www.ird.govt.nz/international/residency/company/company-tax-residency-index.html>.

Currently, the taxation of structures that cause potential transfer pricing and permanent establishment avoidance in New Zealand are as follows (IRD, 2017b):

- **In-market support structure for direct sales from a foreign country:**

To avoid having a taxable presence in New Zealand, the non-resident contracts a New Zealand subsidiary to provide support to the sales activities in New Zealand. By using this in-market support structure, the non-resident pays the subsidiary a service fee that is slightly above its costs. The non-resident also pays a significant amount of money in royalty to another group member that is based in a low-tax country. Ultimately, the non-resident shifts the profit from sales in New Zealand to low-tax countries.

Under the current tax treatment of the in-market support structure, the subsidiary is not treated as an agent for the non-resident as the subsidiary provides the sales support under contract. In other words, the non-resident does not have a PE in New Zealand and the sales income will not have a New Zealand source. In addition, the royalty paid for the ongoing use of intellectual property to the low-tax jurisdiction will not be subject to non-resident withholding tax (NRWT) as it arguably will not have a New Zealand source.

- **In-market sales through a New Zealand distributor owned by a non-resident:**

Under the in-market distributor structure, the non-resident sells the goods to New Zealand customers by engaging its New Zealand subsidiary as a distributor. Typically, the non-resident will charge the distributor subsidiary a high price for the sales of goods and by doing so, the subsidiary has a low profit margin subject to tax in New Zealand. In this case, the non-resident does not have physical presence in New Zealand and its sales income is

not sourced from New Zealand. This arrangement is a transfer pricing issue rather than a PE issue.

In 2018, New Zealand introduced new PE anti-avoidance rules¹¹ to target large multinationals¹² that structure their business arrangements to avoid a PE in New Zealand.¹³ The new PE anti-avoidance rules have widened the definition of a PE, where the dependent agent of the non-resident who plays a principal role leading to the conclusion of contracts will now give rise to a PE.

New Zealand signed the multilateral instrument (MLI) in June 2017 to include the new, broader PE definition in New Zealand's DTAs. However, the new PE definition will come into effect only if other trading partners that have a DTA with New Zealand sign the MLI and elect to adopt the new PE definition (IRD, 2017b).

1.2.1.1 Double Taxation Agreements

Primarily, a DTA is an agreement between New Zealand and on other jurisdiction which determines which jurisdiction has the ultimate right to tax specific types of income of a taxpayer including a company.¹⁴ The primary goal of a DTA is to relieve New Zealand resident companies and other taxpayers from double taxation.¹⁵

The rise of cross-border trade and investment results in double taxation issues when both the source state and the residence state tax the same taxpayer on the same source of income under each state's domestic tax rules. Double taxation hinders the free movement of capital, investment, technology

¹¹ Sections GB 54, YD 4(17C), YD 4B, YD 5(1BA), YD 5B and schedule 23 of the ITA.

¹² "Large multinationals" refer to companies with consolidated global revenues of more than EUR 750 million.

¹³ For more information, see <http://taxpolicy.ird.govt.nz/sites/default/files/2018-sr-beeps-pe.pdf>

¹⁴ The legal meaning of DTA is contained in Section BH 1(1) of the ITA.

¹⁵ The purposes of DTA are outlined in Section BH 1(2) of the ITA.

and trading of goods and services. It is unfair, as a principle of international taxation, to tax all incomes more than once (Ting, 2014).

The Model Tax Convention published by the OECD intends to provide a uniform solution to the problems of international juridical double taxation faced by its member countries. The OECD's members are encouraged to conform to this Model Tax Convention when determining or re-evaluating their bilateral conventions. The OECD keeps pace with the latest tax issues that arise from the ever-changing global economy by continually reviewing the Model Tax Convention. The full text of the Model Tax Convention on Income and on Capital 2017 was published in 2019 (OECD, 2019a).

Table 1.2 shows the countries and territories that have entered into a DTA with New Zealand (IRD, 2021). The main objectives of New Zealand's DTAs are to reduce the tax deterrent to cross-border business and prevent double taxation.

Table 1.2*New Zealand's DTAs and Year of Establishment*

Australia 2010	India 1986	Poland 2006	Turkey 2011
Austria 2007	Indonesia 1988	Portugal <i>Under negotiation</i>	United Arab Emirates 2004
Belgium 1983	Ireland 1988	Russian Federation 2003	United Kingdom 1984
Canada 2015	Italy 1983	Samoa 2015	United States of America 1983
Chile 2006	Japan 2013	Saudi Arabia <i>Under negotiation</i>	Vietnam 2014
China 1986	Korea (Republic of) 1983	Singapore 2010	
Czech Republic 2008	Luxembourg <i>Under negotiation</i>	Slovak Republic <i>Under negotiation</i>	
Denmark 1981	Malaysia 1976	South Africa 2004	
Fiji 1977	Mexico 2007	Spain 2006	
Finland 1984	Netherlands 1981	Sweden 1980	
France 1981	Norway 1983	Switzerland 1981	
Germany 1980	Papua New Guinea 2014	Taiwan 1997	
Hong Kong 2011	Philippines 1981	Thailand 1998	

Note. Adapted from Tax treaties. Copyright 2021 by New Zealand Inland Revenue Department.

Conversely, double non-taxation occurs due to the exploitation by multinational companies of the gaps in the interaction of different tax systems and the tax rate differentials among different countries. Double non-taxation has been the most significant tax policy issue since late 2012 as the aggressive tax planning techniques used to achieve double non-taxation can erode the tax bases

of both the country of residence and the source country. More specifically, the unintended double non-taxation can also be referred to as “BEPS”.

Double non-taxation typically results from a hybrid mismatch arrangement. Countries with diverse legal traditions (civil law vs common law) are likely to generate a mismatch (Blessing, 2012). The inconsistency in dealing with classification of entities, transfers, and instruments between two or more countries create arbitrage or mismatch opportunities for multinational companies to achieve double non-taxation, through hybrid instruments, hybrid transfers, hybrid entities and dual residence companies (OECD, 2012).

Under the arrangement that involves the use of a hybrid financial instrument, one country will regard the payment under the instrument as deductible interest while another country will regard the payment as exempt dividends. Hybrid transfers always involve a collateralised loan that is treated differently in two countries. This arrangement will be considered as a transfer of ownership of an asset for tax purposes in one jurisdiction while it is not in another jurisdiction. With hybrid entities, an entity has different elements, being a transparent and opaque company in different countries. If the entities are resident in two different jurisdictions, they would be able to achieve a tax deduction on a single payment in both countries because of the dual tax residence status.

Failure of the countries to reach a consensus on determining the source of income would allow the MNEs to engage in stateless income tax planning (Kleinbard, 2011). The income that escapes taxation can be referred to as “stateless income” because each country considers that the taxing right on the income belongs to another country. Tax policymakers are concerned about the distortive effects arising from non-taxation. Several problems caused by international hybrid mismatch arrangements include the reduction of overall tax revenue, competition and fairness concerns, transparency issues and economic efficiency.

The corporate structure of multinational corporations is integrated and functions as a single company nowadays (Ting, 2014). The OECD recognises that the existing international taxation standards are insufficient to restrict BEPS activities in highly integrated corporate groups (OECD, 2013b). Further, the separate entity doctrine, which is designed to deal mainly with bilateral transactions, may not effectively avert a trilateral or multilateral scenario today. MNEs with multiple layers of individual entities between the residence country and source country can create artificial intra-group transactions. The profits of MNEs can be shifted to the tax-favoured interposed subsidiary for tax-avoidance purposes.

According to Ting (2014), the enterprise doctrine that regards a corporate group as a single entity would be an effective anti-avoidance measure to combat double non-taxation and apply tax treatments based on economic substance. Ting (2014) also notes that transparency is a powerful and useful tool in helping the tax authorities who experience asymmetric information problems to obtain significant information about the tax position of the taxpayers. Country-by-country (CbC) reporting would be particularly helpful for tax authorities to determine the economic substance of MNEs in a specific jurisdiction (Ting, 2014).

1.2.2 New Zealand's Transfer Pricing Rules

Transfer pricing is one of a variety of strategies used by multinationals to mitigate their global tax liabilities. It involves artificially high or low cross-country payments between the related legal entities within the corporate group for transfer of goods, services, and intangible items. The price and conditions may or may not be accepted or agreed to by an unrelated third party in a similar transaction. The MNEs can shift profits offshore through the manipulation of these transfer price or conditions. Thus, transfer pricing legislation is significantly important to protect the New Zealand tax base from being eroded.

Sections GB 2 and GC 6 to GC 14 of the ITA¹⁶ are the current statutory rules governing transfer pricing in New Zealand. The revised 2010 OECD guidelines, which are consistent with New Zealand's transfer pricing rules and double tax treaties, have been used by the IRD as the latest guiding principles for transfer pricing. The Australian Taxation Office (ATO)'s guidelines and the regulations under Section 482 in the US are another two significant reference sources for taxpayers. New Zealand's transfer pricing rules follow the arm's length principle.

This principle has been enacted in Section GD 13(6) of the ITA:

[The] arm's length amount of consideration must be determined by applying whichever ... method ... will produce the most reliable measure of the amount completely independent parties would have agreed upon after real and fully adequate bargaining.

New Zealand embraces the arm's length principle to determine the amount of income derived from the business operations of multinational firms in New Zealand. There are five transfer pricing methods under Section GD 13(7) of New Zealand's Transfer Pricing legislation that are used to decide and assess the transfer prices of taxpayers (IRD, 2000):

- The comparable uncontrolled price (CUP) method
- The resale price method
- The cost plus method
- The profit split method
- Comparable profit method

¹⁶ See section GB 2 Arrangements involve transfer pricing and sections GC 6 to GC 14 Transfer pricing arrangements of Income Tax Act 2007 (reprint as of 22 June 2018): <http://www.legislation.govt.nz/act/public/2007/0097/latest/DLM1512301.html>.

Taxpayers are expected to submit transfer pricing documentation upon the request of the IRD only. However, it is in the taxpayers' best interests to prepare satisfactory documentation of how transfer prices have been set for intercompany transactions and how their transfer pricing practices are in accordance with the arm's length principle. The transfer pricing documentation should be retained for no less than seven years.

Section GC 13 requires taxpayers to use the most reliable transfer pricing method to establish the arm's length amount of the transfer price. In the case that taxpayers fail to provide adequate transfer pricing documentation and therefore do not demonstrate compliance with Section GC 13(1) to GC 13(4), and if the Commissioner of Inland Revenue (the Commissioner) can prove a more reliable measure of the transfer price, this will result in penalties under Section 141A-K of the TAA. Formerly Section GC 13(4) of the ITA had placed the burden of proof on the Commissioner; however, the New Zealand government has shifted the burden of proof to the taxpayer with effect from the income years commencing on or after 1 July 2018.

A three-tier standardised approach to transfer pricing documentation has been developed by the OECD to set the different standards used by taxpayers to prepare transfer pricing documentation for the different tax jurisdictions in which they do business. According to Action 13 of the BEPS Action Plans, this standardised approach comprises the following documentations:

i. Master file

The Master file contains top-level details concerning the cross-border business operations and transfer pricing policies of multinational firms that are to be accessible to tax administrations.

ii. *Local file*

The Local file comprises transactional transfer pricing documentation that is specific to each country. This file contains detailed information such as the amount of the related party transactions, and the analysis of the transfer pricing determinations the company made relating to those transactions.

iii. *Country-by-country report*

The CbC report, which was proposed by the OECD in BEPS Action 13, was enacted by the New Zealand government in the Taxation (Neutralising Base Erosion and Profit Shifting) Act 2018. Large multinational groups that are headquartered in New Zealand and have a yearly consolidated group income of over EUR 750 million (about NZD 1.3 billion) are required to submit a CbC report on an annual basis. The first reporting of CbC data covered income years commencing on or after January 1, 2016. The IRD indicates that in 2017 there will be 20 MNEs with their headquarters in New Zealand that are affected by this CbC reporting requirement, and they make up a small group of MNEs out of 6,000 large multinational groups around the world (IRD, 2018).¹⁷

The CbC report outlines a list of the amount of gross revenues, profit (or loss) before income tax and income tax paid and accrued for each country in which large multinationals conduct business. The multinational firms must also provide stated capital, the number of employees, tangible assets and retained earnings in each tax jurisdiction.¹⁸ There are 89

¹⁷ New Zealand received 21 CbC reports in the first year of the initiative (IRD, 2019b).

¹⁸ The template for the CbC report can be found at: <https://www.ird.govt.nz/-/media/project/ir/home/documents/forms-and-guides/ir1000---ir1099/ir1032/ir1032-2018.pdf>. No explicit definition or clear instructions for reporting the CbC figures in the New Zealand context can be found on the website of the NZ IRD. However, the final report on *BEPS Action 13: Transfer pricing documentation and country-by-country reporting* sets out the guidelines on how to complete the CbC report (OECD, 2015e).

countries including New Zealand that signed the OECD's multilateral competent authority agreement on the exchange of country-by-country reports (CbC MCAA).¹⁹ As specified in the OECD's BEPS Action 13 report, the information contained in CbC reports can be used for three purposes: to assess high level transfer pricing risk; to assess other BEPS-related risks; and for economics and statistical analysis. Commercially sensitive information disclosed in the CbC report is protected under the general tax secrecy rules in the TAA. Hence, the information will only be shared with other tax authorities under the CbC MCAA as well as with the US under a bilateral agreement (IRD, 2018).²⁰

Many multinationals will only need to provide the local and master file when required to by a tax authority on the grounds of concerns about the compliance costs that may be imposed on the mandatory preparation of local and master file transfer pricing documentation on a yearly basis. The IRD will contact the affected corporate groups who are required to file a CbC report each year. The non-availability of adequate data to the public and researchers makes the measurement of the magnitude of BEPS based on company-level data difficult. Some crucial financial reporting information, such as CbC reports of multinational reported profits and tax payments, if available to the public, will be particularly helpful in BEPS-related analysis.

1.2.3 New Zealand's Thin Capitalisation Rules

New Zealand's thin capitalisation provisions, which came into effect from the beginning of the 1996–97 income year, are a part of New Zealand's international tax rules. They initially applied to non-residents and have the purpose of limiting the excessive allocations of debt to a business

¹⁹ A list of the signatories of the CbC MCAA (last updated 13 January 2021) is published on the OECD's website: <http://www.oecd.org/tax/automatic-exchange/about-automatic-exchange/CbC-MCAA-Signatories.pdf>.

²⁰ In 2018, New Zealand exchanged 21 CbC reports for MNEs that have headquarters here with treaty partners, and received 1402 CbC reports from its treaty partners, under the BEPS Action 13 minimum standard (IRD, 2019b).

operation in New Zealand. In 2009, New Zealand companies with controlled foreign companies (CFC) owned by New Zealand residents were included in the thin capitalisation regime (PwC, 2013). Transfer pricing rules work together with thin capitalisation rules (inbound and outbound) to restrict tax deductions for interest paid on debt. The transfer pricing rules require cross-border related party debt to be charged using an arm's length interest rate (IRD, 2017a).

More specifically, New Zealand has put in extensive efforts to restrict the debt levels non-residents can place on their New Zealand investments. The rules limit the deduction of interest expenditure of foreign-owned companies when the permitted threshold is exceeded. The rules are designed to protect the tax base of New Zealand, as the use of debt is one method a non-resident company can use to shift profit out of New Zealand. On top of that, non-resident-controlled companies receive significant attention as they are major payers of New Zealand company tax.²¹

A non-resident person, or a company with a single offshore owner who owns more than 50 percent of the company, will be subject to the New Zealand thin capitalisation rules. Under the current rules, the payment of interest on debt for up to 60 percent of the non-resident companies' local asset value is tax deductible. However, the 2014 changes extend the thin capitalisation rules to a group of non-residents who have an investment in New Zealand jointly. Prior to the amendment made to section FE 1 of the ITA, the rules applied only to companies controlled by a single non-resident. The extension of the rules also applies to the New Zealand trusts, if more than 50 percent of the trust settlements were settled by a non-resident, or a group of non-residents jointly (IRD, 2014).

²¹ For example, the foreign-owned firms contributed to 39 percent of the company tax in the 2015 tax year. Retrieved from <https://taxpolicy.ird.govt.nz/sites/default/files/2017-dd-beps-interest-limitation.pdf>.

The enactment of the Taxation (Neutralising Base Erosion and Profit Shifting) Act on 27 June 2018 introduced a revised approach as to how total assets were determined under the rules of that time. The previous debt percentage for the New Zealand taxpayer group was calculated as follows:

$$\text{Debt percentage} = \frac{\text{Total debt}}{\text{Total assets}}$$

Under the previous provisions, the total assets of a company were determined on a gross basis. The new rules require a company's total assets to be calculated by subtracting non-debt liabilities from total assets:

$$\text{Debt percentage} = \frac{\text{Total debt}}{\text{Total assets} - \text{Non-debt liabilities}}$$

The set of rules based on the level of debt relative to assets is just one of the widely-used approaches being used in the design of the interest limitation rules (IRD, 2017a). Another approach used is based on the level of debt relative to profits (IRD, 2017a).²²

1.2.4 New Zealand's Non-resident Withholding Tax

Withholding tax is a tax on passive income earned from savings and investments (besides salary and wages) that is withheld by the payer of income to be paid to the revenue authority on behalf of the recipient of income (Income Tax Act 2007, s. RA6).

Like many other jurisdictions, New Zealand imposes NRWT on income earned from New Zealand directly by a non-resident investor. The statutory company income tax is in place to ensure that the net income of a New Zealand branch or subsidiary, that has a presence in New Zealand owned by non-residents, is taxed in the same way as any other New Zealand-resident company. On the

²² The measure of profits in the level of debt relative to profits are EBIT, and earnings before interest, taxes, depreciation, and amortisation (EBITA).

other hand, NRWT ensures that the tax on the income derived from direct investment in New Zealand is withheld and collected from a non-resident who does not have a New Zealand presence (IRD & the Treasury, 2015). Passive income which includes interest, dividends and royalties with a New Zealand source received by non-residents, is known as non-resident passive income (NRPI), and is subject to NRWT (Income Tax Act 2007, s. RF2).

However, NRWT rates may vary according to the territories that have entered into a DTA with New Zealand and the types of passive income on which NRWT is imposed. Generally, a higher deduction rate is applicable to recipients of passive income from jurisdictions that do not have a DTA with New Zealand. A rate of 15 percent will be imposed on interest and royalties, and 30 percent for dividends.

For countries or territories with a DTA, the set rates would be different for interest, dividends, royalties, or copyrights (cultural royalties) (IRD, n.d.). With regard to NRWT on interest, the rate of withholding tax varies according to the relationship between a New Zealand borrower and a foreign lender (“associated person”, or not), as well as upon the home jurisdiction of the lender where New Zealand has entered into a DTA. The payments of interest on related-party debt paid to related non-resident recipients (“associated persons”) are typically taxed at a lower rate of 10 percent under most tax treaties although NRWT on interest under domestic law is generally taxed at 15 percent.

The interest on third-party debt paid to unrelated parties is subject to a withholding tax rate of 15 percent of the gross interest or a reduced rate at 10 percent under most DTAs. The interest payments to unrelated foreign lenders can qualify for a zero-rate of NRWT if the payers are approved issuers under the approved issuer levy (AIL) regime (Income Tax Act 2007, s. RF12(1)(a)). In this case, the approved issuers are subject to a levy equivalent to the rate of 2

percent of the interest, and this is intended to lower the cost of capital for New Zealand borrowers. Essentially, the payers pay an effective after tax rate of 1.44 percent on the interest of third-party borrowing.²³

With respect to NRWT rates applied to dividend, a standard withholding tax rate of 30 percent is applicable to unimputed dividends distributed by New Zealand companies to non-resident shareholders, but this rate has been limited to 15 percent under most tax treaties. For non-resident shareholders who have a voting interest of less than 10 percent in a company, a NRWT of 15 percent is imposed on fully imputed dividends. However, the NRWT can be eased under the foreign investor tax credit (FITC) regime. For non-resident shareholders with shareholdings of 10 percent or more, the dividends are reckoned at zero percent of NRWT, where fully imputed (PwC, 2020b).

1.2.5 New Zealand's Controlled Foreign Companies Rules

New Zealand's CFC regime, together with foreign investment fund (FIF) regime, aim at preventing New Zealand resident taxpayers from avoiding or deferring the payment of income tax on their overseas sourced income derived or returned by a foreign entity. In 2009, an active income exemption was introduced where active income earned from business operations offshore is exempted from tax. Following this, the FIF rules, that were designed to complement the CFC rules, were amended in 2011 (Smith & Sawyer, 2020).

A non-resident company must meet one of the following tests to be a CFC (Income Tax Act 2007, s. EX1):

²³ The 2 percent rate of the AIL is reduced to 1.44 percent if the interest that has been paid by the approved issuers is tax deductible at the company tax rate of 28 percent. $(2\% - (28\% * 2\%) = 1.44\%)$

- A New Zealand resident owns at least a 40 percent controlling interest (not limited to voting rights only) in the foreign company, and there is no other non-resident who holds a greater control interest in that company;
- A group of New Zealand residents (up to 5) have at least a 50 percent ownership of the foreign company; or
- A group of New Zealand residents (up to 5) can exercise their control over the shareholder decision-making rights for the company.

The CFC rules aim to protect New Zealand's domestic tax base by taxing foreign "passive income" on an accrual basis. This passive income includes dividends, interests, royalties, and rents, which can be easily shifted offshore by New Zealand taxpayers to avoid taxation in New Zealand. The CFC legislation is considered to be "anti-tax haven" in the 1987 budget and it had been enacted in 1988 with an initial intention to target resident companies with offshore entities in low tax or tax haven countries. Markle and Robinson (2012) find that the CFC rules and credit system decrease the likelihood that a multinational firm will invest in the tax haven affiliates.

According to the New Zealand government, the current CFC rules are considered to be comprehensive, and no further reform is expected in response to the implementation of the OECD's Action Plan on BEPS (Smith & Sawyer, 2020).

1.2.6 New Zealand's Foreign Investment Fund Rules

According to Herman (as cited in Dunbar, 2003), New Zealand's FIF rules can be considered to be an extension of CFC rules, working towards diminishing deferral of income tax payment or viewed as an all-inclusive-system to tax passive income. A New Zealand resident taxpayer who has an attributing interest in a FIF, as defined in Sections EX 29 to EX 43 of the ITA, will be taxed

under the FIF tax regime. As stated in Section EX29 of the ITA, a person is deemed to have an attributing interest in a FIF if that person:

- is a beneficiary or member of a foreign superannuation scheme and has the right to benefit from this scheme, or
- holds shares in a foreign company or foreign unit trust and has a direct income interest in the foreign company or unit trust, or
- is entitled to benefit from a foreign life insurance policy for which a FIF is the insurer.

The five methods, the attributable FIF income method, the comparative value method, the deemed rate of return method, the fair dividend rate method and the cost method contained in Section EX 44, ITA 2007 are used to calculate the FIF income or loss.

1.3 International Tax Aspects of New Zealand

1.3.1 The New Zealand Economy and the Economic Relationship with Australia

The term “trans-Tasman” is used specifically to describe the close and important bilateral relationship between New Zealand and Australia—countries which are geographically close to one another. Trade and investment between these countries are two vital elements that are driving economic growth and bringing mutual economic benefits to both countries.

Cross-border trade between them has grown significantly since the inception of the Australia-New Zealand closer economic relations trade agreement (ANZCERTA)²⁴ on 1 January 1983 (Ministry of Foreign Affairs and Trade [MFAT], n.d.). New Zealand’s total trade in 2020 was NZD 169.3

²⁴ ANZCERTA is more widely known as the closer economic relations (CER) Agreement.

billion. Of this, the total amount of exports and imports of goods and services with Australia was valued at NZD 27.2 billion (16 percent), with Australia ranked as New Zealand's second largest trading partner after China (Statistics New Zealand, 2020a).

Australia is also the primary source and destination of direct investment from New Zealand. Investment flows are one of the significant and attributable features of a modern globally interconnected economic environment. According to Statistics New Zealand (2020b), the inward foreign direct investment (FDI) stock in New Zealand has grown exponentially from NZD 55.3 billion in 2001 to NZD 121.1 billion in 2020.²⁵ Australia is the biggest source of direct investment to New Zealand with FDI of NZD 59.3 billion in 2020. The other primary sources of FDI in New Zealand include Hong Kong, the US, Singapore, and Japan (see Appendix B). The outward foreign direct investment (ODI) of New Zealand was NZD 27.6 billion in 2020, and Australia was the largest recipient of New Zealand's direct investment, with the amount of NZD 14.2 billion (51 percent) in 2020 (see Appendix C).

1.3.2 New Zealand and Australia Statutory Corporate Tax Rates (1980–2019)

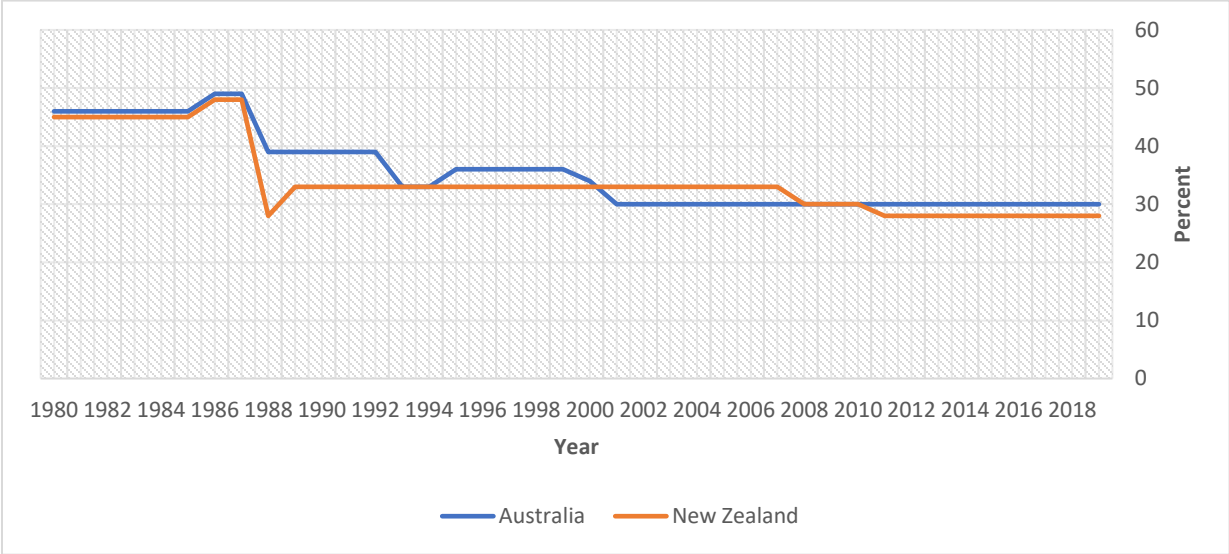
The statutory rate of corporate tax of a country, alongside the changes in the corporate tax rate in other jurisdictions are important considerations for its government in setting a coherent company tax system. Company tax changes in Australia, including to the tax rate, are a matter of concern to New Zealand. Company taxation imposes taxes on capital invested in an economy. Any reform in New Zealand's or Australia's tax systems could lead to a bias in favour of, or against, company investment decisions and the choices of investment locations. Figure 1.1 shows the statutory

²⁵ FDI refers to investment by any single investor who holds 10 percent or more of voting shares in a company (for example, subsidiaries of foreign companies based in New Zealand). The location of the investment is reported based on immediate country, rather than on ultimate country (Statistics New Zealand, 2020b).

corporate tax rates of New Zealand, as compared to the full corporate tax rates of Australia in the past 40 years (1980–2019) (OECD, 2019b).

Figure 1.1

New Zealand and Australia Statutory Corporate Tax Rates, 1980–2019



Note. Adapted from OECD. Stat. Copyright 2019 by the OECD.

The corporate tax rate in Australia was relatively high, at 36 percent from 1995 to 2000 and dropped to 34 percent in 2001. The company tax rate in New Zealand was 33 percent in the years 1995 to 2001. Subsequently, Australia’s standard company tax rate fell to 30 percent in 2002 and it remains the same rate to the present. The corporate tax rate in New Zealand was 3 percent higher than in Australia from 2002 to 2007. Thereafter, there was a reduction in New Zealand’s company tax rate from 33 percent to 30 percent, the rate aligned with Australia’s company tax rate from

2008 to 2010.²⁶ The New Zealand corporate tax rate has been two percent lower than the Australian rate since 2011, when New Zealand further reduced the corporate tax rate to 28 percent.²⁷

A cut in the New Zealand company tax rate is expected to improve New Zealand's competitive advantage in attracting foreign investment (IRD, 2010). However, New Zealand's 28 percent company tax rate is still relatively high by international standards. In 2020, the average statutory corporate tax rate worldwide (covering 177 jurisdictions) was 23.85 percent and slightly lower at 23.51 percent in OECD countries (Asen, 2020). According to Asen (2020), the average rate among EU countries and the Group of Seven (G7) nations²⁸ is 21.47 percent and 24 percent, respectively. The average statutory corporate income rate in Africa is the highest, at 28.50 percent, while Europe has the lowest average rate, at 19.99 percent when compared to all other regions.

A relatively high corporate tax rate in New Zealand will motivate multinational firms to shift profit to lower-taxed jurisdictions. The New Zealand government were greatly concerned about this issue in the years 2001 to 2007, when the New Zealand corporate tax rate was higher than Australia,²⁹ with the fact that a high share of FDI in New Zealand was sourced from Australia. Subsequently, in 2011, New Zealand's corporate tax rate was reduced to the current rate of 28 percent. Australia is still the largest FDI investor, with 49 percent direct investment in New Zealand on 31 March 2020 (Statistics New Zealand, 2020b).

²⁶ Schedules 1 of the ITA.

²⁷ The company tax rate of 30 percent is the full company tax rate in Australia. It is applicable to companies, corporate unit trusts and public trading trusts that do not qualify for the lower tax rate of 27.5 percent. The lower rate applies to base rate entities (from the 2017–18 income year) and a small business entity (for the 2015–16 and 2016–17 incomes years). For a better understanding, see: <https://www.ato.gov.au/rates/changes-to-company-tax-rates/>

²⁸ The G7 comprises the seven largest advanced economies in the world, namely the UK, the US, Japan, Italy, France, Germany, and Canada.

²⁹ This concern was expressed in the background paper, *Company tax issues facing New Zealand* This paper considered whether a high corporate tax rate is sustainable in the face of continual cuts in the corporate tax rate in other countries (IRD & the Treasury, 2009).

Another issue encountered by New Zealand is that the Australian immediate parent companies with New Zealand subsidiaries have an incentive to stream profits back to Australia in order to receive Australian franking credits.³⁰ Australia is among the few countries that offer a full dividend imputation franking system (Brown, Lim, & Evan, 2020).³¹ Under the Australian imputation system, the corporate tax paid at the company level will be recognised as franking credits that can be used by shareholders to offset against their personal tax liability. On 1 July 2000, a provision came into effect that allows a full amount of franking credits to be claimed by Australian resident shareholders³² to the extent that shareholders can get a refund of excess credits.³³

The dividend imputation system that operates in Australia is said to have a corporate tax avoidance-reducing effect, particularly for Australian publicly listed companies with domestic ownership (Li & Tran, 2020). Australian companies that distribute franked dividends are likely to pay corporate tax to enhance their shareholder value (Brown et al., 2020). Put differently, those domestically owned listed Australian companies (DOLACs)³⁴ that have subsidiaries in New Zealand are keen to stream profits from New Zealand back to Australia in order to meet the

³⁰ The term “profit streaming” was used in the background paper, *Company tax issues facing New Zealand* (IRD & the Treasury, 2009). It refers to a scenario where profits are being “streamed” across borders from New Zealand because of (i) a comparatively high New Zealand company tax rate, or (ii) the imputation systems of other countries (IRD & the Treasury, 2009; IRD & the Treasury, 2018c). In the BEPS context, profits are being “shifted” attributed to the gaps and mismatches of international tax laws. The issue of profit streaming tends to arise in New Zealand from Australia’s franking scheme.

³¹ Many countries have abolished imputation systems or implemented partial imputation systems. The other OECD countries that still operating full dividend imputation systems are Australia, Canada, New Zealand, Chile, and Mexico. Malta is a non-OECD country that operates a full dividend imputation system (Ainsworth, 2016).

³² Franking credits can only be utilised by Australian resident shareholders (Brown et al., 2020).

³³ This refund provision is set out in Section 67-25(1) of the Income Tax Assessment Act 1997 (Australia). Generally, tax offsets rules do not offer a tax refund to shareholders, even though the tax offsets are greater than the amount of tax liable to be paid. Contrarily, the refundable tax offsets ruled effective from 1 July 2000 allows shareholders to claim their franking credits in full and this can even reduce the tax liability of a shareholder to an amount less than zero. In other words, the excess franking credits will be refunded to shareholders.

³⁴ The term “DOLACs” was used in the study of Li and Tran (2020).

shareholders' demands for full franking credits. Likewise, the Australian subsidiaries of New Zealand parents have the same incentive to stream profits from Australia back to New Zealand.

To discourage profit streaming across the Tasman, both New Zealand and Australia to varying degrees see the importance of mutual recognition of imputation franking credits in the other country. In any case, these mutually beneficial policies have still not been adopted, due to a reluctance by Australia and the risk of a reduction in its tax revenues from such a policy (The Treasury, 2008).

1.3.3 Globalisation and Corporate Tax Policy

The corporate income tax systems of many countries are continuing to be reformed because of the ongoing process of globalisation. The G20/OECD BEPS project was developed because of the realisation of the need to align international tax rules to the continuing changes in the world economy emerging from globalisation, digitalisation, and the dependence on intangible assets (Bradbury, Hanappi, & Moore, 2018).

While globalisation is generally thought of as a recent phenomenon, some studies believe that the emergence of globalisation can be dated back a few hundred years (Eštok & Bzdilová, 2011). According to Scholte (2000, as cited in Eštok & Bzdilová, 2011), the first group of authors regard globalisation as either a historical and cyclical process or a historical and linear process, and the second group of authors sees globalisation as a new phenomenon. Scholte (2000, as cited in Eštok & Bzdilová, 2011) considers the phenomenon of globalisation to be a historical and linear process and he suggests that the first phase of globalisation emerged 500 years ago, and the second phase of globalisation started from 1850 until 1950. The globalisation which began around the year 1960 and is continuing as an “absolute globalisation” because of the interference of internet, electronic

communications, satellites, and optic cables in our daily life (Scholte, 2000, as cited in Eštok & Bzdilová, 2011).

Zodrow (2009), who discusses the implications for corporate tax policy in response to globalisation, regards globalisation as an environment characterised by high international capital mobility, tax competition between countries, and tax avoidance. International tax avoidance is one of the salient features of the economic environment facing a small open economy, and it is especially difficult for any small open economies to operate in the presence of globalisation (Zodrow, 2009).

An economy is said to be an open economy when there is the trade of goods and financial assets between the domestic community and the rest of the world. An economy is small when international prices and world interest rates are unaffected by domestic economic conditions. While Wynne (2007) refers to a small open economy as the price taker on world markets, Pablo (2013) believes that a small open economy has little or no control over the interest rate on its debt. Countries with small open economies are too small to exert a significant influence on world prices and interest rates and therefore they become price takers.

However, not all small open economies are the same (Pablo, 2013). They can be categorised as either developed small open economies or developing (emerging) small open economies according to three distinguishing features (Pablo, 2013). First, developing small open economies experience comparatively more volatile business cycles than developed small open economies. Secondly, consumption increases more than output in developing small open economies as compared to developed countries. Third, emerging economies experience abrupt changes in interest rates on their foreign debt, and such abrupt movements are unlikely to be seen in developed small open economies.

According to Hines and Summers (2009), the acceleration of globalisation implicitly means that many countries are turning out to be small open economies. Business NZ (2016) indicates that New Zealand has become more globally integrated since deregulation and domestic market liberalisation took place in the late 1980s. Because of the limited domestic capital base, New Zealand is a capital importer (Business NZ, 2016). Being characterised as a small open economy, New Zealand relies heavily on net capital inflows (Wynands, 2018).

Some studies argue that small open economies should abolish source-based capital income taxation (Zodrow, 2009). As price takers in the capital market, the imposition of corporate tax on capital income will distort the investment of highly mobile international capital in small open countries. High taxes on the capital base will likely result in a reduction in the stock of capital flows into an economy, given that the capital is highly mobile in these countries.

Governments are under increasing pressure to ease the tax burdens on businesses and investors as business location choices, activity levels, and taxable incomes are very responsive to local tax rates (Hines & Summers, 2009). Consequently, the corporate tax rate is on a downward trend because of the intense competition to attract mobile capital (Zodrow, 2009). According to Kumar and Quinn (2012), a gradual reduction of worldwide statutory corporate tax rates has been observed in the past three decades, although there are various arguments in favour of imposing corporate income tax.

Undeniably, the statutory corporate tax rates across the globe have seen a constant decline since 1980, and the largest reduction in company tax rate took place in the early 2000s (Asen, 2020).³⁵ According to Asen (2020), the average corporate tax rates around the world had been declined

³⁵ The historical corporate tax rate collected by the Tax Foundation comes from different sources and can be dated back to 1980. Thus, the present study benchmarks the changes in corporate tax rate over the years against the rate in 1980.

from an average of 40.11 percent in 1980 to 23.85 percent in 2020. The US was formerly one of the few countries with a high company tax rate: 38.91 percent in their case (which is comprised of an average of the corporate income taxes imposed at the individual states level and the federal statutory rate of 35 percent) (Asen, 2020). The US has undergone significant tax reform by reducing the corporate tax rate to 21 percent at the end of 2017.

The last time they reduced the federal tax rate was in 1986, when the federal rate was reduced from 46 percent to 40 percent with effect from 1987. The US had maintained a federal corporate income tax rate of 35 percent since 1993 prior to the 2017 tax reform. However, under the proposed tax plan of the newly elected president, Joe Biden, the federal corporate tax rate will be increased from 21 percent to 28 percent, reversing the corporate tax rate cut under the Tax Cuts and Jobs Act 2017 (TCJA). Biden's tax plan also proposes a minimum tax of 15 percent to be imposed on book profits of more than USD 100 million for all US corporations.

Fundamentally, globalisation has set a new trend in corporate income tax rates worldwide. Small countries are even facing strong incentives to impose low corporate tax rates as they are facing the most elastic corporate tax bases (Hines & Summers, 2009). However, in the aftermath of the 2008 financial crisis, a new trend of "slowbalisation" emerged, when the globally integrated economy started to experience a slow-down (Titievskaja, Kononenko, Navarra, Stamegna, & Zumer, 2020).³⁶ According to this study, an example of the slowdown in globalisation is the decrease of cross-border trade and investment relative to gross domestic product (GDP).³⁷ Nevertheless, globalisation is characterised by distinctive aspects and features. Titievskaja et. al. (2020) outline

³⁶ The term "slowbalisation" was first used in 2015 by Adjiedj Bakas, a trend-watcher and futurologist (Kandil, Battaia, & Hammami, 2020).

³⁷ The ratio of world trade relative to GDP is a standard estimation of globalisation (Antràs, 2020).

five pathways of globalisation and not every pathway underwent a deceleration in term of interconnectedness.³⁸

The Coronavirus pandemic in 2020 set the scene for “deglobalisation”³⁹ when the trend of “slowbalisation” was intensified by the current health crisis (García-Herrero & Tan, 2020; Titievskaja et al., 2020). While there is little evidence to show that the state of globalisation is in retreat, the rapidly changing economic conditions will continue to impact on global businesses and transform the current tax system.

1.4 Objectives and Scope of Research

1.4.1 Background and Motivation

Increasing trade and investment flows across national boundaries allow MNEs to locate their businesses in multiple geographical locations, including low tax countries. The issue of BEPS arises when multinationals manage to reduce their tax payments by moving profit from high-tax territories to low-tax territories or a no-tax haven. BEPS affects all countries and jurisdictions as the increasingly globally integrated business environment spawn opportunities for MNEs to gain tax advantages by exploiting discrepancies between national tax systems of various jurisdictions.

From an economic point of view, losses of corporate tax revenues will significantly impede the economic growth and social welfare of a country. Many countries have expressed their concern

³⁸ According to Titievskaja et. al. (2020), the five pathways of globalisation include global trade in goods and services, international financial openness, deepening inequality, globalisation of social interactions (tourism and migration), and digital exchanges (data flows across border).

³⁹ Globalisation and deglobalisation is a repeating phenomenon. The first deglobalisation happened between 1929 to 1979 (followed the globalised economy from 1840 to 1929) due to the depression and World War One. The second deglobalisation was caused by the global financial crisis in 2008 (Jones, 2005, as cited in Kim, Li, & Lee, 2020).

over the potential tax collection problems associated with BEPS. Clausing (2015) points out that profit shifting erodes the tax base, and it may be harmful to government tax collection.

Beyond this, BEPS constitutes a serious threat to most countries as it affects trust in the fair tax system and perceptions of fairness. BEPS would lead to undesirable distortions of competition between MNEs and businesses operating at a national level only (OECD, 2014b). The enterprises who suffer from BEPS are the ones who cannot exploit gaps or mismatches between different tax regimes as effectively (Alvarez-Martinez et al., 2018).

Hence, the OECD and G20 governments have been dedicated to re-writing the international tax rules since 2013. The BEPS project began in 2013 and all parties, including academia, business organisations, government, non-government organisations and even individuals have participated in the review process of the BEPS Action Plans and subsequent governments have implemented the OECD's BEPS recommendations. Likewise, a series of actions has been taken up by the EU to eliminate the harmful tax practices of MNEs (Alvarez-Martinez et al., 2018).

While governments and international bodies endeavour to tackle BEPS and close the tax loopholes, some argue that the problem of BEPS has been overstated. The OECD acknowledges that the adverse effects of BEPS on fiscal and economic activities are undetermined (OECD, 2013b). It is argued that extensive media reports about the spectacular tax planning strategies used by MNEs are merely speculation. Indeed, recent statistical evidence consistently shows that the impact of BEPS on tax revenues is relatively moderate (Hines, 2014). To state it differently, there would not be a significant impact on government revenues even if the negative effects of BEPS were completely reversed. Thus, it is crucial to understand the current BEPS phenomena and one way to do so is to measure the extent of BEPS using more current data.

Several studies, like Huizinga and Laeven (2008), Weichenrieder (2009), Heckemeyer and Overesch (2013), and Janský and Palanský (2019), attempt to quantify the magnitude of BEPS using different econometric techniques and estimation methods. However, most of the research is US-specific or heavily EU-centric (Alvarez-Martinez et al., 2018). Furthermore, statistical results remain scarce for developing countries. The lack of corporate balance sheet data in developing countries leads to researchers focusing on trade data in analysing profit shifting activities (Cobham & Loretz, 2014). To the best of the researcher's knowledge, research examining the magnitude of BEPS does not extend to New Zealand due to inadequate firm-level datasets.

The BEPS problems in New Zealand could be completely different from what has happened in Europe or the US. New Zealand is a relatively remote country situated in the South Pacific and is considered as a distant nation by most Western countries. While New Zealand has been one of the least regulated and easiest countries in which to do business (World Bank, 2020a), it may not be an attractive destination for overseas interests to set up conduits for international transactions. This is because a company incorporated under New Zealand law will be held to be a resident taxpayer and its worldwide income will be taxed under the comprehensive FIF and CFC rules (Smith, 2010).

Likewise, New Zealand is consistently found to be one of the least corrupt countries and it tops the 2020 corruption perceptions index (CPI) published by Transparency International (TI) in January 2021 (TI, 2020).⁴⁰ According to Bilicka and Seidel (2020), the relationship of corruption in respect to profit shifting has received considerable attention as corruption may cripple the implementation of the BEPS initiative. Their study found that the reported profits of a multinational firm are strongly related to the joint effect of the taxes and corruption. Given that

⁴⁰ TI is an international non-governmental organisation (NGO) which publishes an annual index ranking the world's most corrupt countries. Besides CPI provided by the TI, the worldwide governance indicators (WGI) released by the World Bank is also a measure of perceptions of corruption (World Bank, 2020b).

New Zealand is one of the least corrupt nations, the magnitude of profit shifting in this country remains inconclusive.

1.4.2 Objectives of the Research and Research Questions

International corporate tax avoidance is a broad research topic and has been subject to extensive studies in different areas. BEPS is another term that refers to international tax avoidance practices employed by MNEs to minimise their tax liabilities. Many studies focus on various BEPS channels exploited by MNEs to shift profit artificially out of higher tax locations. Some of these studies attempt to understand the nature and effects of BEPS. More recent studies strive to quantify the scale and economic impact of BEPS using available macro- or micro-data.

The major interest of the present study is to explore the profit shifting activities of MNEs by focusing on estimating the magnitude of BEPS in New Zealand using micro-level company data. While major studies of BEPS estimates have been undertaken on US and EU companies, the present study seeks to investigate resident companies in New Zealand for tax purposes. Micro-level data has an advantage over macro-level data as it accommodates researchers by providing more information to distinguish between real economic activity and BEPS-related activity (OECD 2015d). Thus, firm-level financial data establishes a better analysis of the scale of BEPS.

At an international level, corporate tax rate differentials impact on MNEs with cross-border affiliates. New Zealand subsidiaries with foreign multinational parents in other jurisdictions or New Zealand owned multinational parents with offshore subsidiaries are exposed to the corporate income tax rate of New Zealand and other nations. The differences in statutory corporate tax rates across borders facilitate tax avoidance for MNEs.

At the domestic level, the domestic tax systems in most jurisdictions are generally biased in favour of debt finance. The use of debt is just another simple method of shifting profits out of New Zealand. In terms of non-resident direct investment, the New Zealand tax regime treats non-resident debt investment more favourably than non-resident equity investment as the cost of equity (e.g., dividends) is not tax-deductible whereas interest paid on the debt is deductible (IRD & the Treasury, 2015). The interest payments on unrelated party borrowings are subject to AIL at 2 percent, while interest paid on related party borrowings is subject to NRWT at 10 percent.

As a whole, the tax bias favours non-resident debt-financing as borrowing expenses are tax deductible and the NRWT imposed on interest paid to non-resident lenders is much lower than company tax of 28 percent on business income earned by a company that is owned by non-residents.

While the thin capitalisation rules restrict the debt-to-net-asset ratio of an entity to 60 percent,⁴¹ the rules do not deny a deduction of interest for a foreign-owned New Zealand business unless the New Zealand group ratio (New Zealand group interest-bearing debt to assets) exceeds 110 percent of the worldwide group ratio (worldwide group interest-bearing debt to assets) (Simpson Grierson, 2013). The worldwide group debt test set out in the thin capitalisation rules is rarely used as long as the companies stay within the 60 percent safe harbour which allows them to claim their interest deductions on debt without referring to their worldwide group's financial leverage (IRD & the Treasury, 2015). Because of deficiencies and gaps in the New Zealand tax regimes, a company is

⁴¹ The debt-to-net-asset ratio is calculated as “the total group interest-bearing debt / total group assets net of non-debt liabilities of a New Zealand entity or group” (PwC, 2020a). The “inbound” thin capitalisation threshold was previously 75 percent and was reduced to 60 percent starting from the 2012 income year (with effect from 1 April 2011) whereas the “outbound” thin capitalisation threshold is 75 percent (PwC, 2020a).

more likely to engage in profit shifting arrangements to reduce tax liabilities incurred by the company.

The first part of the study sets out to find indirect evidence of profit shifting by examining how the reported profits of a sampled company change in associated with the tax rate differentials. The observational units in the first part of study are New Zealand subsidiaries owned by foreign MNEs (NZSOFMs) and New Zealand domestically owned MNEs (NZDOMs). NZDOMs do not include New Zealand owned companies with solely domestic subsidiaries: they refer to New Zealand owned companies with overseas subsidiaries located beyond New Zealand.

Since profit shifting can be achieved typically through manipulating company debt level, the second part of the study seeks to further uncover the traits of profit shifting by observing the debt structure of a company with foreign ownership as compared to companies with domestic ownership. Additionally, this study attempts to find out if transfer pricing plays a role in facilitating profit shifting of multinational firms owned by non-residents in view of the fact that cross-country intra-group transfer pricing can be exploited for profit shifting purposes.

The research questions of this study therefore are:

RQ1: What effect do (cross-border) tax differentials have on the profits reported by NZSOFMs under BEPS?

RQ2: What effect do (cross-border) tax differentials have on the profits reported by NZDOMs with overseas subsidiaries under BEPS?

RQ3: What are the differences in terms of debt structure and transfer price of a company with foreign ownership compared to a company with domestic ownership?

1.5 Structure of the Thesis

This chapter has reviewed the academic works related to empirical methods of measuring BEPS. The chapter also looked into the New Zealand tax system and the tax aspects of New Zealand from an international viewpoint. This set out a background to the topic, and thus led up to the problem statement for the research. Ultimately, the objectives of carrying out this research and the research questions are identified at the end of this chapter. The remainder of the thesis is structured as follows.

Chapter 2 summarises the existing literature conducted on corporate tax avoidance and BEPS. This chapter illustrates the chronological development of the statistical estimation of BEPS, starting from earlier studies in the 90s to current scholarly literature. The main BEPS channels are also discussed in this chapter before the research hypotheses are formed.

Chapter 3 sets out the methodology of research used to solve the research problem in this study. The research paradigms were first discussed in this chapter. The remainder of the chapter delineates the statistical empirical models used to measure the magnitude of BEPS. Finally, the quantitative methods engaged by the researcher in carrying out the sample selection and data collection are outlined in this chapter. The limitations related to collecting and analysing the data are also brought up.

Chapter 4 presents the empirical results of this study. The chapter is important in uncovering answers to the research questions set out in Chapter 1. Nevertheless, the empirical evidence is obtained from the statistical analyses is used to validate the research hypotheses stated in Chapter 1.

Lastly, Chapter 5 will look back on the main purpose of the study and summarise the major findings derived from the statistical results in Chapter 4. The limitations of the study are discussed in this chapter as it is crucial in refining the research design for future studies. The chapter also outline the theoretical and practical contributions. Finally, recommendations and suggestions for future studies are provided.

Chapter 2 Literature Review and Development of Hypotheses

2.1 Introduction

The term “BEPS” was introduced in the 2013 G20/OECD BEPS project to deal with tax avoidance issues of MNEs using BEPS tools. This chapter will evaluate the relevant literature ranging from the topics of tax avoidance to BEPS to formulate the hypotheses of this study. Section 2.2 discusses the major issues involved in resolving the core problem for this research, which is the estimation of the magnitude of BEPS. Section 2.2 also presents the existing data sources that make the quantitative research of this topic possible. Section 2.3 sheds light on empirical methods that had been employed in the prior studies to measure BEPS. In addition, this section provides a review of studies on the most prevalent BEPS channels. By considering existing theories and evidence, the research hypotheses are developed and formulated in Section 2.4. Finally, Section 2.5 concludes the chapter.

2.2 Measuring BEPS

The OECD considers BEPS to be a “serious risk to tax revenues, tax sovereignty and tax fairness for OECD countries and non-member alike” (OECD, 2013c, p. 2). Unquestionably, BEPS could have unintended adverse consequences such as loss of government revenue, economic inefficiency due to misallocation of resources, distortion of business competition between multinational and domestic companies, and loss of confidence in the fairness of current tax systems. Determining the magnitude of BEPS is crucial in helping governments to manage the harmful impact of BEPS and to evaluate the effectiveness of BEPS countermeasures.

A clear definition of BEPS is important for measuring its scale or extent. The ability to understand this has significant implications for policy (Barrios & d'Andria, 2018). More specifically, an exhaustive definition of BEPS can be stated as follows:

BEPS relates chiefly to instances where the interaction of different tax rules leads to double non-taxation or less than single taxation. It also relates to arrangements that achieve no or low taxation by shifting profits away from the jurisdictions where the activities creating those profits take place. No or low taxation is not per se a cause of concern, but it becomes so when it is associated with practices that artificially segregate taxable income from the activities that generate it. In other words what creates tax policy concerns is that, due to gaps in the interaction of different tax systems, and in some cases because of the application of bilateral tax treaties, income from cross-border activities may go untaxed anywhere, or be only unduly lowly taxed (OECD, 2015b, p. 57).

2.2.1 The Problems of Measuring BEPS

Measuring BEPS is challenging because it cannot be observed directly. According to Koch and Oestreicher, pertaining to the OECD BEPS Action 11 Request for Input, the different classification of the company's residence, legal forms and financing contracts by tax authorities, made the BEPS activities hard to observe directly in published financial statements (OECD, 2014a). However, Koch and Oestreicher note that the full aggregate international tax figures that would improve the empirical evidence of tax research are currently not available. Given the absence of aggregate international tax data, accounting information presented in the financial statements constitutes the second-best option for empirical research in taxation.

In addition, the presence of MNEs in many different parts of the world and the complex corporate structures of MNEs complicate BEPS estimation. For this reason, it is fundamentally difficult to identify the intra-group cross-country transactions in tax or financial accounting data due to the lack of explicit data sources. The complete lack of data in some countries or jurisdictions constrains the analysis of BEPS even further. Despite that, current government policy analysis and decisions

are based on incomplete information and such analyses recognise the data limitations and how those limitations impact on the interpretation of the results (OECD, 2015b).

The current estimates of BEPS magnitude are arguably less convincing as most of the studies assessing profit shifting activities focus on the profits indicated in the financial statements. The reported profit is typically different from taxable income in nature because of the different sets of rules governing financial reporting and tax reporting. The actual amount of taxes paid by a company, according to their taxable income, may not be the same as the amount of taxes reported according to the book income (also known as financial income). In addition, the financial incomes of MNEs that operate in multiple countries may be subject to different measurement and recognition rules, and distinct levels of consolidation.

The book-tax differences have always been the focus of interest of a significant line of accounting research. The study of Bokulic, Henry and Plesko (2012), which attempts to reconcile the financial income to taxable income of US multinational corporations, found that the fundamental book-tax differences include temporary differences, permanent differences, and consolidation differences. In their view, temporary differences arise when book and tax reporting systems recognize the same amount of income or expense at different times, while permanent differences are caused by the differences of the total amount of income or expense between the financial and tax reports. Temporary differences could last for several years until the differences are entirely reversed and this will further impede the measure of BEPS using financial statements.

Even though taxable income is possibly the most adequate form of data, most researchers still resort to the financial information derived from financial statements in constructing their estimation models. This is because the tax return information, including taxable income, is confidential and therefore it is restricted information. While the proponents of public disclosure of

tax return information believe that they will gain much better insights into the complex situations of BEPS if the tax return information is made publicly available, enormous concerns about possible unintended outcomes make such disclosure improbable.

Lenter, Slemrod, and Shackelford (2003) review the issues related to the full disclosure of corporate tax return information and they discuss the arguments and counterarguments of public disclosure of tax return information from accounting, economics, and legal perspectives. According to them, there are several potential arguments for keeping the tax return information undisclosed. First, the confidentiality assurances of corporate tax returns will enhance the willingness of companies to disclose confidential and sensitive information and thus lead to increased tax compliance. By keeping the return information confidential, it will also help to protect the valuable proprietary information contained in the company tax returns. Besides, the full disclosure of tax returns of large corporations, which may run into hundreds of pages, may cause greater confusion rather than enlightenment among the public, due to the public may lack of expertise and misinformed interpretation of tax information. However, Lenter et al. (2003) support limited public disclosure of a few bottom-line items in the financial statements or an expanded form of book-tax reconciliation.

2.2.2 Currently Available Data Sources

Researchers are confronted by various limitations in using the currently available databases in measuring BEPS. One of the major limitations is the lack of comprehensive tax data due to the confidential company tax information or the fact that some of the tax information is not currently analysed or processed. Despite the significant deficiencies of existing data, they remain useful sources of information in evaluating BEPS.

Statistical estimation of BEPS started as early as the early 1990s with researchers employing macro (country-level) data to conduct cross-sectional analysis. At the same time, micro (firm-level) data has mostly been used in recent studies for panel data analysis. A substantial amount of existing research related to the scale of BEPS was carried out mostly in the US and EU countries, given that the available databases such as Bureau of Economic Analysis (BEA), Compustat, Orbis, Amadeus, and micro database on direct investment (MiDi) provide data on US or European companies.

Table 2.1 and Table 2.2 provide an overview of the source and accessibility of macro-data and micro-data, respectively. Current studies prefer firm (micro-level) data to country (macro-level) data in analysing BEPS. Lipsey (2010) indicates that the underlying information from aggregate country-level databases is typically tainted by BEPS behaviour. Hence, it is difficult to identify BEPS components in the macroeconomic statistics. The use of firm-level data would substantially help to improve and refine BEPS studies (OECD, 2015b). Researchers typically found a larger scale of BEPS in earlier academic studies using macro-level aggregate data (OECD, 2015b).

Table 2.3 presents the most common corporate and financial databases which are widely employed in existing BEPS studies. The company data found on these databases comprises mainly US and European companies.

Table 2.1*Macro-data Sources and Accessibility*

Data	Source	Access
1. National accounts	a. OECD b. International Monetary Fund (IMF)	The content is accessible free of charge.
2. Balance of Payments (BOP) statistics	a. IMF BOP statistics b. World Bank development indicators	The content is accessible free of charge.
3. Foreign Direct Investment (FDI)	a. OECD FDI statistics b. IMF coordinated direct investment survey (IMF CDIS)	The aggregated data is accessible free of charge whereas the disaggregated information is not freely available.
4. Trade statistics	a. UN Comtrade b. CEPALSTAT database	The content is accessible free of charge.
5. Corporate income tax revenue statistics	a. OECD revenue statistics b. IMF government finance statistics c. International Centre for Tax and Development (ICTD): Government revenue dataset d. Individual country aggregate revenue statistics	The content is accessible free of charge.

CEPALSTAT database refers to Economic Commission for Latin America and the Caribbean (ECLAC) databases and statistical publications.

Note. Adapted and modified from public discussion draft–BEPS Action 11: Improving the analysis of BEPS. Copyright 2015 by the OECD.

Table 2.2*Micro-data Sources and Accessibility*

Data	Source	Access
1. Company financial information	a. Published company financial statements b. Commercial databases c. Open access databases	In general, the information is publicly available. However, data consolidation is needed for analysis. Several commercial databases such as Bloomberg, Amadeus, Orbis can be accessed without restriction by subscribers.
	d. Database administered by public authorities	The data administered by US BEA and German Bundesbank are restricted data.
2. Corporate income tax returns	a. Tax authorities	Government analysts generally have access to data, but data accessibility varies from country to country. External researchers are unlikely to access the data.
3. Detailed specific company tax information	a. Public enquiries by legislative and parliamentary committees	The information has become available because of these public enquiries.
4. Customs (trade) data	a. Custom agencies	This country-specific data is available in a few countries only.

Note. Adapted and modified from public discussion draft–BEPS Action 11: Improving the analysis of BEPS. Copyright 2015 by the OECD.

Table 2.3*Currently Available Databases*

Database	Country	Source	Research	Confidentiality
1. BEA	US	A US government agency that provides aggregate- and year-level data (most notably reports about the GDP of the US). The US firms with affiliates in foreign countries and foreign firms with affiliates in the US are mandated to complete the survey by BEA annually.	Grubert and Mutti (1991); Hines and Rice (1994); Desai, Foley and Hines (2003); Clausing (2009).	
2. MiDi	Germany	A dataset collected by Deutsche Bundesbank (German Central bank) on FDI stocks. The Bundesbank provides anonymous individual reports on directly or indirectly owned foreign affiliates of German parent companies since 1999.	Weichenrieder (2009); Buettner, Overesch, Schreiber and Wamser (2012).	The data are classified as confidential but are accessible for approved projects on a confidential basis.
3. Orbis	Europe	BvD's Orbis database is the largest worldwide commercial database. It is the most comprehensive global dataset of almost 100 million financial accounts and has been used by researchers extensively.	Markle (2012); Markle and Robinson (2012); Beer and Loeprick (2014).	Over 99% of the company information on Orbis is private. The subscribers must pay to access Orbis and it allows university subscription.
4. Amadeus	Europe	It is the European subset of Orbis which provides unconsolidated financial and ownership data for 1.6 million European companies.	Huizinga and Laeven (2008); Dischinger (2007, 2010); Dischinger and Riedel (2011); Karkinsky and Riedel (2012); Dharmapala and Riedel (2013); Heckemeyer and Overesch (2013).	
5. Compustat	US	It reports confidential financial data of multinational firms throughout the world. However, it does not provide comprehensive information on each foreign affiliate.	Collins, Kemsley and Lang (1998); Grubert (2003); Dyreng and Markle (2016).	It allows university subscription and most universities have access to the database directly on compact disc read-only memory (CDROM) or indirectly via Wharton research data services (WRDS).

2.2.3 The Magnitude of BEPS

Almost all studies use the indicators of profitability such as earnings before interest and taxes (EBIT) or pre-tax profit reported in the financial statements as the dependent variable in a regression model to determine the correlations between tax and measure of profits. Numerous studies have established that reported profits of a parent or subsidiary responded to the local tax levels (Heckemeyer & Overesch, 2013). However, the profit shifting activity of MNEs in response to the tax rate differentials across multiple countries remains undetermined.

Tax semi-elasticity of profits is a common estimation method employed in most empirical studies of BEPS (see Appendix A for semi-elasticity coefficient toward corporate tax rate difference). Heckemeyer and Overesch (2013) identified 25 empirical analyses that regress the profit measures of multinational parents or subsidiaries on international tax differentials in order to predict the tax semi-elasticity of their profits. Semi-elasticity estimates the percentage change in profit measure to a one percentage point change in the shifting incentive (in most cases, tax rate differentials) in order to shift reported profits across countries. For example, a tax semi-elasticity of pre-tax profit of -0.4 means that an increase in one percentage point of the tax rate differential within the MNE would result in a 0.4 percent drop in reported profit.

The BEPS Action 11 final report also constructed six indicators of BEPS, as shown in Table 2.4, with the purpose of determining the scale of BEPS, keeping track of BEPS variations over time, and checking the progress of BEPS countermeasures (OECD, 2015d). Measuring the extent of BEPS and changes in it over time is challenging. The question of how precise and accurate the indicators are is largely reliant on the methods of measurement and the available data. The limitations and caveats related to each indicator must be recognised when interpreting the indicators (OECD, 2015d).

The six indicators in the report are more illustrative, rather than definitive, and none of them gives a complete picture of BEPS (OECD, 2015d). While the six indicators are presented in five categories, the data used to calculate each of the indicators can be derived from the existing available macro-level and micro-level data.

In particular, the methodological approaches of indicators 3 and 4 are similar to the estimation method of this study. They are constructed based on the theory of profit shifting determined by distinctive tax rates across various locations (OECD, 2015d). A relative measure is employed to compare profit rates of companies, or groups of companies which are in lower tax and higher tax locations. The lower or higher tax location is defined by effective tax rates. The profit rate ratio is defined as pre-tax income divided by an economic activity variable, and it acknowledges that BEPS behaviour is featured by the disconnection between the location where profit is reported and the location where economic activity generating that profit take place (OECD, 2015d).

The economic activity of a company can only be measured indirectly using firm data from publicly available financial statements. Economic factors, such as assets, employment and labour compensation, operating expenditures, or output, such as sales, can be used as the denominator in the profit rate ratio (OECD, 2015d). In the BEPS Action 11 final Report, the profit rate indicators use assets to measure economy activity. However, the intangible assets, which significantly contribute to MNE global income, may be undervalued as intangible assets are generally excluded from reported total assets or they are understated.

One of the limitations of the indicators is that the measures are calculated using accounting information derived from publicly available financial reporting statements of public companies but not privately held firms or partnerships (OECD, 2015d). In other words, sample selection bias could have occurred in the studies, in which certain members of the population of interest are not

included in the sampling process, and, as a consequence, the findings might not reflect the intended population precisely.

Table 2.4*OECD BEPS Action 11: Six Indicators of BEPS*

Macro-sourced Data	Micro-sourced Data
<p>A. Disconnect between financial and real economic activities</p> <p>1. Concentration of high levels of FDI relative to GDP.</p> <p>B. Profit shifting through intangibles</p> <p>2. Concentration of high levels of royalty receipts relative to R&D spending.</p>	<p>C. Profit rate differentials within top global MNEs</p> <p>3. Differential profit rates compared to effective tax rates.</p> <p>4. Differential profit rates between low-tax locations and worldwide MNE operations.</p> <p>D. MNE vs. "comparable" non-MNE effective tax rate differentials</p> <p>5. Effective tax rates of large MNE affiliates relative to non-MNE entities with similar characteristics.</p> <p>E. Profit shifting through interest</p> <p>6. Interest expense to income ratios of MNE affiliates in high-tax locations.</p>

Note. Adapted and modified from Measuring and monitoring BEPS Action 11–2015 final report: Improving the analysis of BEPS. Copyright 2015 by the OECD.

2.3 A Review of the Empirical Literature on BEPS

BEPS could possibly occur in a wide variety of ways such as transfer pricing manipulation, international debt shifting (to high-tax countries), exploitation of mismatches between different tax regimes, deferral in repatriation of foreign profit earned in low-tax countries and the inappropriate use of tax treaty benefits. Measuring BEPS has never been a simple task as BEPS itself is a complex problem that involves various international tax avoidance schemes that take place in multiple tax jurisdictions. MNEs can capitalise on various BEPS channels at the same time and pose a great challenge to the work of measuring the scale of BEPS. Acciari, Tomarelli, Limosani, & Benedetti (2015) pointed out that the diverse and complex tax planning strategies employed by multinational corporations to alleviate a company's tax liabilities is one of the major difficulties in evaluating the scale and impact of BEPS. In addition, the absence of complete and dependable international micro-data sets, and the lack of sufficiently accurate tax variables to identify a low-tax system increases the level of complexity of BEPS estimation (Acciari et al., 2015).

There is a large strand of literature related to the measurement of the extent of BEPS and different conclusions have been drawn from the studies about their seriousness. More specifically, Dharmapala (2014) and Riedel (2014) have provided a good overview of the economic literature relevant to the profit shifting estimates.

Dharmapala (2014) reviews a broad range of economic literature and presents a comprehensive summary of the findings of the existing empirical literature on tax-motivated profit shifting. His survey mainly focuses on elucidating the magnitude of BEPS. His paper presents some empirically based evidence of the existence of BEPS behaviours. He finds that the scale of BEPS in earlier studies is typically much larger than that found in recent studies. The latest empirical studies, which uses micro-level and richer sources of data, has found a smaller

estimated magnitude of BEPS. Dharmapala (2014) also indicates that the shift from aggregate-level data to micro-level datasets has enhanced the integrity of profit shifting analysis. The estimates of magnitude of profit shifting are more credible and convincing when using firm-level analysis.

Riedel (2014) also conducted an analysis on the existing academic literature that quantitatively estimates the tax avoidance behaviour of multinational firms. His paper assesses the descriptive evidence and indirect evidence of the existing studies and reports evidence of income shifting by multinational entities. While the media, the public and politicians are heavily criticising the aggressive arrangements of tax-motivated profit shifting of MNEs, he sought to find out whether the tax issues of BEPS are indeed as critical as is featured in the media concerning BEPS. As the tax avoidance activities of multinational firms are not directly observed, the identification approaches undertaken by researchers are indirect and dependent on presumption. Any violation of these indirect approaches will lead to biased assumptions (Riedel, 2014).

Riedel (2014) concludes that various studies using different data sources and estimation approaches unanimously prove the BEPS behaviours of MNEs. However, the quantitative estimates of profit shifting vary across studies, ranging from less than 5 percent to more than 30 percent of the income earned by companies in high-tax locations being shifted to low-tax locations. In the study, Riedel (2014) finds that the most common approach pursued by researchers for identifying multinational income shifting is to compare the pre-tax profitability rates of high-tax and low tax affiliates. While early studies tend to use this approach in estimating BEPS, recent studies analyse how affiliates' pre-tax profits change with regard to corporate tax reforms. He points out that it is too early to draw an inference on the quantitative importance of BEPS. Future research will rely heavily on the access of good-quality tax information that enables identifying MNEs' reported tax bases, tax liabilities or tax payments and business activity across group locations for a reliable estimation of BEPS (Riedel, 2014).

Undeniably, anecdotal evidence gives the impression of the proliferation of BEPS among multinational corporations. The exemplar (anecdotal evidence)⁴², together with base rates (statistical evidence), are often used by newsmakers and influencers with a persuasive intent to convince readers of certain point of view (Hornikx, 2018). He indicates that both anecdotal and statistical evidence are not consistent with each other. This explains why a few current studies suggest that the far-reaching incidence of profit shifting, which is widely cited in policy debates and general public discussion might not be necessarily true.

Hines (2014) indicates that the journalistic stories of controversial BEPS measures employed by MNEs generally leave out critical elements from legal and economic perspectives and make it difficult to make any inference about how severe the problem of BEPS is. According to Hines (2014), the statistical studies constantly find that BEPS has only a modest impact on tax revenues. Dharmapala (2014) reports a relatively small magnitude of BEPS that were presented in the latest empirical literature. Heckemeyer and Overesch (2013) have similar findings and reveal that recent studies are associated with a smaller scale of BEPS.

Hines (2014) expresses concern that the reporting of the BEPS issues was exaggerated because of the inconsistencies in the evidence between empirical reports and popular discussion. The relocations of pre-tax profits away from home-countries with higher tax rates to foreign locations with zero or incredibly low tax rates, do not come without cost. He indicates that the arrangements of reallocating profits to low-tax locations by MNEs in order to alleviate their tax burdens might not be as attractive and cost-effective as is thought. He also points out the empirical puzzles of why the corporations continue to pay taxes in high-tax countries and why there are not more tax-sensitive multinational corporations highly involved in tax avoidance schemes. Nevertheless, Hines (2014) argues that, while BEPS is a real phenomenon, it is

⁴² The exemplars also include narrative evidence, case histories, and story evidence (Hornikx, 2018).

considerably smaller in magnitude. He questions whether radical reform is necessary due to the modest size of the BEPS problem.

Barrios and d'Andria (2018) review an extensive quantity of the earlier literature on BEPS in order to explain the apparent downward trend in the estimation of the magnitude of profit shifting. They indicate that the smaller estimated magnitude of profit shifting is simply related to the wide use of different econometric techniques. They also show that current empirical studies employ richer and newer data sources for panel data analyses resulting in lower elasticities. Nevertheless, they propose a multilevel estimation strategy as an alternative empirical methodology to be used in profit shifting analysis.

2.3.1 Empirical Methods of Measuring BEPS

2.3.1.1 Profit Measures and Corporate Tax Rates

Grubert and Mutti (1991) are among the few researchers who studied multinational income shifting. Their study is the only comprehensive study that presents direct evidence on the relationship between profit margins and tax rates in the early 1990s. They use the US Commerce Department's 1982 data to analyse the profit shifting activities of the US multinational affiliates from high-tax countries to low-tax countries. There are two types of profitability measures used in their study: (1) the ratio of profit to local sales and (2) the ratio of book income to local equity.⁴³

The study of Grubert and Mutti (1991) shows that the US affiliates located in low tax countries reported a higher profit from sales. Yet, they mention that the use of local sales in the denominator of the company profit measure only gives an approximate idea of affiliate activity as other material inputs are unascertained. In addition, Hines and Rice (1994) find that firms

⁴³ The variables are derived from the US Commerce Department and the study demonstrated direct evidence of profit shifting.

may vary in their purchases of intermediate inputs. Hines and Rice (1994) suggest that the rate of return of equity is a more satisfactory measure of the affiliate's profitability. However, MNEs have an incentive to finance their affiliate with a high debt-equity ratio and the finding of a higher return on equity in low-tax countries may only reflect practical financing decisions made by the parent company (Hines & Rice, 1994).

Hines and Rice's (1994) study on profit shifting is one of the early pioneering studies widely cited by academic researchers. Their study predominantly examines the capability of US corporations to shift their profit and real business activities from high-tax foreign jurisdictions to tax-preferred low-tax foreign jurisdictions. They use the country-level data on US affiliates in 1982 to investigate the relationship between foreign tax rates and the reported profit of US FDI abroad, controlled for capital and labour inputs.

Hines and Rice (1994) are concerned that the profit shifting activities will erode the US tax base in the long run and shift productive physical activities (for example, employment of capital and labour) to low-tax locations. In this same study, the pre-tax income of a subsidiary is used to represent the sum of "true" income and "shifted" income. The "true" level of income is determined by measuring the capital and labour inputs used by the subsidiary. The "shifted" income is determined by the tax rate difference between the subsidiary and the parent company. The empirical results indicate that the profitability of multinational firms responds significantly to local tax rates and the tax effect is strongest at low-tax rates. A one percentage point increase in the host country tax rate resulted in a lower reported after-tax profit of affiliates of US corporations by around 3 percent. The study of Hines and Rice (1994) is known as the Hines-Rice approach.

Clausing (2009) investigates the income shifting of US multinational firms using a similar approach to that of Hines and Rice (1994). She runs a panel regression analysis on two periods (1982–1993 relative to 1993–2004) to find out how the profit rate (pre-tax income scaled by

sales) for all US affiliates in a foreign country and in a given year, is affected by the tax rate differential with the US. Her study yields a coefficient of -0.5 and the income shifting is greater in the latter part of her sample period (1993–2004).

Klassen and Laplante (2012) use a more distinct approach to analyse BEPS. They observed US based multinational companies from 1988 to 2009 to determine if the companies shift income from the US to subsidiaries in foreign countries. They used the foreign tax rate as a measure of the strength of the incentive to shift income abroad. Their estimation of foreign tax rate is as follows:

$$\text{Foreign tax rate} = \text{Foreign pretax income} / \text{Foreign sales}$$

Another approach in estimating income shifting has been developed by Dyreng and Markle (2016). They argued that the direction and extent of income shifting can be estimated by analysing the difference between the sales location of US multinationals and the location of their reported earnings. However, it relies heavily on the assumption that the location of sales is nonmanipulable and that it is not affected by income-shifting strategies.

A new approach which departs significantly from the Hines-Rice approach has been proposed by Dharmapala and Riedel (2013). This study compares the differential impact among low-tax and high tax subsidiaries of a common shock to the same parent, controlling for other factors that may affect affiliates' reported profit.

In the study of Dischinger, Knoll, & Riedel (2013), the authors suggest that multinational firms are resistant to shifting profits away from the high tax country where their headquarters are located. The semi-elasticity of shifting profits from parents located in high tax jurisdictions to affiliates in low tax jurisdictions is 0.5. They find that the magnitude of income shifting from high-tax parents to affiliates in low tax jurisdictions is smaller than shifting from high-tax affiliates to parents, and this could be attributable to tax or non-tax reasons.

The studies on tax-inducing profit shifting since the early nineties were mostly conducted using US data. The study of Weichenrieder (2009) is the first with non-US data. He examines the profit shifting behaviour of multinationals in Germany using the MiDi. This database was compiled by the Deutsche Bundesbank from inbound and outbound FDI of Germany. Weichenrieder (2009) believes that the foreign tax rate influences firm profitability and he specifically looks at how the foreign tax rate influences German-owned subsidiaries abroad, as well as German affiliates with a foreign parent.

Weichenrieder (2009) follows the collection method of the Deutsche Bundesbank to divide directly-held and indirectly-held affiliates. On the outbound side, a directly-held German-owned foreign affiliate is the affiliate with no intermediate foreign company in the ownership chain, while an indirectly-held foreign affiliate has at least one foreign company between the foreign affiliate and the German investor. On the inbound side, an indirectly-held affiliate is owned by a foreign-owned intermediate company in Germany whereas a directly-held affiliate is owned by a foreign investor. Weichenrieder (2009) finds compelling evidence for profit shifting for inbound FDI. He finds that a 10 percentage point rise in the home country tax rate of a foreign parent causes a 0.5 percentage point increase in the profit of its subsidiary located in Germany.

It appears that the existing studies employ similar estimation approaches in examining the profit measures and corporate tax rate changes in order to identify profit shifting, and the estimation results are comparable across different studies. The present study uses a similar estimation method to the previous studies in measuring the magnitude of BEPS in New Zealand, as the empirical findings of this study will only be meaningful if the estimates of the profit shifting activities of MNEs are comparable with existing evidence in other research with the same measure.

2.3.1.2 Comparing Non-domestic Enterprises with Domestic Enterprises

Riedel (2014) reviews a broad range of academic literature that provides quantitative evidence of multinational profit (or income) shifting. He finds that the studies primarily investigate the link between the affiliates' reported pre-tax profits and corporate tax rates, which comes with several caveats. Riedel (2014) suggests alternative mechanisms that do not rely on estimation methods based on difference in corporate tax rates. One such approach is to compare tax variables of comparable multinational and national (domestic) enterprises.

In New Zealand, Smith and Dunmore (1997) examine corporate tax avoidance by foreign investors. Their study focuses on non-resident controlled companies (NRCCs) to investigate the tax differentials that arise from the different tax rates imposed upon business profits and interest earned by non-residents. Smith and Dunmore (1997) also study the thin capitalisation arrangements of New Zealand subsidiaries owned by non-resident investors from 1983 to 1992. Until 1996, there were few tax provisions that could possibly address thin capitalisation arrangements by NRCCs (Smith & Dunmore, 1997). Non-resident investors could finance their New Zealand subsidiaries with debt and subsequently the interest paid on that debt to those investors would be taxed at lower rates than on their business profits sourced in New Zealand (Smith & Dunmore, 1997).

Additionally, in the study of Smith and Dunmore (1997) a sample of New Zealand resident controlled companies (RCCs) was also collected in order to compare the financial structures between NRCCs and RCCs. However, they found that higher debt to equity ratios of NRCCs, as compared to RCCs, did not necessarily indicate that NRCCs thinly capitalised their companies to avoid tax, as the debt used to finance the companies was non-interest bearing.

Li and Tran (2020) examine international profit shifting in Australia by focusing on DOLACs and Australian subsidiaries of foreign MNEs (ASFMs) that operated under Australia's full

dividend franking system. Under the dividend imputation system, Australian resident shareholders of DOLACs receive and use franking credits attached to dividends distributed in order to offset their personal tax to the extent that it is less than zero. The franking credits generate additional value to shareholders as the excess credits are fully refundable to shareholders, thus enhancing the shareholders' after-tax returns. In contrast to DOLACs, ASFMs do not benefit from the franking system in Australia as only Australian shareholders are permitted to claim the franking credits. Therefore, DOLACs serve as a benchmark against ASFMs to investigate profit shifting in Australia as both DOLACs and ASFMs face different incentives for engaging in tax avoidance activities.

Li and Tran (2020) proposed six ratios capturing the effectiveness of thin capitalisation and transfer pricing in both DOLACs and ASFMs to compare their cross-border profit shifting. The empirical results reveal that ASFMs engage in tax avoidance to a greater extent than DOLACs in order to shift profits out of Australia by utilising intra-group debts and transfer pricing.

2.3.1.3 Meta-analysis

Glass (1976) refers to meta-analysis as “a statistical analysis of a large collection of analysis results from individual studies for the purpose of integrating the findings” or it can be more concisely defined as “the analysis of analyses” (p. 3).

In general, meta-analysis is a statistical tool used to make a general statement by inference from many existing studies. It compares different methodologies, data, and specifications, and synthesises the results quantitatively for easier comparison. Meta-analysis indicates the central tendency and can explain the diverseness in empirical literature. In other words, the research results obtained from a meta-analysis represents a consensus synthesis of a large body of empirical studies (Florax, de Goot, & de Mooij, 2002).

Meta-analysis has been applied in various fields such as education, psychology, and medical research. In econometric analyses, meta-analysis has become an important statistical method employed in diverse fields within economics. De Mooij and Ederveen (2008), Feld, Heckemeyer and Overesch (2013), Heckemeyer and Overesch (2013), and Adam, Kammas and Lagou (2013) all use this statistical approach in analysing tax-related empirical literature.

De Mooij and Ederveen (2008) provide a guide to the empirical results of the corporate tax elasticity of FDI using meta-analysis. In the study of Feld et al. (2013), meta-analysis was employed to explain how capital structures are impacted on by a variety of marginal tax effects. Heckemeyer and Overesch (2013) conducted a meta-analysis of the empirical literature that studies the profit-shifting activity of multinational firms.

A strand of the literature investigates the profit-shifting activity of multinational companies, and the evidence available is either direct or indirect evidence. The central area of interest in the research of Heckemeyer and Overesch (2013) is the estimate of the size of the tax elasticity of parent or affiliate profit. For a meta-regression analysis to be significant, the estimates of the quantitative surveys must be comparable (Heckemeyer & Overesch, 2013). Thus, the 25 studies included in their meta-sample measure the tax-motivated profit shifting of multinational firms using *semi-elasticity of profits*.

Heckemeyer and Overesch (2013) provide a consensus estimate of the tax elasticity of profits from the 25 empirical studies. By taking into consideration all the evidence and the biases from misspecification, they find that the consensus tax semi-elasticity of a company pre-tax profit is 0.8. This simply means that a 1 percent point increase in the tax differential of one country will result in 0.8 percent decrease in reported pre-tax profit of the parent or the affiliates.

Following the meta-analysis that surveys the impact of taxation on FDI, de Mooij and Ederveen (2008) extend their research by investigating the scale of the distortions of corporate taxes at

five different decision margins (organisational form, financial policy, profit shifting, intensive and extensive investment). The results suggest that tax-base elasticity of profit shifting is the largest among them all.

2.3.1.4 Revenue Loss Estimates

While the existing studies generally use tax semi-elasticity of profits to describe the severity of BEPS, a recent study by International Monetary Fund (IMF) researchers Crivelli, de Mooij and Keen (2015) defines the problem of BEPS in terms of an absolute amount of revenue losses. This study is the most complete study of the global tax losses of 173 countries over 33 years. Nonetheless, the statistics for the corporate income tax revenues and statutory tax rates used in the study of Crivelli et al. (2015) are private data provided in confidence sourced from the IMF's Fiscal Affairs Department. They observe that the total revenue losses across the globe are estimated to be USD 650 billion annually from BEPS related activity.

On the other hand, Clausing (2016) wanted to determine how much the profit shifting activities of US-headquartered multinationals costs the US government. She estimates that the corporate revenue losses ranged between USD 77 billion and USD 111 billion by 2012. Clausing's (2016) study uses survey data of US multinationals from the BEA, and it focuses on one major economy (the US).⁴⁴

While Crivelli et al. (2015) present the estimates of tax losses for two groups of countries, OECD and non-OECD countries, Cobham and Janský (2017) disaggregate the revenue losses and present the results at country level. This allows a comparative analysis at both the global and regional level. More specifically, New Zealand suffered a revenue loss of USD 760 million according to IMF estimates, as reported by Crivelli et al. (2015), or USD 520 million losses in government revenue database (GRD) as estimated by Cobham and Janský (2017).

⁴⁴ The US BEA data is strictly confidential and made available to US researchers on a confidential basis.

2.3.1.5 Foreign Direct Investment as Indirect Measure of BEPS

FDI includes investments among affiliates across countries. BEPS not only affects tax-related variables, but also non-tax variables such as GDP and FDI. Analyses of FDI can provide indirect evidence of BEPS-related activities. An unjustifiably high concentration of FDI relative to GDP of a country can be attributed to the BEPS arrangements of MNEs. The FDI data needed for analysis can be sourced from OECD FDI statistics, the IMF CDIS, the United Nations Conference on Trade and Development (UNCTAD), the World Bank, and the World Trade Organization (WTO).

In terms of Action 11 of the BEPS Action Plan, FDI data has been used as an indirect indicator of BEPS. In addition to this, Janský and Palanský (2019), Acciari et al. (2015), and Bolwijn, Casella, and Rigo (2018) all analyse the BEPS phenomena that are likely to be captured by FDI data. However, key limitations must be kept in mind when interpreting the results of BEPS estimation using FDI. One of the shortcomings using macroeconomic aggregates, such as FDI, in studying BEPS behaviours of MNEs is the need to disentangle real economic effects and tax effects associated with BEPS arrangements. For example, the real investment (greenfield and expansion investment) is difficult to distinguish from financial transactions (mergers and acquisitions), which are likely to be related to BEPS (OECD, 2015d).

A high level of FDI could be an indication of ideal economic and financial conditions for investment (OECD, 2015d). Despite numerous limitations serving as a user warning, FDI has been one of the six BEPS indicators in the OECD's BEPS Action 11 final report. UNCTAD's (2015) World Investment Report has been greatly influential in later studies, which investigate the scale of profit shifting using an FDI-driven approach. UNCTAD's seminal work is used as a baseline model in the study of Janský and Palanský (2019).

2.3.2 Major BEPS Channels

The rapidly evolving nature of BEPS is of great concern to tax authorities and tax policy makers throughout the world. Lawmakers must keep up with rapid changes in the BEPS landscape for optimal design of tax avoidance laws. The identification of the prominent shifting channels used by multinational firms in cross-border income shifting is important in setting effective international tax rules (Heckemeyer & Overesch, 2013).

2.3.2.1 Debt Shifting

The tax-deductibility of interest is the prominent determinant of using debt instead of equity as a source of financing for companies (Merlo & Wamser, 2014). However, problems may arise when companies start to make extensive use of the debt tax shield, not only for tax minimisation but also for profit shifting purposes. It has been highlighted in Action 4 of the OECD's BEPS Action Plan that "the use of third party and related party interest is perhaps one of the most simple of the profit shifting techniques available in international tax planning" (OECD, 2015a, p. 15).

Ting (2017) found that intra-group debt is a common tax avoidance tool used by MNEs. Related party loans are popular for the following reasons. MNEs have the flexibility to determine the amount of the loans, as well as the interest rate, and the accounting standards generally do not recognise the loans of a related party (Ting, 2017).

MNEs operating across borders benefit more from international debt shifting than domestic companies do. The variation of tax rates between an affiliate and the parent company, as well as among other foreign affiliates, determines the international debt shifting of MNEs (Huizinga & Laeven, 2008). MNEs can optimise the level of indebtedness of affiliates that face higher tax rates so that more interest expenses are deductible from taxable income in high tax countries.

Egger, Eggert, Keuschnigg, and Winner (2010), who study debt shifting using internal debt, find that MNEs have higher debt relative to assets especially in high-tax jurisdictions.

While thin capitalisation rules are commonly used in limiting disproportionate deductions of interest of high-leveraged companies, these rules were found to be ineffective in limiting BEPS using intra-group debt in Australia (Ting, 2017). The debt to asset ratio in the thin-capitalisation rules fail to recognise the amount of real interest expenses of the loans (Ting, 2017).

Merlo and Wamser (2014) outline three basic methods in tackling BEPS involving interest. They point out that the arm's length principle, earning stripping rules (ESR) and fixed debt-to-equity rules can restrain the use of debt funding to gain interest deductions for profit shifting.

2.3.2.2 Transfer Pricing

Traditionally, a transfer price has been viewed as the price charged on tangible goods and services. However, transfer prices may take in nearly everything, including intellectual property, royalties, interest payments, expenses, fees, leasing, management charges and advisory services to minimise tax expenses for shareholder value maximisation (Sikka & Willmott, 2010). It comes as no surprise that three actions of the revised OECD (2015e)'s Transfer Pricing Guidelines cover three related areas so that the transfer pricing outcomes are in line with value creation. The three actions include Action 8, which targets transactions relating to intangibles, Action 9 concerning risk and capital, and Action 10 focusing on other high-risk transactions. The major revisions for Action 8 to 10 in the 2015 BEPS reports are incorporated in the latest OECD (2017)'s Transfer Pricing Guidelines, together with the revised guidelines on safe harbours and a few consistency changes.

Intra-group trade is easy for MNEs to manipulate in order to facilitate profit shifting. Unsurprisingly, almost all multinational companies use transfer pricing as a tool to shift profit to different geographical jurisdictions (Baker, 2005). Heckemeyer and Overesch (2013) find

that transfer pricing and licensing is a more prominent profit shifting channel than inter-company debt. Sikka and Willmott (2010) investigate the use of transfer pricing by companies in developed and emerging economies, and find that the transfer pricing practices may increase the loss of tax revenues.

2.3.2.3 Mismatches between Tax Regimes and Preferential Tax Treatment

In economics, “arbitrage” is a way to take advantage of the variation of prices in different markets. Likewise, the divergence and dissimilarity between tax systems make “tax arbitrage” possible.⁴⁵ Hybrid mismatch arrangements predominantly exploit the differences between tax laws across countries in order to achieve mismatches of tax outcomes. The final report of Action 2 of the BEPS Action Plan aims at addressing tax arbitrage arising from mismatches of hybrid elements to achieve Deduction/No Inclusion (D/NI), Double Deduction (DD) or Indirect Deduction/No Inclusion (Indirect D/NI). Kuzniacki et al. (2017) note that the final report on Action 2 is the lengthiest (at 458 pages) and the most comprehensive of all the 15 actions of the BEPS package. It indicates that hybrid mismatches might be the most complex and difficult BEPS issues to deal with. Without doubt, the coordination and implementation of the hybrid mismatch rules in different taxing jurisdictions has required great effort and exertion of all involved parties.

2.4 Development of Hypotheses

The formulation of hypotheses is an important part in any empirical research as it helps to further elucidate the research questions and keep researchers on the right track towards achieving the primary goal of their research (Mourougan & Sethuraman, 2017). A good

⁴⁵ There is no general agreement as to whether “tax arbitrage” is a form of tax optimisation or tax avoidance. In the study of Kuzniacki et al. (2017), the term “tax arbitrage” represents a sub-concept of tax avoidance that emerges from hybrid mismatch arrangements.

research question is a prerequisite of a good hypothesis which is testable and falsifiable. Researchers work towards falsification, but not the verification, of the initial hypothesis (Mourougan & Sethuraman, 2017).

Fundamentally, the first step in a statistical hypothesis testing process involves establishing a null hypothesis. A null hypothesis or H_0 (H-naught) is a statement stating that there is no difference or relationship between variables. An alternative hypothesis (H_1 or H_A) can be formulated once the null hypothesis has been constructed (Mourougan & Sethuraman, 2017). The alternative hypothesis is a statement set out in the opposite way to the null hypothesis that the researcher is seeking to prove.

Sample data is used to evaluate the null hypothesis.⁴⁶ However, one cannot prove a null hypothesis to be true, only prove it to be false (Huck, 2009). That is why the statement of “accepting the null hypothesis” might not be appropriate as it suggests that the null hypothesis is true. Instead, the null hypothesis is either “rejected” or “failed to be rejected”. The statistical inference indicates that if the null hypothesis is rejected, then the alternative hypothesis will be accepted (Stang & Poole, 2013).

The international tax differences provide opportunity and incentives for multinationals to redistribute their paper profits internationally so as to reduce their worldwide corporate tax liability. One strand of empirical literature regresses some measures of profitability of a multinational parent or a subsidiary on the tax incentive of profit shifting behaviour (Heckemeyer & Overesch, 2013). The earlier study of Hines and Rice (1994) employs after-financing profit and EBIT as dependent variables to investigate the relationship between the profitability of US affiliates and foreign tax burdens. Several more recent studies such as

⁴⁶ The Popperian Principle of Falsification illustrates the reason why the null hypothesis is set up and why the working hypothesis (alternative hypothesis) is not tested directly. A hypothesis cannot be confirmed but it can be invalidated or nullified. The data will help us to determine if we refute the null hypothesis in favour of the alternative hypothesis. Retrieved from <https://online.stat.psu.edu/stat502/lesson/1/1.2>

Huizinga and Laeven (2008), Dischinger (2007, 2010), Karkinsky and Riedel (2012), Dharmapala and Riedel (2013), and Heckemeyer and Overesch (2013), all dealing with multinational income shifting in a non-US context, have exploited European data derived from the commercial database Amadeus to examine the relationship between the changes in the tax rate differentials and the reported profit of the affiliates of multinationals.

Dischinger (2007) investigates the relationship between the reported profit of affiliates and the tax rate changes of affiliates relative to their foreign parent firms using micro data from affiliated companies located in Europe. Huizinga and Laeven (2008) analyse the international profit shifting of European multinationals due to tax differences between parent companies and subsidiaries, as well as tax differences among subsidiaries in different host countries. On the whole, empirical evidence shows that multinational firms follow the usual pattern of BEPS by reporting lower profits in high-tax locations (Hines, 2014). The statistical studies consistently suggest that tax-rate differences have an important effect on multinational firms in arranging their tax affairs (Hines, 2014).

This study takes a similar approach to empirically estimate the income shifting between parent companies and their subsidiaries. To be more precise, this study measures the scale of profit shifting activity of two sub-groups:

- i. New Zealand subsidiaries and their overseas parents, and
- ii. New Zealand enterprises owned by a resident taxpayer with affiliates in other jurisdictions.

The variance in the statutory tax rates of parents and subsidiaries plays a significant role in determining the level of international income shifting (Dischinger et al., 2013). This study seeks to test for shifting activities by determining a relationship between the changes of corporate tax rate and the reported profit of these two sub-groups.

The hypotheses are stated as follows:

H_0^1 : Corporate tax rate differential is not significantly associated with the pre-tax profitability of NZSOFMs.

H_A^1 : Corporate tax rate differential is significantly associated with the pre-tax profitability of NZSOFMs.

H_0^2 : Corporate tax rate differential is not significantly associated with the pre-tax profitability of NZDOMs.

H_A^2 : Corporate tax rate differential is significantly associated with the pre-tax profitability of NZDOMs.

In regard to debt shifting, New Zealand domestically owned companies (NZDOCs)⁴⁷ are benchmarked to NZSOFMs to investigate if there is any systematic difference between these two groups of companies in eight specific ratios in term of debt structure, distribution of operating income and transfer pricing.

H_0^3 : The ratios Interest-bearing debt/Total assets, Total debt/Total assets, Short-term debt/Total assets, and Long-term debt/Total assets do not differ between NZSOFMs and NZDOCs.

H_A^3 : The ratios Interest-bearing debt/Total assets, Total debt/Total assets, Short-term debt/Total assets, Long-term debt/Total assets for NZSOFMs are higher than for NZDOCs.

H_0^4 : The ratios Interest expense/EBIT, Income tax expense/EBIT, Net profit/EBIT do not differ between NZSOFMs and NZDOCs.

⁴⁷ NZDOCs vary from NZDOMs, and they could be stand-alone New Zealand resident companies without any (local or foreign) subsidiaries, or with merely domestic subsidiaries, or with at least one wholly owned foreign subsidiary.

H_A^4 : The ratio Interest expense/EBIT for NZSOFMs is higher than for NZDOCs, but the ratios Income tax expense/EBIT and Net profit/EBIT for NZSOFMs are lower than for NZDOCs.

H_0^5 : The ratio EBIT/Sales do not differ between NZSOFMs and NZDOCs.

H_A^5 : The ratio EBIT/Sales for NZSOFMs is lower than for NZDOCs.

2.5 Conclusion

A review of prior scholarly works related to tax avoidance and BEPS provide a great insight into the methods that were used in the academic studies in measuring the magnitude of BEPS. This helps the researcher to form a specific, and testable research hypothesis. In addition, the review of literature is particularly important in identifying theories pertinent to the topic being studied, and lays a fundamental groundwork that will help the researcher to devise the most appropriate analytic model that can be used to measure BEPS, specifically in the New Zealand context. The hypotheses formed in this chapter will be tested using a statistical estimation model, as presented in Chapter 4.

Chapter 3 Research Methodology and Estimation Approach

3.1 Introduction

In this chapter, the research methodology, which is an extension of the literature review in Chapter 2, is used to explain what and why the methodological choices were taken for conducting the research. The methodological approach to the research, data collection methods, and methods of analysis are important to ensure the validity and reliability of the research.

The philosophical paradigms, which guide the researcher in developing research methodology are discussed in Section 3.2. The estimation models, which are used to identify statistical evidence from the data collected, is presented in Section 3.3. The methodological approach that outlines the techniques used to collect and evaluate the datasets of the research is defined in Section 3.4. Finally, Section 3.5 provides a summary of the chapter.

3.2 Research Paradigms

A research paradigm refers to a set of beliefs and assumptions held by a researcher about ontology, epistemology and methodology. The credibility and generalisability of a study relies on the right application of paradigm by a researcher in their specific field of study.

Before probing into the philosophical paradigm to be adopted, this study seeks to contribute to the body of knowledge of international taxation by accomplishing the following goal:

- to quantify the magnitude of international profit shifting activities of MNEs that have business operations in New Zealand.

In this context, the underlying theory that guides the study is “positivism”. This approach will be discussed in the next section.

3.2.1 Positivism

Traditionally, positivism and interpretivism are two fundamental philosophical paradigms guiding researchers through the research design (McKerchar, 2008). Positivists perceive that the nature of reality is objective, single and tangible (Hudson & Ozanne, 1988). Positivist researchers will always remain detached from their research subjects so that they can conduct the research rationally and logically. On the other hand, interpretivists believe that reality exists in a multiple, contextual structure, and the researchers and participants in the research are mutually dependent and interactive (Hudson & Ozanne, 1988). Therefore, they always use a more flexible, personal approach to the research. Positivists interpret “real reality” based on empirical evidence, whereas interpretivists observe reality based on the perception of the individual researcher (McKerchar, 2010, p. 75).

Positivism and interpretivism are on opposite ends of a continuum, while critical realism and pragmatism are two other philosophical approaches that lie in the middle of the continuum (McKerchar, 2010). Interpretivism, critical realism, pragmatism and other present-day paradigms have been classified as rejecting positivism. Undeniably, positivism is one of the most prominent theoretical underpinnings and it is still a common research approach (Hunter & Leahey, 2008). However, unfavourable opinions of positivist epistemologies have often shifted the epistemic beliefs of researchers from positivism towards post positivism. Post-positivism is neither an extension of positivism nor a rejection of it (Adam, 2014). Post-positivism is an improved version of positivism that moves away from a purely empirically-based stance towards the subjectivity of reality (Adam, 2014).

A quantitative positivistic researcher relies on sophisticated analytical tools and statistical models to obtain empirical results that are generalisable to the wider population. Positivists endeavour to be neutral and completely objective and who believe in the importance of

empirical evidence to obtain explanations and create knowledge about reality. The present study, conducted under positivism, engages a quantitative methodological approach, where a hypothesis is tested while the researcher remains detached from the topic of the study.

3.3 Estimating Equations

BEPS, by nature, is complicated and difficult to identify in a direct way. Only a few studies provide direct evidence of profit shifting strategies because of the limited availability of data on intra-company transfer prices (Dischinger, 2010). Given that intra-company data is inaccessible, the present study hopes to provide indirect numerical evidence of the BEPS problems by engaging with publicly available company financial data.

First, the present study seeks to examine the existence and extent of profit shifting between NZSOFMs and their immediate parents located in other countries, as well as between NZDOMs and their subsidiaries established outside New Zealand. The estimation model involves assessing the semi-elasticities in regard to the effect of corporate tax rate differences on profit. Multinational firms that have international operations typically respond to changes in the corporate tax rate differential between the host and home country, especially a reduction of the corporate tax rate in the host country, by strategically shifting their profits between jurisdictions.⁴⁸

The tax semi-elasticity measure is the most prevalent estimation method to date to investigate profit differences connected with profit shifting activities (Hansson, Olofsdotter, & Thede, 2016). However, the present study acknowledges that this measure, which evaluates the

⁴⁸ Changes in the corporate tax rate differential could arise from either an increase or a decrease in the corporate tax rate in the home country or host country.

profitability of firms, has an obvious drawback by eliminating companies in a loss-making position with zero or negative profit, and thus reducing the sample size of the study.⁴⁹

The following specification has been formed to estimate the tax semi-elasticities:

$$\ln\text{PTP}_{it} = \beta_0 + \beta_1 \text{TAXDIFF}_{it} + \beta_2 \mathbf{X}_{it} + \varphi_i + \varepsilon_{it} \quad (1)$$

PTP: Natural logarithm of pre-tax profit of firm *i* at time *t*.⁵⁰

TAXDIFF: Statutory tax rate difference of firm *i* to its parent in year *t*.

X: Time varying control variables which comprise firm characteristics and host country characteristics.

φ : Firm fixed effects (unobserved characteristics on the firm and the country level).

ε : Error term.

In this specification model, *i* denotes the observational unit (firm) and *t* denotes the time period (year). The observational units are NZSOFMs and NZDOMs and the time period is a 10-year time frame (2008 to 2017). The pre-tax profit has been employed as a dependent variable to capture all types of profit shifting including financial shifting techniques such as debt shifting.

For NZSOFMs, the TAXDIFF is defined as the statutory tax rate of a NZSOFM minus the statutory tax rate of its immediate parent. For NZDOMs, the TAXDIFF is the unweighted average statutory tax rate difference between a NZDOM and its majority-owned subsidiaries worldwide. The location of the immediate parent of the NZSOFMs and the location of overseas subsidiaries of NZDOMs can be identified and collected manually from the financial

⁴⁹ Dharmapala and Riedel (2013, p.103) propose a constant (*K*) that “ $\pi_{it} + K > 0$ for 99 percent of observations (including those with negative π_{it})”. According to Dharmapala (2014), negative observations can be possibly added to the sample through rescaling of the variables.

⁵⁰ The “natural” or “base-*e*” log, has the mathematical constant *e* (≈ 2.718281828) as its base, and is always denoted as $\ln(x)$ while the “common” log has 10 as its base and denoted as $\log(x)$ or $\log_{10}(x)$.

statements. The statutory tax rate of the location is important information to be used to calculate the tax differential.

The controls at the firm level are the (tangible) fixed assets (as a proxy for the capital input), the cost of employees (as a proxy for the labour input) and the leverage ratio of a company. At the country level, the controls include GDP (as a proxy for market size) and the CPI (as a proxy for the overall risk of a country). The double-log (sometimes called log-log) functional form is used to interpret the relationship between pre-tax profit and firm-level and country level variables, in which the regressand and regressors are expressed in terms of their natural logs. The elasticity of pre-tax profit with regards to micro or macro variable estimates the percentage change in pre-tax profit to a one percentage change in the macro or micro variable, holding the other variables in the equation constant.⁵¹

The firm fixed effects are included in this study as it is crucial to mitigate the endogeneity problem of unobservable firm-specific characteristics in explaining variations in profit (Dischinger, 2010). Nonetheless, micro-level data outweighs macro-level data in identifying profit shifting behaviours of companies as the variables identified at the micro-level are unlikely to cause endogeneity problems in the estimation model (Fuest & Riedel, 2010). The panel data collected for the year 2008 to 2017 is analysed using an ordinary least squares (OLS) firm fixed effects model. The country and industry dummy variables are not applied to fixed effect regressions as these variables do not change over time (Dischinger, 2010).

In the presence of profit shifting driven by tax, the correlation between tax level and reported profit would expect to be negative (Fuest & Riedel, 2010). However, this study notes that a negative relationship between tax levels and reported profit can be observed even in the absence of tax-induced profit shifting as highly profitable projects are appealing to low tax

⁵¹ Elasticity measures the relative percentage changes between Y and X while semi-elasticity depicts the percentage change in X with respect to an absolute change in Y.

jurisdictions (Fuest & Riedel, 2010). Table 3.1 summarises the variables used to construct the regression model and the source of information for each variable.

Table 3.1*Variables-construction and Data Sources for Profit Shifting*

Variables	Abbreviation	Definition	Source of Information
Dependent Variable			
Pre-tax Profit	PTP	Amount of profit before tax of NZSOFMs or NZDOMs in natural logarithm	Company annual report for financial year ending from 2008 to 2017
Independent Variables			
Tax Differential 1	TAXDIFF1	Corporate statutory tax rate of a NZSOFM – Corporate statutory tax rate of its immediate parent	Different sources: The corporate statutory tax rate for OECD countries sourced from OECD, “Table II.1. Statutory corporate income tax rate”; The corporate statutory tax rate for non-OECD countries is obtained from Trading Economics, KPMG’s tax rates table, PwC and researched online.
Tax Differential 2	TAXDIFF2	The average corporate statutory tax rate of NZDOM’s foreign subsidiaries – Corporate statutory tax rate of a NZDOM	Different sources: The corporate statutory tax rate for OECD countries sourced from OECD, “Table II.1. Statutory corporate income tax rate”; The corporate statutory tax rate for non-OECD countries is obtained from Trading Economics, KPMG’s tax rates table, PwC and researched online.
Control Variables			
Firm level:			
Fixed assets	FA	Amount of tangible fixed assets in natural logarithm	Company annual financial statements for financial year ending from 2008 to 2017
Cost of employees	EMPLYCOST	Amount of employee compensation expenses in natural logarithm	Company annual financial statements for financial year ending from 2008 to 2017
Financial leverage ratio	LEV	The ratio of total liabilities to total assets in natural logarithm	Company annual financial statements for financial year ending from 2008 to 2017
Country level:			
Gross Domestic Product	GDP	GDP (current price, national currency) in natural logarithm	IMF world economic outlook database 2008–2017
Corruption Perceptions Index	CPI	The value ranges from 0 (the most corrupt country) to 10 (the least corrupt country) in natural logarithm	Transparency International’s CPI 2008–2017

Apart from profit-shifting, this study seeks to investigate BEPS issues by considering the debt-shifting strategies of NZSOFMs relative to comparable NZDOCs. Multinational companies are exposed to diverse tax systems in all jurisdictions where they operate while domestic companies operate solely in one jurisdiction and need only respond to that domestic tax system. Arguably, multinational companies are tempted to shift high proportions of debt to jurisdictions with a high tax rate or where they are biased in favour of foreign investors and debt financing. In order to determine if NZSOFMs tend to be financed with more debt in comparison to NZDOCs, the study examines the following indicators.

$$\text{Interest-bearing debt ratio} = \frac{\text{Interest-bearing debt}}{\text{Total assets}}$$

$$\text{Leverage 1} = \frac{\text{Total debt}}{\text{Total assets}}$$

$$\text{Leverage 2} = \frac{\text{Short-term debt}}{\text{Total assets}}$$

$$\text{Leverage 3} = \frac{\text{Long-term debt}}{\text{Total assets}}$$

Financial leverage refers to the portion of debt capital in the company's capital structure. The commonly used debt ratio (calculated as "total debt/total assets") demonstrates the level of debt a company uses to acquire the assets. However, various non-interest bearing accruals and provisions are included in the total liabilities a company has. A high percentage of debt does not lead to profit shifting unless the debt is charged with interest (Smith & Dunmore, 1997). Thus, this study looks specifically into interest-bearing debt relative to the total assets of a company. In addition to that, the ratios of short-term debt relative to total assets, and long-term debt relative to total assets are also included to investigate the debt structure of a company.

The value of debt and assets used to calculate these ratios is derived from the companies' financial statements.⁵² New Zealand equivalents to international accounting standard 1 (NZ IAS 1) *Presentation of Financial Statements*, which incorporates the equivalent IFRS standard, sets out the basis on how to present the general purpose financial statements of an entity (New Zealand Accounting Standards Board, 2011a). The item “financial liabilities” is presented in the Statement of Financial Position (IAS 1.54) under item (m). The “financial liabilities” exclude amounts shown under Item (k) *trade and other payables* and Item (l) *provisions*. The “financial liabilities” are also required to be disclosed under IFRS 7.8 of IFRS 7 – *Financial Instruments: Disclosures*. The “interest-bearing loans and borrowings” is listed under “financial liabilities” (New Zealand Accounting Standards Board, 2011b).

EBIT is made up of three components: interest expense, income tax expense and net profit. If NZSOFMs rely heavily on debt financing to avoid tax, they are expected to have a greater proportion of interest expense, lower income tax expense and lower net profits than NZDOCs.

$$\text{Interest expense ratio} = \frac{|\text{Interest expense}|}{|\text{Interest expense}| + |\text{Income tax expense}| + |\text{Net profit}|}$$

$$\text{Income tax expense ratio} = \frac{|\text{Income tax expense}|}{|\text{Interest expense}| + |\text{Income tax expense}| + |\text{Net profit}|}$$

$$\text{Net profit ratio} = \frac{|\text{Net profit}|}{|\text{Interest expense}| + |\text{Income tax expense}| + |\text{Net profit}|}$$

The last indicator intends to capture transfer pricing within the company group by looking at the EBIT ratio. EBIT demonstrates that tax effects arising from non-financing channels such as transfer pricing, without considering the interest income and interest paid from company debt (Heckemeyer & Overesch, 2013). This indicator only investigates NZSOFMs and

⁵² New Zealand's thin capitalisation rules rely on the value disclosed in the financial statements to calculate the “debt-to-net-asset ratio”. This study does the same by obtaining the values from the company financial statements.

NZDOCs with affiliates in other jurisdictions, as NZDOCs without overseas affiliates are unlikely to use transfer pricing to avoid tax.

$$\text{EBIT ratio} = \frac{\text{EBIT}}{\text{Sales}}$$

Following this, each of the ratios is regressed on a dummy variable which takes the value of “one” if it is a company with foreign ownership and “zero” otherwise, controlling for firm size and industry.⁵³ The sales income is employed as a proxy for firm size and the descriptions of business industry are displayed in Table 3.3. The sample year is year 2015 when the OECD released the BEPS 2015 Final Report. The regression models are estimated using OLS.

$$\text{Interest-bearing debt ratio}_i = \beta_0 + \beta_1 \text{FOREIGN}_i + \beta_2 \text{SIZE}_i + \beta_{3-15} \text{INDUSTRY}_i + \varepsilon_i \quad (2)$$

$$\text{Leverage 1}_i = \beta_0 + \beta_1 \text{FOREIGN}_i + \beta_2 \text{SIZE}_i + \beta_{3-17} \text{INDUSTRY}_i + \varepsilon_i \quad (3)$$

$$\text{Leverage 2}_i = \beta_0 + \beta_1 \text{FOREIGN}_i + \beta_2 \text{SIZE}_i + \beta_{3-17} \text{INDUSTRY}_i + \varepsilon_i \quad (4)$$

$$\text{Leverage 3}_i = \beta_0 + \beta_1 \text{FOREIGN}_i + \beta_2 \text{SIZE}_i + \beta_{3-17} \text{INDUSTRY}_i + \varepsilon_i \quad (5)$$

$$\text{Interest expense ratio}_i = \beta_0 + \beta_1 \text{FOREIGN}_i + \beta_2 \text{SIZE}_i + \beta_{3-15} \text{INDUSTRY}_i + \varepsilon_i \quad (6)$$

$$\text{Income tax expense ratio}_i = \beta_0 + \beta_1 \text{FOREIGN}_i + \beta_2 \text{SIZE}_i + \beta_{3-15} \text{INDUSTRY}_i + \varepsilon_i \quad (7)$$

$$\text{Net profit ratio}_i = \beta_0 + \beta_1 \text{FOREIGN}_i + \beta_2 \text{SIZE}_i + \beta_{3-15} \text{INDUSTRY}_i + \varepsilon_i \quad (8)$$

$$\text{EBIT ratio}_i = \beta_0 + \beta_1 \text{FOREIGN}_i + \beta_2 \text{SIZE}_i + \beta_{3-15} \text{INDUSTRY}_i + \varepsilon_i \quad (9)$$

FOREIGN: A New Zealand company with foreign ownership takes value of 1, and 0 otherwise.

SIZE: Natural logarithm of sales income.

INDUSTRY: Business Industry Classification (BIC) code.

ε_i : Error term.

⁵³ Firm size and industry affiliation are influential factors of capital structure and also foreign ownership (Li & Tran, 2020).

Table 3.2*Variables-construction and Data Sources for Debt shifting*

Variables	Abbreviation	Definition	Source of Information
Dependent Variables			
Indicators related to debt structure			
Interest-bearing debt ratio		Interest-bearing debt/Total assets	Company annual report for financial year ending 2015
Leverage 1		Total debt/Total assets	Company annual report for financial year ending 2015
Leverage 2		Short-term debt/Total assets	Company annual report for financial year ending 2015
Leverage 3		long-term debt/Total assets	Company annual report for financial year ending 2015
Indicators related to distribution of operating income			
Interest expense ratio		$\frac{ \text{Interest expense} }{ \text{Interest expense} + \text{Income tax expense} + \text{Net profit} }$	Company annual report for financial year ending 2015
Income tax expense ratio		$\frac{ \text{Income tax expense} }{ \text{Interest expense} + \text{Income tax expense} + \text{Net profit} }$	Company annual report for financial year ending 2015
Net profit ratio		$\frac{ \text{Net profit} }{ \text{Interest expense} + \text{Income tax expense} + \text{Net profit} }$	Company annual report for financial year ending 2015
An indicator related to transfer pricing			
EBIT ratio		EBIT/Sales	Company annual report for financial year ending 2015
Independent Variables			
Foreign ownership	FOREIGN	A New Zealand company with foreign ownership takes value of 1, and 0 otherwise	Company annual report for financial year ending 2015
Size	SIZE	Sales income in natural logarithm	Company annual report for financial year ending 2015
Industry	IND	Business industry classification code	The website of business industry classification code

The industry classification is not readily available for every single company on the website of the New Zealand Companies Office. The business industry classification (BIC) code is assigned to each sample company manually according to the business activities described in the company's latest financial statements. For companies involved in multiple business activities, the industry classification is coded according to the predominant activities.

The BIC code is divided into 19 broad industry divisions (Accident Compensation Corporation [ACC], IRD & Statistics New Zealand, n.d.).⁵⁴ However, the principal business activities of the sample companies in this study involved only 15 industries as shown in Table 3.3.

Table 3.3

Descriptions of New Zealand Business Industry

Group	Industry
1	Manufacturing
2	Electricity, Gas, Water and Waste Services
3	Construction
4	Wholesale Trade
5	Retail Trade
6	Accommodations and Food Services
7	Transport, Postal and Warehousing
8	Information Media and Telecommunication
9	Agriculture, Forestry and Fishing
10	Rental, Hiring and Real Estates Services
11	Professional, Scientific and Technical Services
12	Administrative and Support Services
13	Health Care and Social Assistance
14	Arts and Recreation Services
15	Other Services

⁵⁴ The 6-digits BIC code can be converted into the Australian and New Zealand standard industrial classification (ANZSIC) to be used by Statistics New Zealand for industry analyses.

3.4 Sample Selection

There are three commonly used research methods, namely qualitative research, quantitative research, and mixed method research. In general, qualitative research is exploratory research, which uses a top-down approach to collect qualitative data, while quantitative research uses a bottom-up approach to collect measurable data that can be converted into statistics. In this study, quantitative research has been engaged to measure the magnitude of BEPS in New Zealand using numerical data.

3.4.1 Sampling in Quantitative Research

Purposive sampling techniques is used in this study to identify a specific group of business entities of interest that fulfil objectives of the study. In general, the hypotheses of this study can be categorised as follows: (i) H_1 and H_2 and (ii) H_3 to H_5 . A different group of sample companies in different sample years, and two distinctly different estimation methods are employed in this study to test the hypotheses. The following sections will discuss the various aspects of sampling according to these two groups of hypotheses.

3.4.1.1 Sample Companies and Sample Years for H_1 and H_2

The forms of an entity will determine the tax obligations of a business. Table 3.4 presents the business entities in New Zealand and the types of tax rate that are applicable to each entity.⁵⁵

⁵⁵ The statistics on the number of business entities and taxable income are in 2018 figures. The report was prepared especially for sessions 6 and 7 of the Tax Working Group meeting in 2018.

Table 3.4*Number of Business Entities, Tax Rate and Taxable Income in New Zealand*

Entity	Number	Tax Rate	Taxable Income (\$m)
Limited partnerships	1,800	Partners' tax rates	180
Maori authorities	4,000	17.5 per cent, adjusted to shareholders' tax rates on distribution	230
Look through companies	48,000	Shareholders' tax rates	(50)
Qualifying companies	53,400	Company tax rate on accrual, adjusted to shareholders' tax rates on distribution	1,800
Ordinary partnerships	97,500	Partners' tax rates	3,730
Trusts	254,100	Trustee income taxed at equivalent to top personal rate, beneficiary income taxed at beneficiaries' tax rates	12,700
General companies	322,300	Company tax rate on accrual, adjusted to shareholders' tax rates on distribution	39,360
Sole traders	469,000	Owner's tax rate	28,340

Note. Adapted and modified from Appendix 1: Types of business entities in New Zealand and how they are taxed. Copyright 2018 by Inland Revenue Department & the Treasury.

According to IRD and the Treasury (2018a), sole traders are the largest business entity type in New Zealand, followed by general companies and trusts. Although general companies are New Zealand's second largest group of entities, the taxable income contributed by general companies is the highest among all other business entities. More specifically, general companies that are taxed at company tax rate are selected as representative samples, based on the purpose of this study that intends to examine BEPS related activities of MNEs in response to corporate tax rate differentials.

The website of the New Zealand Companies Office states as follows:

Some **large** New Zealand, and all **large** overseas companies, must file annual audited financial statements under the Companies Act 1993. All Financial Markets Conduct (FMC) reporting entities must lodge annual audited financial statements under the Financial Markets Conduct Act 2013.⁵⁶

⁵⁶ The financial reporting of a company is defined in Part 11 Subpart 2 of the Companies Act 1993. The meaning of "large" is defined in Section 45 of the Financial Reporting Act 2013. The definition of a "large" overseas company can be found in Section 198 of the Companies Act 1993.

While this quantitative study intends to analyse the magnitude of BEPS by obtaining the accounting data from financial statements, not all MNEs deemed to be “large” entities are obliged to submit financial reports as prescribed by New Zealand financial reporting regulations. Interestingly, the definition of “large” companies has not been explicitly defined and there is no official or legal definition of it. In New Zealand, a “large” entity can be categorised distinctively according to different sets of criteria and thresholds of the Ministry of Business, Innovation and Employment (MBIE), New Zealand Inland Revenue and the New Zealand Financial Reporting Act 2013 (FRA) (Shekhovtsev, 2019). Shekhovtsev (2019), in his study, delineated the quantitative and qualitative approach that helps to illuminate and provide a unified definition of large enterprises.⁵⁷

Table 3.5 outlines the conditions that apply to a business entity for it to be considered as a “large” entity to file financial statements according to FRA. The conditions vary according to whether it is a New Zealand entity or an overseas entity. There are no specific conditions for being classified as a “large” FMC reporting entity as all FMC entities are required to prepare and submit their financial statements. Non-large entities are not legally bound to submit a financial statement, but they may opt to do so.

Table 3.5 also shows that the statutory reporting entities must prepare general purpose financial reports (GPFR) that are compliant with New Zealand generally accepted accounting practices (NZ GAAP). On the other hand, entities with no statutory financial reporting obligations may prepare financial reports according to NZ GAAP or alternatively based on the requirements specified by the IRD.⁵⁸ In compliance with NZ GAAP, financial statements must be prepared in accordance

⁵⁷ Refer to the doctoral thesis of Shekhovtsev (2019) for a more detailed explanation of defining large enterprises.

⁵⁸ Instead of sending in their financial statements, the taxpayers can complete the IR 10 (the financial statements summary form approved by IRD) online.

with New Zealand equivalents to international financial reporting standards (NZ IFRS) or NZ IFRS reduced disclosure regime (NZ IFRS RDR).⁵⁹

⁵⁹ NZ IFRS RDR is applicable to entities with reduced public accountability.

Table 3.5*Financial Reporting Requirements for New Zealand Companies*

Types of NZ Business Entity	To be considered as a "large" entity and to file financial statements if one of the following conditions applies	GPFR	Audit	Companies Office Filing Requirement
(1) NZ entities				
An NZ Company with a foreign ownership of less than 25 percent	- The total assets for the company exceed NZ\$60 million as at the balance date for the 2 preceding accounting periods, or - The total revenue exceeds NZ\$30 million in each of the 2 previous accounting periods	Yes	Yes [⌘]	No
An NZ Company (but not a subsidiary of an overseas company) with a foreign ownership of more than 25 percent	- The total assets for the company exceed NZ\$60 million as at the balance date for the 2 preceding accounting periods, or - The total revenue exceeds NZ\$30 million in each of the 2 previous accounting periods	Yes	Yes	Yes
(2) Overseas entities				
A subsidiary of an overseas company	- The total assets for the company exceed NZ\$20 million as at the balance date for the 2 preceding accounting periods, or - The total revenue exceeds NZ\$10 million in each of the 2 previous accounting periods	Yes	Yes	Yes
An overseas company or a branch registered on Overseas Register of the Companies Office that is undertaking business operations in New Zealand	- The total assets for the company exceed NZ\$20 million as at the balance date for the 2 preceding accounting periods, or - The total revenue exceeds NZ\$10 million in each of the 2 previous accounting periods	Yes	Yes	Yes

[⌘] *May opt out*

Continued...

Types of NZ Business Entity	To be considered as a "large" entity and to file financial statement if one of the following conditions applies	GPFR	Audit	Companies Office Filing Requirement
(3) FMC reporting entities				
All FMC reporting entities	-	Yes	Yes	Yes
(4) Non-large (that are not FMC) entities				
A company with 10 or more shareholders	-	Yes ☒	Yes ☒	No
A company with less than 10 shareholders	-	No ☒☒	No ☒☒	No

☒ *May opt out* ☒☒ *May opt in*

This study, which aims to investigate profit shifting issues using company-level data derived from the financial statements, will only focus on the New Zealand entities and overseas entities that furnished financial statements.

Concerning overseas entities, an overseas entity can start up a business in New Zealand in any form, as follows:

- a. by trading directly; registering as an overseas company (i.e., as a branch),
- b. by forming a subsidiary company,
- c. by merging with or taking over an existing New Zealand company, or
- d. by entering a limited partnership.

This study will look into New Zealand subsidiaries that are owned by an overseas company. A New Zealand branch is excluded from the sampling as it is a different type of entity for tax purposes, with a distinct format for reporting its financial statements. In the meantime, entities formed from a merger or a limited partnership have different characteristics, so are also outside the scope of this investigation.

The financial statements needed for this study were sourced from the website of the New Zealand Companies Office. The website publishes the financial statements of the following companies: New Zealand limited companies (NZ LTD), New Zealand unlimited companies (NZ ULTD), New Zealand co-operative companies (NZ Co-ops), Overseas ASIC companies (ASIC) and Overseas non-ASIC companies (non-ASIC).⁶⁰

Table 3.6 shows the entity status of these five types of business entity as of 28 February 2020. The entity status is based on the full list of companies provided by New Zealand Companies Office on a confidential basis for the present study.

⁶⁰ ASIC is the abbreviation for the “Australian Securities and Investment Commission”.

Table 3.6*Business Entity Types in New Zealand*

Entity Type	Entity Status		
	Registered	External administration (in liquidation or in receivership)	In statutory management or voluntary administration
New Zealand limited companies (NZ LTD)	646,659	4,204	16
New Zealand unlimited companies (NZ ULTD)	394	1	-
New Zealand co-operative companies (NZ Co-ops)	127	-	-
Overseas ASIC companies (ASIC)	1,666	-	-
Overseas non-ASIC companies (Non-ASIC)	521	2	-
Total	649,367	4,207	16

The entity search report extracted from the website of the New Zealand Companies Office only shows the first 1,000 results. The full report is not released for marketing purposes under the Privacy Act 1993. While an entire list of New Zealand registered companies is not available to the public, it can be obtained for business usage, research, or general interest on a case-by-case basis.

General information, such as company name, status, type of entity, registration date and financial reports are public data which can be accessed on the website of the New Zealand Companies Office. The remaining business information such as the primary contact details for the entity, personal information of specific roles in a company, are restricted or confidential information.

The representative samples of this study, which are NZSOFMs and NZDOMs, can be registered as NZ LTD or NZ ULTD. A New Zealand branch that is registered on the Overseas Register of the Companies Office under ASIC (referring to Australian companies) or non-ASIC (referring to non-Australian companies) and NZ co-ops, are beyond the scope of this study and are therefore not included in the sampling.

Since this study relies heavily on company data extracted from the website of the New Zealand Companies Office for the purpose of constructing study variables, the availability of the data will also determine and restrict the sample period of the study. It is noted that documents registered before the year 1996 might not be able to be found on the website. Therefore it was decided that the sample period would be no earlier than 1996.

The researcher intended to conduct the BEPS analysis over a reasonably long sample period so as to be able to uncover the traits of tax avoidance (assuming it exists), as corporate tax strategies take effect gradually over time. In addition, a long sample period would contribute to a larger sample size which in turn offers the potential for more precise and reliable results and alleviates the influence of any confounding factors on the results. Even so, a problem facing a long sample period is that the obligations of financial reporting entities may change when for example, they are no longer “large” entities, or they are exempted from filing financial statements. This may result in missing data due to missing financial statements for some years.

By taking all the factors into account, the sample period of this study has been restricted to the period 2008 to 2017 (10 years). New Zealand adjusted its corporate income tax rate in 2008 from 33 percent to 30 percent, and again in 2011 from 30 percent to 28 percent. Given a reduction in the New Zealand company tax rate, the researcher was particularly interested in finding out if the recent rate cut that occurred within the period 2008 to 2011, had any impact on the profits reported by the companies.

This study also attempts to review the responses of companies to recent changes of government tax policies both within in New Zealand and in other jurisdictions. The OECD BEPS project was rolled out in 2013. The New Zealand government and other jurisdictions have made relevant amendments to their tax legislation or enacted new tax rules that implement the BEPS recommendations, following the release of the final reports on the BEPS Action Plan in 2015.

Thus, this study takes into consideration changes before and after 2013 when determining the sample period so that it will be possible to capture and track the changes caused by BEPS.

The cut-off point of the sample year is 2017, right before the top corporate tax rate in the US was reduced from 35 percent to 21 percent by the TCJA which took effect on 1 January 2018. This is because the sample of companies in the study may consist of New Zealand subsidiaries owned by an US foreign parent and the study seeks to investigate any profit shifting related to corporate tax rates. A sudden change in the US corporate tax rate, which had been maintained at the same rate for many years, will lead to variation in data, thus affecting the statistical power of the study.

3.4.1.2 Determining the Final Sample for H₁ and H₂

The first phase of final sample selection involved filtering those NZ LTD and NZ ULTD that are not within the sample periods (2008–2017), the details are presented in Table 3.7.

Table 3.7

Registered LTD and ULTD that Matched the Sample Years

Registered NZ LTD and ULTD				647,053
less: Companies incorporated after 2008				393,094
Year of Incorporation	Number of LTD and ULTD	Year of Incorporation	Number of LTD and ULTD	
2019	53,443	2013	28,074	
2018	52,789	2012	24,870	
2017	49,746	2011	22,069	
2016	46,694	2010	21,528	
2015	39,068	2009	21,679	
2014	33,134	Total	393,094	
less: Companies without latest financial statement 2017				252,650
Registered NZ LTD and ULTD that fit into the sample period				1,309

By removing companies incorporated after 2008 (393,094) and companies without their latest financial statements for 2017 (252,650), 1309 registered LTD and ULTD entities were left for

analysis. The registered NZ LTD and NZ ULTD entities that fulfilled the sample period of this study can be divided into 940 NZSOFMs and 369 NZDOMs.

The second phase of sample selection sorts out the entities according to the main study criteria as follows:

a. Not-for profit entities

b. Banking and insurance industries

Corporations such as banks are highly regulated by governmental authorities and have different financial characteristics. In addition, the banking and insurance entities are governed by different sets of tax regimes. For example, banking entities in New Zealand are regulated by special thin capitalisation rules (IRD, 2017a). Weichenrieder (2009) does not include financial firms in his study as they have a distinct balance sheet structure. One of the BEPS indicators in the OECD BEPS Action Plan 11 final report is calculated using company-level financial statement information of a sample of the 250 largest global companies, which are non-financial MNEs (OECD, 2015d).

c. Incomplete financial data

Those companies with incomplete 10-year financial statements for the years 2008 to 2017 were excluded. Since the missing financial statements for these companies are non-random, the present study recognises that this might cause a systematic bias to the results.

d. Operating losses and with negative operating cash flow

Companies with taxable losses are not subject to statutory corporate tax and taxation has significant effects on companies with positive net incomes only (Dischinger, Knoll, & Riedel, 2013). The high statutory tax rate does not have an impact on the business which makes losses as the additional profit is not taxed (Heckemeyer & Oversesch,

2013). By eliminating companies that operate at a loss, it will improve the measurement precision in the studies of profit shifting as the loss-making enterprises are linked to an observational error of the tax incentive (Heckemeyer & Oversesch, 2013).

e. Companies with no subsidiaries or no overseas subsidiaries

The first part of the study intends to determine how BEPS is impacted by the tax rate differential between two nations. New Zealand companies with no subsidiaries or with no overseas subsidiaries will not be included in the final sample.⁶¹

f. State-owned enterprises (SOEs) or high-net-worth individuals (HNWI) or tax exempt Crown entities

Table 3.8

Final Samples of NZSOFMs and NZDOMs

	NZSOFMs	NZDOMs
Registered NZ LTD and ULTD that fit into the sample period	940	369
Step 1:		
less: Not-for-profit entities	0	1
less: Banking, insurance and investment companies	90	151
less: Incomplete 10-year financial statements	182	29
less: Loss-making companies	409	44
Step 2:		
less: No subsidiaries or no overseas subsidiaries	n/a	73
less: Crown entities, SOEs or HNWI	n/a	55
Final Samples	259	16

Studies on profit shifting that measure the profits of a company might be faced with a sample restriction as the “profit” itself can be zero or negative. The exclusion of loss-making companies from the sample is a limitation of this approach. Table 3.8 indicates that 409 (or 44

⁶¹ To be specific, a New Zealand company with no subsidiaries refers to a stand-alone New Zealand owned company and a New Zealand company with no overseas subsidiaries refers to a New Zealand owned company that possesses local subsidiaries but has no subsidiaries based in other countries.

percent) of NZSOFMs have reported pre-tax losses. The breakdown of the loss-making companies is shown in Table 3.9.

Table 3.9

Number of NZSOFMs making losses from 2008–2017

Number of years of making losses (2008–2017)	Number of companies
10	5
9	5
8	13
7	15
6	25
5	42
4	52
3	55
2	89
1	108
Total	409

It is normal for a company to be operating temporarily at an operating loss when the tax-deductible expenses are significantly higher than its taxable income. In New Zealand, a loss-making company does not have to pay income tax and is permitted to carry forward the loss indefinitely to offset against future taxable income subject to certain conditions.⁶²

However, most tax avoidance schemes involve the creation of expenditure between related parties leading to business losses that will reduce the overall assessable income (Smith & Dunmore, 1997). Johansson, Skeie, Sorbe, and Menon (2017) believe that such studies should not necessarily rule out companies with reported losses, as some companies with positive income may eventually find themselves unprofitable if the amount of profit being shifted is

⁶² There is no provision for the company to carry back tax losses. However, a temporary tax loss carry-back scheme has been introduced to adjust for the COVID-19 pandemic in 2020 (IRD, 2020).

greater than the “true” profit.⁶³ While existing studies focus extensively on profit-making companies and find it more relevant by restricting the observations to the affiliates with positive income, the profit shifting incentives may remain in the affiliates with negative income if the tax system of the country allows for loss carryforwards and carrybacks (Dharmapala & Riedel, 2013). If loss offsets are permitted in a tax system, the MNEs would be more tempted to shift income to the low-tax affiliate rather than the high-tax affiliate if both affiliates have negative income (Dharmapala & Riedel, 2013). However, in most tax systems, the merits of shifting profits to a loss-making affiliate with low tax might be reduced by the limitations on loss offsets (Dharmapala & Riedel, 2013).

3.4.1.3 Sample Companies and Sample Years for H₃ to H₅

To represent the companies with foreign ownership, 259 NZSOFMs used to test H₁ are adopted to represent sample companies of foreign ownership in the second part of the study. The same group of NZSOFMs is used so that the empirical results of both sections of study can be brought together and present a coherent and consistent interpretation of the results. NZDOCs that represent the control group of domestic ownership include NZDOMs with at least one wholly owned subsidiary outside New Zealand, and New Zealand owned companies with solely domestic subsidiaries or with no subsidiaries. While the panel analysis of 2008–2017 with fixed effect regressions in the first section provides the quantitative findings of profit shifting, the cross-section analysis for the year 2015 in the second section provides suggested evidence of debt shifting. Given the constraints of time, the second section examines the one year data of

⁶³ The equation of *(observed) profit* = “true” profit + *(unobserved) shifted profit* was first introduced in the studies of Grubert and Mutti (1991) and Hines and Rice (1994), and subsequently adopted in the study of Johansson et al. (2017). In the study of Johansson et al. (2017), the observed profit refers to pre-tax profit, and the determinants of “true” profit in the study include firm-specific characteristics and various macroeconomic variables. The shifted profit is driven by tax motives such as tax differential.

2015, and it aims to improve and complement the first section of the study by looking into the BEPS issues from a debt structure perspective.

3.4.1.4 Determining the Final Sample for H_3 to H_5

NZSOFMs and NZDOCs with financial statements available for the year 2015 are employed as the final sample to test hypotheses H_3 to H_5 . The number of companies for the respective 8 specific ratios are displayed in Table 3.10, Table 3.11, and Table 3.12. The sampled companies with ratios greater than 1, or less than 0 are not included in the sample and treated as outliers in order to avoid huge variation caused by extreme values.

Table 3.10*Final Samples of LTD and ULTD Companies to Test H₃*

Specific Ratios Related to Debt Structure	Interest-bearing Debt	Total Debt	Short-term Debt	Long-term Debt
	Total Assets	Total Assets	Total Assets	Total Assets
NZSOFM s	259	259	259	259
NZDOC s				
(i) NZDOMs with at least one wholly owned foreign subsidiary	40	40	40	40
(ii) NZ companies with solely domestic subsidiaries or without any subsidiaries	40	34	34	34
Total	339	333	333	333

Table 3.11*Final Samples of LTD and ULTD Companies to Test H₄*

Specific Ratios Related to Distribution of EBIT	Interest Expense	Income Tax Expense	Net Profit
	EBIT	EBIT	EBIT
NZSOFM s	259	259	259
NZDOC s			
(i) NZDOMs with at least one wholly owned foreign subsidiary	40	40	40
(ii) NZ companies with solely domestic subsidiaries or without any subsidiaries	40	40	40
Total	339	339	339

|EBIT|= |Interest Expense|+|Income Tax Expense|+|Net Profit|

Table 3.12*Final Samples of LTD and ULTD Companies to Test H₅*

Specific Ratio Related to Transfer Pricing	EBIT Sales
NZSOFMs	259
NZDOCs	
(i) NZDOMs with at least one wholly owned foreign subsidiary	38
(ii) NZ companies with solely domestic subsidiaries or without any subsidiaries	36
Total	333

3.4.2 Data Collection Procedures and Limitations

The primary source of accounting data used in this study is available on the website of the New Zealand Companies Office. However, one of the drawbacks of sourcing data from the New Zealand Companies Office is that it needs to be hand-collected, entered, and consolidated. The accounting information in the financial statements is not prepared in a standard format that is readily downloaded for statistical analyses. The data collection process would be extremely laborious and inefficient for researchers who intend to study New Zealand companies on a large scale. Given that no better alternative data sources are currently available, the company data obtained from the New Zealand Companies Office still constitutes the second-best-option for researchers who are dedicated to improving knowledge in BEPS-related analysis in this country. Bennedson and Zeume (2018) employed the same process of hand-collecting data from 17,331 publicly held companies located in 52 different countries and their subsidiaries to study the motives of MNEs setting up subsidiaries in tax havens.

Optionally, the researcher could access Orbis as an alternative channel for sourcing the company data needed. Orbis is the leading commercial database, which provides comprehensive information for more than 360 million companies worldwide and it has been used extensively by researchers. The company balance sheet data and profit and loss statement

data are captured and presented on Orbis. Although this database is widely used in existing studies, the downside of the Orbis datasets should be clearly noted by researchers.

The Orbis database is dominated by European and US companies, and the data coverage differs largely across countries. The company coverage in lower-income countries is under-represented (Cobham & Janský, 2017). This explains why the existing studies on BEPS activity using firm-level data have been conducted mainly in Europe and the US. New Zealand companies are comparatively poorly represented on Orbis as well.

Orbis data is also known to have suffered from reporting errors as the data on it is not collected for statistical purposes at the outset (Johansson et al., 2017). Orbis data should be read with caution as some genuine data entry errors have been identified by the researcher. For example, the figure “7869” found in one financial statement was reported as “7859” on Orbis. Besides that, Orbis does not standardise the format numbers (to be displayed in thousands or to be displayed in exact values). Some companies show the numbers in thousands (e.g., 450,000 was reported as 450) in their financial statements while some companies report the numbers as the actual value (e.g., 450,000). However, Orbis does not display the number in a standard format. Readers will not know if the number of 450 is in absolute terms (450) or a number in thousands (450,000) as Orbis displays the data in different formats. While this non-standard format would not affect the financial ratio calculations, readers are still being misinformed.

Therefore, the data derived directly from the company financial statements remains the primary source of data in this study. To validate the accuracy of data collected in the study, the information in the published financial statements extracted from the New Zealand Companies Office is compared to Orbis datasets. Since Orbis is a commercial database and over 99 percent of the company details on it are private, and researchers have to pay to access Orbis, the publicly available data on New Zealand Companies Office is a better option for researchers who do not have access to Orbis datasets.

3.5 Conclusion

The philosophical approach of positivism has been adopted as the research paradigm in conducting this research. In respect to the methodological approach, a quantitative research method has been engaged by the researcher to resolve the research questions indicated in Chapter 1. A methodological approach simply reflects the epistemological beliefs of the researchers.

Purposive sampling (a non-probability sampling) is used with quantitative research technique in investigating the research topic. The sampling process and the procedures for collecting and measuring data have been explained clearly in this chapter. The statistical model has also been explained in detail as it is crucial for an accurate and sound analysis in the following chapters.

Chapter 4 Statistical Results

4.1 Introduction

In this chapter, all the data is gathered and analysed. The statistical results are displayed and interpreted in detail. More specifically, the effects of the input variables on the reported profitability of NZSOFMs and NZDOMs are discussed. Section 4.2 responds to the first research question of what effect do (cross-border) tax differentials have on the profits reported by NZSOFMs under BEPS, while Section 4.3 addresses the second research question of what effect do (cross-border) tax differentials have on the profits reported by NZDOMs under BEPS. Besides, Section 4.4 presents the results of the t-test and regression analyses on NZSOFMs and NZDOCs, which deals with the final research question of what the differences in terms of debt structure and transfer pricing of a company with foreign ownership in comparison to a company with domestic ownership are. Finally, Section 4.5 briefly summarises the main key findings and conclusions are drawn about the research data.

4.2 Statistical Results for Profit Shifting of NZSOFMs

4.2.1 Descriptive Statistics for NZSOFMs

Table 4.1 summarises the descriptive statistics of 259 NZSOFMs. The observed variables, in their original values and after logarithmic transformation, are presented. The raw data in this study is transformed into the natural logarithmic function to decrease the variability of data, and to improve the interpretability and comparison of data. The regression analysis was conducted on the transformed variables.

As shown in Table 4.1, the average and the median for each group of transformed variables are close in value indicating that the sample distribution is fairly symmetric. Overall, the observations of each group of key variables after transformation are spread within three

standard deviations of the mean, suggesting that the data points are less spread out and cluster to the mean of the data set.⁶⁴

By looking at the initial values of the data, NZSOFMs possess a mean of pre-tax profits of NZD 8.9 million, average fixed assets amounting to NZD 17 million, and an average cost of employees of NZD 13 million. The leverage of NZSOFMs ranges from 0.02 to 2.18 with a mean of 0.46. This suggests that, on average nearly half of the total assets of NZSOFMs are financed by liabilities. The CPI of New Zealand is relatively high ($M = 9.17$, $SD = 0.18$). A high CPI score implied a low degree of corruption, which presents a low risk to businesses and seems to impact positively on pre-tax profits. The tax differential of NZSOFMs ranges from – 16.4 percent to 30 percent, with a mean of 1.42 percent. On average, the tax rate difference between host country and the immediate parent location is relatively small.

⁶⁴ The mean and the standard deviation of the sample are two important parameters to determine if the variables have normal distribution.

Table 4.1*Descriptive Statistics for Key Variables of NZSOFMs*

	NZSOFMs			
	Panel 2008–2017			
	<i>M</i>	<i>Median</i>	<i>SD</i>	Range
^ PTP	8,955,256.38	3,507,513.00	19,888,440.47	1,071 - 389,224,000
lnPTP	15.07	15.07	1.36	6.98 - 19.78
TAXDIFF1	1.42	0.00	7.34	-16.43 - 30.00
^ FA	17,421,412.84	1,576,500.00	54,939,047.87	1 - 505,908,000
lnFA	14.16	14.27	2.76	0.00 - 20.04
^ EMPLYCOST	13,139,534.34	5,099,448.50	20,417,310.43	1 - 241,166,000
lnEMPLYCOST	15.51	15.44	1.42	0.00 - 19.30
LEV	0.46	0.43	0.24	0.02 - 2.18
lnLEV	-0.96	-0.84	0.64	-3.91 - 0.78
# GDP	226.10	221.82	27.70	189.66 - 274.92
lnGDP	5.41	5.40	0.12	5.25 - 5.62
⌘ CPI	9.17	9.10	0.18	8.90 - 9.50
lnCPI	2.22	2.21	0.02	2.19 - 2.25

Notes. $N_{\text{NZSOFMs}} = 2590$. ^ In New Zealand Dollars. # In billion New Zealand Dollars. ⌘ CPI ranges from 0 (highly corrupt) to 10 (least corrupt). FA = Property, plant and equipment. EMPLYCOST = Personal costs; Personal expenses. LEV = Total liabilities/Total assets. GDP = GDP of host country (New Zealand). CPI = CPI of host country (New Zealand). TAXDIFF1 = Statutory corporate tax rate of host country (New Zealand) – Statutory corporate tax rate of immediate parent's country.

Table 4.2*Location of Immediate Parent of NZSOFMs*

Location of Immediate Parent	Number of NZSOFMs
Australia	106
Bermuda	1
Canada	3
China	1
Denmark	2
Finland	1
France	10
Germany	8
Guernsey	1
Hong Kong	3
India	1
Ireland	1
Isle of Man	1
Japan	12
Luxembourg	2
Netherlands	29
Singapore	9
Spain	1
Sweden	2
Switzerland	9
UK	19
US	36
Virgin Island, British	1
Total	259

Table 4.2 shows the countries where the immediate parents of NZSOFMs are located. 106 NZSOFMs in the final sample have their immediate parent located in Australia. This is followed by the US (36), the Netherlands (29) and the UK (19).

Australia and New Zealand have had a mutually collaborating, long-established economic relationship, fostered by the ANZCERTA, since 1983. New Zealand is geographically distant from major world markets and Australia is its closest and most important trading partner.

Unsurprisingly, New Zealand subsidiaries of Australian parents made up a major portion (41 percent) of the sample, and foreign multinational parents from other countries have less business presence in this country as compared to Australia.

On the other hand, New Zealand and the US have entered a bilateral economic relationship since the trade and investment framework agreement (TIFA) was signed in 1992. The US has continued to be a close trading partner throughout the 2000s, and it had the third-largest inward FDI in New Zealand in 2020, after Australia and Hong Kong, mainly investing in finance, manufacturing, and wholesale trade (Statistics New Zealand, 2020b).

In addition to that, the Netherlands is one of the most important European trading partners for New Zealand despite their physical distance. There are certain economic and cultural ties that bind these two countries together. Both New Zealand and the Netherlands focus especially on horticulture and agriculture. Being among the world's leading producers of agricultural and food products, Dutch companies have always wanted to tap into the expertise of New Zealand in the agricultural and horticultural industries. Dutch migrants form the largest non-British immigrant group in New Zealand and there are over 150,000 New Zealanders of Dutch descent in New Zealand today (MFAT, 2017). Ancestry relatedness and cultural similarities allow close trade and investment ties between the two countries.

4.2.2 Pearson Correlations for NZSOFMs

Table 4.3 shows the correlations among seven key continuous variables on data for 259 NZSOFMs. A Pearson correlation coefficient was computed and the correlation estimations and the directions of the relationship for each pair of variables are presented.

Table 4.3*Pearson Correlations for Key Variables of NZSOFMs*

Variable	1	2	3	4	5	6	7
1. lnPTP	-						
2. TAXDIFF1	-0.004	-					
3. lnFA	0.511**	0.064**	-				
4. lnEMPLYCOST	0.518**	0.026	0.486**	-			
5. lnLEV	-0.007	0.173**	0.013	0.143**	-		
6. lnGDP	0.113**	-0.046*	-0.006	0.058**	-0.071**	-	
7. lnCPI	-0.087**	0.032	0.007	-0.440*	0.058**	-0.797**	-

Notes. $N_{\text{NZSOFMs}} = 2590$. lnPTP = Natural log of pre-tax profit. TAXDIFF1 = Statutory corporate tax rate of host country (New Zealand) – Statutory corporate tax rate of immediate parent's country. lnFA = Natural log of property, plant and equipment. lnEMPLYCOST = Natural log of personal costs; Personal expenses. lnLEV = Natural log (Total liabilities/Total assets). lnGDP = Natural log of GDP of host country (New Zealand). lnCPI = Natural log of CPI of host country (New Zealand) and it ranges from 0 (highly corrupt) to 10 (least corrupt). ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

The correlation matrix shows that pre-tax profit and tax difference to the immediate parent's location have a small negative correlation, $r = -.004$ and are not statistically significant. On the other hand, fixed assets and pre-tax profits have a statistically significant relationship ($r = .51$, $p < .01$) and there is a moderate correlation between these two variables ($.3 < |r| < .7$). The relationship between cost of employees and pre-tax profits is also moderately correlated ($r = .52$, $p < .01$). The relationship between leverage and pre-tax profits is in an inverse direction, $r = -.007$ and it is not statistically significant. There is a positive correlation between GDP and pre-tax profits ($r = .11$, $p < .01$) and these two variables are weakly correlated. The results also indicate that there is an inverse relationship between CPI and pre-tax profits ($r = -.09$, $p < .01$).

4.2.3 Panel Regressions for NZSOFMs

In this study, a firm fixed effects panel regression has been applied on 259 observed NZSOFMs for the years 2008 to 2017, and the regression results are presented in Table 4.4. There are different regression methods that can be applied to a panel data analysis which combines both cross section and time series data.⁶⁵ A panel study which employs common effects examines different units of cross sections within a certain period of time, while a study applying fixed effects or random effects observes the same unit of cross-sections at different points in time (Wooldridge, 2010). The firm fixed effects method is applied across all specifications in this study to investigate how the same observed NZSOFMs react to changes in the tax rate over time. The fixed effects (group dummies) regression manages to capture time-constant company-specific effects, such as company culture and managerial qualities which cannot be measured using accounting variables.

First, this study aims to examine if the reported profitability by NZSOFMs responds to the changes of corporate tax rate, particularly the single statutory tax rate of the host country (New Zealand) and corporate tax differential (between New Zealand and the country where the immediate parent is located). The relationship between the pre-tax profit of 259 NZSOFMs and the key tax rate variables is displayed in Specification 1 and Specification 5, respectively. The results presented in Specifications 1 and 5 indicate a strong negative correlation between profitability and the statutory tax rate, at the 1 percent confidence level. The coefficient estimate of the single country statutory corporate tax rate is about six times the tax rate difference to the parent.

⁶⁵ Most of the discussions and academic papers focused on the fixed and random effect model used in the panel study. However, Zulfikar (2018) discussed three estimation methods, which are common effect, fixed effect and random effect model, that can be employed in panel data analysis.

The results suggest that NZSOFMs are more responsive and sensitive to the changes of the domestic corporate tax rate of the host country which has a direct impact on the business where it operates. Specification 1 suggests a 10 percentage points decrease in the host country tax rate resulting in a 1.7 percent increase in reported pre-tax profits of NZSOFMs. By considering the tax difference from the parent country, NZSOFMs with a lower tax rate relative to the parent location observe an increase in pre-tax profits of 0.3 percent if the tax differential decreases by 10 percentage points.

Following this, the company control variables (fixed assets and cost of employees) are included in Specifications 2 and 6 to control for heterogeneity in different companies. With the inclusion of these firm-level control variables, the coefficients of the host country (New Zealand) statutory tax rate and tax differential in both Specification 2 and 6 remain negative and highly significant at the 1 percent level. The fixed assets and cost of employee variables have a strong positive relationship with pre-tax profits in both Specifications 2 and 6. The effect of the cost of employees on pre-tax profits is about two times greater than that of capital.

In Specifications 3 and 7, the company leverage (total liabilities/total assets) is added to the estimation model. Dischinger (2010) included the debt-to-assets ratio, which is likely to be affected by the tax variables, together with two other firm control variables, to find out if it will impact on the coefficient estimates of the statutory tax rate. The results show that the tax coefficients in Specification 3 and Specification 7 are marginally affected, and, significantly, the coefficient of leverage turns out to be negative. It shows that low leverage in a firm enhances the profitability. The coefficient estimates of these company-level variables are quite stable in each of the different specifications.

In Specifications 4 and 8, the country-level control variables are additionally applied to the estimation framework. In Specification 8, the coefficient of tax rate differential turns out to be negative but is not statistically significant. The GDP coefficient appears to have an inverse

relationship with company profitability. It seems that a highly competitive market, indicated by a high GDP, results in lower company profits. The results also show that the coefficient estimates of CPI turns out to be positive but not statistically significant.

Table 4.4*Profit Shifting of NZSOFMs*

OLS firm fixed effects model for NZSOFMs								
Panel 2008–2017								
Dependent variable: Natural log of profit before tax								
Explanatory variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Host country statutory tax rate ^a	-0.17*** (0.01)	-0.16*** (0.01)	-0.15*** (0.01)	-0.08*** (0.02)				
Tax difference to parent ^b					-0.03*** (0.01)	-0.03*** (0.01)	-0.03** (0.01)	-0.01 (0.01)
lnFA		0.07*** (0.01)	0.08*** (0.01)	0.08*** (0.01)		0.07*** (0.01)	0.08*** (0.01)	0.08*** (0.01)
lnEMPLYCOST		0.13*** (0.02)	0.14*** (0.02)	0.13*** (0.02)		0.16*** (0.02)	0.17*** (0.02)	0.13*** (0.02)
lnLEV			-0.14*** (0.04)	-0.13** (0.04)			-0.20*** (0.04)	-0.14** (0.04)
lnGDP				0.69** (0.22)				-1.20*** (0.18)
lnCPI				0.22 (1.04)				0.56 (1.04)
N	2590	2590	2590	2590	2590	2590	2590	2590
Adjusted R-squared	.77	.78	.78	.78	.76	.77	.77	.78

Notes. *, **, *** indicates significance at the 10 percent, 5 percent, and 1 percent level, respectively. Standard errors are in parentheses. ^a It refers to statutory corporate tax rate of New Zealand. ^b It refers to the difference between statutory corporate tax rate of New Zealand and statutory corporate tax rate of immediate parent's country. lnFA = Natural log of property, plant and equipment. lnEMPLYCOST = Natural log of personal costs; Personal expenses. lnLEV = Natural log (Total liabilities/Total assets). lnGDP = Natural log of GDP of host country (New Zealand). lnCPI = Natural log of CPI of host country (New Zealand).

4.2.4 Logistic Regressions for NZSOFMs

A series of logistic regressions was also conducted to model the probability of NZSOFMs reporting a high profit, or not. It was an extension from the linear regression to find the solution to binary classification problems. This statistical analysis method has been used extensively because it is simple to implement, and the results predicted by the analysis are highly interpretable, with only two possible discrete categorical outcomes that take the values of 0 and 1. The results of two binary outcome models (logit and probit) are shown in Table 4.5.

Table 4.5

Logistic Regression Results of NZSOFMs

To Report High Profit (1=Yes, 0=Otherwise)	Logit Coefficients	Probit Coefficients
Tax Difference to Parent	−0.03 *** (0.008)	−0.02 *** (0.005)
lnFA	0.51 *** (0.034)	0.29 *** (0.018)
lnEMPLYCOST	0.77 *** (0.056)	0.37 *** (0.026)
lnLEV	0.23 ** (0.100)	0.14 *** (0.055)
lnGDP	−0.57 (0.815)	−0.24 (0.463)
lnCPI	−0.34 (4.921)	−0.62 (2.803)
Constant	−15.30 (14.68)	−7.10 (8.35)
N	2000	2000
McFadden R-squared	0.376	0.359

Notes. Observations with dependent variable = 1: 1000. Observations with dependent variable = 0: 1000. *, **, *** indicates significance at the 10%, 5% and 1% level; Standard errors are in parentheses.

The sample of 259 NZSOFMs was sorted according to the total of pre-tax profits in 10 years (2008 to 2017) in descending order. The first 100 companies, which reported the highest total

of pre-tax profits, were coded as 1, while the last 100 companies, which reported the lowest profits, were coded as 0. 59 NZSOFMs lying between these two sets of companies are eliminated from this logistic regression analysis.

The binary models (logit and probit) are employed to find out what makes NZSOFMs more or less likely to report a high profit. The dependent variables are binary variables, which take the value 0 (if a company reports low profits) or 1 (if a company reports high profits). To determine the independent variables in the binary logistic regression, Tabachnick and Fidell (2013) suggest including predictors with correlation coefficients of not more than 0.90 in the logistic model. By referring to the correlation matrix in Table 4.3, the correlation coefficients of all key variables of NZSOFMs are less than 0.90 and all of them are included in the logistic model. The results of both logit and probit models, using the maximum likelihood method, are almost identical. The pseudo-R-squared (McFadden R-squared) of both models are 0.376 and 0.359, respectively. A pseudo-R-square with a value between 0.2 and 0.4 means a good fit of the model.

The results indicate that a decrease in tax difference makes the outcome of 1 more likely to occur. In other words, the companies are more likely to report high profits when the tax differences decrease. Unlike the linear regression, the magnitude of the coefficient was not interpreted in a logistic regression analysis, as the scales of coefficients vary among different models. Thus, only the signs of each coefficient in both the logit and probit models are defined and interpreted.

To further understand the effects estimates for logistic regression model, the estimated percentage unit effect of each explanatory variable is measured by scaling the β coefficients by $p(1-p)$.⁶⁶ The results are presented in Table 4.6.

Table 4.6

Effects Estimates for Logistic Regression of NZSOFMs

To Report High Profit, (1=Yes, 0=Otherwise)	Logit Coefficients (β)	$[p(1-p)\beta]$
Tax Difference to Parents	-0.03 ***	-0.0075
lnFA	0.51 ***	0.1275
lnEMPLYCOST	0.77 ***	0.1925
lnLEV	0.23 **	0.0575
lnGDP	-0.57	-0.1433
lnCPI	-0.34	-0.0850
Constant	-15.30	-3.8250

Notes. The estimated percentage unit effect of x is calculated as $[p(1-p)\beta]$ where p is the probability that an observational unit has ($y = 1$). y represents the binary (0 or 1). Observations with dependent variable = 1: 1000. Observations with dependent variable = 0: 1000.

The results show that a one percent decrease in the tax difference to parents is estimated to result in a 0.0075 percent increase in the probability of reporting a high profit. In other words, the estimated percentage unit effect of tax difference is insignificant. In consistent with the finding of the most preferred multiple regression analysis of profit shifting of NZSOFMs (Specification 8), the effect of tax difference is too tiny, which in turn, has little impact on the profitability reported by NZSOFMs.

⁶⁶ The logistic regression equation is $\ln[p_i/(1-p_i)] = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_k X_{ki}$. The odds ratio, which is $p_i/(1-p_i)$ estimates the outcome ($y = 1$) relative to the outcome ($y = 0$). β_1 is the effect of X_{1i} on the predicted $\ln(\text{odds})$ (or $\log\text{-odds}$). Assuming X_1 is continuous, the estimated percentage unit effect of X_1 for a given individual i is $\beta_1 [p_i(1-p_i)]$ where $p^*(1-p)$ is the logistic probability density function (PDF).

With respect to the firm-level control variable, a one percent increase in the fixed assets (which represents the capital input) and a one percent increase in the costs of employees (which represents the labour input) is associated with a 0.13 percent and a 0.19 percent rise in the probability of a company reporting a higher profit, respectively. The results also indicate that a one percent increase in the GDP leads to a 0.14 percent decrease in the probability of higher profit being reported. A highly competitive environment has a strong effect on the probability of NZSOFMs reporting a lower profit. While the estimated effect of leverage and the CPI (0.0575 and -0.085 , respectively) is not in the predicted direction, its effect on the probability of reporting a higher profit is minor as compared to other variables.

4.3 Statistical Results for Profit Shifting of NZDOMs

The descriptive statistics, Pearson correlations and firm fixed effect regression analysis have been conducted on 16 NZDOMs. While there is no single definition of a “small” sample size, the final sample of 16 NZDOMs used in the analyses are still considered too small to yield precise and reliable results.

Prior to any firms being identified and selected as the final samples for testing H_2 , the initial sample comprises 369 New Zealand owned companies. Given that 151 are companies in the banking, insurance, and investment industries, 73 do not have any subsidiaries or subsidiaries in foreign countries, and 55 are Crown entities, SOEs or owned by HNWI, this further reduces the final sample to 16 NZDOMs.

Alternatively, the researcher analysed the New Zealand exchange (NZX), where the most highly market capitalised New Zealand companies are listed. This shows that only 13 companies fulfil the study requirements to test H_2 (see Appendix G). The sample found on the NZX are remarkably similar to the final samples identified in this study. This indicates that

New Zealand does not have many large multinational New Zealand owned companies, especially companies that truly fulfil the study criteria to analyse profit shifting of NZDOMs.

Since it is inadequate to make inferences from a sample size of 16 NZDOMs, the statistical results are displayed in the appendices (Appendix D to Appendix F) as supplementary information. The findings are still interpreted and discussed in the appendices in order to understand the profit shifting of NZDOMs.

4.4 Statistical Results for Debt Shifting of NZSOFMs and NZDOCs

4.4.1 T-test Results for NZSOFMs and NZDOCs

An independent sample t-test was performed to compare the means on the eight specific ratios of NZSOFMs and NZDOCs as to whether the true difference between the means of these two groups is zero. The descriptive statistics of each ratio and its control variables of size and industry are displayed in Table 4.7 to Table 4.10.

The results of the sample of the interest-bearing debt ratio are presented in Table 4.7. NZSOFMs ($M = 0.06$, $SD = 0.14$) are compared to NZDOCs ($M = 0.18$, $SD = 0.19$) and NZSOFMs demonstrated a significantly lower interest-bearing debt ratio, $t(339) = 9.6$, $p < .001$, Cohen's $D = .75$.

Table 4.8 demonstrates the results of three debt ratios (total debt/total assets, short-term debt/total assets, and long-term debt/total assets). The results indicate that NZSOFMs ($M = 0.44$, $SD = 0.23$) compared to NZDOCs ($M = 0.46$, $SD = 0.24$) showed significantly lower total debt/total assets ratio (leverage 1), $t(333) = 34.69$, $p < .001$, Cohen's $D = .10$. In terms of the ratio of short-term debt to total assets (leverage 2), NZSOFMs ($M = 0.39$, $SD = 0.22$) has a higher ratio than NZDOCs ($M = 0.25$, $SD = 0.19$), $t(333) = 29.13$, $p < .001$, Cohen's $D = .64$. By comparison, the ratio of long-term debt to total assets (leverage 3) of NZSOFMs ($M = 0.05$,

$SD = 0.11$) is significantly lower than NZDOCs ($M = 0.20, SD = 0.20$), $t(333) = 10.08, p < .001$, Cohen's $D = .88$.

Table 4.9 displays the results for the samples of interest expense ratio, income tax expense ratio and net profit ratio. In the sample of interest expense ratio, there is a significant difference in the interest expense ratio for NZSOFMs ($M = 0.07, SD = 0.13$) and NZDOCs ($M = 0.23, SD = 0.21$), $t(339) = 11.23, p < .001$, Cohen's $D = .77$. In the sample of income tax expense ratio, the results showed that NZSOFMs ($M = 0.27, SD = 0.09$) had a higher income tax expense ratio than NZDOCs ($M = 0.18, SD = 0.15$), and the t-test found this pattern to be significant, $t(339) = 41.40, p < .001$, Cohen's $D = .69$. Concerning the net profit ratio, NZSOFMs ($M = 0.66, SD = 0.13$) demonstrated a significantly higher net profit ratio than NZDOCs ($M = 0.59, SD = 0.24$), $t(339) = 72.86, p < .001$, Cohen's $D = .37$.

Finally, the result in Table 4.10 suggests that NZSOFMs ($M = 0.14, SD = 0.13$) has a significantly higher EBIT ratio (EBIT/Sales) as compared to NZDOCs ($M = 0.13, SD = 0.11$), $t(333) = 17.12, p < .001$, Cohen's $D = .06$.

Overall, the results indicate that NZSOFMs are significantly different from NZDOCs in all of the eight specific ratios. In term of firm size, the samples of NZSOFMs are on average larger than NZDOCs except in the sample of EBIT to sales. Specifically, NZSOFMs have lower interest-bearing debt ratio than NZDOCs (0.06 versus 0.18) and it turns out that NZSOFMs have a lower interest expense ratio as compared to NZDOCs (0.07 versus 0.23). In comparison to NZDOCs, NZSOFMs take on more short-term debt and less long-term debt to fund the company's assets.

Table 4.7*Descriptive Statistics of Interest-bearing Debt Ratio*

Variable		NZDOCs (n=80)	NZSOFMs (n=259)	ALL (n=339)	t-value	Prob
Interest-bearing debt ratio	M	0.183	0.058	0.085	9.637	0.0000
	SD	0.186	0.143	0.161		
SIZE	M	17.343	17.640	17.575	185.466	0.0000
	SD	3.055	1.110	1.727		
Industry 1	M	0.125	0.231	0.208	9.319	0.0000
	SD	0.333	0.422	0.406		
Industry 2	M	0.069	0.000	0.015	2.250	0.0251
	SD	0.256	0.000	0.122		
Industry 3	M	0.056	0.027	0.033	3.368	0.0008
	SD	0.231	0.162	0.180		
Industry 4	M	0.194	0.288	0.268	11.010	0.0000
	SD	0.399	0.454	0.444		
Industry 5	M	0.069	0.104	0.096	5.942	0.0000
	SD	0.256	0.306	0.296		
Industry 6	M	0.042	0.023	0.027	3.037	0.0026
	SD	0.201	0.150	0.163		
Industry 7	M	0.097	0.035	0.048	4.093	0.0001
	SD	0.298	0.183	0.214		
Industry 8	M	0.028	0.038	0.036	3.523	0.0005
	SD	0.165	0.193	0.187		
Industry 9	M	0.014	0.035	0.030	3.206	0.0015
	SD	0.118	0.183	0.171		
Industry 10	M	0.042	0.046	0.045	3.958	0.0001
	SD	0.201	0.210	0.208		
Industry 11	M	0.097	0.092	0.093	5.839	0.0000
	SD	0.298	0.290	0.291		
Industry 12	M	0.028	0.062	0.054	4.356	0.0000
	SD	0.165	0.241	0.227		
Industry 13	M	0.042	0.000	0.009	1.737	0.0833
	SD	0.201	0.000	0.095		
Industry 14	M	0.028	0.004	0.009	1.737	0.0833
	SD	0.165	0.062	0.095		
Industry 15	M	0.000	0.012	0.009	1.737	0.0833
	SD	0.000	0.107	0.095		

Table 4.8*Descriptive Statistics of Indicators Related to Debt Structure*

Variable		NZDOCs (n=74)	NZSOFCMs (n=259)	ALL (n=333)	t-value	Prob																																																																																																																																																																																																			
Leverage 1	M	0.461	0.437	0.442	34.686	0.0000																																																																																																																																																																																																			
	SD	0.240	0.228	0.230			Leverage 2	M	0.254	0.387	0.360	29.131	0.0000	SD	0.194	0.222	0.223	Leverage 3	M	0.196	0.053	0.082	10.076	0.0000	SD	0.200	0.114	0.148	SIZE	M	17.457	17.642	17.604	188.750	0.0000	SD	3.018	1.111	1.684	Industry 1	M	0.134	0.232	0.212	9.341	0.0000	SD	0.344	0.423	0.409	Industry 2	M	0.075	0.000	0.015	2.250	0.0251	SD	0.265	0.000	0.123	Industry 3	M	0.060	0.027	0.034	3.369	0.0008	SD	0.239	0.162	0.181	Industry 4	M	0.194	0.290	0.270	10.962	0.0000	SD	0.398	0.454	0.445	Industry 5	M	0.060	0.100	0.092	5.740	0.0000	SD	0.239	0.301	0.290	Industry 6	M	0.030	0.023	0.025	2.860	0.0045	SD	0.171	0.151	0.155	Industry 7	M	0.104	0.035	0.050	4.096	0.0001	SD	0.308	0.183	0.216	Industry 8	M	0.030	0.039	0.037	3.524	0.0005	SD	0.171	0.193	0.189	Industry 9	M	0.015	0.035	0.031	3.207	0.0015	SD	0.122	0.183	0.173	Industry 10	M	0.030	0.046	0.043	3.819	0.0002	SD	0.171	0.211	0.203	Industry 11	M	0.075	0.093	0.090	5.633	0.0000	SD	0.265	0.291	0.285	Industry 12	M	0.030	0.062	0.055	4.358	0.0000	SD	0.171	0.241	0.229	Industry 13	M	0.060	0.000	0.012	2.010	0.0453	SD	0.239	0.000	0.110	Industry 14	M	0.030	0.004	0.009	1.737	0.0833	SD	0.171	0.062	0.096	Industry 15	M	0.000	0.012	0.009	1.737	0.0833	SD
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	SD	0.194	0.222	0.223			Leverage 3	M	0.196	0.053	0.082	10.076	0.0000	SD	0.200	0.114	0.148	SIZE	M	17.457	17.642	17.604	188.750	0.0000	SD	3.018	1.111	1.684	Industry 1	M	0.134	0.232	0.212	9.341	0.0000	SD	0.344	0.423	0.409	Industry 2	M	0.075	0.000	0.015	2.250	0.0251	SD	0.265	0.000	0.123	Industry 3	M	0.060	0.027	0.034	3.369	0.0008	SD	0.239	0.162	0.181	Industry 4	M	0.194	0.290	0.270	10.962	0.0000	SD	0.398	0.454	0.445	Industry 5	M	0.060	0.100	0.092	5.740	0.0000	SD	0.239	0.301	0.290	Industry 6	M	0.030	0.023	0.025	2.860	0.0045	SD	0.171	0.151	0.155	Industry 7	M	0.104	0.035	0.050	4.096	0.0001	SD	0.308	0.183	0.216	Industry 8	M	0.030	0.039	0.037	3.524	0.0005	SD	0.171	0.193	0.189	Industry 9	M	0.015	0.035	0.031	3.207	0.0015	SD	0.122	0.183	0.173	Industry 10	M	0.030	0.046	0.043	3.819	0.0002	SD	0.171	0.211	0.203	Industry 11	M	0.075	0.093	0.090	5.633	0.0000	SD	0.265	0.291	0.285	Industry 12	M	0.030	0.062	0.055	4.358	0.0000	SD	0.171	0.241	0.229	Industry 13	M	0.060	0.000	0.012	2.010	0.0453	SD	0.239	0.000	0.110	Industry 14	M	0.030	0.004	0.009	1.737	0.0833	SD	0.171	0.062	0.096	Industry 15	M	0.000	0.012	0.009	1.737	0.0833	SD	0.000	0.107	0.096								
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	SD	0.239	0.162	0.181			Industry 4	M	0.194	0.290	0.270	10.962	0.0000	SD	0.398	0.454	0.445	Industry 5	M	0.060	0.100	0.092	5.740	0.0000	SD	0.239	0.301	0.290	Industry 6	M	0.030	0.023	0.025	2.860	0.0045	SD	0.171	0.151	0.155	Industry 7	M	0.104	0.035	0.050	4.096	0.0001	SD	0.308	0.183	0.216	Industry 8	M	0.030	0.039	0.037	3.524	0.0005	SD	0.171	0.193	0.189	Industry 9	M	0.015	0.035	0.031	3.207	0.0015	SD	0.122	0.183	0.173	Industry 10	M	0.030	0.046	0.043	3.819	0.0002	SD	0.171	0.211	0.203	Industry 11	M	0.075	0.093	0.090	5.633	0.0000	SD	0.265	0.291	0.285	Industry 12	M	0.030	0.062	0.055	4.358	0.0000	SD	0.171	0.241	0.229	Industry 13	M	0.060	0.000	0.012	2.010	0.0453	SD	0.239	0.000	0.110	Industry 14	M	0.030	0.004	0.009	1.737	0.0833	SD	0.171	0.062	0.096	Industry 15	M	0.000	0.012	0.009	1.737	0.0833	SD	0.000	0.107	0.096																																																															
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Table 4.9*Descriptive Statistics of Indicators Related to Distributions of EBIT*

Variable		NZDOCs (n=80)	NZSOFMs (n=259)	ALL (n=339)	t-value	Prob
Interest expense ratio	M	0.228	0.074	0.109	11.232	0.0000
	SD	0.212	0.130	0.177		
Income tax expense ratio	M	0.184	0.267	0.249	41.396	0.0000
	SD	0.146	0.089	0.110		
Net profit ratio	M	0.588	0.658	0.642	72.855	0.0000
	SD	0.238	0.128	0.161		
SIZE	M	17.399	17.639	17.586	185.897	0.0000
	SD	3.036	1.110	1.729		
Industry 1	M	0.122	0.231	0.207	9.312	0.0000
	SD	0.329	0.422	0.405		
Industry 2	M	0.068	0.000	0.015	2.250	0.0251
	SD	0.253	0.000	0.122		
Industry 3	M	0.054	0.027	0.033	3.368	0.0008
	SD	0.228	0.162	0.179		
Industry 4	M	0.189	0.288	0.266	10.999	0.0000
	SD	0.394	0.454	0.443		
Industry 5	M	0.081	0.104	0.099	6.042	0.0000
	SD	0.275	0.306	0.299		
Industry 6	M	0.041	0.023	0.027	3.037	0.0026
	SD	0.199	0.150	0.162		
Industry 7	M	0.095	0.035	0.048	4.093	0.0001
	SD	0.295	0.183	0.214		
Industry 8	M	0.027	0.038	0.036	3.523	0.0005
	SD	0.163	0.193	0.186		
Industry 9	M	0.014	0.035	0.030	3.206	0.0015
	SD	0.116	0.183	0.171		
Industry 10	M	0.041	0.046	0.045	3.957	0.0001
	SD	0.199	0.210	0.207		
Industry 11	M	0.095	0.092	0.093	5.837	0.0000
	SD	0.295	0.290	0.291		
Industry 12	M	0.027	0.062	0.054	4.355	0.0000
	SD	0.163	0.241	0.226		
Industry 13	M	0.054	0.000	0.012	2.009	0.0453
	SD	0.228	0.000	0.109		
Industry 14	M	0.027	0.004	0.009	1.737	0.0833
	SD	0.163	0.062	0.094		
Industry 15	M	0.000	0.011	0.009	1.737	0.0833
	SD	0.000	0.107	0.094		

Table 4.10*Descriptive Statistics of Indicators Related to Transfer Pricing*

Variable		NZDOCs (n=74)	NZSOFORMs (n=259)	ALL (n=333)	t-value	Prob
EBIT ratio	M	0.130	0.137	0.137	17.123	0.0000
	SD	0.108	0.133	0.132		
SIZE	M	20.557	17.652	17.811	227.517	0.0000
	SD	1.296	1.102	1.294		
Industry 1	M	0.067	0.233	0.223	8.847	0.0000
	SD	0.258	0.423	0.417		
Industry 2	M	-	-	-	-	-
	SD	-	-	-		
Industry 3	M	0.067	0.027	0.029	2.866	0.0045
	SD	0.258	0.163	0.169		
Industry 4	M	0.200	0.291	0.286	10.431	0.0000
	SD	0.414	0.455	0.453		
Industry 5	M	0.133	0.105	0.106	5.686	0.0000
	SD	0.352	0.307	0.309		
Industry 6	M	0.000	0.023	0.022	2.472	0.0140
	SD	0.000	0.151	0.147		
Industry 7	M	0.133	0.035	0.040	3.379	0.0008
	SD	0.352	0.184	0.197		
Industry 8	M	0.067	0.039	0.040	3.379	0.0008
	SD	0.258	0.193	0.197		
Industry 9	M	0.000	0.031	0.029	2.866	0.0045
	SD	0.000	0.174	0.169		
Industry 10	M	0.000	0.047	0.044	3.536	0.0005
	SD	0.000	0.211	0.205		
Industry 11	M	0.133	0.093	0.095	5.351	0.0000
	SD	0.352	0.291	0.294		
Industry 12	M	0.000	0.058	0.055	3.977	0.0001
	SD	0.000	0.234	0.228		
Industry 13	M	0.067	0.000	0.004	1.000	0.3182
	SD	0.258	0.000	0.061		
Industry 14	M	0.067	0.004	0.007	1.417	0.1577
	SD	0.258	0.062	0.085		
Industry 15	M	0.000	0.012	0.011	1.738	0.0833
	SD	0.000	0.107	0.104		

4.4.2 Multiple Linear Regressions for NZSOFMs and NZDOCs

The eight regression models in this study examine whether the status of foreign ownership, while controlling for a firm's size and industry, affects the specific ratios concerning debt structures, distributions of operating income and transfer pricing.

More specifically, the regression analyses of the four ratios concerning debt structures and three ratios concerning distributions of operating income involve NZSOFMs and NZDOCs with or without foreign affiliates outside New Zealand. The eighth ratio of EBIT to sales analyses NZSOFMs and NZDOMs with foreign affiliates only, as NZDOCs without affiliates in other countries are unlikely to take advantage of intra-company transfer prices to reduce tax.

Table 4.11 to Table 4.13 report the regression results for the eight specific ratios. Table 4.11 displays the results concerning the debt structure. In the interest-bearing debt ratio sample, the coefficient for the FOREIGN indicator is negative and significant at the 1 percent level. However, the finding has a sign that is contrary to the expectations of this study. The result indicates that NZSOFMs have lower interest-bearing debt relative to total assets than do NZDOCs, after controlling for other factors.

With respect to the total debt relative to total assets (leverage 1), the FOREIGN coefficient is negative, and not statistically significant. This suggests that there was no significant difference found in the ratio of total debt to total assets for NZSOFMs and NZDOMs. In the sample of leverage 2 (short-term debt relative to total assets), the coefficient for the FOREIGN indicator is positive and significant at the 1 percent level, and thus H_3 is not rejected. NZSOFMs tend to have more current debt than NZDOCs. A possible explanation for NZSOFMs financing with more short-term debt is that short-term debt, which is expected to be paid in the current year, offers a more flexible form of financing, and thus is a more viable option to be employed for profit shifting. In addition, NZSOFMs operate outside their home countries might not be able

to obtain long-term loans easily as it is riskier for creditors to grant credit for a long period of time. Generally, short-term loans are much easier to obtain but come with a higher interest rate. The FOREIGN coefficient in the sample of leverage 3 is negative and significant at the 1 percent level. It shows that NZSOFMs have less long-term debt in their capital structure in comparison to NZDOCs.

In this study, the operating income (or EBIT) is calculated by adding back interest expense and income tax expense to the net profit. In the sample of interest expense ratio, the coefficient for FOREIGN is negative and significant at the 1 percent level. This result is consistent with that for the interest-bearing debt ratio regression model. NZSOFMs have lower interest-bearing debt, hence they incur lower interest expense than NZDOCs. In the sample of income tax expense ratio and net profit ratio, both the coefficients for the FOREIGN indicator are positive and significant at the 1 percent level. The results show that the income tax expense and net profit of NZSOFMs are relatively higher than NZDOCs. It suggests that NZSOFMs transform interest into profits, while they incur much more income tax than do NZDOCs. In the ratio of EBIT to sales sample, the coefficient for the FOREIGN indicator is zero and there is no statistical significance. This implies that there is no difference between NZSOFMs and NZDOCs in terms of the ratio of EBIT to sales.

In conclusion, the non-significant finding for the ratio of total debt to total assets and the ratio of EBIT to sales obtained from the regression analysis indicates a lack of evidence against the null hypothesis, and thus fails to reject the null hypothesis. While the regression results for the rest of the six specific ratios are statistically significant, only the result for the ratio of short-term debt to total assets reveals a trending in the predicted direction.

Table 4.11

Multiple Regression Results of Indicators Related to Debt Structure

OLS Regression Model									
Cross section 2015									
NZSOFMs vs NZDOCs									
	<u>Interest-bearing debt</u>		<u>Total debt</u>		<u>Short-term debt</u>		<u>Long-term debt</u>		
	Total assets		Total assets		Total assets		Total assets		
	Coef.	SD	Coef.	SD	Coef.	SD	Coef.	SD	
C	-0.24 **	0.10	-0.33 **	0.15	-0.20	0.15	-0.10	0.09	
FOREIGN	-0.12 ***	0.02	-0.03	0.03	0.10 ***	0.03	-0.11 ***	0.02	
SIZE	0.03 ***	0.01	0.04 ***	0.01	0.02 **	0.01	0.02 ***	0.01	
Industry 1	-0.04	0.05	-0.04	0.01	0.07	0.08	-0.10 **	0.05	
Industry 2	-0.02	0.15	-0.02	0.08	-0.07	0.22	-0.01	0.13	
Industry 3	-0.06	0.07	0.15	0.10	0.27 **	0.10	-0.12 **	0.06	
Industry 4	-0.02	0.05	0.05	0.08	0.17 **	0.08	-0.13 **	0.05	
Industry 5	-0.04	0.06	0.08	0.09	0.20 **	0.09	-0.13 **	0.05	
Industry 6	0.02	0.07	0.17	0.12	0.24 **	0.12	-0.08	0.07	
Industry 7	0.02	0.06	0.17 *	0.09	0.15 *	0.09	-0.03	0.06	
Industry 8	-0.06	0.06	0.10	0.09	0.20 **	0.09	-0.04	0.06	
Industry 9	-0.06	0.07	0.09	0.10	0.15	0.10	-0.07	0.06	
Industry 10	0.16 **	0.06	0.17 *	0.09	0.16 *	0.09	0.00	0.06	
Industry 11	-0.10	0.06	0.05	0.09	0.18 **	0.08	-0.14 **	0.05	
Industry 12	-0.07	0.06	0.07	0.09	0.19 **	0.09	-0.13 **	0.05	
Industry 13	0.02	0.11	0.16	0.14	0.31 **	0.14	-0.14 *	0.09	
Industry 14	-0.10	0.11	-0.01	0.17	0.17	0.16	-0.19 *	0.10	
Industry 15	-0.07	0.10	0.06	0.14	0.19	0.14	-0.14	0.09	
No. of Obs	339		333		333		333		
R-Squared	.29		.17		.13		.29		
Adj. R-Squared	.25		.12		.10		.25		

Notes. SIZE is the natural logarithm of company sales. FOREIGN is a binary variable which takes the value of 1 if the company is a NZSOFM, and 0 otherwise. * indicates significant at the 0.10 level. ** indicates significant at the 0.05 level. *** indicates significant at the 0.01 level.

Table 4.12

Multiple Regression Results of Indicators Related to Distribution of EBIT

	OLS Regression Model							
	Cross section 2015							
	NZSOFMs vs NZDOCs							
	Interest expense		Income tax expense		Net profit			
	EBIT		EBIT		EBIT			
	Coef.	SD	Coef.	SD	Coef.	SD	Coef.	SD
C	0.28 **	0.11	0.09	0.07	0.63 ***	0.11		
FOREIGN	-0.13 ***	0.02	0.05 ***	0.01	0.08 ***	0.02		
SIZE	0.01	0.01	0.00	0.00	-0.01	0.01		
Industry 1	-0.17 **	0.06	0.07 *	0.04	0.09	0.06		
Industry 2	0.00	0.16	-0.05	0.11	0.05	0.16		
Industry 3	-0.07	0.08	0.04	0.05	0.03	0.07		
Industry 4	-0.16 **	0.06	0.07 *	0.04	0.09	0.06		
Industry 5	-0.16 **	0.06	0.09 **	0.04	0.08	0.06		
Industry 6	-0.19 **	0.08	0.11 **	0.05	0.08	0.08		
Industry 7	-0.19 **	0.07	0.05	0.05	0.14 **	0.07		
Industry 8	-0.18 **	0.07	0.12 **	0.05	0.06	0.07		
Industry 9	-0.10	0.07	0.03	0.05	0.08	0.07		
Industry 10	-0.08	0.07	0.05	0.05	0.03	0.07		
Industry 11	-0.20 **	0.06	0.09 **	0.04	0.11 *	0.06		
Industry 12	-0.22 **	0.06	0.08 *	0.04	0.14 **	0.06		
Industry 13	-0.01	0.10	0.01	0.07	-0.01	0.10		
Industry 14	-0.28 **	0.12	0.06	0.08	0.22 *	0.12		
Industry 15	-0.19	0.10	0.12 *	0.07	0.07	0.10		
No. of Obs	339		339		339			
R-Squared	.24		.12		.12			
Adjusted R-Squared	.20		.10		.10			

Notes. |EBIT| = |Interest expense| + |Income tax expense| + |Net profit|. SIZE is the natural logarithm of company sales. FOREIGN is a binary variable which takes the value of 1 if the company is a NZSOFM, and 0 otherwise. * indicates significant at the 0.10 level. ** indicates significant at the 0.05 level. *** indicates significant at the 0.01 level.

Table 4.13*Multiple Regression Results of Indicators Related to Transfer Pricing*

OLS Regression Model		
Cross section 2015		
NZSOFGMs vs NZDOCs		
	<u>EBIT</u> Sales	
	Coef.	SD
C	0.34 ***	0.10
FOREIGN	0.00	0.02
SIZE	-0.01 **	0.01
Industry 1	-0.01	0.05
Industry 2	0.01	0.14
Industry 3	-0.03	0.09
Industry 4	-0.05	0.05
Industry 5	0.00	0.05
Industry 6	0.03	0.07
Industry 7	0.01	0.06
Industry 8	-0.01	0.06
Industry 9	0.09	0.06
Industry 10	0.17 **	0.06
Industry 11	0.03	0.05
Industry 12	-0.05	0.06
Industry 13	-0.08	0.13
Industry 14	0.09	0.10
Industry 15	-0.10	0.09
No. of Obs	333	
R-Squared	.16	
Adjusted R-Squared	.11	

Notes. SIZE is the natural logarithm of company sales. FOREIGN is a binary variable which takes the value of 1 if the company is a NZSOFGM, and 0 otherwise. * indicates significant at the 0.10 level. ** indicates significant at the 0.05 level. *** indicates significant at the 0.01 level.

4.5 Summary of the Statistical Results

This chapter provides and discusses the major findings of the quantitative research. As mentioned in the introduction to the chapter, the data are collected in order to reveal the underlying patterns of the profit shifting activities of NZSOFGMs and NZDOMs individually. This chapter mainly discussed the statistical analyses and the associated outcomes of NZSOFGMs, while the statistical findings of the unrepresentative sample of NZDOMs can be

found in the appendices. On the other hand, it is worth mentioning that the expected results from the statistical analyses for debt shifting in Section 4.4 are largely different from the obtained results. This anomaly may be due to weaknesses in the research design that are caused by the availability of the data. The next chapter, Chapter 5, looks closely into the findings and provides explanations and implications of the findings.

Chapter 5 Limitations, Contributions, Recommendations, and Conclusions

5.1 Introduction

This final chapter first gives an overview of the thesis by revisiting the main purpose of the study in Section 5.2. Following this, Section 5.3 summarises the major findings in the study and provides discussions and explanations related to the findings. Section 5.4 outlines the inherent limitations when carrying out the study. This is followed by the research contributions to the literature in Section 5.5, and the recommendations for future study are set out in Section 5.6. Finally, Section 5.7 presents some closing thoughts.

5.2 Thesis Overview

International corporate tax avoidance by large corporations has always been a controversial topic which is constantly covered by the press. Media reporting tends to use one or two high-profile multinational corporations as extreme examples to show the corporate tax avoidance problems that are most likely to capture reader interest and dominate public discussion. The exemplar (or anecdotal evidence) is often a single piece of evidence chosen from a large sample of cases used as statistical evidence. The anecdotal evidence based on extreme cases has a strong impact on how people perceive tax avoidance issues. In general, the public believes that the tax avoidance phenomenon is widespread.

The current statistical evidence of BEPS reasonably suggests that the profit shifting varies across studies that were conducted in different countries. This study has sought to evaluate the magnitude of BEPS in New Zealand, considering the lack of more extensive current literature and relevant empirical findings of BEPS that truly reflect the extent of BEPS in this country.

5.3 Summary of Findings

Contrary to popular opinion and the findings of the latest studies in non-New Zealand context (e.g., Dischinger, 2007, 2010; Dischinger, Knoll, & Riedel, 2013; Barrios & d’Andria, 2018; Li & Tran, 2020), the overall empirical results in this study indicate that the magnitude of BEPS is fairly low in the New Zealand context. In considering the profit shifting of NZSOFMs, Specification 5 demonstrates a statistically significant negative effect of tax difference to the immediate parent on profit before taxation of NZSOFMs. However, the coefficient estimate of -0.03 , which indicates that a 1 percentage point decrease in the tax rate differential leads to a 0.03 percent increase of profits reported by NZSOFMs, is reasonably small.

The most adequate specification in this study (Specification 8), which regresses the reported pre-tax profits of NZSOFMs on the tax difference to the immediate parent and on the firm and country variables, revealed a non-significant trend in the predicted direction with a coefficient estimate of -0.01 . However, the non-significant findings in the study cannot be interpreted as evidence for the complete absence of the effect of interest (which is BEPS in this study).⁶⁷ According to Mehler, Edelsbrunner, and Matić (2019), the null findings could merely reflect that the effect might be approaching zero, and are thus deemed to be absent, or that the evidence in the study is insufficiently strong and thus undermining the effect sizes. Therefore, non-significant results in a study are still relevant and essential in validating theories and hypotheses. Although there is no direct evidence showing that the “big tech”⁶⁸ companies are involved extensively in profit shifting and contributing to a higher magnitude of BEPS, a low level of profit shifting in New Zealand has been identified from a sample study, which precluded the

⁶⁷ Statistical significance determines how reliable the research results are, and the results generated by testing are not due to chance. On the flip side, effect size indicates how important the results are. The sample size, the significance level and the effect size together determine the statistical power of a significance test.

⁶⁸ In general, the term “big tech” refers to the largest and most prominent American companies in the industry of information technology. They include Amazon, Apple, Facebook, Google, and Microsoft.

big tech MNEs such as Facebook, Google, Amazon as they do not meet the study requirements. Facebook is omitted because it was established in New Zealand in 2010 and its first financial statements were published in 2015. The same happens with two New Zealand subsidiaries ultimately held by Amazon which were newly incorporated in 2013 and 2018, respectively. Google, which suffered 4-year pre-tax losses during the sample period of 2008 to 2017, was excluded as well. However, the study includes two big tech companies such as Apple and Microsoft. The final sample of NZSOFMs is listed in the appendices (see Appendix H) to allow evaluation of the overall quality of the study.

Another possible explanation for the small magnitude of BEPS in this study is that the tax rate differentials do not incentivise NZSOFMs to shift profits. According to Dischinger (2007), a large discrepancy in national tax rates among neighbouring states in Europe, provides MNEs with favourable circumstance to move profits from high-tax regimes to low-tax regimes. However, nearly half of the New Zealand subsidiaries in the sample are owned by Australian immediate parents where the statutory corporate tax rate of Australia and New Zealand is almost identical (30 percent vs 28 percent). This makes profit shifting between these two countries largely unrewarded.

Tax avoidance involves various potential costs, although this is generally believed to enhance investors' value as the reduction of taxes paid is traditionally considered as a relocation of value from the government to shareholders. More specifically, political and reputational costs are largely related to tax avoidance. Tax aggressive MNEs would easily attract media scrutiny, which may lead to tighter regulatory assessment including legislative requirements. Consequently, MNEs would incur compliance costs in conforming with tax authorities' auditing, as this requires direct time and financial cost. Profit shifting activities among affiliated companies of a large corporation would also give rise to efficiency costs and implementation costs. The substantial costs related to profit shifting may cancel out the benefits of tax savings.

In addition, this study expected to find significantly low tax effects on BEPS using data aggregated at the micro-level. Existing studies found that a micro database is always associated with a smaller magnitude of BEPS. Nevertheless, the estimation measures using firm data in this study are in line with the guidelines of the OECD on enhancing BEPS analyses. A shifting preference for firm-level data has been observed in recent academic studies. Firm-level studies have been considered better in identifying and controlling for most of the non-tax factors of firms.

The statutory corporate tax rates where an affiliated firm is based are commonly used to explain variations in reported profits of affiliated companies although the statutory tax rate difference of a subsidiary from its foreign parent is a more accurate explanatory variable. This study found that the local corporate tax rate of the host country (New Zealand) itself has a greater effect on reported profits of NZSOFMs, as compared to the bilateral tax rate differential between the host country and the home country. NZSOFMs were found to be more responsive to the host country's corporate tax level, and the results show that the New Zealand corporate tax rate is inversely related to the pre-tax profits of NZSOFMs. An explanation could be that the local business environment, is an "immediate" environment which has a direct influence on a company's business decisions, including tax planning strategies.

The independent sample t-test in the second part of the study shows that NZSOFMs are larger than NZDOCs in term of firm size. In particular, the results of independent sample t-tests find that NZSOFMs have a lower ratio of total debt to total assets as compared to NZDOCs, while the regression analysis shows that the FOREIGN indicator is not statistically significantly related to the ratio of total debt to total assets. The result shows that NZSOFMs do not rely on debt financing to a greater extent than do NZDOCs. While the aggressive debt policy does not necessarily imply profit shifting, this study found that NZSOFMs that are relatively larger in size are less leveraged than NZDOCs. It indicates that the use of debt financing is not solely

determined by tax, although tax savings are the most prominent reason in deciding the capital structure of a multinational company.

According to Graham (2000), the “conservative leverage puzzle” has been a prevalent topic in the literature of corporate finance that keeps baffling researchers. However, on average, companies do not maximise their debt level than when they could in order to attain the greatest possible tax advantages. The costs of debt, especially financial distress costs and non-debt tax shields counterbalance the tax benefits of taking on a high level of debt. As opposed to NZDOCs, NZSOFMs incurred less interest expense, thus reporting a higher net profit. Low interest expense indicates fewer deductible payments to shift profit out of New Zealand, and thereby the income tax expenses and net profits of NZSOFMs are relatively higher than those of NZDOCs.

The regression analysis indicated that foreign ownership is not significantly related to the ratio of EBIT to sales. It shows that NZSOFMs do not differ from NZDOCs in term of transfer pricing. In any case, transfer pricing manipulation is difficult to observe as intra-group transactions within MNEs are not easily detected using publicly available data. This study cannot find any indication that NZSOFMs engaged in more transfer pricing than NZDOCs.

5.4 Limitations of the Study

Inevitably, this study is also subject to a number of research limitations and some of them have been mentioned throughout the study.

First, New Zealand companies are poorly represented in the large databases such as Orbis. While the company financial statements are publicly available, the data is restricted to companies that have statutory obligations to file financial statements, and the financial data and company information are unconsolidated, and they must be collected and compiled manually. This factor limited the research design and restricted the sample selection of New

Zealand companies. The purposive sampling employed in this study limits the observational units of the study to well-established MNEs with financial statements only, without including other forms of business such as partnerships, trusts, etc. Although the sampling is imperfect and, as such, the findings cannot be generalised over the whole population of business entities in New Zealand, the sample still sufficiently represents the cross-border MNEs that are most likely to be involved in BEPS activities.

Another limitation of this study involves the missing information in the primary financial statements. This study relies on financial statements in obtaining data for empirical analysis. However, the content and structure of the financial statements may vary between different companies as the aggregation level at which financial information is presented is at the discretion of the statutory reporting entities. Missing values are not uncommon, even in well-designed research. However, missing data fields in the financial statements could lead to underestimation of profit shifting activities.

Apart from that, the industry identification and classification of companies in the second part of the study may not accurately reflect their main business activities. This is because the industry classification of each company is not readily available, hence the industry code of the companies is categorised manually, based on the decision of the researcher according to the business information available on the latest financial statements.

The direct comparison between NZSOFMs and NZDOCs on eight specific ratios in this study is fairly simple, although the analyses have controlled for company size and industry. There are various systematic differences between these two groups of companies. Propensity score matching (PSM) is a statistical matching technique which has become increasingly recognised, and which has been employed in numerous recent studies (e.g., Hansson, Olofsdotter, & Thede, 2016; Li & Tran, 2020) to match treatment and control groups with similar characteristics in order to reduce selection bias. However, this approach has not been feasible in this study as the

number of comparable NZDOCs (non-treated groups) is too small to match the NZSOFMs (treated groups).

Since this is a single-country study using exclusively New Zealand data, the findings may not be widely and generally applicable to other countries. As a result, the statistical approach of the study was not sufficiently comprehensive to examine the complex profit shifting.

5.5 Theoretical and Practical Contributions

To the best of the researcher's knowledge, Australasian research on profit shifting, especially research that focuses primarily on New Zealand, is scarce. The sparse New Zealand database, which provides relatively minimal tax information, restricts research and analysis of BEPS using mathematical and statistical techniques. Research on this topic from this new perspective using more current data is still under-represented in New Zealand. As there is a lack of empirical studies on profit shifting in the New Zealand context, the findings from this study are particularly noteworthy. This study demonstrates how statistical methods can be applied to quantify BEPS phenomena in this country using observed data. Nonetheless, this study is interdisciplinary in orientation, bringing together different aspects of taxation in understanding profit shifting problem in New Zealand.

This single-country based study also contributes to the public, political and academic debate as to how serious the profit shifting issues are in a specific country, which is New Zealand. The empirical findings of the profit shifting of NZSOFMs are comparable to the estimates in other studies that measured the profit shifting effects on the same or similar scale (see Appendix A for semi-elasticity coefficient toward corporate tax rate difference). Comparing the BEPS issues in New Zealand to those in other jurisdictions could help to develop knowledge about BEPS in a systematic way.

Empirical studies are crucial to improving knowledge of tax policy making as effective policy recommendations require evidence. The empirical evidence presented in this study helps government policymakers in devising sensible, evidence-based tax policies, making policy measures more reliable.

Last but not least, the systematic identification and segregation of MNEs into NZDOMs and NZSOFMs in this study, can be adopted in other disciplines in researching specifically large multinationals operating in New Zealand. The sampling of large multinational entities in New Zealand could be time consuming and laborious due to constrained sources of information. The most relevant open sources include the Forbes Global 2000, which identifies the largest public companies worldwide according to sales, profits, market value and assets of the companies, and the Deloitte Top 200, which ranked New Zealand publicly listed and even unlisted firms according to the company revenue. None of these sources provide a complete data source for MNEs in New Zealand. The well-planned sampling strategies in this study helps researchers in determining and sourcing large entities in New Zealand based on different sets of criteria and thresholds.

5.6 Recommendations for Future Research

The Taxation (Neutralising Base Erosion and Profit Shifting) Act was enacted in 2018, after the launch of 15-point OECD BEPS Action Plan (BEPS 1.0) in 2016, bringing the BEPS initiatives into New Zealand domestic legislation. Subsequently, the BEPS 2.0 measures were introduced in 2019. Future studies can go beyond the research period of this study (2008–2017), in exploring the more current state of profit shifting using post-BEPS data. The reduction in the US federal corporate tax rate from 35 percent to 21 percent under the TCJA Act may also altered the global profit shifting landscape. So, the future studies can explore the latest international tax environment using post-TCJA data.

The study finds that analytical research employing mathematical and statistical techniques is barely covered in the tax literature of New Zealand and Australia. The study was conducted with limited reference resources, especially in New Zealand context. Researchers who are devoted to examining this international tax issues in New Zealand may consider adopting the analytical method in their future studies.

The major concerns of the BEPS problem lie with the tax collection of the government around the world. After all, the most fundamental function of these involuntary levies is to contribute to government finances in providing for public expenditure, although it also serves other purposes, such as redistribution of income and wealth. Future studies could also explore the BEPS issue from different aspects, such as examining tax gains or losses in order to validate the findings of this study.

In the sample selection process, nearly half of the loss-making companies have been left out in examining the shifting of profit, and this includes several companies making continuous nine to ten years pre-tax loss during the sample period of 2008–2017. From a business perspective, companies that are consistently incurring income deficits are not financially viable in the long run. A large exclusion of loss-making NZSOFMs from the study may introduce a downward bias on the estimates of profit shifting as companies running at a loss could also be involved in lowering taxable income to avoid tax payments. This study has discussed why loss making companies may be involved in tax avoidance. It suggests that future research could examine BEPS issues by looking beyond profitable companies.

Future research can also go beyond this single-country study of New Zealand's tax setting by conducting a cross-country comparison of profit shifting issues between New Zealand and other jurisdictions in the same region or with similar economic characteristics.

5.7 Concluding Remarks

The statistical evidence summarised from the datasets reveals that the magnitude of BEPS in New Zealand is small, compared to the main findings of the existing studies in other countries. Every country has its sovereign right to determine its own discrete global tax policies and to adopt its own BEPS recommendations. So, it is not surprising that the degree of BEPS at a domestic level could vary across different countries.

Furthermore, BEPS initiatives target mainly “large” MNEs. The CbC reporting requirements as well as the latest global 15 percent minimum tax rate, apply to large multinationals with consolidated global revenues of more than EUR 750 million. There are not many large MNEs in New Zealand, based on the definition of OECD BEPS definition of “large” entities.

It is also interesting to note that the small sample size of 16 NZDOMs is not due to constraints of data. A large number of New Zealand owned multinationals, which were eliminated in the sampling process, are Crown entities, SOEs, or HNWI. They are not part of the central focus of this BEPS study.

Lastly, this study indicates that BEPS issues might be restricted to a few extreme examples of large MNEs. The stringent tax policies and legislation applicable to all companies might create unmanageable compliance costs and tax burdens for compliant companies. The tax authorities should give careful consideration to the magnitude of BEPS when undertaking or adopting any new measures or devising any tax policies.

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Appendices

Appendix A

Summary of Existing BEPS Studies

Macro Approach

No.	Author	Published Year	Topic	Database	Type of Data	Sample Period	Sample	Dependent Variable	Other form of coefficient / results
1	IMF	2014	Spillovers in International Corporate Taxation		Panel	1980–2013	103 countries	CIT base	–0.075 (OECD countries) –0.192 (non-OECD countries) –0.235 (low and middle income countries)
2	Bolwijn, Casella, & Rigo	2015	An FDI-driven approach to measuring the scale and economic impact of BEPS	FDI data from IMF CDIF	Panel	2009–2012	104 countries	FDI Income Rate of Return	–0.097 (All) –0.054 (developed countries) –0.115 (developing countries)
3	Crivelli, de Mooij, & Keen	2015	Base erosion, profit shifting and developing countries		Panel	1980–2013	173 countries	CIT base	–0.34 (OECD countries) –0.44 (non-OECD countries)

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Micro Approach

No.	Author	Published Year	Topic	Database	Type of Data	Sample Period	Sample	Dependent Variable (s)	Semi-elasticity coefficient toward CIT rate differences	Other form of coefficient / results
1	Grubert & Mutti	1991	Taxes, tariffs and transfer pricing in multinational corporate decision making	BEA (country-level)	Cross-section	1982	US MNEs			
2	Hines & Rice	1994	Fiscal paradise: Foreign tax havens and American business	BEA (country-level)	Cross-section	1982	US MNEs	After-financing profit; EBIT	-2.25	
3	Rousslang	1997	International income shifting by US multinational corporations		Cross-section	1988	US MNEs	After-financing profit		
4	Collins et al.	1998	Cross-jurisdictional income shifting and earnings valuation	Compustat	Panel	1984–1992	US MNEs	After-financing profit		
5	Desai, Foley & Hines	2003	A multinational perspective on capital structure choice and internal capital markets	BEA	Panel	1989–1994	US MNEs			
6	Grubert	2003	Intangible income, intercompany transactions, income shifting and the choice of location	Compustat	Cross-section	1996	US MNEs	After-financing profit		
7	Mills & Newberry	2004	Do foreign multinationals' tax incentives influence their US income reporting and debt policy		Panel	1987–1996	Non-US MNEs	After-financing profit		
8	De Mooij & Ederveen	2008	Corporate tax elasticities: A reader's guide to empirical findings			Before 2005	European countries	Corporate pre-tax reported profit	-1.2	

Note. After-financing profit refers to profit net of interest. EBIT is earnings before interest and taxes.

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Micro Approach

No.	Author	Published Year	Topic	Database	Type of Data	Sample Period	Sample	Dependent Variable (s)	Semi-elasticity coefficient toward CIT rate differences	Other form of coefficient / results
9	Huizinga & Laeven	2008	International profit shifting within multinationals: A multi-country perspective	Amadeus	Cross-section	1999	European countries	After-financing profit; EBIT	-1.31	
10	McDonald	2008	Income shifting from transfer pricing: Further evidence from tax return data					EBIT		
11	Clausing	2009	Multinational firm tax avoidance and tax policy	BEA	Panel	1982–2004	US MNEs	After-financing profit	-0.5	
12	Schwarz	2009	Tax avoidance strategies of American multinationals: An empirical analysis				US MNEs	After-financing profit		
13	Weichenrieder	2009	Profit shifting in the EU: Evidence from Germany	MiDi	Panel	1996–2003	Germany	After-financing profit		
14	Azémar	2010	International corporate taxation and US multinationals' behaviour: An integrated approach				US MNEs	After-financing profit		
15	Dischinger	2010	Profit shifting by multinationals: Evidence from European micro panel data	Amadeus	Panel	1995–2005	Affiliated companies located in Europe	Corporate pre-tax reported profit	-0.7	

Note. After-financing profit refers to profit net of interest. EBIT is earnings before interest and taxes.

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Micro Approach

No.	Author	Published Year	Topic	Database	Type of Data	Sample Period	Sample	Dependent Variable (s)	Semi-elasticity coefficient toward CIT rate differences	Other form of coefficient / results
16	Dischinger & Riedel	2011	Corporate taxes and the location of intangible assets within multinational firms	Amadeus	Panel	1995–2005		After-financing profit		
17	Maffini & Mokkalas	2011	Profit shifting and measured productivity of multinational firms					EBIT		
18	Møen et al.	2011	International debt shifting: Do multinationals shift internal or external debt				German MNEs	Internal and external debt-to-asset ratio		–0.294 to –0.132
19	Becker & Riedel	2012	Cross-border tax effects on affiliate investment: Evidence from European multinationals					After-financing profit		
20	Blouin et al.	2012	Coordination of transfer prices on intra-firm trade	BEA				After-financing profit		
21	Buettner et al.	2012	The impact of thin-capitalization rules on the capital structure of multinational firms	MiDi	Panel	1996–2004	Foreign affiliates of German-based MNEs	The use of debt		
22	Grubert	2012	Foreign taxes and the growing share of US multinational company income abroad: Profits, not sales, are being globalised		Panel	1996–2004	US MNEs	After-financing profit		

Note. After-financing profit refers to profit net of interest. EBIT is earnings before interest and taxes.

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Micro Approach

No.	Author	Published Year	Topic	Database	Type of Data	Sample Period	Sample	Dependent Variable (s)	Semi-elasticity coefficient toward CIT rate differences	Other form of coefficient / results
23	Karkinsky & Riedel	2012	Corporate taxation and the choice of patent location within multinational firms	Amadeus			European affiliates			
24	Klassen & Laplante	2012	Are US multinational corporations becoming more aggressive income shifters?		Panel	1988–2009	US MNEs	After-financing profit		
25	Markle	2012	A comparison of the tax-motivated income shifting of multinationals in territorial and worldwide countries	Orbis	Panel	2004–2008		After-financing profit		
26	Dharmapala & Riedel	2013	Earnings shocks and tax-motivated income-shifting: Evidence from European multinationals	Amadeus	Panel	1995–2005	European countries (EU-25)	After-financing profit		
27	Dischinger, Knoll & Riedel	2013	The roles of headquarters in multinational profit shifting strategies		Panel	1999–2009	European MNEs	After-financing profit	–0.5	
28	Heckemeyer & Overesch	2013	Multinationals' profit response to tax differentials: Effect size and shifting channels (meta-regression analysis)	Amadeus	Panel	1999–2009	Various countries based on consensus	Corporate pre-tax reported profit	–0.8 ("consensus" estimate)	
29	Lohse & Riedel	2013	Do transfer pricing laws limit international income shifting? Evidence from European multinationals		Panel	1999–2009	European MNEs	Corporate pre-tax reported profit	–0.4	

Note. After-financing profit refers to profit net of interest. EBIT is earnings before interest and taxes.

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Micro Approach

No.	Author	Published Year	Topic	Database	Type of Data	Sample Period	Sample	Dependent Variable (s)	Semi-elasticity coefficient toward CIT rate differences	Other form of coefficient / results
30	Weyzig	2013	Tax treaty shopping: Structural determinants of foreign direct investment routed through the Netherlands				MNEs in many countries affected by Dutch Tax System in 2005	(i) Effective Corporate tax abroad (ii) Debt ratio		5% of missed tax revenue (developing countries) The existence of debt securities increase debt ratio by 0.12% while the existence of issuing Special Purpose Entities (SPEs) increase debt ratio by 0.13%
31	Beer & Loeprick	2014	Profit shifting: Drivers of transfer (mis)pricing and the potential of countermeasures	Orbis	Panel	2003–2011	World MNEs	Corporate pre-tax reported profit	–1.2 to –0.52 depending on the corporate structure complexity and the existence of intangible asset	
32	Blouin et al.	2014	The location, composition, and investment implications of permanently reinvested earnings		Panel	1982–2004	54 countries	Debt-to-asset ratio		Thin capitalization rules reduce debt-to-asset ratio between 1.9–6.3%

Note. After-financing profit refers to profit net of interest. EBIT is earnings before interest and taxes.

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Micro Approach

No.	Author	Published Year	Topic	Database	Type of Data	Sample Period	Sample	Dependent Variable (s)	Semi-elasticity coefficient toward CIT rate differences	Other form of coefficient / results
33	Davies et al.	2014	Knocking on tax haven's door: Multinational firms and transfer pricing		Cross-Section	1999	400 MNEs in France	intra-firm prices in France		Tax authorities in France lose 3% of total corporate taxes collected
34	Dyreng & Markle	2016	The effect of financial constraints on tax-motivated income shifting by US multinationals	Compustat	Panel	1997–2011	US MNEs			
35	Barrios & d'Andria	2018	Profit shifting and industrial heterogeneity	Orbis & country-level data	Panel	2004–2013		Corporate pre-tax reported profit	-0.47	

Note. After-financing profit refers to profit net of interest. EBIT is earnings before interest and taxes.

Appendix B

Foreign Direct Investment in New Zealand by Country, March 2020

Countries	NZD Million
Australia	59,303
Hong Kong	9,771
United States of America	7,778
Singapore	6,047
Japan	5,723
United Kingdom	5,471
Canada	5,147
Netherlands	3,983
Cayman Islands	2,312
Switzerland	1,888
China, People's Republic of	1,588
Virgin Islands, British	1,579
Germany	733
Luxembourg	657
France	298
Channel Islands	0
Netherlands Antilles	0
Papua New Guinea	(2)
Belgium	(21)
Ireland	(30)
Argentina	C
Austria	C
Bermuda	C
Chile	C
Cook Islands	C
Korea, Republic of	C
Malaysia	C
Norway	C
Taiwan	C
United Arab Emirates	C
Total	121,052

Symbols:

C: Confidential

(): Net external FDI

Note .

1. Limited countries are listed in this table.

2. The data does not add up to the total.

Source: Statistics New Zealand (2020b).

Appendix C

New Zealand's Direct Investment Abroad by Country, March 2020

Countries	NZD Million
Australia	14,212
United States of America	5,394
Hong Kong	1,892
United Kingdom	1,059
Bermuda	999
Singapore	457
Canada	292
China, People's Republic of	119
Japan	86
Taiwan	42
Germany	31
Chile	19
United Arab Emirates	10
Channel Islands	0
Luxembourg	0
Netherlands Antilles	0
Norway	0
Argentina	C
Austria	C
Belgium	C
Cayman Islands	C
Cook Islands	C
France	C
Ireland	C
Korea, Republic of	C
Malaysia	C
Netherlands	C
Papua New Guinea	C
Switzerland	C
Virgin Islands, British	C
Total	27,621

Symbols:

C: Confidential

Note .

1. Limited countries are listed in this table.
2. The data does not add up to the total.

Source: Statistics New Zealand (2020b).

Appendix D

Descriptive Statistics for Key Variables of NZDOMs

	NZDOMs Panel 2008–2017			
	<i>M</i>	<i>Median</i>	<i>SD</i>	<i>Range</i>
^ PTP	99,870,215.68	56,527,500.00	107,270,626.50	4,664,000 - 632,000,000
lnPTP	17.93	17.85	1.03	15.36 - 20.26
TAXDIFF2	-1.90	-0.50	5.02	-17.50 - 4.50
^ FA	376,271,555.48	144,375,540.50	543,760,954.04	2,649,000 - 2,348,000,000
lnFA	18.79	18.79	1.51	14.79 - 21.58
^ EMPLYCOST	240,449,536.74	93,942,000.00	358,766,128.05	11,805,739 - 1,794,000,000
lnEMPLYCOST	18.58	18.36	1.13	16.28 - 21.31
LEV	0.50	0.54	0.18	0.07 - 0.88
lnLEV	-0.79	-0.62	0.45	-2.66 - -0.13
# GDP	2,861.79	1,449.34	4,060.33	221.27 - 20,302.47
lnGDP	7.41	7.28	0.98	5.40 - 9.92
⌘ CPI	7.36	7.60	0.94	5.80 - 8.80
lnCPI	1.99	2.03	0.13	1.76 - 2.17

Notes. $N_{\text{NZDOMs}} = 160$. ^ In New Zealand Dollars. # In billion New Zealand Dollars. ⌘ CPI ranges from 0 (highly corrupt) to 10 (least corrupt). FA = Property, plant and equipment. EMPLYCOST = Personal costs; Personal expenses. LEV = Total liabilities/Total assets. GDP = The average GDP for its foreign subsidiaries. CPI = The average CPI for its foreign subsidiaries. TAXDIFF2 = The average statutory corporate tax rate for its foreign subsidiaries – Corporate statutory tax rate at the parent location (New Zealand).

Appendix D gives descriptive statistics for the key variables of 16 NZDOMs. Both the observed variables with their original values and after logarithmic transformation are displayed in the above table, but the regression analysis was conducted on the transformed variables.

The sample distribution of each of the transformed variables of NZDOMs is fairly symmetrical, as indicated by the average and the median for each variable, which are close together. By looking at the initial values of the data, NZDOMs possess a mean of pre-tax profits of NZD 99.9 million, average fixed assets amounting to NZD 376 million, and an average cost of employees of NZD 240 million. The leverage of NZDOMs ranges from 0.07 to 0.88 with a mean of 0.50. It indicates that on average half of the total assets of NZDOMs are financed by the debt.

The CPI of the location where NZDOMs' foreign subsidiaries are based was fairly high ($M = 7.36$, $SD = 0.94$). A high CPI indicates a low degree of corruption, which in turns poses a low risk to businesses. The tax differential of NZDOMs ranges from -17.5 percent to 4.5 percent with a mean of -1.9 percent. The GDP of the host countries of NZDOM subsidiaries has a wide range, which spreads from NZD 221.3 billion to NZD 20,302.5 billion.

Appendix E

Pearson Correlations for Key Variables of NZDOMs

Variable	1	2	3	4	5	6	7
1. TAXDIFF2	-						
2. lnPTP	-0.305**	-					
3. lnFA	-0.152	0.709**	-				
4. lnEMPLOYCOST	0.039	0.664**	0.757**	-			
5. lnLEV	0.338**	0.185*	0.108	0.415**	-		
6. lnGDP	0.555**	-0.368**	-0.307**	-0.225**	0.168*	-	
7. lnCPI	0.229**	-0.253**	-0.109	-0.376**	-0.262**	-0.219**	-

Notes. $N_{\text{NZDOMs}} = 160$. TAXDIFF2 = The average corporate statutory tax rate for its foreign subsidiaries – Corporate statutory tax rate at the parent location (New Zealand). lnPTP = Natural log of pre-tax profit. lnFA = Natural log of property, plant and equipment. lnEMPLOYCOST = Natural of personal costs; Personal expenses. lnLEV = Natural log (Total liabilities/Total assets). lnGDP = Natural log of the average GDP for its foreign subsidiaries. lnCPI = Natural log of the average CPI for its foreign subsidiaries. ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

The correlation matrix shows that pre-tax profit and tax difference have a statistically significant negative correlation ($r = -.31, p < .01$). The relationship between fixed assets and pre-tax profits is in a positive direction ($r = .71$) and statistically significant. The cost of employees is positively related to pre-tax profits ($r = .66, p < .01$). Leverage and pre-tax profits have a statistically significant relationship ($r = .19, p < .01$) and there is a small correlation between these two variables ($0 < |r| < .29$). The GDP and pre-tax profits have a negative correlation ($r = -.37, p < .01$). There was a negative correlation between CPI and tax difference ($r = -.25, p < .01$), and statistically significant.

Appendix F

Profit Shifting of NZDOMs

OLS firm fixed effects model for NZDOMs

Panel 2008–2017

Dependent variable: Natural log of profit before tax

Explanatory variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Average host countries statutory corporate tax rate ^a	-0.30*** (0.07)	-0.11 (0.07)	-0.10 (0.07)	-0.10 (0.07)				
Tax difference to parent ^b					0.05 (0.06)	-0.11** (0.05)	-0.13*** (0.05)	-0.15** (0.06)
lnFA		0.19 (0.18)	0.27 (0.17)	0.25 (0.18)		0.17 (0.18)	0.24 (0.17)	0.21 (0.18)
lnEMPLYCOST		0.72*** (0.21)	0.74*** (0.20)	0.92*** (0.25)		0.94*** (0.22)	0.98*** (0.21)	0.97*** (0.24)
lnLEV			-0.96*** (0.19)	-0.29*** (0.30)			-1.01*** (0.19)	-0.98*** (0.19)
lnGDP				1.29 (1.35)				-0.24 (0.35)
lnCPI				0.72 (1.16)				0.04 (1.44)
N	160	160	160	160	160	160	160	160
Adjusted R-squared	.70	.77	.80	.80	.66	.77	.81	.81

Notes. *, **, *** indicates significance at the 10 percent, 5 percent, and 1 percent level, respectively. Standard errors are in parentheses. ^a It refers to the average host countries statutory corporate tax rate where the overseas subsidiaries located. ^b It refers to the difference between the average statutory corporate tax rate for its foreign subsidiaries and New Zealand statutory corporate tax rate. lnFA = Natural log of property, plant and equipment. lnEMPLYCOST = Natural log of personal costs; Personal expenses. lnLEV = Natural log (Total liabilities/Total assets). lnGDP = Natural log of the average GDP where the overseas subsidiaries are located. lnCPI = Natural log of the average CPI where the overseas subsidiaries located.

Appendix F gives statistical findings for profit shifting of NZDOMs. Since the sample size of the NZDOMs is too small to render any meaningful results, the findings discussed in this section are treated as supplementary information to the thesis. A fixed firm effects panel regression analysis has been applied on 16 observed NZDOMs across 8 specifications for the sample period of 2008 to 2017.

The study begins with examining the relationship between the reported profitability by NZDOMs and the average host countries corporate tax rate, where the foreign subsidiaries of NZDOMs are located, together with the control variables, and the results are set out in Specification 1 to Specification 4. The results presented in Specification 1 indicates a strongly negative correlation between profitability and average host countries statutory tax rate, at the 1 percent confidence level. Specification 1 suggests a 10 percentage point decrease in the average host countries tax rate where the overseas subsidiaries of the NZDOMs are based, resulting in higher reported pre-tax profits of NZDOMs by 3 percent. Following this, the company control variables are included in Specifications 2 and 3 and the country-level control variables are included in Specification 4. With the inclusion of the control variables, the coefficients of the host countries tax rate turn out statistically non-significant throughout Specification 2 to Specification 4.

Subsequently, this study examines if the pre-tax profits reported by NZDOMs responds to the difference between the average statutory corporate tax rate of foreign subsidiaries and New Zealand's statutory corporate tax rate. In Specification 5, the coefficient of the tax rate differential reveals a positive but not statistically significant trend. In Specification 6 and 7, the coefficients of the tax differential turn out negative and significant at the 5 percent level, and at the 1 percent level, respectively, with the inclusion of the company control variables. In Specification 8, the country-level control variables are additionally applied to the estimation,

and the coefficient of the tax rate differential turns out negative and statistically significant at the 5 percent level.

The cost of employees has a strong positive relationship with pre-tax profits whereas the leverage is negatively related to the pre-tax profits of the NZDOMs in all of the specifications. The results indicate that an increase in the cost of employees results in an increase in the reported profits of the NZDOMs. Meanwhile, a high ratio of total debt to total assets is related to a decrease in pre-tax profits of the NZDOMs.

Appendix G

Samples Sourced from NZX

Status	Number of NZX Company
Banking, insurance and investment companies	65
Non-ASIC	4
Companies without overseas subsidiaries	18
Companies that are not ultimate owners	24
Foreign MNEs	9
Co-ops	1
Companies set up after 2008	26
Companies with incomplete financial statements between 2008–2017	2
Companies with losses between 2008–2017	22
Sample companies to test H₂	13
Total	184

Appendix H

Full Listing of 259 NZSOFMs

1 3M NEW ZEALAND LIMITED	31 BECTON DICKINSON LIMITED
2 A H BEARD LIMITED	32 BIC (NZ) LIMITED
3 ABB LIMITED	33 BIDFOOD LIMITED
4 ADIS INTERNATIONAL LIMITED	34 BOEHRINGER INGELHEIM ANIMAL HEALTH NEW ZEALAND LIMITED
5 AGPAC LIMITED	35 BOEHRINGER INGELHEIM N Z LIMITED
6 AICA NZ LIMITED	36 BOSTON SCIENTIFIC NEW ZEALAND LIMITED
7 AIR LIQUIDE NEW ZEALAND LIMITED	37 BP NEW ZEALAND HOLDINGS LIMITED
8 ALLERGAN NEW ZEALAND LIMITED	38 BREVILLE NEW ZEALAND LIMITED
9 ALLFLEX NEW ZEALAND LIMITED	39 BRIGGS & STRATTON NEW ZEALAND LIMITED
10 ALLIED FOODS (N.Z.) LIMITED	40 BRIGHTSTAR NZ LIMITED
11 ALLIED TELESIS LABS LIMITED	41 BRISTOL-MYERS SQUIBB (NZ) LIMITED
12 AON NEW ZEALAND GROUP	42 BRITISH AMERICAN TOBACCO HOLDINGS (NEW ZEALAND) LIMITED
13 APOLLO MOTORHOME HOLIDAYS LIMITED	43 BSH HOME APPLIANCES LIMITED
14 APPLE SALES NEW ZEALAND	44 BUDGET RENT A CAR LIMITED
15 APRA NEW ZEALAND LIMITED	45 C 3 LIMITED
16 ARISTOCRAT TECHNOLOGIES NZ LIMITED	46 CA PACIFIC (NZ) LIMITED
17 ARNOTT'S NEW ZEALAND LIMITED	47 CABLEPRICE (NZ) LIMITED
18 ASSA ABLOY NEW ZEALAND LIMITED	48 CAMPARI NEW ZEALAND LIMITED
19 ATKORE CONSTRUCTION TECHNOLOGIES NZ LIMITED	49 CANON NEW ZEALAND LIMITED
20 ATLAS COPCO (N.Z.) LIMITED	50 CDL HOTELS HOLDINGS NEW ZEALAND LIMITED
21 ATLAS PROGRAMMED MARINE HOLDINGS (NZ) LIMITED	51 CHARGEURS WOOL (NZ) LIMITED
22 AURECON NEW ZEALAND LIMITED	52 CHINA TRAVEL SERVICE (N.Z.) LIMITED
23 AUTOHUB NEW ZEALAND LIMITED	53 CLEMENGER GROUP LIMITED
24 AVIALL NEW ZEALAND LIMITED	54 CLOROX NEW ZEALAND LIMITED
25 AVIS RENT A CAR LIMITED	55 CLOUDY BAY VINEYARDS LIMITED
26 BABCOCK (NZ) LIMITED	56 CLSA PREMIUM NEW ZEALAND LIMITED
27 BAPCOR NEW ZEALAND LIMITED	57 COCA-COLA HOLDINGS NZ LIMITED
28 BARENBRUG SOUTHERN LIMITED	58 COCA-COLA OCEANIA LIMITED
29 BAXTER HEALTHCARE LIMITED	59 COLGATE-PALMOLIVE LIMITED
30 BEAM SUNTORY NZ LIMITED	60 COLLIERS INTERNATIONAL NEW ZEALAND LIMITED

61 COMPASS GROUP NEW ZEALAND LIMITED	91 ESTEE LAUDER LIMITED
62 COMPUTERSHARE INVESTOR SERVICES LIMITED	92 EVONIK PEROXIDE LIMITED
63 CONNELL BROS COMPANY AUSTRALASIA LIMITED	93 EXPEDITORS INTERNATIONAL (NZ) LIMITED
64 CONQUEST IMPORTS N.Z. LIMITED	94 FIS SYSTEMS NZ LIMITED
65 CONSOLIDATED ALLOYS (N.Z.) LIMITED	95 FLEXIGROUP (NEW ZEALAND) LIMITED
66 COUNTRY ROAD CLOTHING (N.Z.) LIMITED	96 FLIGHT CENTRE (NZ) LIMITED
67 CRC INDUSTRIES NEW ZEALAND	97 FOCUS RESEARCH LIMITED
68 CROWN EQUIPMENT LIMITED	98 FOOTE, CONE & BELDING LIMITED
69 CROWN WORLDWIDE (NZ) LIMITED	99 FRUCOR SUNTORY NEW ZEALAND LIMITED
70 CSE NEW ZEALAND LIMITED	100 GEOFABRICS NEW ZEALAND LIMITED
71 CUMMINS NEW ZEALAND LIMITED	101 GHD NZ HOLDINGS LIMITED
72 DANFOSS (NEW ZEALAND) LIMITED	102 GILEAD SCIENCES (NZ)
73 DB BREWERIES LIMITED	103 GLAXOSMITHKLINE NZ LIMITED
74 DDB WORLDWIDE LIMITED	104 GRAND CENTRAL (NZ) LIMITED
75 DEC INTERNATIONAL NZ LIMITED	105 GWAIL (NZ) LIMITED
76 DELAVAL LIMITED	106 H.J. HEINZ COMPANY (NEW ZEALAND) LIMITED
77 DETMOLD NZ SALES LIMITED	107 HANCOCK FOREST MANAGEMENT (NZ) LIMITED
78 DFS NEW ZEALAND LIMITED	108 HARVEY NORMAN LIMITED
79 DICKER DATA NZ LIMITED	109 HELLA NEW ZEALAND LIMITED
80 DOMINO'S PIZZA NEW ZEALAND LIMITED	110 HELLMANN WORLDWIDE LOGISTICS LIMITED
81 DORMAKABA NEW ZEALAND LIMITED	111 HENRY SCHEIN NEW ZEALAND
82 DOTMAR HOLDINGS NEW ZEALAND LIMITED	112 HERTZ NEW ZEALAND HOLDINGS LIMITED
83 DUPONT (NEW ZEALAND) LIMITED	113 HEXAGON SAFETY & INFRASTRUCTURE LIMITED
84 EBSCO NZ LIMITED	114 HEXION (N.Z.) LIMITED
85 ECOLAB NEW ZEALAND	115 HILL'S PET NUTRITION (NZ) LIMITED
86 ELECTRIX LIMITED	116 HITACHI VANTARA NEW ZEALAND LIMITED
87 ELECTROLUX (NZ) LIMITED	117 HOLDEN NEW ZEALAND LIMITED
88 EMERSON PROCESS MANAGEMENT NEW ZEALAND LIMITED	118 HONEYWELL LIMITED
89 ENERGIZER NZ LIMITED	119 HP FINANCIAL SERVICES (NEW ZEALAND)
90 ESSILOR NEW ZEALAND LIMITED	120 HUBERGROUP NEW ZEALAND LIMITED

121	IBM GLOBAL FINANCING NEW ZEALAND LIMITED	151	LOUIS VUITTON NEW ZEALAND LIMITED
122	IBM NEW ZEALAND LIMITED	152	MALTEUROP NEW ZEALAND LIMITED
123	IMCD NEW ZEALAND LIMITED	153	MARS NEW ZEALAND LIMITED
124	IMPERIAL TOBACCO NEW ZEALAND LIMITED	154	MARUHA (N.Z.) CORPORATION LIMITED
125	INCHCAPE MOTORS NEW ZEALAND LIMITED	155	MAZDA MOTORS OF NEW ZEALAND LIMITED
126	INFOR (NEW ZEALAND)	156	MCDONALD'S RESTAURANTS (NEW ZEALAND) LIMITED
127	INFORMATION RESOURCES (NEW ZEALAND) LIMITED	157	MENZIES AVIATION (NEW ZEALAND) LIMITED
128	INTEGRATED PACKAGING LIMITED	158	MERCEDES-BENZ NEW ZEALAND LIMITED
129	INTERNATIONAL GAME TECHNOLOGY (NZ) LIMITED	159	METHVEN LIMITED
130	ISENTIA LIMITED	160	MICROSOFT NEW ZEALAND LIMITED
131	ITW NEW ZEALAND	161	MILLENNIUM & COPTHORNE HOTELS NEW ZEALAND LIMITED
132	J. GADSDEN (NZ) LIMITED	162	MITEK NEW ZEALAND LIMITED
133	J.F. HILLEBRAND NEW ZEALAND LIMITED	163	MITSUBISHI MOTORS NEW ZEALAND LIMITED
134	JACOBS (NZ) HOLDINGS LIMITED	164	MOFFAT LIMITED
135	JACOBS DOUWE EGBERTS NZ	165	MRC GLOBAL (NEW ZEALAND) LIMITED
136	JETCONNECT LIMITED	166	MULTISPARES N.Z. LIMITED
137	JOHNSON & JOHNSON (NEW ZEALAND) LIMITED	167	MULTIVAC NEW ZEALAND LIMITED
138	KERRY INGREDIENTS (NZ) LIMITED	168	MYLAN NEW ZEALAND LIMITED
139	KINGSPAN LIMITED	169	NCR (NZ) CORPORATION
140	KOP- COAT NEW ZEALAND LIMITED	170	NEGOCIANTS NEW ZEALAND LIMITED
141	KORN FERRY (NZ)	171	NESTLE NEW ZEALAND LIMITED
142	KRAUS & NAIMER PRODUCTION LIMITED	172	NEW BALANCE NEW ZEALAND LIMITED
143	LEASEPLAN NEW ZEALAND LIMITED	173	NEW ZEALAND SUGAR COMPANY LIMITED
144	LEGO NEW ZEALAND LIMITED	174	NISSAN NEW ZEALAND LIMITED
145	LEGRAND NEW ZEALAND LIMITED	175	NOAHS HOTELS (N.Z.) LIMITED
146	LEXISNEXIS NZ LIMITED	176	NOKIA NEW ZEALAND LIMITED
147	LIFE TECHNOLOGIES NEW ZEALAND LIMITED	177	NOVO NORDISK PHARMACEUTICALS LIMITED
148	LINDE HOLDINGS NEW ZEALAND LIMITED	178	NUTRITION SYSTEMS NZ PTY LIMITED
149	LION NZ LIMITED	179	OCS GROUP NZ LIMITED
150	L'OREAL NEW ZEALAND LIMITED	180	OLYMPUS NEW ZEALAND LIMITED

181 OMYA NEW ZEALAND LIMITED	211 SCHINDLER LIFTS NZ LIMITED
182 OOH!MEDIA STREET FURNITURE NEW ZEALAND LIMITED	212 SEALED AIR (NEW ZEALAND)
183 OPPENHEIMER NEW ZEALAND LIMITED	213 SEEK (NZ) LIMITED
184 ORIX NEW ZEALAND LIMITED	214 SEGARD MASUREL (NZ) LIMITED
185 OTIS ELEVATOR COMPANY LIMITED	215 SEQIRUS (NZ) LIMITED
186 PAE (NEW ZEALAND) LIMITED	216 SEW-EURODRIVE (NZ) LIMITED
187 PARAMOUNT PICTURES NZ	217 SIEMENS (N.Z.) LIMITED
188 PARKER HANNIFIN (N.Z.) LIMITED	218 SIKA (NZ) LIMITED
189 PENGUIN RANDOM HOUSE NEW ZEALAND LIMITED	219 SIMSMETAL INDUSTRIES LIMITED
190 PFIZER NEW ZEALAND LIMITED	220 SMC CORPORATION (NZ) LIMITED
191 PHILIP MORRIS (NEW ZEALAND) LIMITED	221 SMITH & NEPHEW LIMITED
192 PPG INDUSTRIES NEW ZEALAND LIMITED	222 SONOCO NEW ZEALAND LIMITED
193 PROBE CONTACT SOLUTIONS NEW ZEALAND LIMITED	223 SONOVA NEW ZEALAND (WHOLESALE) LIMITED
194 PROCTER & GAMBLE DISTRIBUTING NEW ZEALAND LIMITED	224 SONY INTERACTIVE ENTERTAINMENT NEW ZEALAND LIMITED
195 PROGRAMMED MAINTENANCE SERVICES (N.Z.) LIMITED	225 SOUTH PACIFIC PICTURES INVESTMENTS LIMITED
196 PUMA NEW ZEALAND LIMITED	226 SOUTH PACIFIC SEEDS (N.Z.) LIMITED
197 RECKON ACCOUNTANT GROUP LIMITED	227 SOUTHWOOD EXPORT LIMITED
198 RENTOKIL INITIAL LIMITED	228 SPECTRUM BRANDS NEW ZEALAND LIMITED
199 REVLON NEW ZEALAND LIMITED	229 SPICERS (NZ) LIMITED
200 RHEEM NEW ZEALAND LIMITED	230 SPIRAX SARCO LIMITED
201 RICOH NEW ZEALAND LIMITED	231 STANLEY BLACK & DECKER NZ LIMITED
202 ROCHE DIAGNOSTICS NZ LIMITED	232 STIHL LIMITED
203 ROCHE PRODUCTS (NEW ZEALAND) LIMITED	233 STRYKER NEW ZEALAND LIMITED
204 SAINT-GOBAIN ABRASIVES LIMITED	234 SUPER CHEAP AUTO (NEW ZEALAND) PTY LIMITED
205 SAN REMO PASTA LIMITED	235 SUZUKI NEW ZEALAND LIMITED
206 SANDVIK NEW ZEALAND LIMITED	236 SYNGENTA CROP PROTECTION LIMITED
207 SANOFI-AVENTIS NEW ZEALAND LIMITED	237 TECHNOLOGY ONE NEW ZEALAND LIMITED
208 SCANDINAVIAN TOBACCO GROUP NEW ZEALAND LIMITED	238 THALES NEW ZEALAND LIMITED
209 SCENTRE (NEW ZEALAND) LIMITED	239 THOMSON REUTERS NEW ZEALAND LIMITED
210 SCHERING-PLOUGH ANIMAL HEALTH LIMITED	240 TOYOTA NEW ZEALAND LIMITED

241 TRANSDEV AUCKLAND LIMITED
242 TRAVEL CORPORATION NZ LIMITED
243 TYCO ELECTRONICS NZ LIMITED
244 UNILEVER NEW ZEALAND LIMITED
245 UNISYS NEW ZEALAND LIMITED
246 UNIVERSAL MUSIC NEW ZEALAND LIMITED
247 USANA HEALTH SCIENCES (NZ) CORPORATION
248 WARWICK FABRICS LIMITED
249 WASHTECH LIMITED
250 WEDDERBURN SCALES LIMITED
251 WESFARMERS INDUSTRIAL & SAFETY HOLDINGS NZ LIMITED
252 WEX NEW ZEALAND
253 WILLIS NEW ZEALAND LIMITED
254 WITCHERY FASHIONS (NZ) LIMITED
255 WORLEY NEW ZEALAND LIMITED (EMPLYCOST=LABOUR)
256 XYLEM WATER SOLUTIONS NEW ZEALAND LIMITED
257 YAMAHA MOTOR NEW ZEALAND LIMITED
258 YARA FERTILIZERS (NZ) LIMITED
259 ZIMMER BIOMET NEW ZEALAND COMPANY