

1-1-2005

Business profitability and structural change in interwar Australia

Simon Ville

University of Wollongong, sville@uow.edu.au

David Merrett

University of Melbourne

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Recommended Citation

Ville, Simon and Merrett, David: Business profitability and structural change in interwar Australia 2005, 2-18.

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Abstract

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. 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 reaping of new opportunities by 'corporate leaders' across a number of industries within sectors. In this paper we construct and analyse a time series of the profitability of industries in services and manufacturing, which enables us to examine the motivating factors behind structural change from the perspective of price signals, in the form of differences in absolute and relative rates of return on shareholder equity. This study is the first to use the business profits data for interwar Australia. 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.

Keywords

Business, profitability, structural, change, interwar, Australia

Disciplines

Business | Social and Behavioral Sciences

Publication Details

Ville, S. & Merrett, D. (2005). Business profitability and structural change in interwar Australia. In Economic Society of Australian (Eds.), Proceedings of the 34th Australian Conference of Economists, 2005 (pp. 2-18). University of Melbourne: Economics Society of Australia.

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Simon Ville
University of Wollongong

And

David Merrett
University of Melbourne

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Business profitability and structural change in interwar Australia¹

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 reaping of new opportunities by 'corporate leaders'³ across a number of industries within sectors.

In this paper we construct and analyse a time series of the profitability of industries in services and manufacturing, which enables us to examine the motivating factors behind structural change from the perspective of price signals, in the form of differences in absolute and relative rates of return on shareholder equity. This study is the first to use the business profits data for interwar Australia. 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.

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 la empresa española, 1880-1981: Una estimación 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 éditions/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 project see: Y. Cassis and C. Brautaset, 'The performance of European business in the

The paper will proceed in a number of steps. First, it will briefly review the current literature discussing the changing structure of the Australian economy in the inter-war period. Second, the methodology used in constructing the profit data set will be discussed. Thirdly, the results will be presented. Finally, issues relating to interpreting the data will be examined.

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 that was largely offset by a contraction in rural and mining activity with the large service sector remaining at a roughly constant figure. National income account data of product and estimates of capital formation indicate shifts in the relative importance at a sector level and between the public and private sector.⁵ The broad shifts revealed by these indicators are mirrored by changes in the distribution of the workforce.⁶ 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.⁷

Describing this structural transformation has proven to be more straightforward than explaining what caused it to take place. The aggregate measures reflected decisions made by tens of thousands of businesses and households day-in and day-out. Entrepreneurs, investors and workers sought to maximize their utility functions in the light of a set of price signals that did not solely reflect the interplay of competitive markets. Prices of both goods and factors, particularly labor, were heavily affected by public policy, many other markets were highly concentrated and presumed to be influenced by non-competitive modes of behaviour.

The literature suggests a number of motivating factors driving structural change.⁸ 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,

twentieth century: a pilot study' [http://www.h-](http://www.h-net.org/~business/bhcweb/publications/BEHonline/2003/Cassisbrautaset.pdf)

net.org/~business/bhcweb/publications/BEHonline/2003/Cassisbrautaset.pdf

⁵ 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*.

⁶ 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..

⁷ 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.

⁸ 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).

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.⁹ 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. The impact of public policy, particularly trade barriers and centralised wage setting, on the relative prices and costs of Australian and foreign goods has provoked debate since the 1920s.¹⁰ The expansion of manufacturing employment and output was possible as domestic prices rose behind the protective tariff. A contemporary study estimated that prices and costs in 'protected' industries were between 10 to 12 percent higher than they otherwise would have been in the 1920s and 1930s.¹¹ 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.

The conventional wisdom that public policy was the principal driver of structural change has come under scrutiny on two fronts. First, it is not clear that tariffs and other trade barriers and subsidies provided to industries increased their profitability. 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. The authors of the *Brigden Report* draw attention to reports of the Tariff Board that complain about increases in tariff rates being matched by claims for higher wages. The operation of the Australian centralized wages system, that attempted to protect real wages, strengthened the hand of labor in the distribution of revenues.¹² On other occasions the Tariff Board cautioned that it would remove prevailing levels of protection to those industries whose 'shareholders dividends [were] considerably in excess of the ordinary commercial rates.'¹³ More recently, Mark Thomas has argued that the recovery of the manufacturing sector in the 1930s

⁹ N.G. Butlin, A. Barnard, J.J. Pincus, *Government and capitalism : public and private choice in twentieth century Australia* (Sydney: George Allen & Unwin, 1982).

¹⁰ 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. Brigden *The Australian tariff : an economic enquiry* (Melbourne : Melbourne University Press in association with Macmillan, 1929).

¹¹ J. F. 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 in association with Oxford University Press, 1939), 151.

¹² 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.

¹³ Brigden, *Australian Tariff*, 167

owed more to cost reductions stemming from ‘increased efficiency and productivity’ than ‘higher tariffs and a depreciated currency.’¹⁴ This view resonates with our study of large firms that found them to be investing in new technologies and superior organizational forms as a way of creating competitive advantage.¹⁵

METHODOLOGY

Our data source is *Jobson’s Investment Digest of Australia and New Zealand*, also periodically known as the *Australian Investment Digest*, or the *Investment Digest*, a monthly (later fortnightly) publication compiled by Alex Jobson from 1920 and including, ‘a summary of all Australian company reports published...up to the latest moment’.¹⁶ *Jobson’s*, as it was commonly known, also included regular reports and data on business profitability. This information was extracted from balance sheets in the individual company reports and then aggregated by major industry groups on a year-by-year basis. It included information on declared profit, net of taxes and interest charges, total paid up capital, and total shareholder funds. A number of methodological issues should be highlighted particularly in relation to the accuracy and completeness of the source data along with its interpretation and presentation for the purposes of measuring profitability.

Accuracy and completeness of source data

There are some known omissions and actual or potential errors. *Jobson’s* provides no data for 1928 and only very broad industry groups for 1919. For 1927, 1929, 1935, and possibly 1937 we have data aggregated from company reports declared in only three of the four reporting quarters of the year and only half a year’s data for 1938, although this does not appear to have built in a particular bias between industries in terms of numbers of firms covered.¹⁷ For the years 1931-3 no data is provided on total shareholder funds or paid up capital. Therefore, we have decided to take 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.¹⁸ In these years at the depth of the depression it was profit rather than shareholder funds that was particularly affected by the business cycle. The reporting year was used in all cases even where a company reported early in the calendar year for a period mostly covering the previous year. Recording the data against the previous calendar year would have invoked an alternative misplacement effect, especially for firms reporting towards the end of the calendar year. Some smoothing exercises, using a moving three-year average, also help to evaluate any potential short term distortions. It is to be expected that an exercise of this scale would bring with it some typographical (numbers transposed), aggregation, and printing (columns duplicated) errors. In most identified cases of

¹⁴ 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.

¹⁵ Fleming, Merrett & Ville, *Big End*, chs 4 & 7.

¹⁶ *Australian Investment Digest* vol 1, no. 1, January 1920, p. 3.

¹⁷ 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.

¹⁸ 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.

source error, it was possible to rectify the mistake, in a few largely minor cases the data had to be left unaltered.

Jobson's initially claimed to draw its data from all companies listed on the stock exchanges of the Commonwealth. However, there were some omissions as it conceded. It excluded life assurance companies, 'owing to the impossibility of stating their net annual profit as a group'.¹⁹ Mining companies were also stated to have been excluded although the data includes many 'coal' companies and, later in the period, also lead and zinc. P & O Shipping, although listed in Australia, was omitted by *Jobson's* on the grounds that its predominantly overseas activities meant that it was little affected by local conditions, and because its large size would distort the overall picture presented. Two unnamed firms were excluded from the initial listing in 1920 because they had not issued reports. P & O's exclusion raises the broader issue of the treatment of multinationals. Australia has traditionally hosted many multinationals and in the 1920s there was a large influx of American and British firms.²⁰ 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. Unavoidably, therefore, our figures will not include all foreign companies although it does include many of them. In 1930 20 of the top 100 non-finance firms listed in Australia were foreign registered and at least another five were locally registered subsidiaries of foreign firms. These included major corporations such as British Tobacco, Dunlop, Nestles, Goodyear, and Peters.²¹

Conversely, many New Zealand companies were included: large firms such as New Zealand Insurance are to be found but also many small local ones that did not conduct business operations in Australia. 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*. It was not until the end of the 1920s that the two countries were distinguished in the profit data and then only in the national figure rather than by industry. In 1930 New Zealand accounted for 14 per cent of the number of companies in the data but only 6 per cent of total shareholder funds, indicating the limited number and proportionately smaller size of New Zealand companies.²² In the following years, the accompanying analysis by *Jobson's* distinguished between the operating conditions and corporate performance in each country

The absence of reports from two listed companies in 1920, mentioned above, is indicative of the limited disclosure reporting requirements of the time. Among the remainder of firms that did report, inconsistencies are probable from a lack of stringency in accounting standards. As *Jobson's* noted, 'the treatment of such items

¹⁹ *Australian Investment Digest* vol 1, no. 6, June 1920, p. 1.

²⁰ 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.

²¹ 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), p. 17 and appendix C.

²² For example Otago Farmers Cooperative Association, a small Dunedin based organisation of local farmer shareholders, had only £56 000 in paid up capital at the end of World War One. Hocken Archives, Otago Farmers Cooperative Association Balance Sheets 144/89. S. Ville, *The Rural Entrepreneurs. A History of the Stock and Station Agent Industry in Australia and New Zealand* (Melbourne: Cambridge University Press, 2000), p. 90 for full run of their interwar capitalisation.

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'.²³ The relatively simple structure and organisation of most Australian companies at this time with few groups or overseas subsidiaries, did at least mitigate the problem of inconsistent handling of subsidiary company profits. More pernicious were deliberate attempts to falsify profits and the related creation of hidden reserves, indicating a mismatch between actual and reported returns. Some cases certainly existed in Australia, including that of Tooths, where understatement or smoothing commonly occurred through the development of secret reserves prior to a major change in the Companies Act in 1961.²⁴ There is no indication as to how widespread such practices were in Australia, nor that their incidence would bias results between industries or over time in such a way as to invalidate the large dataset used here. Evidence has been produced for interwar 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.²⁵

In spite of these omissions, the extent of the data brought together by Jobson's, on over 500 companies in many full years, is highly impressive in terms of its aggregate size, annual regularity, and its distribution across sectors.²⁶ The alternative methodology of several recent writers, including Arnold, Capie & Billings, and Cassis, is to focus on the unpublished archival accounts of a constant sample of companies as a means of overcoming some of these methodological problems.²⁷ Such an approach may more closely approximate to actual profits but even unpublished material will contain errors, omissions, and inconsistent practices for this period. Moreover, our intention is to reflect profit performance sectorally and nationally, so the need is for encompassing coverage of current companies rather than tracking the rise or fall of individual enterprises.

Interpretation and presentation of source data

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, and the holding return.²⁸ The 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

²³ *Australian Investment Digest* vol 1, no. 1, January 1920, p. 3.

²⁴ M. Wilson and G. Shailer, 'Political costs, income measurement and disclosure: a case study from the brewing industry, 1910-65' (School of Business and Information Management, Australian National University).

²⁵ Arnold, 'Profitability and capital accumulation'; 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.

²⁶ 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.

²⁷ Arnold, 'Profitability and capital accumulation'; Capie, F. and Billings, M. (2001), Profitability in English Banking in the Twentieth Century, *European Review of Economic History*, 5 (3); Cassis, *European Experience*. The latter also confined his study to selected benchmark years.

²⁸ Arnold, 'Profitability and capital accumulation'; Capie & Billings, 'English banking'; Cassis and Brautaset, 'Performance of European business'.

of total shareholder funds. The latter consists of paid up capital on ordinary and preference shares plus accumulated reserves, which is assumed to include current retained earnings. Return on assets or total capital (equity and fixed return) would require going back to a sample of individual company balance sheets, which is not our intention in this particular exercise. Holding returns to shareholders (annualised changes in share price plus dividends) requires a company-by-company approach or the existence of national series for share prices and dividends. Such series do not exist on a disaggregated basis for Australia for this period, and their usefulness would suffer from the thinness of the contemporary equity market, while the constant dividend policy of many companies would smooth out real profit vicissitudes to some degree.

In a longitudinal series, year to year changes in price levels may inflate or deflate the real level of profitability. While the figures for net profit are current for each year, shareholder funds, with the exception of new issues, are carried forward from year to year and thus susceptible to the effects of price vicissitudes. Therefore, we include an adjustment calculation based upon changes in the general price level from year to year, there being no suitable specific price indices available. A GDP price deflator index is used in preference to a consumer price index. The latter is not based upon a fixed basket of goods and services, and it therefore reflects changes in consumption patterns with the rise and fall of different industries. Price adjustment is not an unexceptionable improvement in the presentation of our data, for example the choice of base year(s) will affect the absolute results.²⁹ Moreover, for cross-sectional comparisons between industries, there is little point in applying a general price index since the net effect will be zero. Thus, our calculation of nominal profitability can be expressed formally as:

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

Or, price adjusted, as:

$$\text{RoE (\%)} = [\text{NP}/\{\text{TSF}(1+?p)\}]100$$

where RoE is return on equity, NP net profits, TSF total shareholder funds, ?p annual percentage change in the general price level.

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. *Jobson's* 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. These include broad subdivisions such as primary, secondary, and tertiary. More detailed disaggregation is achieved through rearrangement into ANZSIC (Australian and New Zealand Standard Industrial Classification) categories. This is not a perfect taxonomy but the mostly

²⁹ Taken from P. Shergold, 'Prices and consumption' in Vamplew ed. *Australians*, p. 219, 'Gross domestic product, price deflator, 1851-1985'. For our purposes, the average of 1919 and 1920 is used as the deflator's base years. For a good discussion of the alternative ways of handling the impact of price inflation on rates of return see Capie & Billings, 'English banking', pp. 385-8.

widely used and accepted.³⁰ We also use the disaggregated data to measure structural change through the proxy of shares of total shareholder funds.

RESULTS

Chart 1: Nominal and price adjusted net profitability, 1920-38

Nationally, profits remained on a relatively high plateau of around 8 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. The nominal and real profit series show broadly similar trends although the overall effect of price adjustment has been to compress the 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. 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).³¹ The interwar trend is similar to figures we have for Spain except that the Civil War delays economic and business recovery until the eve of World War Two.³²

Chart 2: Adjusted return on equity and bonds, 1920-38

The government bond rate has been added to chart 2 alongside the profit rate, enabling us to compare the rate of return on so-called riskless government paper with that of shareholder funds. Sometimes referred to as the equity premium or risk premium, the generally higher return to shareholders compensates for the greater risks involved. The evidence indicates a higher though slightly more volatile return to shareholder equity, confirming the existence of a risk premium in all years except 1931 and 1932 at the depth of the depression. The mean profitability across the interwar period was 7.1 per cent compared with a bond rate of 5.27 per cent indicating a mean premium of 1.83 percentage points, and the standard deviations were 1.33 and 1.06 per cent respectively for profits and bonds.

Chart 3: Equity premiums

Economists have spilt much ink over the so-called 'equity premium puzzle' identified by Mehra and Prescott some twenty years ago.³³ The puzzle lay in explaining American evidence of a large and persistent equity premium in contrast to the convergence predictions of competitive equilibrium models. Over the course of 90 years to 1978, the mean equity premium in the United States was over 6 per cent; for the two interwar decades it was 14.64 (1919-28) and 0.18 (1929-38) per cent. Using a different profits methodology, we found respective premiums of 2.08 and 1.63 per cent. The results are interesting for indicating a much lower and therefore less puzzling equity premium in Australian experience. The lower volatility of the equity premium within (smaller standard deviations) and between periods for Australia may provide some of the answer in itself for its smaller magnitude. Lower

³⁰ For example, it focuses on products rather than functions and thus misses vertical interrelationships.

³¹ Tafunell & Carreras, 'Profitability of Spanish firms', p. 12.

³² Tafunell & Carreras, 'Profitability of Spanish firms', p. 6.

³³ R. Mehra and E. C. Prescott, 'The equity premium. A puzzle', *Journal of Monetary Economics* 15 (1985), pp. 145-61.

volatility in turn may be related to income smoothing exercises by firms that used reserves to pay constant dividend rates.³⁴ The effect was to give equity a debt-like appearance in the eyes of firms and their investors.

For our purposes, these results question whether excessive profits were being generated by Australian businesses. Of course, this merely provides an average equity premium across the corporate economy. Our sectoral level data enables us to construct an equity premium for manufacturing, which was expanding rapidly and was a major recipient of government largesse. The manufacturing premium was 3.87 per cent, double that of the national equity premium, reflecting perhaps the greater risk of investing in new industries and some first mover rents most particularly in the 1920s. Again, however, this is not an excessive benefit for risk in these circumstances and still well below Mehra and Prescott's economy-wide results for the United States.

Chart 4: Net Profit as a Percentage of Total Shareholder Funds by Main ANZSIC Codes, 1920-38

There are sustained sectoral differences between the rate of return on shareholders' funds through the interwar period, for example between manufacturing and wholesaling. How did investors respond to these price signals? In a perfectly competitive market investors would react to knowledge of above average returns by increasing capacity until the enlarged supply relative to demand drove down returns. The existence of mobility barriers and government policies can potentially offset the pressure of competition on industry returns. Persistent differences may provide an indication of the strength of barriers to competition. In the case of interwar Australian manufacturing, the profit differentials are not so large as to be a cause for concern. On average they were 2.3 per cent above the mean, again perhaps a not unreasonable premium for the additional risk of new sector investment.

A closer look at individual manufacturing industries throws additional light on the question of relative performance. The better performing industries were those associated with rapid technological change and consequent opportunities for increased efficiency such as publishing and brewing. Other industries, particularly those associated with the primary sector such as meat freezing and timber performed poorly, achieving below the national mean.

Chart 5: Total shareholder funds distributed by main ANZSIC, 1920-38

The relationship between profits and subsequent investment decisions throws light upon the competitive structure of an industry and other sources of price friction. In the absence of such distortions, we would expect higher profits to attract fresh investment into the industry by new or existing players. Manufacturing's average rate of profitability across the period at 9.03 per cent was the highest of any ANZSIC code and better than the average for all years (Chart 4). Share of total shareholder funds is used as a rough proxy for investment decisions in chart 5. It shows an expansion in manufacturing's share from around 16 to over 40 per cent, a more rapid increase than suggested by other proxy indicators such as workforce and investment distribution.³⁵

³⁴ In a limited equity market such as interwar Australia, this was a means of attracting relatively low risk investors. Fleming, Merrett, & Ville, *Big End*, p. 150.

³⁵ Manufacturing's share of labour force rose from 20 to 24 per cent and as a share of gross domestic capital formation from 11 to 14 per cent during 1920-38. G. Withers, T. Endres and L. Perry, 'Australian Historical Statistics: Labour Statistics', *Source Papers in Economic History* 7 (1985: Canberra, Australian National University), pp. 100-1; N. G. Butlin, 'Select comparative economic statistics, 1900-40: Australia and Britain, Canada, Japan and New

By contrast, the poor profit performance of the wholesale trade of 5.46 per cent against a national interwar mean of 6.73 is reflected in its declining share of funds 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.³⁶ 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 most obvious mismatch is in the utilities sector between stable high profits, second only to manufacturing at 8.35 per cent mean, and a low share of funds. 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.³⁷

INTERPRETATION OF DATA

The data show that there were differences in the rates of return between industries in each year and that the relative set of rates altered over time. However, 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 is a positive relationship between the level of seller concentration and profitability.³⁸ 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.³⁹ 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.⁴⁰ 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.⁴¹ Differences in profitability continued in the long term.

Zealand', *Source Papers in Economic History* 4 (1984: Canberra, Australian National University), table Aa7.

³⁶ 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.

³⁷ 'Electricity' in *Jobson's Investment Digest* 16, no. 18, 16. 9. 1935, pp. 377-8.

³⁸ 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

³⁹ Michael E. Porter, *Competitive Strategy: Techniques for analysing industries and competitors* (New York: The Free Press, 1980).

⁴⁰ Michael E. Porter, 'The structure within industries and companies' performance', *Review of Economics and Statistics*, 61, 2, 1979, 214-27.

⁴¹ D. C. Mueller, 'The persistence of profits above the norm', *Economica*, 44, 1977, 369-80.

Structural characteristics of many industries and the conduct of firms in the inter-war period 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.⁴² 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 becoming entrenched behind high barriers to entry. 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. Evidence of price collusion in banking, wool selling, stock broking and the professions for instance, or imposed resale price conditions of distributors led writers such as Karmel and Brunt, and Butlin, Barnard and Pincus, that Australian business used 'all the restrictive practices known to man'⁴³

It might be expected that the reallocation of resources in response to shifts in price signals for investors, rates of return, were constrained by the 'distortions' wrought by government policy, and high levels of seller concentration and anti-competitive behaviour by firms that limited entry and exit. On the other hand, there was 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.

CONCLUSION

The existence of a relatively modest equity premium and the broad coincidence of sectoral movements in profits and total shareholder funds suggest that the profit signals were comparatively robust. In which case, the nature and rate of structural change taking place in the Australian economy between the wars cannot be explained entirely, or perhaps even largely, by interfirm collusion, the exercise of concentrated market power, the political influence of business coalitions, or other forms of non-competitive activity. On the other hand, persistent differences in rates of return existed across sectors. 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

⁴² Fleming, Merrett & Ville, *Big End of Town*, ch. 3.

⁴³ P. H. Karmel and Maureen Brunt, *The Structure of the Australian Economy* (Melbourne: F. W. Cheshire, 1962) 95. The phrase is repeated in N. G. Butlin, A. Barnard and J. J. Pincus, *Government and Capitalism* (Sydney: George Allen & Unwin, 1982, 108.

efficiency based strategies.⁴⁴ 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). Measurement of profit performance at the corporate level and the use of additional proxies of structural change are envisaged as future agendas arising from the current work.

⁴⁴ Fleming, Merrett & Ville, *Big End of Town*, ch. 4.

Chart 1: Nominal and Price Adjusted Net Profit

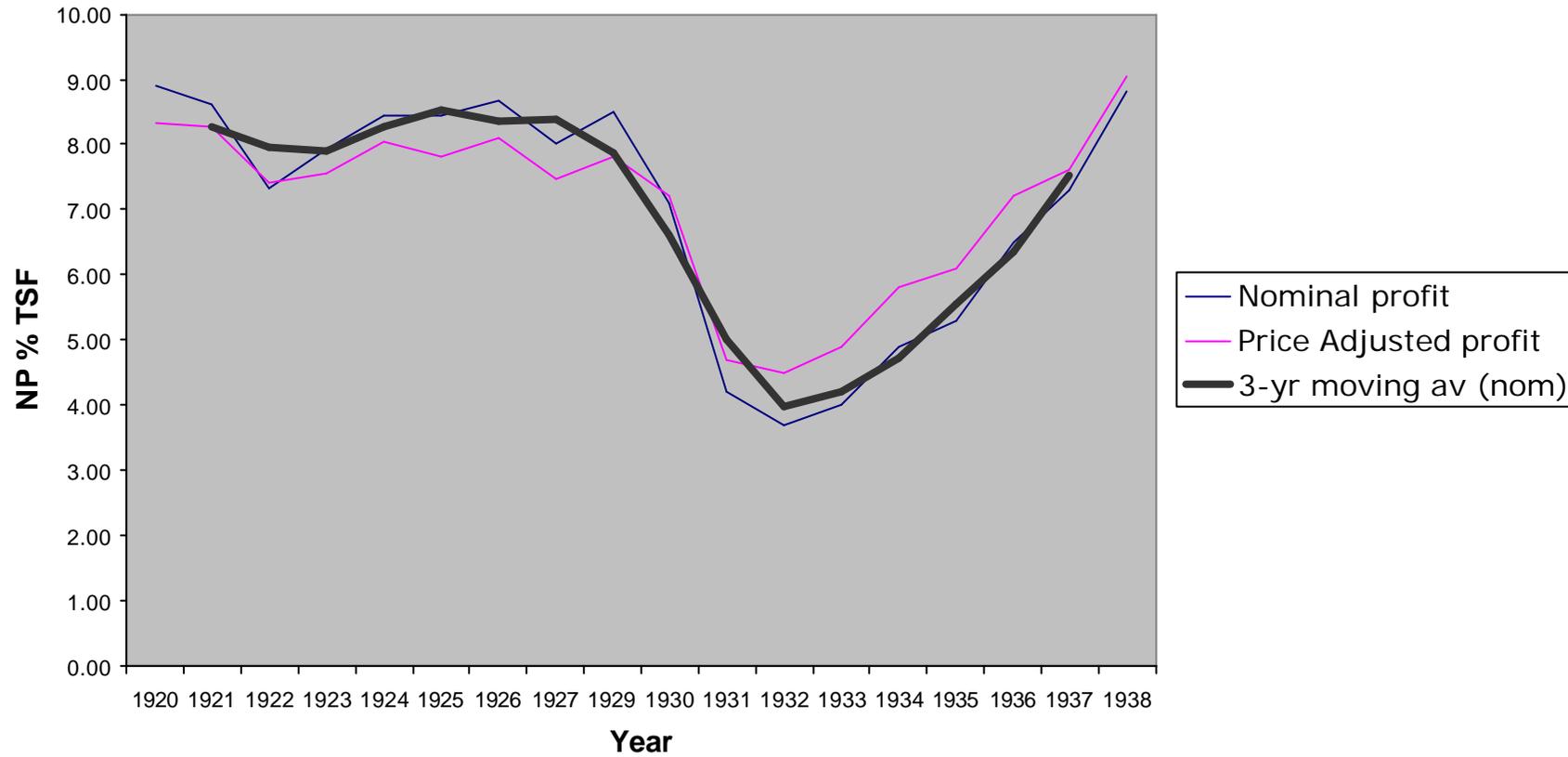


Chart 2: Adjusted return on equity and bonds

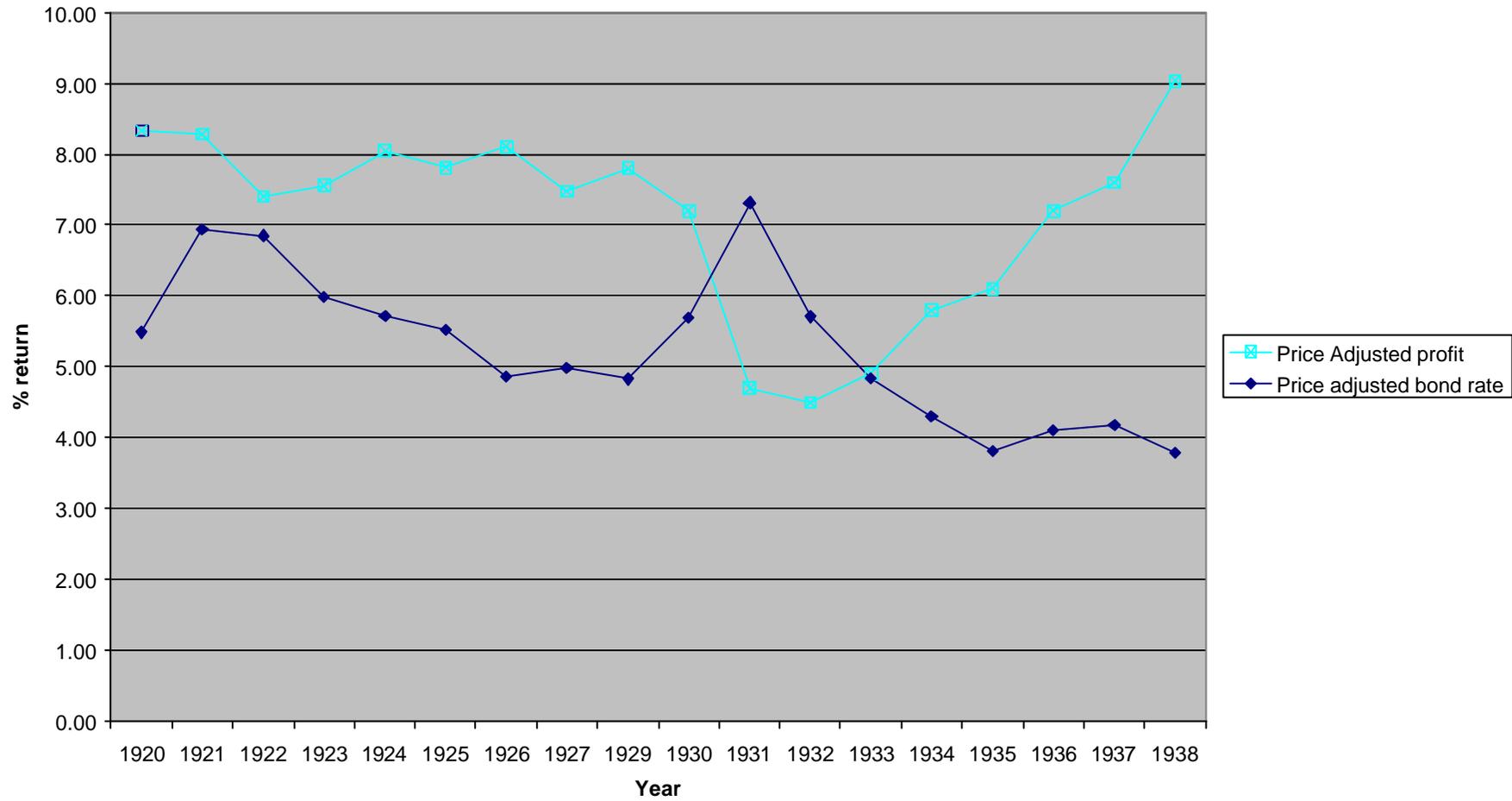
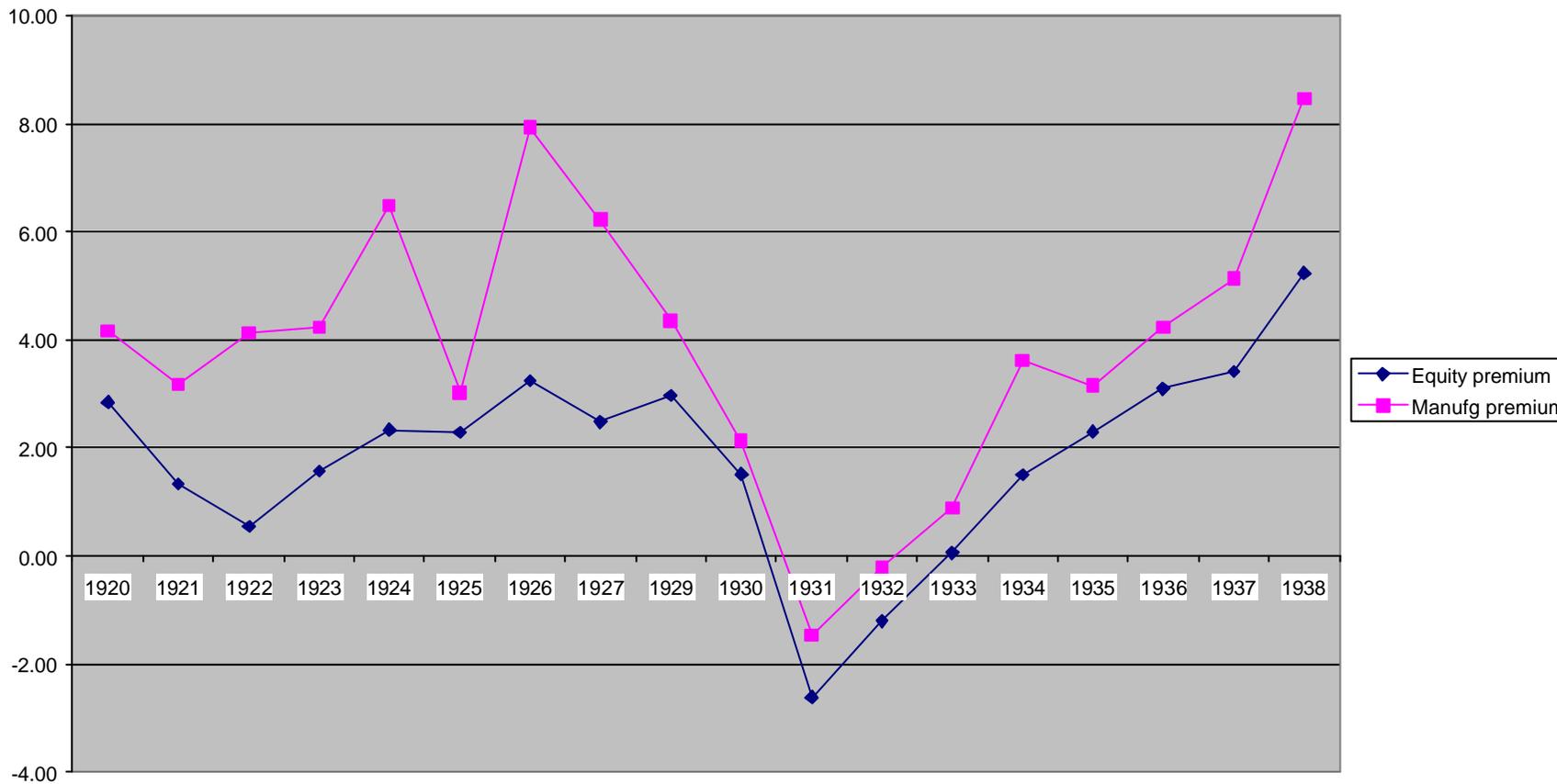


Chart 3: Equity premiums



**Chart 4: Net Profit as a Percentage of Total Shareholder Funds
by ANZSIC Code, 1920-38**

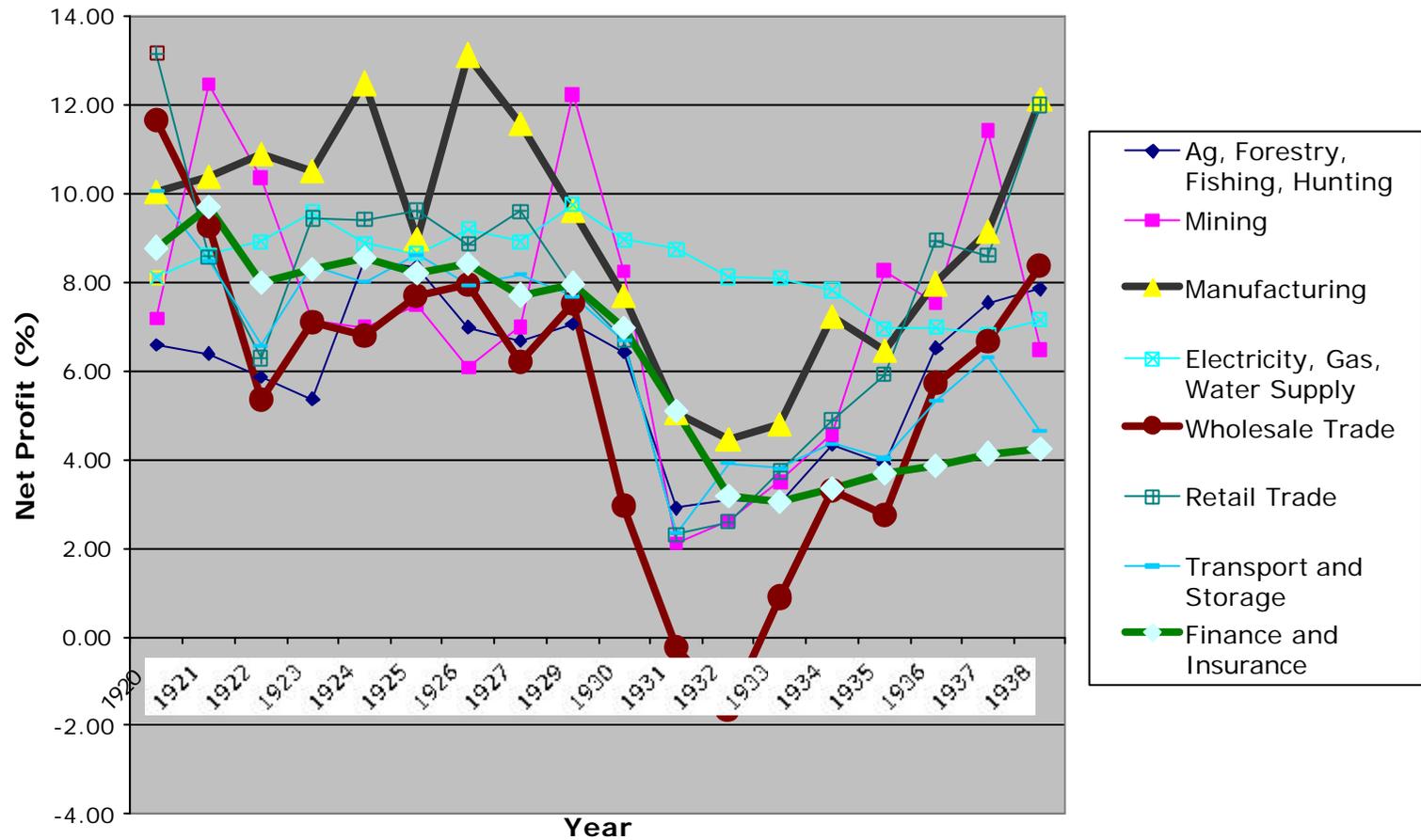


Chart 5: Total shareholder funds distributed by main ANZSIC, 1920-38

