

Profitability, investment and structural change in interwar Australia

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INTRODUCTION

The Australian economy of the interwar period experienced noteworthy cyclical and secular trends. Severe cyclical fluctuations were associated with the international depression, often referred to as the 'Great Slump', which particularly afflicted Australia's large traded sector, especially its cornerstone primary exporting industries. In the midst of this apparent dearth, however, came the 'plenty' of the initial stages of modernisation, which resulted from the broadening of the country's economic base into new manufacturing industries. The general trends of economic activity are captured by national income data, while the expansion of particular industries has been contextualised by several authors, most notably Forster for the 1920s.²

Less clear, however, are the reasons for this structural diversification. One popular strain of argument lies in the ability of manufacturers to act as rent seekers, particularly through the protection offered by high tariffs and other forms of inducement together with a benign disregard of anti-competitive behaviour by successive governments. An alternative perspective associates structural change in this period with the exploitation of new opportunities by 'corporate leaders'³ across a number of industries. These opportunities were particularly associated with changing consumer preferences on the demand side and new technologies on the supply side, which encouraged new investment through the prospect of higher rates of return.

In this paper we construct and analyse new time series for profitability and new capital issues, which enable us to examine the motivating factors behind structural change from the perspective of price signals, that is differences in absolute and relative rates of return. Research on, or including, the interwar period has been undertaken recently for several other countries including Britain, Germany, France, and Spain with which some initial comparisons will be drawn.⁴

¹ The authors gratefully acknowledge financial support from the Australian Research Council under the Discovery Projects scheme (project 0557412). Andrew Parnell, Janne Skinner, and Susan Engel are thanked for valuable research assistance.

² N. G. Butlin, 'Australian national accounts' in W. Vamplew ed. *Australians. Historical Statistics* (Sydney, 1987)p. 133 'Gross domestic product by industry, current prices, Australia, 1861-1939'; C. Forster, *Industrial Development in Australia, 1920-1930* (Canberra, ANU, 1964).

³ This term is used in G. Fleming, D. Merrett and S. Ville, *The Big End of Town. Big Business and Corporate Leadership in Twentieth-Century Australia* (Melbourne: Cambridge University Press, 2004).

⁴ Arnold, A. J. 'Profitability and capital accumulation in British industry during the transwar period, 1913-1924' *Economic History Review*, 52, 1, 1999; Tafunell, X. 'La rentabilidad financiera de le empresa espanola, 1880-1981: Una estimacion en perspectiva sectorial. (Financial Returns of Spanish Business, 1880-1981: An Estimation from a Sectorial Point of View. With English summary.)', *Revista de Historia Industrial*, 18, 2000; J. Marseille, *Les performances des entreprises françaises au XX^e siècle* Paris: Le Monde editions/CNRS, 1995); A research agenda of the influence of profitability on historical changes in investment is advocated by X. Tafunell and A. Carreras, 'The profitability of Spanish firms in a European perspective' (Business History Conference and European Business History Association joint annual meeting, Lowell, MA, 2003). M. Spoerer, 'What new estimates of industrial profitability can tell us about the Weimar and the Nazi economy', *Diskussionsbeiträge aus dem Volkswirtschaftslehre* 520 (1996); Y. Cassis, *Big Business. The European Experience in the Twentieth Century* (Oxford UP, 1997). For a current and more ambitious comparative

The paper will proceed in a number of steps. First, it will briefly review the current literature dealing with the pattern and drivers of structural change in the inter-war Australian economy. Second, the methodology used in constructing the profit and capital issues datasets will be discussed. Thirdly, the results will be presented and analysed. Finally, the conclusion will address the broader implications for the dynamics of structural diversification.

STRUCTURAL CHANGE

The structure of the Australian economy altered in many ways over the interwar decades. The big picture shows a relative growth of manufacturing from 14 to 18 per cent in terms of product between 1911 and 1938. The rural sector, including mining, fell from 33 to 28 per cent in terms of product over those years. The tertiary sector, the large services group plus construction and utilities, also expanded its share from 53 to 54 per cent.⁵ National income account data of product and estimates of capital formation indicate shifts in the relative importance at a sector level and also between the public and private sector.⁶ These broad shifts are mirrored by changes in the distribution of the workforce.⁷ Research on particular sectors, industries, or regions provides evidence of absolute expansion or decline that adds detail and nuance to the broad sweep of the aggregate data.⁸

The discussion about structural change has focussed on broad aggregates of national accounts, including GDP and capital formation, and employment data. Both have been estimated on an annual basis and are available at a sectoral or industry classification. However, the data are bedevilled by conceptual and statistical problems that render them inadequate for a fine grained study of short-term changes in resource allocation. A key issue is that there is a lack of correspondence between the series of product, employment and capital formation in terms of industry boundaries and methods of estimation.⁹ For instance, the GDP data has series for 'pastoral', 'agriculture', 'mining' and 'dairying, forestries and fisheries' industries.¹⁰ While the employment series, in contrast, covers 'rural', 'forestry, fishing, etc.', and 'mining and quarrying.'¹¹ To further complicate matters, the capital formation data for the rural sector includes 'mining' and 'pastoral and agricultural', with another item for

project see: Y. Cassis and C. Brautaset, 'The performance of European business in the twentieth century: a pilot study' <http://www.h-net.org/~business/bhcweb/publications/BEHonline/2003/Cassisbrautaset.pdf>

⁵ A summary account can be found in Dowie (1970: Table 5.4, 231 and Table 5.5, 234-5)

⁶ N. G. Butlin, *Australian domestic product, investment and foreign borrowing 1861-1938/39* (Cambridge: C.U.P. 1962); N. G. Butlin, 'Some perspectives of Australian economic development, 1890-1965' in C. Forster ed. *Australian Economic Development in the Twentieth Century* (London: Allen & Unwin, 1970); J. A. Dowie, 'The service ensemble' in Forster ed. *Australian Economic Development*; W. A. Sinclair, 'Capital formation', in Forster ed. *Australian Economic Development*.

⁷ M. Keating, 'The Australian workforce 1910-11 to 1960-61', Canberra : Dept. of Economic History, Research School of Social Sciences, A.N.U., 1973, pp. 356-7..

⁸ Forster, *Industrial Development*. Notable examples of industry and company studies including the interwar period can be found in the bibliography of G. Fleming, D. Merrett and S.Ville, *The Big End of Town. Big Business and Corporate Leadership in Twentieth-Century Australia* (Melbourne: Cambridge University Press, 2004), pp. 282-99.

⁹ For a discussion of the lack of equivalence between the product and employment data see Dowie (1970: 225-27).

¹⁰ Butlin (1962: Table 2, 11-2).

¹¹ Keating (1970: Table 19.20, 390-91).

'agriculture' in the estimates of government capital formation.¹² Similar problems arise within all sectors even for the omnibus manufacturing. The data we present below refers to much finer industry classifications, both within manufacturing and in the service sector.

The methodology underpinning the construction of the data further reduces its value as a measure of short-term change. For instance, the employment data rests to a large degree on interpolation from census data. The GDP data for both product and capital formation for the most part has been built by estimating product data for the various sectors, although this was not always possible. These estimates involved some heroic leaps from partial data sets that rested on a number of assumptions and approximations.¹³ These measures are robust in showing trend movements but less useful in identifying year on year change with any precision.

Describing this structural transformation, nonetheless, has proven to be more straightforward than explaining what caused it to take place. The extant literature suggests a number of motivating factors driving structural change.¹⁴ In short, supply side constraints and weakening terms of trade retarded the rate of expansion of the rural sector despite a number of public policies designed to have the opposite effect. Mining, with the exception of gold after the devaluation of the Australian pound, was hostage to fluctuations in the international commodity cycle, particularly to the slump of the 1930s. Manufacturing, on the other hand, benefited from changing consumer preferences together with rising import protection and other forms of government preferment to local producers. Political decisions led to increasing state outlays on services such as the provision of public administration, health and educational services, the gradual 'nationalization' of water and sewerage, power and gas, and urban transport systems. Public sector investment rose significantly compared with private non-residential investment, reflecting commitments to both rural and increasingly urban needs, infrastructure in the latter being a lagged response to population growth and industrialization. The construction industry was dominated by residential building, itself a function of immigration, family formation and the relocation of population to capital cities and the industrial cities on the New South Wales' coast.

The changing structure of the economy therefore reflected decisions made by political and economic actors. Governments imposed their preferences on the pattern of economic activity through a variety of means. Borrowing, taxation and revenues from public sector utilities funded investment and maintenance of infrastructure and the ongoing delivery of government services. The direct involvement of the state in economic life expanded in the inter-war period.¹⁵ The influence of the government's budget programs went far beyond the rising share of public expenditure in GDP. Government policies changed the incentives facing economic actors by altering relative prices for goods and factors of production.

The impact of public policy, particularly with respect to trade barriers and industrial arbitration setting wages, on the relative prices of Australian and foreign

¹² Butlin (1962: Table 5, 18-19 and Table 8, 24-25)

¹³ Butlin (1962).

¹⁴ A good coverage of structural change and development can be found in W. A. Sinclair *The process of economic development in Australia* (Melbourne: Cheshire, 1976).

¹⁵ N.G. Butlin, A. Barnard, J.J. Pincus, *Government and capitalism : public and private choice in twentieth century Australia* (Sydney: George Allen & Unwin, 1982).

goods and costs gave rise to vigorous debate from the 1920s.¹⁶ Rising domestic prices sheltered behind the tariff wall fostered the expansion of manufacturing employment and output. Likewise, government subsidies towards rural industries including under priced R&D, loss making infrastructure and utilities, price support schemes and state marketing monopolies gave rise to further price distortions that sheltered rural producers. Opponents argued that these ‘faked prices’ mislead consumers and producers ‘...[so] derang[ing] and weaken[ing] the economy.’¹⁷ The debate was about estimating the welfare loss associated with inefficiencies rather than understanding structural change *per se*.

Was public policy the principal driver of structural change in Australia during the inter-war period? It is one of many influences discussed in Sinclair’s explanation of the transition from the old to new model of economic growth.¹⁸ Public policy provided shelter to local manufacturers and some rural industries from foreign competition. The instruments of policy – tariffs, production subsidies, export subsidies, export controls, pooling, home price schemes and quotas – impacted at the product rather than broad industry or sectoral level. It is difficult to calculate the net impact of these measures on the rate of return of domestic industries. For instance, one contemporary estimated that in the early 1930s the value of protection given to the rural sector exceeded the amount received by manufacturing from the tariff.¹⁹

As we shall see in the next section, our data for profits show that the average rate of return on shareholders’ funds in manufacturing exceeded that of other industries over the inter-war period. However, when the annual profit data is examined it is not clear that there is connection between the tariff level²⁰ and profits in the short term. Tariffs reached their zenith during the depression, in an attempt to protect Australia’s precarious external position,²¹ when falling domestic demand reduced firm profits. There was a dramatic reduction in imports’ share of market supply in 64 manufacturing industries between 1923-24 and 1932-33, from 30 to 10 per cent.²² However, the value of domestic output fell by 42 per cent over the same period as demand fell away during the depression. Firms had built up capacity during

¹⁶ F. C. C. Benham, *The prosperity of Australia: an economic analysis* (London: P.S.King, 1928); E. O. G. Shann, *An economic history of Australia* (Camb.: C.U.P., 1948); J.B. Bridgen *The Australian tariff: an economic enquiry* (Melbourne : Melbourne University Press in association with Macmillan, 1929).

¹⁷ Shann (1948), 447.

¹⁸ Sinclair, *The Process of Economic Development in Australia*, (1976) chapter 6.

¹⁹ Nimmo ‘The effect of the tariff on the Australian consumption standard’, in F. W. Eggleston, et. al., *Australian Standards of Living*, Melbourne: Melbourne University Press, 1939, Appendix B, 154-57 (1939), 151-63.

²⁰ An annual index of the level of tariff is provided in A. T. Carmody, ‘The level of the Australian tariff: a study in method’, *Yorkshire Bulletin of Economic and Social Research*, 4, 1 1952. Estimates of average rates, net customs and primage duties divided by total value of imports, are produced in Brian Dollery and Stuart Whitten, ‘An empirical analysis of tariff endogeneity in Australia, 1904-1974’, *Economic Policy and Analysis*, 28, 2, 1998, Figure 1, 218. That data shows that the average rate of duty rose from 10 per cent in 1918 to a maximum of 30 per cent in 1932 before falling to 15 per cent by 1939.

²¹ C. B. Schedvin, *Australia and the Great Depression* (Sydney: Sydney University Press, 1970).

²² Official series do not use corresponding industry classifications for domestic production and imports. The data gathered by Bridgen (1929) and Nimmo (1939) is for manufacturing sub-classifications for whom there is equivalence. The data compares values of imports and domestic output, in current prices, for those 64 manufacturing industries for whom there is information for both dates. Total market supply fell by £157m between 1923-24 and 1932-33, the value of imports fell by £75m and local production by £82m. Bridgen, et. al., *The Australian Tariff*, Appendix G, 176-7; J. F. Nimmo, Appendix B, 154-57.

the 1920s to handle far higher levels of output. By the early 1930s excess capacity was the order of the day. Profits fell sharply as firms could not cut costs to match falls in revenues despite shedding labour. Cyclical effects impacted more heavily on profitability than public policy.

Ignoring cyclical effects, it is not clear that tariffs and other trade barriers and subsidies provided to industries would necessarily raise rates of return on shareholders' funds. The issue is the degree to which the additional revenues resulting from such policies were appropriated by the owners of the firms or by their suppliers, customers or workers.²³ There is reason to believe that other parties were able to claim part of the profits. For instance, the rates of return or attractiveness of industries depended in part on what Porter describes as the bargaining power of suppliers and customers.²⁴ Upstream producers of basic materials, many of whom were monopolists or duopolists, were in a position to squeeze the margins of downstream firms. Karmel and Brunt make the point that in the 1950s 'a small business is...a dependent business, bound to the large firms which act as customers, suppliers or financiers.'²⁵ The market power enjoyed by the large firms was reinforced by widespread horizontal price agreements and vertical resale price maintenance, enforced by ubiquitous trade associations. Moreover, the operation of the Australian centralized wages system, that attempted to protect real wages, strengthened the hand of labour in the distribution of revenues.²⁶ The authors of the *Australian Tariff* draw attention to complaints by the Tariff Board that increases in tariff rates were being matched by claims for higher wages. However, the Tariff Board was also concerned about the threat of profiteering and warned that it would remove prevailing levels of protection to those industries whose 'shareholders dividends [were] considerably in excess of the ordinary commercial rates.'²⁷

Higher rates of return in manufacturing owe more to exogenous changes in process and product technology than to the impact of public policy. Mark Thomas has argued that the recovery of the manufacturing sector in the 1930s owed more to cost reductions stemming from 'increased efficiency and productivity' than 'higher tariffs and a depreciated currency.'²⁸ This view resonates with our study of large firms that found them to be investing in new technologies and superior organizational forms throughout the inter-war period as a way of creating competitive advantage.²⁹ Manufacturing not only expanded in size, its technological base and what it produced changed dramatically. New industries emerged such as electricity generation that had large flow on effects in other areas. Technology, largely imported from abroad, was the catalyst for change, creating new products and reconfiguring cost functions. Its adaptation across the 1920s and 1930s has been mapped industry by industry by

²³ Robert M. Grant, *Contemporary Strategy Analysis: Concepts, Techniques, Applications*, Oxford: Blackwell Business, 2002, 4th ed., 156-7.

²⁴ Michael E. Porter, *Competitive Strategy: Techniques for Analyzing Industries and Competitors*, New York: Free Press, 1980.

²⁵ P. Karmel and M. D. Brunt, *The Structure of the Australian Economy*, Melbourne: F. W. Cheshire, 1962, 62.

²⁶ Kenneth F. Walker, *Australian Industrial Relations Systems*, (Cambridge: Mass.: Harvard University Press, 1970); Keith Hancock and Sue Richardson, 'Economic and social effects' in Joe Isaac and Stuart Macintyre, eds, *The New Province for Law and Order* (Cambridge: Cambridge University Press, 2004), 151-54.

²⁷ *The Australian Tariff*, 167

²⁸ Mark Thomas, 'Manufacturing and economic recovery in Australia, 1932-1937', in R. G. Gregory and N. G. Butlin, eds, *Recovery from the depression: Australia and the world economy in the 1930s* (Cambridge: Cambridge University Press, 1988), 271.

²⁹ Fleming, Merrett & Ville, *Big End*, chs 4 & 7.

Mauldon who shows that there were marked differences in the rate of what he describes as mechanization between industries and across time.³⁰ The unevenness of the process gave rise to periods of disequilibrium between demand and supply in a number of industries that lifted rates of return on capital in the short term.

METHODOLOGY

Data source

Our data source for both profits and investment is *Australian Investment Digest (AID)*, also periodically known as the *Jobson's Investment Digest of Australia and New Zealand*, or the *Investment Digest*.³¹ It was a monthly (later fortnightly) publication compiled by Alex Jobson from 1920 and included, 'a summary of all Australian company reports published...up to the latest moment'.³² The limited disclosure requirements of the time motivate discussion of the accuracy of reported information and its consistency between companies. Attempts to falsify profits and the related creation of hidden reserves, would indicate a mismatch between actual and reported returns. Individual examples of such practices have been unearthed in Australia but there is no indication as to how widespread they were and whether their incidence would bias results between industries or over time. Evidence has been produced for Britain and Germany of underdeclaration of profitability in good years and overdeclaration in poor years, creating a cyclical smoothing effect rather than an upward or downward bias.³³ *Jobson's* noted, 'the treatment of such items as depreciation, provision for doubtful debts, taxation and other contingencies is subject to very wide variation'. But concludes, 'the general results disclosed may in the majority of cases be taken as indicative of prevailing tendencies'.³⁴

Australia has traditionally hosted many multinationals and in the 1920s there was a large influx of American and British firms.³⁵ Multinationals would be locally listed where a subsidiary was incorporated in Australia or where a dual listing occurred. However, some multinationals operated branches in Australia without a local listing and are probably not captured in our data source figures. There are also some unwanted additions in the form of New Zealand companies. They would appear to be the companies listed on the New Zealand stock exchanges but no explicit statement on this has been found, nor is it clear when they were first included. Perhaps significantly, from 1924 New Zealand, with Australia, was included in the name of the *Digest*. In 1930 New Zealand firms constituted only 6 per cent of total shareholder funds, suggesting their limited influence on our results

In relation to the profits data, *AID* also included aggregated data and regular reports on business profitability. This information was extracted from balance sheets

³⁰ F. R. E. Mauldon, *Mechanisation in Australian Industries*, Hobart: University of Tasmania, 1938.

³¹ A more detailed discussion of this source can be found in Ville and Merrett, 'Time series'.

³² *Australian Investment Digest* vol 1, no. 1, January 1920, p. 3.

³³ Arnold, 'Profitability and capital accumulation', p. 56; C. J. Napier, 'Secret accounting: the P & O Group in the interwar years', *Accounting, Business and Financial History* 1 (3), 1991; M. Spoerer, 'Window dressing in German interwar balance sheets', *Accounting, Business and Financial History* 8 (3), 1998.

³⁴ *Australian Investment Digest* vol 1, no. 1, January 1920, p. 3.

³⁵ Forster, *Industrial Development*, pp. 230-2 cites 85 British and American firms that began manufacturing in Australia in the 1920s or 'substantially expanded their operations'. *Jobson's* figures included xx of these.

in the individual company reports and then reported by major industry groups on a year-by-year basis to provide our profits time series. The extent of the data thus brought together by *AID*, on over 500 companies in many years, is highly impressive in terms of its aggregate size, annual regularity, and its distribution across sectors.³⁶ In 1928 *AID* provided a full list of public companies, which amounted to 985. The first full year of profit returns after this, 1930, listed 585 companies, implying coverage of around 60 per cent. A 1930 directory of 1012 enterprises confirms a similar sample share of the population of companies.³⁷

There are some omissions from the profits aggregations. *AID* provides no industry data for 1928. For 1927, 1929, 1935, and possibly 1937 we have data aggregated from company reports declared in only three of the four reporting quarters, although this does not appear to have built in a particular bias between industries in terms of numbers of firms covered.³⁸ We have only half a year's data for 1938 and only about a third of the number of companies previously reporting. For 1931-3 no data is provided on total shareholder funds. Therefore, we have taken the average of the preceding and subsequent years, 1930 and 1934 respectively. For most industries there are only modest variations of less than 5 per cent in shareholder funds between the two years.³⁹ At the depth of the depression, it was profit rather than shareholder funds that was particularly affected by the business cycle. New capital issues were at a very low nadir as we shall see below.

Jobson's similarly reported new capital issues company by company. Since there are no regular aggregations of new capital issues provided by Jobson's, our investment data was assembled company by company. While this was a highly time-consuming and laborious task, it had several advantages – the precise coverage by companies was known, additional firm specific information could be analysed, such as the motive for undertaking the investment. Motives for falsifying new issues data are less apparent than for profits. Some firms, however, were not very forthcoming about the reasons for a new issue, perhaps anxious to conceal their strategies from competitors. Completeness is probably high since we would expect plans for a capital issue to be accessible to an investment journal. Indeed, 175 companies made new issues in 1926, equivalent to about one-third of companies in Jobson's aggregated profits list and maybe one-fifth of all listed companies.

Calculation of results

There are a variety of methods for calculating profitability, depending upon the data available and the investigative goals being pursued, which include the return on assets, capital, or equity, the EBDIT (earnings before depreciation, interest and

³⁶ The shareholder funds employed by these companies in manufacturing in 1936 represents about one third of an estimate of capital stock for that year in 1939 prices. Vamplew, *Historical Statistics*, p. 300. E. A. Boehm, *20th Century Economic Development in Australia*. (Melbourne: Longman, 1972), pp. 8-9 provides sectoral distribution comparisons.

³⁷ A. Jobson and A. M. Pooley, *The Digest Year Book of Public Companies of Australia and New Zealand*, (Sydney: Jobson's Publications, 1930).

³⁸ Except for retailing firms whose share of total shareholder funds halved in 1927. Time and cost willing, it would be possible to go through all of the company annual reports for years in which *Jobson's* summarised data was missing or incomplete.

³⁹ The exceptions are largely industries undergoing expansion (airways, electricity, insurance, metallic mining, printing, and sugar) or those severely affected by the depression and drawing down reserves including some wholesale, retail, farming, and motor trading.

taxation) margin, and the holding return.⁴⁰ The historical data available to us will focus our investigation on the measurement of the return on shareholder equity. This will be derived from declared profit, net of taxes and interest charges, as a percentage of total shareholder funds as reported annually by each company. The latter consists of the paid up capital of ordinary and preference shares plus accumulated reserves, which is assumed to include current retained earnings.⁴¹ Thus, our calculation of profitability can be expressed formally as:

$$\text{RoE (\%)} = [\text{NP/TSF}]100$$

where RoE is return on equity, NP net profits, TSF total shareholder funds.

The depth of our data allows us to move from an annual national rate of return to repeat the exercise sector by sector and industry by industry. *AID* disaggregates the data into a series of industry groups but does not explain the reasoning behind its choice of sets. Initially, we analysed the disaggregated data in this ‘raw’ form before resorting it into more modern groupings adopting the Australian and New Zealand Standard Industrial Classification) categories. This is not a perfect taxonomy but the mostly widely used and accepted.⁴² We also use the disaggregated data to measure structural change through the proxy of shares of total shareholder funds.

As noted earlier, our new capital issues were taken directly from individual company information in *AID*. They relate to both ordinary and preference shares and include paid up amounts, scheduled to be paid within six months of allotment. Bonus shares are not included. As a proxy for new shareholder funds, it does not, therefore, include subsequent payments on existing capital issues, nor does it reflect funding through the use of retained earnings. It would be just about impossible to trace all subsequent calls on existing share issues. In addition, new capital issues can be most commonly associated with new strategic and investment decisions. Our interest is in those decisions and the role played by public policy and profits. Retained earnings were used sparingly, largely for minor capital expenditures, with most firms having high dividend payout ratios.⁴³ Finally, public equity issues were more important than debt capital during these years.⁴⁴

⁴⁰ Economists often prefer EBDIT as the most accurate measure of the price-cost margin. Further discussion of the relative merits of these alternative forms of measurement can be found in I. D. Gow and S. Kells, ‘The theory and measurement of profitability’, *Melbourne Institute Working Paper 7*, 1998; Arnold, ‘Profitability and capital accumulation’; Capie & Billings, ‘English banking’; Cassis and Brautaset, ‘Performance of European business’.

⁴¹ It is a much debated point whether preference shares constitute part of the equity of a firm or should be regarded as a form of financial liability. For example redeemable preference shares are generally regarded as a liability. Australian Accounting Standard AASB 132 provides some detailed discussion (http://www.aasb.com.au/public_docs/aasb_standards_2005/pdf/AASB132_07-04.pdf). The effect of excluding preference shares in our series would be to increase nominal profit returns by up to 1 per cent. Between 1929 and 1938 preferences are not listed separately from total shareholder funds and are assumed to be included. For consistency, therefore, we have included preference shares for the whole interwar period.

⁴² For example, it focuses on products rather than functions and thus misses vertical interrelationships.

⁴³ Fleming, Merrett, Ville p. 141

⁴⁴ Fleming, Merrett, Ville p. 140; Forster, , *Industrial Development*, p. 207.

RESULTS AND ANALYSIS

Chart 1: Profitability and capital issues

Nationally, profits remained on a relatively high plateau of 8-9 per cent from 1920-9 before falling sharply to around 4 per cent during 1931-3. Thereafter, they rose progressively through the 1930s back up to 1920s levels by the end of the decade.⁴⁵ Initial comparisons with overseas studies suggest similar patterns in terms of profit magnitude and trend. A cross-country comparison for 1927-9 puts Australia (8.25 per cent) slightly below United Kingdom (10.6) Spain and France (9.8) but above Germany (7.2).⁴⁶ The interwar trend is similar to figures we have for Spain except that the latter's Civil War delays economic and business recovery until the eve of World War Two.⁴⁷

A very similar trend is apparent in the number of new capital issues, with a high correlation between the two series, particularly in the mid 1920s, when new investments were at an interwar peak. There is no noticeable trend lag between the series suggesting, perhaps an interaction between profits and investment decisions rather than a prominent causality in either direction. Thus, while above average profits might attract additional investment, new investments in turn may have cost-reducing or market enhancing properties that contribute to higher profitability. Somewhat greater cyclical vicissitudes are noticeable for investment, especially during and after the peak of the so-called Great Slump (1929-32). This is most noticeable if figures for the value of new capital issues are used since the number and average value of capital issues generally moved in tandem. This might be explained by the so-called 'accelerator' effect, whereby changes in demand for a product have an accelerated or magnified impact upon investment by increasing capital replacement rates.⁴⁸
[add moving averages]

Table 1. Average profitability and changing share of total shareholder funds by ANZSIC, 1920-38

Our principal concern, however, lies in a closer understanding of the drivers of structural change in the interwar economy. Our contention is that businessmen will respond to rewards offered by higher yielding activities by making investments in those areas. The aggregate measures of sectoral expansion and contraction reflect decisions made by tens of thousands of businesses and households day by day year in and year out. Entrepreneurs, investors and workers act to maximize their utility functions in the light of a set of price signals.

⁴⁵ Price adjustment for inflation has little impact on trends, while somewhat compressing cyclical fluctuations, providing a somewhat lower return during the rising price and high profit years for most of the 1920s and a somewhat higher return than nominal for the deflation low profit years of the 1930s. See S. Ville & D. Merrett, 'Business profitability and structural change in interwar Australia' (Economic Society of Australia annual conference, University of Melbourne. Refereed proceedings:
<http://gemini.econ.umd.edu/conference/ACE2005/program/ACE2005.html>.

⁴⁶ Tafunell & Carreras, 'Profitability of Spanish firms', p. 12.

⁴⁷ Tafunell & Carreras, 'Profitability of Spanish firms', p. 6.

⁴⁸ Thus, if 10 per cent of a firm's machines are replaced annually, a 10 per cent increase in production will necessitate a doubling of investment in that year.

Information about profitable opportunities became more readily available during the inter-war period. Personal observation of new opportunities, often resulting from international travel,⁴⁹ and participation in social networks continued to play an important role as it had during the nineteenth and early twentieth century. Two new sources of information were added. Information about a host of industry specific issues, such as trade conditions and new technologies, was shared through the large number of trade associations⁵⁰ and their growing list of trade journals. However, it was the growth of listed companies that gave rise to a wider dissemination of information about profits in particular industries, primarily through the reports in the newspapers and specialist financial press such as *Jobsons*, the “*Wild Cat*”, *Rydge’s* and the *Australian Mining Standard* of the fortunes of individual companies. Stockbrokers played an influential role through their recommendations about the stocks of companies to private clients and signalling their own position by underwriting new issues.⁵¹ Profitability became a data point for decisions by investors as well as entrepreneurs and managers.

Therefore, we disaggregate our profits and capital issues data using the ANZSIC nomenclature.⁵² The right hand column of Table 1 indicates the average profitability by sector across the interwar period, with utilities and manufacturing performing best and wholesale trade and cultural, recreational services worst. Sectoral differences between the rate of return on shareholders’ funds are sustained through the interwar period. There is a variation around the mean rather than an equalisation of profit rates across industries as might be expected in an economy with perfectly competitive product and financial markets.

There are two streams of literature in the field of industrial organization that suggest persistent differences in returns on shareholders’ funds between industries. One relates to structural conditions within an industry that are enjoyed by all firms. The structure-conduct-performance paradigm suggests that there generally is a positive relationship between the level of seller concentration and profitability.⁵³

⁴⁹ For instance, G J Coles strategy for his chain store was materially altered by his visit to the USA. And Great Britain in 1913. Judith McLaughlin, *Nothing Over Half a Crown: A Personal History of the Founder of the G. J. Coles Stores*, Main Ridge: Loch Haven Books, 1991.

⁵⁰ R. D. Freeman, ‘Trade Associations in the Australian Economy’ in Colin A. Hughes (ed.), *Readings in Australian Government*, St Lucia, University of Queensland Press, 1968, 443-58.

⁵¹ The expansion of stock exchange lists can be traced through histories of the various stock exchanges including *The House of Were 1839-1954*, (Melbourne: J B Were, 1954); Graeme Adamson, *A Century of Change: The First Hundred Years of the Stock Exchange of Melbourne* (South Yarra: Curry O’Neil Ross, 1984); Stephen Salsbury and Kay Sweeney, *The Bull, the Bear and the Kangaroo: The History of the Sydney Stock Exchange* (Sydney: Allen & Unwin, 1988); Graeme Adamson, *Miners and Millionaires: The First One Hundred Years of the People, Markets and Companies of the Stock Exchange in Perth 1889-1989* (Perth: Australian Stock Exchange (Perth) Limited, 1989); R. M. Gibbs, *Bulls Bears and Wildcats: A Centenary History of the Stock Exchange of Adelaide* (Norwood: Peacock Publications, 1988).

⁵² This required some resorting of Jobson’s industry classifications into ANZSIC. For the company level capital issues data this required attaching an ANZSIC division to hundreds of companies.

⁵³ For a discussion of this literature and associated empirical studies see Douglas F. Greer, *Industrial Organization and Public Policy* (New York: Macmillan Publishing, 1992), 3rd ed, 595-609. For an application to profitability in Australian manufacturing in the 1970s see Richard Caves, Ian Ward, Philip Williams and Courtney Wright, *Australian Industry: Structure, conduct, performance* (Sydney: Prentice-Hall of Australia, 1981), 90-94. Although, more recently on Australia see, S. Feeny and M. Rogers (2000), ‘The role of market share and concentration in firm profitability: implications for competition policy’, *Economic Analysis and Policy* 30, 2, 2000.

Michael Porter's 'structural analysis of industries' takes a wider view in explaining differences in 'industry attractiveness' by exploring the impact of relationships with suppliers and customers on profitability as well as considering concentration, firm conduct, barriers to entry and exit, and the strength of substitutes.⁵⁴ The other stream relates to differences in intra-industry profits. Michael Porter has theorized why firms within the same industry will pursue different strategies that generate different rates of return that persist over time.⁵⁵ Dennis Mueller's study of the profitability of 600 US manufacturing firms demonstrated that there was no convergence to a mean of the zero economic rent, the equivalent of the cost of capital.⁵⁶ Differences in profitability continued in the long term.

Structural characteristics of many industries and the conduct of firms in inter-war Australia would lead us to anticipate that there would be persistent differences in rates of return between industries. Recent research has identified rapid increases in the level of seller concentration in many important industries including brewing, glass and the media.⁵⁷ The ability to reap economies of scale following the introduction of new technologies was a principal cause of this phenomenon. A few firms quickly built scale to supply regional and then national markets. Vertical integration or close collaboration along industry 'value chains' became commonplace in the base metal mining, smelting and metal fabrication industries. Firms, particularly in consumer durables industries and fast moving packaged goods such as cigarettes, built up brands that deterred entry. Firms gained and sustained competitive advantages by generating internal competences. These included superior organizational design and privileged access to finance through retained earnings and the ability to raise debt and equity more cheaply than rivals. In many other industries firms cooperated with direct competitors and with suppliers and customers on a range of price and non-price issues.⁵⁸

How did investors respond to these price signals? In a perfectly competitive market investors would react to knowledge of above average return by increasing capacity until the enlarged supply relative to demand drove down returns. The existence of mobility barriers, such as restraints of trade, and government policies can potentially offset the pressure of competition on industry returns. Our profits database includes information on total shareholder funds. While this is a poor proxy for changes in total investment since the number of companies covered varies, it does reveal interesting information about the distribution of funds between sectors. Significantly, table 1 shows that those industries performing above average largely increased their share of funds, while those who performed below average lost share. The major change is an increase of 21 percentage points in manufacturing, which is more than a doubling of its share. Manufacturing had achieved above average profits

⁵⁴ Michael E. Porter, *Competitive Strategy: Techniques for analysing industries and competitors* (New York: The Free Press, 1980).

⁵⁵ Michael E. Porter, 'The structure within industries and companies' performance', *Review of Economics and Statistics*, 61, 2, 1979, 214-27.

⁵⁶ D. C. Mueller, 'The persistence of profits above the norm', *Economica*, 44, 1977, 369-80.

⁵⁷ Fleming, Merrett & Ville, *Big End of Town*, ch. 3.

⁵⁸ There is growing theoretical and empirical support for the market enhancing rather than rent-seeking role of many industry associations. For example, R. F. Doner and B. Schneider, 'Business associations and economic development: why some associations contribute more than others' *Business & Politics* 2, 3 (2000); R. F. Doner and B. Schneider, 'The new institutional economics, business associations and development' ILO Discussion Papers 110 (2000). On Australian experience see S. Ville and D. Merrett, 'Investing in Interorganisational Communication: The Melbourne Wool Brokers Association' (forthcoming).

in each year, except during the 1921 downturn, which coincided with a boom in mining returns leaving the former's respectable 8.2 per cent just below the average of 8.6. Wholesale's share of funds declined by two-thirds from about 6 to under 2 per cent and provides statistical confirmation of the contextual story of the decline of major importers/wholesalers during this period, such as D. & W. Murray, Lovell & Christmas, and D. & J. Fowler Ltd, squeezed at either end of the value chain by retailers and manufacturers.⁵⁹ In finance and insurance, there is a close trend fit between declining profit rate and share of funds from the mid 1920s to early 1930s in light of the domino effect of the slump on the sector's lending strategies. The main exception to the correlation of average profits and changing share of shareholder funds lay in utilities. In this case, the exercise of quasi monopolies by regional companies like AGL, in an environment of rapidly increasing residential and commercial demand for electricity, and the impact of the encroachment of government ownership into the sector provide the most likely explanations.⁶⁰

The strengths of the TSF data are that it uses the same sample as that of profits and is a proxy for structural change in the economy. On the other hand, it reveals little about investment decisions *per se*, for which we turn again to the new capital issues data. Here we find that the largest number of new issues was to be found in manufacturing for every year [check post AP work].⁶¹ This domination of new investment flows, averaging around 35 per cent, is consistent with the sector's rapidly rising share of the stock of total shareholder funds from 16 to 37 per cent, 1920-38.

Table 2: New capital issues, 1920-39

The firm level evidence of new capital issues enables us to take a closer look at which manufacturing industries were expanding.....

These investments are evidence of a dynamic response by entrepreneurs to what were perceived as opportunities offered by the adoption of new technologies, often introduced under licence from abroad, that undermined existing industries and created new ones. Changes in consumer preferences, particularly with respect to the introduction of new goods and services, played a parallel role in this Schumpeterian process of creative destruction. Some examples would be the introduction of radio and the cinema as new forms of mass entertainment, chain stores undermining independent general stores, the advent of the motor car, the telephone, gas stoves and a range of domestic appliances, the use of electricity for lighting and power in offices, factories and residences.

⁵⁹ Fleming, Merrett, & Ville, *Big End*, pp. 89-90, 170-1. Burns Philp was one of the few wholesalers to survive and it did so by backward and forward vertical integration into resources and retailing.

⁶⁰ 'Electricity' in *Jobson's Investment Digest* 16, no. 18, 16. 9. 1935, pp. 377-8.

⁶¹ Shared with Agriculture and forestry in 1931.

CONCLUSION

The literature of structural change in the interwar Australian economy has focussed particularly on the role of public policy – increasing tariff protection for manufacturing, and a benign disregard of anticompetitive practices such as interfirm collusion, the exercise of concentrated market power, and the political influence and behaviour of business coalitions. There has been a disregard of the role of economic factors and corporate strategy in shaping change. We have presented new data series on profitability, shareholder funds, and new capital issues. They indicate sustained differences in the rates of return between broad economic sectors in favour of manufacturing industries. Manufacturing in turn attracted the largest portion of new investment and increased its share of total funds. Trends in each of the three series, profits, new issues, and total funds, are closely correlated. Changes in average tariff levels are not closely correlated with profits or investment. Taken together, this evidence suggests that the profit signal was comparatively robust in attracting new investment into expanding manufacturing, and that sustained profit differences were the product of industry characteristics and firm strategies that did not constrain production but rather facilitated its expansion. In particular, these investments in the manufacturing sector sustained the competitive advantages of individual firms and industries. In *Big End of Town*, we showed the ability of prime movers and challengers to stake their place as corporate leaders through a range of efficiency based strategies.⁶² For interwar manufacturers, this included technology-induced scale economies (such as Humes, Australian Glass Manufacturers, Herald & Weekly Times, and Tooths), transaction cost economies through vertical integration (BHP), and scope economies through related diversification (CSR).

⁶² Fleming, Merrett & Ville, *Big End of Town*, ch. 4.

Chart 1: Profitability and capital issues

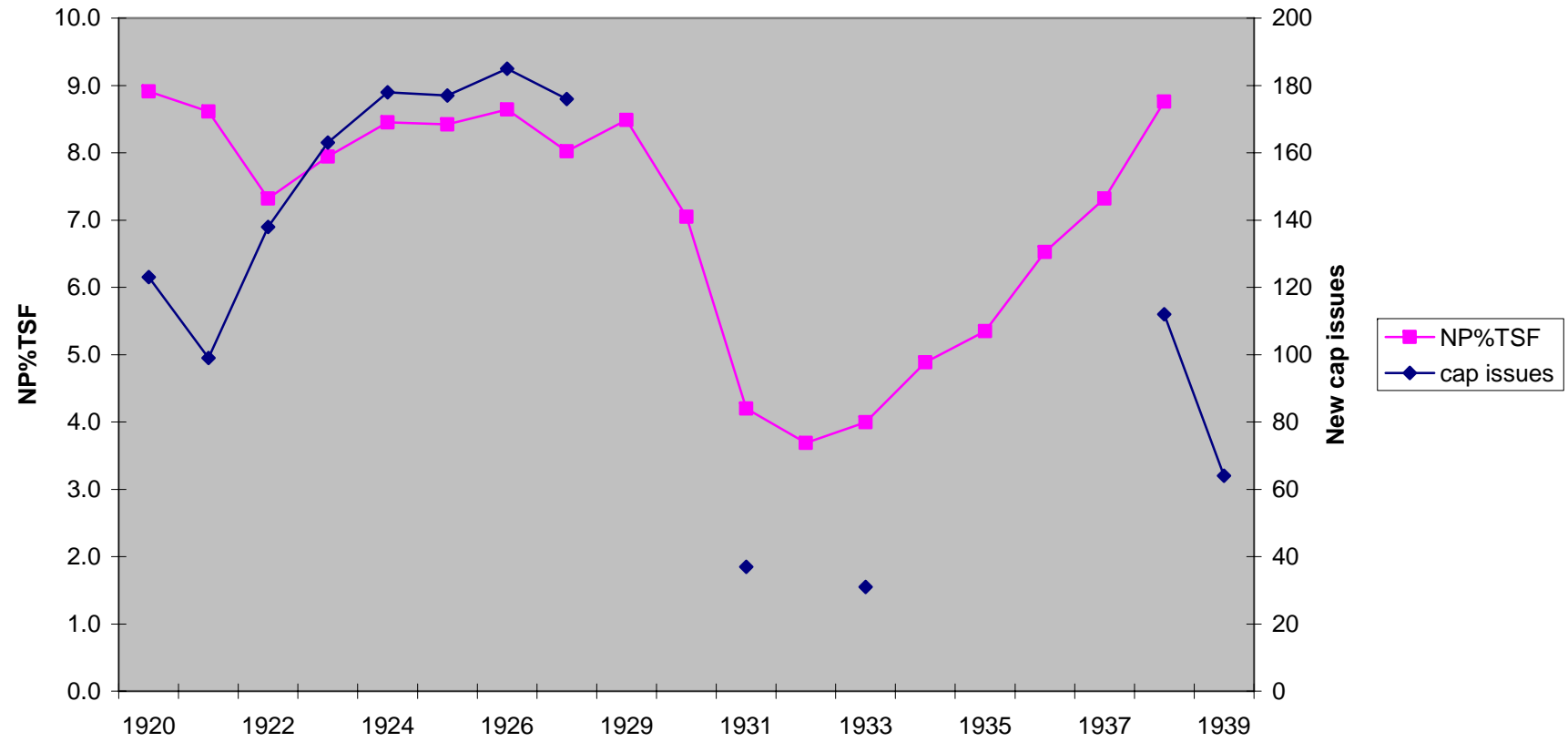


Table 1. Average profitability and changing share of total shareholder funds by ANZSIC, 1920-38

Δ%TSF,1920/1-37/8	ANZSIC Code	Av NP, 1920-38
-2	Electricity, Gas, Water Supply	8.3
21	Manufacturing	8.1
1	Retail Trade	7.7
0	Accomm, Cafes, Restaurants	7.6
3	Mining	7.3
	Total	7.0
-6	Transport and Storage	6.4
-2	Ag, Forestry, Fishing, Hunting	6.4
-13	Finance and Insurance	6.3
1	Construction	5.8
-4	Wholesale Trade	5.2
0	Cultural / Rec Services	4.9

Table 2: New capital issues, 1920-39

Year	No. new issues	No. cos w. new issues	%C divn	Capital raised(\$)	Average raising (\$)	Main purpose
1920	123		38	9 367 108	76155	53N
1921	99		31	7 231 088	73 041	25N
1922	138		39	7 639 560	55 359	36A
1923	163		39	7 551 819	46 330	50A
1924	178		31	8 937 539	50 210	49N
1925	177		28	7 884 448	44 545	47A, 45N
1926	185		28	14 190 123	76 703	51A
1927	176		32	10 695 001	60 767	48N
1928						
1929						
1930						
1931	37		27	583 928	15 764	14A
1932						
1933	31		48	1 411 116	45 519	9A, 9F
1934						
1935						
1936						
1937						
1938	112		31	6 277 155	56 046	33J
1939	64		45	4 057 412	63 397	28J