Business History

ISSN: 0007-6791 (Print) 1743-7938 (Online) Journal homepage: http://www.tandfonline.com/loi/fbsh20

British Manufacturing Financial Performance, 1950-79: Implications for the Productivity Debate and the Post-War Consensus

David M. Higgins

To cite this article: David M. Higgins (2003) British Manufacturing Financial Performance, 1950-79: Implications for the Productivity Debate and the Post-War Consensus, Business History, 45:3, 52-71, DOI: 10.1080/713999322

To link to this article: https://doi.org/10.1080/713999322

British Manufacturing Financial Performance, 1950–79: Implications for the Productivity Debate and the Post-War Consensus

DAVID M. HIGGINS
University of Sheffield

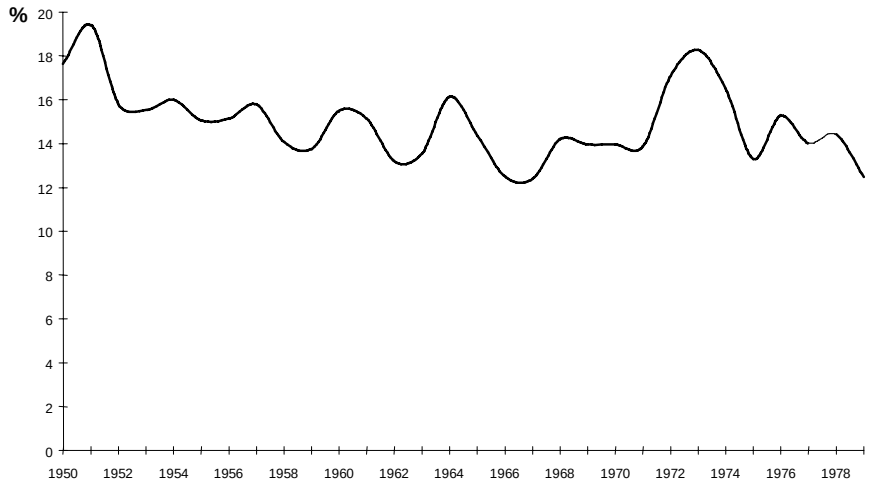
The performance of the British manufacturing sector in the post-1945 period has been heavily criticised. Apart from a brief post-war boom, in 1945–52, when domestic manufacturing firms enjoyed a sellers' market, a number of studies have shown the performance of this sector in a poor light, especially when comparisons with Europe and North America are made. Perhaps most damning of all has been the evidence on rates of growth of labour productivity and shares of world trade in manufactures.[1] If we consider a sample of Britain's major European competitors first (Germany, France, Netherlands, Sweden, and Italy), the latest evidence shows that whereas these had an average labour productivity of just 90.6 per cent of the UK average in 1950, by 1980 their average performance exceeded that of the UK by just under 40 per cent.[2] If we turn to trading performance, the picture is equally bleak. Between 1950 and 1980, Britain's share of world exports of manufactures declined from 25.5 per cent to 10.2 per cent,[3] and between 1955 and 1980 import penetration in the manufacturing sector increased from eight to 30 per cent.[4]

However, analysis of financial performance during this period presents a very different picture. Despite the problems identified above, the evidence suggests that the profitability (ROCE)[5] of British manufacturing held up very well. In fact, at no time during the period 1950–79 did the average rate of return for this sector fall below ten per cent (Figure 1). In addition, and possibly more intriguing, is the fact that the rates of return achieved by Britain's biggest companies appear to have been consistently above those of its major European counterparts, France and Germany.[6]

With the exception of a few studies, the long-run profitability of the manufacturing sector has been comparatively neglected. In addition, such studies as do exist appear to have appealed more strongly to an economics rather than a business/economic history audience.[7] Furthermore, and again with one or two notable exceptions, where studies have been made of profitability, they have tended to concentrate on the performance of the manufacturing sector as a whole rather than examining differences between industries within the sector.[8] Finally, for the most part, existing studies of financial performance appear to have made little impression on current debates on British manufacturing performance during the post-1945 period.

Business History, Vol.45, No.3 (July 2003), pp.52–71
PUBLISHED BY FRANK CASS, LONDON

FIGURE 1
ROCE IN BRITISH MANUFACTURING, 1950–79



This article attempts to redress this imbalance. Apart from its obvious intrinsic value, we believe that analysis of the financial performance of British manufacturing has some very useful insights to offer. First, there is the issue of convergence in ROCE between the various industries which comprise the manufacturing sector (inter-industry variation). Second, and related to the above, is the speed with which the ROCE of firms converged to the mean ROCE of their particular industry (intra-industry variation). Both of these issues have potentially considerable significance for the current debates on the harmful effects of the post-war consensus. However, as we detail later, we cannot assume that both of these convergence measures necessarily provide a clear indication of the efficacy of institutions allocating resources to their best uses in response to profit signals. To the extent that the macro-policy framework in the late 1940s and 1950s impeded competitive forces, the smaller was the opportunity for differences in ROCE to signal the re-allocation of resources between industries in the manufacturing sector. The implication of this was not only that such a policy framework may have impeded long-run growth in productivity, but it may also have interfered with the profit signals necessary to generate this growth. However, if we adopt a resource-based view (RBV) of the firm, differences in ROCE between firms were inevitable, and did not necessarily depend on inefficiencies in the market-signal, resource-allocation process.

It should be clear, therefore, that this article is not concerned with why some firms or industries, or sectors of the economy, achieved different rates of ROCE during this period. In other words, this article does not present econometric evidence to explain differences in ROCE, either between industries or between firms. These issues are, and remain, a key area of research in the fields of industrial economics, and business and economic history. It should also be

emphasised at this point that we are not especially concerned with the ROCE in manufacturing as a whole. As we indicate,[9] there is a substantial debate on potential measurement errors and definitional issues in this area. Instead, our primary concern is with the speed and the extent to which these differences in ROCE were eroded. In other words, as we detail in the next section, we are concerned with the extent to which the economy's institutions were operating efficiently and the implications of this for explanations of inter-industry and intra-industry differences in ROCE.

This article is organised as follows. Section II discusses the role of market signals, reflected by ROCE, as a key force driving the allocation of resources. Section III assesses the current debate on the role of the post-war consensus and its allegedly detrimental effects on the long-run growth performance of the British economy. Particular emphasis is placed upon the distinction between inter-industry and intra-industry differences in ROCE. This distinction is important because there are strong grounds for believing that while ROCE signals may be appropriate for signalling the allocation of resources between industries, they may be inappropriate – even irrelevant – for determining the allocation of resources between firms. Section IV outlines the sample we are using and discusses the accounting issues raised by our choice of measure. Section V discusses the statistical evidence which emerges from the analysis of differences in ROCE between firms and between industries in the manufacturing sector. General conclusions are presented in section VI.

II

A well established proposition in the neo-classical analysis of industrial economics is that competition is desirable. At its most general level, there is the well known result that a competitive economy generates an 'efficient' allocation of resources.[10] In the case of a competitive economy, if all industries are competitive, then, *ceterus paribus*, long-run differences in ROCE between industries would provide a signal for inter-industry transfer of resources. Of course, at any point in time there may exist substantial inter-industry differences in profitability. These differences can be attributed to industry-specific effects, such as differences in the level of demand, technological progress, and the level of import penetration. However, in the long run, we would expect the process of competition to exercise a restraining influence on any tendency for the ROCE of individual industries to diverge markedly from the average ROCE in the manufacturing sector. Indeed, eventually we should expect the ROCE of individual industries to converge towards the average. In addition, of course, to the extent that industry-specific factors operate in a random way, there is no reason to believe that an industry which benefits from above average ROCE in one period will benefit in the next.

We recognise, of course, that only in the idealised world of a perfectly competitive economy would all industries achieve identical ROCE in the long

run. The presence of monopolies, barriers to entry (in all their forms), and product differentiation, represent considerable obstacles to the efficient allocation of resources between industries. However, as detailed in section III of this article, during the post-1945 period successive governments gave at least tacit approval to the presence of restrictive practices in factor and output markets. These restrictive practices operated in addition to other imperfections, such as barriers to entry, which impeded the efficient allocation of resources between industries.

While the preceding analysis has been used extensively to examine differences in the degree of competition between industries, can it also be applied to differences between firms? The initial response might be: yes. For a given industry it is possible that, initially, there may be substantial differences in ROCE between firms. These differences can be attributed to firm-specific factors: for example, differences in the quality of management, or labour skills, or product novelty. However, the process of competition should mean that, in the long run, resources are free to search out their highest returns. Over time, therefore, the consequence should be that the ROCE achieved by firms in a given industry should begin to equalise, or converge, with only small deviations from the industry mean.[11]

However, an alternative perspective, the RBV of the firm,[12] suggests the above mechanism will not work. According to this view, a distinction needs to be drawn between analyses which rely upon the transfer of resources between industries and analyses which focus upon the transfer of resources between firms. The RBV of the firm argues that each firm in a given industry will have different resources, and this means that firms in a given industry will be heterogenous rather than homogenous.[13] These firm-level resources include all types of tangible and intangible assets, for example, physical and human capital, intellectual property rights, together with organisational processes, information and other firm attributes, which allow some firms to achieve above industry average ROCE.[14] However, because these resources are neither perfectly mobile[15] nor perfectly imitable,[16] firm heterogeneity can be long-lasting. The consequence of long run heterogeneity is that competition between firms will not lead to convergence in ROCE within an industry: some firms will continue to enjoy a sustained competitive advantage and above average ROCE, even in the long term. A variety of factors have been identified to explain why firm heterogeneity persists. These include, for example, buyer switching costs, property rights to scarce resources, information asymmetries, sunk costs, and the extent to which the management of one firm can identify with certainty the reasons why rival firms have superior performance.[17]

The preceding discussion has shown that a very clear distinction needs to be made between inter-industry and intra-industry resource transfers in response to ROCE signals. Consider, first, the issue of inter-industry resource transfers. At any point in time, even with re-allocation of resources between industries, a dynamic economy will always exhibit some degree of dispersion in ROCE

between industries (for example, industry-specific demand and supply-side shocks). However, through time, in a competitive economy, we should expect to observe some convergence. If convergence is not occurring, then there must exist some constraining forces such as, for example, restrictive practices or collusive behaviour, which limit the transfer of resources between industries. In these circumstances, there is a case for government intervention to remove these constraints. This interpretation of inter-industry resource transfers is, essentially, neoclassical.

However, when analysing intra-industry differences in ROCE, a different perspective is required. In the RBV of the firm, convergence in ROCE between firms is not guaranteed and, in fact, is unlikely to occur. This is because not all firms are able to emulate the superior performance of rival firms. The factors which cause some firms to perform better than others are specific to those firms and cannot be transferred. In this view, differences in ROCE between firms are giving accurate signals that some firms are performing better than others; the causes of this are not deliberate restrictions on resource transfers between firms, but simply that there exist intrinsic differences between firms and it is these which drive differences in ROCE. According to the RBV of the firm, the need for government intervention to generate convergence in ROCE between firms is entirely inappropriate.

In the light of the previous discussion, an analysis of convergence in ROCE has an important role to play in the debate on post-war performance. The speed with which the ROCE converged between industries can provide an indicator of the strength of the economy's institutions in re-allocating resources to their most efficient employment. However, it is much less certain that we should expect convergence in ROCE between firms. Nonetheless, the role of the constraining influence of post-war institutions has come to occupy a central place in the debates on the long-term performance of the British economy, and it is to this we now turn.

III

A considerable literature has emerged on the economic problems confronting successive British governments during the post-1945 period.[18] It has been clearly established that the economic problems facing British governments, especially in the 1940s and 1950s, were exceptionally severe. One issue that has provoked considerable debate is the extent to which government economic policy, especially during the later 1940s and the 1950s, sacrificed long-term economic growth for short-term objectives.

The major proponents of this view have been Broadberry and Crafts (hereafter, BC). In a series of articles they have advanced the view that the policy environment confronting governments militated against productivity improvements.[19] The BC argument is that, due to a variety of factors (which we review below), the key reason why Britain's productivity performance was so

poor relative to Britain's major competitors was that, at a general level, the British economy was inefficient. For them, 'The underlying reasons for Britain's relative economic decline in our account was to be found in market failure'.[20] Extending their analysis to the improvement in Britain's performance during the 1980s led to the conclusion that it was the vigorous fostering of competitive forces and the market mechanism by the Thatcher government which were responsible: 'The productivity surge of the 1980s appears to have come primarily from more efficient use of existing factors of production and in effect to have been based on a shakeout of inefficiencies which had accumulated in the earlier decades.'[21]

Comparing the 1930s with the post-1945 period, BC were struck by two aspects of the market environment, which, they believe, were central to the explanation of why British productivity growth was comparatively poor in converging upon American levels. These were the operation of restrictive practices in the labour (input) market and, simultaneously, the operation of collusive practices, especially price maintenance schemes, in product (output) markets. These two forces were to act 'as serious obstacles to productivity improvement'.[22]

Turning to the labour market, the BC argument has two main components: first, the predictions of bargaining models and, second, the consequences of government policy. Each of these will be considered in turn.

In their analysis of the operation of labour markets in post-1945 Britain, BC use the predictions of bargaining models to explain why productivity improvement was not as rapid as it might have been. Their argument has a number of aspects. First, one of the key targets of economic policy was to maintain high levels of employment. This, it is alleged, increased the bargaining power of trade unions, lowered the costs to firms of accepting restrictive practices and generally led to bargaining outcomes characterised by low effort and over-manning. Compounding matters was the fact that the prevalence of multi-unionism meant it was impossible for individual firms to change the structure of industrial relations which confronted them.

The only feasible way by which industrial relations could have been altered required direct government intervention. But here, too, institutions constrained manoeuvrability. According to BC, the decade to 1955 was characterised by a 'social contract' between the trade unions and successive governments. During the Second World War, the status and position of the trade union movement was transformed to such an extent that they became heavily involved in many matters of government policy during the War.[23] This influence extended into the post-war period and, by 1948, the unions were represented on over 60 government committees as well as being heavily involved in the sponsorship of labour MPs.[24]

Restrictions in the operation of the labour market were mirrored in output markets. Again, as with the labour market, there are a number of aspects to the BC argument. The execution of the Second World War required a substantial increase in direct government control of raw materials and output which was aided by a large range of formal and informal trade association groupings. By

1943, there were 2,500 trade associations, compared with 500 in 1919.[25] These associations and their controls continued into the post-1945 period. For example, by 1951, 54 per cent of imports and 41 per cent of industrial raw materials were controlled, and 40 per cent of consumer spending was on price-controlled items.[26] However, these trade associations had considerable vested interests in preserving their existence and this posed a fundamental dilemma for early post-war governments. According to Mercer, the problem was 'how to combat restrictive practices, seen as wholly incompatible with an expansionist post-war economy, without alienating those same trade associations whose co-operation was needed to administer controls and co-ordinate export drives'.[27]

Closely related to the existence of trade associations was the prevalence of restrictive practices and price collusion in British industry. These practices were inherited from the inter-war years. It has been estimated that known cartel agreements covered 29.4 per cent of gross output.[28] In many key manufacturing sectors, such as shipbuilding, blast furnaces, cement, building materials, glass, textile finishing, iron and steel smelting, the percentage of output which was cartelised was in excess of 80 per cent.[29] These practices continued into the post-1945 era. Although there is some debate about the extent to which cartels and other types of price fixing permeated manufacturing in the 1950s, it was nonetheless substantial. One estimate, for example, suggests that, in 1956, 50–60 per cent of manufacturing output was affected by restrictive agreements and, of these, over 80 per cent contained clauses aimed at maintaining industry price structures and levels.[30] More recent estimates indicate that in 1958 only 27.4 per cent of value-added in manufacturing was in sectors that were completely free of price-fixing behaviour.[31]

The consequences of these agreements have been clearly established in the economics and economic history literature: they kept prices higher than would otherwise have been the case; they inhibited the transfer of resources to the most efficient producers,[32] and they restricted the exit of inefficient producers.[33] What is suggested by the BC argument, therefore, is that in many key respects the restricted competitive environment of the 1940s and 1950s was directly inherited from the 1930s.

The BC argument has not gone without challenge. Concerns have, for example, been expressed about the extent and severity of collusion and restrictive practices, and the bargaining power of the trade unions.[34] However, the debate appears to be one of emphasis rather than substance and, in any case, there is always the counterfactual argument that less restrictive practices, in labour and product markets, would have yielded better productivity outcomes.[35] In addition, it might also be objected that BC overstate their case that 'gradualism implied that opportunities to increase competitive pressures on managers of British firms were foregone – there would be no Thatcher shock'.[36] This is most clearly demonstrated when we recall the substantial rise in import penetration of the British domestic market: between 1951 and 1964, for example, manufactures as a share of total imports nearly doubled, and between 1955 and

1969 the import penetration ratio for manufacturing doubled.[37] Of course, the precise period over which the consensus existed will impinge upon the relevance of these figures but, nonetheless, it is hard to believe that growing import penetration had no effect on managerial motivation during the 1950s and 1960s. It should be apparent from the previous discussion that the BC argument focuses upon factors which prevented or hindered the re-allocation of resources between industries. If the BC interpretation is accurate, we should expect to observe little, if any, change in the levels of inter-industry variation in ROCE. However, if we are concerned with intra-industry differences in ROCE, the RBV view perspective suggests that the BC argument will have much less applicability. If we observe constant levels of variation in ROCE between firms in a particular industry we cannot assume this supports BC. In fact, according to the RBV of the firm, persistency in intra-industry variation in ROCE would be evidence that some firms were successful in maintaining their competitive advantage.

IV

Data on profitability were calculated from Cambridge University's Companies Database (CUCD). In this article, profitability is defined as accounting rate of return (ROCE) on total capital employed. The ROCE is defined as the pre-tax rate of return on net assets. As far as the manufacturing sector is concerned, companies were divided into 15 broad classifications: bricks, chemicals, clothing, construction, drink, electrical engineering, non-electrical engineering, food, metal manufacture, other manufacturing (not elsewhere specified), paper, shipbuilding, timber, transport and vehicles. The ROCE for all firms in each industry was calculated (irrespective of the duration of the data), and then mean rates of return for each industry were calculated. In effect, therefore, the sample being used is unbalanced: there is not an equal number of firms in each industry and nor is profitability available for each firm for the entire period, 1950–79. These matters aside, the total number of companies and the total number of company years in the sample is very large: the sample contains in excess of 2,400 companies, which translates into 39,165 company years.[38]

The use of accounting data raises a number of methodological issues and some potentially important caveats when interpreting the results. Two sets of concerns can be identified. The first concerns the weight to be attached to ROCE signals in the allocation of resources and the second requires an appreciation of the potential limitations of accounting data. Each concern is addressed below.

It is well known that a degree of tension has always existed in the business history literature between ROCE and other performance yardsticks. For example, high rates of ROCE may be generated in the short term on technically obsolete equipment because no provision has been made for investment in modern plant which is necessary for long-run productivity growth. Recent work on the Lancashire cotton textile industry, for example, has indicated that the very high rates of ROCE achieved between 1945 and 1952 were not sufficient to generate

greater investment in modern equipment.[39] A further objection against the use of ROCE is that it might not always be the most appropriate measure to estimate the efficiency gains forgone by collusive activity. For example, if cartel activity involves holding spare capacity, these assets would have no current impact on prices and output in a particular market. The use of ROCE would fail, therefore, to capture the wider (allocative) efficiency losses that cartels might impose.

Finally, concerns have also been raised that, when using financial ratios such as ROCE, it is important to place these in a dynamic rather than a static context. This is because current ROCE signals are based on current markets, products and technologies.[40] The fact that profits are higher in one industry today does not guarantee they will be higher tomorrow. In other words, uncertainty about future profit differentials will also tend to limit the immediate re-allocation of resources between industries, especially when sunk costs are involved. In view of this, there can be no guarantee that resources will flow between industries in response to minor and/or short-term profit differentials. It is for this reason that the present study covers such a relatively large time span.

Nonetheless, the importance of profits, if not profit maximisation,[41] has been well established in the business history literature. Chandler, for example, referring to the emergence and growth of the modern industrial enterprise, noted that competition for profits was one of the central driving forces. But, in order to compete successfully, significant changes were required in the functional and strategic effectiveness of the enterprise, and it was these changes which determined the character of the modern industrial corporation.[42] More recently, and with a particular European focus, Cassis has been at the forefront in arguing that a comparative analysis of profits and ROCE between Britain's biggest firms and those in France and Germany casts doubt on the assumption of British 'decline'. For Cassis, the central question is: 'Why has British big business consistently been more profitable than its German and French competitors?'[43] Referring to the incongruity between the general performance of the British economy and the relative superiority of its biggest businesses, Cassis commented: 'The success of British big business is more to difficult to reconcile with Britain's economic performance after the Second World War, with growth rates much lower than in France and Germany until the 1980s.'[44]

Turning to the second set of concerns, one objection to the use of ROCE in empirical work is that they are unrelated to underlying economic profit or internal rates of return (IRRs).[45] Indeed, some have argued that cash recovery rates form a better proxy for economic performance.[46] Distortion may also arise from the impact of inflation on the revenue streams and asset bases that determine the ROCE. In addition, the selection of accounting policies by management, for example depreciation charges, will also lead to divergence from the IRR, especially where asset growth rates differ.[47]

In the light of these potential difficulties, when interpreting prior studies and specifying new empirical tests, reliance on historic cost-based ROCE needs to

reflect a number of considerations. One is the extent to which ROCE is used by the decision-makers whose behaviour is being analysed. The ROCE remains, as Whittington suggests, 'the rule of thumb to which decision makers cling', partly because it remains the only practical proxy.[48] Second, even if ROCE does not proxy accurately for IRR, in comparative analysis it is sufficient only that the two measures are correlated.[49] A specific cause of variation in ROCE identified in prior studies is industry membership. It is appropriate, therefore, to group firms, as in this study, by industry.[50] Finally, the likelihood of measurement error in ROCE is mitigated as the length of time of measurement increases,[51] and the present study uses a relatively long time period of profit data for the constituent companies.

V

Previous studies on the issue of convergence have employed a basic linear regression equation of the form:

$$\prod_{i,t} = a + b\prod_{i,t-1} + \varepsilon$$

where the dependent variable, $\Pi_{i,t}$ is the ROCE for a particular industry over a given time period, and the independent variable, $\Pi_{i,t-1}$ is the ROCE for the same industry during a previous period. Previous studies, which have focused on the period 1948–60, indicate that there was a decline in the persistency of inter-industry ROCE.[52]

The analysis adopted in this article differs from previous studies in that we adopt a much longer time perspective. The justification for this is twofold. First, some inter-industry differences in ROCE will reflect the fact that some industries were enjoying buoyant demand conditions while others were not. Clearly, therefore, the longer the time period adopted, the greater the opportunity for these inter-industry differences to even out. Second, insofar as greater efforts were made to make the economy more competitive in the 1960s and 1970s, especially in output markets, it is necessary that the period we propose to examine stretches into the late 1970s.

Examination of the entire period 1950–79 means, however, that adoption of regression analysis may be inappropriate. One reason for this is that we do not use a consistent sample of survivor companies – that is, those for which ROCE can be calculated for the entire period 1950–79. Second, even if this were possible, by using unbalanced panel estimators, this would greatly complicate the econometric issues involved. We propose, therefore, to use an alternative measure, the coefficient of variation (CV). Unlike the standard deviation, the CV is a measure of relative dispersion which takes into account the fact that the mean ROCE of the various manufacturing industries differ. The closer the CV lies to zero, the less the data vary around the mean; the nearer the CV is to one, the more the data vary around the mean.[53] In other words, if the economic environment was becoming more competitive after the 1950s, we should expect that the CV would decline towards zero.[54]

Our analysis begins by first of all ranking each industry by the extent to which its mean ROCE exceeded the mean ROCE for all manufacturing industry in each of the three periods 1950–59, 1960–69 and 1970–79. These results are shown in Table 1, from which a number of observations can be made. First, if we focus on the period 1950–79, the difference in ROCE between the most profitable industry and the mean for all manufacturing industry has declined from 28 to 20 to 18.6 per cent.[55] During the same period, the difference in ROCE between the worst performing industry and the mean for all manufacturing industry has been less clear-cut. In 1950–59 and 1960–69 the difference in ROCE between the worst performing industry and the manufacturing mean actually increased from 33 to 86 per cent. However, during the period 1970–79, this gap was closed to 40 per cent. Viewed from another perspective, although the gap in ROCE between the best and worst performing industries increased from 0.61 to 1.06 percentage points, 1950–69, between 1970 and 1979 it fell substantially to just 0.58 percentage points.

To examine these differences more accurately, we computed the CV in ROCE for each year, 1950–79. The results are presented in Table 2, from which it is clear that there was very little change in the CV in ROCE between 1950 and 1979. Examination of the CV for each five-year sub-period indicates that it was very close to its value for the entire period, 1950–79. This result does appear to provide support for the BC thesis. In other words, as far as the manufacturing sector was concerned, the variation in ROCE between industries which existed in 1950 was largely intact by the end of the 1970s.

TABLE 1
RANKING OF INDUSTRIES BY ROCE, 1950–79

Industry Rank	1950–59	Industry Rank	1960–69	Industry Rank	1970–79
1. Elect. Eng.	1.28	1. Elect. Eng.	1.2	1. Timber, etc.	1.186
2. Engineering	1.27	2. Clothing etc.	1.15	2. Clothing, etc.	1.184
3. Construction	1.19	3. Construction	1.1263	3. Elect. Eng.	1.16
4. Metals	1.18	4. Chemicals	1.1261	4. Chemicals	1.12
5. Vehicles	1.1	5. Tobacco	1.09	5. Tobacco	1.1
6. Food	1.06	6. Food	1.08	6. Drink	1.06
7. Other Mfg.	1.05	7. Metals	1.08	7. Construction	1.05
8. Bricks	1.0	8. Other Mfg.	1.06	8. Bricks, etc.	1.01
9. Paper, etc.	0.99	9. Bricks	1.05	9. Paper, etc.	1.00
10. Shipbuilding	0.97	10. Engineering	1.05	10. Food	0.99
11. Chemicals	0.92	11. Paper	1.02	11. Metals	0.98
12. Clothing, etc.	0.8	12. Drink	0.98	12. Engineering	0.95
13. Timber	0.75	13. Timber	0.94	13. Other Mfg.	0.94
14. Drink	0.74	14. Vehicles	0.89	14. Vehicles	0.64
15. Tobacco	0.67	15. Shipbuilding	0.14	15. Shipbuilding	0.6

Note: Calculated by dividing the profitability of each industry by the average profitability for all manufacturing industries for each year and then calculating the rank for each industry for each sub-period.

Source: Calculated from CUCD.

TABLE 2
COEFFICIENT OF VARIATION IN ROCE BETWEEN BRITISH MANUFACTURING INDUSTRIES, 1950–79

Period	CV
1950–54	0.26
1955–59	0.25
1960–64	0.27
1965–69	0.29
1970–74	0.3
1975–79	0.27
1950–79	0.27

Note: Calculated as follows. The CV in ROCE between each industry was calculated for each year, before taking the average value for each sub-period.

Source: As in Table 1.

However, before accepting this conclusion in its entirety, two observations need to be made which have important implications for the debate on the post-war consensus. These are that during the post-1945 period the multi-divisional ('M' form) of business organisation became increasingly important in the UK and, second, there was a growing effort through legislative measures to remove some of the worst aspects of price fixing and other collusive practices.

After a hesitant start during the inter-war years, the 'M' form was rapidly adopted throughout British manufacturing in the post-1945 period. By 1970, 72 of the UK's top 100 companies had adopted the 'M' form.[56] During the same period, aggregate concentration, the share of the largest 100 firms in manufacturing net output, also increased rapidly, from 22 per cent in 1949, to approximately 40 per cent in 1970.[57]

The growing importance of the 'M' form within UK manufacturing appears incongruous with our results that there was little change in the CV of ROCE for all manufacturing industry. The explanation for this is that one of the key advantages claimed for the 'M' form is that its internal mechanisms supplant external mechanisms for resource transfer, and play down the role of the invisible hand and the market mechanism. In effect, the growth of the 'M' form can be seen as evidence of market failure because its growth represents a more efficient way of co-ordinating activity.[58] Consequently, as the 'M' form became more pronounced in UK manufacturing, we should expect that the pace of convergence in inter-industry ROCE would have accelerated.[59] However, no such trend is apparent (see Table 2). The implication of this would appear to be that, perhaps, too much emphasis has been placed on the 'M' form as a determinant of industrial success, at least in a British context.[60]

The second observation we wish to make is that the absence of any significant change in the CV in ROCE, especially during the 1950s and 1960s, also appears to sit uneasily with the legislative efforts to combat price fixing, and other aspects of collusive behaviour. The formation of the Monopolies and

Restrictive Practices Commission (1948), and the Restrictive Practices Court (1956), were attempts to investigate whether monopolisation and restrictive practices were in the 'public interest'.

Evidence from the operation of both these bodies indicates that they had a generally positive effect on promoting competition during the period with which we are concerned. For example, the Monopolies and Restrictive Practices Commission was particularly interested in the extent to which an effective transfer mechanism operated to ensure that efficient firms grew at the expense of the inefficient. As we have already indicated, price competition is one of the classic ways by which this transfer is effected. In a number of cases, the Commission noted that no cost information was used to determine the collusive price, with the twofold consequence that many participating firms made no effort to improve their internal efficiency (because there was no comparative date), while the absence of competitive pressure meant there was no means of eliminating high-cost capacity (by under-cutting the less efficient firms).[61] Overall, in 13 out of 17 cases, the Commission condemned the operation of cartels and collective price fixing, and these had to be abandoned.[62] The operation of the Restrictive Practices Court also appears to have had a similar effect: a substantial majority of registered agreements were abandoned by 1966.[63]

However, simultaneously with this legislative onslaught, there were substantial changes occurring in industrial concentration. Table 3 shows the change in the share of output in each industry accounted for by the five largest firms (the five firm concentration ratio, CR5). For many industries, mergers and acquisitions were the key determinants of increasing industrial concentration during the 1960s. For example, in the drink industry, the formation of Ind Coope Tetley Ansell Ltd, in 1961; in the cotton textile industry, Courtaulds acquired both the Lancashire Cotton Corporation and Fine Spinners & Doublers, in 1964; in the vehicle industry, British Leyland was formed in 1968 by the merger of British Motor Holdings and the Leyland Motor Co. and, finally, concentration in the electrical engineering industry was accelerated by the acquisition by GEC of AEI and English Electric in 1967 and 1968 respectively. Comparing Table 1 with Table 3, it is apparent that in ten out of 15 of the manufacturing industries in our sample, at least 50 per cent of the change in concentration was due to mergers and acquisitions, and in four of these cases, where the change in concentration due to merger was greater than 100, concentration would have declined in the absence of mergers.

The significance of this growing industrial concentration was that it might have been the case that it negated many of the hoped for benefits of growing price competition emanating from the investigations of the Monopolies and Restrictive Practices Commission and the Restrictive Practices Court. This view was most clearly expressed by Elliot and Gribbin:

> Looking back to the early 1950s when between 50 and 60 per cent of manufacturing output was regulated by cartels, and the authoritative judgements of the Monopolies Commission began to reveal their adverse

TABLE 3
FIVE FIRM CONCENTRATION RATIOS FOR SELECTED MANUFACTURING INDUSTRIES, 1957–69

	CR5 (1957)	CR5 (1969)	% change due to merger
Chemicals	71.0	73.7	130
Clothing/shoes	63.8	78.4	50
Drink	32.7	69.5	98
Elect. Eng.	47.2	68.0	57
Food	41.3	52.7	75
Metal Mfg	45.7	59.5	132
Paper/publish	47.5	63.2	112
Shipbuilding	62.1	74.2	73
Tobacco	96.5	100.0	100
Vehicles	50.4	71.0	125

Source: L. Hannah, *The Rise of the Corporate Economy* (London, 2nd edn. 1983), p.144.

> consequences ... it seems inevitable that concentration should have increased as a consequence. However, in a number of industries the opportunity for growth was used to acquire competitors by merger thus substituting a structural change for a former cartel without altering the degree of competition … It is possible that mergers, while being an important instrument of rapid structural change in the cartelised industries may, on balance, have not brought about the efficiency gains which ought to have followed abolition.[64]

TABLE 4
MOVEMENTS IN COEFFICIENT OF VARIATION WITHIN 15 MANUFACTURING INDUSTRIES, 1950–79

Industry	1950–59	1960–69	1970–79
1. Bricks	0.61	0.59	0.53
2. Chemicals	0.95	0.86	1.44
3. Clothing	2.97	0.87	0.82
4. Construction	0.76	0.87	1.25
5. Drink	0.52	0.45	0.43
6. Elect. Eng.	0.7	0.72	1.00
7. Engineering	0.61	1.47	0.87
8. Food	0.73	0.63	0.79
9. Metals	0.82	0.68	0.69
10. Other Mfg.	0.73	0.77	3.05
11. Paper	0.85	0.78	1.63
12. Shipbuilding	0.47	13.8	2.23
13. Timber	5.2	1.32	0.99
14. Tobacco	1.4	0.39	0.50
15. Vehicles	0.74	1.41	6.31

Note: Calculated as follows. The CV in ROCE between firms in each industry was calculated for each year before taking the average value for each sub-period.

Source: As in Table 1.

The issue we wish to address now is what was happening to intra-industry variation in ROCE during this period? We have already indicated that the factors affecting inter-industry variation in ROCE may have little, if any, relation to intra-industry variation. We need not expect, then, that changes in the CV in ROCE between industries would be mirrored by that between firms. As in the preceding analysis, we computed the CV in ROCE within each industry for each of the three periods, 1950–59, 1960–69, and 1970–79. These results are presented in Table 4.

A number of trends are apparent from Table 4. First, only four industries – bricks, clothing, drink and timber – experienced a continuous decline in intra-industry variation in ROCE for each of the periods, 1950–59, 1960–69, and 1970–79, although in only two of these industries, clothing and timber, was the decline in CV substantial. Second, a bigger group of industries experienced a decline in intra-industry variation in ROCE for the two sub-periods, 1950–59 and 1960–69. These industries were chemicals, food, metals, paper, timber and tobacco. However, referring to this second group, two points need to be borne in mind. First, in five of these six industries, the CV in ROCE increased in the later period, 1970–79. The second point is that, with the exception of the timber and tobacco industries, the decline in the CV between 1950–59 and 1960–69 was not substantial. Finally, four manufacturing industries – construction, electrical engineering, other manufacturing, and vehicles – witnessed an increase in the CV in ROCE over all the three periods.

Comparing Table 2 with Table 4, it is clear that the variation in ROCE between firms was much greater and more sustained than that between industries.[65] These results are not, however, mutually incompatible: we have already indicated that the factors driving inter-industry variation in ROCE will differ from those driving intra-industry variation. What is suggested by the previous analysis is that to the extent the BC view of the post-war consensus is correct, resource misallocation would have applied only at the industry level. Differences in ROCE between firms do not appear to have been determined by the structural characteristics of their industries (that is, the trends in inter-industry variation in ROCE bear little relation to the those in intra-industry variation), and the restraining influence of the post-war consensus does not appear to have had any bearing on intra-industry variation in ROCE. Some of the wider implications of these results are discussed below.

VI

We took as our starting point the idea that the efficiency of an economy's institutions are central to the re-allocation of resources between industries. We argued that the efficiency with which this re-allocation was effected should be reflected by the convergence of ROCE. However, we have also indicated that, when a RBV of the firm is adopted, the belief that competition will lead to convergence in ROCE between firms may be mistaken. On the basis of the evidence presented in this article, a number of conclusions suggest themselves.

First, as far as inter-industry differences in ROCE are concerned, there is general support for the BC thesis. To the extent that the immediate post-war years were characterised by (at least) implicit government support for restrictive practices in labour markets and product markets, we would expect little change in the variation of ROCE between industries. Our findings are supportive of this hypothesis. Broadly speaking, it appears that the economy's institutions and the general economy-wide framework were not particularly efficient in allocating resources to the most profitable industries. However, in drawing this conclusion, two caveats need to be borne in mind.

To begin with, in a dynamic economy, very high levels of convergence in ROCE between industries may be difficult to achieve because demand and supply conditions facing each industry are both unstable and unpredictable. Viewed from this perspective, some variation between industries in their ROCE is inevitable. In this context, it is significant that a recent study of a wide range of industries (both manufacturing and services) found substantial inter-industry differences in ROCE, almost 20 years after the 'Thatcher revolution'.[66] Nonetheless, the BC argument raises the intriguing question: would inter-industry variation in ROCE have been smaller if there had been no restrictions in product and output markets? Unfortunately, there is no empirical way of testing this counterfactual. From a theoretical perspective, the BC argument makes sense if we believe that competition and market signals are the best way to re-allocate resources. However, given that impediments to inter-industry resource allocation could equally have existed independently of the post-war consensus, the suspicion remains that BC may have overstated their case. Indeed, to the extent that the existence of such a consensus has been overstated, the possibility exists that an even bigger part of the explanation for the observed trends in inter-industry variation in ROCE was due simply to the normal workings of a competitive economy, although one which was operating under severe external pressures.[67]

The second caveat is particularly relevant to the discussion on intra-industry variations in ROCE which, as was observed, were much greater than those of inter-industry variation. According to the RBV of the firm, intra-industry variation in ROCE would have existed independently of any post-war consensus. This is because the sources of competitive advantage are intrinsic to each firm. This raises another set of doubts about the efficacy of market signals and competitive forces. Specifically, if competition is perceived to be good for re-allocating resources between industries, why does this not apply to firms? In other words, what implications follow if the allegedly beneficial effects of competition break down as we move from a macro-industry based perspective on performance to a more micro-firm level perspective? Resolution of this conflict appears to lie in the observation that reliance on ROCE signals for resource allocation is more effective when the unit of analysis is the industry, not the firm.[68] Put bluntly, in the RBV view, firms are not simply 'black boxes'. The implication of this appears to be that the arguments set out by BC need now to

be extended to the micro-level to ascertain why some firms, even when confronted with an ostensibly similar macro-industrial environment, did better than other firms.

Recently, a considerable literature has emerged on the negative effects of collusive activity on innovation. The broad policy implications of this literature suggest there is little, if anything, to support the Schumpeterian analysis that monopolies are conducive to innovation.[69] In addition, though, it has also been suggested that other economic factors, specifically shareholder pressure and other forms of financial market pressure, can be substituted for market competition.[70] This article offers a further perspective on these debates. The view advanced here is that to the extent restrictive practices in post-war Britain impeded economic growth, they did so by restricting the transfer of resources between industries, not firms.

We believe this article indicates the vital necessity of further work being undertaken to examine the importance of 'bottom-line' measures, such as ROCE, in driving business attitudes and strategies during the post-1945 period. Such a framework has been both advocated and employed by Cassis, with considerable success.[71] In particular, the need to assess the significance of ROCE signals determining business strategies in a post-1945 context, needs to be emphasised.

NOTES

A version of this article was presented at the Business History Conference, Portsmouth, 2001. My thanks to those who made comments, especially Alan Booth, Neil Rollings and Mike Rowlinson. Particular thanks are due to Steve Toms for generating the data on ROCE, and Nick Crafts for bringing me up to speed with the relevant economics literature. This article has benefited from especially useful referees' reports, and I am grateful for the support of the editors. The usual disclaimer applies.

1. These measures are often taken as key indicators of relatively poor British economic performance during this period. However, no causality is implied. For example, there is no guarantee that rising labour productivity *per se* would generate improved international competitiveness (our major competitors might, for example, be enjoying even higher rates of growth of labour productivity). I am grateful to a referee for this observation.
2. Calculated from S. Broadberry, *The Productivity Race: British Manufacturing in International Perspective, 1850–1990* (Cambridge, 1997), Tables 4.3, 4.4, 4.5, pp.53–6. The case of Japan is even more striking: starting in 1950 with a labour productivity of just under 20%, by 1980, Japanese labour productivity exceeded Britain's by 34%. Idem, Table 4.6, p.57.
3. K. Williams, J. Williams and D. Thomas, *Why are the British Bad at Manufacturing?* (London, 1983), Table 3, pp.116–17.
4. Import penetration is defined as imports as a percentage of UK manufacturers sales. Ibid., Table 4, pp.118–19.
5. In this article, profitability is defined as the pre-tax rate of return on net assets. Where net assets are defined as total assets minus current liabilities (including bank loans) and provisions. Pre-tax profits are defined as trading profits plus dividends, interest received and other profits, minus depreciation.
6. Y. Cassis, *Big Business: The European Experience in the Twentieth Century* (Oxford, 1997), Table 4.6, p.87. Cassis uses a slight different definition of profitability to the one used in this article: the ratio of net profit to shareholders' funds.
7. The key analyses of this debate are contained in: W.E. Martin, *The Economics of the Profits Crisis* (London, 1981); G. Meeks, 'Profit Illusion', *Oxford Bulletin of Economics and Statistics*, Vol.36

(1974), pp.267–85; M. Panic and R.E. Close, 'Profitability of British Manufacturing Industry', *Lloyds Bank Review* (July 1973), pp.17–30; J.S. Fleming *et al*., 'The Cost of Capital, Finance and Investment', *Bank of England Quarterly Bulletin* (June 1976), pp.193–205; idem, 'Trends in Company Profitability', *Bank of England Quarterly Bulletin* (March 1976), pp.36–52; J.R. Sargent, 'Productivity and Profits in UK Manufacturing', *Midland Bank Review* (Autumn 1979), pp.7–13; M.A. King, 'The United Kingdom Profits Crisis: Myth or Reality?', *Economic Journal*, Vol.85 (1975), pp.33–54; T.P. Hill, *Profits and Rates of Return* (OECD, 1979). It should be emphasised at this juncture that these studies have generally failed to generate a consistent view on profitability because of the different definitions used.

8. Notable exceptions to this are, A. Singh and G. Whittington, *Growth, Profitability and Valuation* (Cambridge, 1968); G. Whittington, *The Prediction of Profitability and other Studies of Company Behaviour* (Cambridge, 1971); W.E. Eltis, 'How Low Profitability and Weak Innovativeness Undermined UK Industrial Growth', *Economic Journal*, Vol.106 (1996), pp.184–95. For a more recent analysis of this phenomenon see, for example, J. Froud, C. Haslam, S. Johal and K. Williams, 'Shareholder Value and Financialisation: Consultancy Promises, Management Moves', *Economy and Society*, Vol.29 (2000), pp.80–110.
9. See note 7.
10. Efficient in a Pareto sense. That is, it is impossible to re-allocate resources to make one person better off without making someone else worse off. An important condition for this is that all firms are *productively* efficient, in other words, for a given expenditure on inputs they could not increase output.
11. In the ideal world of perfect competition, it is further predicted that, in the long run, the costs and prices charged by firms would be identical, meaning that profits and ROCE would also be identical.
12. I am grateful to a referee for bringing this alternative perspective to my attention. Some of the principal works on the RBV of the firm are: J.B. Barney, 'Firm Resources and Sustained Competitive Advantage', *Journal of Management*, Vol.17 (1991), pp.99–120; J. Barney, M. Wright, and D.J. Ketchen, 'The Resource Based View of the Firm: Ten Years after 1991', *Journal of Management*, Vol.27 (2001), pp.625–50; N. Foss, *Resources, Firms and Strategies* (Oxford, 1997); idem, 'Theories of the Firm: Contractual and Competence Perspectives', *Journal of Evolutionary Economics*, Vol.3 (1993), pp.127–44; A. McWilliams and D.L. Smart, 'The Resource Based View of the Firm: Does it go Far Enough in Shedding the Assumptions of the SCP Paradigm?', *Journal of Management Inquiry*, Vol.4 (1995), pp.309–16; M.A. Peteraf, 'The Cornerstones of Competitive Advantage: A Resource Based View', *Strategic Management Journal*, Vol.14 (1993), pp.179–91;
13. Barney, 'Firm Resources', pp.100–101; Peteraf, 'Cornerstones', p.180.
14. Barney, 'Firm Resources', pp.101–2.
15. Resources are imperfectly mobile if they cannot be traded – for example, because they have ill-defined property rights or because they have little, if any, value outside a specific firm. Peteraf, 'Cornerstones', p.183.
16. Imperfect imitation means that firms are unable to imitate accurately the superior resources of other firms. For example, organisational culture and any other asset which has a strong tacit dimension. Barney, 'Firm Resources', pp.107–11; Peteraf, 'Cornerstones', p.183.
17. For a wide ranging discussion of these issues see, for example, Peteraf, 'Cornerstones'; Barney, 'Firm resources'.
18. See, for example, A. Cairncross, 'Economic Policy and Performance, 1945–1964', and 'Economic Policy and Performance, 1964–1990', in R. Floud and D.N. McCloskey (eds.), *The Economic History of Britain Since 1700* (Cambridge, 1994), Vol.3, pp.32–95; J. Tomlinson, *Public Policy and the Economy Since 1900* (Oxford, 1990), chapters 7–11.
19. N.F.R. Crafts, 'Reversing Relative Economic Decline? The 1980s in Historical Perspective', *Oxford Review of Economic Policy*, Vol.7 (1991), pp.81–98; S.N. Broadberry and N.F.R. Crafts, 'Britain's Productivity Gap in the 1930s: Some Neglected Factors', *Journal of Economic History*, Vol.52 (1992), pp.531–58; S.N. Broadberry and N.F.R. Crafts, 'British Economic Policy and Industrial Performance in the Early Post-War Period', *Business History*, Vol.38 (1996), pp.65–91; S. Broadberry and N.F.R. Crafts, 'Competition and Innovation in 1950s Britain', *Business History*, Vol.43 (2001), pp.97–118.
20. Broadberry and Crafts, 'British Economic', p.86.
21. Crafts, 'Reversing Relative', p.94.
22. Broadberry and Crafts, 'British Economic', p.80.
23. See, especially, J.D. Smith, *The Attlee and Churchill Administrations and Industrial Unrest*,

1945–55 (London, 1990), pp.1–9.
24. Ibid., pp.1–2.
25. Broadberry and Crafts, 'Britain's Productivity', p.546.
26. Ibid., p.75.
27. H. Mercer, 'Anti-Monopoly Policy', in H. Mercer, N. Rollings and J.D. Tomlinson (eds.), *Labour Governments and Private Industry: The Experience of 1945–1951* (Edinburgh, 1992), p.58.
28. Broadberry and Crafts, 'Britain's Productivity', p.546.
29. Ibid., p.547.
30. J.G. Walshe, 'Industrial Organisation', in N.F.R. Crafts and N. Woodward (eds.), *The British Economy Since 1945* (Oxford, 1991), pp.361–2.
31. Broadberry and Crafts, 'Competition', pp.101–2, 108.
32. Normally, we would expect that the most efficient firms in an industry (those with lowest costs) would be able to expand their market share at the expense of less efficient firms. In doing so, the efficient firms would attract resources away from inefficient firms, which, finding they could no longer compete, would be forced to exit the industry. However, if price maintenance schemes are observed then efficient firms would simply make greater profits than their less efficient collaborators. This, of course, would increase variation in profitability between companies.
33. Walshe, 'Industrial Organisation', p.361; Broadberry and Crafts, 'Britain's Productivity', pp.545–57. A full discussion of the divergence of views within the Attlee government and their ambiguous approach towards cartels and other forms of restrictive practices is contained in Mercer, 'Anti-Monopoly Policy', pp.59–69.
34. J. Tomlinson and N. Tiratsoo, '"An Old Story, Freshly Told?" A Comment on Broadberry and Crafts' Approach to Britain's Early Post-War Economic Performance', *Business History*, Vol.40 (1998), pp.62–72. For a rebuttal of this view, see S.N. Broadberry and N.F.R. Crafts, 'The Post-War Settlement: Not Such a Good Bargain After All', *Business History*, Vol.40 (1998), pp.73–9.
35. Broadberry and Crafts, 'The Post-War', p.74.
36. Broadberry and Crafts, 'British Economic', p.76.
37. Williams *et al*., *Why are the British*, Table 2, pp.114–15; Table 4, pp.118–19. These average figures conceal substantial variation between individual manufacturing industries. Some industries, for example, motor vehicle manufacturing, steel tubes, insulated wires and cables, and electric appliances, experienced a rate of growth of import penetration in excess of 10% p.a. in the 1960s. J.J. Hughes and A.P. Thirlwall, 'Trends and Cycles in Import Penetration in the UK', *Oxford Bulletin of Economics and Statistics*, Vol.39 (1977), p.307.
38. This is calculated by multiplying each company by the number of years for which its ROCE can be calculated.
39. D.M. Higgins and J.S. Toms, 'Public Subsidy and Private Divestment: The Lancashire Cotton Textile Industry, c.1950–c.1965', *Business History*, Vol.42 (2000), pp.59–84; idem, 'Capital Ownership, Capital Structure, and Capital Markets: Financial Constraints and the Decline of the Lancashire Cotton Textile Industry, 1880–1965', *Journal of Industrial History*, Vol.4 (2001), pp.48–64.
40. Froud *et al.*, 'Shareholder Value', p.90. I am grateful to a referee for bringing this point to my attention.
41. For a critique of the concept of profit maximisation as applied to business history, see, for example, C.H. Lee, 'Corporate Behaviour in Theory and History: II. The Historian's Perspective', *Business History*, Vol.32 (1990), pp.157–79.
42. A.D. Chandler, *Scale and Scope* (Cambridge, MA, 1990), pp.8, 36.
43. Cassis, *Big Business*, p.98.
44. Ibid., p.234.
45. F.M. Fisher and J.J. McGowan, 'On the Misuse of Accounting Rates of Return Ratio to Infer Monopoly Power', *American Economic Review*, Vol.73 (1983), pp.82–97.
46. See, e.g., A. Steele, 'Further Notes on Estimating Economic Returns from Published Accounting Returns', *Journal of Business Finance and Accounting*, Vol.22 (1995), pp.923–38.
47. Fisher and McGowan, 'On the Misuse', pp.85–9.
48. G. Whittington, 'On the Use of the Accounting Rate of Return in Empirical Research', *Accounting and Business Research*, Vol.9 (1979), p.202.
49. Ibid., p.204.
50. We should, for example, be aware of comparisons across companies which belong to different industries (with assets of different lengths of time), because this will lead to discrepancy between the accountants book value of assets and their economic value. Whittington, 'On the Use', p.208.

51. This is because the longer the time period for which ROCEs are used, the greater the extent to which arbitrary year-to-year fluctuations resulting from accounting measurement are evened out. Whittington, 'On the Use', p.207.
52. Whittington, *The Prediction*, pp.96–7.
53. The CV is defined as the standard deviation divided by the mean. In certain cases, where the standard deviation of the sample exceeds the sample mean, the CV can exceed one. Table 4, indicates certain industries where this was the case. In these instances, the standard deviation of the sample ROCE was increased relative to the mean by the presence of substantial 'outlier' firms.
54. At this juncture it is, perhaps, worth reiterating that we are *not* trying to present an econometric analysis of the determinants of inter-industry or intra-industry differences in profitability. If we were, we would have to relate variation in ROCE to variation in import penetration, or other measures of external competition. Whatever factors were causing inter-industry or intra-industry variation in ROCE we take as given, and our CV measure will automatically capture these differences. What we are specifically interested in is the extent to which these differences were *eroded* and whether this was determined by the restraining effects of the post-war consensus.
55. An explanation is required here. If there were *no* difference in ROCE between industry groups, division of the profitability of each industry by the average profitability for all industries, would yield a value of one.
56. Broadberry and Crafts, 'Britain's Productivity', p.534; J. Wilson, *British Business History, 1720–1994* (Manchester, 1995), p.216.
57. S. Prais, *The Evolution of Giant Firms in Britain* (Cambridge, 1976), Table 1.1, p.4.
58. The literature on this subject is vast but see, especially, O.E. Williamson, 'Markets and Hierarchies: Some Elementary Considerations', *American Economic Review: Papers and Proceedings*, Vol.63 (1973), pp.316–25; idem, 'The Modern Corporation: Origins, Evolution, Attributes', *Journal of Economic Literature*, Vol.19 (1981), pp.137–68.
59. Especially where conglomerate diversification became more important.
60. It is certainly the case that the econometric evidence in favour of the M form is rather mixed. For a review of the evidence, see, e.g., G.C. Reid, *Theories of Industrial Organisation* (Oxford, 1987), pp.198–200.
61. D.C. Elliot and J.D. Gribbin, 'The Abolition of Cartels and Structural Change in the United Kingdom', in A.P. Jacquemin and H.W. de Jong (eds.), *Welfare Aspects of Industrial Markets* (Leiden, 1977), pp.350–51.
62. Ibid., p.351.
63. Ibid., p.355.
64. Ibid., p.365.
65. This result conforms to the evidence emerging from studies on the RBV of the firm. Foss, 'Theories of the Firm', p.132; McWilliams and Smart, 'The Resource', p.311.
66. However, this study focused upon a single year, 1997. Froud *et al*., 'Shareholder', Table 3, p.95.
67. I am grateful to a referee for bringing this point to my attention. For example, the growth of cartels in the 1930s were carried over into the 1950s. Even if no post-war consensus had existed, businessmen may still have found it beneficial to maintain these anti-competitive practices.
68. For a further discussion of this point see, especially, McWilliams and Smart, 'The Resource', and idem, 'Efficiency v. Structure-Conduct-Performance: Implications for Strategy Research and Practice', *Journal of Management*, Vol.19 (1993), pp.63–78.
69. I am grateful to Nick Crafts for bringing this literature to my attention. See, for example, P.A. Geroski, 'Innovation, Technological Opportunity, and Market Structure', *Oxford Economic Papers*, Vol.42 (1990), pp.586–602; S. Nickell, 'Competition and Corporate Performance', *Journal of Political Economy*, Vol.104 (1996), pp.724–46.
70. S. Nickell *et al*., 'What Makes Firms Perform Well?', *European Economic Review*, Vol.41 (1997), pp.783–96.
71. Of particular interest is the fact that Cassis has also focused on the issue of convergence in profitability and rates of return between big companies in Britain, France and Germany. Cassis, *Big Business*, especially chapter 4.