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Keynes and the Cotton Industry: A Reappraisal

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**This paper is circulated for discussion purposes only and its contents should be considered preliminary.**

## **ABSTRACT**

The paper reinterprets Keynes's analysis of the crisis in the Lancashire cotton industry in the 1920s. It presents empirical evidence showing that syndicates of local shareholders, but not the banks, were an important brake on firms exiting, at a time when exit barriers were otherwise unproblematic in this competitive industry. Moreover, syndicates milked firms of any profits through dividends, thereby limiting reinvestment and re-equipment possibilities. The case shows that where laissez-faire fails in response to a crisis, the associated response may need to assess both ownership structure and its relationship to competitive industry structure.

*Keywords:* Keynes, Cotton, Banks, Syndicates

*JEL classification:* G32; G35; L14; L67; N84.

## **Keynes and the cotton industry: A reappraisal**

### **1. Introduction**

In the *End of Laissez-Faire* writing against the backdrop of the inter-war economic crisis, Keynes (1927, pp. 46-7) argued that the role of the government is not to try to do what is being done better, but to do what is not being done. For Keynes, there was no better illustration of this point than the Lancashire cotton textile industry. As demand in overseas export markets collapsed, creating a serious problem of over-capacity, the industry's large number of relatively small firms competed intensely on the basis of marginal cost pricing. For Keynes the solution was the reorganisation of the industry. An important obstacle was the intractability of the incumbent management and financial stakeholders. The banks might have promoted reorganisation, but were 'professional paralytics', and it was 'against their tradition to do anything whatsoever in any conceivable circumstances' (Keynes, 1981, 605). He also called for the dismissal of the vast majority of cotton company directors, adding that the people required to vote on such a proposal were precisely those directors (Keynes, 1981: 631). However, Keynes was careful in his choice of scapegoats. In particular he sought to avoid implicating those responsible for the re-financing of the industry already carried out in the boom of 1919-20. Contemporary commentators who stressed the problems resulting from these events, were criticised by Keynes for finding easy solace and standing in the way of educating opinion as to what he saw as the correct diagnosis (Keynes, 1928, p.199).

Below we present new evidence to test the propositions that follow from Keynes's arguments. Specifically we examine statistical and archival evidence to examine the relative impacts of investments by different groups of financial

stakeholders on the strategies of individual firms. The results suggest that Keynes was too dismissive of the re-financing and the problems it caused and that investor groups in particular were at least as serious, if not more of an obstacle, than the banks. The assertion is important, as it shows that the Keynesian panacea of reorganisation was insufficient and that restructuring, including radical variation of ownership rights, was also required.

The paper is organised as follows. In Section 2 we compare and contrast the key features of Keynes's analysis of the industry's problems with those of other informed contemporaries. Particular emphasis is placed on the observation that, unlike his contemporaries, Keynes was generally dismissive of the impact of re-floitation. In Section 3 the composition of financial syndicates is analysed. Notwithstanding contemporary and subsequent debates, there is no prior empirical evidence concerning the composition of these groups. Indeed there are only passing references to 'London' and 'Metropolitan' syndicates and our research shows that these references are partially and materially inaccurate. Section 4 examines the role of investor groups, both syndicates and banks, and their impact on firm level performance outcomes, using a financial data set and appropriate econometric models. The comparative impact of bank lending and financial syndicate investment is assessed. Conclusions are presented in Section 5.

## **2. Keynesian and other interpretations of the collapse**

The fundamental feature of the Lancashire textile industry between the wars was the violent and, as it turned out, irreversible contraction in world demand for cotton goods. The broad facts of this collapse have been extensively documented. The salient points are that during the 1920s, and 1930s, exports of cotton piece goods were 58% and 29 %

respectively of their 1913 level. For yarn exports, the relevant figures were 80% and 66% respectively.<sup>i</sup> Of particular importance in this collapse were the loss of the Indian market and Japanese competition in third markets. In 1913, out of a total British production of approximately 700 million yards of cotton piece goods, 43 % by quantity and 36% by value, were exported to India.<sup>ii</sup> By the 1930s, Indian production of cotton piece goods and yarn was 34% and 131% greater, respectively, than its pre-war average. A number of factors, including the disruption caused by the war, reduced shipping facilities, growing nationalism and increasing tariff protection, account for India's reduced dependence on Lancashire exports. The reversal in the Indian market was exacerbated by Japanese competition. Between 1914 and 1930, Japan's share of Indian imports of cotton piece goods increased over a hundred-fold, and Bowker (1928) estimated that Japanese penetration of the Chinese market was responsible for 17.6% of the decline in Lancashire's exports.

However, although these basic facts were well known to contemporaries there was less agreement on what the industry should have done in order to restore its competitiveness. For convenience, we contrast two interpretations: one is Keynes' view that reorganisation was required but the banks and industry directors prevented this outcome. The second is that advanced by other contemporaries that world economic conditions were to blame and recapitalization simply made matters worse (Daniels and Jewkes, 1928, p.182).

Keynes' analysis of the problems affecting the industry focused on excess capacity and, its consequence, short-time working. 'The termination of the short-time policy is urgently called for, and the substitution for it of a 'rationalising process' designed to cut down overhead costs by the amalgamation, grouping or elimination of mills', (Keynes, 1981, p.584). Short-time working increased the costs of the industry,

aggravated financial losses, and led to ‘financial exhaustion’, (Keynes, 1981, p.582; p.590; p.597; 602;). Keynes was adamant that while a policy of short-time working might be desirable to meet temporary disturbances in trade, it was absolutely disastrous as a long-term solution (Keynes, 1981, p. 588; p.598). In any case, as he pointed out, the actual practice of short-time working was very badly organised (Keynes, 1981, pp.596-7).

The solutions to short-time working proposed by Keynes were threefold: the elimination of weak-sellers (those selling output below cost), the adjustment of surplus capacity and rationalisation to achieve appropriate economies (Keynes, 1981, p.598). Why, then, was the required contraction in capacity not forthcoming? Keynes position on this was clear: the banks had lent so much to the industry, particularly its financially weaker companies, that they were loath to let their debtor companies go bankrupt, even though this would have accelerated the adjustment of capacity in the industry (Keynes, 1981, p.605). In Keynes’ perspective, the banks *could* have promoted change in the industry (Keynes, 1981, p.603; p.614), but *chose* not to (authors’ emphasis). Whilst castigating the banks, Keynes dismissed the significance of the re-capitalisation boom:

‘The industry is riddled with unsound finance; some of it the result of the over-capitalisation of the boom period....If high capitalisation and bad management were the essential troubles, reconstructions and bankruptcies might be the right solution. But they are only secondary troubles. The real trouble – and this is the beginning, the middle and the end of my argument – is surplus capacity.’ (Keynes, 1981, pp.603-4).

Keynes argued that the recapitalisations of the 1919-20 boom were irrelevant as they did not effect earnings, suggesting that even if this capital were written off the problem would persist without solving the underlying problem of over-capacity (Keynes, 1981:



629-31). Therefore as far as Keynes was concerned, the writing-off of capital was trivial and the important challenge was reorganisation.

In this respect, Keynes was not unique. Turning to the *general* problem of excess capacity there was recognition that rationalisation and re-organisation could improve the competitive position of industry, but the existence of a large fringe of small producers hampered the efforts of big firms trying to secure these efficiencies (MacGregor, 1927, 528). John Ryan, (Managing Director of the Lancashire Cotton Corporation), argued that amalgamation and re-organisation would simultaneously help Lancashire to improve her international competitiveness and provide relief the spinning section which was labouring under heavy financial losses (Ryan, 1930, 359). In the specific case of the Lancashire cotton textile industry, the historiography since strongly endorses the Keynesian interpretation. Most acknowledge that over-capacity was a root cause (Keynes, 1981, Porter, 1974, Bamberg, 1988, Marchionetti, 1995, Bowden and Higgins, 1998). Opinions differ somewhat as to who should have taken responsibility. Bamberg adds to Keynes' famous accusation that the bankers acted as 'a species of deaf mutes', abandoning their responsibilities (Keynes, 1981: 601), showing the competitive structure of bank lending to have been inimical to industry recovery (Bamberg, 1988: 26-30). Obstinate directors, whom Keynes suggested should be dismissed have been subsequently criticised for their 'individualistic attitudes' (Saxonhouse and Wright, 1987: 89), as have the unions for lack of co-operation (Lazonick, 1984: 396; Keynes, 1981: 578-637; Skidelsky, 1992: 261-3).

For the second interpretation we need to consider contemporary opinion, since this view has attracted little support since. Whiggish attitudes and hindsight make it difficult for historians to do other than condemn this view, since it is well known that the hoped for return to pre-1914 conditions never materialised. Indeed contemporary

opinion was far from a consensus and such optimism attracted some ridicule (Dietrich, 1928, Greaves, 2000). However, unlike Keynes, many informed contemporary observers did place much greater emphasis upon the harmful effects of the recapitalisation boom. Daniels and Jewkes (1928, pp.180-181) and the report by Political and Economic Planning (1934, p.60), argued that those firms that had re-capitalised had stronger inducements to engage in price-cutting in order to secure the volumes required to cover their inflated costs. Both of these sources also suggested that the effects of recapitalisation worked against any effective joint action either regarding output restriction to raise prices (Daniels and Jewkes, 1928, p.181), or to secure amalgamation (PEP, 1931, p.60). Henry Clay, a special adviser to the Bank of England supported these views. He also argued that the supply of loan capital, which should have been available to finance re-equipment and facilitate re-organisation, had been drained away by the need of re-capitalised companies to call-up unpaid share capital in order to meet interest charges and to replace withdrawn loans (Clay, 1931, p.64).

It is therefore clear that contemporaries recognised some important relationships between re-capitalisation, over-capacity, individual firm behaviour, and weak-selling. The case also illustrates some important analytical relationships between principal and agent expectations and asset values (Filatochev and Toms, 2006). However, the precise role that the banks and the syndicates played in fostering exit has not been analysed. Indeed, until now, Keynes' views on earnings, re-capitalisation and capital write-offs have not been questioned much in the subsequent literature (but see Higgins and Toms, 2003). None have presented significant new empirical evidence. Even so, an empirical analysis of the composition of the syndicates and their relative impact on individual firm behaviour compared to the banks is important. If the banks had an interest in preventing their clients exiting in order to avoid the consequent

capital write-offs, then so too did the financial syndicates. Arguably the syndicates had more reason and greater ability to force firms to stay in the industry. Banks had the relative benefit of secured lending, albeit on reduced asset values and even where minimal, stood to obtain any marginal benefit ahead of the unsecured equity syndicates. Where loan interest payments were deferred, they were allowed to accumulate so there was an expectation of higher payments in future years. Equity holders benefited only where the firm had sufficient earnings to depreciate the overvalued assets and meet fixed interest charges. Unlike the banks the syndicates had direct control over the board and the strategy of the firm through the control of voting shares. When Keynes called for the dismissal of the company directors, adding they were unlikely to vote for their own dismissal (Keynes, 1981: 631), whether they could do so or not remains an unresolved empirical question. Such resolutions could not be carried without the support of any outside 'metropolitan' syndicates, where such shareholdings were substantial. Although it is well known that cotton directors had shareholdings, whether they could not necessarily command majorities at annual general meetings depended on their extent. It is also known that directors were interlocked within the industry before 1914 (Toms, 2002) and in the 1950s (Filatotchev and Toms, 2003; Toms and Filatotchev, 2004). However the role of cross directorships and shareholdings has not been examined for the crucial 1919-20 re-capitalisation boom. The presence of such network connections might impact on coalescence in the strategies advocated by the syndicates and any outside investor groups. Although convenient for the first interpretation of decline discussed above, the neglect of the role of the syndicates is therefore surprising, and the analysis below examines their effects, in contrast to the banks, more closely.

There is a further and potentially important consequence of the presence of these outside investors. Keynes and contemporaries<sup>iii</sup> seem to agree that they had little technical understanding or other useful knowledge of the industry (Keynes, 1981) other than perhaps its propensity to pay very generous dividends during periodic booms. In addition to the question of whether the syndicates forced firms to stay in the industry, there is the further question of their impact on business and financial strategy. Specifically it is likely that they would have forced the cotton companies to repay any profits from weak selling as dividends, so that the capacity for recovery through new investment could not be sustained. However, before testing hypotheses along these lines it is important to establish who precisely was involved in the re-capitalisation boom of 1919-1920.

### **3. The syndicates: scale and characteristics**

To examine ownership and control characteristics of the re-capitalised companies all available annual returns from the BT31 file at the Public Record Office (PRO) were examined. The PRO has a policy of retaining a random sample of 1 in 5 company records and it was therefore appropriate to examine all surviving documents for firms that were known to be in existence, and to have been re-capitalised (as detailed in Worrall's and Tattersalls trade directories). The process produced a sample of 41 individual company archives. Within each, share registers, articles of association and annual returns (form E) were examined to identify the directors and significant shareholders in the re-capitalised companies, the scale of their cross shareholdings, and the buy-sell and buy-hold behaviour of investing individuals and groups.

The first outstanding feature was that block holders were usually inside directors. For example on initial allotment, two of the directors in Brunswick Mill

owned 31%; in Delta, the directors owned 28.3%; in Fern Mill it was 22.8%; Century Mill, 45.9%; Clover Mill, 35.6%, Belgrave, 35%, Avon, 65.4%; Argyll, 17%; Kent Mill, 12.4%. Outside ownership meanwhile was relatively rare. Only 3 out of 41 companies had examples of significant outside ownership. Beehive Cotton Spinning Company in Bolton, attracted a London investment group.<sup>iv</sup> Manchester-based William P. Hartley (who had made money in preserves) invested in Textile Spinning Company and Asia Spinning Company. The third example was another Manchester investor, John Kenyon. It is significant that there was only one 'metropolitan' syndicate and that it invested in the least troubled section of the industry.<sup>v</sup> Bolton was the centre of the fine section of the industry and was relatively untroubled by the problems of over-capacity prevalent in the Oldham-centred coarse sector. Investors in Oldham firms where not from Oldham itself, were typically from neighbouring Manchester.

Even then these outside investors were insignificant compared to the degree of inside control prevalent in the crisis-ridden Oldham section. Moreover, the Oldham insiders were interlocked. For example promoter and share dealer Sam Firth Mellor was a director of 18 companies,<sup>vi</sup> John Bunting, of the same occupation held 14. Harry Tweedale, a sharebroker for William Deacons Bank, was a director of Dale Mill and a founding director of Arrow Spinning Co and Century Spinning Co (in which he owned, or represented, 15.4% of the initial allotment of the stock).<sup>vii</sup> Many others held multiple directorships. For example of the directors of Century Mill, Deveney was also a director of Wellfield Mill, Victoria Spinning Company, and Slack Mills; Bleakley was a director of Dale Mill and Arkwright Mill, while Simms was a director of Era Mill. Another significant operator was J.S. Hammersley, who was also a director of several companies. Hammersley is notable because like Keynes he advocated the reconstruction of the industry. Unlike Keynes, he argued that the reconstruction should

be *financial*, involving the variation of claim-holders' rights (Hammersley, 1931). His scheme was based on cash for equity, which as the argument below suggests was indeed necessary to rescue the industry. Compared to Keynes's argument, it is easy to see why it was unpersuasive. His scheme not only compensated the speculators for their failure, but it also presupposed there were new investors whose expectations about the industry's future were more optimistic than the incumbent investors (Higgins and Toms, 2003).<sup>viii</sup>

Inside directors were in any case significant and typically long-term investors. Outside investors exited completely and early, for example Hartley in 1920. Insiders made only partial disposals if at all, and such transactions usually involved stockbrokers such as Firth Mellor and Bunting. It is likely that the stockbrokers who were also directors simultaneously provided market liquidity in their own companies for potential buyers.<sup>ix</sup> Even so the total number of shareholders was usually quite small and there were surprisingly few transactions, given they were quoted companies. An obvious problem was the absence of buyers after the collapse of the boom in 1920. Moreover, given the evidence from the share registers, the presence of controlling cliques of directors was in itself sufficient to impose conditions of market illiquidity.

There were relatively few examples of family block holders, and the holding in Coppull Ring Mill by the Hollas family was one exception. The Hollases represented a significant textile interest and were effectively insider investors. In the case of Avon Mill, for example, three families, the Hagues (cotton spinners), Brierley's (accountants and solicitors) and Braddocks (gas engineers) were the sole directors of the company and jointly owned 65.4% of the stock. The Buntings, John and James Henry, were co-directors of Textile Mill, and James was also a director of Briar. The Cheetham

family owned 25.3% of Anchor; the Clegg family was on the boards of Cape Mill, Textile Mill and Anchor Mill

A final and very important feature was the striking continuity between these investor groups in the Oldham section and the operations of similar groups, sometimes involving the same individuals, in the pre 1914 period. A feature of previous booms, for example in 1907 was the involvement of Bunting in the mill promotion boom (Toms, 2002). Firth Mellor and Hammersley were also involved in putting together business groups through flotation and inter-locking directorships (Farnie, 1998, p.10). Another important continuity was the involvement of successor generations. So James Henry Bunting continued his pre-war apprenticeship whilst successive generations of the architects and mill-designers A.H. Stott and Sons continued their practice of investing in the mills they helped to build.<sup>x</sup> In short, the investors of the 1919-20 re-capitalisation boom were local, inter-connected, had intensive knowledge of the industry and were continuing well-established practice from before 1914. The connection to pre-war behaviour is important, insofar as the practices established then contributed to the subsequent failure of the industry. The next section examines the extent of that contribution.

#### **4. Data and analysis**

To examine the differential behaviour of firms within the industry in the 1920s and 1930s, with a particular focus on their governance arrangements, strategy and financial performance, a sample of 147 spinning firms was examined. The sample is based on the first year of extensively available accounting and share price data taken from the Tattersall's trade journals from 1926 *et seq*, using all firms with available data. These

data were used to examine first the determinants of the decision to exit and second the determinants of financial performance.

To examine the decision to exit, and the determinants of financial performance, data and financial information for the five-year period 1926-1931 was used in the following models:

$$EXIT = \beta_1 + \beta_2 RECAP + \beta_3 PUBLIC + \beta_4 LEV + \beta_5 SIZE + \mu \quad (1)$$

$$APTC = \beta_1 + \beta_2 RECAP + \beta_3 PUBLIC + \beta_4 LEV + \beta_5 SIZE + \mu \quad (2)$$

$$DIV = \beta_1 + \beta_2 RECAP + \beta_3 PUBLIC + \beta_4 LEV + \beta_5 SIZE + \mu \quad (3)$$

Model (1) has a discrete dependent variable, the decision to exit (*EXIT*), and is specified as a logit model. If a firm exits in the subsequent five years after 1926, *EXIT* is assigned a value of 1, = 0 otherwise. In model (2) the dependent variable is subsequent financial performance after 1926, defined as the ratio of accumulated profit/loss to total capital in 1931 (*APTC*). In general the higher this ratio the more successful the firm and firms with positive ratios suffered no loss of capital in generally difficult trading circumstances and were able to pay dividends. The ratio is used as a proxy for turnaround success. In general only firms with positive accumulated profits paid dividends, but because dividends also reduce the balance of accumulated profits a third model was specified using the dividend rate (as a percentage of paid capital) as the dependent variable (*DIV*). Together these variables proxy for relative success, at least from the financial perspective of the individual firm. Because the dividend variable is



strongly left censored, model (3) is specified as a tobit model. Model (2) is ordinary least squares.

The explanatory variables are common to both models and each is described in turn. The *RECAP* variable captures the fixed costs arising from governance structures. If the firm had recapitalised in the 1920 boom, it typically resold its shares to syndicates of outside investors at three times the price of non-recapitalised firms. Firms were classified 1 or 0 according to whether they had recapitalised or not. Recapitalised firms faced higher fixed costs arising from the change in ownership structure in the form of depreciation charges, dividends and interest charges. These costs are not fixed in the strict sense, for example dividends are highly discretionary, but they are sunk in the sense that they must be paid at some point if investors are to recover their committed capital. Because investors thereby had an incentive to force the firm to remain in the industry on the basis of expected future recovery of the committed investment, the expected sign on the *RECAP* variable is negative. *RECAP* also potentially proxies for a second variable of interest, the presence of syndicate investor groups.<sup>xi</sup> To observe these effects separately, a further variable is required. The availability of active share price quotations was used to proxy for the presence of outside investors, including equity syndicates, as opposed to the insider quasi partnership investors where no such trading opportunities existed. Quoted firms, with therefore approximately wider share ownership were labelled as *PUBLIC* and assigned a value of 1, = 0 otherwise. Although it has been noted that many of these firms were under control of their directors, there were nonetheless market transactions and their control was not as complete as a private firm. As closer controlled firms were under less pressure from outside investors to remain in the industry and thus more likely to exit, the expected sign for the *PUBLIC* variable is positive.

In addition to these categorical variables, two further continuous variables were included. First the ratio of debt to total capital, or leverage (*LEV*) and second, to control for size the total value of balance sheet assets of the firm are used (*SIZE*). The *SIZE* variable might also proxy for the power of incumbent managers, as a function of the value of the assets under their control. *SIZE* was transformed logarithmically to achieve closer proximity to normality, whereas *LEV* was not transformed due to a significant number of zero variables.

The results are presented in Tables 1-4. Tables 1 and 2 show descriptive statistics. Table 3 shows the classification of the 147 firms according to their strategy: turnaround success ( $APTC > 0$ ), turnaround failures ( $APTC < 0$ ) and exits. Table 4 shows the results for models (1), (2) and (3) above.

**Table 1 about here**

**Table 2 about here**

**Table 3 about here**

**Table 4 about here**

The *RECAP* variable is negative and strongly significant in model (1), showing that the presence of governance related fixed or sunk costs constitute an exit barrier. Table 3 confirms that relatively few recapitalised firms exited the industry. Where firms remained in the industry *RECAP* was associated with turnaround success, evidenced by the positive and significant co-efficients in models (2) and (3). The *PUBLIC* variable is also negative in model (1) and significant, supporting the hypothesis that outside investor groups prevented exit. Table 3 data also show that a very high proportion (50/58, or 86%) of successful turnarounds were public companies.

Although the *PUBLIC* variable is insignificant in model (2) it is positive and highly significant in model (3). Public ownership, albeit by the syndicates, is therefore associated with firms staying in the industry and with turnaround success but this is manifested in the form of high dividend payments and not the accumulation of profits. In other words, syndicate investment acted as an exit barrier, helped stabilise cash flows, but undermined subsequent stages of the turnaround associated with new investment and repositioning.

Exit was positively but weakly related to high borrowing in model (1). Exiting firms had higher leverage than turnaround firms (Table 3), but the difference was marginal compared to firms unsuccessfully attempting turnarounds. In models (2) and (3) leverage was negatively and significantly related to turnaround success. In other words lenders exerted weak pressure on firms to exit and acted as a constraint for the firms that stayed in the industry and attempted turnarounds. Firms with relatively high debt were less likely to pay dividends. Jensen's (1986) free cash flow (FCF) hypothesis suggests that opportunistic managers may try to appropriate FCF at expense of minority shareholders, and presence of fixed-claim holders may restrain this opportunism. There is some evidence from the data in Table 1 that debt holders did indeed constrain directors. The banks therefore did what they were supposed to do under the FCF hypothesis, even though for Keynes this wasn't enough.

Finally *SIZE* had a significant and negative impact on exit and was positive and strongly significantly associated with turnaround success. Insofar as *SIZE* proxies for managerial power, the impact is the same direction as *PUBLIC*, supporting the view from the archival evidence that managerial groups were able to combine long run investment strategy with good knowledge of the industry. However, the speculation

that enabled them to build business empires and appropriate associated rents in the pre-war period went badly wrong after 1920.

## **5. Discussion and conclusions**

Keynes's assertion that capacity mattered is true and no one would dispute the problems caused by over-capacity and weak selling. However, we would dispute the assertion that capacity was *all* that mattered and that capitalisation was unimportant. Indeed, following from the above analysis the reverse is true, and capitalisation was a serious barrier to exit for some firms and to re-organisation by others. It was more significant than bank debt, and indeed, as has been demonstrated, bank debt performed its correct function of disciplining managers and associated insider groups. Over-capitalisation was serious without bank debt and would have become serious even without over-capacity, committing Lancashire firms to high fixed capital costs as overseas competitors entered export markets. Changing capital structures, thereby undoing the mistakes of 1919-20 was therefore essential for the recovery of the industry. Even in the relatively weak legal framework of the 1920s, however, radical variation of ownership rights (writing off the capital of a whole industry) was non-trivial. Not surprisingly perhaps, the only contemporaries calling for this solution were the speculators themselves, and they were unlikely to be received sympathetically by economists, policy makers or anyone else. The real irony is that like Keynes they recognised through their own mistakes, the need for an end to *laissez-faire*.

**Table 1.** *Descriptive statistics*

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	<b>Min</b>	<b>Max</b>	<b>Mean</b>	<b>S.dev</b>
Continuous variables:				
<i>APTC</i>	-6.696	2.079	-0.272	0.825***
<i>DIV</i>	0.000	25.000	3.630	5.580***
<i>LEV</i>	0.000	1.903	0.368	0.338***
<i>SIZE</i>	8.144	13.473	11.567	0.877**
Grouping variables:				
<i>EXIT</i>			0.224	
<i>RECAP</i>			0.476	
<i>PUBLIC</i>			0.776	
S-Wilk p-value:				
***	p < .01			
**	p < .05			

---

*Data definitions:*

*APTC*: Accumulated profit to capital ratio, 1926-1931.

*DIV*: Dividend as a percentage of paid up capital.

*LEV*: Ratio of debt to total capital.

*SIZE*: natural logarithm of total assets.

*EXIT*: Dummy variable = 1 if the firm exits, = 0 otherwise

*RECAP*: Dummy variable = 1 if the firm recapitalised, = 0 otherwise

*PUBLIC*: Dummy variable = 1 if the firm's shares are quoted, = 0 otherwise

Table 2. *Correlation matrix (independent variables)*

	<i>RECAP</i>	<i>PUBLIC</i>	<i>LEV</i>	<i>SIZE</i>
<i>RECAP</i>	1.0000			
<i>PUBLIC</i>	-0.1726**	1.0000		
<i>LEV</i>	0.0985	-0.0230	1.0000	-0.0592
<i>SIZE</i>	-0.3476***	0.1656**		1.0000

Spearman's Rho (below diagonal)/Pearson's co-efficient (above diagonal) significance levels

\*\*\* p < .01

\*\* p < .05

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*Data definitions:*

*APTC*: Accumulated profit to capital ratio, 1926-1931.

*DIV*: Dividend as a percentage of paid up capital.

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*PUBLIC*: Dummy variable = 1 if the firm's shares are quoted, = 0 otherwise

**Table 3:** *Descriptive statistics for strategic outcomes*

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STRATEGY	VARIABLE						
	N	<i>APTC</i>	<i>DIV</i> %	<i>RECAP</i>	<i>PUBLIC</i>	<i>LEV</i>	<i>SIZE</i> £
<b>Turnaround</b>							
- Success	58	0.152	8.780	37	50	0.289	172,671
- Fail	56	-0.282	0.435	20	43	0.408	141,392
<b>Exits</b>	33	-0.999	0.000	13	21	0.436	112,631

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*Data definitions:*

*APTC*: Accumulated profit to capital ratio, 1926-1931.

*DIV*: Dividend as a percentage of paid up capital.

*LEV*: Ratio of debt to total capital.

*SIZE*: natural logarithm of total assets.

*RECAP*: Dummy variable = 1 if the firm recapitalised, = 0 otherwise

*PUBLIC*: Dummy variable = 1 if the firm's shares are quoted, = 0 otherwise

**Table 4: Regression models**

<i>Model</i>	(1) <i>Logit</i>	(2) <i>OLS</i>	(3) <i>Tobit</i>
Dependent variable	<i>EXIT</i>	<i>APTC</i>	<i>DIV</i>
Independent variables:			
<i>CONST</i>	11.386*** 0.001	-4.083** 0.036	-62.168*** 0.000
<i>RECAP</i>	-1.406*** 0.002	0.444** 0.013	13.293*** 0.000
<i>PUBLIC</i>	-0.955** 0.042	-0.072 0.612	6.936*** 0.005
<i>LEV</i>	0.843 0.155	-0.589** 0.014	-11.397*** 0.000
<i>SIZE</i>	-1.019*** 0.001	0.334** 0.037	4.504*** 0.000
R-square <sup>1</sup>	0.151	0.184	0.114
Prob <sup>2</sup>	0.000	0.000	0.000
Residual S-Wilk	N/A	0.000	N/A

Co-efficients are reported for each independent variable with respective p-values underneath. N = 147 for all models. In model (3) 95 observations are left-censored at 0. In models (1) and (2) p-values are based on White's (1980) heteroscedasticity consistent estimation matrix. All models were re-tested with serial deletion of inter-correlated variables and insertion of interaction variables. The results were robust to alternative specifications. Model (2) was re-tested using a non-parametric formulation (quantile regression). Model co-efficients signs remained unchanged and significance levels increased marginally for significant co-efficients in the OLS model.

<sup>1</sup> Pseudo in models (1) and (3), adjusted in model (2)

<sup>2</sup> >Chi in models (1) and (3), and > F in model (2)

Two-tailed significance levels: \*\*\* p < .01, \*\* p < .05

*Data definitions:*

*APTC*: Accumulated profit to capital ratio, 1926-1931.

*DIV*: Dividend as a percentage of paid up capital.

*LEV*: Ratio of debt to total capital.

*SIZE*: natural logarithm of total assets.

*EXIT*: Dummy variable = 1 if the firm exits, = 0 otherwise

*RECAP*: Dummy variable = 1 if the firm recapitalised, = 0 otherwise

*PUBLIC*: Dummy variable = 1 if the firm's shares are quoted, = 0 otherwise



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<sup>i</sup> Calculated from Mitchell and Deane (1963) and Robson (1957).

<sup>ii</sup> Burnett-Hurst, 'Lancashire and the Indian Market', p.398.

<sup>iii</sup> For example E.H. Stockton, the Chairman of the Manchester Chamber of Commerce pointed out mills passing into the hands of any 'syndicate who have no knowledge of the conditions of an intricate industry is certain to lead to disaster'. *Oldham Chronicle*, 25<sup>th</sup> November, 1919.

<sup>iv</sup> Beehive re-floated with a nominal share capital of 2 million two-shilling shares (£200,000). The annual return for this company in 1938 indicates that 23% of this stock was owned by the following London based accounts: Midland Bank Nominee; Morrison Nominees; Barclays Bank Nominees; Branch Nominees; Control Nominees; Roycan Nominees, and one London based group not specified.

<sup>v</sup> Another example was the Lancashire Cotton Syndicate Ltd, with a registered address in London, but organised at least in part by local cotton mill managers. Alfred Holt was the Managing Director of the Syndicate and mill manager of Bolton Union Spinning Company.

<sup>vi</sup> Argyll, Broadway; Fernhurst, Gee Cross Mill, Gorse, Greenacres, Hartford, Marland, Mars, Mersey, Monton, Moor, Orb, Peel Mills Co, Princess, Rugby, and Stockport Ring Mill. Mellor built up a substantial shareholding in many of these companies, for example, Argyll (7.55%), and Asia Mill (3.8%).

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<sup>vii</sup> Other stockbrokers included Henry Hood and Charles Thwaites.

<sup>viii</sup> As far as we can tell, the only contemporary economist who advocated a comparable scheme was Allen, who proposed that, in a scheme of rationalisation, the surviving firms should make a debenture issue and use the proceeds to acquire the capital of firms which were to close down. In these schemes, Allen proposed that the owners of the closed plants would receive a cash payment representing the pre-rationalisation value of their interest plus an additional sum equivalent to their capitalised share of the additional profit which the industry was expected to earn as a result of the scheme. Of course, as with the Hammersely scheme, Allen recognised that his proposal would only work with government intervention. (Allen, 1945,189).

<sup>ix</sup> These stockbrokers were sometimes responsible for substantial short-term sales of stock. Thus, for example Hood and Tweedale between them sold 30.3% of Century stock between December 1919 and August 1920, while Herbert Bridge, sold 3.75% of Ace stock between May 1920 and October 1920.

<sup>x</sup> For a biographical discussion of the activities of three generations of the Stott family, 1862-1937, see Farnie and Gurr, (1998), pp.15-18.

<sup>xi</sup> The review of archival evidence above showed that the majority of syndicates were local cliques of interlocking directors. It would have been interesting to specify a variable to test the effects of inside and outside ownership blocks. Unfortunately the shareholder registers are only available for a small sub-set of the total sample.