Copyright is owned by the Author of the thesis. Permission is given for a copy to be downloaded by an individual for the purpose of research and private study only. The thesis may not be reproduced elsewhere without the permission of the Author.

Assembling the land of milk and money:

The work of money in New Zealand's dairy industry

A thesis presented in partial fulfilment of the

requirements for the degree of Doctor of Philosophy in

Geography

at Massey University, Palmerston North New Zealand.

Michael James Mouat

2022

Abstract

Academic and media narratives about the New Zealand dairy industry have reinforced a portrayal which emphasises its steady, almost inevitable evolution into 'the backbone' of New Zealand's export economy. In these narratives rising export revenues have been taken as proof of the valuableness of the dairy industry. However, in this thesis I argue that these currently prevalent understandings of the dairy industry uncritically accept a definition of money as just being a commodity that simply facilitates exchange and measures value. Drawing on my concept of moneyness, my thesis re-investigates money as a form of work and contributes to a different understanding of the dairy industry that re-narrates it as an effect of the way this money work practically assembles and reassembles sets of relations. My moneyness analysis highlights how previously inconspicuous relations became stabilised through the work of tax, loans, and shares, by following moments of controversy to where the way money and the dairy industry worked were practically changed. The work of tax shows how solving the problem of state revenue also translated value into other relations which made the early dairy industry valuable as a sterling accumulation machine. The work of loans shows how the dairy industry became creditable because of the way relations between the state, financial system and dairy industry have been maintained. The work of shares shows how overcoming various problems has arranged and re-arranged cooperative dairy industry value, making it stably commensurable with national value. The effect is to present a historical arc of New Zealand's dairy industry as characterised by a dynamism that is locally arranged and historically adaptable. The thesis concludes that the creative practices of moneyness have continually stabilised the dairy industry, not in spite of disruptions but because of them.

Keywords: cultural economy, assemblage, agrifood, New Zealand dairy industry, financialisation, financialization, moneyness, money, finance, tax, banking, cooperatives, value.

Acknowledgements

Dedicated to and because of, Tracey, Madeline, James and Frank. I love you.

To Dr. Matt Henry, the busiest person I know but who was never too busy for me. Thanks for reading everything, not just what I wrote, but seemingly everything ever written.

To Dr. Russell Prince, thanks for taking my fifteen minute explanations and rendering them down to the two most important points that even I could understand, year after year after year.

To Dr. Carolyn Morris, thanks for your relentless scepticism. Me: “Blah, blah does blah because blah”. CM: “Does it though”? Me: “yes”. CM: “Does it though”? Me: “It could”. CM: “Does it though”? Me: “No, not really. I’ll go back and look”.

Contents

List of Figures

Abbreviations

AJHR	Appendix to the Journal of the House of Representatives
BNZ	Bank of New Zealand
DIRA	Dairy Industry Restructuring Act (2001)
FSF	Fonterra Shareholders Fund
GFC	Global Financial Crisis (2008-9)
IRD	Inland Revenue Department
Kg/MS	Kilograms of milksolids (Milksolids are the milk powder left after water is removed)
LCA	Life Cycle Assessment
MCDC	Manawatu Cooperative Dairy Company
MAF	Ministry of Agriculture and Fisheries
NZD	New Zealand Dollar
NZDB	New Zealand Dairy Board
NZDG	New Zealand Dairy Group
RBNZ	Reserve Bank of New Zealand
RCDC	Rongotea Cooperative Dairy Company
REINZ	Real Estate Institute of New Zealand
SCM	Supply Chain Management
£NZ	New Zealand Pound
£Stg	British Pound Sterling
20/-	Twenty Shillings in £1NZ
12d	Twelve Pence in 1/-

1. New Zealand's Economic Backbone

I had always known that the dairy industry was important to the New Zealand economy because it makes our money. I knew what money was because I had variously lacked it, accumulated it and used it. In 2009 I started working in the dairy industry for money and upon hearing this news a friend exclaimed: 'Great, dairy is the backbone of the New Zealand economy'. He was a policeman and had no special economic training, but I accepted this view unquestioningly. This thesis is a result of revisiting this acceptance and wondering how our certainty about the dairy industry as the backbone came about.

Dairy farming occupied 1.74 million hectares of land in 2019 compared with 1.01 million hectares in 1986. This 72% increase is more intensively farmed with 2.32m cows in 1986 rising to 4.95m in 2019, a 213% increase (Dairy NZ, 2019a, p. 9). By the end of the 2019 season, New Zealand dairy factories had processed 21.2b litres of milk compared to 7b in 1985 (Dairy NZ, 2019a, p. 8). This production expansion has been enabled by dairy farming spreading into what were traditionally marginal areas especially in the South Island where 'conversions' from sheep and beef land to dairy have occurred (Forney & Stock, 2014; Stock & Peoples, 2012). This has given rise to new matters of concern, especially 'environmental' ones, detailed in a range of studies (for example Deans & Hackwell, 2008; Holland, 2015; Jay, 2007; Jay & Morad, 2007; Joy, 2015, 2018; Tall & Campbell, 2018).

Instead of engaging in debates about dairy industry consequences I will introduce this thesis by showing that the way we think about the dairy industry in New Zealand is heavily influenced by the way we think about and have written about money, which I argue largely follows from conceptualising money as simply a commodity. I will then demonstrate that competing theories of money which might prompt a different understanding of the dairy industry, are limited, so I make a case for considering money relationally which prompts the research question this thesis will address, namely:

- How does money work and what work has money done to organise the New Zealand dairy industry as it appears today?

To answer this research question, I had to think carefully about what I meant by the term 'money' and to consider money more seriously. As a result, this thesis will advance my assemblage theory inspired concept of moneyness, which is the sets of relations that practically translate commensurable value over time and space. I argue that the stabilisation of these relations in practice, has assembled the dairy industry as an effect.

What follows in this chapter shows that the treatment of money in media narratives reflects that of the established New Zealand agricultural and dairy industry histories which are located within popular general histories that tend to describe New Zealand as having progressed from colony to nation state. I argue this literature allows two prevailing views of the dairy industry. The first dominant view has the dairy industry evolving into the putative backbone of the economy through economic determinism, where innovation and hard work are rewarded through accumulating money from export markets in exchange for milk products, a process which teleologically selects for further industry development. The second more critical view sees the dairy industry as the inevitable outcome of capitalist structures, where the underlying dynamics of class struggle encourages capitalists to appropriate resources as a means of accumulating money as profit, capital and enhanced social power. I argue that these two views of the dairy industry uncritically accept a reductive view of money as just a commodity, which limits an understanding of the contingent dynamism that has been continually negotiated for the dairy industry to stabilise.

I then make my case for why conceptualising money as merely a commodity is so limited, which in turn problematises prevailing dairy industry understandings, which either tacitly or explicitly accept this concept. Following that, I outline why some alternative theoretical approaches to money were unsatisfactory for me and then outline my approach for challenging orthodox ideas about money as

merely a commodity through my moneyness concept which I will show allows a new historiographical understanding of the New Zealand dairy industry. Section 1.4 then outlines how the thesis is structured.

I start by exploring media narratives which unanimously conclude that the dairy industry constitutes the backbone of the New Zealand economy because of the money it earns. I then demonstrate how this reflects New Zealand agricultural and dairy industry literature, located within conventional political economy histories of New Zealand that have uncritically accepted the view of money as purely a commodity, which I then critique.

A news article exemplifies the backbone narrative where agricultural commentator Keith Woodford (2018, pp., unpaged) writes, 'personally, I remain an optimist, I think agriculture is going to remain the backbone of our export-led economy'. Woodford (2018, pp., unpaged) argues that 'New Zealand, despite its location in the South Pacific, has been able to maintain first-world living standards, with agriculture and tourism providing the foundations'. These foundations are established by optimising earnings in the aforementioned export-led economy, accumulating money from overseas as though New Zealand were a business or household.

More specific to the dairy industry's contribution by accumulating money, an article titled '*Dairy forms NZ's backbone'* quotes a 2010 New Zealand Institute of Economic Research (NZIER) report for Fonterra, New Zealand's largest dairy processing and exporting company (Gale, 2014, unpaged). This report cites the dairy industry earning over 1/3 of total agricultural sector contribution to GDP. Ex-Fonterra Chairman John Wilson made some calculations regarding the 2014 final Fonterra milk payout to farmers of $8.75 per Kg/MS, lauding the result as a national achievement because it 'means a $13.8 billion boost to the economy'. Federated Farmers President Willy Leferink said the result 'puts $300 into the back pocket of every man, woman and child' (Priestley, 2014, unpaged).

These narratives suggest that we need the overseas money that the dairy industry earns in exchange for milk products, and this means there is more money for New Zealanders to spend.

Dairy industry export earnings seemingly pay for bridges, hospitals and schools too. Former dairy industry executive Andrew Ferrier (2011, unpaged) puts the backbone in this public purpose context by arguing that, 'dairy is doing you good, keeping down the trade deficit and enabling greater government spending through higher tax contribution'. In this narrative the New Zealand government needs money collected by the dairy industry from overseas to constitute enough income to pay for infrastructure.

A recent question posed by the Dairy Companies Association of New Zealand was to consider 'how dairy's growth has delivered wider economic and social benefits for New Zealand' (Destremau & Siddharth, 2018, p. 1). The question is not 'does dairy's growth…', the assumption being that dairy's growth provides benefits which are so matter of fact as to not require refinement. Because the dairy industry constitutes a large portion of New Zealand's agricultural sector then it must provide benefits to New Zealand, those benefits constitute New Zealand's backbone and are almost exclusively prefixed with the '$' symbol to demonstrate dairy industry value. The thoroughgoing use of '$' without explanation as to what it means, except to say that it measures amounts of money and that money must be accumulated from overseas in order for private citizens and the government to spend, implies money has been settled upon as a stable ontological object. This description of dairy industry value as having evolved into the economic backbone because it efficiently accumulates money, has not emerged from nowhere.

1.1 New Zealand General, Economic and Agricultural Histories

General, economic and agricultural historical literature have produced, reproduced and reinforced a backbone narrative without much critical contemplation. Like many histories of human territorial expansion, New Zealand's history is one replete with examples of new frontiers being opened.

‘The arrival of Polynesian voyagers around a millennium ago breached a series of ecological frontiers which would trigger a series of ecological crises, the extinction of major fauna [for example Moa] and land use strategies’ (Campbell, 2020, p. 46). Within a few centuries the descendants of imported Polynesian seafarers had stabilised into a complex tribal society where Māori as tangata whenua (people of the land) were ‘inextricably linked to the roots and soil of the land’ they had made into Aotearoa (M. King, 2003, pp. 76, 77).

Dutch maps named Aotearoa ‘Nova Zeelandia’ after Abel Tasman’s expedition in 1642 on behalf of the Dutch East India Company. When James Cook sighted ‘New Zealand’ in 1769, he saw the same potential as Tasman for the extraction and exploitation of tradeable commodities, ‘New Zealand as a quarry’ (Easton, 2020, pp. 81-88), but also as ‘a potential site for settlement and farming’ (Campbell, 2020, p. 47). In 1840, The Treaty of Waitangi (English version) and Te Tiriti (Māori version), formally established New Zealand as a British colony, politically transforming the relationship between Māori and the Crown which at its best might be described as indistinct and at its worst a fraudulent colonization by contract.

One popular way of thinking about New Zealand’s colonial history is as a phase of transition. Armstrong (1978, p. 297) describes New Zealand as having developed in ‘its evolution from colony to neo-colony’ as economically determined by ‘the transition towards specialised staple production for export’. This progression was produced by a so-called ‘rural revolution’ (Sutch, 1969, p. 146), where the only manufacturing industry was ‘public works which was promoted because it could open up land for more farming and land speculation’ (Sutch, 1972, p. 28). Agriculture fuelled the development of a ‘maturing and independent’ economy which eventually transitioned New Zealand to an ‘ex-colony’ (Easton, 2001, p. 9). Farming was at the centre of locking in a one particular historical trajectory out of many possible futures.

One narration of how this trajectory began was when the first refrigerated ship, *The Dunedin,* made the journey from New Zealand to Britain in 1882. This is said to have 'symbolised the beginning' of what developed into 'New Zealand's twentieth century economy' (Easton, 2001, p. 22). This technologically determined maturity was accompanied by a financial independence. The Liberal Party governed between 1891 and 1912 and in the early years of power, policies of financial 'caution' were abandoned for policies of 'self-reliance' (Hamer, 1988, p. 53).

The Government Advances to Settlers Act (1894) established a Government-backed option for farmers borrowing against land. The Government borrowing sterling cheaply from London, in comparison to borrowing from banks, could offer mortgages at 5% interest per annum against an existing average of around 7% (Quigley, 1989, p. 74). The Government Advances to Settlers Department 'meant the State was providing one-quarter of New Zealand mortgage financing' by 1901 (Hunt, 2009, p. 34). Advances to Settlers developed into a system of State Advances for agriculture in a succession of legislation such as The Land Settlement Finance Act 1909, the Discharged Soldier Settlement Act 1915, the Rural Advances Act 1926 and the Rural Intermediate Credit Act 1927 (Johnson, 1989).

'The evolving colony' in the late nineteenth and early twentieth century financed a particular type of settler capitalism that 'resulted in intensive settlement in rural areas, supporting town and later cities' (Easton, 2001, p. 23).This period saw New Zealand transform from a colony, to a capitalist settler nation state, where settlement ideology pivoted from reproducing Britain in the South Pacific, to building a 'better Britain' (Belich, 2001, pp. 77, 78).

In these narratives New Zealand was on its way to becoming a sophisticated, independent nation state with an advanced agricultural exporting sector which included a newly flourishing cooperative dairy industry in the early twentieth century. This progression was technologically enabled through refrigerated shipping, economically enabled through land settlement and financially enabled

through institutional infrastructures such as State Advances, as characteristic of advanced socially democratic nation states. However, this seemingly deterministic historical treatment has rendered some relations invisible. Not only was New Zealand's agricultural pastoralism flourishing it was also nearly exclusively white. This was made so by, for instance, Advances to Settlers being just that, finance to Pākehā (non-Māori) farming (Simpson, 1986, p. 230; Sutch, 1969, p. 145). Māori, having been alienated from Aotearoa's land were relegated to labour by being denied opportunities afforded through access to New Zealand's finance capital.

The agricultural historical literature has systematically reinforced the economic backbone explanation which fashionably narrates the orderly progression of New Zealand from a colony toward a nation state. Like recent media comment on the dairy industry this literature treats money as a taken-for-granted object that requires no elaboration and the role of money in colonization has largely remained a relation rendered invisible

The agricultural backbone narrative can be seen to have emerged as far back as 1902 when member of parliament William Pember Reeves (1902, p. 361) described New Zealand society being significantly influenced by an 'agrarian cult'. By the 1930's this agricultural exceptionalism had become 'a tradition of regarding the farmers as backbone of the country' (Graham, 1963, p. 125). The work of the Reform Party and its leader Prime Minister 'Farmer Bill' Massey before WW1 saw 'the backbone concept emerge, allowing sectional interests to portray as national interests' (Belich, 2001, p. 153).

In a United Nations series featuring various nation states, Belshaw and Airey (1947) edited the volume entitled *New Zealand*. In this book Belshaw (1947, p. 110) credits favourable climate, topography, soils and access to the United Kingdom market for agricultural exports, as crucial for encouraging 'the trend towards pastoral farming that has no doubt provided a standard of life in

New Zealand that is among the highest in the world'. Standard of life and exports are linked by the silent yet taken-for-granted money that appears in tables detailing export earnings by farming type.

Agriculture was a key part of New Zealand as a 'social laboratory' by peopling the land with 'closer settlement' to concretise the expansion of British Empire (Belich, 2001, pp. 77, 78; Sinclair, 1991, pp. 172-179). Linking Empire and economy, M. King (2003, p. 354) notes that during the Great Depression 'measures were undertaken to reduce farmers overheads and restore profitability to the rural sector, and so to the whole economy'. Tentatively stabilised for a period after WW2, this was the golden age of New Zealand agriculture and therefore the New Zealand economy in 'New Zealand's prosperous years' (Brooking, 2004, p. 139). Agriculture, empire, profitability and economy were linked in this literature.

Histories that focus on New Zealand's economic development emphasise the importance of Britain as the country's most culturally important trading partner. These relationships take different forms. For example, Condliffe (1930) outlines in his book *New Zealand in the Making*, how land resources were passed into freehold ownership by settlers, emphasising the role of the London money markets as a source of credit which lubricated this transition and the overall organisation of the Colony. Hawke (1985) follows this with *The Making of New Zealand* and expands upon these credit and debt relations with Britain. In it, he dives deeper into the role of money in debt relations. He writes, 'the main monetary variables were not determined by the countries stock of gold, but by the amount of sterling that could be accumulated in Banks through exports and borrowings' (Hawke, 1985, p. 65). As I show throughout the empirical chapters, this link to sterling is crucial to understand the early New Zealand dairy industry and financial system.

General, economic and agricultural historical literature tend to briefly touch on a few key associations that infer money and credit have played a role in New Zealand agriculture. The object of money for instance, is hinted at having a deeper significance when associated to sterling and to

notions of debt but these histories are much more attentive to the importance of markets rather than the work of money. Money, even when brought into association with other elements, remains taken-for-granted as an object earnt, exchanged or borrowed in overseas markets.

This treatment of money is reflected in more specific agricultural and dairy industry histories. When academic research into New Zealand agriculture began to emerge, land transformation was generally framed as a 'profound achievement' because 'what in Europe took twenty centuries, and in North America four, has been accomplished in New Zealand within a single century' (Cumberland, 1941, p. 529). How this achievement was made possible is detailed in studies that aggregate farming knowledge and practices such as *Agricultural Organization in New Zealand* by Belshaw (1936a). Key chapters describe state settlement finance (D. O. Williams, 1936b), obtaining credit for purchasing farm land and farming operations (Belshaw, 1936b), and how the state encouraged the farming sector through tax concessions, grants and subsidies (Rodwell, 1936). This comprehensive survey of New Zealand agriculture came after the Great Depression to address 'the problem of land utilization' (Belshaw, 1936a, p. vii). Solving the problem was to be measured in the 'revival of profits' for farmers and 'increasing export receipts' (Belshaw, 1936a, p. 787).

Hamilton (1947, pp. 139-142) offers a substantial breakdown of farm production values by product from 1853 until 1942, showing how New Zealand agricultural exports had flourished and enabled a standard of living demonstrated by access to running water, electric lights and motorcars (Hamilton, 1947, pp. 151-157). Cumberland (1944) uses geography as a regionalised spatial science to understand solutions for localised problems with national importance, such as soil erosion. Later, regional distinctiveness included a broader array of agricultural productivity factors (Cumberland, 1948). During the 1950's and 1960's a comprehensive treatment of many techno-scientific issues for New Zealand agriculture were divided up into regionally specific case studies, by farming type, to elicit spatially specific productivity solutions (See Stokes, 1969, pp. 138-147 for a comprehensive

review). The regional development tradition in geography has continued albeit with a focus that has broadened from addressing productivity to addressing unevenness of regional development (Nel & Connelly, 2019). Money simply measures productive value if it has been included at all in demonstrating agricultural progress.

The overall problem of obtaining export income and optimising agriculture by region was designed to transform landscapes into '£' and more recently '$'[1]. Important alternatives emerged to these 'ascending ontologies' on the natural place of farming, in the form of an ongoing environmental critique during an ostensible 'Green Revolution' (Campbell, 2020, p. 11) and a 'New Rural Sociology' (Campbell, 2020, pp. 21, 22). The former brought ecology back into agricultural discussions and the latter brought society back into research of agricultural relations between the economy, the state and global trade. These relations were seen as having been too easily abstracted away or otherwise assumed homogenous. The 1970's and 1980's saw the New Rural Sociology agenda flourish into different themes for understanding New Zealand agriculture including neo-Marxist analyses of farm labour relations and class structure (Fairweather, 1985; Gill, 1979; Hatch, 1993) as well as gender issues including the experiences of farm women and rural masculinity (Reviewed in Loveridge, 2016).

Other work explained how past changes influenced particular social and material trajectories of New Zealand farming. 'Food Regimes' thinking pioneered by Friedmann and McMichael (1989) built upon the New Rural Sociology/neo-Marxist foundations to reveal more relations within agrifood systems such as technological innovation, trade systems, production systems and political structures. These were argued as being key to stabilising periods of agrifood production and consumption into regimes. Various accounts placed aspects of New Zealand agriculture within the food regimes framework (Campbell, 2009; Campbell & Dixon, 2009; Roche, 1992, 1999, 2012).

[1] The New Zealand currency was 'decimalised' in 1967. Where £1NZ was worth 20 shillings and a shilling worth 12 pence, $2NZD became worth £1NZ, equal to 10 shillings and 10 cents equalled 1 shilling.

Placing rural New Zealand within these global historical systems came at a time when critical agrifood studies and political economy in general were confronted by so-called 'neoliberal' interpretations of what the economy should look like. These structural changes arguably began to foment when Britain entered the EEC in 1973, were operationalised after 1984's election of the reformist Fourth Labour Government and have continued with varying intensity ever since. The rupture in food relations, that had stabilised between New Zealand and Britain for nearly a hundred years, was followed by differently arranged relations between the state and farming in New Zealand (Le Heron, 1988, 1993). New Zealand was reshaped to fit into a neoliberalised and globalised network of commodity chains and this was argued as greatly impacting the possible structures of New Zealand farming (Britton, Le Heron, & Pawson, 1992; Le Heron & Pawson, 1996; Sandrey & Reynolds, 1990). The 'productivist' ideology which is detectable in various literature on New Zealand's agricultural history appeared invariant and persistent however, despite this restructuring (Roche & Argent, 2015; Rosin, 2013).

These political and economic adaptations are often linked to the 'the rural downturn' that followed in New Zealand (Campbell, 2020, p. 119), shaking some of the assumptions made about the centrality of farming to New Zealand social life. The removal of subsidies and other considerations from the state in the economic reforms of the 1980's, gave rise to a competing narrative of farming being a so-called 'sunset industry'. The removal of state support left many farmers feeling betrayed and they mobilised in protest at the sudden challenge to being 'the backbone of the economy' (Wallace, 2014, p. 20). Wallace (2014, p. 14) explains that these policies were however necessary as the government had 'inherited an economy on the verge of bankruptcy', presumably having almost run out of money. The New Zealand farmer 'no longer tethered to the state managed their farms according to what the land and climate allowed' and 'farmers responded by adopting new technology and equipment that has seen farm productivity progressively increase' (Wallace, 2014, p. 139). Through the 'rural sectors renowned comradery' farmers pulled together, adopted innovation,

some became rich through increased productivity and ultimately 'farmers have resisted the tribulations thrown at them by nature and governments and there seems little doubt they will continue to do so' (Wallace, 2014, pp. 140-147).

The agricultural literature progressed from a 'how to' regional science to critical analyses of how agriculture has been structured in relation to economy. The relation of NZ£ and from 1967 NZ$ to economy is however relatively silent and this flows through as a relation that is rather ignored in studies of making and remaking the dairy industry. It is therefore assumed that $ has a taken-for-granted understanding as a simple measure of value that does not do any work itself and when I discuss money later in the chapter, I will show why this has been the case.

The dairy industry specifically, has received similar treatment as general agriculture in the historical literature. Starting with an organisational literature, Belshaw (1921) made *The New Zealand Dairy Industry* the subject of his Master's thesis because, 'much has been written in the last forty years in regards to the science of dairying, but no study of the subject from the standpoint of economics had as yet been detected' (Belshaw, 1921, p. 1). This is an early example of how the dairy industry is linked to the making of New Zealand 'economic' reality. At the same time two influential 'how to' type practical guides for arranging dairying both titled *Dairy Farming in New Zealand* were being published (Powdrell & Johnson, 1920; Wheeler, 1921). The relation between economy and regional agricultural science continued as Belshaw (1927) set out 'the present organisation of the industry' for the journal *Economic Geography* and this is framed by the importance of dairying's yearly increases in butter and cheese export receipts between 1875 and 1924, measured in NZ£. Accomplishing the amassing of NZ£ is linked to the subject of regionally specific land utilization for optimising dairy output, just like the general agricultural historical literature (Fawcett, 1936).

The work of establishing and cementing the backbone metaphor has occupied the dairy industry's own history of self-narration. This starts by showing how the dairy industry became organised and

ordered to a point where 'New Zealand ranks as the world's largest exporter of dairy produce, and as one of the foremost countries of efficient production' (Philpott, 1937, p. 210). A. H. Ward (1975) takes up more fully the development of centralised marketing of dairy products by the state. The New Zealand Dairy Produce Export Control Board established in 1923 as a single buyer for all New Zealand dairy produce, consolidated with related institutions into the New Zealand Dairy Board in 1953. Varying levels of regulation and control of dairy exports were exercised by the state, but what A. H. Ward (1975) emphasises is the importance of the New Zealand dairy industry becoming cooperatively owned. Cooperatives apparently provided the needed stability for the industry to develop, scored through export receipts measured in money.

The recipe of better regionally specific science, generating better productivity, proven as valuable by accumulating more export receipts, remained as an undisturbed imperative for academic work on the dairy industry for several decades. The internal organisation of New Zealand dairying was tracked through various changes but these changes 'in no way destroyed the cooperative character of New Zealand dairy companies' (Rowlands, 1968, p. 130). While New Zealand agriculture in general was the subject of critical analyses from the 1970's through to the putative period of 'neoliberal' economic restructuring, the specifics of the dairy industry were not so prominent but for locally grounded histories of dairying transformations (such as Morris, 1993) and locating dairying in New Zealand as a feature of productivist Western farming (Le Heron et al., 1996; Le Heron & Roche, 1997). Many changes to the dairy industry have been analysed, however the marking of success or failure through adaptations in how money has worked and the work it has done, have not been significant in explaining such changes.

In the early 2000's, academic attention toward the dairy industry as a unique subject within New Zealand agriculture gathered pace with the passing of the Dairy Industry Restructuring Act (2001) which enabled a major statutory restructuring to occur. This statute created the dairy giant Fonterra

as the result of a merger between the New Zealand Dairy Board and the two largest cooperatives remaining at the time, Kiwi and New Zealand Dairy Group. This merger was accomplished by exempting it from competition laws that prohibited monopolies from forming, embodied in the Commerce Act (1986). Some early attention based on economic competition theory critiqued this restructuring as anti-competitive (Evans, 2004; Evans & Quigley, 2001).

In support however, Lind (2013) took up where Ward's history of New Zealand dairying ended by adding in the development of Fonterra as the highest form of evolution that the dairy industry had yet accomplished by so efficiently accumulating export receipts. Gray, Le Heron, Stringer, and Tamásy (2007) argue that since the mega-merger, Fonterra has expanded the ability of the New Zealand dairy industry to compete in international markets due to 'innovative strategies that have produced a range of economies of scale and scope' thus actively participating in the 'making of geographies' which reconstitute global competitiveness (Gray et al., 2007, p. 127).

Fonterra have ostensibly made multiple adaptations in response to issues of concern arising because of relational interdependencies that cross many dairy spaces (Gray & Le Heron, 2010). For instance, Stringer, Tamásy, Le Heron, and Gray (2008) argue that Fonterra challenges the notion of remoteness and isolation, as being barriers to its participation in global commodity chains. Their analysis is framed by the claim, 'New Zealand as a resource periphery economy is largely dependent on earnings from agriculture, forestry and tourism for its wealth' (Stringer et al., 2008, p. 3). After all, 'dairying is, alongside tourism, New Zealand's largest export earner. Taken together they account for about half of the country's external trade by value'. Value is framed as amounts of money earnt overseas and if anything, the dairy industry is guilty of not having moved quickly enough up 'the value chain' (Le Heron, 2018, pp. 20, 21).

The histories of New Zealand agriculture and dairy have nearly always ignored the colonial history of dispossession until recently. Wynyard (2016, 2017, 2019a, 2019b) has produced critical histories of

the New Zealand dairy industry through a Marxist political economy lens. This research stands out by taking a deep historical overview of the dairy industry. These histories portray the dairy industry as made possible through processes of 'primitive accumulation' articulated through the violence of dispossession and alienating resources from Māori. Rather than a long past stage of colonial settler capitalism, Wynyard (2019a) argues that primitive accumulation is sustained in modern New Zealand through class struggle that continues to shift resources towards dairy industry capitalists in an ongoing neoliberal project of 'unlocking resources' (Wynyard, 2019a, p. 34).

Foote, Joy, and Death (2015) critique the backbone narrative of the dairy industry using its own monetary terms. They calculate a variety of negative externalities[2] that are produced by the dairy industry in arguing that statements of dairy industry benefits to the economy like GDP contribution, are overestimated when all relevant costs are calculated.

Dairy histories, like agricultural histories and general economic histories of New Zealand, do not critically analyse money. Instead, money has merely been the measure of economic success which demonstrated New Zealand's orderly evolution from colony to nation state. The dairy industry is analysed in terms of how it has earned money for New Zealand from overseas, which the economy apparently needs to get before it spends. While there have been recent critiques about how this is done, the role of $ remains silent because of an assumed taken-for-grantedness of how money is understood. These historical agricultural literatures helped establish agriculture as the economic backbone. In the last few decades, the backbone has substantially grown with an expanding dairy industry. Media discourse and industry self-narratives reproduce and reinforce the message that the dairy industry expanding has been economically determined through earning money. I argue that within this literature and within the literature that has critiqued the dairy industry, money is not well

[2] Negative externalities are costs born by a third parties (individuals, organisations, resources, societies etc), incurred by them because of an economic transaction that does not directly involve them.

defined which enabled a teleological economic determinism to become the dominant explanation of the dairy industry's historical evolution. Where a '$' sign is simply plonked in front of some numbers to demonstrate or contest dairy industry value it is merely assumed that knowledge about what '$' is has been settled. I will now show why I think this has come about.

1.2 Understanding Money

My focus on money started as a focus on finance. An increasingly influential concept in agrifood studies called financialization (which I unpack in Chapter Two) had yet to be used as a set of tools for investigating the New Zealand dairy industry. The idea was to see in what way following finance could create new understandings of the dairy industry. Understanding finance seemed straightforward enough, I had a mortgage of my own after all. Finance to me was the use of money today, forwarded by a financial intermediary such as a bank to purchase an asset with the promise that the borrower will repay the principal over time with interest. The problem came with engaging in a layer of analysis one level deeper and taking money more seriously by questioning whether finance could be understood differently than just future money, actualised in the present. This issue came to the fore when the empirical stories I was gathering not only described money using different units of account but also gave rise to different forms of money such as debentures and settlement cash as interest paying money, which I exhibit in the empirical chapters. To define more clearly what I meant by 'money' and what had been meant by money in New Zealand agricultural and dairy histories, I investigated several theories. I found that the theoretical conceptualisation that most accurately represented what I considered money and what is reflected in the historical agricultural and media narrative, is money simply understood as a commodity.

Typical conceptualisations about the origins of money as merely a commodity usually start by asserting that the chief form of transaction in early society must have been barter. As life became more complex, barter no longer sufficed because of the problem of needing to find a double

coincidence of wants, that is, someone with five fish wanting a cow must then find someone with a cow wanting five fish. One commodity emerged as being acceptable in exchange for all other commodities. This intermediating commodity became money. Many different objects have served as money such as cattle, iron, fish, shells, nails etc, but gradually metal became favoured because of its durability and transportability. The weight and fineness of these metals became set by a sovereign authority who punished swindlers trying to debase or depreciate the value of metal money. Gradually financial credit then began to emerge alongside an increased international trade of goods, where instead of handing over metal at each transaction, a promise to hand it over in the future is accepted and credit therefore substitutes for, say, gold (Innes, 1913).

This interpretation of money as a neutral, divisible and inherently valuable commodity is traced at least as far back as Aristotle and emerged as 'theoretical metallism' toward the end of the eighteenth century, becoming 'practical metallism' when 'Adam Smith substantially ratified' the theory (Schumpeter, 1955, pp. 289, 290). Nineteenth century economists such as Weber, Jevons, Walras, Fisher and Samuelson 'simply incorporated the well-established theory of precious metal coinage into their theories of marginal utility and supply and demand', this is all the more interesting as this even held 'despite the subsequent disappearance of all forms of precious metal money' (Ingham, 2004, p. 16). One of the most influential neoclassical economists, Paul Samuelson, described money as an 'obscuring layer' that obstructs economic analysis from its true job which is to create ratios between different wants and establish value in processes of exchange that would otherwise be established through marketplace barter (Ingham, 2004, pp. 18, 19).

Money as an intrinsically valuable commodity is said to mediate exchange by selling commodities (C) for money (M) and using that money to buy more commodities (C') in capitalist circulation (C-M-C'). Karl Marx incorporated money into his deeper exposition of capitalism, as the purpose of the sequence rather than merely facilitating exchange in some notion of the 'real' economy. Money as

capital exchanges for a commodity that is transformed into new commodities through capitalist production, and this is turned into profit (M') for the capitalist (M-C-C'-M'). Crucially, monetary capitalism sees resources lying idle if there is no capital financing (M) or no profit (M') (Mitchell, Wray, & Watts, 2019, pp. 45, 46).

Neoclassical economics, unable to ignore capital financing and credit money in theoretical models, came up with ways to incorporate them through theoretical monetarism. This allowed for credit to change the volume of the money supply which could then change levels of economic activity, but only in the short run. In the long run, money would adjust back to its 'optimum quantity' when the 'real' values intrinsic to the economy reasserted themselves. This 'real quantity of money' is the rising and falling nominal quantity of money relative to the rising and falling quantity of goods and services available for purchase (Friedman, 2017, p. 1).

This optimum 'real quantity of money' represents a constraint on the amount of money that is available for advancing as credit. Bank profitability in contemporary New Zealand then, is said to be an outcome of the efficiency with which, according to a 'Westpac [bank] spokesperson' they can 'source a commodity [money] in bulk, at a certain price and make it available in smaller amounts useful to the consumer at a slightly higher price' (South, 2008). Banks in this depiction are merely financial Intermediaries, 'entities that intermediate between providers and users of financial capital', where the providers of capital are deposit holders or savers and users of capital are borrowers (Greenbaum, Thakor, & Boot, 2019, p. 24). Banks profit on the interest charged by mediating loans of what is portrayed as commodity money (Potter, 1995).

The set of theoretical ideas that I have just explained about money as just a commodity, assumes money to be a passive measurement of value and mediator of exchange. As such, I argue that the agricultural literature and media narrative explain the New Zealand dairy industry as having inherently evolved as valuable because it efficiently accumulated some notion of intrinsically

valuable commodity money. The accumulation of this homogenous commodity as capital is lent out as finance so efficient users of finance capital can continue their organic growth. Critiques of the dairy industry have pointed out the role of capital as finance for appropriating the means of production for the capitalist but have not questioned the role of money more deeply. Questioning the ideas underpinning the concept of money as merely a commodity must therefore force a reconsideration of these explanations of the dairy industry, both of which imply it was inevitable given the structural forces that presupposed it.

Anthropologists have long cast doubt on the origin narrative of commodity money because 'no example of a barter economy, pure and simple, has ever been described, let alone the emergence from it of money' (Humphrey, 1985, p. 48). Graeber (2011) concludes that the weight of anthropological evidence regarding money tends toward it symbolising the social relation of 'debt' and thoroughly dismissing 'the story of money for economists that always begins with the fantasy world of barter' (Graeber, 2011, p. 23).

In contradistinction to concepts that theorised money as purely a commodity emanating from overcoming problems with barter, there are many other competing theories of money. Endogenous money theory insists that money is created by the activity of banks because bank deposits expand endogenously (from within) by banks making loans (Godley, 2012). The credit theory of money is similar in that it describes all money as some issuers' credit (Innes, 1913). The state theory of money describes money as having originated not from a market system of credits and debits but from the penal system. Here, an authority such as a state government is crucial because it uses sovereign power to impose obligations such as taxes, fines and fees and simultaneously imposes a unit of account that measures that obligation and names what can extinguish it as lawful state money (Goodhart, 1998; Knapp, 1924). Modern monetary theory (MMT) has recently sought to harness these theories and use them to describe the functioning of money in an international monetary

system that has substantially changed with the advent of floating exchange rate regimes (Bell, 2001; Forstater & Mosler, 2005; Kelton, 2020; Mosler & Armstrong, 2019; Wray, 2012).

I have argued that in current understandings of the New Zealand dairy industry as the economic backbone, money is portrayed or otherwise assumed to be just a passive measure of value that is swapped in exchange for other commodities like dairy products. When literature and reports on the dairy industry use '$' to calculate value, there is never an explanation as to what theory of money is informing the data. Conceptualising money as just a commodity is the simplest explanation and it is therefore assumed as underpinning the theoretical basis that explains why the accumulation of export-earnings has always been vital to the economy. Also, understanding money as solely a commodity is also portrayed as what banks collect from savers and lend to borrowers as finance. I argue that this conceptualisation of money as merely a commodity has led to understanding the dairy industry as inherently valuable because of being a commodity money accumulator. Because theories of money as just a commodity are unsubstantiated in explaining how economic activity happens in the real world, then a different analysis of the dairy industry can be undertaken by challenging the inadequate simplification of money as a merely a commodity.

Rejecting the conceptual basis for money as just a commodity therefore challenges the current dominant and critical explanations of the dairy industry. However, in order to usefully contribute a new understanding of the dairy industry by reconsidering money, I was faced with a choice about which competing theory to rely on. While the competing money theories could at least point to some empirical historical evidence as justification, for me they remained problematic. This was because money theories assume the efficacy and homogeneity of some structural actors such as the state, the government, the banks or the exchange rate regime. The danger is in supposing that these structures arrived preformed, and, because they predate the New Zealand dairy industry, that they must therefore have caused the dairy industry. To go further, because these categorical actors are

often said to be part of a capitalist superstructure, then the dairy industry might be understood as inevitably having been an outcome of these structural processes.

In the end I decided not to try and understand money as either a simple object or through one of several competing theoretical lenses to analyse the dairy industry. This decision was not a linear or ordered process. I started gathering empirical data at the same time as I was reviewing different theories of money and tried to plug the data in as evidence for justifying a theoretical position. The issue was not so much that I could not find a theory to fit the empirical data, the issue was that I could fit the empirical data into so many theories of money that none of them by themselves helped explain the dairy industry adequately. As the empirical chapters will show, the dairy industry is enigmatic and categorising actors that have made the dairy industry as purely financial or purely governmental, is dubious. These actors bled into each other and into the dairy industry through their activities, spilling over their taken-for-granted boundaries that are said to make them distinguishable.

There have been some money researchers that have taken a different approach to money as just a neutral commodity and have not privileged any grand established theory that explains money. This research offered a way for me to think about money as a set of relations. Ingham (2004, pp. 5,12, 14, 70,71) thinks money has a 'nature' that is 'constituted by social relations'. These social relations assign value and, similar to state money theory, this value is known in relation to an abstract standard of value measured in an authority's money of account and 'conferred' on particular forms of money. Zickgraf (2017, p. 321) also defines money through relations, 'as the relational property that concerns not money, the thing, but the realization of money, the process', a 'joint human property' for concretising value. Zelizer (1997) published an influential book, *The Social Meaning of Money,* which argues against seeing money as a simple impersonal instrument and instead shows how money is heterogeneously fashioned through creative social relations. People differentiate

meaningful social relations by practices that erect categorical boundaries around what acceptable money is, through 'monetary differentiation' as relational work (Zelizer, 2012, p. 146).

A relational view sees money not as an object homogenously fashioned into a mediating commodity as an improvement on barter, nor as solely an outcome of structural power, a perspective that is inherent in the competing theories of money. A relational framework sees money as an outcome of particular forms of spatially variegated and historically contingent work. This view informed the research question for this thesis and how I went about examining the work of money in the dairy industry.

1.3 Money Relations in the New Zealand Dairy Industry

The dairy industry that is predominantly portrayed as either an outcome of an economically determined evolution or a structural inevitability, has potential for reconsideration because these prevailing understandings are influenced by uncritically accepting the theoretical basis for considering money as just a commodity. These stories about the origins of money, I have argued, are flawed. Having rejected any alternative theory of money to use as a lens for explaining the empirical content I was gathering, the research question I formed was inductive. Influenced by nascent research of understanding money as sets of relations, the research question guided the collection of data that could generate a tentative theory of money. My answer to this research question portends the key contribution of this thesis in differently understanding the dairy industry.

Having started this project by looking into dairy industry finance, I was prompted to take the idea of money more seriously when I tried to explain the role of money in finance. By reviewing the concept of financialization that was becoming influential in agrifood studies (which forms Chapter Two) I found that the financialization literature ignores money or uncritically accepts the commodity

money story, just as I had, and just as I have argued the agricultural historical literature does. This is not to say that I learned nothing useful from financialization studies.

This literature argues that one way of understanding the finance-food nexus has been to understand finance 'as a form of work itself' (J. W. Williams, 2014, p. 402) rather than as the colonizing of agriculture by financial capitalism that is implied by some political economy approaches to financialization. This relational focus on work leans on a cultural economy approach where the emphasis is on understanding 'how the doing' of finance has been achieved in a historically and spatially attentive way (Leyshon, 1998, p. 443). Understanding how finance is accomplished in different settings through work is offered as a way to avoid a common criticism of financialization, which is it being used as explanans – the thing that does the explaining, rather than the thing that needs to be explained (Ouma, 2016, p. 83). As explanans, financialization is portrayed as a recent project of capitalism and an irresistible force that has already been 'done to' us and to agrifood systems (Henry & Prince, 2018, p. 1003). Finance as work can provide different understandings of how finance is done differently, in different agrifood spaces, and I thought the same approach might be useful in unpacking money. Understanding money as work then, influenced the research question that asks:

- How does money work and what work has money done to organise the New Zealand dairy industry as it appears today?

To understand money relationally rather than categorically, Ingham (2004, p. 12) provides a way forward by arguing that 'money is a social relation' and 'a form of sovereignty that cannot be understood without reference to an authority' regardless of what form it takes. Therefore, he writes 'moneyness is assigned by a description conferred by an abstract money of account'. 'Moneyness' in Ingham's account describes the relational qualities of money and the essential role of an authority in

legitimising them. Others have used versions of 'moneyness' to describe for instance 'the systemic and agential role of money in capitalist social relations' (Koddenbrock, 2019, p. 113). The pervading description of moneyness relations being purely social did not however completely conform to the empirical data that I was collecting. For one thing forms of authority for issuing money and establishing monies of account changed regularly and often failed to stabilise. For another, there were many more actors in the dairy industry that exhibited agency in influencing money relations such as calculative devices, cattle, grass, land and so on, that could not adequately be described as purely social.

I liked moneyness as a term that characterised money as a relational process rather than an object but thought it should extend beyond social relations conferred by an authority. I found inspiration for going yet further into a relational explanation of money by a New Zealand research team engaged in what they called 'Biological Economies'. Challenged to find a way of 'loosening up the rigid grip of beloved categories like capitalism' this team engaged with assemblage theory in order to 'transcend the usual and acceptable' (Lewis, Le Heron, Carolan, Campbell, & Marsden, 2016, p. 5). The usual and acceptable is what I have argued has characterised our understandings about money which have informed the usual and acceptable understandings of the dairy industry[3].

Assemblage theory chimes nicely with money as work. Li (2007, p. 263) describes assemblage as 'the ongoing labour of bringing disparate elements together and forging connections between them'. For Li (2014, p. 589), assemblages extend beyond the social by pulling together 'heterogenous elements including material substances, technologies, discourses and practices' which when applied to moneyness as an assemblage, made better sense of the dynamism among the empirical evidence I was already gathering about the dairy industry.

[3] Albeit with Wynyard (2016, 2017, 2019a, 2019b) and (Foote et al., 2015) being recent critical exceptions.

Influenced by the financialization literature I had already started my research by 'following the thing: money' (Christophers, 2011) as a method for collecting data on what I thought was going to be a thesis about finance in the dairy industry. Only gradually did I come to analyse what I meant by money as it pertained to finance. Assemblage theory resonated with the data I was collecting about the dairy industry because the stories weaved through and bled into what I had hitherto regarded as distinct ontological categories such as the state, banks and dairy industry and included agency from a variety of actors that were not purely social. The data was suggesting these were interwoven as complex assemblages that were knowable through their capacities – what they do, rather than their properties – what they are (Anderson, Kearnes, McFarlane, & Swanton, 2012). Properties as being knowable invite the too casual repetition of taken-for-granted understandings, for example, with money being just a commodity. Capacities however are unpredictable and open ended, which tied better to the empirical story I was building and questioned the narrative of the dairy industry inevitably arising as chief commodity money accumulator or capitalist imperative.

1.4 My Moneyness

Moneyness is an assemblage theory concept that emerges from a sensitivity towards heterogeneity. I demonstrate how moneyness answers the research question and contributes to understanding how the New Zealand dairy industry became an assemblage of relations that have been pulled together, in a way that is both spatially and temporally attentive. My definition of moneyness is as follows:

- Moneyness is the sets of relations that practically translate commensurable value over time and space.

Moneyness contests the idea that the dairy industry innately emerged through economic determinism as the valuable backbone of the New Zealand economy because it became most efficient at accumulating money, conceptualised as just a commodity. Moneyness also challenges

the notion that structural forces presupposed the dairy industry as part of an inevitable capitalist intrusion, and that financialised capitalism has recently and incontestably intruded into agrifood systems like the New Zealand dairy industry. The first dominant understanding and the second critical understanding of the New Zealand dairy industry, I argue, have a commonality in that they understand money as merely a commodity.

My main argument is that the New Zealand dairy industry is the effect of an assemblage of taken-for-granted relations that I call moneyness. The stabilisation of these relations has been achieved through practices. Different forms of money and different forms of the dairy industry have been effects of how moneyness has continually translated commensurable value over space and time.

The concept of moneyness therefore answers the research question, how does money work and what work has money done to organise the New Zealand dairy industry as it appears today? This concept then empirically demonstrates that money is an outcome of work that tentatively stabilises and translates commensurable value over space and time, from which the New Zealand dairy industry has been produced as an effect and which I analyse as moneyness.

1.5 Thesis Structure

To develop the argument that the New Zealand dairy industry is an effect of an assemblage of relations that I call moneyness, the thesis is structured in two parts. Chapters 2 and 3 reflect on the conceptual and theoretical issues that are pertinent to this thesis and devise a methodological strategy for deploying them. This strategy guides the new perspective this thesis is advancing, for understanding the dairy industry as something other than deterministically evolving or inevitably the outcome of presupposed structures that accumulate money as a capitalist imperative. Chapters 4 to 6 then empirically shows what moneyness has looked like in assembling the New Zealand dairy industry to illustrate, develop and substantiate my argument. In Figure 1 I have inserted a timeline that shows important moments from the past that pertain to this thesis on the left-hand column.

Alongside these in the three right hand columns are important empirical moments, organised chronologically as they appear in chapters four, five and six.

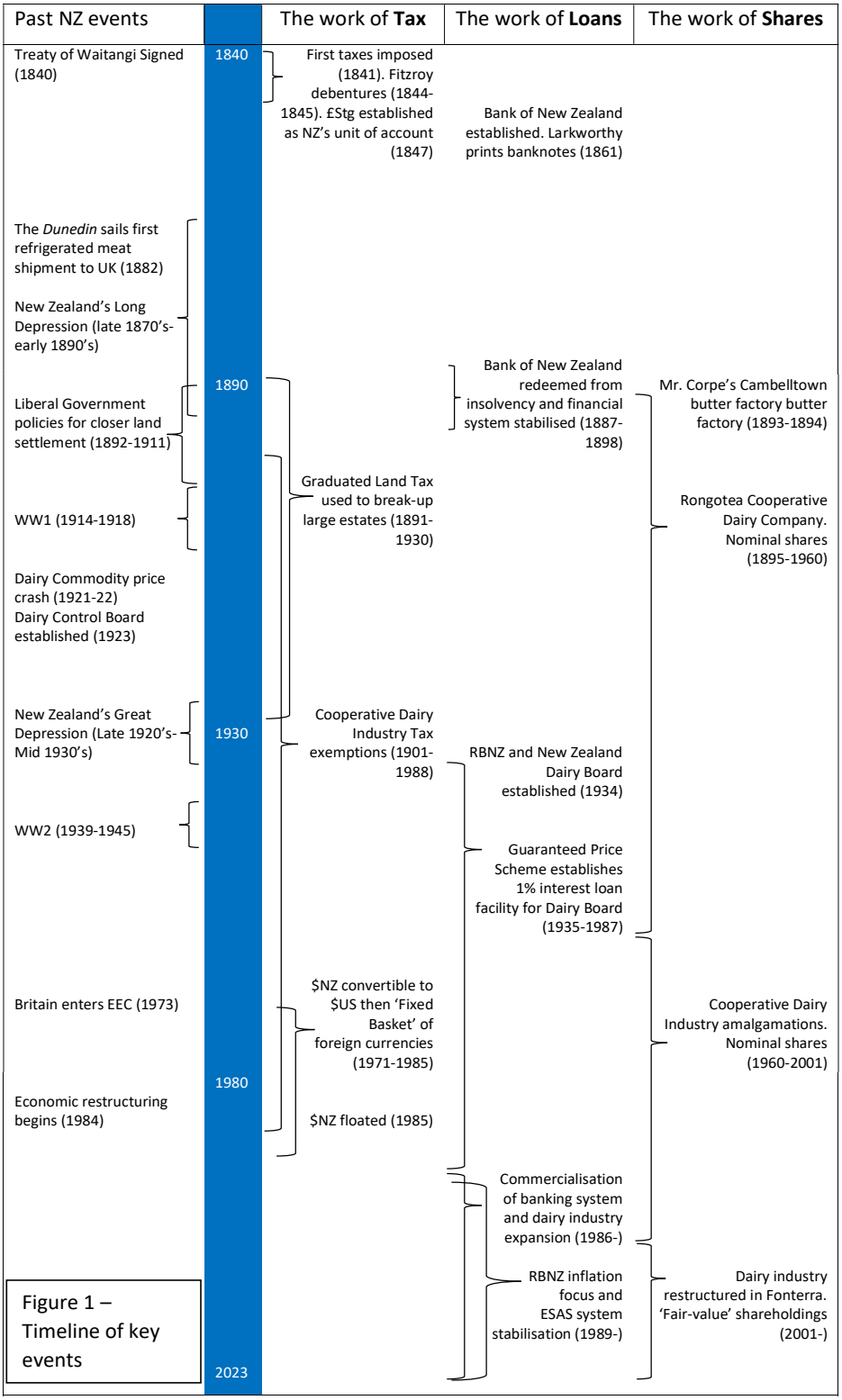

Figure 1 – Timeline of key events

Chapter 2 expands the financialization concept that I briefly introduced when discussing money and its absence in explaining the dairy industry by critically analysing financialization's increasingly popular use in agrifood studies. This chapter contends that, like finance, money can be analysed as a form of work, an analytical strategy that has been particularly influenced by a cultural economy inflected approach to financialization studies. The political economy approach to financialization is critiqued as portraying financialization as a new process, that is homogenously experienced across different spatial settings and as such tends to portray financialization as a coherent global project of financialized capitalism that has already and inevitably intruded upon systems including agrifood. I argue that the cultural economy approach, while more attentive to local spaces of financial agency such as how value as work actively makes land prices, lacks the deep historical analysis that the political economy tradition has been recognised for generally, but which is not as evident in financialization studies. Crucially, the chapter concludes that neither approach has been as attentive as it could be to thinking about money, although some have used the term moneyness to describe how some financial instruments are legitimised. This allows room for a new perspective on money as a form of work, that is both locally grounded and historically attentive with a fuller unpacking of relations beyond a few recent financial innovations.

Chapter 3 shows how I developed my assemblage theory inspired moneyness concept to rethink dominant theoretical understandings of money and the dairy industry, and to address the critiques of financialization. The principles of assemblage theory, where assemblages are both process and result, knowable through their capacities to affect, directed my analysis toward understanding the work of money, and money as work, by making a case for following practices which assemble relations. Assemblage theory's sensitivity toward the ideas of heterogeneity and stabilisation informs my moneyness concept and this has helped me progress a different understanding of the dairy industry by focussing on the continual work of stabilising relations through locally specific and historically negotiable practices, from which the dairy industry emerges as an effect. I argue that by

following historical moments of controversy related to the dairy industry, moneyness is demonstrated through practical responses to particular problems. These practical adaptations show how dairy industry relations have been stabilised against persistent destabilising threats. Money as a form of work progresses a different understanding of the dairy industry as deterministically evolving or being inevitably the outcome of structures that became the backbone of the economy. The dairy industry analysed through the concept of moneyness and as an effect of moneyness practices, is shown to be locally arranged and historically contingent.

The second half of the thesis builds on the conceptual base by empirically showing the work of assembling the relations of moneyness that produced the dairy industry. In Chapter 4, *The Work of Tax,* I explore how tax practices assembled relations through the work of the state. Like the dairy industry, the state could arguably be seen as an effect of this work rather than a category which arrived preformed. Tax has directed resources and work towards the state between 1840 and today and I show that through processes I call *imposing, influencing and reworking*, tax has been crucial for assembling moneyness so that financial credit could be provided to the dairy industry as a sterling accumulation machine. As such this chapter concludes that the work of tax has solved different problems for the state, and the dairy industry was made possible by this work which translated value into it and made it commensurable with national value. The work of tax that assembled moneyness relations which stabilised the dairy industry has not been linear, uncontested or part of a perfectly executed plan. Rather, moneyness is adaptive, negotiated and contested, which allows the dairy industry to be seen as simultaneously, stably invariant and continually transformative.

Chapter 5, *The Work of Loans,* shows the action of moneyness in enabling credit which builds on chapter 4 where I show how tax makes credit possible. The empirical story focuses on the work of assembling the dairy industry through bank loans. The multiple changes in the way bank loans have been practically stabilised as relations through different moments of exigency is demonstrated

through my moneyness analysis. To illustrate the assemblage of moneyness processes I describe what I call *redeeming, expanding and guarding* to show how practices stabilised and maintained relations so that the dairy industry could assemble in the way it has, taking the Bank of New Zealand (BNZ hereafter) and the Reserve Bank of New Zealand (RBNZ hereafter) as case studies. I argue that the practical accomplishment of these relations translated different forms of value in the dairy industry throughout different spaces and times, making them commensurable in a tentatively stabilised financial system. The spatially local and historical adaptable lurching, bending, breaking, forming and reforming of assembling the financial system which could make loans, demonstrates again how analysing moneyness offers a different understanding of how the dairy industry has been such a durable effect, despite but also because of, different crises.

In Chapter 6, *The Work of Shares,* I illustrate moneyness through the making of the cooperative dairy industry. I make the case that we can see moneyness being done through a grounded examination of how shares have worked in parts of the cooperative dairy industry. The work of cooperative shares interconnects with the previous empirical chapters where the work of tax and loans show moneyness. The focus on cooperative shares shows how the processing of milk into dairy commodities has been accomplished through practices I have called *herding*, *homogenising* and *milking*. Assembling moneyness in practice has helped the dairy cooperatives that I trace, from the Rongotea Cooperative Dairy Company (RCDC hereafter) through to Fonterra, overcome variously perceived problems, through translating commensurable value across space and time, into different materials, resources and other parts of relational infrastructures that allow milk to be processed and exported. I conclude that through my moneyness analysis, the assembling work of cooperative shares has stabilised the dairy industry as an effect that has been made commensurable to national value and become uncritically reproduced as the backbone of the economy.

Chapter 7's *Discussion and Conclusion* summarises the key arguments. I draw from the empirical content to show how moneyness advances a different understanding of the New Zealand dairy industry. To show the practical actions of moneyness which have stabilised the dairy industry as an effect, I argue that assemblage theory has usefully brought together a set of conceptual tools for my moneyness analysis. My moneyness concept has helped to unpack a variety of previously obscured, marginalised, relativised and ignored relational workings of assemblage that have been and are, locally adapted and historically contingent. My moneyness concept therefore enables a novel critique of the financialization concept and provides a different perspective to prevalent structural understandings of the dairy industry by reconsidering money, currently privileged as solely a commodity. Moneyness analysis progresses as a different way of unpacking previously inconspicuous and taken-for-granted relations by focussing on their capacities, beyond the few essential properties that define categories like money, finance, capitalism and evolutionary markets. I end by considering some of the larger contextual issues that I have already touched upon, such as inequality for Māori and ecological damage, and argue that moneyness provides a hopeful set of solutions that go beyond affordability as framed in commodity money terms.

My thesis understands the dairy industry as an effect of an assemblage of relations that I call moneyness. Moneyness analysis shows these relations have been spatially and historically arranged through a patchwork of locally specific and historically adaptable practices that at once account for the dairy industry's variability and stability. My moneyness analysis opens the possibility that the New Zealand dairy industry can be deliberately assembled differently by recognising the past and future capabilities of moneyness. The next chapter shows in more detail, how I was inspired by the financialization literature to reconsider money as work on the way to developing my moneyness concept.

2. Financialization Literature Review

My concept of moneyness is heavily influenced by recent developments in an increasingly popular literature that has been used in agrifood studies. The financialization literature developed in the 1990's, cohered in the early 2000's and then took flight after the 2008 Global Financial Crisis (GFC hereafter). I will contend that this literature can be viewed in at least two ways, through both a political economy and a cultural economy approach. These have been deployed to advance understandings in agrifood studies.

My review unpacks debates regarding financialization as a programme of study for understanding finance capitalism and its related effects on agrifood systems. One debate concerns financialization being historically myopic, focussing attention largely on just the last few decades to describe the rise of financial capitalism's influence. Another debate concerns financialization as being spatially homogenising so that financialization as a process is said to occur in the same way across different spaces. Together, these debates have been used to critique financialization as having transformed from a programme of study into a coherent and homogenously applied project of global financialised capitalism. This project implies that financialization has already inevitably intruded into agrifood systems and is done to subjects so that they are incontestably transformed.

I argue that in addition to the productive openings that these debates provide, money is uncritically accepted or tacitly ratified in most financialization literature as being merely a neutral and homogenous commodity that measures value, facilitates exchange and is a commodity forwarded as financial credit by financial intermediaries. This way of seeing money reinforces the above critiques of financialization as a coherent global project of accumulation.

To respond to these criticisms and to contribute to the financialization programme of study, recent calls have asked researchers to consider finance as forms of disaggregated work for understanding

how finance has stabilised different standards of value throughout various times and spaces. Inspired by this, my thesis seeks to present a practice attuned, historically and spatially attentive account of how money as disaggregated forms of work, arranged the New Zealand dairy industry. This focus on work has been crucial to my concept of moneyness, which I further develop through an assemblage theory framework in the next chapter. Money as forms of work is analysed as moneyness throughout my thesis and this concept helps unearth some previously inconspicuous historically and spatially attentive relations that have practically stabilised the dairy industry. This is made possible by extending beyond the narrow definitions of commodity money that financialization studies has tacitly accepted or ignored as a set of decomposable relations for explaining the agrifood-finance nexus.

2.1 Political Economy Perspectives

Throughout this section, a literature using primarily a political economy approach will track how the concept of financialization has been deployed as a critique of changing patterns within capitalism. This will include how geography has used a spatial analytic to understand financialization and then to how this has informed a certain understanding about the confluence of finance and agrifood systems.

2.1.1 Financialization as changing structures of capitalism

Political economy critiques of finance capitalism 'have typically stressed the contrast between stagnating and declining production and thriving finance. The unspoken assumption is that capital has attempted to deal with problematic profitability in production by seeking financial profits' (Lapavitsas, 2011, pp. 612, 613). Rather than owners of capital capturing surplus value from the production process as profits, financial capitalism captures surplus value as profit from supplying financial credit, 'through financial channels' which Krippner (2011, p. 4) for example separates from 'productive activities'. van der Zwan (2014, pp. 103-107) calls these approaches for understanding

financialization the 'regime of accumulation' approach. Capitalism, with so-called developed economies beset by a period of low productivity in the 1970's, transformed into a financial regime as falling profits from capitalist production sought new outlets for investment.

Arrighi (1994) historicises these phases of transition in capitalist power by tracing the Genoese to the Dutch and then the British accumulation cycles over centuries. These shifts are preceded by periods of exceptional finance capital expansion. For Christophers (2012), Arrighi's approach stands out in the financialization literature because of the deep historical optic, rather than portraying financialization as a recent phenomenon. Also, Vercelli (2013) concentrated on two periods of financial innovation, from after the industrial revolution until the Great Depression, and then mirroring the bulk of financialization literature, concentrates on changes after 1971. Vercelli (2013, p. 33) incorporates money 'as a technological and institutional structure' to conclude that financialization is a process where money evolves by increasing the range of capitalist options in time, space and content (Vercelli, 2013, p. 42). Money is usually ignored in the financialization literature and if it is addressed it is usually portrayed as merely facilitating larger structural dynamics such as financial capitalism.

Other than the above example, influential financialization based accounts focus on the last few decades of capitalism's supposed transition emanating from the major financial regions of the global north. Krippner (2005, p. 174) argues that the US economy has followed Arrighi's pattern of hegemonic transition, evidenced through 'profits accruing primarily through financial channels'. This focus on shifting profits for explaining the rise of finance during the putative neoliberal period has been influential in seeing financialization as a recent and virulent capitalist project (see Dumenil & Levy, 2004; Erturk, Froud, Johal, Leaver, & Williams, 2009).

The suggestion is that productive firms are coming to act increasingly like finance firms, while at the same time finance firms are extracting profits from productive firms in a 'neoliberal paradox' (Crotty,

2005). Sokol (2017) argues this extraction results in uneven regional development. Lapavitsas (2009) charges financialization in this form with creating high levels of indebtedness among individual workers, where previously public services such as pensions, medical care, education and housing are now a cost financed by workers. This amounts to a 'financial expropriation of workers personal incomes' (Lapavitsas, 2009, p. 114) and 'the financialization of worker revenue' (Lapavitsas, 2011, p. 620). These dynamics are said to exacerbate inequality (Stockhammer, 2015) and make economies increasingly vulnerable to financial crises (Michailidou, 2016).

Recommendations for how to handle this putative period of financialization - the process of intrusion, tend to advocate that it ceases. Marxist critiques portend that it will inevitably be stopped as capitalism transitions to something else in an inherent class struggle. Money is usually ignored or treated as merely facilitative in these structural dynamics and therefore implies an acceptance of the theoretical basis which views money as just a commodity.

2.1.2 Geographies of financialization

Spatial analyses of financialization sprang from a nascent geographical literature on money and finance (Corbridge, Martin, & Thrift, 1994; Leyshon, 1997, 1998; Leyshon & Thrift, 1997). Leyshon (1995, p. 532) argues that the reason for political economy being such a dominant approach used in early geographies of money and finance was because of 'the central role afforded to finance' through the highly influential work of David Harvey with his book *The Limits to Capital* in particular (D. Harvey, 1982). Recent overviews of the financial geography literature tend to agree that early studies were confined initially to Anglophone areas (Aalbers, 2015; Lai, 2017). However since the financialization studies program gained significant new momentum after the 2008 global financial crisis, financial geography's visibility has been amplified and broadened across the social sciences (Christophers, Leyshon, & Mann, 2017; Gibadullina, 2021; Knox-Hayes & Wójcik, 2020; Martin & Pollard, 2017; Mawdsley, 2018).

In the years following the GFC, Mader, Mertens, and van der Zwan (2020, pp. 5, 6) see financial geography combining with financialization studies and undertaking research at three different levels. Macro-level, meso-level and micro-level. Much political economy financialization literature is identifiable within each putative scale.

At the macro-level the dynamics of financialization concentrate on global systems such as class, within structures such as the putative global north, within dominant nation states or within networked international markets. For example, Epstein (2002, p. 2) argues that the financialization of the US economy and the 'increasing importance of financial markets, financial motives, financial institutions and financial elites' has captured governing institutions like the Federal Reserve. Financialization processes have seen the finance sector as driving 'the systemic transformation of mature economies' (Lapavitsas, 2011, p. 623). In one arguably mature economy, Kelsey (2015) critically analyses New Zealand's brand of 'FIRE Economy' (an acronym referring to the Financial, Insurance and Real Estate sectors) where financialization is argued as making New Zealand especially prone to crises and therefore calls for a post-neoliberal transformation. Jayadev, Mason, and Schröder (2018) recently answered initial criticisms of financialization being US/UK-centric, by extending analysis to the EU and India, where the latter's ostensible disciplining of financial markets has allowed it to 'avoid the straightjacket of financialization' (Jayadev et al., 2018, p. 369). O'Neill (2010, 2013, 2017) has a series on financialized infrastructures that makes a point on the withdrawal of state public spending purportedly setting the conditions for interventions by financial capitalists to profit from the provision of previously public services. These macro analyses of commonly regarded categories, interrelate states with other states, supranational organisations, global finance and public assets.

Christophers and Fine (2020, p. 23) are critical of financialization accounts within the container of the nation state because they tend to portray finance capital being separate from productive capital and uniformly syphoning value away. Dow (2020) makes a similar point about another dualism

presupposed in much of the financialization literature, where the state is separate from the market, arguing that in many cases the state names many of the conditions in which financial markets may operate. Political economy approaches are replete with - the financialization of… - type studies that show the effect of financialized capitalism in nation states. Amable et al. (2019, p. 457) argue that the challenge is for political economy to 'interrogate the materiality of the process', unpack financial capitalisms historical relations and highlight the role of 'individual agency'. The weight of financialization accounts within and between nation states has been criticised as portraying financial capitalism as a recently coherent project with tentacles in the global north connecting through a system that subverts nation state sovereignty at the macro-level (Christophers, 2015).

This global interconnectivity of the financialization project is detectable also at the meso-level through a number of financialization and financial geography studies continuing a strong tradition of industrial geographies from the 1970's (Gibadullina, 2021, p. 152). Meso-level studies tend to concentrate on sectors, industries and institutions. For example, Le Billon and Sommerville (2017) use the accumulation approach to exhibit changes in global agriculture and mining, Wójcik (2013) portrays 'global business services' as a euphemism for offshore asset hiding and Willmott (2010) investigates global consumer brands. Finance capitalism is characterised as emanating from 'a rent seeking global elite' filtering through many industries and which 'hides its reactionary ideas behind scientific neutrality' (Lapavitsas, 2011; Storm, 2018, p. 302). In this stream of literature, Financialization extends further toward being a thing, defined by its capacity to financialise.

A highly influential stream of research at the meso-level has been on 'corporate financialization' (Aalbers, 2017). Financialization of the firm, and of markets, is often narrated through the rise in 'shareholder value as a principle of corporate governance' (Lazonick & O'Sullivan, 2000, p. 13), which privileges financial returns to investors over reinvestment in corporate growth (Aalbers, 2008; Froud, Haslam, Johal, & Williams, 2000). This privileging of returns to shareholders has been used as an analytical tool to explain increases in social inequality, increasing complexity of credit markets and

increasing financial system instability (Dore, 2008). Making profit for owners of capital is seen as a value metric that stands in for the dispassionate efficiency of the corporation, an ideology which excuses the corporation for not acting in the interests of non-shareholder actants, in for instance, acting against calls for environmental sustainability (Lagoarde-Segot & Paranque, 2018).

Capitalist restructuring has been rendered yet further down the spatial scale with a focus on the mundane spaces of micro-level financialization. Martin (2002) illuminated the 'financialization of everyday life' where households and individuals are asked to manage themselves as risk investments, to participate in financial markets or promote financial literacy for children. Mortgage-backed securities corralled everyday income streams of indebted households into global financial value chains in the procedural 'capitalization of almost everything' (Leyshon & Thrift, 2007). While everyday practices have been addressed in political economy accounts of financialization (for example Lapavitsas, 2011), this has been to 'critique macroeconomic structures' like neoliberalism that have limited or cut off the potential for individual agency that is contrary to the structural logic (Langley, 2020, p. 69). While a focus on practices has been well covered in the financialization of everyday life (for example Hillig, 2019; Pellandini-Simányi, 2021; Pellandini-Simányi, Hammer, & Vargha, 2015), this tends toward methodologically privileging present financial experiences implying they have no past.

The deep historical traditions of political economy have not yet been influential in financialization studies, focussing mostly on changing patterns of capitalism since the 1970's. Also, the tendency has been to methodologically view financialization as happening within defined spatial scales such as macro, meso and micro levels. Agrifood studies using the political economy approach has sought to understand financialization using many of these same scales and recent temporalities, as I show in the next section.

2.1.3 Financialization in the Political Economy of agrifood systems

While deep historical periodisation focussing on practices might be scarce in the broader financialization literature focussing on global structures and patterns, the finance and food nexus has some examples that temper that assertion. Chayanov (1966, p. 1) for instance outlined the 'indisputable dominance of finance and trading capital in world capitalism' to historicise the problems of Russia's 'peasant economy' between 1880 and 1930. Although non-capitalist family units might still exist in agriculture, the prediction is that 'we should expect trading and finance capitalism to establish an economic dictatorship over considerable sectors of agriculture' (Chayanov, 1966, p. 49). One of the productive political economy ways in which this historicising method has been applied to studies of agrifood, is in developing the food regimes approach which eventually engaged specifically with finance, but not with money.

In Chapter One I briefly touched on how 'food regimes' have influenced historical academic literature on New Zealand agriculture, here I outline how the broader food regimes project has led to critically engaging with financial capitalism. Food regimes theory is organised around periods of capitalist stability during a depicted first (1870–1914) and second food regime (1945-1973), interrupted by a period of capitalist restructuring. Friedmann and McMichael (1989) historicised changing patterns of world food systems to critique the developmentalist rationale which theorised the difference between developed and less developed nations. The assumption that developed capitalist economies were an outcome of articulated industrial and agricultural sectors was too reductionist in their view and relegated disarticulated national economies as necessarily dependent and peripheral. Instead, they argued that connections between agriculture and industrial capital have 'been more global and fluid in scope' (Friedmann & McMichael, 1989, p. 93). This showed that economic explanations which position politics as separate from markets are flawed, given that political and economic relations have an inextricably linked history.

As food regime analysis has progressed it has also branched into different streams. Friedmann (2005) explored the emergence of a third 'corporate-environmental' food regime, where agrifood corporations appropriate the social and environmental concerns of the day to differentiate themselves in the market. Marketable qualities of food cleanliness, greenness and naturalness become putative 'ingredients of an incipient third food regime' (Le Heron & Roche, 1995, p. 23). Le Heron (1991) was an early example of exploring the 'agriculture-finance relation' which underpinned new patterns of investment coalescing as a new regime of accumulation in New Zealand. Friedmann (2005) concludes that these patterns of restructuring had not yet stabilised into what can yet be called a third regime.

By contrast, McMichael (2005, 2008) understands a third food regime to have already emerged in a 'corporate food regime' and focuses the empirical effort on how social movements like 'La Via Campesina' are contesting this regime and so-called neoliberal capitalism more broadly. This speaks to the class dynamics between capital and labour, where labour in the form of a 'peasant mobilisation is occurring within and against the political restructuring of the relations of capital in a world scale' (McMichael, 2008, p. 38). During this putative third regime, financialization broadly aligns with and is seen as a feature of, modern neoliberal capitalism, which has had different effects on agrifood systems (Clapp & Isakson, 2018; Schmidt, 2015).

Changes in structures can be reflected in changes within chains. Burch and Lawrence (2005) blend Friedmann's (2005) notion of 'green capitalism' with supply chain analysis to show how supermarkets have re-organised agrifood chains, creating 'own brands' to displace manufacturers as the powerful nodes in the supply chain. The role of finance capital in reshaping these supply chains where 'finance institutions becoming increasingly involved in the agrifood system, while agrifood companies come increasingly to behave like financial institutions' makes financialization an underlying transformative process of this ostensible third food regime (Burch & Lawrence, 2009).

Burch and Lawrence (2013) demonstrate this further by investigating the transformative role of private equity companies in agrifood supply chains, where the corporate ideology of 'shareholder value' (Lazonick & O'Sullivan, 2000; K. Williams, 2000), impacts long term capital investment so that the largest returns can be realised in the shortest possible time.

Continuing from regimes to chains in what he calls an 'unnatural coupling' between food and global finance, Ghosh (2010) argues that the tendency of financial markets to speculate on commodity prices and a few large players accumulating an asymmetry of information, increases food price volatility. Other authors have engaged with financial products such as derivatives, swaps, futures and options, to make a similar point about the shifts in value along global supply chains being captured by financial rather than productive actors (Breger Bush, 2012; Clapp & Helleiner, 2012; Isakson, 2014, 2015; Russi, 2013). Clapp (2014, p. 798) argues that the infiltration implied by financialising agrifood systems, increases the volume of actors involved in supply chains and creates more distance, 'including the geographical expanse between farm and plate, as well as knowledge gaps about the social and environmental impacts of food production'. She further argues that distancing is fuelled by abstracting food from its physical form and repackaging food as a complex financial instrument, understood by only the most sophisticated commodity traders.

Another important agrifood component related to finance is land. David Harvey (1982) described 'the increasing tendency to treat land as a purely financial asset' and todays analysts using financialization have advanced this conceptual link between finance and the abstraction of land into a financial asset. McMichael (2012) uses financialization and the associated metaphor of 'land grabbing' to discuss patterns of the third food regime as a cynical attempt to take advantage of the differences in costs between north (developed) and south (developing), by surreptitiously packaging this as a development project for the benefit of the south rather than an enclosure of it. 'Fundamental to this transition is the role of finance' rendering land as an asset that can be profited

from due to the scarcity value of its underlying economics rather than its capacity to produce socially or ecologically sustainable food (McMichael, 2012, p. 684).

Land grabbing highlights the increasingly precarious positions of the local rural poor and the effects on global food insecurity (Borras Jr, Hall, Scoones, White, & Wolford, 2011; Cotula, 2012; Daniel, 2012; Gunnoe, 2014). Forney and Stock (2014) use financialization as inevitably making sheep farm conversions to dairy a financial reality, necessarily changing New Zealand farming landscapes in Southland so they can remain resilient. Fairbairn (2014) argues that farmland plays a more complex role as both a productive asset that produces profit for investors and a financial asset that can appreciate in value which has opened new avenues for speculation and hedging. This combines the political economy work on financialization with the 'treatment of property as a financial asset from critical geography' (Fairbairn, 2014, p. 779).

Agrifood studies has used financialization in food regimes, supply chain, shareholder value and land grabbing analyses. These tend to portray financialization as a recent change in patterns of investment. The more historically attentive political economy work inspired by food regimes can arguably be seen as causative in that one structurally coherent regime transitions to another. The development of a contentious third food regime features financialization more explicitly but also as a new change in the intrusion of financial capitalism into agrifood systems.

2.1.4 Considering Financialization from Political Economy

The political economy approach has tracked flows of finance capital through periods of capitalist restructuring, drawing through the historically persistent Marxian idea of class struggle between capital and labour. Moments of recent structural change from crises of productive capital, financial crises and neoliberal deregulation, has seen financialization emerge as an explanatory concept. These processes within different spatial frameworks are inclined to portray financialized capitalism

as having had an outsized effect on life at different societal, political and environmental scales. Likewise, agrifood scholars from an array of social science disciplines have used different analytical concepts such as regimes and chains to spotlight past changes in patterns of accumulation within food systems by financial actors. Processes of financialization have included, maximising shareholder value, land grabbing and deploying complex financial market instruments that abstract food and land from its physical form and present it as a financially tradeable and speculative asset.

Criticism of the political economy approach to financialization argues that the concept tends to 'overlook the historic parallels and (dis)continuities' of finance, projecting upon financialization a 'false sense of newness' through 'implicitly assuming or explicitly arguing that financialization is historically novel' (Christophers, 2015, pp. 191, 192). This sense arises despite Krippner (2005, p. 199) warning that financialization cannot be considered a novel stage of capitalism but more of a 'recurrent phase'.

Within agrifood studies, the food regimes approach delves into issues of global food structures of the 19th century but most meaningfully engages with financialization when debates around an emerging third regime begin to surface and scholars look for a different pattern of accumulation in agrifood, a pattern that the emergence of financialization potentially satisfied. Accounts of financialization have 'enabled the conclusion that financialization had already occurred' (Christophers, 2012, p. 272) and arguably this is substantially reflected in agrifood literature that has used the concept to portray that the intrusion of financialized capitalism into agrifood systems was inevitable and has already occurred.

The influential analytical methodology of comparing profitability between financial capital and productive capital enables financialization to be detected (see for instance Duménil & Lévy, 2004; Krippner, 2005). This reinforces an additional analytically spatial distinction between separate financial and real economies. This dialectic had been reinvigorated in the 'circuits of finance'

theoretical approach to economic geography to show the impact of 'intersections between financial circuits and wider economies' after the GFC (Hall, 2013) which became politically framed in discourse (Hall, 2018, p. 57). This separation is a questionable assumption given the variety of ways in which finance is done differently in varied places and times. These dualisms emanate from the underlying structural dynamics of class distinction between capital and labour.

Financialization studies is also critiqued for a lack of sufficient attention to space and place which are evident both 'in terms of its processes and its effects' (French, Leyshon, & Wainwright, 2011, p. 798). For instance, there is the tendency to see financialization as a successfully exported US/UK system of political and economic logics that have transformed economies from productive to financial. This hides the multiple interconnections between finance capital and so-called productive capital that mutually constitute economic activity differently in different spatial contexts (Pike & Pollard, 2010). Financialization is seen as somewhat 'overly deterministic, assuming both intent and efficacy on the part of the capitalist class' (van der Zwan, 2014, p. 106) and this contributes to the concept being viewed as spatially totalising and homogenously experienced. Studies originating from Australia (Langford, 2020), Japan (Morgan & Takahashi, 2002), South Africa (Ducastel & Anseeuw, 2018), and Egypt (Dixon, 2014) provide much needed balance to the early Anglophone empirical sites, emphasising the importance of local agency, yet more work outside the spatial containers of nation states might remedy financialization being seen as a coherent global project intruding upon local systems.

Critiques of spatial homogeneity and historical recency, risks financialization overall becoming an 'explanans' – the thing does the explaining, rather than treating it as a thing to be explained (Ouma, 2016, p. 83). Because of this tendency some have questioned the grounds upon which financialization can explain the different ways in which finance capital and food systems are performed (Christophers, 2015; Larder & Sippel, 2017; J. W. Williams, 2014). Financialization might

be in danger of the same fate as its predecessors, neoliberalization and globalization, which describe so many things that they risk dying a 'a slow death by a thousand qualifications' (Montgomerie, 2008, p. 233). French et al. (2011, p. 801) expand that 'there is a danger that financialization will become a chaotic concept, a blanket term which is stretched too far to cover a range of related, but fundamentally different projects'. Christophers (2015, p. 184) thinks financialization risks becoming 'a vague notion' due to the 'unchecked and promiscuous reiteration' with which it is deployed, but Lawrence (2015) in repost warns against dismissing the concept quite so easily and instead empirically refining it as a concept-in-the-making.

Whether seen as novel or recurring, financialization in political economy approaches emphasise structural patterns of change as a continuation of historical class struggle. These contests are putatively inherent to capitalism, where financialized capitalism is a recent version which causes changes to local systems as an inevitable intrusion with a spatially homogenising intent. Structural explanations risk hiding the multiple, diverse, contested and negotiated work of the past where finance and farming have been made differently or failed to cohere. Crucially, I argue that the role of money is hidden in this stream of financialization literature and so its meaning is assumed as settled. Money in this literature is just the homogenous commodity, transported globally as finance and coming back to capitalists as financial profits. Explanations of costs, prices, value, investment, productivity, assets and finance, infer that money is a part of financialized capitalism but I argue that failing to define it and the work it does, reinforces money as just a simple commodity that passively measures value and facilitates exchange. This understanding contributes to financialization being seen as spatially homogenising and historically myopic and this is what I am addressing by advocating my concept of moneyness so financialization might begin to be viewed differently.

2.2 Cultural Economy Perspectives

In answer to criticisms of spatial homogeneity and historical myopia, locally situated studies of financialization, based on a cultural economy approach, have sought to highlight the ways in which finance capitalism is contested and locally adapted to fit different conditions. These adaptations, contests and contingencies problematise the inevitability implied by an underlying structural class dynamic presupposed in political economy approaches. Attempts to financialize must cope with difficulties that arise from spatially specific, historically contingent and culturally mediated ways of being. New valorisation, valuation and categorisation practices may and have emerged, to negotiate new types of value, including economic value, but without privileging it at the expense of other forms (Ouma, 2020b). Cultural economy approaches to financialization studies focuses on 'how' local financial practices have changed capitalist patterns, with the role of space and place constituting different financial subjectivities (Hall, 2011, 2012).

2.2.1 Financialization as practices

Sarah Hall summarised the difference in approach between cultural economy - 'more concerned with how finance was produced', and political economy – 'occupied with uneven outcomes' (Gibadullina, 2021, p. 159). A broad church of academics arranged under the banner of cultural economy, have evolved a different understanding of financialization, by unpacking the practices, relations and performances of how financial capital is locally enacted (Cooper & McFall, 2017). The multiple and hybrid modes of ordering financial practices makes fuzzy the phenomena previously classified as primarily economic and/or political (Amin & Thrift, 2004). Cultural economy asks 'academics to put cultural questions closer to the centre of their calculations, alongside economic processes and social and political institutions' (Du Gay & Pryke, 2002, p. 1).

Financialization then, as seen through this approach tends to focus on 'the distributive outcomes' of differently behaving financial processes across an array of political, economic, environmental and

cultural life. The often-mundane 'complexities of financial practices' inform a culturally infused thinking that broadly answers to the 'social studies of finance' (SSF) moniker (Leyshon & Thrift, 2007, p. 102). Financial markets and institutions began to be conceived as being partly constituted by the very production of discourses and practices that are used to describe them.

SSF has investigated trading floors, analysts, financial models, market devices and trading exchanges in drawing out the everyday relations which make financial markets possible (see Buenza & Garud, 2007; Ho, 2009; Knorr-Cetina & Preda, 2005; MacKenzie, 2006, 2015; MacKenzie & Millo, 2003). These and later contributions explicitly understand economic processes, including financialization as an 'activity', such as capitalisation or assetisation rather than as 'forms' as in capital and assets (Muniesa et al., 2017).

2.2.2 Cultural Geographies and Financialization

The influence of critical cultural geographers has arguably progressed a deeper understanding of the space making possibilities of financial practices. This incorporated the role of culture and human agency in understanding geographies of money and finance (Leyshon, 1997). This was further extended by an emphasis on how the 'doing' of money and finance was achieved and this brought geographies to 'the forefront of debates about relationships between economy, culture, place and space' (Leyshon, 1998, p. 443). Leyshon and Thrift (1997) show this development in their work on financial practices at multiple spatial scales, such as the 'sexy greedy' City of London, the collective mood of traders on the trading floor and the outcomes on peripheral areas of the UK being felt in uneven ways (Leyshon & Thrift, 1997). Importantly, these engagements began to augment the political economy approach in geographies of money and finance, 'engaging with discourse for example' and hinting that money may be conceived as a set of 'transforming practices' (Leyshon & Thrift, 1997, pp. 2, 4).

Leyshon and Thrift (1997, p. 260) also recommend that analysis of economic discourses be 'historicized' so that how economic truth changes through time is unpacked as processes, partly performed by the discourses that are said to describe them. While money and finance have been historically reconsidered at the theoretical level (see Christophers, 2011; Mann, 2008) a historical unpacking of money as it pertains to creating and maintaining territory is still described as understudied and recommended as a 'potentially' fruitful avenue for financialization studies (Muellerleile, 2020, pp. 243, 244).

Pre-dating most financialization inspired studies, money as a spatial relation became the subject of cultural re-evaluation. The mobility of money encodes it with different meanings, where all the possibilities of what money might mean are numerous, but often stabilised within various shared cultural identities (Allen & Pryke, 1999). Narratives of what counts as financial reality suggest that 'communities of practice' culturally constitute legitimate knowledge of money and finance, and this affords it a spatially localised significance. In this way financial knowledge in London is different to financial knowledge in Zurich (Hall, 2006). Cultural economy brought a different spatial attentiveness to the scalar geographies of political economy. Geographies of money and finance in this tradition emphasised the interconnectivity of financial systems as made up of what French et al. (2011, p. 812) called 'smaller, constitutive financial ecologies'.

Calculative practices help achieve money and finance, in turn shaping what they can achieve in different spatial and temporal contexts (Pryke & Allen, 2000; Thrift, 1994, 2000). For example, weather derivatives as 'Geomoney' are risk assessed and commodified, changing what meteorological knowledge is valued and what data gets measured as it is transported and traded on financial markets for activation in an imagined future triggered by some metric (Pryke, 2007). This makes a financial actor in-the-money or out-of-the-money, as calculated by a specified rainfall volume in a day (Pryke & du Gay, 2007). Similarly, financialized logics of shareholder value have a

geography that travels among global law firms (Faulconbridge & Muzio, 2009) and accountancy firms (Alvehus & Spicer, 2012) to format institutional practices within them, such as by measuring billable hours.

While the orthodox explanation of money appearing as a solution for barter is contested as I showed in Chapter One, its efficacy may be explained in that it feels right, reflected as shared cultural experiences that translates into legitimate financial practice (Leyshon & Thrift, 1997). Geography has produced novel explanations for the role of emotion and feeling as practiced in 'affective spaces', where what might start out as an intuitive idea, gets simply folded into accepted practices that are normalised and transported, no longer needing to justify the foundations upon which they sit and so they become 'the general climate of opinion' (Anderson, 2016, p. 735). The earliest possible education and participation in financial markets becomes significant in an affective space where people are encouraged to feel financially self-reliant, or to feel as though one is doing one's duty by providing for their future, the future of their loved ones and contributing to the economy. Cultural economy is interested in the everyday practices and discourses that reproduce and sustain what become commonalities of affect which relate actants across cultural space and time.

Investigating such locally contingent practices within different historically attentive spatial sites of analysis, extends space beyond that of a mere container in which economic and political processes have arrived preformed. Cultural economy highlights ingrained local values, privileging neither the economic nor the political, by giving voice to underrepresented categories that are not necessarily just human such as actants in the natural environment and the difficult to represent categories such as affects. These can be actors with agency in translating and forming space which might not neatly conform to being categorised as being just economic or political. This strand of research has been influential because of its programmatic and interdisciplinary way of extending beyond homogenous, pre-configured and neutral categorical spaces. One such category is money, which has been

identified as a potential set of local practices to be uncovered in cultural economy approaches but is still mostly described as a potentially fruitful avenue of research.

2.2.3 Cultural Economy and Financialization in agrifood systems

The spatially attuned cultural work of finance has foreshadowed new possibilities in understanding transforming agrifood systems. An understanding of how financial relations assist in practically accomplishing agrifood systems challenges the totalising critique of financialization, where finance capitalism recently emerged from a black box to be unleashed upon farming and rural communities, incontestably subjectifying and rendering them as tradeable financial assets.

Emerging from the structural analytic of political economy, the metaphor of the commodity chain has been and is popular for understanding flows within agrifood systems (Gereffi, 1994; Gereffi, Humphrey, & Sturgeon, 2005). Lately commodity chain analysis has been more accommodating of cultural influences, for instance, Busch (2007) shows how business management actors construct their identities through the application and performance of Supply Chain Management (SCM), which extracts maximum economic value for the benefit of a particular node in the chain. While seemingly outside the agrifood supply chain, banks can, lubricate or thwart chain activities. Large actors, the chain-drivers like Wal-Mart, might therefore reroute or intervene by 'announcing its desire to become a bank', thus reorganising supply chains to address the growth concerns of shareholders (L. Busch, 2007, p. 488). This cultural mediation by practices in supply chains show them more as dynamic and adaptive spaces rather than a pre-configured linear economic reality.

The management of a supply chain implies that its qualities can be known, and this knowledge can make chains ordered. Using calculation devices, their 'varied disparate qualities and values can be rendered into commensurable forms' (Henry, 2017b, p. 104). Calculation and quantification methods such as the Life Cycle Assessment (LCA) are one way of culturally reordering agrifood chains through assigning food the quality of sustainable (Freidberg, 2013), or the quality of fair

(Whatmore & Thorne, 1997), or the quality of trustworthy (Kjærnes, Harvey, & Warde, 2007). How agrifood supply chains do the work of enrolling or outflanking nature, where devices like the LCA arrange food qualities as calculable and enable them to be parlayed and compared, making them commensurable forms of economic value, shows how supply chains can be understood as tentatively stabilised in practice.

Stabilising relations can be understood materially, showing up as a calculating device for example, or immaterially as outcomes of further sets of political, social, technological, cultural and natural knowledge (Henry, 2017b, p. 101). Some immaterial relations which help make chains or groups of chains into markets, can give rise to new beliefs, habits, and social bonds which can in turn act back on markets. Rather than markets being just economic they can be conceived as always having been moral projects that have been morally arranged and morally contested (L. Busch, 2000, 2014; Fourcade & Healy, 2007; Thompson, 1971). In considering the relationality of agrifood markets, Ouma (2020b, p. 81) suggests this could be advanced by 'abandoning the ontological divide between the economic and the moral'. Agrifood studies has developed from understanding various processes through different scales, through chains and more recently as spatially and historically variegated sets of relations often stabilised through calculative devices that perform stability. This relational approach has been influential in differently understanding the food-finance nexus.

Various relational interactions can be permissive or limiting. The 'life-giving' qualities of arranging the natural environment for human sustenance for Li (2015, p. 560) means that finance capital which seeks profitable opportunities from farmland as an asset, must navigate this additional purpose. Financialization of food then is an ever-evolving proposition in which farming and finance co-constitute each other differently as a 'continuously unfolding set of practices, tactics and assumptions' (J. W. Williams, 2014, p. 422).

This spatial complexity can dispute the depiction of financial capitalism as an omnipotent, incontestable and inevitable homogenising global force. For instance, shifting patterns of agrifood investment have enabled previously excluded groups such as North American First Nation tribes to form large family ownership units that arguably begins to redress their alienation from ancestral land and the marginalisation of aboriginal farming, allowing better working conditions and sustainable land use (Magnan, 2012). Sippel (2015) reverses back up the previously one-way arterial of Financialization Street by showing how Arab state investment in Australia highlights global south-to-north land deals. Additionally, the financialization of farmland in post-apartheid South Africa faces local challenges that must be negotiated to 'unlock financial value' (Ducastel & Anseeuw, 2016, p. 199; 2018). Localised studies, where finance is one of a vast array of infrastructural features that must be negotiated to make land a financial asset as opposed to finance always being predatory (Björkhaug, McMichael, & Muirhead, 2020; Li, 2018; Ouma, 2020a), means finance can be made 'moral' depending on what set of ethical values are overlayed to legitimise financial practices (Ouma, 2020b, p. 72). These recent case studies of financialization of farmland have given an alternate view of the finance-farming nexus that shows, when grounded in multiple rural localities, financialization in agrifood is neither fully abstracted to the financial markets nor fully one-sided (Sippel, Larder & Lawrence, 2017).

Associated to these relational literatures on finance as work in agrifood systems, are those of valuation and commensuration as work. Commensuration as the 'transformation of different qualities into a common metric' (Espeland & Stevens, 1998, p. 314) and valuation as the work of valorising prices (Vatin, 2013). These literatures unpack taken-for-granted relations as locally contestable practices with a history. Helgesson and Muniesa (2013, p. 3) suggests that the performance of valuation matters because 'their outcomes participate in the ordering (and re-ordering) of society'. The Valuation Studies program has been concerned with critiquing the concept

of value where 'notions of value and profit were inherited from economic theory and assumed rather than analysed' (Kornberger, 2017, p. 1753), and instead understanding 'valuation as activities that shape the market' (Bessy & Chauvin, 2013, p. 84). Analysing value as not something inherently attached, but rather something performed through processes of valuation, is offered as a way to describe 'today's financial reality' which might assist in understanding such dynamics as how, assets, commodities and businesses are qualified and ranked as 'a going enterprise' by financial actors (Muniesa, 2011, p. 34). According to Beckert and Christine (2013, p. 4), a key to performing value is constructing categories, attributing objects to those categories and 'establishing quality differences' among those objects. An assessment of qualities and ranking them is reflected in price differentiation. Critical Valuation Studies' recent work has been concerned with unpacking 'how valuations relate to prices, which is of central importance to financial markets' and is therefore becoming an influential mode of enquiry in Financialization Studies (Kjellberg et al., 2013, p. 19).

Langford (2021) for instance incorporates valuation as work into financialization studies by showing that Australian pastoral land prices 'are not the inevitable results of market forces, but mediated and co-constructed' outcomes of valuation devices, actors and methods. This focus on prices makes important contributions to how financial relations in agrifood are outcomes of work. While Valuation Studies has begun to unpack how valuation is related to price and is being incorporated into Financialization Studies, less has been done to analyse how price is related to money. I will argue in the final section of this chapter that moneyness analysis is undertaken at an analytical layer below prices and not analysing this layer assists in relativising money as merely a simple measure of value.

These localised, practice attuned accounts of agrifood financialization, emphasises the messiness, contingency and uncertainty of stabilising agrifood into projects that are knowable, calculable and therefore investible. This highlights that, like many processes to enclose knowledge within boundaries, financialising agrifood looks more like a series of 'on-going, open and failing initiatives to

enclose and contain that can never be fully settled' (Lewis, Le Heron, & Campbell, 2017, p. 165). Rather than a recent and irresistible intrusion by financialization with a homogeneity of capitalist intent, from a practices perspective other possibilities for different understandings, such as finance being 'agriculturalized' at the same time as agriculture is being 'financialized', shows how each is mutually constitutive of the other (Henry & Prince, 2018).

This progression from structures to chains to sets of relations where culture mediates some important local practices of finance and agrifood allows the possibility of explaining financialization as something other than one-sided, deterministic and irreversible. Instead finance and agrifood can be located differently through multiple local practices which shape, contest and/or valorise financial practices (Ouma, 2015).

2.2.4 Considering Financialization from Cultural Economy

The cultural economy approach grounded in practices, has moved financialization from analysing the study of financial colonization by the global north, to a contextualised set of spatially specific relations. Financial relations have an additional temporal dimension, as finance can project money obligations from the future to shape the practices of today through contractual arrangement as outlined in the trans-disciplinary approach of the Social Studies of Finance. While cultural economy has been attentive to how spatial relations have worked upon and been outcomes of recent financial practices, the approach has been less attentive to history, and this has yet to be fully addressed in both the financialization and agrifood studies literature.

Culturally grounded and spatially contextual relations exhibit different qualities of agrifood and this could be augmented by a deeper attention to historically arranged financial relations. Rather than merely a battleground of capitalist elites investing in means of production like labour and land to profit from their surpluses, food production can be rethought as a spatially and historically

contextual set of relations with contestable meanings, shifting identities and fungible categories. A historically attentive unpacking of local financial practices can extend our understanding of the food-finance nexus beyond being described as the most recent and innovative way of harvesting a surplus from labour and land. Finance capital can be understood by the way it mediates and performs different kinds of work and by how it is stabilised by ongoing work that has a past.

Food's social function means that financial work must navigate local concerns and might be either incorporated or resisted as moral projects that transcend their political and economic boundaries and may reflect past practices. Understanding space, time and food as constituted by communities of practice refines financialization, progressing it from being a way to know the latest version of capitalism, to understanding agrifood as a contestable, contingent and locally negotiated set of historical relations.

A focus on grounded relational practices does not mean that financialization should lose its focus on structural categories including networks of large corporations, large nation states and global institutions. Their importance in our lives is too evident to deny their influence. To address this, Lewis et al. (2017, p. 167) insist that large institutions, governments and capitalist networks still exist 'but take disaggregated forms', which when unpacked allow us to 'see' them more fully. The multiple roles of the state in facilitating or obstructing different financial relations is background work which 'we should not neglect' as one of the black boxes in finance gone farming (Ouma, Johnson, & Bigger, 2018, p. 505).

In this way financialization as a program of study, rather than a program of financializing, can still help in 'understanding the changing distribution of power and resources between finance and other aspects of the supply chain' (Lawrence & Smith, 2018, p. 34). Christophers (2018), an oft-cited critic of financialization, has indeed used the concept in this very way, 'seeing' financialization as 'monopoly profit' in US banking and as a systemic failure of the UK central government which has

encouraged local authorities to act as property development companies (Christophers, 2019). These types of grounded analyses show how financial capitalism is practically being achieved in different historically articulated spaces.

2.3 Comparing Political Economy and Cultural Economy Perspectives

The literature reviewed here shows how both the political economy and the cultural economy approaches have progressed debates within agrifood studies using the concept of financialization. The political economy view of financialization tends to exhibit either new or recently recurring structural changes to capitalism through the rise of finance capitalism's influence. This is limited in explaining exactly how this has been achieved and therefore infers an uncommon amount of agency upon financial actors. This reinforces dialectics such as finance capital versus real/productive capital, or finance capital versus the state, which inadvertently validates financialization, the thing, as having already become an omnipotent and incontestable reality. While the financialization concept in political economy has made some strides in unpacking a deep historical analytic of finance, this has not yet been fully explored in agrifood systems.

The practice attuned contributions of the cultural economy approach have usefully sought to answer this critique of the structuralist political economy view of financialization studies. These refined accounts of local practices are detectable in agrifood spaces, revealing them as diverse, contested and contingent rather than preconfigured, virulent and new. Many argue that investigations of practices allow us to see how knowledges of finance and of agrifood become generalised, by uncovering the work that comes to constitute the very structures that are said to presuppose their existence (Christophers, 2018, 2019; Lawrence & Smith, 2018; Lewis et al., 2017).

What is not as prominent as it might be in a cultural economy focus on local practices are links to practices of the past. While spatially attentive in showing 'how' financial relations mediate outcomes in local agrifood spaces, deeper excavation of past financial practices has not received as much

attention. Therefore, many financial relations that have recently been shown as adaptable in agrifood spaces appear to have arrived preformed without much recognition of how finance and agrifood relations have been historically contingent in co-constituting local spaces. The dairy industry, given its supposed significance to New Zealand as outlined in the introduction, is fertile ground for understanding how financial work has been historically and spatially practiced in this agrifood space.

In summary, the deep historical tradition of political economy that has been seen in agrifood studies, is under-addressed in financialization studies and in agrifood studies using the financialization concept. While cultural economy has addressed the spatially homogenising critique of financialization studies by focussing on local practices of the farming-finance nexus, it has not been as attentive to history. In addition, I will argue that both approaches to financialization and its use in agrifood studies, treat money with a specific commonality if they treat it at all.

2.4 Money and Banking in Financialization Research

If money is engaged with at all in the financialization literature, it is mostly assumed as just being a homogenous and neutral commodity that mediates exchange and measures value as a technological improvement on barter. While there have been some hints that money is a category ripe for re-examination as a set of relations, most financialization literature does not engage with money and so the above characterisation of money is implicitly accepted. The role of banks is therefore usually narrated in financialization literature as having once been simple financial intermediaries of money between savers and borrowers but have now transformed through financialization into something more powerful, complex and inevitably extractive.

Space based studies of money and finance that have already been included in this review, understand money in broadly two ways. First, as an evolving structure of political power (Corbridge

et al., 1994; D. Harvey, 1982) and later as sets of practices for doing money, where shifting cultural identities are linked to money's mobility (Allen & Pryke, 1999; Leyshon, 1997; Leyshon & Thrift, 1997). Some interdisciplinary work has engaged with money as shifting sets of social relations as outlined in the Introductory Chapter (Graeber, 2011; Ingham, 2004; Zelizer, 1997).

I was introduced to Ingham's (2004) depiction of moneyness as sets of social relations and there have been a few instances where 'moneyness' as a term has been used to understand finance. Koddenbrock (2019) uses his version of moneyness to analyse financialization processes. For Koddenbrock (2019, p. 102) moneyness is imbued into new financial instruments in the 'public-private deal of money creation' as 'financial innovations with fantastic opportunities for profit'. Koddenbrock (2019, p. 101) argues that this 'repackaging of credit underscores a Marxian analysis of the structural importance of money' in understanding new strategies for finance capitalism to accumulate profit. Faria (2022, p. 82) mentions the 'moneyness of cryptocurrencies' in passing, taking it to mean something like trust. Cryptocurrencies must cope with 'the immanent power structures and practices of the financialised capitalist economy' in competing to become legitimised money (Faria, 2022, p. 90). What these examples of the word moneyness being used in financialization studies reinforces, is that money is first and foremost, an object. The instruments get moneyness and it is argued that powerful capitalist structures are what legitimise derivatives and securities (Koddenbrock, 2019) or cryptocurrencies (Faria, 2022) as money.

Financialization studies, even where different versions of moneyness are invoked, has not meaningfully engaged with attempts to understand more spatially or historically specific arrangements of money, often ending the analysis with 'profit' in the same way valuation studies tends to end the analysis with 'price'. This tendency continues to allow a view of money as a successful homogenising project of global capital elites. Financialization studies, even when the term moneyness is invoked, prefers instead to concentrate on how finance and money, understood as an

object, flows though global capitalist structures that are detectable in practices such as international banking and in instruments such as derivatives. Global finance capital and derivatives are categories and instruments that get moneyness because of homogenising practices such as orchestrating prices for the accumulation of profit. My moneyness is the practices that stabilise categories of which money is one such category, stabilised locally and historically rather than a taken-for-granted object that simply measures prices and profits.

Aalbers (2019, p. 6) typifies the role of banks where 'banks have shifted from more or less passive intermediaries towards active financial actors'. Money in this account is accumulated by banks 'leveraging and charging fees' and investing it 'in financial assets'. Lapavitsas and Powell (2013, p. 371) identified similar changing patterns of bank investment when 'during the early 2000's, lending for finance, real estate and household purposes replaced productive lending as the driving force in the loan portfolio of banks'.

The state and central banks are included only to point out their 'complicity' with global financialized commercial banks. Walter and Wansleben (2019) 'develop their argument historically' by going all the way back to 1979, showing how credit has grown and this has come from outside 'traditional forms of credit intermediation' where banks lend savers money (Walter & Wansleben, 2019, p. 629). They empirically track the relative growth of different forms of money such as 'broad money' being bank credit and 'base money' being central bank reserves in the US and UK, to show this complicity which arose through monetary policy targeting inflation (Walter & Wansleben, 2019, pp. 630, 632).

Chwieroth and Walter (2020) similarly focus on central banks. They argue that 'the financialization of wealth' by which they mean the concentration of middle class wealth in financial products, makes it more likely that central banks will bailout the financial system because of the political linkages between political power and middle-class voters in democracies (Chwieroth & Walter, 2020, pp. 1260, 1261).

Nelson (2020) argues that the 'financialization of banking systems' joins other containers in which the project of financialization has taken place that I have already reviewed including the state, the city, the institution, the self and the agrifood system. Money simply circulates amorphously as digital entries flowing to categories and actors such as the above, through 'financialized money markets' (Nelson, 2020, p. 326). Aalbers (2018, p. 916) goes so far as to recommend 'a shift [away] from money and finance as objects of geographical analysis', toward a lens in which finance can look at other issues such as tax evasion through international tax havens.

Christophers (2017) however calls for a reinvigoration of understanding money through his example of national accounting so that spatially specific forms of financialization can be seen. Indeed Christophers (2017, p. 260) suggests that the reason orthodox 'mainstream economists have not seen financialization while others have' is because the financial sector is theoretically and structurally separated from the economy.

These recent examples of how money and banking are treated in financialization studies is the same way money is usually treated in the various media narratives, theoretical economic literature and New Zealand agrifood literature outlined in Chapter One. Money is enacted as a universalised homogenous commodity facilitating exchange that does not tend to differentiate between localised forms of money other than perhaps the US or UK varieties. Banks, through which homogenous commodity money is said to flow are analysed by pointing out that they have recently transformed from being just intermediaries, to complex accumulators of financial assets that extract profit in dangerously innovative ways and subordinate the state and their central banks. What banks are said to do is scarcely explained through analysing how they do it and how these practices have changed.

These ways of understanding money and banking hide the spatial specificity of locally arranged financial relations and are historically totalising in that they assume these categories arrived

preconfigured and have only just begun to transform as the latest version of capitalism. I am not saying that every financialization based study has to rigorously explain what money form they are talking about, including a detailed genealogy of how it came about. I am arguing that my thesis can contribute to financialization studies by being more spatially specific and historically attentive to the role of money and banking in the financial work of the New Zealand dairy industry that I analyse as moneyness.

2.5 Productive Openings for Financialization Research

This thesis will take its cue from challenges to the concept of financialization by re-examining money in the New Zealand dairy industry. The dairy industry is said to be an important part of the cultural, political, environmental and economic fabric which characterises much of what New Zealand is as a nation state. A study of how money contributed to making the dairy industry so valuable, including financially valuable, will provide a meaningful contribution to making a different sense of the dairy industry, agrifood systems and of financialization.

This dissertation is in response to the financialization literature that asks researchers to open the black-box of finance in new, locally specific spaces (MacKenzie, 2005; Ouma, 2018), to look through the mathematical complexity of economics (Poovey, 2015) and to parallel finance 'as a form of work itself' by re-examining money as forms of work (J. W. Williams, 2014, p. 402). This spatially attentive study will also investigate the underrecognized work of the state (Ouma, 2016, p. 90). Like the dairy industry, the state did not arrive preformed but was an effect of stabilisation by moneyness, which I will show through a deeper exploration of money as work that extends beyond the historically myopic span of just the last few decades (Christophers & Fine, 2020, p. 22).

I have used the financialization literature in this thesis to guide the formation of my moneyness concept as both a lens and as my name for the sets of relational practices that are developed in the

next chapter. This forms my strategy for reconsidering money as work and analysing the New Zealand dairy industry as an effect of this work. In doing so I critically engage with financialization, which I agree needs further spatially and historically attentive contributions to avoid the concept being used as explanans – the thing that does the explaining (Ouma, 2016, p. 83). Using financialization as explanans risks the concept being seen as a coherent project of homogenising global financialised capitalism which has already and inevitably intruded upon systems such as agrifood. I argue that this spatially homogenising, and historically myopic view of finance capitalism is reinforced by not unpacking the work of and by money. Even when new relations are unpacked such as the moneyness of cryptocurrencies or through seeing value as work, money is still treated as a homogeneous object or obscured in favour of analysing prices or profits. A focus on prices as the relations being actively made assumes that money is simply a ubiquitous measure of value. What my concept of moneyness does is shift the analytical register a level lower and speaks back, for example, to the valuation literature by asking, prices of what?

I showed in the Introductory Chapter this lack of critical attention to money has reinforced the New Zealand dairy industry being understood as having either evolved into the backbone of the economy or having inevitably become the backbone because of capitalist class struggle that appropriates and alienates money and other capital. The next chapter outlines my conceptual journey for refining an assemblage theory inspired framework to re-investigate the dairy industry in a way that is different to the prevalent structurally inflected understandings.

3. Theory and Method

This chapter develops an assemblage theory inspired framework for developing moneyness as a way to make sense of the New Zealand dairy industry in a different way to more structural accounts. In making the case for using assemblage theory I begin by reflecting on the use of assemblage theory in the Biological Economies project[4]. This project joined other scholars worldwide in using assemblage theory as a lens to rethink agrifood systems and challenge dominant understandings of agrifood trajectories produced by structural explanations such as offered by Food Regimes Theory. However, I observed that the Biological Economies team had not given much analytical attention to rethinking money as a fixed category. For example, a cheese factory was financed using 'public money'. In Indonesia 'not many people have money to purchase rice'. New Zealand's primary industries were incentivised by $708m in government and industry funding in the Primary Growth Partnership program starting in 2009, 'of that money' half went to red meat projects. With apples, 'money is made in managing the spaces between what is desired and what is produced' (Le Heron et al., 2016, pp. 73, 90, 99, 138). Here money was mostly either ignored or considered as a settled neutral object, defined through some of its uses, such as investment, exchange and as a measure of value through profit.

Nonetheless, thinking about agrifood assemblages in terms of what they can do rather than what they are, inspired me to draw on assemblage theory in developing my own set of theoretical tools. This strategy was used to overcome my own struggles in conceptualising the empirical material I was engaging with in ways that allowed space for understanding the interplay between contingency and agency in the locally grounded and historically negotiable empirical content I was collecting. My assemblage theory inspired moneyness concept provides two key areas of conceptual sensitivity.

[4] Biological Economies was a phrase borrowed from a 'public-good funded research project which sought to explore possibilities for creating new values (economic and otherwise) in New Zealand's rural economies' (Le Heron, Campbell, Lewis, & Carolan, 2016, p. 1).

First, assemblage theory is sensitive to *heterogeneity* which helped me to dissolve the rigid boundaries of taken-for-granted categories and structures that have been fastidiously developed through structurally inflected theory. Second, assemblage theory further helped me decompose putatively fixed boundaries and provided a new explanation for my empirical content by focussing on grounded practices in the work of continual *stabilisation* which assembled and maintained relations of moneyness, without necessarily inferring they were primarily causal. This chapter provides the framework for understanding the dairy industry through moneyness, an assemblage of relations where historically adaptive and locally specific work stabilised the dairy industry as an effect.

3.1 Agrifood Studies and Assemblage Theory

Assemblage theory has been useful for decomposing categorical boundaries and challenging tacit assumptions about inevitability and causal determinism in agrifood systems. At the 2006 Agri-Food XV meeting, Kathy Gibson as keynote speaker challenged the attendees to find a way of 'loosening up the rigid grip of beloved categories like capitalism' and to 'transcend the usual and acceptable' (Lewis et al., 2016, p. 5). The idea was to find a way to create new knowledge pathways that transcended current limits brought about by the dominance of thinking about agrifood in terms of systems and structures. An answer to this challenge was developed by the five year 'Biological Economies' research program which used the concept of assemblage in place of definitive categories such as capitalism (Lewis et al., 2016, pp. 10, 11). Practices of assemblage based around social values, biological dynamics, regulation, culture, identity, funding and economic value, prompted a reconsideration of New Zealand 'agriculture' as a more broadly encompassing set of 'biological activities' (Campbell et al., 2009, p. 92). Assemblage thinking produced a raft of new ways for understanding New Zealand agrifood through organisational experimentations, scientific

innovations, spatial organisation and the actualising of how multiple relations past and present created New Zealand's farming ontologies (Le Heron et al., 2016; Pawson, 2018).

This way of using assemblage theory for re-investigating previously stable farming ontologies and re-examining global food systems, provided new insights into what otherwise might have appeared as settled relations. For instance, Campbell, Rosin, Hunt, and Fairweather (2012) highlight the role of 'auditing' which classifies particular farming practices and behaviours as 'sustainable', providing meaning to other terms, such as what can be counted as 'organic'. The way auditing and management schemes could alter 'farming identities and practices in localities where audits are implemented' began to receive more attention (Rosin, 2008, p. 45; Rosin, Campbell, & Reid, 2017). Work on the assemblages of auditing, metrologies, valuation and commensuration, showed how devices actively make and are made by various New Zealand agricultural relations (Henry, 2017a, 2017b; Henry & Prince, 2018; Henry & Roche, 2013).

Agrifood scholarship elsewhere has also drawn on assemblage theory. For instance, Visser (2017) uses assemblage theory to highlight the instability of making land an asset, where global investment trends fail to translate into local practices of assetisation in Russia and Ukraine. This use of assemblage theory has prompted a rethink of how rural localities reproduce 'globalisation' in practice, again showing how accepted categories can be re-investigated (Woods et al., 2021). Ouma (2015) unpacks practices of assembling export-oriented marketization processes by tracing how localised practices achieve markets, rather than assuming markets as structures of pervasive economic power have existed *a priori* or have naturally evolved as logical inevitabilities (Ouma, 2015, p. 206). Assemblage thinking forces scholars to remain attentive to cultural, social, ecological and territorial relations, where economic value production is situated amid the 'potentially infinite day-to-day variability of economic practice' (Lee, 2006, p. 413). Not only is value calculated amid this

diversity, but as Tsing (2009) demonstrates, different forms of value, that are not necessarily economic, can be produced 'because' of relational diversity in agrifood supply chains.

Understanding organisations, institutions and industries as temporary 'embodiments of alterable practices' helps re-imagine what were previously unproblematic descriptions of political or economic spaces (Le Heron et al., 2016, p. 11). The practical accomplishment of assembling, usefully counteracts the problem of structural 'paranoia' arising from a focus on dominance and relations of sameness (Gibson-Graham, 2008, p. 618). Assemblage theory also refines what Tsing (2009, p. 151) describes as 'the problem of bigness' that befalls explanations of meta-category phenomena like financialization and capitalism. This leads to equally big critiques, where the only assumed justice for those that have been categorised as poor, or are assumed to be disenfranchised, will come from capitalism's dismantling and restructuring global finance.

The Biological Economies and international Agrifood Studies use of assemblage theory guided my conceptual understanding for making sense of the empirical material that I was connecting with. Much of the locally adapted and historically specific practices I was seeing in the New Zealand dairy industry and considered important, were either not present or assumed irrelevant in past studies that privileged structural forces. Assemblage thinking provided the potential of an open-ended framework for analysing sets of relations and 'rethinking agency in distributed terms and causality in non-linear, immanent terms' (Anderson et al., 2012, p. 171). Assemblage theory allowed me to develop an understanding of the dairy industry that did not rely on an explanation which conferred some fundamentally deterministic trajectory derived from structures, evolutionary systems or categories.

I took further inspiration from the way that the Biological Economies project paid close attention to difference power as well as dominance power. An analytical focus on discerning dominance power tends to exhibit a few key structural causes of social phenomenon (Gibson-Graham, 2008, p. 618),

whereas reading for difference widens the scope of analysis to include a broader, more diverse and heterogenous array of relations and actors previously 'rendered non-credible and non-existent by dominant modes of thought' (Gibson-Graham, 2008, p. 623).

A focus on the work of difference invites a sensitivity to local practices and historical discontinuities that can help rethink 'a narrow analytical and political focus on relations of sameness' casting new light on what appears mainstream, redirecting the focus to 'sites of experimentation, and on other assemblages and acts of assembling' (Campbell, Le Heron, Lewis, & Carolan, 2016, pp. 265, 266). In this light, Ouma (2015, p. 5) reminds us that 'there is nothing natural, evolutionary or inevitable about global markets connections' and nor, I began to think, might this be the case with money, finance capitalism or the dairy industry. Using assemblage theory became a way for me to avoid unwittingly marginalising or silencing relations that I considered were accomplishing important work and were therefore important in explaining the dairy industry.

Assemblage theory approaches have been crucial in inspiring my conceptualising of the New Zealand dairy industry, helping me rethink my assumptions regarding category and actor specifications that were being rattled by the empirical material. With assemblage thinking I could begin to move beyond dominant understandings of dairying and money, that maintained their dominance because they allied with some supposedly predetermined characteristics or properties. Instead, the inconspicuous relations which I saw as important in the locally adapted and historically specific empirical material, could emerge from having been unseen, ignored, relativised or otherwise inconspicuous.

3.2 From Strong Theory to Assemblage theory

While recent agrifood studies have effectively used assemblage theory to produce new understandings beyond structures, I still needed to understand the general principles of assemblage

theory so I could formulate a lens for analysing my own empirical material. These principles are detectable in the way assemblage theory has been used to problematise strong theory descriptions that are well established and widely rehearsed for explaining past understandings of agrifood.

The conceptual basis for understanding money as just a commodity, is strong theory, so strong it scarcely gets questioned. However, just because a theory is strong as in persistent does not mean it is strong as in emphatically sound. 'Strong theory' attempts to 'organise events into understandable and seemingly predictable trajectories' (Gibson-Graham, 2014, p. 148). Financialization and Marxist political economy for instance have strong theoretical underpinnings, arguably with 'an embracing reach and reductive field of meaning' (Gibson-Graham, 2008, p. 618). As I have shown in the preceding two chapters, strong theory guided understandings of agrifood systems are problematic in two ways. First, strong theory can tend toward being overly deterministic in describing dairy as having inevitably evolved as the economic backbone. Second, strong theory can portray the dairy industry as the inevitable outcome of capitalist appropriation of resources. These both uncritically tend to assume money is a simple, neutral homogenously experienced worldwide measure of value which has passively judged the dairy industry to be valuable or been accumulated as capital in an ongoing class struggle. Such analyses hide the multiple sets of relations that have been contestably negotiated for the appearance of stability to occur, obscures failures and conceals agency.

Assemblage theory offers another way of understanding economic spaces, as sets of relations with distributed agency that problematises homogeneity and certainty. Localised practices are investigated as a key mechanism that pulls and holds relations of an assemblage together, albeit perhaps temporarily and in locally variegated, contested and contingent forms (Li, 2007; Swanton, 2013). Ouma (2016, p. 83) for instance advocates for understanding local practices of assemblage as 'geographically variegated operations of agri-finance capital formation' to progress the financialization concept. Focussing on locally practiced operations that order and stabilise relations

can incorporate the political economy strength of deep historicization and the practice-attuned cultural economy strength of exhibiting local practices of contestation and distributed agency.

The thoughtfulness of assemblage theory toward practices reframes the certainty of strong theory, exhibiting relations as being more negotiable than having apparently fixed properties. Assemblage theory focuses attention on processes so that what becomes known as 'the social' (Latour, 2005) or 'the economy' (Callon, 2007; MacKenzie, 2007), nature, money, the dairy industry and so on, are tentatively stable outcomes of assembling relations. There are many multiple sets of potential actors that can be involved in the process of assembling relations, although some relations are more likely to cohere given the right conditions and some might be more desirable for some actors depending on which values overlay them (De Landa, 2006). This is why it is important to map the spatial and historic negotiations of different forms of value in the dairy industry, rather than just assuming economic value does all the explaining necessary as represented dispassionately by '$'. Assemblage theory provides me with the opportunity to expand this taken-for-granted understanding of value that underpins popular and academic notions of dairy as the 'backbone' that have been established using strong theories.

Assemblage theory grew from attempts to extend beyond identifying the essential characteristics of something to claim knowledge of it (Deleuze & Guattari, 1987). Instead, assemblage theory maps the associations of what is being studied to show how it is 'becoming' (Deleuze & Guattari, 1987, p. 239). As such, assemblages are a process as well as a result, so value can be rethought of as an effect of particular actions rather than a quality neutrally measured. Forms of value, and what is valued, changes over time and are spatially specific, so processes of assemblage are contingent on how relations achieve a tentative coherence. The effects of assemblage are knowable through their capacities (what they can do), rather than just their properties or essential qualities (what they are), because capacities 'form an open-ended set of potentialities which might depend on properties but cannot be reduced to them' (Anderson et al., 2012).

Assemblage theory provides a new way to rethink the tendency of strong theory toward determinism and inevitability which I have argued is prevalent in New Zealand agricultural histories and media narratives of the dairy industry, as well as in financialization of agrifood literature. Thinking about the dairy industry through assemblage theory provides a way to understand it differently by bringing in associations that might previously have been considered unimportant, marginalised, ignored or assumed as settled, like money. Understanding these principles of assemblage theory has done two jobs for me. First, it problematises strong theory understandings of categories such as the dairy industry, capitalism and money, and also provides a framework for thinking about them differently, as an effect of assembling relations. Second, it has helped me progress through the struggle I outlined in Chapter One, where the empirical story fitted so many competing views of money that none of them by themselves could explain the local and historically adaptable practices of the dairy industry that I considered important. Understanding the principles of assemblage theory, with assemblages as both a process and result knowable through different capacities, helped me develop my concept of moneyness to solve the overly deterministic and inevitability problems of strong theory explanations of the dairy industry.

3.3 Moneyness in Two Ideas

To elaborate on how I used assemblage theory to develop my concept of moneyness and expand beyond current strong theory understandings of money and the dairy industry, I illustrate moneyness through two key ideas. These ideas enabled me to cultivate a sensitivity to *heterogeneity* and a focus on the work of continual *stabilisation* between dynamic sets of relations. These two ideas are useful for 'multiplying the analysis of the dynamics at play in a complexly overdetermined field' (Gibson-Graham, 2014, p. 149), and so they effectively explain moneyness as an effect of practical work that stabilises relations of assemblage.

3.3.1 Heterogeneity

My moneyness concept is sensitive to *heterogeneity*, by which I mean that dissimilar, varied and multiple elements are incorporated rather than ignored, in sympathy with the focus on difference power emphasised in agrifood studies recent use of assemblage theory (Carolan, 2013; Gibson-Graham, 2008). Thinking about heterogeneity dissolves the artificial boundaries that enclose money as knowable through some supposedly central defining functions and properties. This decomposition brings to light previously hidden associations among heterogeneous elements which allows a re-evaluation of the dairy industry. This re-evaluation has let me include agency from previously marginalised, ignored and obscured, locally specific and historically negotiable actors and practices.

The assemblage of moneyness 'takes form through the connections between heterogenous components (bodies, things, practices, contexts, etc.) in particular moments' and understands 'orderings (or collections of orderings), by tracing the relations between the heterogeneous elements that compose them' (Anderson et al., 2012, pp. 175-176). Agency is therefore distributed amongst a variety of material and immaterial elements in 'heterogeneous assemblages: that is to say arrangements of things, people, discourses, rationales and socio-technical devices' (Gallagher, 2022, p. 33). These arrangements tentatively co-function as sets of relations, making it possible to organise markets, the state, banks or the dairy industry as an effect of how heterogenous components are locally and historically (re)ordered.

This binding together of related elements not only holds despite their differences but may actually hold because of their differences. Arguing this, Tsing (2013, p. 38) provides examples of 'gift-giving' as a non-capitalist practice and concludes that 'capitalism requires economic heterogeneity, as it is the source of its success' but which cannot be fully controlled. This diversity of possibilities is illustrated as heterogeneity throughout the empirical chapters. For instance, New Zealand's second Governor Fitzroy being banned from 'borrowing' money from the Imperial Treasury to fund public

expenditure, so instead he 'issued' credit in the form of debentures, stabilising new moneyness. Assemblage theory describes the 'co-functioning' of heterogeneous parts into some new form of provisional whole that can be understood through some new relational capacities (Anderson et al., 2012, p. 177). The assemblage of relations I call moneyness will analyse how difference and contingency are incorporated in processes of 'knitting together order from heterogeneity' (Henry, 2017, p.108). For moneyness to be tentatively assembled through the provisional ordering of heterogenous relations takes work.

To start thinking about this work, I first started thinking about it being performed in phases. Callon (1986, pp. 203-211) for instance divides translation into four sets of practices; problematization, interressement, enrolment and mobilisation, in ordering what he called an 'actor-network' designed to pacify scallops in St. Brieuc Bay and create a sustainable fishery. Similarly, Li (2007) identifies six stages of assemblage that can guide an analytical focus. While I have adopted the language of Callon, borrowing 'translation' for which I mean a process for transforming value in my definition of moneyness, I have not adopted the seemingly neat phasing of Callon's translation or Li's stages. I have avoided this because the data I was gathering on the New Zealand dairy industry almost never pointed to practices that uniformly progressed through defined categorical stages or phases.

Instead, the dairy industry as I came to understand it practically lurched, backtracked, stopped, changed tack and actively worked against previously stable orders. Therefore, I opted to understand how practices worked in *stabilising* the dairy industry as an effect. This does not infer that stabilising work has always been successfully implemented as planned by programmatically following the defined stages such as in Callon's depiction of translation. Stabilisation is not just about the work of ordering; it is about reordering relations to maintain a tentative stability.

3.3.2 Stabilisation

At times in collecting the empirical content for this thesis, some relations of assemblage have appeared to bring heterogeneous elements closer together, such as the state and the dairy industry. At other times, changing relations have seemingly pushed elements apart, such as modern banking which has appeared increasingly separate from the state in recent decades. This apparent expansion and contraction of distance between actors made strong theories increasingly problematic for me because of the changeability and blending of relations between what I had previously considered stably distinct categories and actors. The empirical story that I was encountering revealed more local agency and contingency than strong theory notions of stability could explain. A sensitivity toward the work of stabilisation provided a way to resolve this conflict and led to the development of my moneyness concept. My moneyness sensitivity toward stabilisation reveals novel, previously hidden, taken-for-granted, ignored, discarded and/or silenced relations, because of the focus on local stabilising work and historical contingency.

An assemblage of relations is practically accomplished by stabilising the 'relations between one figure and its distorted counterpart' (Allen, 2016, pp. 6, 7). Any tentative stability is not rigid but combines heterogeneous elements in 'living fabrics of association' (Whatmore, 2002, p. 3). Allen (2016) described these relations through 'topologies of power' to explain how power remains continuously under transformation. Inspired by this, I see stabilisation as the work of assembling moneyness which I will show in this thesis has made the dairy industry appear both stably invariant and yet constantly distorted by always reconfiguring relations.

This is why the dairy industry of nearly a hundred and fifty years ago is almost unrecognisable to the dairy industry of today but can still be called 'the dairy industry' as though it were the same thing. Adapting to constant dynamism is the work of stabilisation. Rather than stability arising from the absence of change or the eradication of distinction, change is a necessary relation for the work of stabilisation to provisionally achieve a recognisable order.

Having critiqued ideas of money as just a commodity that neutrally measures value, the next task for my moneyness concept was to understand how this assemblage stabilised value. The continual work of stabilisation between heterogenous elements that produced the dairy industry empirically problematised strong theory explanations that teleologically tended toward deterministic evolution and inevitability. What at first glance appeared as categorically distinct actors such as the state, the banks and the dairy industry, with a focus on local practices seemed to actively make different forms of value commensurable through the work of stabilisation. 'Commensuration is the expression or measurement of characteristics normally represented by different units according to a common metric' (Espeland & Stevens, 1998, p. 315). Assembling relations of moneyness stabilises commensurable value in my empirical story so that the work of the bank, the state and the dairy industry can be translated across space and time. Rather than separate or distinct category actors, my moneyness concept decomposes their boundaries through a sensitivity toward heterogeneity and allows a different analysis of them as deeply interrelated through sets of locally and historically negotiable practices, that tentatively produced stabilisation as effects. Moneyness problematises structural categories by demonstrating how difficult it is to tell where one category or actor ends, and another begins.

So far in this chapter, section 3.1 has shown how agrifood studies have used assemblage theory in response to a challenge for thinking beyond distinct analytical categories. Section 3.2 made the case for using assemblage theory as a way to critically engage with strong theory, provoking a reconsideration of the dairy industry as the economic backbone and allowing me to form a strategy for understanding my empirical material that pointed toward local practices and historical adaptation. Section 3.3 shows why moneyness as an assemblage theory derived concept can contribute a different understanding to strong theory analyses because it guides two different sensitivities. First, moneyness is cognisant of the heterogeneity of assemblage elements which decompose otherwise fixed categorical boundaries. Second, moneyness analyses how the

stabilisation of relations has achieved the dairy industry through work. The effect of stabilising the dairy industry as shown in the empirical chapters, is not *despite* the dynamism of relations which extorts change, but *because* of the dynamism of relations which invites change, through the continually creative practical work of translating commensurable value.

3.4 Method: Following Moneyness Controversies

My research has focused on the difference work of assembling moneyness that has stabilised and re-stabilised the dairy industry as an effect of changing practices. To find these practices I had to follow moneyness. In this section I identify the challenges of following moneyness and how this shaped the methods I used. My own changing positionality alongside changes in what research it was possible to conduct, meant I had to adapt my methods which became a 'messy' (Law, 2004, p. 2), multi-site, set of mixed methods for procedurally following moneyness. My methods were always in a process of becoming, never perfectly coherent and so required choices about what stories to pursue. This messiness paralleled my own conceptual journey of engaging with strong theory and then using assemblage theory to develop my own moneyness concept.

A focus on practices which assemble the relations of moneyness recognises the 'work of situated subjects who pull disparate elements together without attributing to them a master-mind or totalising plan' (Li, 2007, p. 265). Tracing how moneyness has been locally operationalised, uncovers historical moments where this local work has brought about change. To navigate to these moments of change Christophers (2011) recommends that researchers 'follow the thing: money'. This advice presents a challenge for this thesis because I have already been critical of the historiographical agricultural and dairy literature, media narrative and financialization scholarship, for having too easily assumed that money is a homogenously experienced commodity that dispassionately functions to mediate exchange.

Because of this, I have chosen to not follow the thing 'money' but to follow practices of moneyness. Moneyness are the sets of relations that practically translate commensurable value across space and time. As assemblages are both process and result, following practices to where capacities change is where I have found moneyness, but this was a far from straightforward journey.

The ontological fuzzyness of following relational practices presents challenges for locating moneyness. To help meet this challenge, Venturini (2010) invites researchers to go 'diving in magma' to uncover how controversies are simultaneously melted and forged. The value of controversies is that actors disagree. Disagreement happens between actors that cannot ignore one another until some compromise is reached. The researcher then has an opportunity to learn something from the process of actors trying to settle controversies through the tying and untying of relations where 'any actor can decompose in a loose network and any network, no matter how heterogeneous, can coagulate to function as an actor' (Venturini, 2010, p. 261). This decomposition and coagulation are detectable through a set of techniques called the 'cartography of controversies' which maps public disputes (Venturini, 2012, p. 796). I undertook the dual tasks of exploration and representation by following changing practices of moneyness to where they erupted in controversies and affected some relations that stabilised the New Zealand dairy industry.

Following historical practices of moneyness that have assembled the New Zealand dairy industry as an effect is problematic because I cannot follow all of them. Campbell (2020, p. 73) outlines the difficulty in using assemblage thinking in a 'long sweep of farming history' because of necessarily omitting many 'small moments and dynamics of change and stabilization'. His political ontologies approach focusses on moments of change in the 'large trajectories of modernity' that have made farms, and been made by farms, in New Zealand.

I am making a similar choice, focussing on moments of change where moneyness has controversially changed trajectories in making New Zealand dairying. There is the risk of my missing many small

moments of locally practiced agency that have influenced such trajectories, but I had to make choices about which relations to include and which to omit. I made these choices rather than 'aimlessly following the threads' of every relation and 'losing [myself] in the deep entanglements of the relational processes that create our world' (Forney, Rosin, & Campbell, 2018, p. 3).

As such the empirical chapters are 'not empirical in the sense of bringing in a vast array of data, but rather in the sense of concentrating, onto a very narrow set of micro-events, the full weight of a shift in perspective regarding what it is to be attentive to the world' (Latour, 2014, p. 261). I make no claim that my empirical arguments are necessarily generalisable across industries or regions. I argue instead that generalisability has led to authorised understandings of concepts like money and industries like dairy farming, being unduly rendered down to a few essential properties. This has been problematic in that sets of practices considered tangential to these apparent essential properties have dropped out of sight and so with them a fuller understanding of how interconnecting relations have been crafted and stabilised through work. I have had to make choices about which controversial events can adequately show what I mean by moneyness stabilising the dairy industry as an effect.

The choices I made about method reflect my own positionality. I suppose I am enrolled into any number of categories and groups that have all influenced my identity and how my thinking is predisposed in this direction or that. The one identity I have willingly chosen, and which has definitely shaped this research by balancing it up against other commitments is as 'a Dad'. The instances in which I have chosen to do Dad stuff instead of research stuff discounted some possibilities. For instance, could I have got a different view of the dairy industry by spending time in the South Island and interviewing dairy industry participants there? Yes. But if it meant missing a school drop, sports practice or recital, I would rather justify why I chose to concentrate on Manawatu dairying.

These choices shaped the empirical content. For instance, in the final empirical chapter I chose to focus on the Rongotea Cooperative Dairy Company previously located in the Manawatu, out of hundreds of past dairy cooperatives, all with different histories. This place is about 20km from where I live and so dairy participants of this past cooperative were accessible, if they were living and willing. If not, the Massey University Research Archives housed the Rongotea Cooperative Dairy Company annual reports. This provided me access to some past practices that could be traced to find moments of controversy and change.

Another limitation was what my informants were willing to let me see. For instance, I would like to have spent a week at the RBNZ understanding the process of state credit creation by seeing how government payments get made daily. This moneyness has been crucial to how some past dairy industry relations have been assembled. I asked, they said no, so I had to read what RBNZ participants had published and listen to what they were willing to disclose in interviews.

On their own, each chapter follows different moments of change through historical periods, but this is not to say that any change necessarily caused later events to occur just because they followed. What the empirical chapters together show is that different relations cross through and between different spaces and times in associations which together, formed some of the relational architecture of assemblage through which the New Zealand dairy industry became an effect.

My process of following moneyness through controversies where work has differently assembled the New Zealand dairy industry, became visible with document analysis. I collected information on dairying and finance (not money to begin with) from newspaper articles, archival sources, video, blogs and publicly available information such as the Reserve Bank Bulletin. From the RBNZ website, I reviewed the six-monthly Financial Stability Reports which, for a time, included the dairy industry as a systemic risk to financial stability. From these documents I compiled a list of potential interviewees and contacted them by email to ask for an interview. In addition, I had some contacts from previous

employment in the dairy industry who were agreeable to being interviewed or who could direct me to an appropriate informant based on conversations about my research.

The total series of ethnographic semi-structured interviews were with dairy farmers (n=5), bank rural lenders (n=2), journalists (n=2), private sector economists (n=2), central bank economists (n=3), an academic economist, Fonterra staff (n=2) a former-Fonterra director and an elected central government representative. This is not to say it was a linear process from documents being analysed and then onto interviews for a richer process of discovering personal experiences of money in dairying. I switched between documents and interviews then back to documents. This lurching followed new threads of enquiry, some of which do not appear in the final thesis.

Recognising these new potential threads became unexpectedly influential in terms of challenging my preconceived ideas about dairy and finance which I held at the beginning of the project that were admittedly guided by my understanding of strong theories whether I knew it or not. The most valuable thing to arise out of this switching was the work of describing the complex array of different money forms that exist now and how they are related to monetary forms in the past. This led me to arrange monetary relations past and present not in terms of their forms, or to haphazardly group them as 'finance', but to investigate how they were practically assembled which led to my development of the moneyness concept.

The interviews themselves also changed. I started with structured interviews thinking that this approach might provide data which was more comparable and allow me to decipher patterns. After a few interviews were transcribed, I decided on questions that focussed on unpacking 'how' money is experienced and practically arranged by actors in collaboration with socio-technical devices, rather than their understandings of 'what' money is. These presuppositions about money as an object reflected my own (Dunn, 2005, p. 81). I tried to pivot away from questions which betrayed my presuppositions about the functioning of money to understand more about what participants

valued. What became ‘flexibly structured’ interviews revealed more about actants everyday experience of how value is arranged in their worlds using their words (Jackson, 1983, p. 43). Moreover, this more open approach enabled individuals to express how money feels to them and how these feelings have been shaped by their understanding of the world.

In the finished thesis many of the views of interviewees are not included. Most of the initial interviewees were dairy farmers, bank rural lenders and journalists, and concerned the subject of my initial enquiry, which was how they perceived finance to work. While money was often mentioned it was unanimously used as an object for mediating exchange, measuring value or to be accumulated as wealth. Finance was merely the leveraging of homogenously experienced money that I subsequently argued extends from commodity money theory. The combination of these interviews alongside contemporary media stories and historical agricultural literature helped me to identify the treatment of money as a simple ubiquitous object defined through a few of its essential properties but did not say much about money as work, so as the focus of the thesis changed, they became gradually less significant vis-à-vis archival and other sources.

However, these interviews informed different directions of travel in which to follow moneyness by opening up moments of controversy. As well as similarities, differences of interpretations between interviewees were also detectable. This subtle and gradually revealed contestability of meaning helped me to start thinking about money as having different interpretations and different ways of being practiced that ultimately led to my development of moneyness for understanding this complexity. The differences of meaning among informants helped shape the relational themes of the empirical chapters, because I could historically trace currently contestable meanings to past changes in practice that showed changing relations of assemblage in action.

Categories which I had previously considered fixed such as the state, the government, the banks or the dairy industry, became less easy to recognise as stably distinct wholes unto themselves and

problematised my initial inclination that they had a commonality of intent. Other objects such as bank deposits, tax, debentures, banknotes and sovereign debt began to appear to have different meanings when encountered by actants who perceived them in different ways. The stability of objects became less obvious and instead I began to think about them in terms of what they did, rather than what they were, as inspired by assemblage theory.

The empirical themes emerged more clearly when carried into an historical documentary analysis. I began to trace how knowledges and devices became authorised as tentatively legitimate relations. I wondered how tentatively legitimate stability had changed over time. Historical Reserve Bank bulletins, bank annual reports, Treasury papers, independent research reports on both the finance industry and dairy industry, blogs, numismatic histories and news articles, were all part of following moneyness in the past. I gradually began to interpret differences, changes, discontinuities and inconsistencies in past localised practices that I now call the assemblage of moneyness.

Reading histories and biographies of important actors of the New Zealand dairy industry gave me another hint as to where and when moments of controversy occurred. The Massey University Dairy Archives then provided a more grounded set of past narratives where dairy companies practically undertook different work. The New Zealand Dairy Board and the Dairy Exporter magazine, published as the mouthpiece of the Dairy Board since 1923, were also analysed and provided more grounded snapshots of New Zealand's dairying past, that I selected to explore how moneyness worked. As such, neither myself nor the archives are neutral containers of past practices. Archival documents contain ideas, often laden with political narrative and written to serve particular purposes. I have used these archival sources to 're-evaluate taken-for-granted knowledge' of money and the dairy industry while trying to remain attentive to the different agency which might exist in the ordering and categorising of texts. Further, my selection of texts has reproduced these and other knowledges and I have tried to be mindful that going to parts of the archives that I suspected would yield

information will have ‘silenced some voices of the past’ while privileging others (Roche, 2005, pp. 175, 176).

Other valuable archival sources included websites such as Papers Past, the New Zealand Legal Information Institute’s ‘acts as enacted’ database, the New Zealand Official Yearbook and Parliamentary Papers, most especially the Appendix to the Journals of the House of Representatives (AJHR). These sources gave a fuller picture of important moments of change where moneyness was altered in practices which rearranged the dairy industry as an effect. My method was to study these various archival texts in terms of what had been said about operationalising moneyness but also being cognisant of how it was said. Using archival texts is most closely associated in this thesis with the historiographic approach for examining the origins of how institutional practices developed (Ventresca & Mohr, 2017, p. 807). The usefulness of the archives was to ground past practices of moneyness which enabled me to compare them with how they are talked about working today. The work of assembling moneyness became apparent through my own work of comparing practices of the past and those of today.

3.5 Taking Moneyness Out for a Ride

Arranging the assemblage theory framework to develop my concept of moneyness has been undertaken in concert with different literatures engaged with in the first three chapters of this thesis. Moneyness analysis helped me parse my own discord in engaging with the dairy industry empirical material I was collecting. By developing my approach to moneyness I seek to contribute something different to strong theory explanations of the dairy industry, money and financialization, which I think define categories in too fixed and rigid a way by portraying capitalist activity as ineluctably deterministic and inevitable and inadvertently shuts off other possibilities.

Some of the actants I have sourced may make claims to knowing the truth about New Zealand dairying or money and I have tried to present their cases as accurately as possible. This may look as

though I am implying there is a truth to be found about how money has worked in the dairy industry, but there is not, or should I say, there is not just one. I have tried to remain open to all perspectives and a full range of oppositions around matters of concern. This is not to say there is an objectivity to be found because each perspective has been given equal weight. I selected the representativeness of each perspective that 'fits its position and relevance in the dispute' consistent with the 'cartography of controversies approach' that has informed my method of observing and describing change through public contests (Venturini, 2012, p. 799). Analysing these changes led to my conceptual framework of moneyness for understanding the assemblage of taken-for-granted relations that helped stabilise the dairy industry as an effect.

What is presented in this thesis then is a creative and collaborative work in concert with the material and resources that I have chosen to explain the dairy industry through newly illuminated relations. These relations have been newly analysed through my concept of moneyness by following the capacities of practical work to translate commensurable value, from which the dairy industry is an effect. In doing this work I hope to deliver a new and creative perspective to understanding the dairy industry in a way that is 'interesting, remarkable and important' (Deleuze & Guattari, 1994, p. 82).

In the next chapter I mobilize my assemblage approach to begin the empirical portion of the thesis by scrutinising the work of tax that indirectly and directly assembled relations of moneyness. In taking moneyness out for a ride to see tax work, I argue that tax is a useful set of taken-for-granted practices for understanding how the assemblage of moneyness has stabilised the dairy industry as an effect. In chapters 5 and 6 I take moneyness out deeper, to see the work of loans and the work of cooperative shares which reinforces my argument about the ability of moneyness analysis to shine a light on understanding the capacities of new sets of relations that locally and historically assembled the dairy industry.

4. The Work of Tax

In this chapter my moneyness analysis shows how sets of relations have been practically assembled by the work of tax, which has helped produce the New Zealand dairy industry as an effect. Tax translated different forms of value through interconnecting processes I am calling *imposing*, *influencing* and *reworking*. Each of these is demonstrated by following how some different tax practices solved various problems and enabled the dairy industry to become creditable and investable through translating financial value, land value and milk value as commensurable sets of relations.

I start by outlining the problem of how the state could pay for work to be done in the 1840's. *Imposing* tax addressed this, but it also made state promises creditable by accepting them back in payment. Promising to convert state IOU's into sterling and accepting sterling in payment to the state, made New Zealand state promises commensurable with sterling. This practically translated value into state credit because sterling was an internationally recognised unit of account which facilitated international trade with Britain as the world's major terminal market for agricultural commodities. Converting IOU's as tax credits to sterling assembled some of the relations that later worked to stabilise the dairy industry.

My moneyness analysis then shows how tax was used in *influencing* land use changes by breaking up large estates into smaller holdings that became more suitable for dairying. I then show how *influencing* tax practices specifically developed a co-operatively organised dairy industry, translating financial value into cooperative dairying for over a hundred years by making it substantially exempt from certain types of tax between the 1870's and 1980's. This work made financial value, small holder land values and milk values all commensurable with each other and with sterling as the unit of account.

Reworking then shows how relations were modified as demonstrated through how dairy industry tax obligations and the unit of account have undergone adaptations. Financial, land and milk values were rearranged, making more room for commercial bank credit to finance dairy expansion which will be explored further in the next chapter.

Overall, this chapter argues that money as forms of tax work have solved problems for the state and made dairy industry value historically commensurable with national value. The non-linear, contested and negotiable ways in which this has been achieved shows how taken-for-granted relations associated to the work of tax have assembled the dairy industry as an effect of stabilising moneyness. The dairy industry as an effect appears both stably invariant and continually transforming because of the creative work of moneyness in practically adapting relations to solve problems.

4.1 The Problem of State Revenue

An early problem for the state was how to source funds that could be used to pay for work to be done. The British Crown envisaged that the new Colony of New Zealand would pay for colonial infrastructure by acquiring and selling land. The 1840 Treaty of Waitangi, Article 2, 'guarantees to the Chiefs and Tribes of New Zealand undisturbed possession' until such time as they no longer wished to retain possession, in that case the 'individual chiefs yield to Her Majesty the exclusive right of Pre-emption' (Treaty of Waitangi [English text], 1840). Pre-emption meant that if Māori were going to sell land, the Crown asserted for itself the first right to buy it.

Figure 2 - Colonial Government Revenue from land sales and leases, 1840-1875. Adapted from data in Goldsmith (2008, pp. 16, 46, 71).

Figure 2 shows that until the 1860's this was not immediately successful in obtaining substantial state revenue. In 1842 Hobson wrote to Lord Stanley as British Secretary of State, noting that the loan from the New South Wales (NSW) Treasury, which had been forwarded at the beginning of New Zealand's colonial rule, was insufficient given poor land sales. New Zealand was considered part of NSW until established as a colony in its own right in November 1840 (Littlewood, 2016, p. 1; McKinnon, 2012). Hobson reportedly wrote that it was 'utterly impossible to carry on the Government of the Colony without assistance from the Home Government'. Hobson notified the Imperial Treasury that he intended to draw bills of £25,000 against the Treasury to cover deficiencies, but the response from Britain was that anything over £10,000 would be dishonoured. Prior to receiving this communication however, Hobson died in September 1842 (MacKay, 1878, pp. 13, 14). A different way to source the funds was needed and imposing tax helped solve the problem of not enough land sales and lack of credit from the Imperial Treasury.

4.2 Imposing

This section demonstrates how the assemblage of relations I call moneyness was practically accomplished by *imposing* tax, which helped solve the problem of state revenue. In the 1840's this

made it possible for state promises to become valuable as exchangeable tax credits. Imposing tax liabilities and then making certain things acceptable in payment, translated value into state promises and I use the example of Fitzroy's debentures to demonstrate this. As an outcome of promising to convert these into sterling, sterling was established as the unit of account which made moneyness relations differently commensurable in the early New Zealand financial system and facilitated an international trade of agricultural commodities. Practically imposing tax, supplying tax credits and promising to convert to sterling made tax, state-credit and sterling, commensurable in value and the work of imposing stabilised some relations which would contribute to making the New Zealand dairy industry creditable as a sterling accumulation machine.

4.2.1 Imposing tax liabilities

Tax had the potential to solve the problem of state revenue posed by lagging land sales and lack of credit from the Imperial Treasury. George Cooper, the first Head of Customs and Colonial Treasurer, landed in New Zealand on the HMS Herald with New Zealand's first Governor, William Hobson in 1840 (New Zealand Customs Service, 2017). The Governor, as representative of sovereign legal authority and the Treasurer, representing the power to inflict taxation, accompanied each other at the beginning of colonial New Zealand and have stood alongside each other ever since. Lord Normanby, British Secretary of State, wrote in his instructions to Hobson that alongside land sales, 'duties of import on tobacco, spirits, wine and sugar will probably supersede the necessity of any other taxation' (Lord Normanby, 1839).

The Customs Ordinance (1841) was the third Act passed by the British House of Commons on behalf of New Zealand. New Zealand laws ratified by Britain became possible through the 'Sovereignty of the Queen' outlined in Article 1 of the Treaty of Waitangi [English text] (1840). Sections three through sixteen of The Customs Act detailed what violence could be imposed upon 'smugglers, persons who interfere with Customs Officers' duties, persons who bribe Customs Officers and upon

Customs Officers themselves if they accept bribes'. These included 'fines' in sterling, the possibility of 'suffering death as a felon' and boats running from the Navy being 'fired into'. 'Duties' were then outlined as being payable to allow a ship to be 'unladen', the 'table of duties payable' at the end of the Act lists these duties in £ sterling. These practices of imposing a tax on imports denominated in sterling and then making sterling accepted in payment at customs offices, translated some demand value for credit measured in sterling.

As I show in Figure 3, customs duties were about as effective at providing government revenue as land sales through the first two decades of New Zealand colonial rule. In 1844 Hobson's replacement

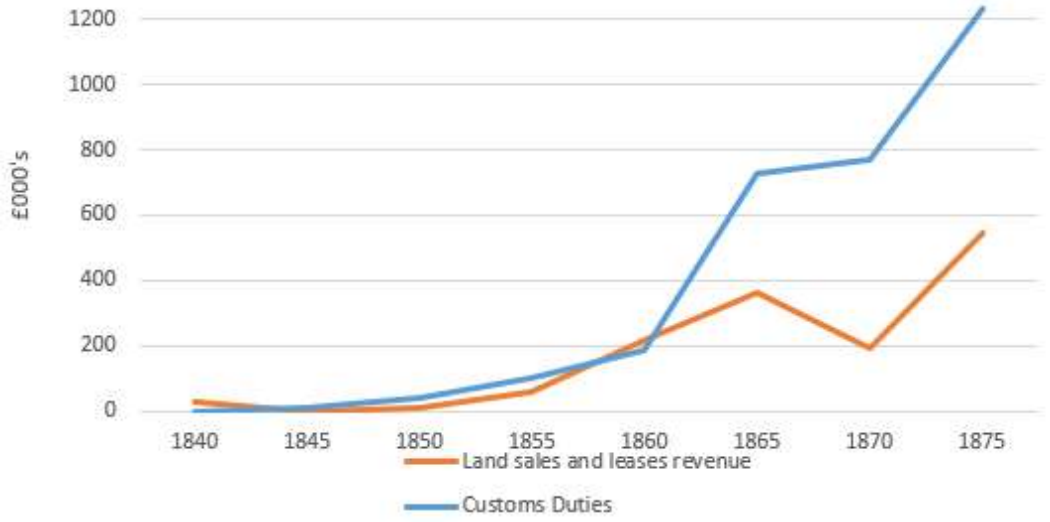

Figure 3 - Colonial Government Revenue from land sales/leases and customs duties 1840-1875. Adapted from data in Goldsmith (2008, pp. 16, 46, 71).

as Governor, Robert Fitzroy, outlined to the Legislative Council a proposal to levy direct taxes for the first time[5] to 'gradually improve our [government] pecuniary interests'. Direct taxes on property were to include 'an annual tax of two-pence per acre on country land, an annual tax on houses over three rooms of £1 per room and also a tax on all dogs not belonging to Aboriginal Natives [Māori] excluding puppies' (Fitzroy, 1844, p. 36). Fitzroy was pressured to drop these tax proposals in meetings of landowners throughout New Zealand and a petition from one hundred and eighty

[5] Customs duties being indirect as they are levied only upon imported goods and so doing without imported goods could avoid a tax obligation.

Auckland merchants (Goldsmith, 2008, p. 23). The proposal was withdrawn and amended customs duties would take their place to increase government income (New Zealand Gazette and Wellington Spectator, 1844, p. 2).

Governor Grey again considered direct taxes after Fitzroy returned to England in 1845 and thought about including both settlers and Māori, however he baulked at the idea. Writing to British Secretary of State Lord Stanley, Grey outlined the reasoning for this rethink arguing that he could only impose direct taxes on Māori, if:

> 'we were in actual occupation of the whole island; that establishments existed which could collect these taxes; and that there was a reasonable probability that the large warlike native population, who are as yet ignorant of European laws and customs and impatient of control, would submit to taxes of this nature. Every one of these suppositions is directly contrary to the fact' (Grey, 1846, p.99).

In short, Grey could not include Māori because they just would not put up with it. He could not include only settlers in direct taxes as they would see that as unfair. In addition, there was no complex state machinery of tax collection yet, devices for collecting tax, like guns, were not yet available in sufficient quantities. So, the whole direct tax question failed to cohere again and was deferred in favour of customs duties. The project to tax land and property was not resumed until 1877 as I will unpack later.

Imposing tax depended upon being able to reliably coerce a population into accepting a tax liability. This imposition is possible but contestable. Imposing non-voluntary tax obligations, redirected financial resources from the public to the state by providing revenue that could be used to pay for work. For the public, this leaves it with the problem of how to accumulate the things that will absolve them of the tax liability imposed. Tax makes people unemployed.

4.2.2 Providing tax credits

The public needs work that pays in things that the state will accept back in payment to extinguish tax liabilities. Here I argue that this makes it possible for the state to issue state promises as credit that functioned as money because they were deemed valuable enough to trade for labour. Tax made the value of labour and state credit commensurable because it could redeem the worker from their tax obligations.

State revenue became more important because in Colonial New Zealand, state borrowing was discouraged. Lord Russell, Britain's Secretary of State for War and the Colonies, provided written guidance for Governors on December 9th, 1840. Hobson and successive Governors were told 'it will be your duty to take care that the system of defraying costs of government by loans be strictly avoided' (MacKay, 1878, pp. 28, 31).

When Fitzroy arrived after Hobson's death, he found that the ability of the state to pay for work to be done was in jeopardy because 'the civil service had not been paid in six months' (Matthews, 2003, p. 42). Lord Stanley having succeeded Lord Russell wrote that a further unknown £15,000 in bills drawn on the Imperial Treasury by Hobson would not be honoured. Fitzroy tried to arrange an advance from the New Zealand Banking Company and was told that they could only fund bills against future Imperial Treasury advances amounting to £2,000 at an interest rate of between 12% and 15%. This £2,000 loan was insufficient, as total Government Debt was £24,000, £9,000 of which was due immediately (Adams, 1986, pp. 50, 51).

Stanley suggested issuing debentures as temporary credit to defray these two problems (Adams, 1986, pp. 48, 49). Debentures are interest-paying IOU's, promising to return a purchaser's investment with interest at a future date. In May 1844, Fitzroy led the passing of the Debentures Ordinance, taking Lord Stanley's suggestion as a loophole that superseded the injunction on

borrowing by Lord Russell in 1839's instructions to Governors and as I will show, extending beyond the value of what the Government owed (Matthews, 2003, p. 42).

An unissued Fitzroy Debenture is shown in Figure 4. With it, Fitzroy promised to redeem the debenture in 'sterling' at 5% interest a year after the date of issue. Additionally, this £1 debenture could be used in payment of £1 and 1 Shilling to the Government when presented at the Colonial Treasury office after 10th April 1846. Fitzroy practically translated value into the debentures in four moves; first, by making them pay interest; second, by making them acceptable as payment to the Government; third, by making the debentures redeemable in sterling.

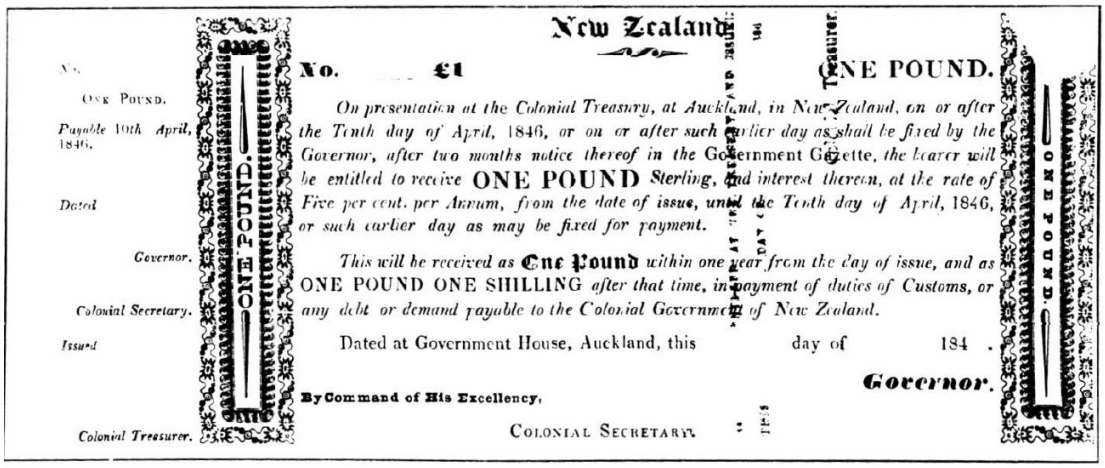

Figure 4 - Unsigned Fitzroy Debenture, photograph from Adams (1986, p. 45)

Fourth, to inscribe them with extra value, he had them declared 'legal tender' (Adams, 1986, pp. 51, 52). McBride (2015, pp. 4, 5) offers the following explanation of this concept:

> 'Legal tender is commonly confused with the related concept of payment and an offer of legal tender does not always conclude a payment obligation. While the seller is not required to accept payment in legal tender, the fact that a valid tender has been offered means that the seller is barred from recovering the debt in court'.

In practice, while a seller does not have to accept legal tender, they probably will because otherwise they cannot sue for non-payment.

Fitzroy's debentures were used to pay public servants and because they would be accepted in payment at government offices, they functioned to redirect resources to the state. This created a demand for the debentures which could then be used in exchange for goods with merchants and for labour, driving other forms of currency 'out of circulation' (Bedford, 1916, p. 262). A newspaper estimated that £40,000 of debentures circulated 14 months after the Ordinance and that 'the currency of Auckland consists almost entirely of debentures' (New Zealand Spectator and Cook's Straits Guardian, 1845, p.2). Fitzroy reasoned that 'by issuing debentures and making them legal tender, the present crisis may pass without disaster, and the road is kept open to a prosperous future' (Fitzroy, 1844, p. 34).

While Fitzroy's debentures successfully functioned as credit that became a currency which could be used as a means of exchange, it was yet to become law. To get around this issue of assent, a copy of the Debentures Ordinance of May 1844 was not sent to Lord Stanley until September. The four-month delay gave time for the debentures to circulate. Fitzroy claimed that 'issuing the debentures and making them legal tender had saved the Colony much misery' (Adams, 1986, p. 57). The expected written injunction from Britain arrived as expected, but not until October 1845, seventeen months after the first issuance. Fitzroy's replacement Governor Grey arrived a month later, in November. A hundred and seventy 'Merchants, Landowners, Settlers and Tradesmen resident in Auckland' published a letter in The New Zealander newspaper on the eve of Fitzroy's departure. It states that 'those who would condemn your fiscal policy, should be prepared to point out some less exceptionable mode by which, on your arrival, the colony could have been rescued from bankruptcy, than that of issuing a paper currency' ("Address to Captain Fitzroy," 1845, 13 December, p. 3).

Fitzroy's debentures are an example of moneyness, where tax helped to practically assemble value in New Zealand government IOU's. These state-credit promises were made possible by first imposing tax liabilities and then accepting state IOU's back as payment at Government offices. This meant

state-credit promises became valuable because they could be used to extinguish tax liabilities and could direct work and resources toward what the state considered the public purpose, an expression of state power. Making the debentures redeemable for sterling made the debentures more valuable because sterling denominated promises were accepted in payment at government offices already, not only in New Zealand, but in other British colonies and in Britain itself as the most important terminal market for the international trade of agricultural commodities. Imposing tax provides a population that is ready to trade work for state-credit promises that redeem them from their tax liabilities. Tax creates unemployment and I will show that dairy farming became a form of work that was valuable because it accumulated sterling.

4.2.3 Establishing sterling as unit of account

Making Fitzroy's debentures redeemable for sterling and making them accepted as payment to the government translated value into these promises, however other forms of credit were being used in processes of exchange in competition. This diluted the exchange value of state promises measured in sterling because work was being undertaken to earn things which could exchange for goods and services, outside of state control. Moneyness is a competitive sport for stabilising a relational architecture. Showing how imposing practically accomplished sterling as the preeminent unit of account is critical to understanding how the dairy industry was an effect of the way this assemblage stabilised.

When I refer to sterling in this chapter, I include a range of money forms and financial assets measured in sterling as Britain's unit of account. A unit of account measures value in the same way an inch and a centimetre both measure distance. A shortage of sterling developed during the 1840's owing to the British Army Commissariat not bringing sterling specie with them, cargo vessels demanding sterling before unloading and the aforementioned restrictions by the British Treasury on sterling credit. Sterling was being withdrawn from circulation faster than new settlers arriving could

replenish it. As a result, the currency of several nations circulated in New Zealand including the Spanish-American 'reale' coin known as 'pieces of 8', American 'cents' and 'dollars' brought by whalers and French 'francs' most notably circulating from the French settlement at Akaroa (Hargreaves, 1972, pp. 25-30). These circulated alongside IOU's issued by merchants, whaling ship captains, companies and commercial trading banks that could all be used in commercial exchange (Corgel, 2018, p. 3). This was a problem for commerce within New Zealand because of the constant need to calculate relative exchange rates between coinage and other IOU's and an additional problem for the state was that it diluted the value of state-credit promises by competing with them as a means of exchange and a director of work.

Sir George Grey, New Zealand's third governor, came up with a simple solution in 1847. He announced that non-British coins would no longer be accepted as payment at Government offices (Hargreaves, 1972, p. 32). It was subsequently calculated that 'the quantity of foreign coin is now very small, owing chiefly to its comparatively low value, and it being refused at the Public Revenue Office' (New Zealand Blue Book of statistics, 1847, p. 135). Sterling then became the default unit of account of New Zealand without requiring legislation to make it so. The value of sterling was translated by the New Zealand Colonial Government accepting only things that represented sterling as valid payment (Bedford, 1916). Things represented in sterling might include Bank of England banknotes, British gold sovereigns, or things locally authorised as representing sterling such as Fitzroy's debentures, or bank-credit such as banknotes which are the subject of the next chapter.

This section showed how moneyness was assembled in relational practices of tax. In processes I am calling imposing, the state solved the problem of paying for things it needed. This was accomplished in part by first, imposing tax liabilities which supplemented revenue from land sales, redirecting financial value toward the state as income and redirecting work toward the state by making people unemployed in terms of needing work that paid in something which redeemed them from their tax

obligation. Second, tax made it possible for the state to issue its own promises as financial credit as I showed through Fitzroy's debentures. Tax translated value into state-credit because it induced the public to trade work for state-credit promises that would be taken back and redeem them from tax liabilities and then could also be used in exchange for goods and services. Third, state-credit was made commensurable with sterling as the unit of account by making sterling and things that were authorised as representing it, the only things that would be accepted in payment at government offices.

Imposing tax and accepting state-credit promises back as payment, made it possible for the state to pay for public work. Sterling as the unit of account became what most New Zealand issued financial promises became measured in. Establishing these financial relations was an outcome of how tax made state-credit and sterling commensurable so that work could be mobilised toward what the state considered was valuable. I now go on to show that this enrolled New Zealand agriculture as an important actant for the colonial economy because of international trade with Britain and this made it possible to frame the assemblage of the New Zealand dairy industry in a particular way, as a sterling accumulation machine which was important because sterling was made the unit of account through tax.

4.3 Influencing

This section shows how tax practices comparatively relieved agriculturalists from financial liabilities that were imposed on other New Zealand actors in processes I call *influencing*. I argue that this was a form of state-credit, translating value into the dairy industry as a sterling accumulation machine that eventually became recognised as the economic backbone. Accumulating sterling was important for the early financial system because of sterling having been made the unit of account, acceptable in payment to the state. The first practices of influencing I demonstrate, show that tax influenced the way that New Zealand agricultural land should be used, translating value into small holdings by

policies of breaking large estates up through graduated land taxes and targeted tax exemptions that benefitted small holders. As well as other land uses, small holdings were useful in influencing dairy farming to be taken up. Next, I show how the state used tax concessions and exemptions to influence the growth of dairying, translating value into it as a co-operatively organised industry. These influencing tax practices are the work of assembling moneyness relations that made state-credit, small holder land values and agricultural commodities stably commensurable with sterling. The New Zealand dairy industry as a sterling accumulation machine was an effect of how these relations were stabilised by tax.

4.3.1 Influencing land use

The first practices of influencing in this section show how land and property taxes were used as state policies for breaking up large rural estates, and how exemptions from land and income taxes translated value into smaller holdings suitable for dairy farming. Previously I discussed how the project of imposing a Land Tax failed to cohere in the 1840's, Governor's Fitzroy and Grey both abandoning the idea. The effects of tax I argued in the previous section were to arrange relations that provided the colonial state with revenue, provide it with work, enable it to issue state promises as credit and stabilise the unit of account. Here I focus on another effect of tax which is for the state to influence how resources are used, solving the dilemmas of unproductive agricultural land and unproductive settlers.

The project of instituting a land tax began again in 1877. Charles Woolcock, MP for the West Coast electorate of Grey Valley, argued for a land tax because customs duties, as the dominant source of state revenue, were disproportionately born by the 'poorer classes'. Woolcock calculated that 'out of 12.8 million acres of alienated Crown land just one hundred and twelve individuals held 7.7 million acres'. Furthermore, 10.6 million acres of Crown land was 'unimproved' and Woolcock thereby concluded that a 'large proportion of land is being held for speculative purposes'. Public

infrastructure works of the 1870's had increased land values by which 'landholders have greatly benefited' and Woolcock juxtaposed this against 'the poor man's sugar being taxed at 25% and his tea over 30%' (Woolcock, 1877, pp. 228, 229). A name we shall encounter more prominently in the next chapter, Thomas Russell, was attacked in the House as an example of a large landowner that had gained their holdings 'under dubious circumstances' (Goldsmith, 2008, p. 59). The argument was that customs duties were regressive and that it would be better to tax land speculators that had accumulated land and then let it lay unimproved.

The Land Tax Act 1878[6] was imposed after arguments such as Woolcock's were met with approval in the House. The Land Tax would be levied at just a halfpenny in the pound (0.2%)[7] on the unimproved value of land over £500. In 1879, the Hall Ministry broadened the Land Tax to a Property Tax with

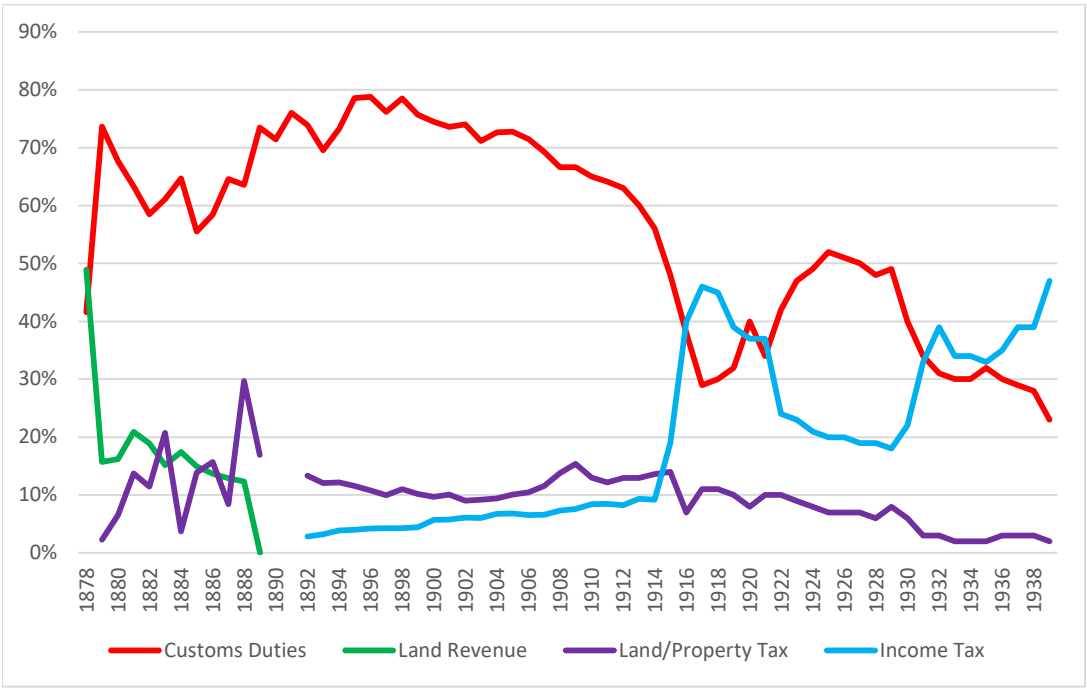

Figure 5 - Sources of Colonial Government Revenue 1879-1939. Adapted from data in Goldsmith (2008, pp. 71, 102, 115, 136, 157, 183).

[6] The New Zealand colony was granted self-government through the New Zealand Constitution Act (1852). Operationalised in 1853, this meant New Zealand parliament could create laws independent of the British House of Commons.

[7] At the time there were 240 pence (d) per £ (20d per shilling, 12 shillings per £).

the Property Assessment Act 1879. The number of possessions that became taxable property increased, as did the rates doubling to 1d per £ (0.4%). This was a response to plummeting Government land sales that went from £1.455m in 1878/79 to £270,000 in 1879/80. During the 1890's the Property Tax and other taxes were all subordinated to Customs Duties as the main source of government income as shown in Figure 5[8].

The John Ballance led Liberal Party campaigned during the 1890 General Election on a platform of going back to just the Land Tax. Ballance's speech announced that 'in the interest of the smaller farmers he would exempt improvements up to the value of £2000' (Wanganui Herald, 1890, p.2). The subsequent Liberal Government introduced a tax architecture within the Land and Income Tax Assessment Act (1891), with subsequent legislation introducing the rates to be levied. The Land Tax was split into a 'graduated land tax' and an 'ordinary land tax'. The ordinary land tax was 1d per 1£ (0.4%) on the capital value of all land, less the value of improvements up to £3,000, less mortgages owing. This threshold being more generous to small farmers than the £2,000 Ballance had originally advocated. The graduated land tax was 'particularly favourable to small farmers' where if their land value was less than £1,500, then a £500 exemption applied to their taxable incomes (Quigley, 1989, p. 57).

Graduating imposed increasing rates ranging from 1/8 d per £ (0.05%) on the unimproved land values below £5,000, to 1 and 6/8d per £ (0.73%) on unimproved land values in excess of £210,000 (Barrett & Veal, 2012, p. 577). The 1967 Ross Report on taxation in New Zealand[9] concluded that the graduated land tax 'served a social purpose in acting as an inducement to the breaking up of unduly large land holdings' (Ross, 1967, p. 413). These large estates were seen as speculative investments

[8] Gap in Land/Property Tax data for 1890 and 1891 explained in Goldsmith (2008, p.360 note 76) as having been bundled together in official statistics with other Post Office revenue in these years.
[9] The Ross Report was the outcome of appointing Lewis Ross, an accountant, as chairman of a Government Taxation Review Committee in 1966. The review was arranged in recognition of the much wider role of taxation than simple Government revenue and explored what sectors of society might be encouraged to innovate while maintaining 'a more equitable distribution of income' (Ross, 1967, p. 13).

rather than being productively worked. The state sought to influence the breaking up of estates into smaller holdings with the graduated land tax levied on estate holders with unimproved values, and exemptions for small holders. Increasing levels of agricultural production by enrolling more people as small holder agriculturalists was needed, I argue, to accumulate the sterling that was required by virtue of having sterling as the unit of account that was acceptable in payment to the state.

To underline the state's desire to influence the more intense use of agricultural land in small holdings from the 1890's, Ballance outlined his remedy in case of disputes. The Government could compulsorily acquire land from those estates that underestimated the value of their land in the opinion of an 'assessor' and therefore paid too little tax, 'but if the owner accepts the valuation, then, of course, that is the valuation on the land and the land is not to be taken' (Ballance, 1891, p. 97). Farmers were to be exempt from the income tax portion of the Act, and Quigley (1989) argues that this sped up the settlement of rural areas.

State encouragement for breaking up large estates continued in the new century. Prime Minister and Colonial Treasurer, Joseph Ward, explained during the parliamentary debate of his Land and Income Assessment Act (1907) Amendment Bill, that the goal was to further 'induce the holders of large estates to cut up at least portions of them to make them available for the settlement of people'. Ward tabled statistics to show that since 1891, total owners of estates over 10,000 acres had only dropped from 262 to 204 (J. Ward, 1907, p. 36). To accelerate this break-up the Bill incorporated higher levels on the graduated scales of tax for unimproved value, absentee owners would be charged a 50% premium at each scale, and from 1910 all land except 'business premises' would be charged an extra 25% per annum on each scale over £40,000 land value (Goldsmith, 2008, p. 115).

James Allen, first Minister of Finance for the Reform Government after twenty-one years of the Liberal-Labour coalition ministry, delivered a budget in 1912 that was designed to squeeze the

estate owner yet harder. The small farmer with land values under £5,000 still paid nothing. The smallish farmer with land valued under £30,000 paid less under each graduated scale than they did under Ward's tax. The large farms, of which the new starting threshold was land valued over £30,000 rather than Ward's £40,000, had their graduated scales increased and then Ward's 25% surcharge was added on top of those (Allen, 1912, p. 1).

During WW1, Ward required farmers to pay income tax for the first time and land tax at elevated levels although an exemption on the first £300 of taxable income shielded many small farmers from paying. Ward included farmers because 'large profits had been made' as a result of rising commodity prices in WW1 and the guaranteed demand from the British 'commandeer' of all New Zealand produced agricultural commodities, so farmers 'should not grudge' to 'help defray the costs of war' (J. Ward, 1915, pp. xxvii - xxx). The 'Imperial Commandeer' was Britain taking all agricultural commodities produced by New Zealand for export during WW1 (Ministry for Culture and Heritage, 2016). In 1917, higher rates of graduated land tax were again imposed on farms, although small farms 'of low value and subject to mortgage', were exempt on paying tax for the first £1,000 where the unimproved land value did not exceed £3,000 (J. Ward, 1917, p. xxiv).

Prime Minister Massey nicknamed 'Farmer Bill' demonstrated the commitment of the state to breaking up large estates and to make them work in producing agricultural commodities that could be traded for sterling. He instituted a 50% surcharge on unimproved land in the Land and Income Tax Amendment Act (1920) saying 'with an enormous amount of money to find, we cannot allow land to lie idle' (Massey, 1920, p. 237). Idle land problematised the large estate in terms of accumulating money and specifically sterling measured money made valuable in reference to the unit of account. Massey, living up to his nickname then removed farmers from paying income tax in 1923 arguing that it 'was a war tax and never intended to be permanent', that 'farmers are not accountants' and the tax return 'process was irritating' to farmers who should be using that time to

produce food (Massey, 1923, p. 28). Income tax for farmers lasted just eight years and small farmers were largely exempt throughout, even when the state was at war.

Ward came out of retirement to lead the United Party into power in 1928 (Goldsmith, 2008, pp. 159, 160). He blamed 'the neglect to foster land settlement' for the worsening crisis that became the Great Depression. To remedy this, Ward announced that 'the Government intends to proceed resolutely with the cutting-up of large estates suitable for closer settlement' (1929, pp. 19, 20). Ward placed a 'super tax' of 50% on lands with unimproved value over £15,000, increasing to 100% on unimproved values over £30,000 (J. Ward, 1929, p. 26). After Ward's death, the graduated land tax was repealed and replaced by a flat land tax, Minister of Finance William Downie Stewart explaining that it was to 'avoid a national disaster in a general breakdown of the farming industry' (Stewart, 1931, p. 1).

Rodwell (1936, pp. 217-219) concludes that the history of the Land Tax 'contributed in an unassessable degree to the break-up of large estates' but 'through its exemptions, removed all tax obstacles to the development of small farms'. The Land Tax had supplied 12.6% of government revenue by 1908 but then began to dwindle as a proportion. Income tax grew in importance, with land tax accruing only 2% of tax revenue by 1939 as shown in Figure 5. The diminishing revenue from the Land Tax might be seen as a measure of its success in deploying land resources into smaller plots (Goldsmith, 2008, p. 183). Exemptions on the value of small plots in land and property taxes was a permanent feature of tax between the 1870's and 1930's. Exemptions for small farmers from paying income tax had been the status quo from 1891, except between 1915-1923 and lasted until 1941 where again, war time needs necessitated the most broad application of income tax which included farmers and this has remained to this day (Savage, 1939, p. 12).

Between the 1870's and 1930's, land and incomes taxes were used by the state to influence land use and solve the dilemma of unproductive land which was not as valuable as it might be in

accumulating sufficient sterling. Tax translated financial value into smaller agricultural land holdings in two ways. First, by graduating taxes to be more onerous on large estates, owners were encouraged to subdivide into smaller holdings. Second, by providing tax exemptions for small holder farmers and encouraging small holder agriculture. A small land holder was an apt description for most dairy farmers by 1936 with the average size holding being 105 acres for dairying as opposed to the average sheep and cattle holding of 1,750 acres (D. O. Williams, 1936a, p. 32).

Some farmers getting to not pay taxes that applied to other taxpaying actors, I argue, is moneyness translating value into small holder agriculture and making agricultural land values, agricultural commodity values and sterling as unit of account, stably commensurable. This stabilised small holder agriculture at a time when the New Zealand dairy industry was being established. The dairy industry was becoming valuable at accumulating sterling as unit of account, acceptable as payment of taxes and accepted as payment in exchange for exporting agricultural commodities to Britain as the world's major terminal market. These assemblages of relations I call moneyness stabilised the dairy industry as credible, and once credible it was influenced to organise in a particular way.

4.3.2 Influencing the growth of the co-operative dairy industry

Influencing small holder agriculture through tax concessions just as dairy was emerging as a sterling accumulation machine, translated financial value into land suitable for dairying. This section shows how tax influenced the dairy industry to organise into a system of cooperatives by proportionally leaving them with more tax credits as capital because of tax concessions. The co-operative dairy industry was directly influenced through tax concessions starting in the late 19th century and continuing through to the 1980's, initially because of its value as a sterling accumulator.

The cooperative dairying system was advocated by agents of the state such as Mr. John Sawers, Chief Dairy Instructor to the New Zealand Government. In his 1891 seasonal report he delivered

twenty-five lectures, the subject of 'eighteen of these addresses were on the benefits of co-operative dairying' (Sawers, 1891, p. 1). The co-operative basis of dairying with 'all shareholders being milk suppliers, and not outsiders pecuniarily interested' would apparently create 'a spirit of good-will and friendly emulation' (Sawers, 1891, p. 9). Co-operative dairying he thought had the potential to rival the 'extraordinary productivity gains of the international frozen meat trade' and 'the extraordinary prosperity of American and Danish dairying' (Sawers, 1891, p. 16). Given the market for nearly all shipped dairy goods was Britain, co-operative dairying was measured as productive I argue, by being good at accumulating sterling, the unit of account.

This possibility of dairy accumulating sterling meant the industry was directly encouraged to invest by tax exemptions which influenced dairy industry growth. For co-operative dairying profits, the Land and Income Tax Assessment Act (1900) provided a 'general exemption from tax' to 'any co-operative dairy-factory company formed for the purpose of manufacturing milk' if the total amount of the exemption was redistributed to shareholders. This was extended under the Land and Income Tax Act (1916) where a total tax exemption for the 'income of a co-operative cheese-factory or butter-factory' was applied irrespective of whether that income was derived from manufacturing milk and irrespective of whether the value of the exemption is redistributed to shareholders or not.

Mr. Anstey, Member of Parliament for Waitaki, complained that this complete exemption for dairy co-operatives from tax should be extended to all co-operative's, such as the Canterbury Farmers' Cooperative Association, a stock and station company for which he was a shareholder. Anstey, referring to the WW1 'commandeer' said that although it is suitable to incentivise co-operatives that are producing resources for the war 'it seems unfair that the people making the largest profits should be exempt for tax' (Anstey, 1916, p. 223). While I previously mentioned the 'Imperial Commandeer' of agricultural commodities from New Zealand to Britain during WW1 in relation to the land tax (Ministry for Culture and Heritage, 2016), here I include it for its impact on cooperative's

income tax. Advantageous prices secured for butter and cheese saw average butterfat pay-outs increase 75% during the war. Mr. Ellison, Chairman of the National Dairy Association exclaimed in his address to their 1915 conference that 'we have had prices unheard of or undreamt of due to the fact the Empire is engaged in war' (A. H. Ward, 1975, p. 30). The Land and Income Tax Amendment Act (1920) repealed the income tax exemption for co-operative dairies, because a post-war boom saw butterfat prices rise a further 41% between 1919 and 1920.

However, the 1921 then season saw a 53% collapse in average butterfat payouts when a simultaneous tsunami of dairy products hit London markets in 1921-22 after a bumper season in New Zealand and with northern hemisphere dairy production normalising post-war (A. H. Ward, 1975, pp. 48, 49). Cheese and butter prices being elevated by the war and its aftermath had 'reinforced the tendency towards land speculation' (Dairy Industry Commission, 1934, p. 13). As prices stabilised at these newly reduced levels the inflated values of agricultural land due to post-war speculation, threatened the solvency of farmers and land speculators alike. As a result, The Land and Income Tax Assessment Act (1925), other than allowing relief from income tax for farmers facing hardship, saw dairy co-operative income tax exemptions on profits from manufactured goods restored. The Land and Income Tax Assessment Act (1935) extended the exemption of dairy co-operative tax to include pig co-operatives that were seen as an extension of the dairy industry, which used milk by-products such as whey to fatten pigs.

Other than piggeries, throughout the 1920's and 1930's, dairy co-operatives had established other offshoot businesses like retail trading departments for farm products and freight carrying entities. Unlike the milk manufacturing profits of co-operatives, the profits of offshoot enterprises were fully taxable since 1925, but their surpluses were kept artificially low by having costs transferred to them by the manufacturing department. Furthermore, this loading of costs meant larger manufacturing margins, enabling the representation of an inflated butterfat payout. This attracted suppliers from

neighbouring companies, crucial for keeping manufacturing assets at full production (A. H. Ward, 1975, pp. 170, 171). This predated the heightened competition for milk supply which saw the dairy industry rationalise as unpacked further in Chapter Six.

Shifting profits between manufacturing and trading facilities was halted in the Co-operative Dairy Companies Income Tax Regulations (1955). From then 'co-operatives must pay tax on any creation or extension of trading facilities above the amounts already invested' (A. H. Ward, 1975, pp. 170-171). This was seven years after the Crown Law Office issued an opinion that dairy co-operative profits that were not distributed, should be fully taxed, but the Commissioner of Inland Revenue decided to ignore the advice and they remained exempt (McDonnell, 1968, pp. 9-11).

Tax concessions to dairy co-operatives and small holder farmers were a near permanent feature of the assembled relations of moneyness which stabilised the dairy industry as an effect through until the 1980's. As well as concessions, farmers were influenced to invest through their ability to deduct expenses against taxable income along with other agriculturalists. For instance, the New Zealand Income Tax Act 1976 allowed capital expenditure on land development to be fully or partially tax deductible in the year it was spent or could be carried forward to offset future income over nine years (J. King, 1990, p. 81). Investment allowances for new equipment could be made in the year they were purchased and then depreciated after that. For instance in 1978, 40% of the cost of a new tractor could be deducted from income in the year it was purchased and then depreciated at 20% per year meaning that 20% of the reduced value of the tractor could be offset against farm income for tax purposes (Davey, 1978, p. 35).

Livestock could be valued for tax purposes at a 'standard value' produced by the Inland Revenue Department which was usually lower than market value. The difference between the standard value and the market value was a tax-deductible expense. For example, a milking heifer could be brought for $200 where the 'standard value' set was $100, and the $100 difference would offset taxable

income. These examples sit alongside other tax incentives such as 'the income equalisation scheme' and 'export incentives' as tax credits against income (J. King, 1990, p. 81). As a consequence, the dairy industry, along with other agricultural undertakings were encouraged to invest in the decades after WW2 by having various investments offset against taxable income.

Having covered co-operative dairy tax concessions, dairy farmer tax concessions and deductible expense exemptions, various iterations of the Dairy Board are also now included. The Dairy Board's revenue was tax free, and I will show that this benefitted the cooperative dairy industry because of the way it gradually took control of the Dairy Board. This made it possible for state credit to be transmitted as loans from the Dairy Board to the dairy industry as unpacked in the next chapter.

The Dairy-produce Export Control Act (1923) established the monopoly power of the state to 'effectively control the export, sale and distribution of New Zealand dairy-produce' via the newly established Dairy Control Board. This Board had two 'Government' and nine 'Producer' representatives. This was a result of the post-WW1 commodity price recession and seen as a way to achieve higher export prices by not having Co-operatives undercutting each other on prices in London markets. The Agriculture (Emergency Powers) Act 1934 established the New Zealand Dairy Board, increasing the Government representatives to three as result of the Great Depression making the Government 'seriously concerned with the economic position of all primary industries' (A. H. Ward, 1975, p. 89). These tightening relations between the dairy industry and state, recognised the increasingly volatility and precariousness of dairy commodities to acquire the necessary sterling as still the unit of account that would be taken in payment by the state.

The severity of the Great Depression on relations that had stabilised into the financial system, saw the Primary Products Marketing Act (1936) institute a new Primary Products Marketing Department into which the existing New Zealand Dairy Board was absorbed. This Department set 'guaranteed prices' and took ownership of all dairy produce when it was loaded for shipping because 'the public

interest of maintaining the stability and efficiency of the dairy industry' was a primary consideration outlined in the Act. This public interest I have argued, was to accumulate sterling as the unit of account.

The Dairy Products Marketing Commission Act (1947) later established a Commission to set guaranteed dairy prices and to market all New Zealand dairy produce overseas. The Commission was tax exempt under the Act (1947) and when the Dairy Production and Marketing Board Act (1961) recombined the functions of the Commission and the Board under the New Zealand Dairy Board, this tax exemption remained (Lind, 2013, p. 38). Directors of the Board would come from two government representatives and eleven dairy industry elected officials. Industry actants were gradually able to assert greater levels of control over the New Zealand Dairy Board. Between 1935 and 1961, industry representatives had grown from four of seven, to eleven of thirteen Board members. Tax exemptions for the Dairy Board were a form of finance that translated value into the dairy industry. This is because the Dairy Board was allowed to keep more investible capital from its commercial activities and because the cooperative dairy industry came to control the Dairy Board. In the next chapter I show how this investible capital was used to directly finance the co-operative dairy industry through the work of loans.

This section has shown that the assemblage of moneyness from which the dairy industry has been an effect, was stabilised through influencing practices in the work of tax. The state used graduated land taxes and tax exemptions for small holders to influence land use and I argue these were forms of indirect state-credit. This allowed small holder agriculturalists, many of whom were undertaking dairying, to retain comparatively more investable capital than other taxpayers. Tax concessions then directly influenced a co-operatively organised dairy industry to grow with tax exemptions for co-operative dairy companies, their farmer shareholders, their farms, and what substantially became their Dairy Board. This section shows that influencing through the work of tax was implemented in

response to various predicaments which changed land use, encouraged co-operative organisation, mitigated commodity price volatility, combatted economic depression and fed wars. Tax influenced financial value, small holder agricultural land values and milk commodity values, making them commensurable to each other and initially, with sterling as the unit of account. Tax work was crucial to the stabilisation of relations which assembled the dairy industry as an effect because it solved various state problems as a sterling accumulation machine.

4.4 Reworking

The work of tax had enabled the assemblage of relations which helped the dairy industry to establish and adapt in response to different challenges. I have argued that this was encouraged because it accumulated the sterling that the New Zealand financial system needed because state-credit was made convertible to sterling and sterling was accepted in payment to the state. I will show in the next chapter that bank-credit was made commensurable to sterling because it was convertible too. The economic reforms of the 1980's transformed the way tax practically arranged relations between the state and dairy industry and these came after changing the unit of account. *Reworking* moneyness meant that the dairy industry faced different problems to the way the relational architecture was stabilised. I will follow a particular thread to show how reworking the unit of account, changed how tax functioned to solve the problem of state revenue, which changed one way in which state-credit issuance was limited. These also changed how financial value to the dairy industry was transmitted through tax concessions. The reworking of these relations by changing moneyness, changed how financial, land and milk values were made commensurable in stabilising the dairy industry. This meant the dairy industry turned increasingly towards bank-credit for finance, the subject of the next chapter and a differently organised form of cooperation, the subject of Chapter Six.

4.4.1 Reworking the unit of account

New Zealand had instituted a fixed sterling exchange rate regime, in part, by imposing tax liabilities in sterling from 1840 and from 1847 only accepting sterling, or things that represented sterling as payment. The state, in the example of Fitzroy's 1844 debentures, and as we shall see in the next chapter banks, promised to convert into sterling on demand, but this underwent many modifications through reworking exchange rate regimes. Exiting a fixed exchange rate regime by floating the $NZ meant the way that tax translated financial value into the dairy industry also changed.

The value of sterling was sometimes fixed to gold in Britain, leading many to incorrectly believe that New Zealand was therefore on the gold standard. Instead 'a sterling exchange standard was in operation' (Brooke, Endres, & Rogers, 2019, p. 18). This is because 'the main monetary variables were not determined by the country's stock of gold but of sterling', an outcome of instituting the promise to convert state-credit promises like Fitzroy's debentures into sterling and collecting tax in sterling (Hawke, 1985, p. 65).

From 1844, state-credit IOU's promised to convert to sterling, but this gradually changed post-WW2. Under the Smithsonian Agreement in 1971, New Zealand elected the $US as its 'intervention' currency which formally severed the link between what had become the New Zealand dollar in 1967 ($NZ from £NZ) and sterling (Sullivan, 2013, pp. 5, 6). Instead, a 'fixed exchange rate was adopted between New Zealand and the US dollar' (Department of Statistics, 1973, unpaged). In a series of measures between 1971 and 1973 known as 'the Nixon shock', the US abandoned its promise arranged at Bretton Woods to convert certain nation state holdings of $US into gold. This triggered New Zealand to alter its exchange rate regime many times. Initially the value of the $NZ was determined daily against a 'fixed basket' of currencies consisting of major trading partners (Reserve Bank of New Zealand, 2019d) where 'the Minister of Finance declared a basic rate between those currencies and New Zealand currency' (Department of Statistics, 1974, unpaged). In June 1979 with

changes in exporters' costs brought about by widespread international inflation, the 'crawling peg' system was introduced that could adjust exchange rates daily (Hawke, 1985, p. 318; Reserve Bank of New Zealand, 2019d).

I am not going to try and show how each adjustment to these various fixed exchange regimes flowed through to tax adjustments and how these made different forms of value commensurable in relation to the dairy industry. I am signalling that these changes to fixed exchange rate regimes happened, but the relational adjustments I focus on are when New Zealand abandoned fixed regimes and therefore any promise to convert the $NZ into anything else.

The fixed exchange regime came under pressure on 15 June 1984, the day after Prime Minster Robert Muldoon announced a snap election (Easton, 1997). In a fixed regime, if there are more orders to sell $NZ and buy say $US because sellers think that the $NZ is overvalued, then the RBNZ hereafter as New Zealand's central bank would intervene and sell down its accumulated reserve of $US to balance out the demand for $US in terms of $NZ bids and maintain the fixed exchange rate. Currency traders could actively work against the RBNZ by borrowing $NZ and selling them for $US, which the RBNZ was obligated to supply because of the promise to convert New Zealand currency into foreign exchange inscribed in the 1933 legislation that formed it. In June 1984, 'suddenly the Reserve Bank found its foreign exchange reserves being run down' (Easton, 1985, unpaged).

This all happened through a broker so the RBNZ could not identify any particular counterparty. One scenario is, that if the RBNZ had enough $US in reserve, then it could outmatch the currency speculator's ability to borrow, thereby defending the exchange rate by successfully completing all $NZ bids for $US. In this case the currency speculator takes their $US, converts it back to $NZ and pays off their loans for a minimal loss. However, another scenario is that the currency speculators by borrowing $NZ and selling them for $US, results in the RBNZ's reserve of $US running out. It becomes more likely that the value of $NZ quoted in $US terms drops, as the demand to convert

$NZ into $US is unable to be supplied. If this happens the currency speculator waits for the $NZ to be devalued by the New Zealand Government, so exports can remain competitively priced overseas, and converts their $US back to $NZ at the devalued rate, their $US now being worth more by whatever the rate of devaluation was (Khan, 2012)..

In the four weeks leading up to the 1984 snap election, $1.4b $NZ had been exchanged into other currencies, which was as much as the RBNZ usually exchanged in a year. A speculative attack on the $NZ was underway. Because of New Zealand operating a crawling peg type fixed exchange regime, the RBNZ didn't just run out of $US, but many foreign trading partners currencies including Japanese yen, German deutschmarks, Australian dollars, sterling and so on (Easton, 1985, unpaged). Four days after the general election new Prime Minister David Lange announced that the $NZ would be devalued 20% against a range of currencies for which the RBNZ promised to convert into[10]. Lange's Finance Minister, Roger Douglas put the cost of speculation and subsequent devaluation at $700m (Roger Douglas & Callan, 1987, p. 136). Ray Smith of Auckland Coin and Bullion Exchange (Later Goldcorp) was a licenced importer able to buy foreign exchange from the RBNZ. Smith had borrowed $6m NZD and exchanged it for $US. After devaluation 'we made a clear $1.2m NZD out of our currency position' when returning the $US into the newly devalued $NZ (Smith, 1994, pp. 71, 72).

While commercial banks and producer boards could access foreign exchange at the exchange rates quoted by the RBNZ, other businesses and households in the economy had to rely on commercial banks as financial intermediaries. As well as protecting against further speculative attacks, then Finance Minister Roger Douglas used commercial bank margins to undermine the logic of the fixed exchange arrangement, because New Zealand 'banks would charge 80-100 [0.8-1%] basis points

[10] The process of devaluation was not simply an announcement by Lange but a politically contested and precariously negotiated process (see Wynyard, 2016, pp. 230-234 for more detail and associated references).

where the rest of the world were getting 10-12 basis points [0.1-0.12%]' as a fee to exchange (Roger Douglas & Callan, 1987, p. 138).

Eager to avoid another speculative attack and to defray the costs of excessive bank margins to convert foreign exchange, Douglas recalls that 'most of the work to enable a float to be put into practice had already been done years before by officials in the Reserve Bank and Treasury'. The New Zealand dollar floated on 4 March 1985 (Roger Douglas & Callan, 1987, p. 137). The value of the New Zealand dollar has since been determined by private buyer demand and seller supplies of NZ$ quoted against other currency pairs.

The exchange rate regime went from translating value into sterling as the unit of account into the free-floating New Zealand dollar as the unit of account. I now go on to show that changing the relational architecture through reworking the exchange rate regime, changed a key relation that limited state-credit issuance. I then go on to show that because these changes are related to other commensurable sets of value such as financial, land and milk values, changes to the exchange regime changed how value was translated into the dairy industry through practices of tax concessions.

4.4.2 The different problem of state revenue

This chapter, started with the problem of how to provide the state with the revenue it needed to pay for things and induce work to happen. Imposing tax helped solve this problem as income and it made state-credit IOU's possible as tax credits measured in sterling, which was made the unit of account because it was the only thing accepted in payment to the state. These associations then promoted the growth of the dairy industry as a sterling accumulation machine through influencing tax practices. Reworking the exchange rate regime, changed how the problem of state revenue

could be solved by changing a key constraint on the state issuing different forms of state-credit. I will now illustrate this through how the RBNZ describes the functions of settlement cash.

Reworking the exchange rate meant that issuing state-credit has since been unconstrained by the promise to convert into anything else[11]. Former RBNZ employee Rodney has a nuanced view of how state-credit now pays for things, 'rather than saying taxes pay for government spending, I prefer to say that they make room for government spending' (Rodney, interview).

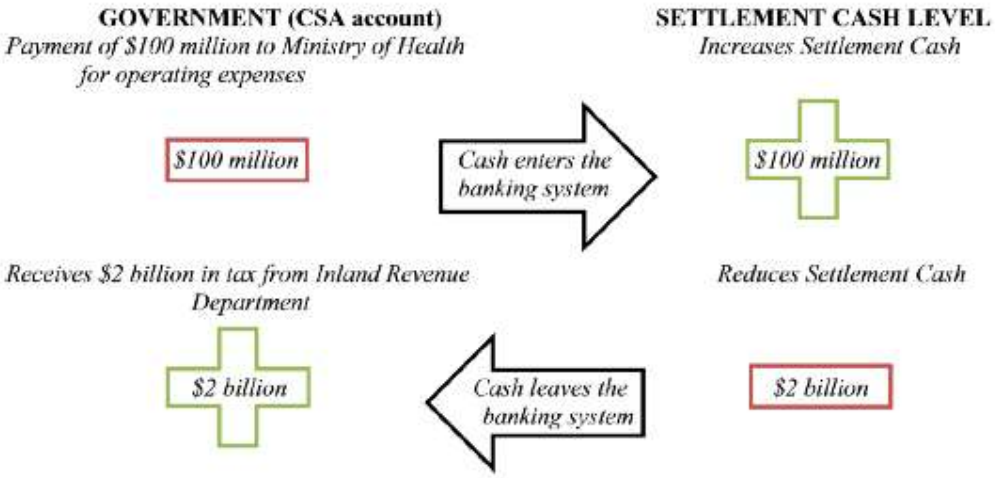

Figure 6 - Cash flows and settlement cash level through the injection and withdrawal of vertical money (Parekh, 2016, pp. 5, 6).

RBNZ Adviser of Markets Policy and Frameworks, Sandeep Parekh (2016) clarifies this by outlining the sequence of government spending and taxing operations that the RBNZ achieves on behalf of the state. In Figure 6, government spending is 'cash entering the banking system'. The process starts when parliament passes an appropriations bill which triggers another government agent, the Treasury, to coordinate with the RBNZ to electronically credit settlement cash to the Exchange Settlement Account System (ESAS) account of a commercial bank, up to the amount outlined by the

[11] This is not the same as saying the state is not constrained by other things in issuing credit. Political conventions like the Public Finance Act, inflation, inflation expectations and the amount of resources including labour being available for purchase in $NZ, are all limits albeit some are self-imposed.

appropriation. An ESAS account is an account that commercial banks are obliged to maintain at the RBNZ and 'settlement cash' is a special type of state bank-credit measured in $NZ and contained only in ESAS accounts. Banks use this to settle payments between themselves and the Government. Settlement cash was previously called 'reserves' hence the name Reserve Bank. Only the RBNZ and financial institutions holding ESAS accounts can use settlement cash (Parekh, 2016).

State-credit issuance by electronically crediting settlement cash is accompanied by instructions to make funds in that amount available to the deposit account of the payee that the government wishes to pay. In Figure 6, Parekh (2016, p. 6) uses the example of the government wishing to provide the Ministry of Health with $100m for operating expenses. The state does so by crediting the ESAS account of the commercial bank where the Ministry has a deposit account, with $100m in newly created settlement cash. The bank then makes $100m of bank-credit available to the Ministry in a normal bank deposit account. The RBNZ creating new settlement cash is a form of state-credit.

Importantly Parekh (2016) still links this to tax as the reverse happens when the Inland Revenue Department (IRD) collects $2b in tax from various private sector actors, which results in the ESAS account of the bank where the IRD holds its deposit accounts, being debited by $2b of settlement cash. Just taking these two sets of transactions as being the only injections or extractions in a given time period, the money supply will have decreased by $1.9b as defined by the Reserve Bank of New Zealand (2019e) 'monetary aggregates' statistical tables.

'Money is destroyed as soon as taxes are paid to the government' (Rodney, interview) in that when taxpayer accounts are debited the RBNZ says that 'this leads to a reduction in the amount of broad money', that is, it is no longer counted in the money supply statistics (Vandenberg, 2020). 'Broad money' is 'the sum of all liquid financial instruments held by money-holding sectors that are widely accepted in an economy' (Reserve Bank of New Zealand, 2019e), examples of this include settlement cash in ESAS accounts; demand deposits and term deposits in commercial bank accounts; paper

currency and coins in people's wallets and business cash registers; government securities on issue with a maturity of less than two years in securities accounts; and so on. Taxpayers' money now, ceases to be counted as money as soon as it is taxed.

Reworking the exchange rate regime by floating the $NZ translated different value into state-credit by removing a limit to it. One form of state-credit is settlement cash and by floating the exchange rate, issuing it is unconstrained by having to convert into anything else. Today, tax when paid is no longer counted in monetary aggregates so cannot be used to pay for things that the state wants. Instead, new state-credit is issued in the form of settlement cash. This is not only due to floating the exchange rate but also by the institution of the RBNZ in 1934 which will be unpacked in the next chapter. Another purpose of tax has not changed, imposing tax liabilities still creates a demand for the unit of account, inducing the public to trade work for that unit and making state-credit valuable in that unit of account, now solely measured in the free-floating $NZ. Changes from reworking the exchange regime by floating it resulted in a change to a limit on state-credit which no longer promised to convert. No longer promising to convert meant that dairy industry relations to the financial system changed. I will show this reworking first, with how tax concessions were withdrawn from the dairy industry in the next section and then, I show how bank mortgage finance and cooperative share capital finance also changed in the next two chapters. I am not arguing a direct causation between changing the unit of account which necessarily changed how the dairy industry was treated for tax, but what I am arguing is that changing these relations of moneyness changed how value has been translated in the dairy industry.

4.4.3 Reworking tax

The removal of the promise to convert by floating the exchange rate changed the relations which traditionally translated value into the dairy industry as an accumulator of foreign units of account that redeemed the state, and in the next chapter banks, from the promise to convert. This coincided

with reworking how the dairy industry was treated for tax. Floating the exchange rate removed what I argue had been a special reason for the state encouraging the dairy industry, to accumulate the sterling and then foreign exchange that the financial system had promised to convert into between at least 1844 and 1985.

Large reforms of the New Zealand tax system proceeded between 1985-1989 and many of these affected the agricultural industries. Finance Minister Roger Douglas stated that 'the tax system should not create artificial distinctions between companies and other forms of business' (1985, pp. 3, 4). The first policy that begins the transformation of the tax system to remove these distinctions, targeted at the agricultural sector, was the 'termination of development expenditure tax concessions with effect 31 March 1986' (R. Douglas, 1985, p. 7). This reduced the ability of farmers to translate tax exempt capital into improvements that enhanced their farm's value.

Another major tax change concerned valuing livestock for tax purposes. While farmers could still apply the 'standard value' that I previously described as set by the IRD, the difference was that 'new standard values would be set at more realistic levels and updated annually to reflect changes in livestock prices' (Preface by R. Douglas, Minister of Finance in Brash, 1986, p. 5). No longer would an artificially low 'standard value' be set for livestock that could be used to reduce taxable farm profits which translated more financial value toward dairy farming as profitability and then into dairy farmland values as the next two chapters expand upon.

The Government had signalled in 1985 that marketing boards like the Dairy Board would transition away from being tax exempt (New Zealand Dairy Board, 1988a, pp. 2, 4). In December 1987, cabinet announced an inquiry into the tax-free status of producer boards. The Dairy Board argued in their Dairy Exporter magazine that 'the dairy industry evolved in response to legislation which recognised and accepted the industry commitment to development of the co-op structure. Tax reform should recognise the basis on which the dairy industry was built' (New Zealand Dairy Board, 1988b, p. 30).

In other words, the state translated value into the dairy industry as a sterling accumulation machine with tax advantages which favoured a cooperative system, the industry developed on this basis and this restructuring was an unfair change.

Arguments such as these did not dissuade the Government from reworking how the dairy industry was treated for tax. The Income Tax Amendment Act (No 5) 1988 section 33 was titled 'income of primary producer boards, marketing boards, and milk treatment companies and corporations no longer exempt from tax'. As well as Dairy Board tax free status being removed, the Act removed the tax-free status of 'primary producer co-operative companies' that had existed in one form or another since 1900. Minister of Revenue Trevor de Cleene, proclaimed that 'the income of primary producer and marketing boards and milk treatment co-operative companies is to be made subject to tax' (de Cleene, 1988, p. 374). This reduced the ability of co-operatives and the Dairy Board to translate value into their activities. The increase in tax liabilities reduced available profits for re-investment or for paying to shareholders as dividends and milk-price.

The change in relations between the state and the dairy industry connected with the non-voluntary obligation for paying tax, had transitioned by 1 April 1988, when all dairy actors received treatment equitable to other private sector business actants, in relation to tax. J. King (1990, p. 92) concluded that 'by changing the tax considerations associated with primary sector investment, decision making is now based more on real or projected marketplace returns'. The value which had been translated into the dairy industry through tax exemptions, was changed in practices of 1980's reworking. Value would theoretically be translated into the dairy industry through operating in the competitive environment of efficient marketplaces which I will go on to explain over the next two chapters, has changed how other financial relations such as mortgage finance and share capital have been valued.

This section has shown how practices of reworking changed how the dairy industry was treated for tax in the 1980's. Floating the exchange rate in 1985 reworked how relations of state-credit

translated financial value to the dairy industry through the work of tax. State-credit was no longer limited by having to convert, which had functioned to limit state-credit issuance since at least 1844. Another reason for tax remained stable because taxes must still be imposed to make state-credit valuable by creating a demand for the unit of account that can be used to extinguish tax obligations. Because of the change to the unit of account, the dairy industry was no longer required by the state for the purpose of collecting foreign exchange for the reason of the financial system promising to convert $NZ[12].

Reworking the exchange rate regime changed the relations between the unit of account, state-credit, and the dairy industry, which tax had helped practically arrange. For the dairy industry, tax concessions enjoyed by the Dairy Board and dairy co-operatives were removed after nearly a hundred years of being provided as a form of state-credit because the dairy industry collected units of account that the financial system variously promised to convert into. I have shown a few ways that the removal of tax concessions for development expenditure and livestock valuation effected dairy farm profitability, as well as the removal of the Dairy Board and Cooperative Dairy Company tax exemptions, which reduced the available profits for reinvestment or payment to dairy farming shareholders. These changes in relations foreshadow other changes that I will argue made dairy farming value differently commensurable as shown throughout the next two chapters.

4.5 Conclusion

In this chapter I have shown how the assemblage of relations I have analysed as moneyness was practically accomplished through the work of tax. This work translated commensurable forms of

[12] I am not arguing that earning foreign exchange is not crucial, just that the moneyness relations from which the dairy industry is an effect, changed when the financial system no longer promised to convert. Earning foreign exchange is asserted as still crucial to national economies as theorised by models such as the Purchasing Power Parity Model, Monetary Model, Interest Rate Parity Model and Dornbusch Model. However, these models all face the same two problems. First, they uncritically accept money as just a neutral commodity that facilitates trade flows, which I am arguing is uncertain. Second, that trade flows vastly outweigh capital flows, which is opposite to all the available evidence (J. T. Harvey, 2009, pp. 15-33; Meese & Rogoff, 1983).

value which stabilised the New Zealand dairy industry as an effect. I demonstrated through processes that I called imposing, influencing and reworking, how some key relations were made possible by tax which did the historically changeable and spatially negotiated work of assemblage.

My moneyness analysis showed how from the 1840's, *imposing* tax solved the problem of revenue for colonial New Zealand but also made sterling the unit of account by measuring what was solely acceptable in payment to the state. Tax also meant the state could issue state-credit representing the unit of account, like Fitzroy's sterling measured and convertible debentures, because it could be used in payment for extinguishing tax liabilities. The promise to convert state-credit into sterling meant that some way of gathering sterling was important for the financial system, and the dairy industry began doing this as a sterling accumulation machine.

The state used tax for *influencing* the breaking up of large estates into what were considered by the state, more valuable smaller holdings which became suitable for dairying. The state used tax concessions to then influence dairying to organise as a predominantly co-operative industry.

The *reworking* practices of changing exchange rate regimes and floating the $NZ meant that the relations of tax to state-credit changed. State-credit such as settlement cash is no longer limited by promises to convert as outlined by the RBNZ, which meant the dairy industry no longer accumulated foreign units of account for this purpose. Tax still creates a demand for state-credit and can still influence social and economic behaviour. These changes in relations of moneyness coincided with but did not necessarily cause, state-credit via tax concessions for the dairy industry being withdrawn.

Tax as a set of moneyness practices have assembled relations in New Zealand between the 1840's and today. The work of tax has been shown here in processes of imposing, influencing and reworking through following changes in relations that have translated different forms of commensurable value such as foreign exchange values, land values, milk values and livestock values. Tax practices

translating value in this way have assembled a workable commensurability between dairy industry value and national value as the backbone of the economy. While tax, the financial system and the dairy industry have appeared stably invariant, I argue this is because these were practically stabilised through moneyness in multiple adaptations, contingent transformations and continual problem-solving practices that have produced the dairy industry as a dynamic set of effects. Changes in the work of tax parallels changes in other forms of work that have assembled the taken-for-granted relations I analyse as moneyness. I examine more of these in the next chapter through the work of loans.

5. The Work of Loans

Financial loans forward financial assets in exchange for a promise by the borrower to return the same class of asset with interest at a later date. This is where the money story of finance might normally stop. Instead, I show that by analysing relations of moneyness, the work of making loans has translated different forms of value between the state and financial system, from which the dairy industry has stabilised as an effect. I limit this work to the making of financial loans by banks because they shifted back and forth in importance as a provider of loans to the dairy industry and because there is a larger historical pool of data to draw on, although other types of loans such as family loans are mentioned from time to time.

The work of bank loans adds to the previous chapter on the work of tax. Tax made credit practices, such as Fitzroy's debentures and modern day settlement cash possible, because they could both be used in extinguishing liabilities owed to the state. Tax also made bank loans possible, because the deposits that bank loans create will be taken in payment by the state if they are authorised as legitimately measured in the unit of account.

The work of assembling bank loans I analyse as moneyness stabilised relations in a spatially and historically specific way, over three different time periods, in response to different problems. These are chronologically ordered but without suggesting that one necessarily caused the next. I call these processes *redeeming*, *expanding* and *guarding*.

Redeeming shows how the Bank of New Zealand (BNZ) became a crucial finance lender by making their IOUs creditable as I illustrate through a story about the Bank's original banknotes. I then show how the state redeemed the BNZ from insolvency, translating value back into it, into the banking system and into agricultural land after the crisis of the Long Depression. Redeeming made it possible for bank loans to finance the early dairy industry.

I then analyse through the process of *expanding* how adaptations to the financial system have persisted in financing dairy industry growth. Expanding practices are illustrated through how instituting the Reserve Bank of New Zealand (RBNZ) and then floating the exchange rate, resulted in dairy industry value being translated differently, with commercial bank loans becoming more prominent.

Processes of *guarding* lastly show how the banking system has been maintained by the RBNZ so that the dairy industry and the financial system are tentatively stabilised. Moneyness analysis shows how the work of loans has stabilised the dairy industry by making dairy industry value and financial value commensurable, in practices that are at once stably invariant and continually transforming. As I did in the last chapter, I start with how some work of loans was practiced before the dairy industry cohered because this set some of the conditions for which bank loans could do the work of stabilising the dairy industry as an effect.

5.1 Redeeming

In this section, I show how bank loans by the Bank of New Zealand (BNZ) were practically accomplished and maintained as credible moneyness, through processes of redeeming. I historicise two BNZ crises to show redeeming in two ways; first, by the BNZ making good on promises to convert which translated a credibility value into the BNZ; second, by the state saving the BNZ after problems threatened its continued viability, translating continued value in it as investible. These processes stabilised value in the New Zealand financial system because of how important the BNZ had become and I argue this work became crucial to the early development of the dairy industry.

This stabilisation meant land values in different agricultural regions of New Zealand could be compared and their value made commensurable through their ability to produce the commodities that accumulated sterling. Redeeming indirectly set the conditions for the dairy industry to become

practically accomplished as an assemblage with the help of bank loans to potentially solve the problem of how to accumulate the sterling that the financial system promised to convert into.

5.1.1 Redeeming: A Bank of New Zealand origin story

The formation of the BNZ through events I will now describe, required it to issue and redeem its promissory notes for sterling which not only made them acceptable in payment to the government for taxes, but functioned to limit the amount of bank-credit the BNZ could loan. Redeeming made BNZ banknotes provisionally credible but I demonstrate that it was the actual practice of redeeming BNZ banknotes for gold which had a fixed value in sterling that translated credibility value into the BNZ across different regions of New Zealand, which then meant it could credibly make loans.

Two men are instrumental in arranging the BNZ. First, Thomas Russell, an Irishman who became an Auckland lawyer, a member of the House of Representatives and prodigious land speculator. Second, Falconer Larkworthy, who was the Manager of the Auckland branch of the London headquartered Oriental Bank Corporation, with which Russell had his accounts and debts[13].

Russell's accounts were to lapse to the Bank of New South Wales in June 1861 as the Oriental Bank decided to pull out of New Zealand (Moore & Barton, 1935, p. 27). A newspaper advertisement from The Bank of New South Wales stated that they had taken over 'the banking business and premises' of the Oriental Bank in Auckland (The Daily Southern Cross, 1861, June 11, p. 1).

Russell became frustrated at the length of time that the Bank of New South Wales was taking to open his account (Chappell, 1961, p. 17) and Larkworthy (1924, p. 279) recalls that 'unless he [Russell] received an immediate reply in the affirmative, neither the Bank of New South Wales nor the Union Bank of Australia should have his account'. The implied threat was that Russell would

[13] For a general reference to both men see Hawke (1990) for Larkworthy and Stone (1990a) for Russell.

establish a new local bank. Upon learning this Larkworthy (1924, p. 279) recollected that the Bank of New South Wales inspector was unmoved, as 'Mr. Murdoch smiled incredulously'.

Swiftly however 'an influential meeting was held' in Auckland and 'after considerable discussion a prospectus was drafted' for a new bank (The Daily Southern Cross, 1861, June 14, p. 3). One month later, The Bank of New Zealand Act (1861) enabled the Bank of New Zealand (BNZ) to be incorporated. The swiftness of the legislation incorporating the BNZ is not surprising given the list of original shareholders alongside Russell and Larkworthy included prominent political names such as MP John Logan Campbell and former Premier Sir George Grey who was about to start his second stint as Governor of New Zealand. Thomas Henderson, member of the Auckland Provincial Council, future Parliamentarian and whose name now adorns a prominent Auckland suburb, was a director alongside Russell as was Frederick Whitaker who would become Prime Minister two years hence. With many shareholders being prominent politicians, the BNZ 'acquired the account of central Government in 1862' (Chappell, 1961, p. 161).

Russell was named Minister of Defence in 1863 and 'eagerly prosecuted the Waikato War in order to put Māori in what he regarded as their place and to open up the Waikato itself to property investment and settlement' (M. King, 2003, p. 225). A combination of the Suppression of Rebellion Act (1863) and the New Zealand Settlements Act (1863) authorised the forced settlements of any tribes that were adjudged to be engaged in 'rebellion' (Simpson, 1986, p. 163). The confiscation of Māori land created colonial collateral for which banks could lend against and what they would lend was their own IOU's that for a time represented sterling.

Bank IOUs were made valuable by legislation such as the Bank of New Zealand Act which allowed two key practices, first; the 'General Government of New Zealand as well as Provincial Governments' would accept BNZ issued notes as redemption of payment, second; such issued notes were 'to be payable in specie on demand', in other words redeemed for British coins denominated in sterling.

Formally requiring banks to redeem their IOUs on demand for something measured in sterling, started with The Union Bank of Australia Act (1844) which stated that their promissory notes 'shall be payable in sterling money'. Along with The Paper Currency Act (1847) and state-credit being convertible as I showed in the previous chapter with Fitzroy's debentures, the sterling exchange system was established by making bank promissory notes and deposits, convertible to and redeemable for sterling on demand. This theoretically acted as a limit on the amount of bank-credit that any one bank could issue because they could not issue more promissory notes than they could reliably redeem for sterling at any given time.

Sterling was reinforced as the unit of account in legislation by retrospectively importing English Law into New Zealand through 1858's English Laws Act which included the Coinage Act (1816) (UK) which made sterling legal tender in Britain[14] (Matthews, 2003, p. 42). This translated further financial value into New Zealand banknotes, such as the BNZ's, which represented sterling. I now focus on credibility value translated into the BNZ through a test of practically redeeming BNZ banknotes.

Gabriel Read discovered gold in Otago about the same time that the BNZ was incorporated. Upon incorporation, Larkworthy as an executive shareholder in the BNZ, was deployed to start the BNZ's Dunedin branch in Otago. The newly incorporated BNZ had asked for a consignment of banknotes to be printed in Sydney, however by the time Larkworthy arrived in Dunedin, the notes had yet to arrive. Both the Union Bank of Australia and the Bank of New South Wales had established branches in the Otago gold mining settlements of Gabriel's Gully and Waitahuna, buying gold that was measured in a fixed price against sterling (Chappell, 1961, pp. 46, 47).

The lack of banknotes was problematic for Larkworthy as the rival banks might clear the fields of gold before Larkworthy could begin purchasing. Larkworthy bought as much writing paper as he

[14] Legal Tender means you cannot sue for non-payment if payment is offered in legal tender (McBride, 2015).

could and set to work using a lithographic press, printing his own banknotes over a weekend. Each was numbered, registered and signed by himself with the form commencing 'I promise to pay'. Larkworthy travelled into the goldfields with £20,000 of freshly printed BNZ promises and set up shop at Weatherstones several miles past the rival bank branches at Waitahuna (Chappell, 1961, pp. 46, 47). None of these notes remain today or had been photographed, stationary paper being less durable than banknote paper.

Larkworthy used part of the counter of a friendly shopkeeper to set up his Weatherstones branch, recounting that 'the tidings of my presence spread like wildfire and I stood all day buying gold-dust as hard as I could' (Chappell, 1961, p. 47; P. Wright, 1975, p. 134). One newspaper reported that Larkworthy had bought the 'largest piece of gold found in New Zealand' (Otago Daily Times, 28 Dec 1861). Under armed Police escort, Larkworthy hauled back to the newly established BNZ Dunedin branch 'between 3000-4000 ounces of gold in exchange for £19,000 of his notes' and secured it in a safe (P. Wright, 1975, p. 175).

While Larkworthy was away, an Irish digger wanting to remit money back to Ireland, presented one of Larkworthy's notes to the Union Bank at Waitahuna, only to be told it was a 'duffer' and would not be redeemed for sterling. The Digger returned to the store at Weatherstones and confronted the storekeeper demanding his gold back in exchange for the notes. When the storekeeper offered just 10s in the £ [50% value] of Union Bank notes instead of gold, the Digger had him arrested and he was chained to a bed (Chappell, 1961, p. 48).

Upon hearing of this developing affray, Larkworthy gathered 'about £8,000 in sovereigns' and rode back to Weatherstone's to confront the crisis. Although £8,000 could not take care of all the demands that might be redeemed from the £19,000 of notes, the knowledge that Larkworthy had arrived and was offering to make good on his promise of redemption meant that 'no demands were made' (Chappell, 1961, p. 49).

State and political actors authorised the BNZ as a bank-credit issuer by importing legislation from Britain, making legislation in Auckland, by becoming shareholders in it and by making it the government banker. This was a good start for translating credibility value into the BNZ, but it still had to redeem for sterling on demand. Practically promising to redeem Larkworthy's BNZ notes for sterling sovereigns meant that the BNZ had more credibility value translated through it. This credibility for BNZ promises now extended throughout government offices where they would be taken in payment, into the Otago goldfields where they could be traded for gold and eventually to other regions of New Zealand. The BNZ quickly became New Zealand's most important financial institution. This meant it could make bank loans and some of these bank loans were in the form of mortgages against agricultural land. This is a key relation in the assemblage of moneyness from which the dairy industry became an effect.

5.1.2 Redeeming: Saving the BNZ

Now I demonstrate how difficulty in redeeming promises meant that a different kind of redeeming had to take place to maintain the translated value of credibility in BNZ promises. The BNZ issued bank loans in the form mortgages. For the BNZ, a mortgage represented a claim against land until the mortgagee fulfilled their obligation to pay back the loan with interest and redeem themselves. Unfulfilled mortgage obligations became a problem for the BNZ after the Long Depression of the 1880's and this saw the state practice a different kind of redeeming as it saved the BNZ and maintained the credibility of the New Zealand financial system to attract sterling investment and continue issuing bank loans. This meant that agricultural land could remain productive until commodity values could reliably translate value into agricultural land and make mortgages once again reliably commensurable with land values, at a time when the dairy industry was emerging.

Banks operating as mortgagees in New Zealand became possible after 'the Privy Council in 1870 decided that banks had valid title to any land or other property which came into its possession as

security for an advance' (Simkin, 1951, p. 151). Agricultural land prices had climbed throughout the 1870's due to Colonial Treasurer and then Premier, Julius Vogel, instituting an immigration incentive and a public works boom being 'enhanced by borrowed money, which went like new wine to the heads of political leaders of the day' (Condliffe, 1930, pp. 36, 37). 'Government debt increased fourfold between 1870 and 1880' (Hunt, 2009, p. 31). The resulting public infrastructure improved access into and prices for land in previously marginal agricultural regions. This invited land speculation and speculators included political and banking elites.

Larkworthy[15], Russell[16] and Whitaker[17] are illustrative of land speculators, bank directors and politicians that became financially ruined through speculating on land for which a comprehensive account can be found in the book *Makers of fortune* (Stone, 1973). As a result Russell, Larkworthy and Whitaker 'liquidated their stakes' in the BNZ between 1886 and 1888 (Colgate & Sheppard, 1990, p. 2 of Appendix VII), one newspaper wrote 'it gives a little shock to public feeling, but speaks for itself' (Lyttleton Times, 28 Nov 1888).

The demise of land speculating, bank director politicians was an outcome of the 1880's Long Depression which mixed an international banking crisis (see Easton, 2009, pp. 18, 19 for more) and an international commodity price slump crisis (Colgate & Sheppard, 1990, p. 13). Hawke (1985, p. 6) summarises the Long Depression's effect on New Zealand agriculture as a 'disparity between income and prices'. Farmer incomes fell, credit among banks tightened and land prices remained at historic highs compared to their value in relation to the income that could be generated off it by producing agricultural commodities. Land prices remaining high was as a result of landowners not wanting to

[15] For and account of Larkworthy's land speculation and insolvency see (Larkworthy, 1924; McAloon, 2002; Pilkington, 2011; P. Wright, 1975).
[16] For Russell land speculation and insolvency see (Stone, 1990a).
[17] For Whitaker see (Stone, 1990b)

crystallise their losses by selling below what they owed on their mortgages (Colgate & Sheppard, 1990).

For farmers, the lack of export receipts meant difficulty in redeeming themselves from mortgage payment obligations, with 'the burden of interest payments almost crushing in many cases' (Hamer, 1988, p. 94). Interest became difficult for farmers to repay because export prices peaked around 1875 as graphed in Figure 7 where the value of aggregated export price level (red line LHS) and five year average growth rate of export prices (blue line RHS) are indexed to 100 and show an increase over the early 1870's. 'Coupled with the positive externalities from infrastructure development' provided by the Vogel boom this resulted in the expectation of 'future farms returns being capitalised into the market price for land' (Hunt, 2009, p. 31).

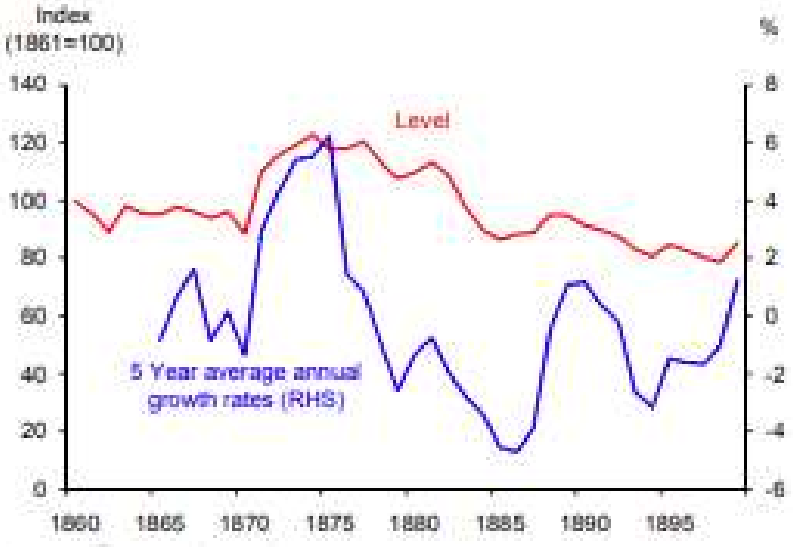

Figure 7 - New Zealand Export Prices 1861-1900. Source: (Hunt, 2009, p. 31).

Mortgage values increased approximately 10x between 1875 and 1885 (Hunt, 2009, p. 32) in what Condliffe (1930, p. 36) described as a period of 'land gambling', where land speculators used borrowed money to hoover up land in the hope that its value would rise due to infrastructural development, more so than the land's ability to produce income. Despite new 'mortgages registered' falling from 1881, as shown by the red line in Figure 8, Hunt (2009, p. 32) calculates

'mortgages outstanding' continuing to increase between 1885 and 1891 as unpaid interest from farmers and then land speculators were capitalised into mortgage principles.

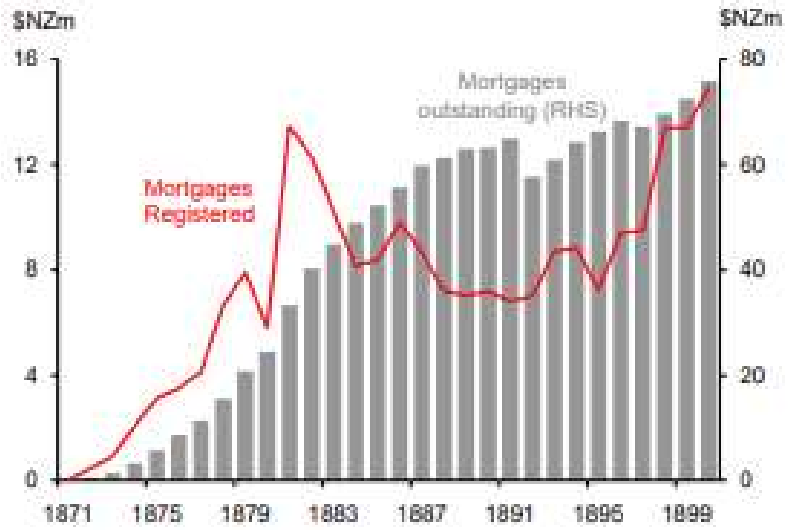

Figure 8 - Value of New Zealand mortgages 1871-1900. Source: (Hunt, 2009, p. 32).

A lack of new bank loan finance available to purchase land combining with low commodity prices meant that a newly diminished value was translated into New Zealand agricultural land. Farmers and land speculators could not sell their land at a price which meant they could repay all their mortgage debt. A current bank director explains the dilemma for banks, 'the last thing we want as an industry is a forced sale because all of a sudden, as an industry, balance sheets could halve overnight, you crystallise a lot of loss on your loans' (Brian, interview). The forced sale of a farm at 20% less than its previously agreed value means all farms of that type in that region are at risk of being revalued down by 20%. This is what happened during the Long Depression, and it saw the BNZ became a large landowner as increasing levels of defaulting mortgages meant land titles passed to the BNZ as the mortgagee because there were no other buyers (Colgate & Sheppard, 1990, p. 14).

In 1887, the BNZ transferred £125,000 into a bad debt suspense account, in anticipation of loan write-downs, which are a way to account for the values of seized land being less than the amounts owed (Colgate & Sheppard, 1990, p. 13). In 1888, a 'shareholders committee' found that under the BNZ's Deed of Settlement, because accumulated losses of £800,000 were over half of the £1,000,000 in subscribed capital, the Bank should be wound up. This was avoided by writing off £500,000 from a Reserve Fund meaning the losses could be stated as only amounting to £300,000 not £800,000 (Colgate & Sheppard, 1990, p. 14).

The first intervention by the state to redeem the BNZ came through The Bank of New Zealand Act 1861 Amendment Act (1889) which allowed the BNZ to pay a dividend in 1889, without considering the losses of value in its land estates. The continuance of dividends paid to shareholders then allowed for a new issue of shares in London, raising £500,000 of new capital. This new credibility value in New Zealand's most important bank was translated in London as an investment opportunity in a bank that paid regular dividends and transmitted to the BNZ as new capital.

In 1890, a new Special Purpose Vehicle entity was set up called 'The Estates Company' and this was funded by debentures paying 5.5% issued in London, raising an additional £1,500,000. The Estates Company held the land assets acquired from defaulting mortgagors on behalf of the BNZ. The BNZ owned property that was held in The Estates Company returned an average of 1.5% against average borrowings of the BNZ being 4% (Hunt, 2009, p. 33). Because of this mismatch between borrowings and earnings, the BNZ's new capital was quickly diminished. In October 1893, the Colonial Treasurer observed that the BNZ's coin reserve was below the legislated threshold of one third of the banknotes issued. 'The crisis was about to unfold' (Colgate & Sheppard, 1990, p. 16).

In June 1894, it was disclosed to the Colonial Treasurer that without Government support the BNZ would have to close its doors by 2nd July 1894. The Bank of New Zealand Share Guarantee Act (1894) was passed three days before the deadline on Friday 30th June, allowing a Government guarantee of

£2m in new share issues, paying 4% interest for ten years. The BNZ's head office, which had been in London since 1890, was to be moved back to Wellington to allow the Government to supervise the BNZ through a full-time auditor and by appointing the Board President. The Government guarantee translated more credibility value into BNZ stock which was substantially taken up by shareholders in London (Chappell, 1961, pp. 191-193). This could not however, prevent the BNZ property assets continuing to drag the Bank toward the edge of insolvency, 'the result was the Bank of New Zealand Banking Act (1895)' (Colgate & Sheppard, 1990, p. 17).

This act forced the bank to subscribe to the Government £500,000 in preferential shares, to write off £900,000 in existing shareholder capital and to sell The Estates Company to a Government administered 'Asset Realisation Board' (ARB). The ARB would hold these toxic assets on behalf of the BNZ until they could be sold. In addition, the BNZ was granted permission to use this new Government capital to buy the struggling Colonial Bank, boosting the BNZ balance sheet by 21%. In 1898, the BNZ was forced to accept the Government appointment of fulltime Chairman and four of the six directors (Colgate & Sheppard, 1990, pp. 17-19).

A clear indication of when agricultural land prices began to realign with land values as translated by commodity prices and credit is difficult to pinpoint. Condliffe (1959, pp. 297, 298) tracks agricultural land prices for Canterbury in Figure 9. Land prices appear to begin rising again around 1898, coinciding with the state redeeming the BNZ through legislation and recapitalisation using state bank-credit and investment capital from London.

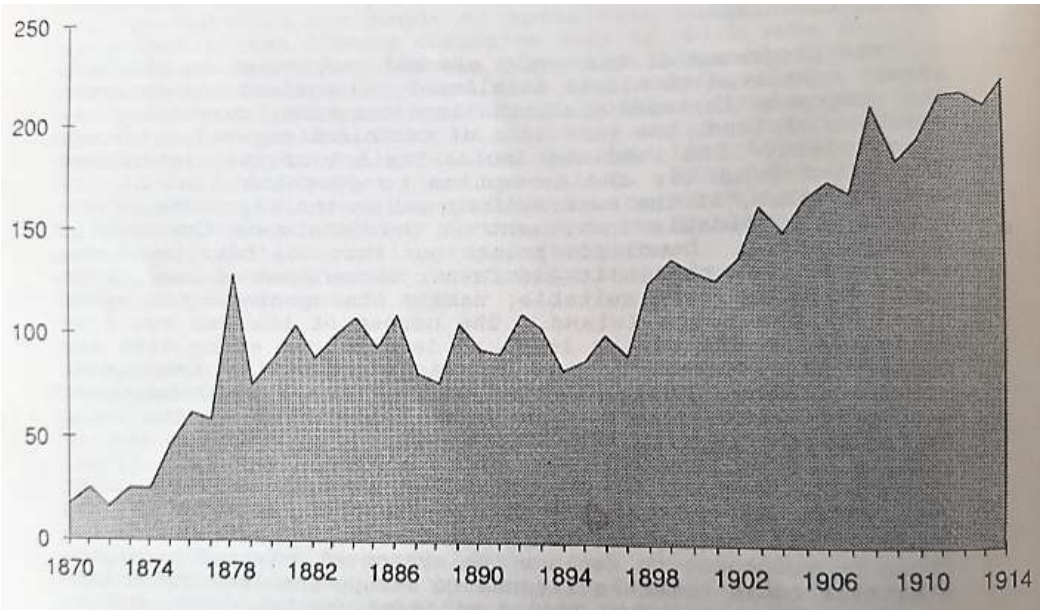

Figure 9 - Canterbury land value index 1870-1914: Source (Condliffe, 1959, pp. 297, 298)

Arnold (1981, p. 33) tracks the value of total mortgages registered under the land transfer system established in 1870. This data graphed by Johnson (1989, p. 9) in Figure 10 shows mortgages

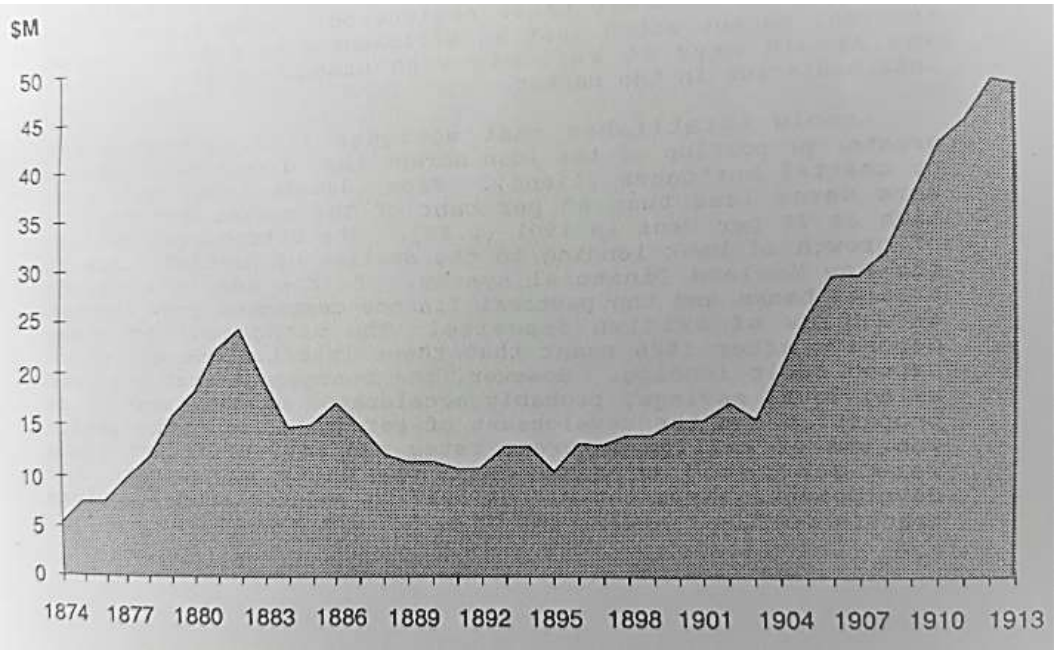

Figure 10 - Total Value of New Zealand mortgages registered 1874-1913. Source: (Johnson, 1989, p. 9).

beginning to rise again after the period where the state redeemed the BNZ, 68% of which were registered against rural land in 1901. A number of arguments have been put forward as to how bank lending related to a reinvigorated agricultural sector. Arnold (1981) argues that the key to allowing rural bank lending to stabilise was a network of financial intermediaries appearing like solicitors, merchants, land brokers and storekeepers. Johnson (1989) argues that it was the state acting as a rural land broker, peopling the land with leasehold and freehold tenures that was most influential in re-establishing rural credit. Condliffe (1959) argues that it was state bank-credit to farmers beginning with the Advances to Settlers Act (1894) that allowed agricultural credit to flourish again.

However, the Advances to Settlers Act (1894) not only allowed agricultural credit to flourish again but it was a particularly white version of agricultural credit with Māori being excluded from accessing capital in a continuation of their alienation from the land (Simpson, 1986, p. 230; Sutch, 1969, p. 145). What I am arguing is that the continuation of bank lending was possible due to the various practices involved in processes of redeeming. Moneyness was critical to translating the value of credibility into the BNZ and by extension, the entire banking system which for a time included a system of State Advances.

These new relations between London investors of sterling and the BNZ meant the credibility of the New Zealand financial system could be maintained until land values and commodity values were once again made stably commensurable. A new credibility value was practically assembled that allowed bank loans to continue as rural mortgages, just as the dairy industry was developing as a reliable programme for settling new agricultural lands. The work of loans relied on sterling because of the obligation to convert and the work of dairy accumulated sterling that allowed banks to lend on agricultural mortgages. Banking and the dairy industry translated value into each other and this value was made commensurable through their association to sterling.

Redeeming demonstrates how bank loans were established and maintained in early New Zealand using the BNZ as an example. The first practice of redeeming, Larkworthy making good on the promise to convert, translated credibility value into the BNZ as a creditable promise issuer across new regions of New Zealand, over and above the legislation and political class of shareholder that suggested it might be credible. The second practices of redeeming the BNZ through saving it from insolvency, translated credibility into the BNZ that attracted new investment by holders of sterling and the state. Both stories of redeeming were efforts to construct sets of relations – between miners, bankers and the government in the first case, and between mortgagees, bankers, agricultural land values, investors and politicians in the second case – which stabilised BNZ bank loans as reliable and the New Zealand financial system as creditable, translating value into both.

In both cases these relations were tested and survived trials of strength – in the first by miners concerned about the value of BNZ banknotes, and in the second by the willingness of London investors and the state to invest in the BNZ. Practices of redeeming enabled the BNZ to continue operating by maintaining value in BNZ promises and stabilising the BNZ's ability to lend against agricultural land which remained a productive accumulator of sterling following the Long Depression. These redeeming practices translated value into the BNZ, the banking system and agricultural land, making forms of value in each set of relations commensurable and reliable, which were crucial precursors to how the dairy industry subsequently emerged in different regional and financial spaces.

5.2 Expanding

In this section I show how moneyness was assembled through *expanding* the New Zealand financial system which allowed the recently established dairy industry to grow through the work of bank loans. I illustrate this expanding by showing how the RBNZ was instituted during the crisis of the 1930's Great Depression. This allowed the RBNZ to provide direct state bank-credit to the Dairy

Board, and then this permeated through a new relational architecture as loans for the expanding co-operative dairy industry. These new relations translated new financial value into cooperative dairying as an increasingly important sterling accumulation machine.

Then I show how the dairy industry grew through practices of expanding where total credit to the dairy industry swelled rapidly through commercial bank loans after state bank-credit to agriculture was withdrawn in the 1980's. This allowed commercial trading banks to compete for agricultural debt, increasing the aggregate value of dairy farm mortgages. I demonstrate that this expansion translated new value into dairy farming land which then spread throughout new regions of New Zealand and produced more milk from more cows.

5.2.1 Expanding state bank loans

Expanding the banking system through instituting the RBNZ, came after a volatile period for the dairy industry in the 1920's which was exacerbated by the Great Depression. Throughout this period, bank loans were still regulated by the sterling exchange standard meaning that agricultural exports were crucial in obtaining the sterling that the banking system still promised to convert their £NZ measured promises into. The restriction of credit to the dairy industry hampered its function as a sterling accumulation machine which in turn meant that banks could not issue as many loans. This is the story of how the problem of restricted bank-credit was addressed by expanding and reconfiguring the relations of the financial system by instituting the RBNZ.

Commodity prices dropped substantially when a simultaneous tsunami of dairy products hit London markets in 1921-22 after a bumper season in New Zealand and with northern hemisphere dairy production normalising post-war (A. H. Ward, 1975, pp. 48, 49). The average price and payout for butterfat halved. In following seasons 'dairy-producers followed meat-producers in asking the Government to assist in controlling prices' (Sutch, 1972, p. 21). The Dairy-produce Export Control Act

(1923) established the monopoly power of the state to 'effectively control the export, sale and distribution of New Zealand dairy-produce' via the newly established Dairy Control Board. This was accompanied by a call for 'cheap' agricultural credit via a state run 'rural bank' (Condliffe & Belshaw, 1925).

Requests for state-credit had been in response to a general feeling of tight credit from banks. The Associated Banks, an organisation representing the six commercial trading banks, was an association 'that acted in concert in fixing uniform rates of interest on fixed deposits', met the 1921 commodity crisis by circulating new rules for the dairy industry (Moore & Barton, 1935, p. 128). New bank loans were conditional on dairy factories putting up a 25% deposit, Co-operative dairies were required to have capital two-thirds 'paid up'[18] by their shareholder famers and depreciation must be written off each year and applied to the reduction of their overdraft (Wanganui Herald, 1920).

Up until 1934, New Zealand banks would coordinate their exchange rates for sterling, making exports more or less expensive in the London markets which would in turn expand or reduce their reserve stock of sterling received through export payments. The reserve stock of sterling would in turn influence a bank's willingness to lend because new £NZ deposits were created by new lending (Chappell, 1961, p. 323; Niemeyer, 1931).

The effect of the Great Depression in New Zealand was keenly felt through the collapse in export prices and a 'consequential drop in farm incomes' (Hawke, 1985, p. 137). 'Returns on farm outputs plunged from £73.6m in 1929-30 to £49.2m in 1931-32', unemployment rose to 30% and New Zealand banks had difficulty borrowing sterling on London money markets which compounded into a

[18] 'Paid Up (called-up) capital' are supplier shares that have been subscribed and paid for, as opposed to 'uncalled capital' which are shares that have been subscribed to a supplier but are yet to be paid for.

lack of available bank loans (M. Wright, 2009, pp. 47, 48). Like the Long Depression, the Great Depression featured a credit crisis for New Zealand.

Over half of dairy farmers were at or near insolvency in the early 1930's (Frazer, Duncan, Gilkison, Iorns, & Williams, 1934, p. 52). The system of banks regulating credit availability, interest rates and exchange rates in response to limited stocks of sterling as a result of depressed commodity prices and lack of sterling credit in London, had been under scrutiny because of previous disruptions to economic output caused by sharp falls in exports prices in 1921-22 and 1925-26 (M. Wright, 2009, p. 47).

This scrutiny had taken the form of a report by visiting Bank of England official Otto Niemeyer (1931) which recommended instituting a New Zealand central bank. The Associated Banks were not in favour of this new change in the relational architecture of the financial system, and a central bank was argued against as taking advantage of the Depression to create a 'magic way to escape from difficulties' (Moore & Barton, 1935, p. 373). Hawke (1973, p. 83) understands instituting the RBNZ as 'making the Bank a legally-unrestricted source of Government finance' among other reasons[19]. The RBNZ was established by the Reserve Bank of New Zealand Act (1933). In August 1934, the newly instituted RBNZ began operations. The 'particular powers' of the Act included setting exchange rates by buying and selling currencies of other countries, buying gold and silver bullion, and discounting and buying documents arising from transactions in primary products, commercial transactions and Treasury Bills. The RBNZ would also be monopoly issuer of banknotes and take over administration of the governments 'public account' from the BNZ.

[19] Other reasons theorised for instituting the RBNZ included making a distinction in the minds of London financiers between the economies of New Zealand and Australia (Hawke, 1985, p. 134), to 'find an alternative creditor to finance the State Advances Corporation' (Colgate & Sheppard, 1990, p. 38), and 'monetary policy activism' (Brooke et al., 2019, p. 37).

Banks had to hand over enough of their accumulated Treasury securities, sterling and/or gold reserves[20] in exchange for new banknotes and an account at the RBNZ which entailed a non-voluntary obligation to maintain a balance in a reserve account (now-a-days called ESAS accounts as described in the previous chapter) held at the RBNZ. This initial reserve consisted of 7% of demand deposits and 3% of time deposits (Chappell, 1961, p. 325). In exchange, the trading banks would be shareholders in the RBNZ.

The Reserve Bank Amendment Act (1936) made the RBNZ an exclusively public agency, returning the trading banks' capital to them although the requirement for banks to maintain their reserve remained. Minister of Finance Walter Nash explained that 'unless the Government controls its banking and credit system it will be materially hindered in carrying out its policy' (Nash, 1936, p. 2). In addition, the Act enabled the RBNZ to 'underwrite Government loans' which enabled the RBNZ to 'grant accommodation by way of overdraft to the Government of New Zealand or to any Board or other authority having statutory power in relation to the marketing of any New Zealand produce'. In support of this new state bank-credit to the agricultural sector MP Arthur Sexton from the Country Party posed the rhetorical question, 'what does it matter if we owe money to ourselves?' (Sexton, 1936, p. 183). As suggested in the previous chapter, it would matter because of promising to convert new RBNZ created £NZ into Bank of England created £sterling, which quantitatively restricts the amount of £NZ able to be created through loans and payments, up to the cumulative amount of trade surpluses, which is what dairying helped achieve.

These new relations involving how the government could create new bank loans enabled dairying to begin a transformation. The Primary Products Marketing Act (1936) instituted a new Primary Products Marketing Department into which the existing Dairy Board was absorbed. This Act also

[20] Britain operated under a gold standard and therefore gold traded for a fixed rate to sterling.

established the Dairy Industry Account and linked it with the recently formed and newly nationalised RBNZ. This legislative linkage allowed the Board to maintain an overdraft account with the RBNZ.

The Primary Products Marketing Department instituted a new Guaranteed Price Scheme where all dairy produce for export became the property of the state. The Marketing Department took ownership of the produce when it was loaded for shipping, however, the Dairy Board would be 'responsible for the arrangement of finance on exports' (New Zealand Dairy Board, 1936, p. 5). The Act guaranteed immediate payment to dairy companies 'whenever any dairy-produce becomes property of the Crown' and instituted the 'guaranteed price scheme' because 'the public interest of maintaining the stability and efficiency of the dairy industry' was a primary consideration as outlined in the Act. This public interest I argue centres around the ability of the dairy industry to accumulate the thing that the financial system promises to convert into sterling. This is what translated value into the dairy industry as an expanding exporter and this is what changing the relations of the financial system to include the RBNZ made increasingly possible.

To accommodate the immediate payment of the Guaranteed Price by the Dairy Board to dairy companies, the RBNZ would extend an overdraft. To compensate the Dairy Board for the time between immediate payment to dairy companies and the future receipt of sales from overseas merchants returned via the Marketing Department, the RBNZ extended the Board an overdraft at 1% interest (Hawke, 1985, p. 244; Lind, 2013, pp. 38, 155). This 1% interest overdraft convention was to last until the mid-1980's for the Dairy Board and expanded beyond financing the guaranteed price scheme.

For instance, a Dairy Industry Loans Application Committee within the Dairy Board recommended the RBNZ make interest-free loans to dairy companies for capital infrastructure expenditure in the 1952-53 and 1953-54 seasons and then after those seasons, loans at an interest rate of 3.5% 'which was to continue for several years' (A. H. Ward, 1975, pp. 155-157). The Loans Application Committee

was given statutory authority by the Dairy Products Marketing Commission Amendment Act (1956) and became the 'Dairy Industry Loans Council' that could then make loans straight from the Dairy Industry Account held at the RBNZ, rather than merely recommend loans.

State bank loans for the Dairy Board being transmitted to Dairy Companies was still being practiced in 1970 and itself had expanded to include on-lending to dairy farmers. Minister of Agriculture Douglas Carter (1970, p. 822) confirming it is 'made available through the Reserve Bank for relending to farmers by dairy companies at 3%' which was less than half the weighted average business and household lending rate (Reserve Bank of New Zealand, 2021). The Dairy Production and Marketing Act (1961) which combined the Marketing Commission and Dairy Board into the New Zealand Dairy Board extended further RBNZ loans beyond cooperative dairy companies to their 'dairy cooperative shareholders' for 'capital improvements' which at the time must not be 'exceeding two million pounds'. The Dairy Production and Marketing Amendment Act (1965) extended this to three million pounds. £3m became $6m in 1967 with the decimalisation of New Zealand currency. As of September 1983, the RBNZ 1% facility with the Dairy Board was re-confirmed to a maximum total of $750m (Waikato Times, 2001, p.11).

There are many ways in which the dairy industry is shown to have grown between instituting the RBNZ in 1934 and the mid 1980's. Dairy statistics like those in A. H. Ward (1975, pp. 242-253) are difficult to compare over time in New Zealand because of things like changing to decimal currency or the effect of inflation when comparing export receipt values, or changing from imperial to metric for measurement of milk production. One set of comparable statistics however are cow numbers and butterfat production in tonnes. In 1934 1.932m cows produced 193,400 tonnes of butterfat (Department of Statistics, 1935). In 1983, the national herd had risen to 2.124m, an increase of 10% since 1934 but this herd produced 315,000 tonnes of butterfat, a 63% increase from 1934 (Department of Statistics, 1984).

I have demonstrated that this period of expansion for the dairy industry was made possible by the RBNZ making state bank loans available between The Great Depression and the 1980's. Practices of expanding translated value toward stabilising the dairy industry in at least two ways. First, the banking system was expanded by assembling a new set of financial relations that translated new value into state bank-credit. The RBNZ became monopoly issuer of banknotes, reserves and the controller of exchange rates. Second, while the initial reason for the Dairy Board having an overdraft facility at the RBNZ was to fund the Guaranteed Price Scheme, this too expanded to translate new value into the co-operative dairy industry through loans for capital projects and finance for co-operative dairy shareholders. These practices of expanding show how value from state bank loans was transmitted to the co-operative dairy industry so that production could expand between The Great Depression and the 1980's. This is moneyness stabilising the dairy industry as an effect.

5.2.2 Expanding commercial bank loans

The ideological underpinnings and the process of how the New Zealand economy became restructured along putative neoliberal lines is narrated elsewhere (see for example Kelsey, 1997). For agriculture, research has critiqued the results of this ostensible economic restructuring (for example Le Heron, 1988, 1993; Sandrey & Reynolds, 1990; Wallace, 2014) including how the Dairy Board was reacting at the time (Britton et al., 1992, p. 24). In this section, I show that from the 1980's the relational practices of expanding bank loans meant total debt in the dairy industry expanded, commercial trading bank loans expanded, and the dairy industry expanded into new regions based on expanding land values. I then move on to show that recent volatility in the milk price demonstrates how translations of value in land are uncertain and this requires financial relations to undergo constant maintenance for the work of loans to stabilise.

The state withdrawing bank loans to agriculture saw the RBNZ overdraft to the Dairy Board being phased out. Fonterra's first Chairman Henry van der Heyden gave a speech about former Dairy

Board Chairman Sir James Graham, who was receiving a 'lifetime achievement award'. Listed among the trials that Graham had to contend with as Chairman was when he 'secured a $650m cheque from the Government after the withdrawal of the Dairy Boards 1% interest facility' (van der Heyden, 2006, unpaged). Lind (2013, p. 155) explains that the $750m facility that was formalised as 'a 40-year contract' around 1983 and Graham's negotiations centred around what the cost of breaking the contract would mean for the Dairy Board, which was eventually calculated at $650m. The RBNZ paid this to the Dairy Board 'compensating for the loss incurred on a $750m subordinated loan advanced by the government in 1983' (AJHR, 1986, p. 29). The withdrawal of state bank loans to the Dairy Board and therefore the dairy co-operatives which benefited from the Dairy Board's Loans Council, set the conditions for private bank-credit to expand with dairying.

Individual dairy farmers access to state bank loans was withdrawn via changes at The Rural Bank, which alongside the privatisation of the BNZ, allowed newly configured financial relations for expanding private bank lending for the dairy industry. The Rural Banking and Finance Corporation Act (1974) had established the state-owned Rural Bank for 'making loans and providing other assistance for farming purposes and other purposes related to the primary industries'. By 1976, the Rural Bank had $50m of mortgages against land, $32m of development loans and $20m of refinancing loans outstanding. Other loans specifically tailored to dairy included, 'stock loans for sharemilkers', 'development loans' and 'suspensory loans for sharemilkers' which was an interest-free loan to help sharemilkers that sell some of their herd to buy a dairy farm triggering a tax liability on the sale of their stock (Rural Banking & Finance Corporation of New Zealand, 1976).

Throughout the 1980's, the state expanded their bank loans to agriculture. Between 1980 and 1986, as seen in Figure 11, private 'banks/finance/insurance companies' went from 22% to 24% of total agricultural loans. In contrast, bank-credit from state institutions rose by 140% in those six years, the 'Rural Bank' and other 'Government Departments' held 37% of total New Zealand agricultural loans

	Loans Outstanding to the Agricultural Sector at 31 March 1986 ($m)			
	1980	1982	1984	1986
Rural Bank	1043	1510	2074	2440
Government Departments ŧ	182	268	354	496
Stock and Station Agents	353	431	506	568
Banks/Finance/Insurance Companies ∞	772	1329	1665	1932
Sub Total	2350	3538	4599	5436
Solicitors Trust Funds	194	318	462	na
Family Loans	490	675	1050	na
Dairy Companies	33	47	33	na
Other #	386	638	607	na
Sub Total	1103	1678	2152	2544*
Total	3453	5216	6751	7980*

* 1986 data estimate based on % rise in total from the first sub-group
\# Other includes 'Private sources, Trust Companies and Local Body Loans'
ŧ Aggregate of Departments: Māori Affairs, Lands and Survey, Marginal Lands Board
∞ Trading Banks, Trustee Savings Banks, Private Savings Banks, Finance & Insurance Companies, Building Societies

Figure 11 - Loans outstanding to agriculture 31 March 1986. Data sourced from: (Reserve Bank of New Zealand, 1986, p. 504)

by 1986. In 1982, interest rates from Rural Bank loans 'were advanced at 9.5% or less compared to private sector rates in the range of 16 to 18.5%' but by 1986 'all new loans were at commercial rates' (Reserve Bank of New Zealand, 1986, pp. 504, 505).

This change in the Rural Bank interest rates reflected it beginning to be run along more commercial lines and this had at least two effects. First, 'outgoings on mortgages jumped appreciably. Second, the payments on short-term and medium-term lending (overdrafts) for cash flow and development also rose' (Le Heron, 1991, p. 1660). From 1981 to 1986, the debt-to-equity ratio for dairy farms,

being their debt as a percentage of the value of their assets less the value of liabilities, went from 0.34 to 0.43, and debt servicing which is the amount of farm income that goes on interest payments went from 12.3% to 16.0% (Ministry of Agriculture and Fisheries, 1987, p. 54). Trading Bank exposure to Dairy was just $206m or 2.5% of the $8b in total estimated agricultural debt (Reserve Bank of New Zealand, 1986, p. 509).

The state owned BNZ changed along similar lines. The substantial state ownership since 1898 was reaffirmed in 1945 when the government bought all the shares, completely nationalising the BNZ (Chappell, 1961, p. 355) with the purpose of facilitating post-war reconstruction and the infrastructural development of New Zealand (McLagan, 1945, p. 1). The state reduced its BNZ ownership to 87% following a share offering to the public in February 1987, shortly before the share market crash on 'black Tuesday' of October 1987. The state again recapitalised the BNZ in both 1989 and 1990 and eventually sold it to National Australia Bank in 1991 (Hunt, 2009). The Rural Bank was 'privatised' in 1989 when Fletcher Challenge Ltd, New Zealand's then largest listed company, purchased it (Le Heron, 1991; The Fletcher Trust, 2019). The National Bank a subsidiary of UK based Lloyd's Bank bought the Rural Bank from Fletcher's in 1992, immediately increasing the National Bank's $1b rural loan book by $2.3b giving it a 40% market share of rural loans (Holmes & Hawke, 1997, pp. 169-172).

Like all trading banks other than the Rural Bank, the BNZ's exposure to agriculture including dairy was minimal at the time, but its privatisation signals a significant change in bank-credit relations involving the state. Commercialisation and then privatisation of state-owned banks practically translated new value into commercial trading bank-credit. Now free from competing with state bank loans from the RBNZ, and the state-owned Rural Bank and BNZ, trading banks looked for opportunities to expand. Dairy mortgages provided such an opportunity, and this translated new value into agricultural land throughout new regions of New Zealand.

Part of changing the relations of the financial system which allowed commercial bank-credit to expand was the removal of the longstanding limit of having to convert. The financial system had promised to convert into something else since at least 1844. This started with the Union Bank of Australia Act (1844) requiring that bank to convert into sterling and Fitzroy issuing his debentures with the promise they would be converted to sterling on demand. Conversion transitioned to the US dollar between 1971 and 1973 (Sullivan, 2013, pp. 5, 6) and then a range of trading partner currencies until 1985 as detailed in the previous chapter (Reserve Bank of New Zealand, 2019d). Floating the $NZ meant the banking system no longer promised to convert into anything else, so no longer had to accumulate foreign currency for that reason. The withdrawal of direct state bank loans to agriculture, coincided with no longer needing to accumulate foreign exchange because the banking system promised to convert, which had acted as a limit to creating both state and private bank-credit. Banks competing for dairy mortgages and without state competition were no longer limited by having to convert into other currencies. After removing this limit, expanding bank lending allowed the dairy industry to grow faster.

Throughout the early 1980's private bank-credit made up only around 25% of total loans to New Zealand agriculture which was less than $8b in 1986 (Reserve Bank of New Zealand, 1986). Just $199m in bank-credit was loaned to 'dairy farming' and $117m to 'dairy companies, factories' in 1985 (Department of Statistics, 1986-87) but I have come across no other statistics that indicate what portion of total agricultural credit was to dairy. Since the relational changes to bank-credit I have detailed above, as at January 2019 dairy farming loans had grown to $41.6b, which were 9.2% of total outstanding bank loans in the New Zealand economy and 2/3 of all agriculture sector loans which now totalled more than $60b (Reserve Bank of New Zealand, 2019a).

Of the $41.1b worth of dairy farm debt in 2017 as charted in the RBNZ Financial Stability Report shown in Figure 12, bank-credit represented 88% of the total (Dairy NZ, 2017, p. 40). Importantly, this does not include bank loans to the dairy manufacturing and processing facilities like Fonterra.

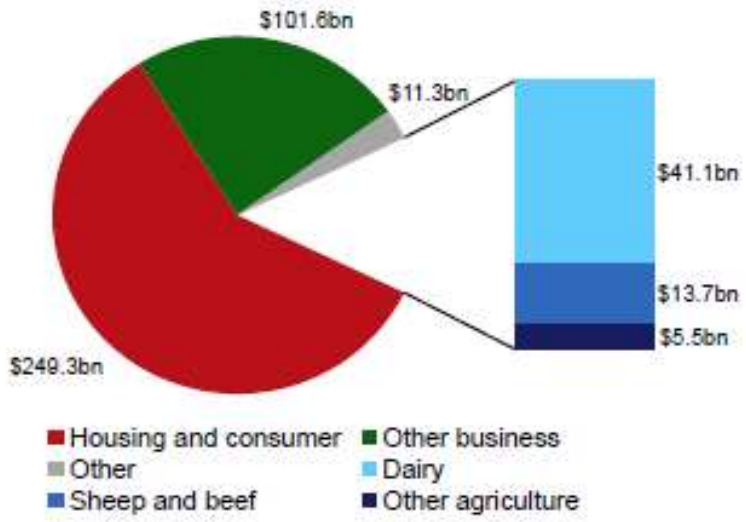

Figure 12 - Composition of bank lending by sector as at September 2017 (Reserve Bank of New Zealand, 2017b, p. 14).

This is separated out as 'agribusiness credit' rather than 'dairy credit' although as a co-operative the debts of the company are also a debts of its farmer shareholders (Reserve Bank of New Zealand, 2017a). These credit aggregates show that changing financial relations in practice through withdrawing state bank loans and floating the $NZ were preconditions for expanding trading bank-credit, a lot of which found its way to the dairy industry.

Trading bank loans have helped dairy production grow. The dairy industry in 1983 had a national herd of 2.124m cows, producing 6.69b litres of milk which was distributed roughly 80% North Island, 20% South Island (Department of Statistics, 1984). In 2019 the dairy industry had 4.95m cows producing 21.2b litres of milk, and an almost 50:50 distribution between North and South Islands (Dairy NZ, 2019b). Bank loans were used to convert sheep and beef farms into dairy using technology such as irrigation which opened new dairy grazing land. Bank loans also funded the installation of new supplementary feed systems, expanding herd sizes beyond the limits of grass

growth and herd homes meant that expansion could spread into colder climates such as those in the lower South Island (Forney & Stock, 2014; Lind, 2013). The expansion of private trading bank loans as mostly mortgages against an expanding regional distribution of land that produces cow's milk, translated new value into land by making it potentially dairy farming land. This created new equity which was used to get more bank-credit for further expansion.

This translation of value into expanding regions of dairy farm land by expanding levels of bank-credit has not necessarily translated into expanding dairy land prices over the last decade after more than doubling the decade prior. The Real Estate Institute of NZ (REINZ) All Farm Price Index adjusts for differences in farm size, location and farming type to give a more complete picture of farmland asset

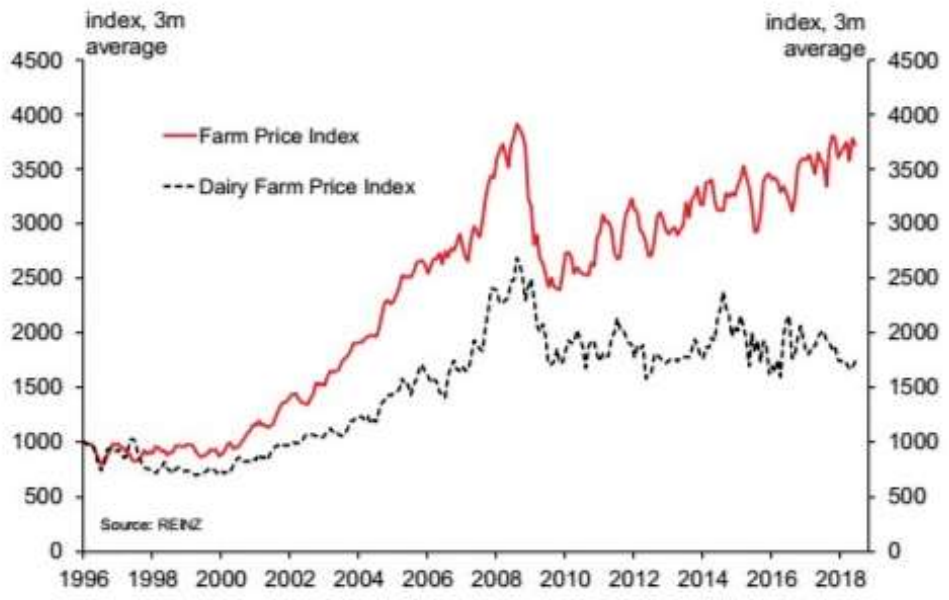

Figure 13 - REINZ 'Farm Price' and Dairy Farm Price' Index. Sourced from http://ruralandlifestylesales.com/nz-farm-price-trends/

values. It plots a 3-month rolling average of farm sale prices as in Figure 13. Dairy farms are included in the 'all-farms' index but are also separated out in the 'dairy farm index'. The 2007/08 leap in agricultural land prices notably corresponds to the Global Financial Crisis, suggesting a need for global capital to seek more materially tangible investments such as land. The post-GFC drop suggests

an over-supply of agricultural land for sale as farmers struggle to access capital or seek to lock in capital gain by selling their farms due to the historically high land prices.

According to Walter, an economist at a syndicated investment fund, the translation of value in dairy land has a lot to do with milk price. Walter is looking at land use investments other than dairy, which had previously been a major portion of his fund's portfolio because of the 'volatility of milk prices'. He explains:

> 'the reality is that dairy land prices probably need to be 15-25% lower than they are today. I think that land prices need to come down by that much to make it sustainably financially viable. But how you get that adjustment and over what time horizon are all up for debate' (Walter, interview).

The levels of debt to be serviced by a volatile milk price makes value translated into dairy land more uncertain and this uncertainty leads to a search for other agricultural investments. Not only new investments have been sought but different forms of financial work for finding 'new ways of knowing the uncertain, variable materiality's of agricultural production' with for example, new dairy derivatives markets where farmers could sell future milk production contracts at a fixed price (Henry & Prince, 2018, p. 1003).

Milk price volatility extends from how the industry expanded. The rationale for expansion eventually helped form Fonterra who have effectively set the milk price since 2001. Chairman of the Dairy Board John Storey announced that an industry mega-merger would 'promise to increase revenue by 15% annually and envisages an industry worth $8b today, being worth 4 to 5 times that in 10 years' (New Zealand Dairy Board, 1999, p. 3). Much more on how co-operative credit created Fonterra is in the next chapter, for this section, expanding the dairy industry by creating Fonterra meant that the milk price which Fonterra pays its farmers, translated value into farmland that affected bank-credit in different ways.

The ‘farmgate milk price’ set by Fonterra drove the whole industry’s milk price paid to dairy farmers because of its 96% market share for milk upon formation. Fonterra’s milk price between 2003-07 averaged $3.88 per Kg/MS, the jump to $7.59 Kg/MS in 2008 saw a consequential jump in bank-credit, from $18.7b in 2007 to $28.9b in 2009 with a corresponding spike in the dairy farm price index in Figure 13 above. The milk price of $8.30 in the 2013-14 season saw a smaller one-off spike shown in Figure 13 also.

After a period of mediocre credit growth, the milk price slump in the 2014-15 season of $4.40 Kg/MS and 2015-16 of $3.90 Kg/MS saw a similar effect on dairy debt but for the opposite reason. Credit aggregates for dairy moved from $34.5b to $40.1b in another credit expansion as the low milk prices necessitated dairy farmers accessing working capital via short-term loans and overdrafts to survive. The increased volatility of the milk price provides different opportunities for banks to lend during both milk price inflation and deflation. In Figure 14, the milk price (orange line - RHS) is much more volatile than the growth in total bank-credit to dairy (blue line - LHS) and has outpaced the growth in the average milk price (the dotted orange line - RHS). Bank-credit aggregates to dairy have increased despite milk prices being volatile and land values stagnating in the last decade. Increases in bank-

credit have been the trend since the state withdrew from supplying bank loans to the dairy industry and private banks have competed for selling debt to dairy without the state as competition.

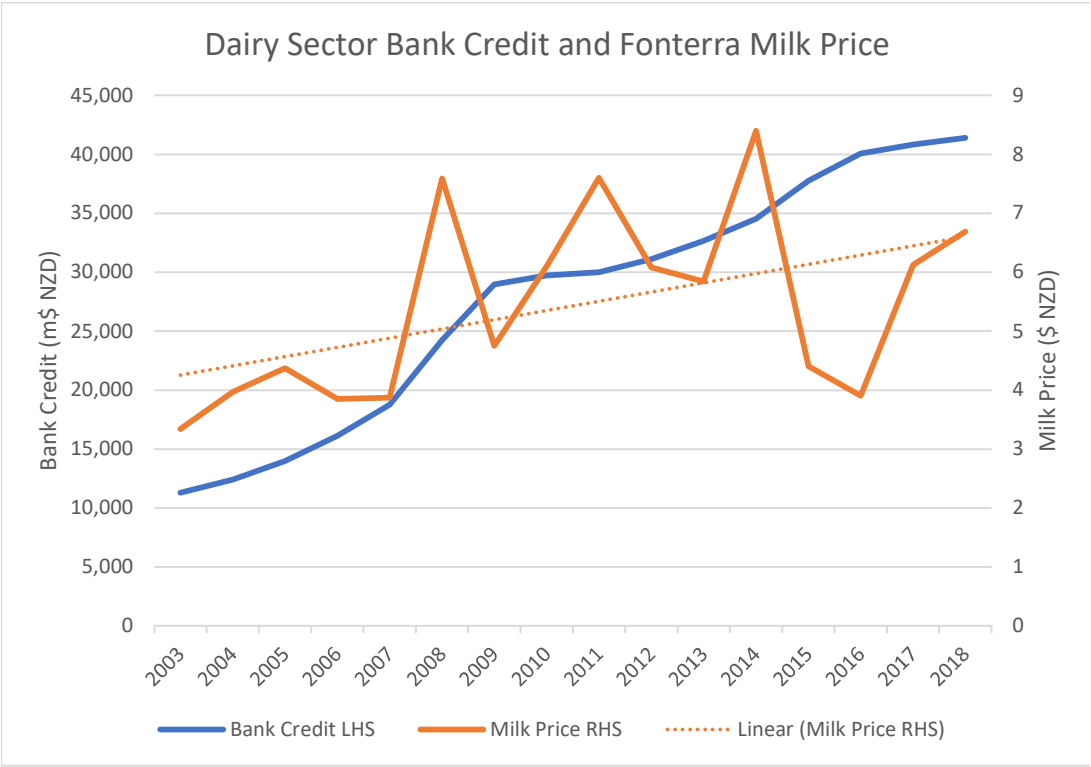

Figure 14 - Dairy Sector Bank Credit and Fonterra Milk Price.

Bank Credit from RBNZ C27 Agriculture credit by industry to 2016. Sourced from https://www.rbnz.govt.nz/statistics/series/discontinued-statistics

S1 31 Loans by Purpose 2017 onward. Sourced from https://www.rbnz.govt.nz/statistics/series/discontinued-statistics

Milk Price history. Sourced from https://www.interest.co.nz/rural-data/dairy-industry-payout-history

This section has shown how practices of expanding are forms of moneyness that have stabilised the dairy industry. First, the RBNZ being established provided substantial state bank-credit to the cooperative dairy industry, such as through 1% interest bank loans and credit at concessionary rates transmitted through the Dairy Industry Loans Council. Second, state bank-credit was transmitted through institutions such as the Rural Bank. These two sets of relations stabilised through the work of loans, linked the state and the dairy industry through various requirements for the financial

system to convert into other currencies. From 1985, this requirement was dropped by floating the $NZ and then a third set of relations shows the work of loans in expanding the dairy industry output by spreading into new regions, enabled through expanding commercial bank-credit. The relations between bank loans, dairy land prices and milk prices require constant maintenance and one way the RBNZ undertakes this work is through practices of guarding against instability.

5.3 Guarding

New bank loan practices negotiated new forms of commensurable value that knitted together financial order through moneyness and allowed the dairy industry to expand. This assemblage of relations and the tentative ordering of value that they allow, requires constant work to maintain. I show that through practices of guarding, bank loans are made durable through work that allows commensurable value to be continually translated through the New Zealand dairy industry. This work of maintaining bank loan relations translates different value through milk and dairy land, making them commensurable with other forms of value, such as returns for investors of international capital.

Practices of guarding provide a similar function to the long-standing but abandoned promise to convert, as a limit on bank loans so the financial system can endure and continue to allow foreign capital to invest and profit from charging interest. The RBNZ frames its role as a guardian, maintaining the reliability of the financial system by explaining some of the work it does to limit risk which has translated different value into both the dairy industry and the lending portfolios of commercial trading banks.

Recently the RBNZ has sought to clarify its role by describing itself as Te Pūtea Matua, the parent or primary caregiver of New Zealand's financial system. The RBNZ evokes the image of Tāne Mahuta, a large tree representing the mythical Māori god of the forest, to metaphorically describe the New Zealand 'financial ecosystem' and this imagery is presented in Figure 15 (Reserve Bank of New Zealand, 2018a, p. 26).

Figure 15 - Te Pūtea Matua, the RBNZ and its relation to Tāne Mahuta, the financial ecosystem. Source: (Reserve Bank of New Zealand, 2018b).

This depiction describes the position of banks as analogous to the integrated 'branches and leaves' of Tāne Mahuta and money is 'the sap' running through Tāne Mahuta. The RBNZ writes that 'New Zealand's money has evolved into its current form, the free-floating NZ dollar solely issued by the

RBNZ' (Reserve Bank of New Zealand, 2018a, p. 16). To further explain what is meant by 'money', RBNZ official Benjamin explains that in their view this is created when issued as bank loans:

> 'Broadly when banks lend money they create a debit and a credit on a ledger. Really the way we see money is that it is essentially created by banks, we [RBNZ] just set the price through interest rates' (Benjamin, interview).

Interest rates have remained historically low since the GFC (see Figure 16 below). The base interest rate is set by the RBNZ every six weeks called the Official Cash Rate (OCR). This is the reference rate

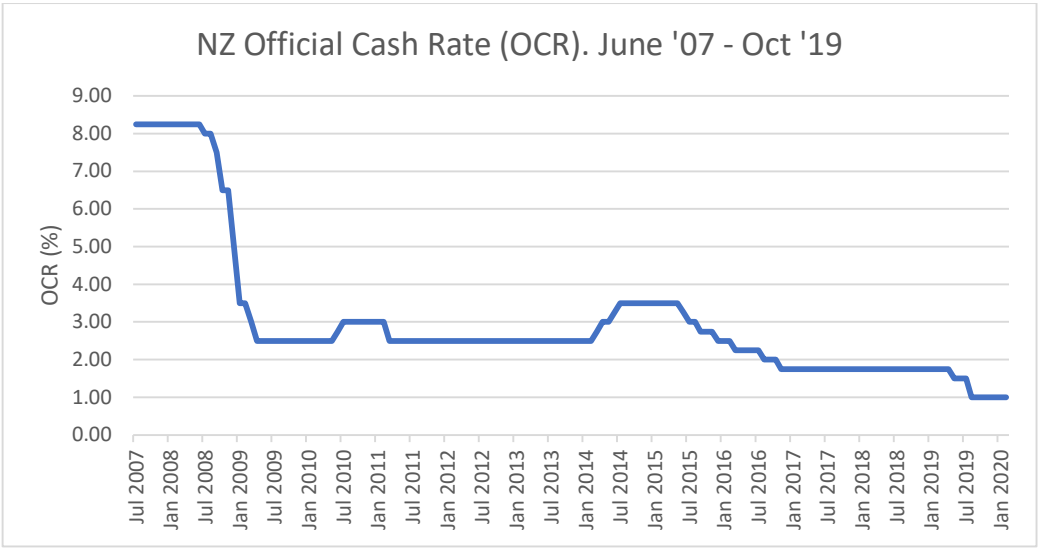

Figure 16 - NZ Official Cash Rate June 07-Current (B2). Source: https://www.rbnz.govt.nz/statistics/b2

that guides the cost of trading bank borrowing from the RBNZ and from other banks. The OCR is especially influential on how value is translated in the dairy industry given the relatively high levels of bank loans to dairy compared to other industry sectors as established in the previous section. Lower interest rates represent a reduced cost to the dairy industry meaning more capital can be retained for improvements, debt reduction or further expansion.

Interest rates for guarding against inflation took shape following the Reserve Bank of New Zealand Act (1989). While the RBNZ Governor and the Finance Minister periodically agree on what the RBNZ

should target in the Policy Targets Agreement (Brash, 2010), the RBNZ as monopoly setter of the base interest rate (the OCR) has, since this Act, been given operational independence to control inflation[21] in what is termed Monetary Policy:

> 'Monetary policy is the setting of the base interest rate, which dictates how our account holders [ESAS account holders, mainly banks] can borrow from us [RBNZ] or what we'll pay on settlement cash deposits. The goal is to control inflation by making money more or less expensive' (Benjamin, interview).

Making 'money' in the form of RBNZ settlement cash more or less expensive for banks, influences the amount of 'money' in the form of bank-credit that banks can create when they lend. This is similar in function to making banks convert, as happened in the past. A bank has to maintain a certain amount of settlement cash in their ESAS account at the RBNZ to clear all daily payments between itself, other banks and the Government. The cost of this settlement cash which a member bank can borrow 'on demand' is set by the RBNZ through the OCR. This can limit bank-credit in two ways. First, because the OCR plus some margin forms the lending rates that banks charge customers, an increase in OCR increases the cost of bank loans for borrowers like dairy farmers, theoretically meaning a decreased demand for bank loans and reduced economic activity. Second, it theoretically increases the cost of borrowing for banks, eating into their capital, which limits the amount of loans they can make because of the RBNZ's capital requirements (Bollard, 2002; Brash, 2010; Parekh, 2016; Singleton, Grimes, Hawke, Holmes, & Hawke, 2006).

Bank capital, the assets owned by the bank that can be used to invest or to redeem it from payment obligations, is the main concern for RBNZ staffer Benjamin, rather than dairy industry viability. 'Our main role is assessing the dairy sector and asking whether they [banks] are sufficiently allocating

[21] Inflation is the rate at which the general price level of a basket of sampled goods and services persistently rises in any given period. Disinflation is a reduction in the rate of inflation. Deflation is the rate at which the general price level falls persistently over a given period.

capital to account for that risk' (Benjamin, interview). Recently the RBNZ has sought to regulate how much of bank capital must come from shareholders (Reserve Bank of New Zealand, 2019b, 2019c). The idea of extending the minimum capital requirements was to ensure that 'owners of a bank have a meaningful stake in the business' (Reserve Bank of New Zealand, 2019b, p. 4) and this would 'reduce the chances of a bank failing' because of the increased exposure shareholders would have as a result (Reserve Bank of New Zealand, 2019b, p. 5).

These capital requirements are meant to reduce risky bank loans being made to sectors such as the dairy industry which was recently described as 'a key concentration of risk for the banking system' (Reserve Bank of New Zealand, 2020, p. 13). This cycle of bank loans being made against dairy land, where rising land values are then used as security for more bank loans, came to the attention of the RBNZ because 'low commodity prices and interest rate shocks remain a threat and might cause significant losses for lending banks' (Reserve Bank of New Zealand, 2011, pp. 22, 24). The RBNZ then routinely analysed bank loans to dairy because 'the dairy sector is more indebted relative to its income and assets than other agricultural sectors' (Reserve Bank of New Zealand, 2017b, p. 14).

This section has shown how the RBNZ has undertaken the relational practices of guarding as Te Pūtea Matua, guardian of the financial ecosystem, translating the value of durability into the financial system. First, the RBNZ sets and adjusts interest rates through the OCR. This makes bank loans more or less expensive, which is of increased importance to dairy farming because of the industries high levels of debt which the RBNZ views as a key concentration of risk for financial stability. Second, the RBNZ practices guarding by making commercial banks maintain ESAS accounts for clearing payments between themselves and the state. Third, guarding is displayed by increasing bank capital requirements so that the increased exposure to risk for bank shareholders translates into theoretically limiting risky lending. The dairy industry value has had risk translated into it by these practices of RBNZ guarding.

These practices try to create different balances between relations that are stabilised through the work of loans. Various actors such as investors, depositors, dairy industry borrowers and state officials have competing yet overlapping interests in value derived from bank loans. The value of durability through a tentative stability is what the RBNZ is interested in achieving as seen through three practices of setting base interest rates, maintaining ESAS accounts and setting capital requirements. As such, risk has been translated into dairy industry loans and into bank loan portfolio's that are exposed to dairy. The durability of bank lending is practically achieved through assembling the relations of moneyness by guarding, that stabilise a tentatively negotiated balance between commensurable forms of value in milk, international capital and dairy land.

5.4 Conclusion

The work of loans, that I have illustrated mostly through banks, has tentatively stabilised the sets of relations that I am showing as moneyness assembling. The practices I have used to describe these relations are those of redeeming, expanding and guarding. With redeeming, I showed how creditability was translated into the BNZ by that Bank making good on promises and by being saved. These practices meant agriculture could continue to produce commodities after the Long Depression until the value translated into agricultural land became workably commensurable with other values such as rural mortgages and internationally traded agricultural commodities. This set some necessary financial relations that allowed the emergence of the dairy industry to become actualised as a credible and reliable accumulator of sterling.

The obligation to convert into sterling limited bank loan creation and so the work of the dairy industry was valuable to the finance industry, as export receipts redeemed them from their obligation to convert so they could continue lending. Through practices of expanding, I showed how the RBNZ stabilised the transmission of state bank loans through other actors such as the Dairy

Industry Loans Council and The Rural Bank, which encouraged the dairy industry to expand between the 1930's and 1980's, where it continued to reliably accumulate various units of account that the financial system promised to convert into. From the 1980's, the expansion of commercial trading bank loans has allowed dairy to spread and grow more rapidly and into new regions because of the interconnected interests of international capital, the state and dairy farmers, to realise value from milk, land and finance. To maintain bank loans as durable, the RBNZ undertakes practices of guarding as shown by adjusting the base interest rate, maintaining ESAS accounts and enforcing new bank capital requirements. These loan practices are part of the continuing processes of how the relational architecture of moneyness translates value into dairying and makes it stably commensurable with other forms of value from work in the financial system.

Through these histories, bank loans have consistently worked to stabilise sets of relations, but how they have been practically accomplished and maintained through various crises has been varied and adaptable. Rather than banking and the New Zealand dairy industry having evolved in their separate spatio-temporal realms, using moneyness, a different explanation is developed to show how money works and the work that money does. Interconnected sets of moneyness relations are shown to have been accomplished through bank lending practices. These relations stabilised as an effect of how the work of loans has translated milk, mortgage, land and capital values across space. Such spaces include the New Zealand banking system, the dairy industry and new agricultural regions. The durability of these relations through the way moneyness has adapted over time has meant that financial work and the work of the New Zealand dairy industry were made stably commensurable and contributed to national value through accumulating $NZ/£NZ/£sterling. The dairy industry viewed through a moneyness optic allows us to see the spatially and historically negotiated work of loans from which the dairy industry has been both a stably invariant and yet constantly transforming effect.

6. The Work of Shares

This chapter illuminates a third set of relational work I analyse as moneyness. Examining cooperative shares shows another aspect of the ongoing work that made financial value, dairy industry value and national value commensurable, stabilising the dairy industry as a continually transforming effect. This work made the dairy industry the taken-for-granted backbone of the economy. In this chapter I show how the work of shares has been adapted by the cooperative dairy industry to overcome different problems. I start by explaining the common historical forms of cooperative share structures and then use three sets of practices which I have named *herding*, *homogenising* and *milking,* to show how the work of shares has been locally arranged and historically negotiated in the assemblage of dairy industry.

Herding explains how dairy farming in a cooperative structure was historically accomplished in a small town called Rongotea from the 1890's. The Rongotea Cooperative Dairy Company (RCDC) used nominal shares to overcome a crisis that arose as a result of supplying a proprietary dairy company. Because the RCDC and neighbouring cooperatives had nominal shares, the milk price became the key battleground for demonstrating the relative value of belonging to a particular cooperative, and competition between cooperatives for milk supply encouraged company mergers.

Then in practices I call *homogenising*, dairying around Rongotea was blended into larger but fewer cooperative organisations through mergers that sought economies of scale and scope, so a higher milk price could be paid. Changes in Dairy Board ownership and a legislated exemption then allowed Fonterra to form, partly in response to the problematisation of delivering national value measured in money as GDP. Fonterra became possible because of a change in the work of shares that translated value from a nominal share-price to a fair-value share price because of the way that the fair-value share price was related to the milk price.

Milking then shows some ways in which Fonterra has made adaptations through innovative practices that have changed the relationship between its fair-value share price and the milk price. I show that this has translated commensurable value into dairy land values that has both allowed the dairy industry to expand and simultaneously worked to challenge its stability.

6.1 Cooperative Share Structures

The producer cooperative is characterised by dairy farming suppliers of milk, owning shares in a cooperative company that manufactures, distributes and markets milk products. In most cases, one share is required to supply one unit of milk such as a litre or a kilogram of milksolids (Kg/MS). Kg/MS expresses the unit of milk most New Zealand dairy cooperatives have preferred since the 1960's when powdered milk products became the most valuable dairy export, surpassing cheese and butter. Prior to this milk was priced in pence per pound of butterfat or per gallon of milk supplied.

'Nominal' shares are where a supplier providing a litre of milk or pound of butterfat would be required to own a share of the cooperative valued at a nominal price of say £1. This value might be shifted up or down by the company board of elected supplier shareholders to reflect the costs of investing in new processing assets from any increased supply of milk. The nominal share price has a stated value and is redeemed by the cooperative for that value if required which is different to a shares market value which fluctuates because the market decides what a share is worth. For this reason, nominal share prices did not fluctuate much.

Fonterra Cooperative Dairy Company has recently used a variation of a 'fair-value' share price system rather than 'nominal', where one share is still required to supply a unit of milk such as a Kg/MS but differs in how the price is set. The 'fair-value' share price of Fonterra was valued by a Valuer, on the expected company profitability that might be distributed to shareholder suppliers in the form of dividends (Evans & Guthrie, 2006). Fonterra has adjusted the way it prices shares, and

this is the subject of the final section in this chapter because of the way it has altered value within the dairy industry. Broadly, the cooperative dairy structure in New Zealand shifted from many competing cooperatives with 'nominal' shares and the share-price based on manufacturing costs, to a near monopoly cooperative with a 'fair-value' share-price based on profitability. The Rongotea Cooperative is illustrative of a company with nominal shares, Fonterra as exhibited later in the chapter is illustrative of a variable 'fair-value' share price structure.

6.2 Herding

Herding in Rongotea transformed butter manufacturing in this place from a proprietary concern to one cooperatively organised. The cooperative defined who or what was inside the Rongotea Cooperative Dairy Company (RCDC) with ownership apportioned by the subscription of nominal shareholders. I show how herding, through the work of nominal shares adapted and changed the early dairy industry at Rongotea in response to a difficulty that arose for supplying a proprietary dairy company. Owning cooperative shares translated different value into the milk price, which I argue in the next section meant the industry tended toward consolidation.

6.2.1 Mr. Corpe's dairy factory

My story starts near one of Falconer Larkworthy's estates. Rongotea, originally known as Campbelltown, is a small town approximately 19km northwest of Palmerston North, the largest city in the Manawatu province of New Zealand's lower North Island as shown in Figure 17.

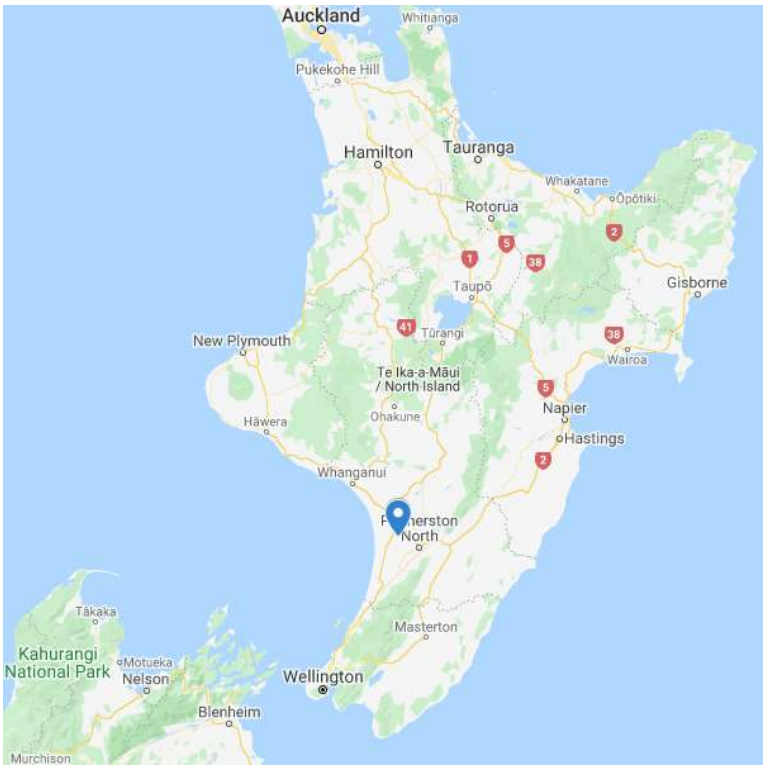

Figure 17 - Map of New Zealand's North Island showing location of Rongotea (Blue Pin) near Palmerston North.

Mr. William Wescombe Corpe of Somersetshire landed at Wellington in 1858. After undertaking enterprises such as selling merchandise to miners, flaxmilling and sawmilling, Corpe ended up owning the Taratahi Store near Masterton by 1872 (Birch, 1993). The Wairarapa Standard (1879, p.20) later reported that 'we deeply regret to learn that Mr. Corpe of Taratahi, has had to assign the store to his creditors', Corpe reportedly 'ascribed his failure to several causes, amongst which was the bank calling in his overdraft'.

By 1883, Corpe had begun blending and salting surplus butter from farmers around the district at his new Makino store about 15km North East of Rongotea, before selling it locally or in Wellington (Birch, 1993; Warr, 1988, pp. 92, 93). Corpe expanded this proprietary concern by enlisting investor shareholders in The Makino Butter Factory Limited with £500 of capital required, £250 to be called-up immediately so equipment could be bought (The Feilding Star, 1883, p.2). The Feilding Star (1884,

p.2) subsequently reported on a sample of Corpe's butter quite favourably 'congratulating the Makino folks on the establishment of this company'.

By April 1889 Corpe had exported twenty-four tons of butter to London in the preceding seven months and just over half that again to Sydney (The Feilding Star, 1889, p.2). In February 1893, Corpe had 'decided to erect a butter factory at Campbelltown', expecting to start his new factory that September (Manawatu Herald, 1893, p.2). Many farmers had signed up to permanently supply Corpe's new venture and by November, Corpe was paying '£800 cash per month into the district' showing 'what an enterprising man can do' (The Feilding Star, 1893, p.2). The butter that Corpe could not sell to local stores or in 'the Wellington market' was exported to London (Croucher, 1944, p. 14).

The export of Mr. Corpe's butter from Campbelltown quickly grew. 'The first shipment consisted of forty boxes' [56Lbs each or one ton] and was sold by his 'brother, acting as Mr. Corpe's agent in London' who wrote back detailing the opinion that 'it is the equal to any I have seen'. This encouraged a further 200 boxes and by January 1894 'shipments are sent away every fortnight, aggregating about 500 boxes a month' (The Feilding Star, January 1894, p.2).

In September 1894, Corpe and his suppliers agreed to a payment of 3d (pence) per gallon for milk that averaged 3.6% or more of butterfat using the recently available Babcock test[22] (The Feilding Star, September 1894, p.2). Milk suppliers hotly contested the validity of the Babcock test results (The Feilding Star, October 1894, p.2) and a subsequent 'notice was placed outside the Campbelltown Dairy Factory to the effect that Mr. Corpe has decided to resort to the old system of

[22] The Babcock Test was devised by American agricultural chemist Stephen Babcock, using acid to dissolve everything in milk other than butterfat that could then be measured in establishing compositional norms that were standardised across dairy producing countries.

payment, 3d per gallon' no matter what the milkfat content, just a month later (Woodville Examiner, 1894, p.2).

By December 1894, Corpe negotiated a reduction in payment per gallon from his suppliers due to the stress on profitability owing to increased supply competition in the form of 'enormous quantities of butter now being shipped from Victoria' to Britain (The Feilding Star, December 1894, p.2). In December 1894, the accumulated pressures brought about different action:

> 'Information was received by Mr. Corpe from his brother in England, who anticipated a bad market period for butter in that country. Without further delay suppliers were given ten days' notice that the business would be closed, or alternately they had the option of taking over the plant as a going concern' (Croucher, 1944, pp. 17, 18).

There is a key tension that runs through this chapter between proprietary ownership of a dairy company by shareholder investors and cooperative ownership by shareholder suppliers. Milk price for the entrepreneurial Mr. Corpe was a cost of production and profitability was the primary concern therefore his interest was to keep the milk price payout low. When profitability was threatened by the distant array of connecting relations affecting potential butter prices in London and other difficulties including Babcock test results, the coherence of the Campbelltown Dairy Factory was reviewed. Corpe, using the milk price as a cost of production, calculated that herding various resources for making butter was no longer viable for him. If dairying was to continue in Campbelltown it would have to transform. The transformation into a cooperative dairy company with supplier shareholders changed relations of the dairy factory to milk price, as cooperative shareholders are interested in paying as high a milk price as possible because that is their investment income, rather than as low as possible to be minimised as a cost of production.

6.2.2 The Rongotea Cooperative Dairy Company (RCDC)

Corpe's milk suppliers in Campbelltown decided to continue dairy farming, forming the Campbelltown Cooperative Dairy Company . 'The factory was leased for the first three months at 7.5% interest on £1100' and an agreement for a purchase price of £1000 with a £300 deposit and a schedule of repayments over the next three years, with 7.5% interest on the unpaid balance to clear the £700 that Corpe left in. 1500 nominal shares at £2 each were allocated for a nominal capital value of £3000 and a £1000 overdraft was arranged with the BNZ for payment of production expenses and improvements. The directors signalled an intention to deduct 6% of the monthly milk cheque for 'paid up capital', to service interest payments to the BNZ, to Mr. Corpe as vendor financier, and for operating expenses. The balance would be divided among suppliers (Feilding Star, 1895, p.2). Mr. Glover, an original supplier from 1895 went as a one of the original 'guarantors' that allowed the Cooperative to obtain BNZ bank-credit (Rongotea Co-operative Dairy Company, 1938, p. 1).

The milk price transformed from merely a manufacturing cost to also being the income of not just milk suppliers but of shareholder suppliers. This translated new value into the milk price because the shareholders were now financially interested in paying a high milk price where Corpe was more incentivised to pay a low milk price. A high milk price for shareholder suppliers meant more income but it was also a way to pay for the nominal shares they were required to subscribe to for supplying milk, so a higher milk price meant dairy farmers could expand.

At the first half-year meeting of the Campbelltown Dairy Company, the Chairman announced that 1,012 shares had been taken up of the original 1,500 on offer. That represented £2,024 of capital, some 'called' (paid for) and some 'uncalled' (The Feilding Star, 1895, p.2). The shares in the Cooperative were theoretically fully subscribed to shareholder suppliers but paid-up over time through deductions from their milk cheque.

The first Annual General Meeting minutes recorded £600 still owed to Corpe but noted that payments were on schedule (The Feilding Star, 1896, p.2). The debt to Corpe was being repaid through the Cooperative holding back some portion of the milk payment to suppliers and allocating it as automatically 'called up' capital.

In 1895, the Campbelltown Co-operative Dairy Company became the Rongotea Co-operative Dairy Company (RCDC) when Campbelltown changed its name to avoid confusion with a South Island town of the same name[23]. The RCDC's 'London agent' reported that the quality of butter sent was 'quite equal to Danish and in time could realise the same price' and promised that 'we could sell all you make' (Manawatu Herald, 1896, p.2). The RCDC then 'sold the next three years output at a minimum price to an English buyer' and expected to immediately 'pay off the balance of the mortgage on plant and factory' thereby settling the RCDC obligation to Corpe, to whom this chapter now says farewell (Feilding Star, October 1896, p.2). This provided a higher level of provisional financial certainty so that plans for expansion could be reliably costed against a more knowable expected revenue.

A new 'creamery' room was added as an extension to the factory resulting in an 'overdraft balance of £984 with the Bank of New Zealand' at year end (Rongotea Co-operative Dairy Company, 1900, p. 2). In 1906 there was another issuance of £1000 in share capital consisting of 400 shares valued at £2/10s each (Rongotea Co-operative Dairy Company, 1906, p. 3). This new nominal share price meant suppliers could subscribe to supplying an extra 400Lb of milkfat representing approximately 1500 gallons of milk, with bank overdrafts and shareholder capital funding the new butter making processing assets. Other infrastructure funded by a mixture of debt and called-up shareholder capital included an entirely new factory to be made of brick, a £648 fifty horse-power gas suction plant installed in 1910 and a £772 tiled roof (Croucher, 1944, p. 31).

[23] Notice was given on October 4th 1895 of the name change (The Feilding Star, 1895, October 4).

At a speech for the opening of the new factory and to outline the RCDC Secretary's 'extremely careful attention to the financial affairs of the company' a story was told regarding a potential shareholder who was deciding whether to buy a farm in Rongotea. The potential purchaser was dissuaded after 'conversations with the company secretary left the impression that he would skin a man pretty clean' (The Feilding Star, 1911, p.2). This is an early example of herding, with the RCDC being judicious in who would be allowed to become a shareholder.

An additional 'BNZ overdraft no.1' and 'no.2' (Rongotea Co-operative Dairy Company, 1913, p. 4) was later split into the location of each branch where the overdraft was held, 'BNZ (Rongotea)' and 'BNZ (Bulls)' (Rongotea Co-operative Dairy Company, 1916, p. 4). Two 'Edison-Walker electric lorries for cream collection were funded by extending overdrafts with the BNZ to include a further 'electric truck no.3 account' and the 'electric plant account' as liabilities outstanding (Rongotea Co-operative Dairy Company, 1919, p. 5).

Strong WW1 production to take advantage of the 'imperial commandeer' saw the share capital in RCDC double to 4000 shares. Space had to be made for suppliers to purchase more shares to accommodate increasing production and pay back the bank overdraft that accumulated as the cooperative invested in more milk processing capacity (Rongotea Co-operative Dairy Company, 1923, p. 2). The collapse of dairy commodity prices in the 1921/22 season brought about swift action by the state in instituting the Dairy-produce Control Board Act 1923 which began various iterations of the Dairy Board. These events didn't appear to severely impact the Rongotea Cooperative although the Chairman two years later noted that he hoped the Control-board might see a 'steadying of butter prices' (Rongotea Co-operative Dairy Company, 1925, p. 1).

The Great Depression and an accumulation of relatively low prices through the 1920's was of greater concern. The combined butter and cheese payout in the 1932/33 season dropped as low as 8.93d/Lb butter, the worst nominal prices since 1904 without taking into account inflation and a shadow of

the prosperous 1921 season's 33d/Lb (A. H. Ward, 1975, p. 246). Paradoxically production boomed, with 'billycan' producers such as sheep, beef and grain farmers that kept milking cows for home use or domestic supply, supplying small quantities to dairy factories across New Zealand for cash that was somewhat less than the factory payouts received by supplier shareholders. Between 1928 and 1934 cows in milk rose from 1.3m to 1.8m due to billycan suppliers, improved husbandry practices, increased stocking rates, technology and a supply of cheap labour from urban centres (A. H. Ward, 1975, pp. 82-83).

After two bad years of early Depression prices, one RCDC supplier 'urged the directors to leave no stone unturned in an endeavour to find a better system of financing the company, on account of high interest rates being charged by the banks on overdraft'. Another resolution was that 'a deputation be made to the County Council urging that a reduction in rates be made' (Rongotea Co-operative Dairy Company, 1931, p. 5). 1932 is notable for the RCDC having voted on whether to send a box of butter to the Palmerston North mayor's relief fund. 'The vote was lost' (Rongotea Co-operative Dairy Company, 1932).

1934 saw an RCDC production and revenue record, and 'a reduction in the exchange rate that was equivalent to a bonus being paid out' (Rongotea Co-operative Dairy Company, 1934, p. 4). The devaluation coordinated between the banks and the state saw an extra 1.5d/Lb butter payout on average over New Zealand (A. H. Ward, 1975, p. 82). Despite the usual practice of paying a bonus to the factory workers being motioned, it was opposed, one shareholder argued that 'in the present climate, the man with a permanent job is fortunate'. The shareholders voted in favour of owing nothing extra to the factory staff (Manawatu Standard, 1934, p.12). In addition, the RCDC owed less to the bank, the bonus to the company from the exchange rate adjustment saw it dissolve its overdrafts (Rongotea Co-operative Dairy Company, 1934, p. 5).

At the Rongotea Cooperative there was a constant balancing and rebalancing of relations by adjusting moneyness. Investment in new plant paid for by bank loans and/or shareholders putting in more nominal share capital is balanced against cost controls, production output, the Dairy Board control of marketing and the value quoted in the exchange rate. What I am showing is that these balancing of relations was frequently referred against and made commensurable by, what they meant for the milk payout. The milk price's relational importance comes in at least two ways, First, it guards against supply moving to proprietary dairy companies where the proprietary interest is in keeping the milk price low to extract profitability, as had been demonstrated by Corpe. This adds a precarious uncertainty to producing milk for local processing. Second, because nominal shares do not provide any further information for comparing relative cooperative performance, relative milk payout prices between cooperative becomes more important as dairy cooperative company boundaries begin to push into each other. This unfolding of predicaments is where moneyness adapts relations to maintain stability of the assemblage.

6.2.3 Expanding the herd

The RCDC followed the rest of the dairy industry by expanding production. This expansion was assisted by the state, which was becoming more committed to encouraging the dairy industry as a sterling accumulation machine as demonstrated in the previous two chapters. Some of what this meant for the Rongotea Cooperative on the ground is demonstrated here. After the Great Depression, the balancing of relations was maintained, stabilising cooperative dairying at Rongotea despite the continuation of new complications arising. Practices I call herding demonstrate the increasing relational importance of the milk price payout to stabilising cooperative dairying which was made possible through nominal shares.

The Primary Products Marketing Act (1936) instituted guaranteed prices for milk because of the 'public interest' served by protecting dairying from price fluctuations. For the RCDC this yielded an

extra £31,250 in final milk price payment over the previous year (Rongotea Co-operative Dairy Company, 1935, p. 8). The company auditor recommended a bonus be paid to suppliers, but the Company Secretary retorted, 'it is not the business of the auditor to say what Directors should pay as a bonus' and a vote was passed to deduct 10% of the auditor's fee (Rongotea Co-operative Dairy Company, 1935, p. 11). The next year the full fee was restored (Rongotea Co-operative Dairy Company, 1936, p. 4) and in 1937 the Auditor moved 'that the Company Secretary be congratulated on how well he had kept the company's books' (Rongotea Co-operative Dairy Company, 1937). The Auditor was let back inside the herd.

Similar to the WW1 commandeer, a 'bulk purchase' arrangement with Britain was renegotiated for WW2, cheese being preferred due to its durability and ease of use on the battlefield (A. H. Ward, 1975, p. 109). The result for RCDC was that 24 suppliers were seconded to surrounding cheese factories. The Annual Report for Rongotea Co-operative Dairy Company (1940, p. 9) discussed the extra cost added to the RCDC for the loss in output and the increased marginal costs per Lb of butter. The idea was floated to lobby the government for a levy on cheese companies to compensate butter factories for this inconvenience. The Annual Report for Rongotea Co-operative Dairy Company (1941, p. 9) duly announced the return of suppliers previously zoned for cheese making and those suppliers would be compensated for the extra expense incurred at 1.5d per Lb of butterfat they would produce in the upcoming 1941-42 season.

With the importance of dairying as a sterling accumulator now established, the state in 1951 'commenced the erection of three state houses for factory employees' in Rongotea (Rongotea Co-operative Dairy Company, 1951, p. 2). In 1953, the RCDC borrowed £15,000 from the Dairy Industry Loans Council to erect a manager's house (Rongotea Co-operative Dairy Company, 1953, p. 3). As I detailed in the previous chapter, additional state bank-credit through the RBNZ funded new assets for the cooperative dairy industry. At Rongotea between 1952 and 1954, these included the erection

of a new cooling chamber, the sinking of an additional artesian bore and an automatic butter wrapping machine. The company received loans totalling £22,400 of 'industry funds' over this period which were written off after being verified as spent on capital improvements. An additional 5/8d per Lb butterfat was given to each supplier for their own capital improvements totalling £13,000 over these two seasons (Rongotea Co-operative Dairy Company, 1954, p. 2).

Debates over the merits of investing in milk powder processing assets can be seen in a series of RCDC meeting minutes from 1949 to 1953, each time it was decided not to invest by itself or with neighbouring cooperatives. Without the RCDC, its rivals at Awahuri, Kairanga and Rangitikei combined to form the Associated Dried Milk Co-operative Ltd in 1949, each taking a different portion of the 18,000 of the £1 nominal shares (Associated Dried Milk Co-operative, 1950, p. 1).

Because of the success of the Dairy Board in marketing milk powder the RCDC voted to invest in installing a buttermilk facility at their own premises in Rongotea (Rongotea Co-operative Dairy Company, 1952, p. 6). In 1953, a resolution was put forward that the RCDC 'provide finance for a Manawatu Company for the purpose of establishing milk drying plants in the Manawatu' by putting aside a reserve fund through deducting 1d per Lb butterfat from the milk payout over the next three years just in case investing in further milk powder assets was found to be necessary. The resolution was however lost (Rongotea Co-operative Dairy Company, 1953, p. 6).

The rise of 'non-standard dairy products' such as buttermilk powder, whole milk powder and casein, which were to eclipse the export value of cheese by 1965, represented a new frontier of competition among cooperatives for supply (A. H. Ward, 1975, p. 201). The Awahuri Co-operative investing £80,000 on commissioning a casein factory was a problem for the RCDC, as suppliers shifted to Awahuri which promised larger payouts from increased efficiency in producing a higher value product. A vote was taken on whether to compete or to investigate amalgamation instead. The vote was won to amalgamate, and the die was cast for the end of the RCDC in its current form.

The RCDC amalgamated with the Awahuri and Kairanga Cooperatives to form the Manawatu Cooperative Dairy Company (MCDC) in 1960. The final RCDC annual report detailed only minor 'current liabilities' (due to be paid back within the year) of £4428 to 'Sundry creditors', a £27 'provision for taxation' and the rest of the £80,724 being owed to suppliers for their final milk payment. There were £0 in total 'fixed term liabilities' (due in over a year). The RCDC ended its existence owing very little except to its own shareholders (Rongotea Co-operative Dairy Company, 1960, p. 3). At the final RCDC AGM the last person to speak was Mr. D.D. Lunn, Branch Manager of the Rongotea BNZ 'who spoke of the relationship existing between the two organisations and expressed his hope that this would continue' (Rongotea Co-operative Dairy Company, 1960, p. 10).

From the uncertainty of Corpe's proprietary dairy factory where the interest of Corpe was to keep milk prices paid out low, the Rongotea Cooperative had supplier shareholders with nominal shares where the interest was to keep milk prices paid out high. Through a series of crises including World Wars, the Great Depression and the influence of neighbouring cooperatives competing for suppliers by investing in milk powder assets, nominal shares remained while the state and banks augmented this capital through the work of loans. Herding shows the work of shares had maintained a tentative stability for the Rongotea Cooperative, enabling capital to navigate these crises by adapting the relations of moneyness. This stability was valued through the milk price paid out because the common practice of nominal shareholdings meant that share prices were not a metric through which relative performance between cooperatives could be evaluated when competing for supplier shareholders. Milk price became the basis for comparing commensurable value between cooperatives and this tended toward industry consolidation.

6.3 Homogenising

Milkfat is a complex structure of proteins, lipids and carbohydrate chains that clump together in globules within mammalian milk. The process of homogenising blends and distributes these globules

to give milk a more even consistency for human consumption. The Manawatu Cooperative Dairy Company absorbed the Rongotea Cooperative to enhance the milk price payable to shareholder suppliers that held nominal shares. Homogenising as set of practices showing the work of shares, metaphorically takes disparate elements like the heterogenous New Zealand cooperative dairy industry and gives them the appearance of uniformity by blending them together. I will show these practices ended up forming Fonterra as an expression of the dairy industries contribution to national value.

Key to the arrangement of these moneyness relations that assembled the dairy industry into a near monopoly represented by Fonterra, was the adaptability of practices as shown through the work of shares transforming from nominal value to fair value. This made financial value between the two largest remaining cooperatives, Kiwi and Dairy Group, commensurable with each other and with the Dairy Board. This commensurability allowed Fonterra to emerge despite competition legislation banning monopolies, as the dairy industry's answer to how it could best contribute to the long-standing imperative of accumulating foreign exchange, the ultimate expression of how national value has been measured.

6.3.1 Merging into Kiwi Cooperative Dairies

Between 1960, the year the MCDC started and 1989, the number of dairy companies in New Zealand reduced from 180 to 19 (Dobson, 1990, p. 543). In 1989 the MCDC and Wairarapa based Tui Co-operative amalgamated to form Tui Milk Products headquartered near Palmerston North. Chairman John Whitelock simply stated that the merger 'heralds further progress in the consolidation pattern of this region' and that 'history will show that the affairs of dairying in this region have progressed through an orderly, rational and considered approach' (Manawatu Co-operative Dairy Company, 1989, pp. 6, 8).

Whitelock's memoire later suggests the merger was essentially in response to defending supply from an increasingly large competitor in Taranaki, Kiwi Cooperative Dairies. Kiwi, like MCDC and then Tui, had developed through local mergers, into a large cooperative with their major single-site dairy factory in Whareroa near Hawera. This delivered Kiwi a cost advantage through economies of scale and its location near the Taranaki coast enabled them to save money through 'disposal of wash water into the sea' (Whitelock, 2008, p. 169). Lower marginal costs of production meant it could afford to pay a higher milk price, attracting more suppliers from neighbouring co-operatives.

'Supply agreements' between cooperatives previously had the effect of restricting which dairy farm each dairy company could take milk from, showing the cooperative dairy industries 'excellent spirit' (New Zealand Dairy Exporter, 1957, p. 19). The Commerce Act (1986) which aimed to promote competition in markets, established the Commerce Commission to investigate and enforce the Act, which effectively abolished supply agreements because they restricted competition. Thirteen Taranaki dairy companies post-WW2 amalgamated into two, the last few hotly contested mergers were known locally as 'the troubles', assisted by not only the emergence of milk powders but with milk tankers enabling collection from further flung milk suppliers (Morris, 1993, pp. 166, 167). In 1992, Moa-Nui and Kiwi then merged under the larger of the two's banner (Richards & Richards, 1995). Kiwi became the second largest dairy company in New Zealand after Waikato's New Zealand Dairy Group, and Kiwi processed about 20% of the nation's milk at Whareroa (Lind, 2013, p. 235).

Kiwi extended the search for milk supply into neighbouring Manawatu, where the Tui Chairman accused Kiwi of 'acting like a thief in the night' (Whitelock, 2008, p. 177). Increased milk supply meant the large processing assets of Kiwi could run at optimal production levels and Kiwi sent a milk train through the Manawatu and into Hawke Bay, to collect and bring back milk in large stainless-steel carriages to process at Whareroa. Taranaki's Kiwi later merged with the Manawatu based Tui in 1996 following an 'efficiency improvement study' (Tui Milk Products, 1996, p. 3). This allowed Kiwi

access to a local market similar in size to New Zealand Dairy Group. It also allowed it to have similar 'production equivalence' so that any potential mega-merger between the two, could be undertaken on a more equal footing (Lind, 2013, pp. 282, 283).

Twelve New Zealand dairy cooperatives in 1996 reduced to four in 2000. Dairy Group and Kiwi together had 95% of total New Zealand milk supply from 14,000 farmers (Ohlsson, 2004, p. 7). The small Tatua Cooperative in Waikato and Westland Cooperative based in the South Island West Coast town of Hokitika had around 100 suppliers each (Evans, 2004, p. 12).

Kiwi showed how economies of scale were essential to translating value into the milk price. Removing supply agreements through the Commerce Act, removed a limit on competition between cooperatives. Running processing assets at full capacity and achieving economies of scale by attracting new supplier shareholders who could simply swap nominal shares in one company that were redeemable at par value and buy supplier shares in another, meant that milk price was enhanced as the key value relation for supplying cooperatives.

6.3.2 Distributing the Dairy Board

While the dairy cooperatives were homogenising into larger companies, The Dairy Board also undertook a period of change. I have already described some ways that influence over the Dairy Board by the cooperative dairy industry was increasing in previous chapters, for instance, by transitioning state directorships to industry directorships. In the last few years of the Dairy Board, contests over its value saw the Dairy Board change by redistributing its nominal shares among the consolidated industry.

The Dairy Board Amendment Act 1988 simultaneously 'released the Board from government accountability, freed it to make its own decisions on borrowing, investment and milk pricing, and clarified the Board's role on behalf of New Zealand dairy farmers' (Britton et al., 1992, p. 24). The Act

retained two government appointed directors with ten directors from the dairy industry. The Dairy Board Amendment Act (1992) then handed substantial control of the Dairy Board over to the dairy cooperatives, replacing the two remaining government appointed directors with commercial directors nominated by the Dairy Board. Cooperative ownership of the $750m in Dairy Board nominal share capital was allocated in proportion to the milkfat contributed by each company for the Board to market overseas.

The Amendment to the Dairy Board Amendment Act (No.2) (1996) allowed the Dairy Board to issue additional nominal shares to 'qualifying companies and persons [supplying shareholders of cooperatives]' (Akoorie & Scott-Kennel, 1999, p. 149). These new allocations issued nominal shares in proportion to the milk solids (changed from milkfat) they contributed to the Board for marketing overseas and cooperatives would have to buy more if they contributed more milk solids. If they contributed less milk solids, they could surrender shares at their nominal value. Tui's Chairman described the Dairy Board in this way becoming 'more subservient to manufacturing companies' (Tui Milk Products, 1996, p.4).

'Devoted neoliberals' (Wynyard, 2016, p. 248) had argued for complete Dairy Board dissolution. Various arguments in support centred around allowing foreign capital to flow more freely into the dairy industry so it could invest and compete with foreign multinational dairy companies such as Kraft and Nestle. Various theories centred around opening the industry up to competition which would apparently force it to become more efficient and innovative (for example Bates, 1997; Dobson, 1998; Richardson, 1995). Theories of market efficiency in respect to restructuring producer boards in general were also influential among officials at The Treasury (New Zealand Dairy Board, 1988b).

In addition, Bates (1997, p. 21) argued that the Dairy Board's export monopoly led to 'inefficient management practices' and 'wasteful capital expenditure', and efficiency metrics were difficult to

establish in the absence of 'market mechanism's' (Dobson, 1998, p. 11). Such market mechanisms for measuring whether the Dairy Board efficiently used capital was an argument for linking Dairy Board profitability to a fair-value market traded share price rather than the nominal share price not traded in any market. Fair-value share prices could move up and down in a market which trades them based on the expected returns of the company as expressed through the payment of dividends to investors. This debate over the value of fair-value shares became important as I will later explain when describing the arguments leading up to the creation of Fonterra, which changed the cooperative dairy industries long-standing relation to milk price and therefore changed related value relations.

The Dairy Board, now fully owned by the cooperative dairy industry, argued in contradistinction. Because international dairy markets were subject to an array of state protections and trade barriers, it alone had the strength to compete internationally by being a statutory state marketing monopoly and free competition was not possible for making a comparison of efficiencies between competitors because of these protections (New Zealand Dairy Board, 1988a, p. 6). Willis (2001, p. 64) points out that 'under the guardianship of the Dairy Board, New Zealand's share of world dairy export markets had increased from 22 per cent in 1994 to 33 per cent in 1997'. It is this ongoing ability of the dairy industry to accumulate foreign exchange, established because of the long history of the financial system promising to convert, I argue made financial value and dairy industry value commensurable with national value. This meant that the Dairy Board continued to be seen as 'one of the most successful marketing organisations' in New Zealand's history' (Willis, 2001, p. 64).

Homogenising the Dairy Board into the cooperative dairy industry happened just prior to the 1996 change to a proportional representation electoral system. Chairman of the Dairy Board, Dryden Spring reportedly thought that ownership of the Dairy Board by distributing its nominal shares among the cooperatives in proportion to their milk solids meant that the Dairy Board's 'capital

would be much harder for the government to raid' (Lind, 2013, p. 306). This protected against 'politicians in the future feeling that, having provided the means to establish the organisation, at least some of its assets belonged to the State' (Lind, 2013, p. 295).

If putatively neoliberal arguments for restructuring meant that the dairy industry was open to outside investment, then these 'market forces would have the power to drive prices down' (Stringer et al., 2008). Driving the milk price down because of it being a cost of production to be minimised, would maximise returns to investors at the expense of dairy supplier income. This would herald a return to the proprietary value of milk that nearly a hundred years earlier saw Corpe give ten days' notice of closing which saw the Rongotea Cooperative emerge by translating new value into milk price by making the share price nominal.

Two sets of homogenising practices were happening at the same time. The cooperative dairy companies were absorbing each other into larger and fewer corporate globules and the formerly state-owned Dairy Board was blended among the cooperative dairy industry by issuing dairy cooperatives shares in proportion to their milk solids and removing the remaining government directors.

The work of shares as shown through these homogenising practices gradually saw share price and milk price being brought together in a commensuration infrastructure that changed value in the cooperative dairy industry. The usual practices of nominal share prices being a tool for accumulating share capital in the collective financing of processing assets, as seen in the RCDC, was argued by financial interests outside the dairy industry (for example Bates, 1997; Dobson, 1998; Richardson, 1995) as requiring transformation into a tradeable fair-value share price so that the efficient use of capital could be compared.

The milk price that started out as a manufacturing cost to be minimised by proprietary investors like Corpe, became a value relation to be maximised as the income of cooperative shareholder suppliers. Because of nominal shares, the milk price became the key to competing for suppliers. The Dairy Board allocating its nominal shares to the cooperatives was an interim measure which accumulated financial value to the cooperative dairy industry. However, contests over the Dairy Board's export monopoly would remain because fair-value share prices became increasingly popular with the rise of efficient market and competition theories often associated with a so-called neoliberal ideology. Through these theories, fair-value shares were seen as a better indicator of how the dairy industry was efficiently contributing to national value but the dairy industry was wary of these driving down the milk price.

6.3.3 Blending into Fonterra

The contest between differently commensurable forms of value concerning fair-value and nominal shares and their relations to milk value, continued in the lead up to the creation of Fonterra. While moneyness had seen the Dairy Board now owned by the shareholders of the cooperative dairy industry, it still had a monopoly over dairy exports. This was seen locally by some as antithetical to the efficient allocation of capital and a barrier to innovation in the industry (for example Bates, 1997; Dobson, 1998; Richardson, 1995). Internationally, criticism of the Dairy Board's single seller status came from 'Asian companies' and 'overseas dairy lobbies' (Willis, 2001, p. 64) as well as the World Trade Organisation (Ohlsson, 2004, pp. 22, 23). With both local and international pressure on the Dairy Board, Curtis (2001, p. 29) predicted that 'the combination of the two may well be decisive in annihilating the Board and any vestiges of farmer control'. The Dairy Board itself saw change as 'inevitable: revamping its structure to meet impending competition' (Willis, 2001, p. 64).

An early example of this 'revamping' saw the Dairy Board change from a 'cost of production' payment, where dairy companies were paid by the Dairy Board in the month following milk delivery,

to a ‘market earnt’ payment. This was still made the month after delivery, but the Dairy Board would charge interest until the overseas customer took delivery. This change in the terms of cooperation named the ‘commercial pricing model’ between dairy companies and the Dairy Board would purportedly allow dairy companies to get a more accurate price signals through selling milk in different markets, ‘encouraging dairy companies to be innovative in developing new products for customers’ (New Zealand Dairy Board, 2000, p. 21). Additionally, this buffered the Dairy Board somewhat against criticisms of the single seller model stifling innovation (see Bates, 1997; Dobson, 1998) but other criticisms persisted.

The Dairy Board objective of maximising farmers return for milk was seen by some with other business interests, as being contrary to macroeconomic efficiency. An alternative objective was to calculate value in the dairy industry through how it maximised return on investment and theoretically key to this commensuration architecture were fair-value shares. Roger Kerr (2001, pp. 16, 17) of the Business Round Table, an organisation of chief executives ‘interested in national affairs’ (Kerr, 2001, p. 211), argued that ‘the important issue for wealth creation was return on investment’ and so the cooperative dairy industry should have its on-farm returns and off-farm returns ‘unbundled’.

‘Bundling’ referred to cooperative payments being made by ‘pooling farm and post farm-gate returns’. Farm returns were said to represent the value of milk and post-farm returns came from the value of dairy farmers interests in their cooperative and now their Dairy Board expressed through nominal shareholdings (ACIL Economics and Policy, 1996, p. 5) Unbundling these returns would theoretically impose the discipline of shareholder value, where the requirement for management and directors of cooperatives and the Dairy Board to provide a return to farmer shareholders as investors, meant they were incentivised to strive toward a more efficient use of resources. Similarly, Treasury and The Economic Development Commission argued that the Dairy Board ‘needed shares

with a market value' to raise additional equity capital and to realign the goals of the entire industry from producing volume to producing profit (Lind, 2013, pp. 171-173). Dairy Board Chairman Dryden Spring dismissed this as the opinion of an envious business sector that would 'like a slice of our action for the benefit of their shareholders, at the expense of our farmers' (Lind, 2013, p. 271).

Spring further reasoned that because farmers held 90% of their investment in land, stock and improvements with only 10% in shares, farm profitability, enhanced by maximising the milk price, must therefore be the overriding objective. This was not however the uniformly accepted view of the industry. Dairy Group had directors that thought their company 'should become more like a listed company' or alternatively have a mixed model, where it would remain a cooperative but somehow be able to 'unlock value' by separating out investible shares from supplier shares (Lind, 2013, p. 269). Some within the Dairy Board floated the idea of separating off the consumer brand business [ice cream, yoghurt, cheese brands etc] and allowing external investment to finance the purchase of international brands. Spring held the view that by introducing external investors, the 'drive of management would be to minimise the purchase price of milk – in order to maximise profit and with it the share price' (Lind, 2013, p. 311).

In 1999 Dairy Board Chairman after Spring, John Storey, stated that 'given steadily declining global dairy commodity prices, more of the same wasn't going to deliver the improvement in shareholder value fast enough to sustain and enhance farm profitability'. As such a 'strategic plan for the whole industry' was arranged and Storey announced that it 'promises to increase revenue by 15% annually and envisages an industry worth $8b today, being worth 4 to 5 times that in 10 years' (New Zealand Dairy Board 1999, p.3).

International business consultants McKinsey & Co calculated that the consumer and food service businesses of a consolidated Dairy Group, Kiwi and Dairy Board mega-merger, should have the ability to bring in outside investment and estimated that cost savings of a merger would be $300m a

year due to economies of scale (New Zealand Dairy Board, 1999, p.5). Calculations of value by financial experts became increasingly relied upon in the lead up to the mega-merger of the now tentatively named industry assigned name, 'GlobalCo' (Lind, 2013, p. 379). The calculations hinged upon the relative value of many financial indices and ratios.

In 1999, Dairy Group had an equity to assets ratio of 50% compared to Kiwi's 47%. However, Kiwi valued its Dairy Board shares as a going concern at $1.73, whereas industry practice was to value them at their redemption value of just $1. Valuing Kiwi under a differently constituted set of financial practices dropped the Kiwi ratio to 43% (Lind, 2013, p. 373). International business consultancy Arthur Andersen was hired to value the two co-operatives based on various metrics including the above. The two valuation methods used by Arthur Anderson made a split decision, one slightly favouring Dairy Group at one cent per share more than Kiwi, the other in favour of Kiwi by three cents per share. Neither valuation reached the twenty cents per share valuation differential that would require an adjustment (Lind, 2013, p. 384).

Figures trumpeted about cost efficiencies and revenue growth of a mega-merger were of no interest to the Commerce Commission whose mandated concern was about competitiveness as inscribed in the Commerce Act (1986). On August 27 1999 the Commerce Commission announced that in its view, the merger of what they called 'NewCo' would substantially lessen competition, would unfairly lock in farmer suppliers and that 'dominance is likely to arise in a number of domestic markets to the significant detriment of dairy farmers and domestic consumers' (Commerce Commission New Zealand, 1999, unpaged).

To re-route the Commerce Commission, some innovation was required. An Economist with the Ministry of Agriculture and Fisheries (MAF) at the time, recalls how this innovation was approached:

> ‘On Christmas Eve 2000, a delegation of dairy leaders turned up at MAF in Wellington and they said ‘the merger is on, we’ve talked to Government about it, we don’t want to go back to the Commerce Commission, that’s all too hard and what we want is a legislative exemption to the Commerce Act. These are our lawyers from Russell McVeagh, they’ve already drafted up the legislation, we want this done by the 1st of June 2001 because that’s the start of the new dairy season’ (Frank, interview).

The Dairy Industry Restructuring Act (2001) (DIRA hereafter) received royal assent in September 2001. Global Dairy Company Ltd was established in October, later changing its name to Fonterra. DIRA provided the authorisation necessary to enable an exemption to the Commerce Act (1986), removing the merger as a concern for the Commerce Commission. As part of the deal the new entity had to agree to several things. One was that ‘Dairy Group had to divest its domestic consumer business and guarantee access to the eventual new owner, which became Goodman Fielder, 250m litres of raw milk per year’ supplied by Fonterra (TDB Advisory, 2018b, p. 12). Another was that Fonterra must redeem shares to their shareholder farmers at ‘fair value’ on demand which is the subject of the next section.

The value of milk as translated by the payout to supplier shareholders was key to the dairy cooperatives merging as I showed earlier through how the MCDC consolidated into Tui and then Kiwi. Maximising the payout milk price has always been of interest to supplier shareholders of cooperative dairy companies with nominal shares because it constitutes the bulk of their income. This is different for proprietary investors of milk companies whose interest is to minimise milk price payout as a cost of production, to enhance profitability and the investment return available through dividend payments. With the removal of supply agreements, the milk price became an even more contested battleground for demonstrating value to potential suppliers. Economies of scale meant the dairy industry consolidated into larger and fewer cooperatives.

Ownership of the Dairy Board was gradually distributed among the consolidated cooperative dairy industry by allocating the remaining cooperatives the Dairy Board's nominal shares and remaining directorships. Debates over who could own shares in the cooperative dairy industry and whether they should be nominal value or fair-value, were played out in contests for how dairy industry value could best remain commensurable to national value. This commensurability came with the dairy industry seen as imperative for accumulating foreign exchange irrespective of what this meant for competition policy. This assemblage of moneyness through the work of shares shows how translating value by changing the relations of share capital and milk price in a way that could continue to make these commensurable to national value as expressed through export receipts, wove together Fonterra as homogenously representing the cooperative dairy industry.

6.4 Milking

This section describes some of the practical work undertaken by Fonterra to stabilise as a statutory mega-cooperative with a near monopoly on milk supply from inception. I am calling these practices milking to show how Fonterra has undertaken many modifications in the work of shares to extract value in different ways for itself and its shareholders. Milking practically takes value from one space and contains it within another.

I show how moneyness stabilised value in Fonterra by first explaining how the milk price and fair-value share price were tethered together to make Fonterra possible. This consolidated value that had been substantially built as a public infrastructure asset into private supplier shareholder ownership by simultaneously helping to solve competition policy and milk pricing difficulties. Second, milking shows how the Trading Among Farmers scheme reworked value in Fonterra by shifting redemption risk away from it and onto investors. Third, I show how Fonterra acquired more capital by altering the milk price and fair-value share price tether which has translated into increased value of dairy farming land, with uneven consequences for those outside the cooperative. These

practices of milking continue to maintain the commensurability between milk price and national value by adapting Fonterra's fair-value share price which translates into dairy farming wealth through land values.

6.4.1 Tethering Fonterra

With the formation of Fonterra 'the issue that officials had was how the hell you price the milk' (Frank, interview). Having set up a statutory dairy cooperative collecting '96% of New Zealand's milk supply' (Fonterra Cooperative Group, 2007, p. 16), there is no competitor to refer to when figuring a price to pay suppliers for milk. 'We [Ministry of Agriculture and Fisheries] were going through a number of endogenous pricing scenarios which is someone having to set the milk price, but there was a question of who that someone should be, the Commerce Commission? or was it a statutory authority?' (Frank, interview). The eventual answer was to create a tether between Fonterra's milk price and share price. Frank explained:

> 'The story goes that Lew Evans, a Professor of competition policy at Victoria University, had a eureka moment walking down Lambton Quay. He said I think we can let GlobalCo price the milk as long as we get the share price right. He said if they under-price the shares then it means that they've overpriced the milk, if they overprice the milk then it'll give farmers incentive to then hurl milk at them which they then have to build processing assets for and that's dumb. Flip side is that if they overprice the shares by under-pricing the milk then because farmers can go supply milk somewhere else, they'll go and cash in their high value shares and get a higher milk price somewhere else' (Frank, interview).

DIRA required Fonterra to take all farmers wishing to supply milk if they can buy the shares and then pay them a 'fair value' share price if they wish to exit. The 'fair-value' share price could not be set on a tradeable market because cooperatives are closed to outside investors, so DIRA provided for 'The Valuer' to set a share price on the 1st of June each year based on 'the projected sustainable earnings

of the Company' as opposed to having a nominal share price where the Board Directors set the price. This ensured farmers could openly enter and exit Fonterra at will. Open entry and exit was a key part of the legislation that 'lies at the heart of the legislative regime contained in the bill' as the Minister of Agriculture explained during the bills third reading (Sutton, 2001, p. 278). Open entry and exit using fair-value shares tethered the share price to the milk price. Overpayment and underpayment of the milk price had the potential to trigger undesirable outcomes for Fonterra.

Overpayment was the chief political concern at the time of Fonterra's establishment as it could substantially lessen the ability of new entrants to compete and restrict competition which might result in higher consumer milk prices representing a wealth transfer from consumers to Fonterra. The Commerce Commission in 1999 estimated that transfer potentially being between $75m and $146m p.a. (TDB Advisory, 2018b, p. 14). For Fonterra, the problem of overpayment meant potentially triggering a 'tsunami of milk' (Frank, interview) for which there are not enough assets to process it all, meaning extra costs for disposing of or processing it.

Underpayment meant Fonterra would be more profitable, making the 'fair value' shares more valuable which might trigger share redemptions from suppliers. This could leave stranded assets, that were not processing enough milk to stay viable, because of suppliers having cashed in their valuable shares, supplying milk elsewhere or exiting the industry. Frank recalls, that the tethering of milk price and share price through fair-value shares and open entry/exit:

> 'solved a political problem with a government that desperately wanted to give the dairy industry what they wanted. It solved a competition policy problem and it gave the dairy industry what they wanted with their big big Co-op despite officials being worried' (Frank, interview).

While Professor's Evans and Quigley (2001, p. 7) point out that the tether of milk price and share price might incentivise Fonterra to efficiently price its milk and its capital, they also emphasise that there is a significant 'judgement' component in various methods of pricing raw milk. In one method milk as a 'commodity' could be priced by adding up all the processing charges which created it to obtain an average milk price over all processors. The problem then depends on how a 'commodity' is defined and what costs were reasonable on average. Another method is to estimate what a 'normal' return on assets should be for an efficient processor and deduct them from Fonterra's revenue to obtain the raw milk price, the problem then being to define 'normal'. Both methods are 'subject to much uncertainty and judgement'. Evans and Quigley (2001, p. 17) therefore recommended an 'independent milk pricing enforcement panel' to rule on disputes between processors over milk price.

The tether practically accomplished Fonterra by allowing the appearance of a fair milk price being set for supplier shareholders despite there being no real competition for milk in New Zealand. The tether was a vital piece of the puzzle which allowed Fonterra to become established and for the supplier shareholders to consolidate the value that had been accumulated on their behalf by a dairy industry that had herded together and homogenised into Fonterra.

The arrangement of the tether made financial value commensurable between a 'fair-value' share price and the milk price. The 'fair-value' share price seemingly answered Dairy Board critics, who proclaimed that a measure of how efficiently capital was being used was impossible because of there being a nominal share price restricted to supplier shareholders. Theories of market and competition efficiency and the financial models that were based on them, had a hand in altering how financial practices in the dairy industry were arranged. In this way the models were 'an engine, not a camera' (MacKenzie, 2006) because rather than merely describing how value in the dairy

industry worked the theory based models proposed solutions and devices that would make Fonterra value, stably commensurable with national value

6.4.2 Fonterra De-risking

Scarcely in the New Zealand dairy industry has an assembled set of relations like Fonterra remained settled. Milking requires constant adjustment and adaptation to new matters of concern. The open entry and exit requirement and the milk price/share price tether represented a potentially large 'redemption risk' that threatened to reduce financial value in Fonterra's balance sheet. This risk arose because Fonterra needed to set aside capital in case there was a move away from dairy and a mass exit from the industry triggered large share redemptions to shareholder suppliers (Lind, 2013, pp. 387-388).

This restricted the capital available for investing in the value-enhancing objectives of Fonterra's Board. A solution to this problem was presented in 2007. A letter to shareholder farmers by the Chairman, Henry van der Heyden, proposed that Fonterra partially list on the share market. The float would be conditional on having no less than 50.1% of New Zealand based supplier shareholders invested, with a backstop of a 75% supplier shareholder vote in the affirmative required if the Co-op was to drop below the 50.1% threshold. This supplier shareholder limit could fall only to a 35% minimum of New Zealand shareholder ownership as outlined in DIRA and there was a 10% limit on individual shareholding (Fonterra Cooperative Group, 2007, p. 19).

Despite these assurances, farmers were concerned at losing control of their Co-op to outside interests and the perceived conflict that might arise between enhancing non-supplier shareholder returns by depressing the milk price paid to suppliers. Fonterra's farmer shareholders expressed value in having autonomy and not wanting to lose any semblance of control in the cooperative dairy industry they came to control through supplying Fonterra. The Fonterra Board believed 'they would

have been rolled' in the shareholder vote regarding the float scheduled for May 2008 leading to a loss in credibility, so withdrew the proposal (Atkinson, 2008, p.9). Director Earl Rattray was coming up for re-election to the Board, 'they couldn't get the Sheriff [van der Heyden] so they got his deputy [Rattray] as a farmer's signal to Henry that this was not on' (Frank, interview). Rattray was voted off the Board and replaced by John Monaghan, who subsequently became Chairman between 2018-2020.

The Board of Fonterra still had the problem of redemption risk so innovated another capital restructuring option in 2012. Fonterra arrived at the solution by:

> 'Stealing an idea from Geoff Taylor at TDB Advisory who set up a scheme in 2007 called Dairy Equities to provide investment funds an exposure to protein as the next big thing. They settled on a scheme where a farmer could sell the beneficial rights to the share, they [the farmer] kept the share and the voting rights, but lost the dividend. It was basically a derivatives market' (Frank, interview)

The outline of what Fonterra proposed became 'Trading Among Farmers' (TAF). 'Friends of Fonterra' including farmer shareholders, sharemilkers, ex-farmer shareholders and employees, could apply for the 'economic rights' to wet shares (shares needed to supply milk on a 1 share = 1 Kg/MS basis) at a maximum of $50,000 NZD for ex-shareholders and $25,000 for employees. These applicants would become 'unit holders' in the Fonterra Shareholders Fund (FSF). The farmer retains the voting rights and the right to supply milk in proportion to their shares, receiving the farmgate milk price in return, but sells the unit holder the economic rights to any benefits from their shares (i.e.. Dividend – if any) (Fonterra Cooperative Group, 2012, 2013). From there, traders could buy and sell the units in the FSF market and farmers could buy and sell supplier shares between them at the same price in the TAF market.

For Fonterra, this solved the problem of redemption risk arising as a result of open entry and exit inscribed in the DIRA legislation. 'What Henry [Fonterra Chairman] wanted to do was take that redemption risk off Fonterra's balance sheet and give it to somebody else and he didn't care who that somebody else was, as long as it wasn't Fonterra' (Frank, interview).

The introduction of TAF/FSF amounted to a $525 million freeing up of the redemption risk but unlike the failed proposal to float on the Share Market, it provided no new capital:

> 'The problem with TAF is 'no new capital', this is a Co-operative that's already got capital problems because co-operatives have capital problems, this particular Co-op has owners that rape and pillage it for payout so there's no retained earnings. So, if you've got no retained earnings and you've got no way to inject new capital from new shareholders then it'll go nowhere (Frank, interview).

Since inception, Fonterra has needed to find new ways of obtaining capital for investing in its value enhancing objectives. TAF freed up the capital set aside for mass share redemptions that were possible because of open entry and exit but did not provide a solution for ongoing new capital. Previous avenues for bank loans as capital from the state were no longer an option since the 1980's economic restructuring. Retaining earnings by not paying a high milk price to farmers is one way for the Co-op to obtain capital and so are bank loans from commercial banks, but this is set against less income from the reduced milk payout for the Co-op's farmer shareholders who vote for prospective Directors. The solution to this tension has led to the dairy industry and Fonterra being criticised because it resulted in the expansion and intensification of dairying into new regions.

6.4.3 Fonterra capitalising

One way to obtain more capital for Fonterra is to process more milk because it requires suppliers to buy more shares. This is just as the RCDC had done when expanding by using bank loans to finance

new processing assets to process more milk, triggering a requirement for new shares which brought in new capital to pay back the bank loans. The difference is that unlike having nominal shares, Fonterra with fair-value shares was financially vulnerable because of redemption risk, which was solved by Trading Among Farmers, but provided no new capital. The solution was to change how 'fair-value' shares were made commensurable in the tether to milk price.

'Fonterra were arguing that there's 3.5% of milk growth forever. So, there's no issues with capital because they can put farms half-way up Mt. Cook' (Frank, interview). A former director of Fonterra explained that rather than expanding dairy land, which has been the subject of significant controversy (see for example Jay & Morad, 2007; Joy, 2015, 2018; Wynyard, 2016, 2019a), another way is to expand cow productivity:

> 'New Zealand cows produce about half of what a cow does in the US or Europe and that's purely based around feed in, and the best grass has probably only got about half the energy value of grain and total mixed ration, so we can double milk production in simple terms just by changing the diet, there's no doubt internationally the market demand growth seems to be there' (Brian, interview).

Other than expanding dairy land and expanding cow output, another way for Fonterra to gain more capital was to change the value of their shares. In November 2009 Fonterra's constitution was amended which changed shares from being 'fair-value' to 'restricted value'. An 'independent valuer' was engaged to calculate the fair-value price, but then discounted that price since shares could only be traded among farmer shareholders (Ministry of Agriculture and Forestry, 2012, p. 9). 'The 2010/2011 season fair-value midpoint of $5.10 was discounted by 13% to $4.52' (Sharechat, 2009). According to the then Ministry of Agriculture and Forestry (MAF), in the 2011/2012 season the fair-value share price should have been $5.57 but again was discounted to a restricted value of $4.52,

representing a 19% discount. In the MAF Regulatory Impact Statement, the restricted valuation was treated with scepticism, stating:

> 'it could be argued that by restricting the share price below its fair value, Fonterra has shifted some way towards a lower than efficient share price, potentially impacting on farmer decisions to enter and exit Fonterra and ultimately impacting on the level of competition for farm gate milk' (Ministry of Agriculture and Forestry, 2012, p. 10).

The share price being 'restricted-value' rather than 'fair-value' in the opinion of MAF, incentivised dairy farmers to enter Fonterra from other processors therefore providing new capital to Fonterra by issuing new shares and disincentivised current supplier shareholders from leaving and redeeming their shares. The balance seeking antagonistic tether between milk price and fair-value share price, that allowed Fonterra to form, was re-arranged in new practices of moneyness.

Changes were also happening to the way the milk price was set. Rather than calculate the milk price by subtracting actual operating expenses and capital costs from revenue, in 2010 Fonterra changed the methodology for setting the farmgate milk price by subtracting the costs of a 'notional efficient processor'. There are two issues with this according to industry commentators. First, 'the rules assume Fonterra can match the lower costs and optimal product mix of a very efficient hypothetical competitor. This has the effect of boosting Fonterra's milk price' which should have reduced the fair-value share price if the balance of the relational tether was maintained (Baldwin, 2016, unpaged). Second, the model assumes that Fonterra only produces low margin commodities where in reality Fonterra has made considerable investment in high margin 'ingredients, food service and consumer segments' (TDB Advisory, 2018a). The effect, along with the restricted-value share pricing is to elevate Fonterra's farmgate milk price, this forces competitors for farmgate milk to increase their payout, reducing their profitability and therefore their ability to invest and compete. It also increases the cost hurdle barrier for new entrants.

Figure 18 shows how Fonterra's Farmgate Milk Price and Dividend has changed alongside the changes to the tether by introducing the 'restricted-value' share price and the 'notional efficient processor' in 2010. The average dividend yield from 2003, the first year Fonterra paid a dividend separate from milk price, to 2009 was 7.6%. From 2010, average dividend yields have been 4% to 2021 a 47% overall reduction. The average milk price of $4.53 between 2003-09 compares to $6.35

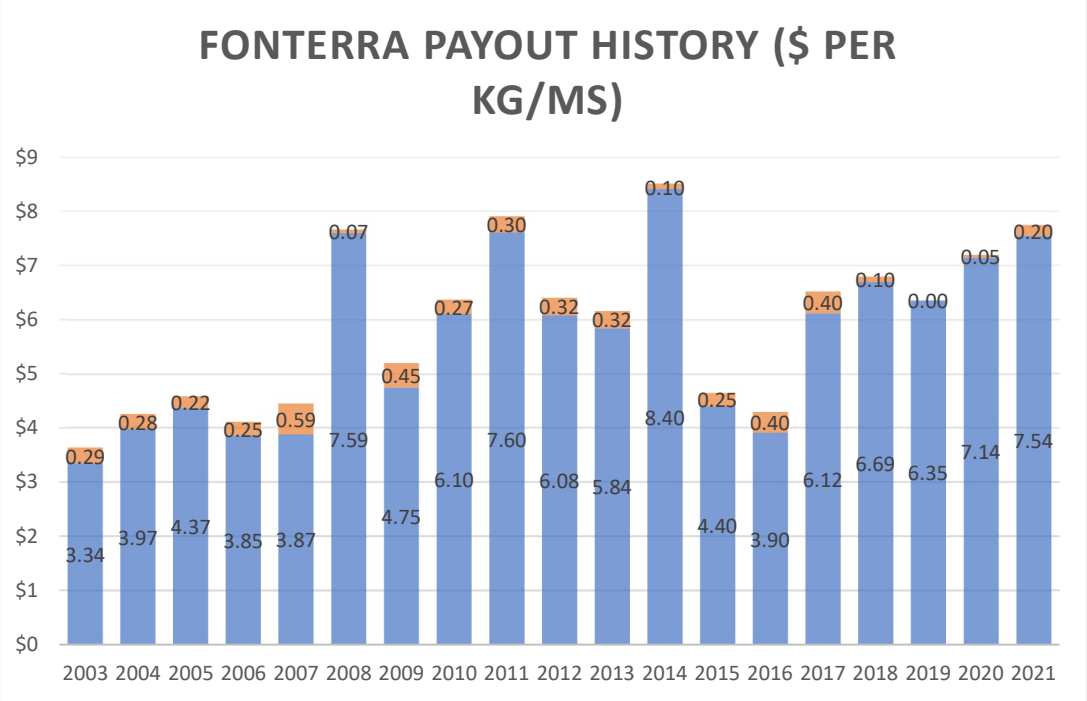

Figure 18 - Fonterra Milk Payout and Dividends 2000-01 to 2020-21. Source: https://www.interest.co.nz/rural-data/dairy-industry-payout-history

from 2010-21, a 40% average increase. The average dividend reduction is closely offset by the average milk price increase. Since 2010, nine out of the top ten milk prices have been paid and nine of the worst ten dividend yields have been paid to shareholders and/or, since 2012, unit holders. The milk price guidance for the season ending 2022 is between $9.10 - $9.50 p/KgMS which will be the highest milk price paid in Fonterra's history, with a forecast dividend of $0.20, a 2.65% return (Interest.co.nz, 2022, unpaged).

The Ministry for Primary Industries announced a review of the DIRA legislation in 2017. Many smaller milk processing competitors to Fonterra made submissions. Synlait accused Fonterra of a lack of transparency in its milk price calculation and funding a higher milk price than market conditions dictated by 'sacrificing the value of its own shares' (Frykberg, 2019, unpaged). Synlait recommended, like Evans and Quigley (2001) eighteen years earlier, that changes in price be reviewed by an independent panel. Westland Co-op calculated in their submission that Fonterra had overstated the efficiency gains that led to a $6.74 payout in the 2017/18 season by $0.25 (Stringleman, 2019, unpaged). The Open Country Dairy (OCD) submission stated that the review of milk price setting currently undertaken by the Commerce Commission twice yearly is not satisfactory and had 'filed legal action against the Commerce Commission's oversight of Fonterra's milk price calculation for 2017-18' (Frykberg, 2019, unpaged).

A Commerce Commission report in 2017/18 pointed out that 'Fonterra has not consistently met its commitment to publish quarterly forecasts of the cents per Kg/MS impact from the inclusion of off-GDT (Global Dairy Trade – Fonterra's proprietary international milk purchasing auction website) sales in the milk price calculation' (Begg, Crawford, Gale, & Welson, 2018). Disputes over Fonterra's milk price are long standing but the DIRA review has made them more public and increased media scrutiny followed the announcement of Fonterra's first ever financial year loss in 2018, its plummeting share price and yet the recent relatively high series of milk payouts to shareholders. Despite posting losses in 2018 and 2019, the milk price has been paid at over $6 both years, the sixth and seventh highest milk prices in Fonterra's history followed by $7.14 in 2020 and $7.54 in 2021, the fifth and then fourth highest payouts but with just a 0.7% and 2.65% dividends paid to unitholders and shareholders (Interest.co.nz, 2022, unpaged).

The DIRA review outcome still allowed 'relatively wide discretion for Fonterra to determine key assumptions underlying the benchmark milk price'. In essence, the review agrees that Fonterra over

states its milk price and 'the Minister of Agriculture proposes to limit Fonterra's discretion' but with that discretion still being available (Ministry for Primary Industries, 2019). In other words, the 'let out clause' which lets Fonterra pay a milk price to its farmers that is different from the benchmark milk price remains (Woodford, 2019, unpaged).

Fonterra's inflated milk-prices and deflated share prices have arguably incentivised more production, that comes with environmental and ethical problems (see for example Jay & Morad, 2007; Joy, 2015, 2018; Wynyard, 2016, 2019a). Also, Fonterra's payout has wider implications for the credit and payments system as seen in the previous chapter's concern over dairy debt by the RBNZ. This is because of the relational association between milk and dairy land values.

The general premise linking milk and land values is that 'in New Zealand, dairy farm returns tend to be capitalised into land prices' (Castalia Strategic Advisors, 2012, p. 12). A report commissioned by the Fonterra Farmers Shareholder Council, an organisation that is meant to be the farmer shareholder watchdog over the Board, calculates that the change in milk price methodology during 2010, where the 'notional efficient processor' began being used as the benchmark to calculate payments and 'restricted-value' shares were introduced, had added an estimated $0.518 to the 2018 milk price. Furthermore, the report calculates that the average sale price of dairy land had increased '6% per year for the last 17 years and these capital gains have been the fundamental driver of improvement in farmers net wealth' (Northington Partners, 2018).

Milk price payout being such a prominent form of Fonterra shareholder income means dairy land values are calculated largely in reference to this expected return. The capital gains from farmland being untaxed means that 'the asset class farmland has a bigger untaxed capital gain than the asset class of Fonterra shares' (Frank, interview).

These practices I have called milking, transformed the relational architecture of the dairy industry by assembling different relations of moneyness which translated further value into Fonterra's milk payout and then into dairy land values. To understand this, I have shown how the problem of pricing milk supply in a near monopoly was negotiated by it being tethered to Fonterra's fair-value share price. This was to incentivise Fonterra to efficiently price the milk it gathered from 96% of New Zealand dairy farms because underpayment and overpayment both came with significant balance sheet value issues because of the requirement of DIRA for the open entry and exit for suppliers. Then, because of redemption risk arising from open entry and exit, Trading Among Farmers shifted that risk from Fonterra's balance sheet onto investors, allowing more value to be retained in Fonterra by freeing up capital set aside for exiting suppliers, but provided no new ongoing capital.

New capital came in the form of expanded milk supply into new dairy regions and intensification which triggered a demand for more shares provided new capital but also triggered new environmental and ethical critiques of Fonterra. The dairy industry has been an effect of the way moneyness has stabilised these relations. For the dairy industry as an effect of moneyness, changing the share price to restricted-value and measuring costs against a Hypothetical Efficient Processor has led some, including Fonterra's own shareholder council, to believe that Fonterra has been paying too high a milk price to its supplier shareholders. Milking has extracted value from some spaces and formed new relations of financial value in others. This value has capitalised into inflated land values which we saw in the last chapter is seen as a systemic risk to the banking system, as well as other new matters of concern that face the New Zealand dairy industry. The stability of the dairy industry, substantially represented still by Fonterra, continues to be maintained because of the way moneyness relations have been assembled by the work of shares. This work has historically translated commensurable value between milk, land, cooperative control and foreign exchange, making it the backbone of the economy.

6.5 Conclusion

My moneyness analysis shows that relations require constant work to stabilise as shown through the work of shares. This work highlights the ongoing programme of making and translating commensurable value that has stabilised the dairy industry as an effect. I illustrated this using three sets of practices.

First, in practices of *herding*, I showed the contingent ways in which early dairy farming gathered in Rongotea. The development of the cooperatively organised RCDC traced how herding achieved cooperative dairying there. The interests of shareholder suppliers stabilised through enhancing the milk price because of their nominal shareholdings in response to Mr. Corpe discontinuing his proprietary ownership. Proprietary value for Corpe was enhanced by reducing the milk price whereas value in the cooperative changed, to where increasing the milk price paid to shareholder suppliers became paramount as their incomes. With nominal shares, neighbouring cooperatives competed for suppliers on milk price rather than share value, which became a problem for the RCDC in having potentially stranded processing assets.

Second, *homogenising* saw the RCDC merge with neighbouring cooperatives to rationalise costs in economies of scale and invest in milk powder processing in economies of scope. Homogenising also saw ownership of the Dairy Board change by having it distributed amongst the fewer but larger cooperative dairy companies in relation to their milk supplied for export. Contests over the best way to accumulate foreign exchange as the backbone of the export led economy, problematised how dairy industry value and national value could continue to be made commensurable throughout the 1980's and 1990's. Theories about fostering international competition, incentivising Boards to efficiently use capital and allowing international capital flows for investing in innovation, argued in favour of fair-value shares. Milk value as commensurable with national value set the conditions for a

new assemblage, where a cooperative mega-merger promised to enhance national value as expressed through export receipt growth models and cost savings.

Thirdly, I showed in practices of *milking*, how Fonterra was made possible by successfully translating dairy value as national value through solving the problem of competition rules that discouraged monopolies. This work involved tethering the milk price to the fair-value share price. This has since been adapted through the work of practical innovations that translated an enhanced value into milk price while stabilising control and balance sheet value for Fonterra's shareholder suppliers. Some of these financial innovation practices such as changing from fair-value to restricted value shares, Trading Among Farmers and setting the milk price by comparing Fonterra's processing costs against those of a Hypothetically Efficient Processor, have changed the milk price relation to fair-value share price. These practices have been in response to difficulties such as redemption risk and the need for new capital which have created uneven consequences for investors in the Fonterra Shareholders Fund and for competitor milk companies. Milk price being stabilised as commensurable with national value, simultaneously translated wealth to dairy farmers by being capitalised into land values and this has subsequently allowed dairy farming to continue borrowing through new equity, expand into new areas and to intensify, bringing about new matters of concern such as financial stability and environmental damage.

My moneyness analysis has shown the shifting relational work of shares throughout different historical periods and spaces, tentatively stabilising in recent form as dominated by Fonterra. This effect I have analysed as moneyness produced New Zealand's largest company. The work of shares has translated different forms of value variously expressed as sterling receipts, foreign exchange, share ownership, land values and milk values, all made commensurable in relation to competing ideas about national value. The work of shares has continually negotiated and translated commensurable value across space and time. I argue it is the adaptability of the different work of

shares that has stably assembled some taken-for-granted relations that I have analysed as moneyness and has produced the New Zealand dairy industry as an effect that has looked both stably invariant and continually transforming. In the next chapter I conclude that my moneyness concept usefully provides a different view of the dairy industry that has so far been dominated by established theoretical explanations which assume money is merely a settled object that dispassionately measures value.

7. Discussion and Conclusion

In December 2021, Fonterra shareholder suppliers voted in favour of pursuing another capital structure to replace Trading Among Farmers. The idea was for Fonterra to better compete with existing and incoming proprietary dairy processors that do not require their milk suppliers to own shares. At its inception in 2001, Fonterra had 96% of national milk supply but this has since dropped to 80.9% in 2020 (TDB Advisory, 2020, p. 13). Reduction in milk supply risks the Cooperative not being able to use their processing assets to their full potential. Key to stabilising supply in the proposed capital restructuring is removing the minimum shareholding requirement of 1 share for every 1KgMS (1:1) supplied and replacing it with 1 share for every 3KgMS (1:3). In the lead up to this restructuring the Fonterra Board cut the pipeline between the Fonterra's Trading Among Farmers shares, and the Fonterra Shareholders Fund units that I described in the previous chapter, and the price of both shares and units tanked. In May 2021, when the Fonterra Board began consulting on the newly proposed capital structure the unit price traded for around $5, by May 2022 they traded at an all-time low of $2.22. 'Unit holders were not happy, but farmers seem to have largely shrugged their shoulders in an environment where the milk price they are receiving is high' (Woodford, 2022, unpaged).

The proposed restructure requires another legislative change to the Dairy Industry Restructuring Act (2001) which allowed Fonterra to form by excluding Fonterra from competition rules regarding monopolies which I discussed in Chapter Six. Cabinet has indicated they are supportive of the newly proposed capital structure albeit with some extra government controls 'to increase the degree of independence of Fonterra's internal milk price-setting processes' (Ministry for Primary Industries, 2022, p. 6). Critical for Fonterra shareholders getting the changes they want from the Government is a rationale articulated by the Ministry for Primary Industries which states that Fonterra's success is crucial to the dairy industry 'with export revenues of approximately $19.1 billion a year'. As such the

dairy industry 'brings considerable benefits to New Zealand's rural communities' and by proxy 'the wider New Zealand economy' (Ministry for Primary Industries, 2022, p. 4).

$19.1 billion in money as the most important relation for demonstrating the beneficial economic value of the dairy industry is the backbone narrative in action and this prevailing view is based on the conceptualisation of money as being merely a commodity. I have argued this theory is problematic because of how it explains value as something passively measured by money which takes on an assumed existence as merely a homogenous object that serves to simply facilitate exchange.

In contrast, money appears in different forms in this thesis, for example as currency (notes and coins), credit (balance sheet ledgers between borrowers and lenders), and capital (the value of property such as farmland, stock and cooperative shares). Actively ratifying or tacitly accepting that these different forms of money and their functions, define money as a simple commodity, is common to the two prevailing ways of understanding the dairy industry. The first and most dominant way is seen through the agricultural historical literature that provides a teleological account of the dairy industry's inevitable evolution into one of New Zealand's most important industries. The second critical way, drawn from Marxist political economy, depicts the dairy industry as having become important because of how capitalism's structural forces inevitably lead to the private appropriation of resources in ongoing class struggle. Both these understandings view money as solely a commodity that existed prior to and independent from the emergence of the dairy industry.

Moneyness provides a different understanding of the dairy industry by taking money seriously and interrogating it beyond the taken-for-granted understandings of money as a collection of objects simply defined by some of their uses. Moneyness incorporates wider sets of relations which I argue are stabilised through continual practices of reconfiguration. This adaptive relational architecture is

exhibited throughout my thesis and the latest capital restructuring of Fonterra, with all the attendant weaving together of legislation and economic logic, is another example of this ceaseless stabilisation work. The concept of moneyness is important because it leads to an explanation of 'how' the dairy industry has been continually rearranged as an effect, without attributing a predetermining cause or telos to that work.

My thesis addresses the absence of 'how' money has worked in the dairy industry and argues that to expand upon prevalent current understandings it is useful to view the New Zealand dairy industry as an assemblage of taken-for-granted relations. The practical stabilisation of these relations is the work of moneyness, which has had the effect of producing the dairy industry. Moneyness has been both the conceptual lens I use to re-investigate the dairy industry and my name for the complex and fragile practical work that went into making the dairy industry tentatively stable, not despite disruptions, but because of them. I have shown that by following previously trivial, marginalised, taken-for-granted or otherwise ignored sets of inconspicuous relations, to moments of controversy where practices changed, different associations are brought to light. Because of disruptions, problems and controversies in the past, this dynamism has seen new creative moneyness practices done and redone to stabilise the dairy industry.

7.1 Milk and Money as Delicacies

I see milk and money as delicacies, not as in a treat, but in their qualities of being delicate. The assemblage of relations I have analysed shows the fragile, shifting and delicate relational architecture that produced the dairy industry and money as effects. Moneyness makes it possible to shift the analytical range for understanding the dairy industry, so that neither powerful actors, presupposed structures, or innate evolutionary systems are presumed to be causal. Previously inconspicuous sets of relations have been shown through following moneyness practices in the empirical chapters. These chapters demonstrate how the dairy industry and money have been

stabilised in response to dynamic change, through strategies such as arranging and rearranging tax, reconfiguring exchange rate regimes, making loans and changing how cooperative shares work.

The conceptual language I have drawn on emerged from Chapter Two's analysis of how financialization has been conceptualised in Agrifood Studies. Recent calls to investigate 'financialization as work' (J. W. Williams, 2014, p. 410) critically engaged with the concept of financialization, explaining financial capitalism as something that requires constant negotiation rather than as an irreversible process that has intruded into agrifood systems and is 'done to' us (Henry & Prince, 2018, pp. 989, 1003). I argue that, in a similar vein to literature about the New Zealand dairy industry, money is assumed by the financialization literature to be a settled ontological object that homogenously measures value and facilitates exchange. This assumption distorts the program of study in my view from fully understanding the dynamism of financial capitalism because it uncritically accepts that money has been settled upon as a homogenously experienced object. As such, entire sets of local practices and historical negotiations are erased, ignored or obscured and some forms of agency are unduly considered unimportant. I add this critique of money's treatment to critiques of financialization which argue that the program of study risks becoming 'explanans' – the thing that does the explaining, rather than treating it as a thing to be explained (Ouma, 2016, p. 83). Chapter Two took inspiration from calls to understand financialization as work and made the case for understanding 'money as work' from which I then began to develop my concept of moneyness as a lens for providing a different way of understanding the dairy industry.

Chapter Three argued for using assemblage theory as the conceptual underpinning of my moneyness concept and provided a strategy for re-investigating money as work. The dissonance I felt over explanations of the dairy industry that tended toward teleological accounts of either economically determined evolution or structurally deterministic inevitability, was compounded by the empirical

material I was engaging with which emphasised local agency and historical adaptability. This contingency was something that both money and the dairy industry had to continually re-negotiate.

Some agrifood scholars have used assemblage theory to look beyond categorical boundaries by focussing on the capacities of what associated relations have done, what work they do and how they work, rather than any essential properties which are said to define what a category or actors is (Campbell et al., 2009; Henry & Prince, 2018; Le Heron et al., 2016; Ouma, 2015; Pawson, 2018; Tsing, 2009). The dairy industry and money have previously been defined by a few deterministic properties but how they work and the work they do, has not yet been sufficiently attended to by agrifood scholarship in my view. By using assemblage theory, I could include what I considered some important locally arranged and historically specific forms of agency that might not fit into any particular suite of strong structural theories, and in doing so decompose the rigid parameters that have limited our understandings of money and the role it is said to play in this agrifood systems.

My concept of moneyness has been developed through a sensitivity towards *heterogeneity* and *stabilisation*. The idea of heterogeneity breaks apart and looks beyond seemingly distinct analytical categories like money, the state, the dairy industry and the banking system. These entities are re-investigated in the empirical chapters so that previously taken-for-granted, marginalised and ignored sets of relations have been newly illuminated. I used the idea of stabilisation to follow the dynamic interrelated practices of how tentatively ordered relations between actors became stabilised through the work of moneyness. Following moneyness allowed me to include local histories where diverse forms of agency are shown through a deep concentration on seemingly innocuous everyday events that never-the-less contributed to shifting and adapting the relational architecture that has had the effect of making the dairy industry in the way it has.

Moneyness, as an assemblage theory inspired concept, showed how the work of solving problems and trying to order heterogenous elements is provisionally achieved through the practical work of

stabilising. The empirical chapters of the thesis shifted from emphasising moneyness as a conceptual lens, to describing moneyness as the practical work that translated different forms of commensurable value across space and time. These chapters are 'not empirical in the sense of bringing in a vast array of data, but rather in the sense of concentrating, onto a very narrow set of micro-events, the full weight of a shift in perspective regarding what it is to be attentive to the world' (Latour, 2014, p. 261). As such, the empirical arguments provide a different understanding of the dairy industry but without providing the promise that these understandings are generalisable across industries and regions. Generalisability having rendered the concept of money down to a few essential properties is indeed the methodological technique that I have argued has obscured our current understandings of the dairy industry from illuminating inconspicuous yet important sets of practices.

These practices are important because various problems were solved by them. For example, in Chapter Four Governor Fitzroy, having been banned from borrowing sterling through the Imperial Treasury, created debentures to pay for things and made them valuable by accepting them back in payment to the Government. To achieve the same ends the Reserve Bank of New Zealand describes how it creates new settlement cash and filters this through commercial banks as branches of Tāne Mahuta, as a metaphor for how the ESAS system functions to pay for things the Government wants. In Chapter Five, to compete with established banks for buying gold, Falconer Larkworthy prints the first Bank of New Zealand banknotes on stationary paper making these IOU's commensurable with gold because gold was assayed into sterling sovereigns for the bank, and the bank was legislatively obligated to convert their IOU's into sterling on demand. In Chapter Six, to establish a near monopoly in the dairy industry through a mega-merger despite competition rules, the tether between fair-value shares and milk price showed the work of ordering heterogenous elements which translated value into Fonterra and allowed it to form. Fonterra changing from fair-value shares to restricted-value shares in Chapter Six was an attempt to stabilise milk supply by enabling a

lower share price. This made it easier for shareholder suppliers to supply more milk and gave them less incentive to cash in their shares and leave the cooperative. Changing the share structure stabilised a different value in cooperative shares and this stabilisation has arguably allowed an inflated milk price to flow through to dairy land values as tax free capital gains. All these practical responses to various matters of concern have resulted in re-assembling relations by translating different forms of commensurable value across space and time and have stabilised the dairy industry as an effect.

These sets of practices create relational interconnections between and across seemingly distinct categorical spaces such as the state, banks and dairy farming. Tax practices demonstrate the relational interconnectivity between categories and actors, and this problematises the distinctiveness of their presumed boundaries. Fitzroy's debentures, BNZ banknotes, dividends from Fonterra shares, the milk payout received from Rongotea Cooperative Dairy Company and settlement cash in the ESAS system, could all be used to extinguish a non-voluntary obligation to pay tax and therefore had a value practically translated into them. Farming in general, cooperative dairy companies, small agricultural land holders, the Dairy Board and dairy farms which invested in capital equipment, were all exempted from unevenly applied tax obligations at various times, translating extra value to them in comparison to other actors of the economy that were not exempt. Following moneyness relations such as these makes it difficult to say for sure where categories like the state definitively end and the banking system or the dairy industry begins.

These above examples of how tax practices have the capacity to stabilise relations, while not being attributed to some predetermined structural cause, and this stabilisation is made visible because of understanding moneyness as involving the work of assemblage which decomposes categories. Importantly, agency is not just left to actors inhabiting social institutions, but moneyness shows the distributed agency of socio-technical devices such as debentures, the ESAS system, the printing press

and cooperative shares, which also have done the work of stabilising the dairy industry. The complexity of taken-for-granted relations among actors such as institutions, categories, individuals, discourses of national value and devices, is illustrated through following their interrelated capacities to enable work. These taken-for-granted or otherwise inconspicuous relations, shown through locally arranged and historically varied moneyness practices such as tax, stabilised the delicate dairy industry as an effect. This is a different view to accounts that teleologically emphasise the innate evolution or structural inevitability of defined categories that presupposed and therefore caused the dairy industry.

Like tax, the example of exchange rate regimes provides further evidence that categories can be understood as effects of work that stabilise relational architectures, such as the delicate dairy industry or for that matter, the delicate state, the delicate banking system and fragile socio-technical devices. Following moneyness in exchange rate regimes illuminated such novel relations as for instance, in Chapter's Four and Five, the state promising that different forms of credit such as, Fitzroy's debentures and BNZ banknotes, would be redeemed for sterling. Converting to sterling stabilised sterling as the unit of account and stabilised the £NZ as representative of it. This stabilised the early dairy industry because it could accumulate sterling. In Chapter Five, the state stabilised the relations of the financial system by redeeming the Bank of New Zealand from insolvency in the 1890's and re-ordering the financial system until agricultural land values and agricultural commodity values could again be made commensurable with mortgage values. The state also instituted the Reserve Bank in the 1930's, stabilising the ability of the state to, among other things, finance a Guaranteed Price which stabilised the incomes of dairy farmers and eventually financed co-operatives and The Dairy Board. In Chapter Six, the Rongotea Cooperative was arranged by shareholder suppliers getting together and obtaining bank finance for continuing butter production by going as guarantors after getting 10 days' notice of the intended closure of Mr. Corpe's butter factory. The combination of how these at once locally grounded and broadly systemic relational

practices associated to exchange rate regimes, did the work of stabilising the dairy industry, is a new explanation that has unfolded in this thesis.

Moneyness lets us see inconspicuous relations that were not prominent in prevalent explanations of the dairy industry. These explanations uncritically accept the money as merely a commodity story. The near horizon objective of my thesis therefore contributes a different perspective to 'how' the dairy industry works and the work the dairy industry does. The work of moneyness helps explain the dairy industry as something that is continually transforming in response to problems that require creative solutions to make it appear as though it has been stably invariant for nearly a hundred and fifty years, not despite continual transformation, but because of it.

The far horizon contribution of this thesis is to the financialization literature. My thesis suggests that financialization studies needs to pay closer attention to challenging money as a taken-for-granted object that is simply incorporated into understandings of finance. Financialization has already been critiqued as portraying financial capitalism as homogenising, being done and experienced the same way across various spatial settings. Financialization has also been critiqued as being historically myopic, concentrating on just the last few decades of financial capitalism, portraying a false sense of newness (Christophers, 2015). Because of these critiques, financialization risks becoming explanans – the thing that does the explaining rather than the thing to be explained (Ouma, 2016). I offer moneyness as a way to unpack money as local forms of historical work (J. W. Williams, 2014), where both money and finance are effects of the way relations have stabilised delicate relational architectures through local and historical practices of connection and adaptation. If finance has intruded into local agrifood systems, then moneyness shows how this has been done, been contested and how it could be done differently.

7.2 Moneyness Colonizes

In the second section of the Introductory Chapter, I outlined how typical histories of New Zealand have tended to describe an orderly progression from Aotearoa, to colony, to capitalist settlement and onward to modern nation state. This so-called progression often has New Zealand advancing toward becoming a modern nation state, teleologically driven by the economy with agriculture as its most important contributor. Trajectories of the evolving economy with agriculture at the centre were variously technologically and financially determined (Easton, 2001). These depictions tend to render some relations 'invisible', such as farms, once thought to be taken-for-granted outcomes of an expanding settler world order, but recently reconsidered as active 'primary agents' that expanded frontiers in processes of colonization (Campbell, 2020, p. 45).

Likewise, my thesis shows that money, rather than just passively measuring value and mediating exchange, can also be considered an active agent of colonization. In other words, moneyness colonizes by distending new frontiers, and stabilising some trajectories while limiting others. This thesis has not tried to present a complete history of how moneyness has colonized Aotearoa but the examples that have been used provide fertile ground for more comprehensive explanations of the generative power of moneyness in understanding contemporary problems such as inequality and damaged ecologies.

For example, in understanding how Māori have been historically 'othered' from the dairy industry, the impact of the Advances to Settlers Act (1894) has been relatively absent in the agricultural historical literature. Using moneyness would more fully unpack how the State Advances system colonized by excluding Māori as worthy of state-credit and denying subsequent access to capital which created a very white dairy industry and agricultural sector. Another example concerns Thomas Russell who, having started his own bank, became Minister of Defence, invaded Waikato tribes and

confiscated their land, a significant portion of which the Bank of New Zealand advanced mortgages against and some of which Russell ended up owning. Moneyness would further unpack this story of how banking, politics and land confiscation practically colonized through stabilising new sets of relations while making other trajectories unfeasible.

Moneyness as sets of practices that 'translates' commensurable value over space and time, does not create new value, free of consequences. The natural environment previously valued by fauna such as Moa was transformed by Polynesian explorers a millennium ago, was shaped into Aotearoa by Māori as Tangata Whenua for centuries after, and has since been colonized into New Zealand (Campbell, 2020, p. 46). The use and exploitation of resources is continually valued differently, which moneyness makes possible. For a recent example, moneyness is an Emissions Trading Scheme that translates value into Carbon Credits by creating a market that prices agricultural emissions as a cost of production thereby incentivising forest plantings to offset what is emitted (Ministry for the Environment, 2022, unpaged). In the context of Māori, moneyness includes the treaty settlement process that practically translates historical injustices between the Crown and Māori into new land holdings and access rights to resources (New Zealand Government, 2023, unpaged).

Moneyness has colonized by changing what is valued. Realising new value in fixing the damaged ecology and redressing inequality for Māori may seem intractably large, in terms of being able to afford them with money. I have unpacked the dairy industry as an effect of moneyness, however, when a fuller picture of how moneyness has transformed other areas of concern is appreciated, no longer will money be the overriding limiting factor that needs to be traded off to make progress. The question will be not so much, where do we find the money?, rather, how should we assemble new effects with moneyness?

References

Aalbers, M. B. (2008). The Financialization of Home and the Mortgage Market Crisis. *Competition & Change, 12*(2), 148-166. doi:10.1179/102452908X289802

Aalbers, M. B. (2015). Financial geography: introduction to the Virtual Issue. *Transactions of the Institute of British Geographers, 40*(2), 300-305. doi:10.1111/tran.12081

Aalbers, M. B. (2017). Corporate Financialization. In D. Richardson, N. Castree, M. F. Goodchild, A. L. Kobayashi, R. Marston, & W. Liu (Eds.), *The International Encyclopedia of Geography: People, the Earth, Environment and Technology* (1st ed.). Oxford: John Wiley & Sons.

Aalbers, M. B. (2018). Financial geography I: Geographies of tax. *Progress in Human Geography, 42*(6), 916-927. doi:10.1177/0309132517731253

Aalbers, M. B. (2019). Financialization. In D. Richardson, N. Castree, M. F. Goodchild, A. L. Kobayashi, R. Marston, & W. Liu (Eds.), *The International Encyclopedia of Geography: People, the Earth, Environment, and technology* (2nd ed.). Oxford: John Wiley & Sons.

ACIL Economics and Policy. (1996). *The economy-wide effects of bundling milk and non-milk returns*. In N. Z. B. R. Table (Ed.). Retrieved from https://www.nzinitiative.org.nz/reports-and-media/reports/the-economy-wide-effects-of-bundling-milk-and-non-milk-returns/document/226 (Accessed 30 August 2022)

Adams, J. (1986). Governor FitzRoy's Debentures and their Role in his Recall. *New Zealand Journal of History, 20*(1), 44-63. Retrieved from http://www.nzjh.auckland.ac.nz/document/?wid=1083&page=1&action=null

Address to Captain Fitzroy. (1845, 13 December). *The New-Zealander, 1*(28). Retrieved from https://paperspast.natlib.govt.nz/newspapers/new-zealander/1845/12/13/3

AJHR. (1986). B-6-Financial Statement Annex 2. *Appendices to the Journals of the House of Representatives*.

Akoorie, M., & Scott-Kennel, J. (1999). The New Zealand Dairy Board: A case of group-internalization or a monopolistic anomaly in a deregulated free market economy. *Asia Pacific Journal of Management, 16*(1), 127-156.

Allen, J. (1912). B-19b Progressive Land-Tax. *Appendices to the Journals of the House of Representatives*. Retrieved from https://www.atojs.natlib.govt.nz/cgi-bin/atojs?a=d&cl=search&d=AJHR1912-II.2.1.3.37&srpos=42&e=-------100--1---bySH---0-AJHR%5f1912%5fII%5fAZz-B-

Allen, J. (2016). *Topologies of power: Beyond territory and networks*. London: Routledge.

Allen, J., & Pryke, M. (1999). Money Cultures after Georg Simmel: Mobility Movement, and Identity. *Environment and Planning D: Society and Space, 17*(1), 51-68. doi:10.1068/d170051

Alvehus, J., & Spicer, A. (2012). Financialization as a strategy of workplace control in professional service firms. *Critical Perspectives on Accounting, 23*(7), 497-510. doi:https://doi.org/10.1016/j.cpa.2012.02.001

Amable, B., Regan, A., Avdagic, S., Baccaro, L., Pontusson, J., & Van der Zwan, N. (2019). New Approaches to Political Economy. *Socio-Economic Review, 17*(2), 433-459. doi:https://academic.oup.com/ser/issue

Amin, A., & Thrift, N. J. (Eds.). (2004). *The Blackwell cultural economy reader*. Malden, MA: Blackwell.

Anderson, B. (2016). Neoliberal affects. *Progress in Human Geography, 40*(6), 734-753. doi:10.1177/0309132515613167

Anderson, B., Kearnes, M., McFarlane, C., & Swanton, D. (2012). On assemblages and geography. *Dialogues in Human Geography, 2*(2), 171-189. doi:10.1177/2043820612449261

Anstey, J. (1916). Land and Income Tax Bill. In *New Zealand Parliamentary Debates* (Vol. 176). Wellington: Legislative Council and House of Representatives.

Armstrong, W. (1978). New Zealand: Imperialism, Class and Uneven Development. *Journal of Sociology, 14*(3), 297-303. Retrieved from

http://ezproxy.massey.ac.nz/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=edb&AN=53317092&site=eds-live&scope=site
Arnold, M. N. (1981). *The Market for Finance in Late Nineteenth Century New Zealand, With special Reference to Rural Mortgages*: [Master's Thesis]. Victoria University.
Arrighi, G. (1994). *The long twentieth century: Money, power, and the origins of our times*. London: Verso.
Associated Dried Milk Co-operative. (1950). *Annual Report and Balance-sheet*. Kauwhata: Associated Dried Milk Co-operative.
Atkinson, K. (2008, February 25). Fonterra backs off - for now. *Manawatu Standard*. Retrieved from https://www.pressreader.com/new-zealand/manawatu-standard/20080225/281925948710607 (Accessed 28 February 2019)
Baldwin, T. (2016, August 4). Tony Baldwin: Fonterra needs to be fixed, and here's how. *Stuff*. Retrieved from https://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=11686635 (Accessed 1 March 2019)
Ballance, J. (1891). Land and Income Assessment Bill. In *New Zealand Parliamentary Debates* (Vol. 73, pp. 96-120). Wellington: Legislative Council and House of Representatives.
Barrett, J., & Veal, J. (2012). Land Taxation: A New Zealand Perspective. *eJournal of Tax Research, 10*(3), 573-588. doi:https://www.unsw.edu.au/content/dam/pdfs/unsw-adobe-websites/business-school/faculty/our-research/past-issues/bus-2012/2011-volume-10-number-3/BUS-2012-V10-paper1-v10-n3.pdf (Accessed 30 August 2022)
Bates, W. R. (1997). *The Dairy Board's export monopoly*. Wellington: New Zealand Business Roundtable.
Beckert, J., & Christine, M. (2013). Introduction. In J. Beckert & C. Musselin (Eds.), *Constructing Quality: The Classification of Goods in Markets* (pp. 1-28). Oxford: Oxford University Press.
Bedford, H. D. (1916). The Monetary Difficulties of Early Colonisation in New Zealand. *The Economic Journal, 26*(102), 257-276. doi:10.2307/2222472
Begg, S., Crawford, J., Gale, S., & Welson, E. (2018). *Review of Fonterra's 2018/19 milk price manual: Dairy Industry Restructuring Act 2001*. Retrieved from https://comcom.govt.nz/__data/assets/pdf_file/0021/110496/Final-report-Review-of-Fonterras-2018-19-milk-price-manual-14-December-2018.pdf (Accessed 14 December 2018)
Belich, J. (2001). *Paradise reforged: A history of the New Zealanders from the 1880s to the year 2000*. Honolulu: University of Hawai'i Press.
Bell, S. (2001). The role of the state and the hierarchy of money. *Cambridge Journal of Economics, 25*(2), 149-163. doi:10.1093/cje/25.2.149
Belshaw, H. (1921). *The New Zealand dairy industry*. Auckland: [Master's Thesis]. University of New Zealand.
Belshaw, H. (1927). Dairying Industry Of New Zealand. *Economic Geography, 3*(3), 281-296. doi:10.2307/140137
Belshaw, H. (1936a). *Agricultural organization in New Zealand: A survey of land utilization, farm organization, finance and marketing*. Melbourne: Melbourne University Press
Belshaw, H. (1936b). The financing of land purchase and of farming operations. In H. Belshaw (Ed.), *Agricultural organization in New Zealand: A survey of land utilization, farm organization, finance and marketing* (pp. 150-173). Melbourne: Melbourne University Press
Belshaw, H. (1947). Economic Organization. In H. Belshaw & W. T. G. Airey (Eds.), *New Zealand* (pp. 107-136). Berkley, CA: University of California Press.
Belshaw, H., & Airey, W. T. G. (1947). *New Zealand*. Berkley, CA: University of California Press.
Bessy, C., & Chauvin, P.-M. (2013). The power of market intermediaries: From information to valuation processes. *Valuation Studies, 1*(1), 83-117.
Birch, C. (1993). Corpe, William Wescombe. In *Dictionary of New Zealand Biography* (Vol. 2). Wellington: Department of Internal Affairs.

Björkhaug, H., McMichael, P., & Muirhead, B. (2020). *Finance Or Food?: The Role of Cultures, Values, and Ethics in Land Use Negotiations*. Toronto: University of Toronto Press.
Bollard, A. (2002). The evolution of monetary policy in New Zealand. Retrieved from https://www.rbnz.govt.nz/hub/publications/speech/2002/speech2002-11-25 (Accessed 30 August 2022)
Borras Jr, S. M., Hall, R., Scoones, I., White, B., & Wolford, W. (2011). Towards a better understanding of global land grabbing: An editorial introduction. *Journal of Peasant Studies, 38*(2), 209-216. doi:10.1080/03066150.2011.559005
Brash, D. (1986). *Consultative document on primary sector taxation*. Wellington: Government Printer.
Brash, D. (2010). Monetary and fiscal policy: How an agreed inflation target affects fiscal policy. Retrieved from http://www.donbrash.com/after-parliament/monetary-and-fiscal-policy-how-an-agreed-inflation-target-affects-fiscal-policy/ (Accessed 10 April 2019)
Breger Bush, S. (2012). *Derivatives and development: a political economy of global finance, farming, and poverty*. New York, NY: Palgrave Macmillan.
Britton, S. G., Le Heron, R. B., & Pawson, E. (1992). *Changing places in New Zealand: A geography of restructuring*. Christchurch: New Zealand Geographical Society.
Brooke, G. T. F., Endres, A. M., & Rogers, A. J. (2019). The Economists and Monetary Thought in Interwar New Zealand: The Gradual Emergence of Monetary Policy Activism. *History of Economics Review, 73*(1), 14-46. doi:10.1080/10370196.2019.1665225
Brooking, T. (2004). *The history of New Zealand*. Westport, CT: Greenwood.
Buenza, D., & Garud, R. (2007). Calculators, Lemmings or Frame-makers? The intermediary role of securities analysts. In F. Muniesa, Y. Millo, & M. Callon (Eds.), *Market devices* (pp. 13-39). Malden, MA: Blackwell.
Burch, D., & Lawrence, G. (2005). Supermarket own brands, supply chains and the transformation of the agri-food system. *International Journal of Sociology of Agriculture & Food, 13*(1), 1-18. Retrieved from https://espace.library.uq.edu.au/view/UQ:74986
Burch, D., & Lawrence, G. (2009). Towards a third food regime: behind the transformation. *Agriculture and Human Values, 26*(4), 267. doi:10.1007/s10460-009-9219-4
Burch, D., & Lawrence, G. (2013). Financialization in agri-food supply chains: private equity and the transformation of the retail sector. *Agriculture and Human Values, 30*(2), 247-258. doi:10.1007/s10460-012-9413-7
Busch, L. (2000). The moral economy of grades and standards. *Journal of Rural Studies, 16*(3), 273-283. doi:10.1016/S0743-0167(99)00061-3
Busch, L. (2007). Performing the economy, performing science: from neoclassical to supply chain models in the agrifood sector. *Economy and Society, 36*(3), 437-466. doi:10.1080/03085140701428399
Busch, L. (2014). Individual choice and social values: Choice in the agrifood sector. *Journal of Consumer Culture, 16*(1), 124-143. doi:10.1177/1469540514536193
Callon, M. (1986). Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St Brieuc Bay. In J. Law (Ed.), *Power, action, and belief : a new sociology of knowledge* (pp. 196-223). London: Routledge & Kegan Paul.
Callon, M. (2007). What Does it Mean to say That Economics is Performative? In D. A. MacKenzie, F. Muniesa, & L. Siu (Eds.), *Do economists make markets?: on the performativity of economics* (pp. 311-357). Princeton, NJ: Princeton University Press.
Campbell, H. (2009). Breaking new ground in food regime theory: Corporate environmentalism, ecological feedbacks and the 'food from somewhere' regime? *Agriculture and Human Values, 26*, 309-319. doi:10.1007/s10460-009-9215-8
Campbell, H. (2020). *Farming inside invisible worlds: Modernist agriculture and its consequences*. London: Bloomsbury.

Campbell, H., Burton, R., Cooper, M., Henry, M., Le Heron, E., Le Heron, R., . . . White, T. (2009). From agricultural science to “biological economies"? *New Zealand Journal of Agricultural Research, 52*(1), 91-97. doi:10.1080/00288230909510492

Campbell, H., & Dixon, J. (2009). Introduction to the special symposium: reflecting on twenty years of the food regimes approach in agri-food studies. *Agriculture and Human Values, 26*(4), 261-265.

Campbell, H., Le Heron, R., Lewis, N., & Carolan, M. (2016). Conclusion: Biological economies as an academic and political project. In R. Le Heron, H. Campbell, N. Lewis, & M. Carolan (Eds.), *Biological Economies: Experimentation and the politics of agri-food frontiers* (pp. 256-270). Abingdon: Routledge.

Campbell, H., Rosin, C., Hunt, L., & Fairweather, J. (2012). The social practice of sustainable agriculture under audit discipline: Initial insights from the ARGOS project in New Zealand. *Journal of Rural Studies, 28*(1), 129-141.

Carolan, M. (2013). Final word: Putting the 'alter' in alternative food futures. *New Zealand Sociology*(4), 145-150.

Carter, D. (1970). Oral answers to questions. In *New Zealand Parliamentary Debates* (Vol. 366, pp. 819-822). Wellington: Legislative Council and House of Representatives.

Castalia Strategic Advisors. (2012, June 2012). The “Hypothetical Efficient Competitor” and farm-gate milk prices. Retrieved from http://www.nzae.org.nz/wp-content/uploads/2012/06/Temple_Castalia-Raw-Milk-Report-Econ-Conference.pdf (Accessed 30 August 2022)

Chappell, N. M. (1961). *New Zealand banker's hundred: A history of the Bank of New Zealand, 1861-1961*. Wellington: Bank of New Zealand.

Chayanov, A. V. (1966). *The theory of peasant economy*. Homewood, Ill: The American Economic Association

Christophers, B. (2011). Follow the Thing: Money. *Environment and Planning D: Society and Space, 29*(6), 1068-1084. doi:10.1068/d8410

Christophers, B. (2012). Anaemic Geographies of Financialisation. *New Political Economy, 17*(3), 271-291. doi:10.1080/13563467.2011.574211

Christophers, B. (2015). The limits to financialization. *Dialogues in Human Geography, 5*(2), 183-200. doi:10.1177/2043820615588153

Christophers, B. (2017). Seeing financialization? Stylized facts and the economy multiple. *Geoforum, 85*, 259-268. doi:https://doi.org/10.1016/j.geoforum.2017.06.024

Christophers, B. (2018). Financialisation as Monopoly Profit: The Case of US Banking. *Antipode, 50*(4), 864-890. doi:10.1111/anti.12383

Christophers, B. (2019). Putting financialisation in its financial context: Transformations in local government-led urban development in post-financial crisis England. *Transactions of the Institute of British Geographers*, 1-16.

Christophers, B., & Fine, B. (2020). The value of financialization and the financialization of value. In P. Mader, D. Mertens, & N. van der Zwan (Eds.), *Routledge international handbook of financialization* (pp. 19-30). Adingdon: Routledge.

Christophers, B., Leyshon, A., & Mann, G. (2017). *Money and finance after the crisis: Critical thinking for uncertain times*. Hoboken, NJ: John Wiley & Sons.

Chwieroth, J. M., & Walter, A. (2020). Great expectations, financialization, and bank bailouts in democracies. *Comparative Political Studies, 53*(8), 1259-1297.

Clapp, J. (2014). Financialization, distance and global food politics. *Journal of Peasant Studies, 41*(5), 797-814. doi:10.1080/03066150.2013.875536

Clapp, J., & Helleiner, E. (2012). Troubled Futures? The Global Food Crisis and the Politics of Agricultural Derivatives Regulation. *Review of International Political Economy, 19*(2), 181-207. doi:http://www.tandfonline.com/loi/rrip20

Clapp, J., & Isakson, S. R. (2018). *Speculative harvests: Financialization, food, and agriculture*. Warwickshire: Practical Action Publishing

Colgate, P., & Sheppard, D. K. (1990). *A history of the Bank of New Zealand, 1862-1982*. Wellington: Victoria University of Wellington.

Commerce Commission New Zealand. (1999). Commission's preliminary determination says 'no' to dairy 'mega-merger' [Press release]. Retrieved from https://comcom.govt.nz/news-and-media/media-releases/archive/commissions-preliminary-determination-says-no-to-dairy-mega-merger (30 August 2022)

Condliffe, J. B. (1930). *New Zealand in the making: A survey of economic and social development*. London: George Allen & Unwin.

Condliffe, J. B. (1959). *New Zealand in the making: A study of economic and social development* (2nd ed.). London: Allen & Unwin.

Condliffe, J. B., & Belshaw, H. (1925). A Brief Survey of Rural Credit. *New Zealand Journal of Science and Technology, 7*(6), 334-352.

Cooper, M., & McFall, L. (2017). Ten years after: it's the economy and culture, stupid! *Journal of Cultural Economy, 10*(1), 1-7. doi:10.1080/17530350.2016.1267026

Corbridge, S., Martin, R., & Thrift, N. (Eds.). (1994). *Money, power, and space*. Oxford: Blackwell.

Corgel, R. (2018). New Zealand's early monetary history and the colonial bank of issue, 1840-1856. *Journal of Economics Bibliography, 5*(4), 253-270.

Cotula, L. (2012). The international political economy of the global land rush: A critical appraisal of trends, scale, geography and drivers. *Journal of Peasant Studies, 39*(3-4), 649-680. doi:10.1080/03066150.2012.674940

Crotty, J. (2005). The neoliberal paradox: The impact of destructive product market competition and 'modern' financial markets on nonfinancial corporation performance in the neoliberal era. In G. A. Epstein (Ed.), *Financialization and the world economy*. Northampton, MA: Edward Elgar Publishing.

Croucher, W. J. (1944). *Dairying through the years: A complimentary souvenir booklet covering a brief survey of the growth of the Rongotea Co-operative Dairy Company at the completion of 50 years of progress*. Rongotea: Rongotea Co-operative Dairy Company.

Cumberland, K. B. (1941). A century's change: Natural to cultural vegetation in New Zealand. *Geographical Review, 31*(4), 529-554. doi:10.2307/210498

Cumberland, K. B. (1944). *Soil erosion in New Zealand: A geographic reconnaissance*. Christchurch: Whitcombe & Tombs.

Cumberland, K. B. (1948). The Agricultural Regions of New Zealand. *The Geographical Journal, 112*(1/3), 43. doi:10.2307/1789157

Curtis, B. M. (2001). Reforming New Zealand Agriculture: The WTO Way or Farmer Control? *The International Journal of Sociology of Agriculture and Food, 9*(1), 29-42.

Dairy Industry Commission. (1934). H-30 Dairy Industry Commission Report. *Appendices to the Journals of the House of Representatives*. Retrieved from https://atojs.natlib.govt.nz/cgi-bin/atojs?a=d&d=AJHR1934-I.2.3.2.37&e=-------10--1------0--

Dairy NZ. (2017). Dairy NZ Economic Survey 2016-17. Retrieved from https://www.dairynz.co.nz/media/5789308/economic_survey_2016-17_web.pdf (Accessed 30 August 2022)

Dairy NZ. (2019a). *New Zealand Dairy Statistics*. Retrieved from https://www.dairynz.co.nz/media/5792471/nz_dairy_statistics_2018-19_web_v2.pdf (Accessed 10 March 2022)

Dairy NZ. (2019b). Quickstats about dairying - New Zealand. Retrieved from https://www.dairynz.co.nz/media/5792398/quickstats-about-dairying-new-zealand-2019.pdf (Accessed 17 July 2020)

Daniel, S. (2012). Situating private equity capital in the land grab debate. *39*(3-4), 703-729. doi:10.1080/03066150.2012.674941

Davey, L. (1978). *Current cost depreciation methods and the valuation of farm tractors and headers*. Lincoln: The Agricultural Economics Research Unit.
de Cleene, T. (1988). Income Tax Amendment Bill (no.6). In *New Zealand Parliamentary Debates* (Vol. 492). Wellington: Legislative Council and House of Representatives.
De Landa, M. (2006). *A new philosophy of society*. London: Continuum.
Deans, N., & Hackwell, K. (2008). Dairying and declining water quality: Why has the Dairying and Clean Streams Accord not delivered cleaner streams. Retrieved from https://docs.niwa.co.nz/library/public/DeansNDairying_and_Declining_Water_Quality.pdf
Deleuze, G., & Guattari, F. (1987). *A thousand plateaus: Capitalism and schizophrenia*. Minneapolis, MI: University of Minnesota Press.
Deleuze, G., & Guattari, F. (1994). *What is philosophy?* New York, NY: Columbia University Press.
Department of Statistics. (1935). 16. Agricultural and pastoral production. In *New Zealand Offical Yearbook*. Retrieved from https://www3.stats.govt.nz/New_Zealand_Official_Yearbooks/1935/NZOYB_1935.html
Department of Statistics. (1973). 41. Chronology of Principal Events. In *New Zealand Offical Yearbook*. Retrieved from https://www3.stats.govt.nz/New_Zealand_Official_Yearbooks/1935/NZOYB_1935.html
Department of Statistics. (1974). 43. Chronology of Principal Events. In *New Zealand Offical Yearbook*. Retrieved from https://www3.stats.govt.nz/New_Zealand_Official_Yearbooks/1974/NZOYB_1974.html
Department of Statistics. (1984). 15. Farming. In *New Zealand Offical Yearbook*. Retrieved from https://www3.stats.govt.nz/New_Zealand_Official_Yearbooks/1984/NZOYB_1984.html
Department of Statistics. (1986-87). Table 26.7 Analysis of overdraft and term lending by trading banks. *New Zealand Offical Yearbook*. Retrieved from https://www3.stats.govt.nz/New_Zealand_Official_Yearbooks/1986-87/NZOYB_1986-87.html
Destremau, K., & Siddharth, P. (2018). *How does the dairy sector share its growth?* Retrieved from https://nzier.org.nz/static/media/filer_public/9f/0e/9f0e40ea-0178-4ef9-950f-5546ef483eec/dcanz_2018_final.pdf (Accessed 14 October 2019)
Dixon, M. (2014). The Land Grab, Finance Capital, and Food Regime Restructuring: The Case of Egypt. *Review of African Political Economy, 41*(140), 232-248. doi:http://www.tandfonline.com/loi/crea20
Dobson, W. D. (1990). The competitive strategy of the New Zealand dairy board. *Agribusiness, 6*(6), 541-558. doi:10.1002/1520-6297(199011)6:6<541::AID-AGR2720060603>3.0.CO;2-O
Dobson, W. D. (1998). The New Zealand Dairy Board: Will the Board's Monopoly Exporting Privilege Survive? *Choices, 13*(1), 8-13.
Dore, R. (2008). Financialization of the global economy. *Industrial and Corporate Change, 17*(6), 1097-1112.
Douglas, R. (1985). B-6 Financial Statement. *Appendices to the Journals of the House of Representatives*.
Douglas, R., & Callan, L. (1987). *Roger Douglas: Toward prosperity*. Auckland: David Bateman.
Dow, S. (2020). Financialization, money and the state. In P. Mader, D. Mertens, & N. van der Zwan (Eds.), *Routledge international handbook of financialization* (pp. 56-67). Abingdon: Routledge.
Du Gay, P., & Pryke, M. (2002). *Cultural economy: Cultural analysis and commercial life*. London: SAGE.
Ducastel, A., & Anseeuw, W. (2016). Agriculture as an Asset Class: Reshaping the South African Farming Sector. *Agriculture and Human Values, 34*(1), 199-209. doi:http://link.springer.com/journal/volumesAndIssues/10460

Ducastel, A., & Anseeuw, W. (2018). Facing financialization: The divergent mutations of agricultural cooperatives in postapartheid South Africa. *Journal of Agrarian Change*, 1-16. doi:10.1111/joac.12255

Dumenil, G., & Levy, D. (2004). The Real and Financial Components of Profitability (United States, 1952-2000). *Review of Radical Political Economics, 36*(1), 82-110. doi:http://rrp.sagepub.com/content/by/year

Duménil, G., & Lévy, D. (2004). *Capital resurgent: Roots of the neoliberal revolution*. Cambridge, MA: Harvard University Press.

Dunn, K. (2005). Interviewing. In I. Hay (Ed.), *Qualitative research methods in human geography* (2nd ed.). Oxford: Oxford University Press.

Easton, B. H. (1985, July 27). Devaluation!: Five turbulent days in 1984 and then... *Listener*. Retrieved from https://www.eastonbh.ac.nz/1985/07/devaluation_five_turbulent_days_in__and_then_/ (Accessed 24 February 2022)

Easton, B. H. (1997). *In stormy seas: The post-war New Zealand economy*. Dunedin: University of Otago Press.

Easton, B. H. (2001). *The Nationbuilders*. Auckland: Auckland University Press.

Easton, B. H. (2009). It's the same this time? Cycles and depressions in New Zealand history. *Policy Quarterly, 5*(1), 17-23.

Easton, B. H. (2020). *Not in narrow seas: The economic history of Aotearoa New Zealand*: Victoria University of Wellington Press.

Epstein, G. (2002). *Financialization, rentier interests and central bank policy.* Paper presented at the Political Economy Research Institute Conference on Financialization in the World Economy, Amherst, MA. http://www.peri.umass.edu/fileadmin/pdf/financial/fin_Epstein.pdf (Accessed 30 August 2022)

Erturk, I., Froud, J., Johal, S., Leaver, A., & Williams, K. (2009). Rediscovering banking as utility. Retrieved from https://publications.parliament.uk/pa/cm200809/cmselect/cmtreasy/144/144w159.htm (Accessed 11 March 2022)

Espeland, W. N., & Stevens, M. L. (1998). Commensuration as a social process. *Annual Review of Sociology, 24*(1), 313-343.

Evans, L. T. (2004). *Structural reform: The dairy industry in New Zealand*. Wellington: New Zealand Institute for the study of competition and regulation.

Evans, L. T., & Guthrie, G. (2006). A Dynamic Theory of Cooperatives: The Link between Efficiency and Valuation. *Journal of Institutional and Theoretical Economics (JITE), 162*(2), 364-383. Retrieved from http://www.jstor.org.ezproxy.massey.ac.nz/stable/40752587

Evans, L. T., & Quigley, N. C. (2001). *Watershed for New Zealand dairy industry*. Wellington: New Zealand Institute for the Study of Competition and Regulation.

Fairbairn, M. (2014). 'Like gold with yield': evolving intersections between farmland and finance. *Journal of Peasant Studies, 41*(5), 777-795. doi:10.1080/03066150.2013.873977

Fairweather, J. R. (1985). White-Settler Colonial Development: Early New Zealand Pastoralism and the Formation of Estates. *Australian & New Zealand Journal of Sociology, 21*(2), 237. doi:10.1177/144078338502100205

Faria, I. (2022). When tales of money fail: the importance of price, trust, and sociality for cryptocurrency users. *Journal of Cultural Economy, 15*(1), 81-92. doi:10.1080/17530350.2021.1974070

Faulconbridge, J. R., & Muzio, D. (2009). The financialization of large law firms: Situated discourses and practices of reorganization. *Journal of Economic Geography, 9*(5), 641-661. doi:10.1093/jeg/lbp038

Fawcett, E. (1936). Dairy Farming. In H. Belshaw (Ed.), *Agricultural organization in New Zealand: A survey of land utilization, farm organization, finance and marketing* (pp. 438-471). Melbourne: Melbourne University Press.

Ferrier, A. (2011, January 3). Dairy's $3.6b contribution to NZ economy. *Stuff*. Retrieved from http://i.stuff.co.nz/business/industries/4508171/Dairys-3-6b-contribution-to-NZ-economy (Accessed 4 August 2020)

Fitzroy, R. (1844). Fitzroy address to Legislative Council. In *Papers relative to the affairs of New Zealand* (247 ed., Vol. 33). Retrieved from https://books.google.co.nz/books?id=_GwSAAAAYAAJ&pg=PA104&lpg=PA104&dq=fitzroy+address+to+legislative+council+14+May+1844&source=bl&ots=-0G4g7chpo&sig=ACfU3U2NbwSMdVCXfsj4-ZLhzPMqhB56DA&hl=en&sa=X&ved=2ahUKEwji06vF-MnkAhVReH0KHUwuDLEQ6AEwBXoECAkQAQ#v=onepage&q=fitzroy%20address%20to%20legislative%20council%2014%20May%201844&f=false (Accessed 30 August 2022)

Fonterra Cooperative Group. (2007). Capital Structure 2007 [Press release]. Retrieved from http://file.stuff.co.nz/legacy-assets/stuff/asset/fonterra.pdf (Accessed 30 August 2022)

Fonterra Cooperative Group. (2012). Fonterra shareholders' fund prospectus and investment statement [Press release]. Retrieved from http://media.nzherald.co.nz/webcontent/document/pdf/201243/Prospectus.pdf (Accessed 28 February 2018)

Fonterra Cooperative Group. (2013). *Fonterra farmer shareholders' supply offer booklet*. Retrieved from https://www.fonterra.com/content/dam/fonterra-public-website/phase-2/new-zealand/pdfs-docs-infographics/pdfs-and-documents/milk-prices/pdf-130430-supply-offer-booklet.pdf (Accessed 28 February 2018)

Foote, K. J., Joy, M., & Death, R. G. (2015). New Zealand Dairy Farming: Milking Our Environment for All Its Worth. *Environmental Management, 56*(3), 709-720. doi:10.1007/s00267-015-0517-x

Forney, J., Rosin, C., & Campbell, H. (2018). *Agri-environmental Governance as an Assemblage: Multiplicity, Power, and Transformation*. Abingdon: Routledge.

Forney, J., & Stock, P. V. (2014). Conversion of Family Farms and Resilience in Southland, New Zealand. *International Journal of Sociology of Agriculture & Food, 21*(1), 7.

Forstater, M., & Mosler, W. (2005). The natural rate of interest is zero. *Journal of Economic Issues, 39*(2), 535-542.

Fourcade, M., & Healy, K. (2007). Moral views of market society. *Annual Review of Sociology, 33*, 285-311. doi:10.1146/annurev.soc.33.040406.131642

Frazer, F. V., Duncan, G. A., Gilkison, J., Iorns, W. A., & Williams, D. O. (1934). *1934 New Zealand Dairy Industry Commission presented to both Houses of the General Assembly by command of His Excellency*. Wellington: Dairy Industry Commission.

Freidberg, S. (2013). Calculating sustainability in supply chain capitalism. *Economy and Society, 42*(4), 571-596. doi:10.1080/03085147.2012.760349

French, S., Leyshon, A., & Wainwright, T. (2011). Financializing space, spacing financialization. *Progress in Human Geography, 35*(6), 798-819.

Friedman, M. (2017). The Optimum Quantity of Money. In N. Eberstadt (Ed.), *The Optimum Quantity of Money* (First edition ed., pp. 1-50). doi:https://doi-org.ezproxy.massey.ac.nz/10.4324/9781315133607

Friedmann, H. (2005). From colonialism to green capitalism: Social movements and emergence of food regimes. In F. H. Buttel & P. McMichael (Eds.), *New Directions in the Sociology of Global Development* (1st ed., Vol. 11, pp. 227-264). Amsterdam: JAI Press.

Friedmann, H., & McMichael, P. (1989). Agriculture and the state system: The rise and decline of national agricultures, 1870 to the present. *Sociologia Ruralis, 29*(2), 93-117. doi:10.1111/j.1467-9523.1989.tb00360.x

Froud, J., Haslam, C., Johal, S., & Williams, K. (2000). Shareholder value and financialization: consultancy promises, management moves. *Economy & Society, 29*(1), 80-110. doi:10.1080/030851400360578

Frykberg, E. (2019, February 19). Fonterra and Synlait in war of words over dairy reform. *RNZ news*. Retrieved from https://www.radionz.co.nz/news/country/382867/fonterra-and-synlait-in-war-of-words-over-dairy-reform (Accessed 3 March 2019)

Gale, H. (2014, April 16). Dairy forms NZ's backbone. *Stuff*. Retrieved from http://i.stuff.co.nz/business/better-business/invest-in-dairy/9915963/Dairy-forms-NZs-backbone (Accessed 4 August 2020)

Gallagher, A. (2022). *Childcare Provision in Neoliberal Times: The Marketization of Care* (1 ed.). Bristol: Bristol University Press.

Gereffi, G. (1994). The organization of buyer-driven global commodity chains: How U.S. retailers shape overseas production networks. In G. Gereffi & M. Korzeniewicz (Eds.), *Commodity chains and global capitalism*. Westport, CN: Greenwood Press.

Gereffi, G., Humphrey, J., & Sturgeon, T. (2005). The governance of global value chains. *Review of International Political Economy, 12*(1), 78-104. doi:10.1080/09692290500049805

Ghosh, J. (2010). The Unnatural Coupling: Food and Global Finance. *Journal of Agrarian Change, 10*(1), 72-86. doi:10.1111/j.1471-0366.2009.00249.x

Gibadullina, A. (2021). The birth and development of Anglophone financial geography: A historical analysis of geographical studies of money and finance. *Geoforum, 125*, 150-167. doi:https://doi.org/10.1016/j.geoforum.2021.06.009

Gibson-Graham, J. K. (2008). Diverse economies: Performative practices for 'other worlds'. *Progress in Human Geography, 32*(5), 613-632.

Gibson-Graham, J. K. (2014). Rethinking the economy with thick description and weak theory. *Current Anthropology, 55*(S9), S147-S153.

Gill, H. (1979). Legislated Apathy: Industrial Relations in New Zealand Agriculture. *New Zealand Journal of Industrial Relations, 4*(3). Retrieved from https://ojs.victoria.ac.nz/nzjir/article/view/3480 (Accessed 30 AUgust 2022)

Godley, W. (2012). Weaving cloth from Graziani's thread: endogenous money in a simple (but complete) Keynesian model. In M. Lavoie & G. Zezza (Eds.), *The Stock-Flow Consistent Approach* (pp. 81-89). Basingstoke: Palgrave MacMillan.

Goldsmith, P. (2008). *We won, you lost, eat that!: A political history of tax in New Zealand since 1840*. Auckland: David Ling Publishing.

Goodhart, C. A. (1998). The two concepts of money: implications for the analysis of optimal currency areas. *European Journal of Political Economy, 14*(3), 407-432.

Graeber, D. (2011). *Debt: The first 5,000 years*. Brooklyn, NY: Melville House.

Graham, B. D. (1963). The country party idea in New Zealand politics, 1901-1935. In R. M. Chapman & K. Sinclair (Eds.), *Studies of a small democracy; essays in honour of Willis Airey* (pp. 120-132). Auckland: Auckland University Press.

Gray, S., & Le Heron, R. (2010). Globalising New Zealand: Fonterra Co-operative Group, and shaping the future. *New Zealand Geographer, 66*(1), 1-13. doi:10.1111/j.1745-7939.2010.01173.x

Gray, S., Le Heron, R., Stringer, C., & Tamásy, C. (2007). Competing from the edge of the global economy: The globalising world dairy industry and the emergence of Fonterra's strategic networks. *Erde, 138*(2), 127-146.

Greenbaum, S. I., Thakor, A. V., & Boot, A. W. A. (2019). *Contemporary financial intermediation* (Fourth ed.). Amsterdam: Academic Press.

Grey, G. (1846, May 12). Lieutenant-Governor Grey to the Right Hon. Lord Stanley. *The Nelson Examiner and New Zealand Chronicle, 6*(286). Retrieved from https://paperspast.natlib.govt.nz/newspapers/nelson-examiner-and-new-zealand-chronicle/1847/08/28

Gunnoe, A. (2014). The political economy of institutional landownership: Neorentier society and the financialization of land. *Rural Sociology, 79*(4), 478-504. doi:10.1111/ruso.12045
Hall, S. (2006). What counts? Exploring the production of quantitative financial narratives in London's corporate finance industry. *Journal of Economic Geography, 6*(5), 661-678. doi:10.1093/jeg/lbl008
Hall, S. (2011). Geographies of money and finance I: Cultural economy, politics and place. *Progress in Human Geography, 35*(2), 234-245. doi:10.1177/0309132510370277
Hall, S. (2012). Geographies of money and finance II: Financialization and financial subjects. *Progress in Human Geography, 36*(3), 403-411. doi:10.1177/0309132511403889
Hall, S. (2013). Geographies of money and finance III: Financial circuits and the 'real economy'. *Progress in Human Geography, 37*(2), 285-292. doi:10.1177/0309132512443488
Hall, S. (2018). *Global finance: Places, spaces and people*. London: SAGE Publications.
Hamer, D. A. (1988). *The New Zealand liberals: The years of power, 1891-1912*. Auckland: Auckland University Press.
Hamilton, W. M. (1947). The farming industries. In H. Belshaw & W. T. G. Airey (Eds.), *New Zealand* (pp. 137-163). Berkley, CA: University of California Press.
Hargreaves, R. P. (1972). *From beads to banknotes*. Dunedin: McIndoe.
Harvey, D. (1982). *The limits to capital*. Oxford: Basil Blackwell.
Harvey, J. T. (2009). *Currencies, capital flows and crises: A post Keynesian analysis of exchange rate determination*. London: Routledge.
Hatch, E. (1993). *Respectable lives: Social standing in rural New Zealand*. Berkley, CA: University of California Press.
Hawke, G. R. (1973). *Between governments and banks; a history of the Reserve Bank of New Zealand*. Wellington: A. R. Shearer.
Hawke, G. R. (1985). *The making of New Zealand: An economic history*. Wellington: Cambridge University Press.
Hawke, G. R. (1990). Larkworthy, Falconer. *Te Ara - The Encyclopaedia of New Zealand*. Retrieved from https://teara.govt.nz/en/biographies/1l4/larkworthy-falconer (Accessed 25 February 2022)
Helgesson, C.-F., & Muniesa, F. (2013). For what it's worth: An introduction to valuation studies. *Valuation Studies, 1*(1), 1-10.
Henry, M. (2017a). Assembling the Weather: Expertise, Authority and the Negotiation of trans-Tasman Aviation Forecasts. *History of Meteorology, 8*, 179-201.
Henry, M. (2017b). Meat, metrics and market devices: Commensuration infrastructures and the assemblage of 'the schedule' in New Zealand's red meat sector. *Journal of Rural Studies, 52*(Supplement C), 100-109. doi:https://doi.org/10.1016/j.jrurstud.2017.03.001
Henry, M., & Prince, R. (2018). Agriculturalizing finance? Data assemblages and derivatives markets in small-town New Zealand. *Environment and Planning A: Economy and Space, 50*(5), 989-1007. doi:10.1177/0308518x18774047
Henry, M., & Roche, M. (2013). Valuing lively materialities: Bio-economic assembling in the making of new meat futures. *New Zealand Geographer, 69*(3), 197-207.
Hillig, A. (2019). Everyday financialization: The case of UK households. *Environment and Planning A: Economy and Space, 51*(7), 1460-1478. doi:10.1177/0308518x19843920
Ho, K. Z. (2009). *Liquidated: An ethnography of Wall Street*. Durham, NC: Duke University Press.
Holland, P. (2015). The dirty dairying campaign and the clean streams accord. *Lincoln Planning Review, 6*(1-2), 63-69.
Holmes, F. W., & Hawke, G. R. (1997). *The thoroughbred among banks in New Zealand*. Wellington, NZ: National Bank of New Zealand.
Humphrey, C. (1985). Barter and Economic Disintegration. *Man, 20*(1), 48-72. doi:10.2307/2802221
Hunt, C. (2009). Banking crises in New Zealand – an historical perspective. *Reserve Bank of New Zealand Bulletin, 72*(4). Retrieved from https://www.rbnz.govt.nz/-

/media/ReserveBank/Files/Publications/Bulletins/2009/2009dec72-4hunt.pdf?revision=98963a7a-2c54-430d-82a6-9be8f4c31805 (Accessed 26 July 2019)
Ingham, G. (2004). *The nature of money*. Malden, MA: Polity.
Innes, A. M. (1913). What is money? *The Banking Law Journal, 30*, 151-168.
Interest.co.nz. (2022). Dairy industry payout history. Retrieved from https://www.interest.co.nz/rural-data/dairy-industry-payout-history (Accessed 30 August 2022)
Isakson, S. R. (2014). Food and finance: the financial transformation of agro-food supply chains. *Journal of Peasant Studies, 41*(5), 749-775. doi:10.1080/03066150.2013.874340
Isakson, S. R. (2015). Derivatives for Development? Small-Farmer Vulnerability and the Financialization of Climate Risk Management. *Journal of Agrarian Change, 15*(4), 569-580. doi:10.1111/joac.12124
Jackson, P. (1983). Principles and Problems of Participant Observation. *Geografiska Annaler. Series B, Human Geography, 65*(1), 39-46. doi:10.2307/490843
Jay, M. (2007). The political economy of a productivist agriculture: New Zealand dairy discourses. *Food Policy, 32*(2), 266-279. doi:https://doi.org/10.1016/j.foodpol.2006.09.002
Jay, M., & Morad, M. (2007). Crying over spilt milk: A critical assessment of the ecological modernization of New Zealand's dairy industry. *Society and Natural Resources, 20*(5), 469-478. doi:10.1080/08941920701211991
Jayadev, A., Mason, J. W., & Schröder, E. (2018). The Political Economy of Financialization in the United States, Europe and India. *Development and Change, 49*(2), 353-374. doi:doi:10.1111/dech.12382
Johnson, R. W. M. (1989). The financing of New Zealand agriculture. In *Agricultural policy paper: no. 16*. Palmerston North: Centre for Agricultural Policy Studies, Massey University.
Joy, M. (2015). *Polluted inheritance: New Zealand's freshwater crisis*. Wellington: BWB Texts.
Joy, M. (2018). *Mountains to sea: Solving New Zealand's freshwater crisis*. Wellington: Bridget Williams Books.
Kelsey, J. (1997). *The New Zealand experiment: A world model for structural adjustment?* (New ed.). Auckland: Auckland University Press.
Kelsey, J. (2015). *The FIRE economy: New Zealand's reckoning*. Wellington: Bridget Williams Books with the New Zealand Law Foundation.
Kelton, S. (2020). *The deficit myth: modern monetary theory and the birth of the people's economy*. London, UK: John Murray.
Kerr, R. (2001). A vision for agriculture. In New Zealand Business Round Table (Ed.), *Choosing a first world or third world future* (pp. 11-18). Retrieved from https://www.nzinitiative.org.nz/reports-and-media/reports/choosing-a-first-world-or-a-third-world-future/document/198 (Accessed 30 August 2022)
Khan, S. (2012, 9 May). Speculative attack on a currency. Retrieved from https://www.khanacademy.org/economics-finance-domain/macroeconomics/forex-trade-topic/macro-the-foreign-exchange-market/v/speculative-attack-on-a-currency (Accessed 17 October 2019)
King, J. (1990). Primary sector taxation reform. In R. A. Sandrey, R. Reynolds, M. Wheatstone, & I. F. Grant (Eds.), *Farming without subsidies: New Zealand's recent experience* (pp. 80-97). Wellington: Ministry of Agriculture and Fisheries.
King, M. (2003). *The Penguin history of New Zealand*. Auckland: Penguin Books.
Kjærnes, U., Harvey, M., & Warde, A. (2007). *Trust in food: A comparative and institutional analysis*. Hampshire: Palgrave Macmillan.
Kjellberg, H., Mallard, A., Arjaliès, D.-L., Aspers, P., Beljean, S., Bidet, A., . . . Geiger, S. (2013). Valuation studies? Our collective two cents.
Knapp, G. F. (1924). *The state theory of money*. New York, NY: Augustus M. Kelley.

Knorr-Cetina, K., & Preda, A. (2005). *The Sociology of Financial Markets*. Oxford: Oxford University Press.
Knox-Hayes, J., & Wójcik, D. (2020). *The Routledge Handbook of Financial Geography*. Abingdon: Routledge.
Koddenbrock, K. (2019). Money and moneyness: thoughts on the nature and distributional power of the 'backbone' of capitalist political economy. *Journal of Cultural Economy, 12*(2), 101-118. doi:10.1080/17530350.2018.1545684
Kornberger, M. (2017). The values of strategy: Valuation practices, rivalry and strategic agency. *Organization Studies, 38*(12), 1753-1773.
Krippner, G. R. (2005). The financialization of the American economy. *Socio-Economic Review, 3*(2), 173-208. doi:10.1093/SER/mwi008
Krippner, G. R. (2011). *Capitalizing on crisis: The political origins of the rise of finance*. Cambridge, MA: Harvard University Press.
Lagoarde-Segot, T., & Paranque, B. (2018). Finance and sustainability: From ideology to utopia. *International Review of Financial Analysis, 55*, 80-92. doi:https://doi.org/10.1016/j.irfa.2017.10.006
Lai, K. (2017). Financial geography. In N. Castree, M. F. Goodchild, W. Liu, A. L. Kobayashi, R. Marston, & D. Richardson (Eds.), *The Wiley-AAG International Encyclopedia of Geography: People, the Earth, Environment, and Technology*. Hoboken, NJ: Wiley Blackwell.
Langford, A. (2020). *Agri-food transformations in Northern Australia: The work of local actors in mediating financial investments.* University of Queensland, Brisbane.
Langford, A. (2021). A 'Rule of Thumb'and the Return on Investment: The role of valuation devices in the financialization of Northern Australian pastoral land. *Valuation Studies, 8*(2), 37-60.
Langley, P. (2020). The financialization of life. In P. Mader, D. Mertens, & N. van der Zwan (Eds.), *Routledge international handbook of financialization* (pp. 68-79). Adingdon: Routledge.
Lapavitsas, C. (2009). Financialised capitalism: Crisis and financial expropriation. *Historical materialism, 17*(2), 114-148.
Lapavitsas, C. (2011). Theorizing financialization. *Work, employment and society, 25*(4), 611-626. doi:10.1177/0950017011419708
Lapavitsas, C., & Powell, J. (2013). Financialisation varied: A comparative analysis of advanced economies. *Cambridge Journal of Regions, Economy and Society, 6*(3), 359-379. doi:10.1093/cjres/rst019
Larder, N., & Sippel, S. R. (2017). The redefined role of finance in Australian agriculture. *Australian Geographer*, 1-22. doi:10.1080/00049182.2017.1388555
Larkworthy, F. (1924). *Ninety-one Years: Being the Reminiscences of Falconer Larkworthy*. London: Mills & Boon.
Latour, B. (2005). *Reassembling the social: An introduction to actor-network-theory*. Oxford: Oxford University Press.
Latour, B. (2014). On selves, forms, and forces. *Journal of Ethnographic Theory, 4*(2), 261-266. doi:10.14318/hau4.2.014
Law, J. (2004). *After method: Mess in social science research*. London: Routledge.
Lawrence, G. (2015). Defending financialization. *Dialogues in Human Geography, 5*(2), 201-205. doi:10.1177/2043820615588155
Lawrence, G., & Smith, K. (2018). The concept of 'financialization': Criticisms and insights. In H. Bjørkhaug, A. Magnan, & G. Lawrence (Eds.), *The financialization of agri-food systems: Contested transformations* (pp. 23-41). London: Routledge.
Lazonick, W., & O'Sullivan, M. (2000). Maximizing Shareholder Value: A New Ideology for Corporate Governance. *Economy and Society, 29*(1), 13-35. doi:10.1080/030851400360541
Le Billon, P., & Sommerville, M. (2017). Landing capital and assembling 'investable land' in the extractive and agricultural sectors. *Geoforum, 82*, 212-224. doi:https://doi.org/10.1016/j.geoforum.2016.08.011

Le Heron, R. (1988). State, economy and crisis in New Zealand in the 1980s: implications for land-based production of a new mode of regulation. *Applied Geography, 8*(4), 273-290. doi:10.1016/0143-6228(88)90036-7
Le Heron, R. (1991). New Zealand Agriculture and Changes in the Agriculture—Finance Relation during the 1980s. *Environment and Planning A: Economy and Space, 23*(11), 1653-1670. doi:10.1068/a231653
Le Heron, R. (1993). *Globalized agriculture: Political choice* (1st ed.). Oxford: Pergamon Press.
Le Heron, R. (2018). Dairying in question. In E. Pawson, R. Le Heron, H. Campbell, M. Henry, E. Le Heron, K. A. Legun, N. Lewis, H. Perkins, M. Roche, & C. Rosin (Eds.), *The new biological economy: How New Zealanders are creating value from the land*. Auckland: Auckland University Press.
Le Heron, R., Campbell, H., Lewis, N., & Carolan, M. (Eds.). (2016). *Biological economies: Experimentation and the politics of agri-food frontiers*. London: Routledge.
Le Heron, R., & Pawson, E. (1996). *Changing places: New Zealand in the nineties*. Auckland: Longman Paul.
Le Heron, R., Raper, A., Perry, M., Grosvenor, S., Bowler, S., & Moran, W. (1996). Globalisation and the economy. In R. Le Heron & E. Pawson (Eds.), *Changing places: New Zealand in the nineties* (pp. 20-54). Auckland: Longman Paul.
Le Heron, R., & Roche, M. (1995). A 'Fresh' Place in Food's Space. *Area, 27*(1), 23-33.
Le Heron, R., & Roche, M. (1997). Sustainability and Institution building: Issues and prospects as seen from New Zealand. In D. Goodman & M. Watts (Eds.), *Globalising food: Agrarian questions and global restructuring* (pp. 366-374). Abingdon: Routledge.
Lee, R. (2006). The ordinary economy: tangled up in values and geography. *Transactions of the Institute of British Geographers, 31*(4), 413-432. doi:10.1111/j.1475-5661.2006.00223.x
Lewis, N., Le Heron, R., & Campbell, H. (2017). The Mouse That Died: Stabilizing Economic Practices in Free Trade Space. In V. Higgins & W. Larner (Eds.), *Assembling Neoliberalism: Expertise, Practices, Subjects* (pp. 151-170). New York, NY: Palgrave Macmillan.
Lewis, N., Le Heron, R., Carolan, M., Campbell, H., & Marsden, T. (2016). Assembling generative approaches in agri-food research. In R. Le Heron, H. Campbell, N. Lewis, & M. Carolan (Eds.), *Biological Economies: Experimentation and the politics of agri-food frontiers* (pp. 1-20). Abingdon: Routledge.
Leyshon, A. (1995). Geographies of money and finance I. *Progress in Human Geography, 19*(4), 531-543. doi:10.1177/030913259501900406
Leyshon, A. (1997). Geographies of money and finance II. *Progress in Human Geography, 21*(3), 381-392. doi:10.1191/030913297671200325
Leyshon, A. (1998). Geographies of money and finance III. *Progress in Human Geography, 22*(3), 433-446. doi:10.1191/030913298671523993
Leyshon, A., & Thrift, N. (1997). *Money/space: Geographies of monetary transformation*. London: Routledge.
Leyshon, A., & Thrift, N. (2007). The Capitalization of Almost Everything: The Future of Finance and Capitalism. *Theory, Culture and Society, 24*(7-8), 97-115. doi:10.1177/0263276407084699
Li, T. M. (2007). Practices of assemblage and community forest management. *Economy and Society, 36*(2), 263-293. doi:10.1080/03085140701254308
Li, T. M. (2014). What is land? Assembling a resource for global investment. *Transactions of the Institute of British Geographers, 39*(4), 589-602. doi:10.1111/tran.12065
Li, T. M. (2015). Transnational Farmland Investment: A Risky Business. *Journal of Agrarian Change, 15*(4), 560-568. doi:10.1111/joac.12109
Li, T. M. (2018). After the land grab: Infrastructural violence and the “Mafia System” in Indonesia's oil palm plantation zones. *Geoforum, 96*, 328-337. doi:10.1016/j.geoforum.2017.10.012
Lind, C. A. (2013). *Till the cows came home: Inside the battles that built Fonterra*. Wellington: Steele Roberts.

Littlewood, M. (2016). In the Beginning: Taxation in Early Colonial New Zealand. Retrieved from https://ssrn.com/abstract=2762003) (Accessed 30 August 2022)
Lord Normanby. (1839). Lord Normanby's written instructions given to Hobson. Retrieved from http://www.nzlii.org/nz/other/NZConLRes/1839/2.html (20 September 2019)
Loveridge, A. (2016). Rural sociology in New Zealand: Companion planting? *New Zealand Sociology, 31*(3), 207-229.
MacKay, A. (1878). No.20 Lord John Russell to Governor Hobson. In A. MacKay (Ed.), *A compendium of offical documents relative to native affairs in the South Island*. Retrieved from http://nzetc.victoria.ac.nz/tm/scholarly/tei-Mac01Comp-t1-g1-t5-g1-t2-g1-t20.html (Accessed 10 September 2019)
MacKenzie, D. (2005). Opening the black boxes of global finance. *Review of International Political Economy, 12*(4), 555-576. doi:10.1080/09692290500240222
MacKenzie, D. (2006). *An engine, not a camera: How financial models shape markets*. Cambridge, MA: MIT Press.
MacKenzie, D. (2007). Is Economics Performative? In D. A. MacKenzie, F. Muniesa, & L. Siu (Eds.), *Do economists make markets?: On the performativity of economics* (pp. 54-86). Princeton, NJ: Princeton University Press.
MacKenzie, D. (2015). Mechanizing the Merc: The Chicago Mercantile Exchange and the Rise of High-Frequency Trading. *Technology and Culture, 56*(3), 646-675. doi:https://doi.org/10.1353/tech.2015.0102
MacKenzie, D., & Millo, Y. (2003). Constructing a market, performing theory: The historical sociology of a financial derivatives exchange. *American Journal of Sociology, 109*(1), 107-145.
Mader, P., Mertens, D., & van der Zwan, N. (2020). Financialization: An introduction. In P. Mader, D. Mertens, & N. van der Zwan (Eds.), *Routledge international handbook of financialization* (pp. 1-16). Adingdon: Routledge.
Magnan, A. (2012). New avenues of farm corporatization in the prairie grains sector: farm family entrepreneurs and the case of One Earth Farms. *Agriculture and Human Values, 29*(2), 161-175. doi:10.1007/s10460-011-9327-9
Manawatu Co-operative Dairy Company. (1989). *Annual Report and Statement of Accounts*. Longburn: Manawatu Co-operative Dairy Company.
Manawatu Herald. (1893, March 7). Untitled. *Manawatu Herald*. Retrieved from https://paperspast.natlib.govt.nz/newspapers/manawatu-herald/1893/03/07
Manawatu Herald. (1896, May 19). The Rongotea Cooperative Factory's Brand. *Manawatu Herald*. Retrieved from https://paperspast.natlib.govt.nz/newspapers/manawatu-herald/1896/05/19/2
Manawatu Standard. (1934, August 25). Dairy Industry: Rongotea's Company Meeting. *Manawatu Standard*. Retrieved from https://paperspast.natlib.govt.nz/newspapers/manawatu-standard/1934/08/25/12
Mann, G. (2008). Time, Space, and Money in Capitalism and Communism. *Human Geography, 1*(2), 4-13. doi:10.1177/194277860800100212
Martin, R. (2002). *Financialization of daily life*. Philadelphia, PA: Temple University Press.
Martin, R., & Pollard, J. (2017). *Handbook on the Geographies of Money and Finance*. Cheltenham: Edward Elgar Publishing.
Massey, W. (1920). Land and Income Tax Amendment Bill. In *New Zealand Parliamentary Debates* (Vol. 188). Wellington: Legislative Council and House of Representatives.
Massey, W. (1923). Land and Income Tax Bill. In *New Zealand Parliamentary Debates* (Vol. 202). Wellington: Legislative Council and House of Representatives.
Matthews, K. (2003). The legal history of money in New Zealand. *Reserve Bank of New Zealand Bulletin, 66*. Retrieved from https://www.rbnz.govt.nz/research-and-publications/reserve-bank-bulletin/2003/rbb2003-66-01-05 (Accessed 1 July 2019)

Mawdsley, E. (2018). Development geography II:Financialization. *Progress in Human Geography, 42*(2), 264-274. doi:10.1177/0309132516678747
McAloon, J. (2002). Gentlemanly Capitalism and Settler Capitalists: Imperialism, Dependent Development and Colonial Wealth in The South Island of New Zealand. *Australian Economic History Review, 42*(2), 204-223. doi:10.1111/1467-8446.00030
McBride, N. (2015). Payments and the concept of legal tender. *Reserve Bank of New Zealand Bulletin, 78*(6). Retrieved from https://www.rbnz.govt.nz/-/media/ReserveBank/Files/Publications/Bulletins/2015/2015sep78-6.pdf?revision=7857be35-aa92-4a38-9bbc-11258a0e08af (Accessed 1 May 2019)
McDonnell, M. F. (1968). *Taxation legislation and the New Zealand co-operative dairy industry*. Wellington: New Zealand Dairy Board.
McKinnon, M. (2012). Colonial and provincial government - The crown colony, 1840 to 1852. *Te Ara - The Encyclopaedia of New Zealand*. Retrieved from https://teara.govt.nz/en/colonial-and-provincial-government/page-1 (Accessed 6 October 2019)
McLagan, A. (1945). Bank of New Zealand Bill. In *New Zealand Parliamentary Debates* (Vol. 272). Wellington: Legislative Council and House of Representatives.
McMichael, P. (2005). Global development and the corporate food regime. In F. H. Buttel & P. McMichael (Eds.), *New Directions in the Sociology of Global Development* (1st ed., pp. 265-300). Amsterdam: JAI Press.
McMichael, P. (2008). Peasants make their own history, but just not as they please. In S. M. Borras, M. Edelman, & C. Kay (Eds.), *Transnational agrarian movements confronting globalization. [electronic resource]* (pp. 37-60). Malden, MA: Wiley-Blackwell.
McMichael, P. (2012). The land grab and corporate food regime restructuring. *The Journal of Peasant Studies, 39*(3-4), 681-701. doi:10.1080/03066150.2012.661369
Meese, R. A., & Rogoff, K. (1983). Empirical exchange rate models of the seventies: Do they fit out of sample? *Journal of international economics, 14*(1-2), 3-24.
Michailidou, D. (2016). *The inexorable evolution of financialisation: Financial crises in emerging markets*. Basingstoke: Palgrave Macmillan.
Ministry for Culture and Heritage. (2016). Feeding Britain. Retrieved from https://nzhistory.govt.nz/war/public-service-at-war/feeding-britain (Accessed 20 December 2019)
Ministry for Primary Industries. (2019). Dairy Industry Restructuring Act. Retrieved from https://www.mpi.govt.nz/law-and-policy/legal-overviews/primary-production/dairy-industry-restructuring-act/#farmgate (30 August 2022)
Ministry for Primary Industries. (2022). Fonterra Capital Restructuring: Proposed Government Response. Retrieved from https://www.mpi.govt.nz/dmsdocument/50971-Fonterra-Capital-Restructuring-Proposed-Government-Response-Discussion-document (Accessed 30 August 2022)
Ministry for the Environment. (2022). *Towards a productive, sustainable and inclusive economy: Aotearoa New Zealand's first emissions reduction plan*. Retrieved from https://environment.govt.nz/publications/aotearoa-new-zealands-first-emissions-reduction-plan/
Ministry of Agriculture and Fisheries. (1987). *Situation and outlook for New Zealand agriculture*. Wellington: Ministry of Agriculture and Fisheries.
Ministry of Agriculture and Forestry. (2012). *Regulatory Impact Statement*. Retrieved from https://treasury.govt.nz/sites/default/files/2012-03/ris-maf-fmp-mar12.pdf (Accessed 30 August 2022)
Mitchell, W., Wray, L. R., & Watts, M. (2019). *Macroeconomics*. London: Macmillan Education.
Montgomerie, J. (2008). Bridging the critical divide: global finance, financialisation and contemporary capitalism. *Contemporary Politics, 14*(3), 233-252. doi:10.1080/13569770802396303

Moore, B. A., & Barton, J. S. (1935). *Banking in New Zealand*. Wellington: New Zealand Bank Officers' Guild.
Morgan, G., & Takahashi, Y. (2002). Shareholder value in the Japanese context. *Competition & Change, 6*(2), 169-191. doi:10.1080/10245290213672
Morris, C. M. (1993). *Explaining the Egmont amalgamation: Community in Taranaki and anthropology [Master's Thesis, University of Auckland].*
Mosler, W., & Armstrong, P. (2019, 24 February 2019). A discussion of central bank operations and interest rate policy. Retrieved from https://gimms.org.uk/2019/02/24/central-bank-operations-interest-rate-policy/ (Accessed 13 March 2019)
Muellerleile, C. (2020). The Place of Money in History. In M. Domosh, M. Heffernan, & C. W. J. Withers (Eds.), *The SAGE Handbook of Historical Geography* (pp. 243-262). London: SAGE.
Muniesa, F. (2011). A flank movement in the understanding of valuation. *The Sociological Review, 59*(2), 24-38.
Muniesa, F., Doganova, L., Ortiz, H., Pina-Stranger, Á., Paterson, F., Bourgoin, A., . . . Saraç-Lesavre, B. (2017). *Capitalization: A cultural guide*. Paris: Presses de l'Ecole des Mines.
Nash, W. (1936). B-6-Financial Statement. *Appendices to the Journals of the House of Representatives*. Retrieved from https://www.atojs.natlib.govt.nz/cgi-bin/atojs?a=d&cl=search&d=AJHR1940-I.2.1.3.7&srpos=12&e=-------10--11---bySH---0-AJHR%5f1940%5fI%5fAZz-B-
Nel, E., & Connelly, S. (2019). Rediscovering regional development in New Zealand: Reflections on local and regional development challenges and opportunities. *New Zealand Geographer, 75*(3), 113-115. doi:10.1111/nzg.12241
Nelson, S. C. (2020). Banks beyond borders: internationalization, financialization, and the behavior of foreign-owned banks during the Global Financial Crisis. *Theory and Society, 49*(2), 307-333. doi:10.1007/s11186-020-09381-6
New Zealand Blue Book of statistics. (1847). Wellington: Colonial Secretary New Zealand.
New Zealand Customs Service. (2017). Our history. Retrieved from https://www.customs.govt.nz/about-us/about-customs/our-history/ (Accessed 12 September 2019)
New Zealand Dairy Board. (1936). *Annual Report and Statement of Accounts*. Wellington: New Zealand Dairy Board.
New Zealand Dairy Board. (1988a). *Annual Report and Statement of Accounts*. Wellington: New Zealand Dairy Board.
New Zealand Dairy Board. (1988b). Treasury threatens dairy industry's price smoothing. *Dairy exporter, 63(7)*.
New Zealand Dairy Board. (1999). *Annual Report and Statement of Accounts*. Wellington: New Zealand Dairy Board.
New Zealand Dairy Board. (2000). *Annual Report and Statement of Accounts*. Wellington: New Zealand Dairy Board.
New Zealand Dairy Exporter. (1957). Supply agreements a sound solution. *Dairy exporter, 31(5)*.
New Zealand Gazette and Wellington Spectator. (1844, 17 July). *New Zealand Gazette and Wellington Spectator*. Retrieved from https://paperspast.natlib.govt.nz/newspapers/new-zealand-gazette-and-wellington-spectator/1844/07/17/1
New Zealand Government. (2023). *Settling historical Treaty of Waitangi claims*. Retrieved from https://www.govt.nz/browse/history-culture-and-heritage/treaty-of-waitangi-claims/settling-historical-treaty-of-waitangi-claims/#:~:text=The%20settlement%20process&text=The%20Crown%20and%20the%20representatives,Legislation%20%E2%80%94%20the%20settlement%20becomes%20law.
New Zealand Spectator and Cook's Straits Guardian. (1845, July 5). *New Zealand Spectator and Cook's Straits Guardian, 1*(39). Retrieved from

https://paperspast.natlib.govt.nz/newspapers/new-zealand-spectator-and-cook-s-strait-guardian/1845/07/05/2
Niemeyer, O. (1931). *Banking and Currency in New Zealand*. Retrieved from Wellington: https://www.rbnz.govt.nz/hub/publications/guide/1931/otto-niemeyers-1931-report-on-banking-and-currency-in-new-zealand (Accessed 30 August 2022)
Northington Partners. (2018, November 2018). Independent assessment of Fonterra's financial performance since inception. Retrieved from https://www.interest.co.nz/sites/default/files/embedded_images/Independent%20report%20on%20Fonterra%20since%20beginning.pdf (Accessed 30 August 2022)
O'Neill, P. (2010). Infrastructure Financing and Operation in the Contemporary City. *Geographical Research*(1), 3. doi:10.1111/j.1745-5871.2009.00606.x
O'Neill, P. (2013). The financialisation of infrastructure: the role of categorisation and property relations. *Cambridge Journal of Regions, Economy and Society, 6*(3), 441-454. doi:10.1093/cjres/rst017
O'Neill, P. (2017). Infrastructure's contradictions: How private finance is reshaping cities. In B. Christophers, A. Leyshon, & M. Mann (Eds.), *Money and finance after the crisis: Critical thinking for uncertain times* (pp. 169-190). Oxford: Wiley Blackwell.
Ohlsson, C. (2004). *New Zealand dairy co-operatives: Strategies, structures and deregulation*. Uppsala: Swedish University of Agricultural Sciences.
Ouma, S. (2015). *Assembling export markets: The making and unmaking of global food connections in West Africa*. Chichester: John Wiley & Sons.
Ouma, S. (2016). From financialization to operations of capital: Historicizing and disentangling the finance–farmland-nexus. *Geoforum, 72*, 82-93. doi:10.1016/j.geoforum.2016.02.003
Ouma, S. (2018). Opening the black boxes of finance-gone-farming. In H. Bjørkhaug, A. Magnan, & G. Lawrence (Eds.), *The financialization of agri-food systems: Contested transformations* (pp. 99-121). London: Routledge.
Ouma, S. (2020a). *Farming as Financial Asset: Global Finance and the Making of Institutional Landscapes*. Newcastle upon Tyne: Agenda Publishing.
Ouma, S. (2020b). This can('t) be an asset class: The world of money management, "society", and the contested morality of farmland investments. *Environment and Planning A, 52*(1), 66-87. doi:10.1177/0308518X18790051
Ouma, S., Johnson, L., & Bigger, P. (2018). Rethinking the financialization of 'nature'. *Environment and Planning A: Economy and Space, 50*(3), 500-511. doi:10.1177/0308518x18755748
Parekh, S. (2016). How the Reserve Bank of New Zealand manages liquidity for monetary policy implementation. *Reserve Bank of New Zealand Bulletin, 79*(May 2016). Retrieved from https://www.rbnz.govt.nz/research-and-publications/reserve-bank-bulletin/2016/rbb2016-79-09 (Accessed 5 November 2018)
Pawson, E. (Ed.) (2018). *The new biological economy: How new Zealanders are creating value from the land*. Auckland: Auckland University Press.
Pellandini-Simányi, L. (2021). The financialization of everyday life. In C. Borsch & R. Woznitzer (Eds.), *The Routledge Handbook of Critical Finance Studies* (1st ed., pp. 278-299). New York: Routledge.
Pellandini-Simányi, L., Hammer, F., & Vargha, Z. (2015). The financialization of everyday life or the domestication of finance? How mortgages engage with borrowers' temporal horizons, relationships and rationality in Hungary. *Cultural Studies, 29*(5-6), 733-759.
Philpott, H. G. (1937). *A history of the New Zealand dairy industry, 1840-1935*. Wellington: Government printer.
Pike, A., & Pollard, J. (2010). Economic Geographies of Financialization. *Economic Geography, 86*(1), 29-51. doi:10.1111/j.1944-8287.2009.01057.x
Pilkington, D. (2011). 'Everyone is the artificer of his own fortune'. *The Manawatu journal of history, 7*(1), 51-60.

Poovey, M. (2015). On 'the limits to financialization'. *Dialogues in Human Geography, 5*(2), 220-224. doi:10.1177/2043820615588159
Potter, W. (1995). An overview of the money and bond markets in New Zealand. Part 1: The Crown debt market. *Reserve Bank of New Zealand Bulletin, 58*. Retrieved from https://www.rbnz.govt.nz/-/media/ReserveBank/Files/Publications/Bulletins/1995/1995sep58-3potter.pdf (Accessed 2 November 2018)
Powdrell, W. D., & Johnson, A. A. (1920). *Dairy farming in New Zealand*. Auckland: Whitcombe & Tombs.
Priestley, M. (2014). All Kiwis benefit from the white stuff. Retrieved from http://www.thecattlesite.com/newsletter/729/thedairysite-newsletter-28th-march-2014/ (Accessed 23 July 2020)
Pryke, M. (2007). Geomoney: An option on frost, going long on clouds. *Geoforum, 38*(3), 576-588. doi:10.1016/j.geoforum.2006.10.011
Pryke, M., & Allen, J. (2000). Monetized time-space: Derivatives - money's 'new imaginary'? *Economy and Society, 29*(2), 264-284.
Pryke, M., & du Gay, P. (2007). Take an Issue: Cultural Economy and Finance. *Economy and Society, 36*(3), 339-354. doi:http://www.tandfonline.com/loi/reso20
Quigley, N. C. (1989). The mortgage market in New Zealand, and the origins of the government advances to settlers act, 1894. *New Zealand Economic Papers, 23*(1), 51-79. doi:10.1080/00779958909544146
Reeves, W. P. (1902). *State experiments in Australia and New Zealand*. London: Allen & Unwin.
Reserve Bank of New Zealand. (1986). The rural debt problem. *Reserve Bank of New Zealand Bulletin, 49*(10). Retrieved from https://www.rbnz.govt.nz/-/media/ReserveBank/Files/Publications/Bulletins/1986/1986dec49-10theruraldebtproblem.pdf?revision=8a9440d4-b45a-4b0f-b2a2-b6ab8c485243 (Accessed 5 July 2019)
Reserve Bank of New Zealand. (2011). Stress testing New Zealand banks' dairy portfolios. *Reserve Bank of New Zealand Bulletin, 714*(2). Retrieved from https://www.rbnz.govt.nz/-/media/ReserveBank/Files/Publications/Bulletins/2011/2011jun74-2hargreaveswilliamson.pdf (Accessed 30 August 2022)
Reserve Bank of New Zealand. (2017a). Agriculture credit by industry as at June ($m) - C27 (discontinued). Retrieved from https://www.rbnz.govt.nz/statistics/discontinued-statistics/c27 (Accessed 23 September 2022)
Reserve Bank of New Zealand. (2017b). Financial stability report November 2017. *Financial Stability Reports*. Retrieved from https://www.rbnz.govt.nz/-/media/ReserveBank/Files/Publications/Financial%20stability%20reports/2017/fsr-nov-2017.pdf (Accessed 20 November 2017)
Reserve Bank of New Zealand. (2018a). Consumer Price Index (CPI) (Annual % change). Retrieved from https://www.rbnz.govt.nz/statistics/key-graphs/key-graph-inflation (Accessed 30 August 2022)
Reserve Bank of New Zealand. (2018b). The journey of Te Putea Matua: our Tane Mahuta. Retrieved from https://www.rbnz.govt.nz/news/2018/09/the-journey-of-te-putea-matua-our-tane-mahuta (Accessed 27 January 2019)
Reserve Bank of New Zealand. (2019a). Banks: Assets - Loans by purpose ($m) - S31. Retrieved from https://www.rbnz.govt.nz/statistics/s31-banks-assets-loans-by-purpose (Accessed 30 August 2022)
Reserve Bank of New Zealand. (2019b). Capital Review Paper 4: How much capital is enough? [Press release]. Retrieved from https://www.rbnz.govt.nz/-/media/project/sites/rbnz/files/consultations/banks/review-capital-adequacy-framework-

for-registered-banks/capital-review-hmcie-response-to-submissions.pdf?sc_lang=en (Accessed 30 August 2022)
Reserve Bank of New Zealand. (2019c). Capital Review: Decisions 2019 [Press release]. Retrieved from https://www.rbnz.govt.nz/-/media/project/sites/rbnz/files/consultations/banks/review-capital-adequacy-framework-for-registered-banks/decisions/capital-review-decisions.pdf?sc_lang=en (Accessed 30 August 2022)
Reserve Bank of New Zealand. (2019d). Exchange rates and TWI - B1. Retrieved from https://www.rbnz.govt.nz/statistics/b1 (Accessed 30 August 2022)
Reserve Bank of New Zealand. (2019e). Money and credit aggregates (depository corporations) -C50. Retrieved from https://www.rbnz.govt.nz/statistics/c50-money-and-credit-aggregates (Accessed 30 August 2022)
Reserve Bank of New Zealand. (2020). Financial stability report May 2020. *Financial Stability Reports*. Retrieved from https://www.rbnz.govt.nz/-/media/ReserveBank/Files/Publications/Financial%20stability%20reports/2020/fsr-may-20.pdf?revision=5e407e63-0ed6-409d-8a84-fdf62b65526e (Accessed 30 August 2022)
Reserve Bank of New Zealand. (2021). Retail interest rates on lending and deposits - B3 (1964-current). Retrieved from https://www.rbnz.govt.nz/statistics/b3 (Accessed 30 August 2022)
Richards, G., & Richards, J. (1995). *And then there was one: A history of the Taranaki dairy industry*. Hawera: Kiwi Cooperative Dairies
Richardson, R. (1995). *Making a difference*. Christchurch: Shoal Bay Press.
Roche, M. (1992). *Global Food Regimes: New Zealand's Place in the International Frozen Meat Trade: 1883–1935.* Paper presented at the Conference of Historical Geographers, University of British Columbia, Vancover.
Roche, M. (1999). International food regimes: New Zealand's place in the international frozen meat trade, 1870–1935. *Historical Geography, 27*, 129-151.
Roche, M. (2005). Historical research and archival sources. In I. Hay (Ed.), *Qualitative research methods in human geography* (2 ed., pp. 133-146). Melbourne: Oxford University Press.
Roche, M. (2012). Food Regimes Revisited: A New Zealand Perspective. *Urbani Izziv*, S62. doi:10.5379/urbani-izziv-en-2012-23-supplement-2-005
Roche, M., & Argent, N. (2015). The fall and rise of agricultural productivism? An Antipodean viewpoint. *Progress in Human Geography, 39*(5), 621-635. doi:10.1177/0309132515582058
Rodwell, H. R. (1936). Taxation, grants and subsidies. In H. Belshaw (Ed.), *Agricultural organization in New Zealand: A survey of land utilization, farm organization, finance and marketing* (pp. 211-232). Melbourne: Melbourne University Press.
Rongotea Co-operative Dairy Company. (1900). *Annual Report and Balance-sheet*. Rongotea: Rongotea Co-operative Dairy Company.
Rongotea Co-operative Dairy Company. (1906). *Annual Report and Balance-sheet*. Rongotea: Rongotea Co-operative Dairy Company.
Rongotea Co-operative Dairy Company. (1913). *Annual Report and Balance-sheet*. Rongotea: Rongotea Co-operative Dairy Company.
Rongotea Co-operative Dairy Company. (1916). *Annual Report and Balance-sheet*. Rongotea: Rongotea Co-operative Dairy Company.
Rongotea Co-operative Dairy Company. (1919). *Annual Report and Balance-sheet*. Rongotea: Rongotea Co-operative Dairy Company.
Rongotea Co-operative Dairy Company. (1923). *Annual Report and Balance-sheet*. Rongotea: Rongotea Co-operative Dairy Company.
Rongotea Co-operative Dairy Company. (1925). *Annual Report and Balance-sheet*. Rongotea: Rongotea Co-operative Dairy Company.
Rongotea Co-operative Dairy Company. (1931). *Annual Report and Balance-sheet*. Rongotea: Rongotea Co-operative Dairy Company.

Rongotea Co-operative Dairy Company. (1932). *Annual Report and Balance-sheet*. Rongotea: Rongotea Co-operative Dairy Company.
Rongotea Co-operative Dairy Company. (1934). *Annual Report and Balance-sheet*. Rongotea: Rongotea Co-operative Dairy Company.
Rongotea Co-operative Dairy Company. (1935). *Annual Report and Balance-sheet*. Rongotea: Rongotea Co-operative Dairy Company.
Rongotea Co-operative Dairy Company. (1936). *Annual Report and Balance-sheet*. Rongotea: Rongotea Co-operative Dairy Company.
Rongotea Co-operative Dairy Company. (1937). *Annual Report and Balance-sheet*. Rongotea: Rongotea Co-operative Dairy Company.
Rongotea Co-operative Dairy Company. (1938). *Annual Report and Balance-sheet*. Rongotea: Rongotea Co-operative Dairy Company.
Rongotea Co-operative Dairy Company. (1940). *Annual Report and Balance-sheet*. Rongotea: Rongotea Co-operative Dairy Company.
Rongotea Co-operative Dairy Company. (1941). *Annual Report and Balance-sheet*. Rongotea: Rongotea Co-operative Dairy Company.
Rongotea Co-operative Dairy Company. (1951). *Annual Report and Balance-sheet*. Rongotea: Rongotea Co-operative Dairy Company.
Rongotea Co-operative Dairy Company. (1952). *Annual Report and Balance-sheet*. Rongotea: Rongotea Co-operative Dairy Company.
Rongotea Co-operative Dairy Company. (1953). *Annual Report and Balance-sheet*. Rongotea: Rongotea Co-operative Dairy Company.
Rongotea Co-operative Dairy Company. (1954). *Annual Report and Balance-sheet*. Rongotea: Rongotea Co-operative Dairy Company.
Rongotea Co-operative Dairy Company. (1960). *Annual Report and Balance-sheet*. Rongotea: Rongotea Co-operative Dairy Company.
Rosin, C. (2008). The conventions of agri-environmental practice in New Zealand: Farmers, retail driven audit schemes and a new spirit of farming. *GeoJournal, 73*(1), 45-54.
Rosin, C. (2013). Food security and the justification of productivism in New Zealand. *Journal of Rural Studies, 29*, 50-58. doi:10.1016/j.jrurstud.2012.01.015
Rosin, C., Campbell, H., & Reid, J. (2017). Metrology and sustainability: Using sustainability audits in New Zealand to elaborate the complex politics of measuring. *Journal of Rural Studies, 52*, 90-99.
Ross, L. N. (1967). *Taxation in New Zealand: Report of the Taxation Review Committee*. Wellington: R. E. Owen, Government Printer.
Rowlands, C. (1968). *Cooperation in the New Zealand dairy industry: Submitted for the degree of Master of Arts in Geography*. Wellington: Victoria University of Wellington.
Rural Banking & Finance Corporation of New Zealand. (1976). *Rural Banking & Finance Corporation of New Zealand*. Wellington: The Corporation.
Russi, L. (2013). *Hungry capital: The financialization of food*. Winchester: Zero Books.
Sandrey, R. A., & Reynolds, R. (1990). *Farming without subsidies: New Zealand's recent experience*. Wellington: Ministry of Agriculture and Fisheries.
Savage, M. (1939). B-6 Financial Statement. *Appendices to the Journals of the House of Representatives*. Retrieved from https://atojs.natlib.govt.nz/cgi-bin/atojs?a=d&d=AJHR1939-I.2.1.3.9&e=-------10--1------0--
Sawers, J. (1891). The Dairy Industry of New Zealand. A Report of the result of the season's work, by John Sawers, Esq., Chief Dairy Instructor to the New Zealand Government. *The pamphlet collection of Sir Robert Stout, 69*. Retrieved from http://nzetc.victoria.ac.nz/tm/scholarly/tei-Stout69-t23-body.html (Accessed 29 July 2019)
Schmidt, T. P. (2015). *The political economy of food and finance*. London: Routledge.
Schumpeter, J. A. (1955). *History of economic analysis*. London: Oxford University Press.

Sexton, A. (1936). Reserve Bank of New Zealand Amendment Bill. In *New Zealand Parliamentary Debates* (Vol. 244). Wellington: Legislative Council and House of Representatives.
Sharechat. (2009). Fonterra's shares, under new valuation have to climb 18% to reach 'base price'. Retrieved from http://www.sharechat.co.nz/article/7ea39637/fonterra-s-shares-under-new-valuation-have-to-climb-18-to-reach-base-price.html (Accessed 1 March 2019)
Simkin, C. G. F. (1951). *The instability of a dependent economy: Economic fluctuations in New Zealand, 1840-1914*. London: Oxford University Press.
Simpson, T. (1986). *Te Riri Pakeha*. Auckland: Hodder and Stoughton.
Sinclair, K. (1991). *A history of New Zealand* (4th ed.). Auckland: Penguin Books.
Singleton, J., Grimes, A., Hawke, G. R., Holmes, F. W. S., & Hawke, G. R. (2006). *Innovation and independence: The Reserve Bank of New Zealand 1973-2002*. Wellington: Auckland University Press in association with the Ministry for Culture and Heritage.
Sippel, S. R. (2015). Food security or commercial business? Gulf State investments in Australian agriculture. *The Journal of Peasant Studies, 42*(5), 981-1001. doi:10.1080/03066150.2014.990448
Smith, R. W. (1994). *Where's the gold?--: my story*. Auckland: R.M. & J.A. Jensen Ltd.
Sokol, M. (2017). Financialisation, financial chains and uneven geographical development: Towards a research agenda. *Research in International Business and Finance, 39*, 678-685. Retrieved from https://doi.org/10.1016/j.ribaf.2015.11.007
South, G. (2008, March 12). Banks and how they work. *NZ Herald*. Retrieved from https://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=10497681 (Accessed 30 August 2022)
Stewart, W. D. (1931). B-6-part 2. *Appendices to the Journals of the House of Representatives*. Retrieved from https://www.atojs.natlib.govt.nz/cgi-bin/atojs?a=d&cl=search&d=AJHR1931-I-II.2.1.3.9&srpos=14&e=-------10--11---bySH---0-AJHR%5f1931%5fIZz-II%5fAZz-C-
Stock, P., & Peoples, S. (2012). Commodity competition: Divergent trajectories in New Zealand pastoral farming. In A. Reidar & C. Hugh (Eds.), *Rethinking Agricultural Policy Regimes: Food Security, Climate Change and the Future Resilience of Global Agriculture* (pp. 263-284). Bingley: Emerald Group Publishing Limited.
Stockhammer, E. (2015). Rising Inequality as a Cause of the Present Crisis. *Cambridge Journal of Economics, 39*(3), 935-958. doi:https://doi.org/10.1093/cje/bet052
Stokes, E. (1969). New Zealand Economic Geography. *New Zealand Geographer, 25*(2), 136-160. doi:10.1111/j.1745-7939.1969.tb00606.x
Stone, R. C. J. (1973). *Makers of fortune; a colonial business community and its fall*. Auckland: Auckland University Press.
Stone, R. C. J. (1990a). Russell, Thomas. *Te Ara - The Encyclopaedia of New Zealand*. Retrieved from https://teara.govt.nz/en/biographies/1r20/russell-thomas (Accessed 25 February 2022)
Stone, R. C. J. (1990b). Whitaker, Frederick. *Te Ara - The Encyclopaedia of New Zealand*. Retrieved from https://teara.govt.nz/en/biographies/1w17/whitaker-frederick (Accessed 22 August 2019)
Storm, S. (2018). Financialization and economic development: A debate on the social efficiency of modern finance. *Development and Change, 49*(2), 302-329. doi:10.1111/dech.12385
Stringer, C., Tamásy, C., Le Heron, R., & Gray, S. (2008). Growing a global resource-based company from New Zealand: The case of diary giant, Fonterra. In C. Stringer & R. Le Heron (Eds.), *Agri-food commodity chains and globalising networks* (pp. 189-199). Aldershot: Ashgate.
Stringleman, H. (2019, February 27). Westland disputes Fonterra milk price. *NZ Farmers Weekly*. Retrieved from https://farmersweekly.co.nz/section/dairy/view/westland-disputes-fonterra-milk-price (Accessed 4 March 2019)
Sullivan, R. (2013). New Zealand history of monetary and exchange rate regimes. Retrieved from https://www.rbnz.govt.nz/-

/media/ReserveBank/Files/Publications/Seminars%20and%20workshops/Mar2013/5200816.pdf?la=en (Accessed 30 August 2022)
Sutch, W. B. (1969). *Poverty and Progress in New Zealand: A Re-assessment* ([2d rev. ed.] ed.). Wellington: A.H. & A.W. Reed.
Sutch, W. B. (1972). *Takeover New Zealand*. Wellington: A.H. & A.W. Reed.
Sutton, J. (2001). Dairy Industry Restructuring Bill. In *New Zealand Parliamentary Debates* (Vol. 595). Wellington: Hansard.
Swanton, D. (2013). The steel plant as assemblage. *Geoforum, 44*, 282-291. doi:http://dx.doi.org/10.1016/j.geoforum.2012.08.006
Tall, I., & Campbell, H. (2018). The "dirty dairying" campaign in New Zealand: Constructing problems and assembling responses. In J. Forney, C. Rosin, & H. Campbell (Eds.), *Agri-environmental Governance as an Assemblage: Multiplicity, Power, and Transformation* (pp. 161-176). London: Routledge.
TDB Advisory. (2018a). *New Zealand dairy companies review*. Retrieved from Wellington, NZ: https://www.tdb.co.nz/wp-content/uploads/2018/05/TDB-Dairy-Companies-Review-2018-1.pdf
TDB Advisory. (2018b). Review of the Regulatory Environment for Domestic Dairy Products. Retrieved from https://www.mpi.govt.nz/dmsdocument/31176/direct (Accessed 30 August 2022)
TDB Advisory. (2020). New Zealand dairy companies review. Retrieved from https://www.tdb.co.nz/wp-content/uploads/2020/11/TDB-Advisory-Dairy-Companies-Review-online-version.pdf (Accessed 1 July 2021)
The Daily Southern Cross. (1861, June 11). Bank of New South Wales. *The Daily Southern Cross, 17*(1408). Retrieved from https://paperspast.natlib.govt.nz/newspapers/daily-southern-cross/1861/06/11/1
The Daily Southern Cross. (1861, June 14). State of trade. *The Daily Southern Cross, 17*(1409). Retrieved from https://paperspast.natlib.govt.nz/newspapers/daily-southern-cross/1861/06/14
The Feilding Star. (1883, October 17). Butter Factory at Makino. *The Feilding Star, 4*(71). Retrieved from https://paperspast.natlib.govt.nz/newspapers/feilding-star/1883/11/17/2
The Feilding Star. (1884, November 18). Local and general News. *The Feilding Star, 6*(68). Retrieved from https://paperspast.natlib.govt.nz/newspapers/feilding-star/1884/11/18/2
The Feilding Star. (1889, April 16). Local and general news. *The Feilding Star, 10*(120). Retrieved from https://paperspast.natlib.govt.nz/newspapers/feilding-star/1889/04/16
The Feilding Star. (1893, November 16). Local and general news. *The Feilding Star, 15*(118). Retrieved from https://paperspast.natlib.govt.nz/newspapers/feilding-star/1893/11/16/2
The Feilding Star. (1894, December 29). Local and general news. *The Feilding Star, 16*(155). Retrieved from https://paperspast.natlib.govt.nz/newspapers/feilding-star/1894/12/29/2
The Feilding Star. (1894, January 13). Local and general news. *The Feilding Star, 15*(213). Retrieved from https://paperspast.natlib.govt.nz/newspapers/FS18940113.2.22
The Feilding Star. (1894, October 22). Local and general news. *The Feilding Star, 16*(100). Retrieved from https://paperspast.natlib.govt.nz/newspapers/FS18941022.2.5
The Feilding Star. (1894, September 6). Local and general news. *The Feilding Star, 16*(61). Retrieved from https://paperspast.natlib.govt.nz/newspapers/FS18940906.2.9
The Feilding Star. (1895, June 26). Campbelltown Dairy Company. *The Feilding Star, 16*(302). Retrieved from https://paperspast.natlib.govt.nz/newspapers/feilding-star/1895/06/26
The Feilding Star. (1895, October 4). Local and general news. *The Feilding Star, 17*(83). Retrieved from https://paperspast.natlib.govt.nz/newspapers/feilding-star/1895/10/04/2
The Feilding Star. (1895, September 27). Campbelltown Dairy Factory. *The Feilding Star, 17*(77). Retrieved from https://paperspast.natlib.govt.nz/newspapers/feilding-star/1895/09/27/2

The Feilding Star. (1896, March 26). Local and general news. *The Feilding Star, 17*(225). Retrieved from https://paperspast.natlib.govt.nz/newspapers/feilding-star/1896/03/26/2
The Feilding Star. (1896, October 5). Local and general news. *The Feilding Star, 18*(83). Retrieved from https://paperspast.natlib.govt.nz/newspapers/feilding-star/1896/10/05/2
The Feilding Star. (1911, September 9). Manager Murray's Joke. *The Feilding Star, 6*(1592). Retrieved from https://paperspast.natlib.govt.nz/newspapers/feilding-star/1911/09/09
The Fletcher Trust. (2019). Rural Banking and Finance Corporation of New Zealand. Retrieved from http://fletcherarchives.co.nz/companies-history.php?id=181
Thompson, E. P. (1971). The moral economy of the English crowd in the eighteenth century *Past & Present, 50*(1), 76-136. doi:10.1093/past/50.1.76
Thrift, N. (1994). On the social and cultural determinants of international financial centres: The case of the city of London. In S. Corbridge, R. Martin, & N. Thrift (Eds.), *Money, power, and space* (pp. 327-355). Oxford: Blackwell.
Thrift, N. (2000). Performing cultures in the new economy. *Annals of the Association of American Geographers, 90*(4), 674-692. Retrieved from http://www.jstor.org/stable/1515438
Treaty of Waitangi [English text]. (1840). Treaty of Waitangi. Retrieved from https://nzhistory.govt.nz/politics/treaty/read-the-treaty/english-text (Accessed 12 September 2019)
Tsing, A. (2009). Supply Chains and the Human Condition. *Rethinking Marxism, 21*(2), 148-176. doi:10.1080/08935690902743088
Tsing, A. (2013). Sorting out commodities: How capitalist value is made through gifts. *Journal of Ethnographic Theory, 3*(1), 21-43.
Tui Milk Products. (1996). *Annual Report and Statement of Accounts*. Longburn: Tui Milk Products.
van der Heyden, H. (2006, July 1). Awards: Leader who got the balance right. *Farmers Weekly*. Retrieved from https://farmersweekly.co.nz/section/dairy/view/awards-leader-who-got-the-balance-right (Accessed 2 July 2019)
van der Zwan, N. (2014). Making sense of financialization. *Socio-Economic Review, 12*(1), 99-129. doi:10.1093/ser/mwt020
Vandenberg, T. (2020). *OIA20_043 Response*. Wellington: Reserve Bank of New Zealand.
Vatin, F. (2013). Valuation as evaluating and valorizing. *Valuation Studies, 1*(1), 31-50.
Ventresca, M. J., & Mohr, J. W. (2017). Archival Research Methods. In J. C. Baum (Ed.), *The Blackwell Companion to Organizations* (pp. 805-828). Oxford: Blackwell.
Venturini, T. (2010). Diving in magma: how to explore controversies with actor-network theory. *Public Understanding of Science, 19*(3), 258-273. doi:10.1177/0963662509102694
Venturini, T. (2012). Building on faults: How to represent controversies with digital methods. *Public Understanding of Science, 21*(7), 796-812. doi:10.1177/0963662510387558
Vercelli, A. (2013). Financialization in a Long-Run Perspective. *International Journal of Political Economy, 42*(4), 19-46. doi:10.2753/IJP0891-1916420402
Visser, O. (2017). Running out of farmland? Investment discourses, unstable land values and the sluggishness of asset making. *Agriculture and Human Values: Journal of the Agriculture, Food, and Human Values Society, 34*(1), 185. doi:10.1007/s10460-015-9679-7
Waikato Times. (2001, September 25). The 1980s - The pace of the change. *Waikato Times*.
Wairarapa Standard. (1879, June 10). Untitled. *Wairarapa Standard,, 8*(923). Retrieved from https://paperspast.natlib.govt.nz/newspapers/wairarapa-standard/1879/06/10
Wallace, N. (2014). *When the farm gates opened: The impact of Rogernomics on rural New Zealand*. Dunedin: Otago University Press.
Walter, T., & Wansleben, L. (2019). How central bankers learned to love financialization: The Fed, the Bank, and the enlisting of unfettered markets in the conduct of monetary policy. *Socio-Economic Review, 18*(3), 625-653. doi:10.1093/ser/mwz011
Wanganui Herald. (1890, September 30). Mr Ballance's Speech. *Wanganui Herald*. Retrieved from https://paperspast.natlib.govt.nz/newspapers/WH18900930.2.15?end_date=31-12-

1890&items_per_page=10&query=Ballance+Speech+2000&snippet=true&start_date=01-01-1890

Wanganui Herald. (1920). Banks putting screws on. *Wanganui Herald, LIII*. Retrieved from https://paperspast.natlib.govt.nz/newspapers/WH19200623.2.12?query=National%20dairy%20association%20associated%20banks&items_per_page=50&start_date=01-01-1920&end_date=31-12-1920&snippet=true

Ward, A. H. (1975). *A command of cooperatives: The development of leadership, marketing and price control in the cooperative dairy industry of New Zealand*. Wellington: The New Zealand Dairy Board.

Ward, J. (1907). Land and Income Assessment Act Amendment Bill. *New Zealand Parliamentary Debates, 141*. Retrieved from https://babel.hathitrust.org/cgi/pt?id=uc1.32106019788477&view=1up&seq=68

Ward, J. (1915). B-6 Financial Statement. *Appendices to the Journals of the House of Representatives*. Retrieved from https://www.atojs.natlib.govt.nz/cgi-bin/atojs?a=d&cl=search&d=AJHR1915-I.2.1.3.3&srpos=7&e=-------10--1---bySH---0-AJHR%5f1915%5fI%5fAZz-C-

Ward, J. (1917). B-6 Financial Statement. *Appendices to the Journals of the House of Representatives*. Retrieved from https://www.atojs.natlib.govt.nz/cgi-bin/atojs?a=d&cl=search&d=AJHR1917-I.2.1.3.4&srpos=7&e=-------10--1---bySH---0-AJHR%5f1917%5fI%5fAZz-E-

Ward, J. (1929). B-6 Financial Statement. *Appendices to the Journals of the House of Representatives*. Retrieved from https://atojs.natlib.govt.nz/cgi-bin/atojs?a=d&d=AJHR1929-I.2.1.3.8&e=-------10--1------0--

Warr, E. (1988). *From bush-burn to butter: A journey in words and pictures*. Wellington: Butterworths.

Whatmore, S. (2002). *Hybrid geographies. [electronic resource] : natures, cultures, spaces*. London, UK: SAGE.

Whatmore, S., & Thorne, L. (1997). Nourishing networks: Alternative geographies of food. In D. Goodman & M. Watts (Eds.), *Globalising food: Agrarian questions and global restructuring* (pp. 287-304). Abingdon: Routledge.

Wheeler, C. E. (1921). *Dairy farming in New Zealand*. Wellington: Printed by Blundell Bros.

Whitelock, J. (2008). *John's journey*. Palmerston North: Heritage Press.

Williams, D. O. (1936a). General charactersitics of New Zealand rural economy. In H. Belshaw (Ed.), *Agricultural organization in New Zealand: A survey of land utilization, farm organization, finance and marketing* (pp. 30-35). Melbourne: Melbourne University Press

Williams, D. O. (1936b). Land settlement and settlement finance. In H. Belshaw (Ed.), *Agricultural organization in New Zealand: A survey of land utilization, farm organization, finance and marketing* (pp. 123-149). Melbourne: Melbourne University Press

Williams, J. W. (2014). Feeding finance: A critical account of the shifting relationships between finance, food and farming. *Economy and Society, 43*(3), 401-431. doi:10.1080/03085147.2014.892797

Williams, K. (2000). From shareholder value to present-day capitalism. *Economy and Society, 29*(1), 1-12. doi:10.1080/030851400360532

Willis, R. (2001). Farming. *Asia Pacific Viewpoint, 42*(1), 55-65. doi:10.1111/1467-8373.00132

Willmott, H. (2010). Creating 'value' beyond the point of production: branding, financialization and market capitalization. *Organization, 17*(5), 517-542. doi:10.1177/1350508410374194

Wójcik, D. (2013). Where governance fails: Advanced business services and the offshore world. *Progress in Human Geography, 37*(3), 330-347. doi:10.1177/0309132512460904

Woodford, K. (2018, October 30 2018). The sun must never set on New Zealand's agriculture. Retrieved from https://keithwoodford.wordpress.com/2018/10/30/the-sun-must-never-set-on-new-zealands-agriculture/#more-1931 (Accessed 31 October 2018)

Woodford, K. (2019, June 7). Keith Woodford assesses the latest DIRA update and concludes it just nibbles with the status quo and avoids the big decisions. *Interest.co.nz*. Retrieved from

https://www.interest.co.nz/rural-news/100104/keith-woodford-assesses-latest-dira-update-and-concludes-it-just%C2%A0nibbles-status (Accessed 10 June 2019)
Woodford, K. (2022). Fonterra's new capital structure brings its own risks, designed for choppy seas but not for a storm. *Interest.co.nz*. Retrieved from https://www.interest.co.nz/rural-news/115653/fonterra%E2%80%99s-new-capital-structure-brings-its-own-risks-designed-choppy-seas-not (Accessed 23 May 2022)
Woods, M., Fois, F., Heley, J., Jones, L., Onyeahialam, A., Saville, S., & Welsh, M. (2021). Assemblage, place and globalisation. *Transactions of the Institute of British Geographers, 46*(2), 284-298.
Woodville Examiner. (1894). The co-operative System. *Woodville Examiner, 12*(2300). Retrieved from https://paperspast.natlib.govt.nz/newspapers/WOODEX18941126.2.6?end_date=26-11-1894&items_per_page=10&query=corpe&snippet=true&start_date=26-11-1894&title=WOODEX
Woolcock, C. (1877). Supply. In *New Zealand Parliamentary Debates* (Vol. 24, pp. 226-239). Wellington: Legislative Council and House of Representatives.
Wray, L. R. (2012). *Modern money theory: A primer on macroeconomics for sovereign monetary systems*. New York, NY: Palgrave Macmillan.
Wright, M. (2009). Mordacious years': socio-economic aspects and outcomes of New Zealand's experience in the Great Depression. *Reserve Bank of New Zealand Bulletin, 72*(3), 43-60.
Wright, P. (1975). Gold-Rush Banker. *History Today, 25*(2), 128-136.
Wynyard, M. (2016). *The price of milk: Primitive accumulation and the New Zealand dairy industry, 1814-2014: [Doctoral Dissertation, The University of Auckland].* Retrieved from https://researchspace.auckland.ac.nz/bitstream/handle/2292/29483/whole.pdf?sequence=2&isAllowed=y Available from EBSCOhost Massey University Library Catalogue database.
Wynyard, M. (2017). Plunder in the promised land: Māori alienation and the genesis of capitalism in Aotearoa New Zealand. In A. Bell, V. Elizabeth, T. D. McIntosh, & M. Wynyard (Eds.), *A land of milk and honey? : Making sense of Aotearoa New Zealand* (pp. 15-22). Auckland: Auckland University Press.
Wynyard, M. (2019a). Dairying, dispossession, devastation: Primitive accumulation and the New Zealand Dairy industry, 1814-2018. *Counterfutures*(8), 11-42.
Wynyard, M. (2019b). 'Not One More Bloody Acre': Land Restitution and the Treaty of Waitangi Settlement Process in Aotearoa New Zealand. *Land, 8*(11), 162-176. doi:10.3390/land8110162
Zelizer, V. A. (1997). *The social meaning of money*. Princeton, NJ: Princeton University Press.
Zelizer, V. A. (2012). How I Became a Relational Economic Sociologist and What Does That Mean? *Politics & Society, 40*(2), 145-174. doi:10.1177/0032329212441591
Zickgraf, J. M. (2017). Becoming like money: Proximity and the social aesthetics of "moneyness". *HAU: Journal of Ethnographic Theory, 7*(1), 303-326. doi:10.14318/hau7.1.022