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# The balance-sheet information content of UK company profit warnings

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*This article looks at the information content of profit warnings issued by UK private non-financial companies over the period 1997–2001 in relation to measures of their profitability and balance-sheet strength. It finds that profit warnings are associated with a persistent fall in profit margins and that this decline in margins is larger than for companies who do not issue warnings. The article also finds that profit warnings contain incremental information for other balance-sheet variables: those firms who issue warnings are also more likely to see their gearing levels rise, and investment and dividends fall, than other firms whose profit margins also fall but who do not issue a warning.*

## Introduction

Profitability is a key indicator of corporate health and profit warnings indicate unexpected developments that may imply lower profitability and increased financial fragility for the firms issuing these warnings. They can therefore be a useful leading indicator, especially as they are mandatory and oblige companies to reveal immediately any change in prospects that might have a bearing on their share price.

This article relates profit warnings for a sample of UK quoted non-financial companies that have issued profit warnings between 1997 and 2001 to their profitability and balance-sheet strength (gearing and liquidity), before and after the warnings. Previous authors have focused on the impact of profit warnings on the share prices of issuing companies. For example, Clare (2001) estimates, for a subset of UK firms issuing profit warnings, that the average share price reduction relative to the FTSE 100 can be as much as 13% on the day a warning is issued.

Profit warnings data are an indicator of unexpected adverse shocks directly affecting the financial position of companies. This contrasts with other indirect indicators that embody the revisions to expectations of agents outside the company; for example, changes in ratings reflect revised expectations by rating agencies about the financial viability of companies. The results of this paper support the view that profit warnings are associated with a (persistent) fall in profit margins for the majority of firms who issue a warning. Moreover, the

incidence and size of the fall in profit margins is greater than for firms not issuing warnings. Although it may not be surprising that profit warnings are associated with lower profitability, previous work has not identified the degree of persistence of the lower profitability, nor its extent. And the analysis does suggest that profit warnings do not merely represent previous overly optimistic expectations of profitability, with no necessary implications for actual profit levels; on the contrary, they do appear to contain forward-looking information about actual profit levels.

These results can be interpreted in the wider context of examining how firms respond to unexpected financial shocks or financial pressure. Studies of corporate behaviour suggest that firms adjust to exogenous shocks or financial pressure on their cash flows by cutting investment, dividends or employment.<sup>(1)</sup> The research finds that firms who issue warnings are also more likely to see their gearing levels rise and dividends and investment fall (relative to the prewarning position, and to other firms whose profit margins fall but who do not issue a warning).

The article begins with a discussion of the data and some descriptive statistics on profit warnings, as well as the research method used. It then quantifies the impact of profit warnings on profit margins and examines the impact of any additional information from profit warnings on other balance-sheet variables; namely the gearing and liquidity levels and discretionary expenditures of issuing firms.

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(1) See, Fazzari *et al* (1988), Bernanke *et al* (1996), Nickell and Nicolitsas (1999), Benito and Young (2001).

## Data and method

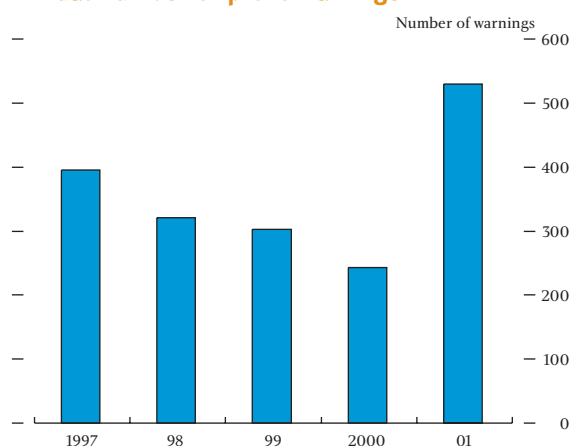
Trading statements must be issued by listed companies in the event that they become aware of developments in their financial situation or business that are significant enough to move the company's share price substantially.<sup>(1)</sup> There are many events that typically give rise to trading statements; the listing rules suggest that dividend announcements, board appointments or departures, profit warnings, share dealings by directors or substantial shareholders, acquisitions and disposals, annual and interim results and any offers of securities should all be announced in a trading statement.

As used in this article 'profit warning' is a negative trading statement. Firms issue profit warning statements when they have material reason to project their profitability to be lower than previously expected; by the company itself, by its shareholders or by research analysts. In general, a company must issue a profit warning as soon as possible after it has become aware of new circumstances that have caused it to revise down its expected future profitability. A short delay between the discovery of this new information and a firm's profit warning is allowed only in exceptional circumstances where the company needs time to clarify the situation. Even in these circumstances a company has an obligation to issue a holding statement outlining the subject matter of its investigations. Together these rules imply that profit warnings should indicate promptly revised expectations of future profitability by the issuing company. To the extent that other market participants believe the company's trading statement, we might also expect these participants to revise their expectations for the same company.

This article looks at warnings issued between 1997 and 2001. The UK definition of a profit warning was unchanged over this period. However, UK listing rules are different from those in operation in other jurisdictions.<sup>(2)</sup>

A database of warnings issued by all listed firms on the London Stock Exchange (LSE) since January 1997 is maintained by the Bank of England. The data are updated on a monthly basis by using the key word search facility in Reuters Business Briefing.<sup>(3)</sup> The database consists of 1,323 warnings issued by 1,047 firms over this period.<sup>(4)</sup> The number of profit warnings in 2001 was higher than that recorded in any of the previous four years and more than double the number recorded in 2000 (see Chart 1).

**Chart 1**  
Annual number of profit warnings



This database has been matched with a database of UK company accounts in order to examine the impact of warnings on company-account variables for over 700 of these firms.<sup>(5)</sup> The set of financial accounts covering the year in which a profit warning was issued has been identified for each firm. Combining the data on profit warnings with company accounts data suggests that profit warnings are spread across the whole distribution of profitability (the shares of profit warnings broadly match the percentiles of the values of profit margins (see Chart 2)). So profit warnings are not confined to low-profitability companies.

The method adopted in this paper is to pool the observations on firms issuing profit warnings across all

(1) Paragraph 9.2 in the listing rules that govern firms listed on the London Stock Exchange states that '[a] company must notify the Company Announcements Office without delay of all relevant information which is not public knowledge concerning a change in (a) the company's financial condition, (b) the performance of its business or (c) the company's expectation of its performance; which, if made public, would likely lead to substantial movement in the price of its listed securities.' A copy of the listing rules published by the Financial Services Authority can be found at [www.fsa.gov.uk/ukla/2\\_listinginfo.html](http://www.fsa.gov.uk/ukla/2_listinginfo.html)

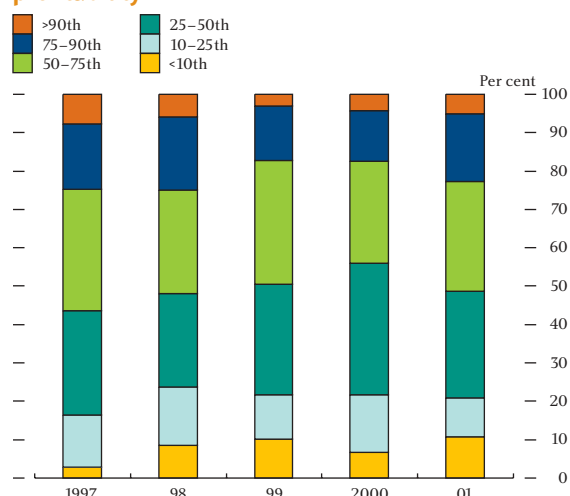
(2) For example, the 'Fair Disclosure' rules in force in the United States until October 2000 did not require full public and immediate disclosure of material information. These rules were tightened somewhat with effect from October 2000, see [www.sec.gov/rules/final/33-7881.htm](http://www.sec.gov/rules/final/33-7881.htm)

(3) The key words 'profit warning' and various combinations of 'profit' and 'warn' are entered into the search facility. The search results are examined to confirm that they are profit-warning statements issued by UK quoted companies.

(4) This is not the only source of profit-warnings data. For example, Ernst & Young also compiles a database from profit warnings as reported in the financial press, see [www.ey.com/global/content.nsf/UK/Profit\\_Warnings](http://www.ey.com/global/content.nsf/UK/Profit_Warnings). The two series are almost identical.

(5) Less than 50% of 2001 year-end accounts was available when this analysis was undertaken. This limits the possible degree of matching of accounts information with profit warnings for that year.

**Chart 2**  
Share of profit warnings in firms of varying profitability<sup>(a)</sup>



(a) Each firm issuing a profit warning is assigned to a category based on its relative profitability in the year prior to the warning. The categories are defined by reference to the values of profit margins at various percentiles (ie firms above the 90th percentile or between the 75th and 90th percentile).

years available (1997–2001), comparing the balance sheets of companies at the financial year-end immediately before and after the warning. Multiple warnings issued by the same firm within the same financial year are counted as one observation. The change in balance-sheet variables for firms issuing profit warnings is benchmarked against a control group of firms who did not issue a profit warning throughout the period 1997–2001. There are approximately 3,000 observations in this control group.

Firms may issue profit warnings as a result of a change in macroeconomic conditions; because of factors affecting all firms in a specific sector; or following changes specific to the company. Macroeconomic conditions are common to all firms, and may be a major source of changes in the total number of profit warnings. However, overall macroeconomic conditions were relatively stable during the period considered, albeit with some marked weakening through 2001. Furthermore, macroeconomic conditions are unlikely to explain the differences in profitability changes between those firms who issue profit warnings and those who do not. To identify the role of sectoral shocks a comparison would need to be made between firms making profit warnings in a particular sector, and those in the same sector not issuing a warning. That is not attempted here.

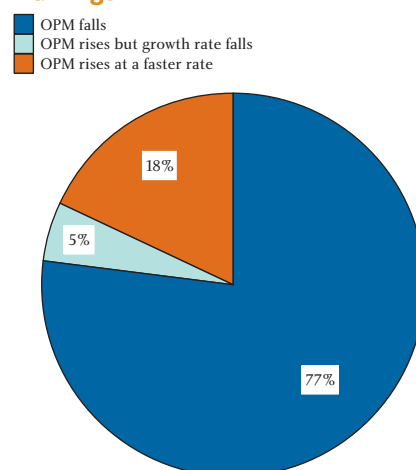
### Profitability

Throughout this article, the operating profit margin is used as the measure of profitability. Profit margins are

not the only indicator of profitability, and others might be used, such as the rate of return on capital. The margin measure makes comparisons within the sample easier. Further, use of the rate of return would introduce the problem of trying to compare new-economy firms who may have little tangible capital stock (and hence capital for accounting purposes) with old-economy firms with lots of capital stock.

Although profit warnings are issued merely when profits are expected to be lower than previously envisaged, in practice, they are associated with falling profit margins for the majority of issuing firms (see Chart 3). Over three quarters of the firms who issued a profit warning in the sample (just over 500 firms) experienced a fall in profit margins between the set of financial accounts immediately preceding the warning and the subsequent

**Chart 3**  
Change in profitability for firms issuing profit warnings<sup>(a)</sup>

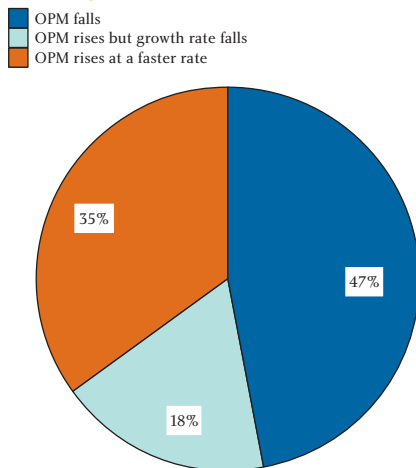


(a) OPM is operating profit margin. The change is calculated between the set of financial accounts immediately pre and post-warning. The change in margins for the no-warning group is calculated over the equivalent set of financial accounts.

year-end set of accounts. Of the remaining quarter that saw profit margins rise, some experienced lower growth in margins than in the previous year, but the majority (rather surprisingly) experienced an increase in the growth rate of their margins. Firms who did not issue a profit warning were less likely to experience a fall in profit margins, and more likely to record an increase in the growth of profit margins, than firms issuing profit warnings (see Chart 4).

The median deterioration in profit margins (measured as the proportional change) for the profit-warning cohort was larger than for the no-warning control group (see Table A). Indeed, the median no-warning control group

**Chart 4**  
Change in profitability for firms not issuing profit warnings<sup>(a)</sup>



(a) OPM is operating profit margin. The change is calculated between the set of financial accounts immediately pre and post-warning. The change in margins for the no-warning group is calculated over the equivalent set of financial accounts.

**Table A**  
Size of change in profitability

Per cent

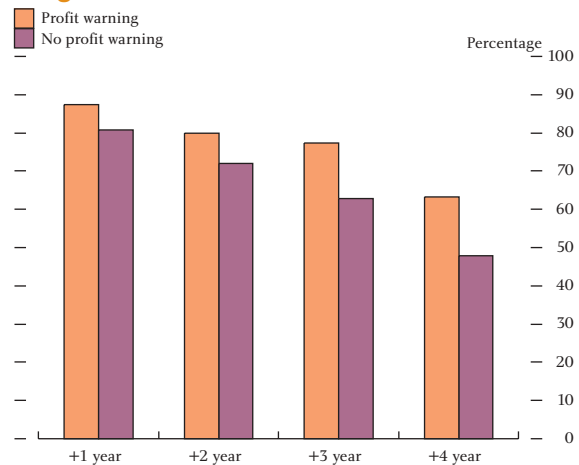
	Median proportional change in profit margins: (a)	
	Profit-warning cohort	No-warning control group
All firms	-20.7	0.0

(a) Between the set of financial year-end accounts immediately before and after the warning.

experienced no deterioration in profit margins. Not only do companies that issue profit warnings face a higher likelihood of a fall in profit margins after the warning than other firms, but they are also likely to experience a similar fall (ie they are more concentrated around the mean fall in margins). Around one in ten firms who issued a profit warning moved from profit-making to loss-making after the warning, around twice as many as for companies that did not issue a warning (5%). Given that the distribution of profitability is not of a standard form (for example, normal), measures of statistical significance for these results cannot be easily computed. But the differences between the profit-warning and non-warning groups appear to be indicative. These differences do not seem to be related to the size of the firm. Although larger firms have a greater propensity to issue profit warnings, comparing changes in profit margins across firms of similar size still shows that firms who have issued warnings experience greater reductions in margins than non-warning firms, whether for all firms, or only those experiencing falling profit margins.

So far, it has been shown that companies that issue warnings are more likely than other companies to experience a deterioration in profit margins. It is possible that this is only a temporary effect, and that profit margins soon return to the prewarning level. Benito (2001) shows that there is a relatively high degree of persistence of corporate profitability. The analysis in this article suggests that this deterioration is more persistent for companies issuing a profit warning than for companies that did not issue a warning and yet also experienced a fall in profit margins (see Chart 5). After two years, around 80% of firms who had issued a profit warning had margins still below prewarning levels, compared with around 70% of the non-warning firms who had lower profitability. There is some evidence that profitability had not returned to prewarning levels even after four years, but this applies only to firms issuing warnings up to 1999 (ie halfway through the sample period).

**Chart 5**  
Non-recovery rates of firms with falling profit margins<sup>(a)</sup>



(a) The non-recovery rate is the share of all firms who experience falling profit margins and do not see their margins recover to prewarning levels for 1, 2, 3 and 4 years.

An alternative way of looking at persistence of profitability is to use a transition matrix that shows the proportion of companies that move from one quintile of the distribution of profitability to another over a period of a year. This is shown as Table B, averaged over 1997–2001, both for firms who issued a profit warning and firms who did not. The diagonal elements give the proportions that remain in the same profitability ranking (quintile) between one year and the next—a measure of persistence.<sup>(1)</sup>

(1) Some 738 firms issued warnings in the sample and so each row in the transition matrix represents around 150 firms. There are some 3,000-plus firms in the control group and so around 600 firms in each row.

Consistent with the findings of Benito (2001) there is a high degree of persistence for both groups, but firms who issue warnings are more likely than other firms to see their relative profitability position change in the year following the profit warning. Tests described in Proudman *et al* (1998, pages 49–50) show that these differences between the two groups are statistically significant.<sup>(1)</sup> Taken together, these two sets of findings on persistence show that companies issuing a warning are more likely to experience a change in profitability and that the fall in profitability is then more persistent than for other firms.

**Table B**  
**A transition matrix of profitability**

Group after/before	Profit-warning firms					Group after/before	No profit warning firms				
	1	2	3	4	5		1	2	3	4	5
1	63	27	3	5	2	1	71	20	3	3	3
2	25	60	14	1	0	2	13	59	25	2	1
3	8	35	51	6	0	3	4	14	58	22	2
4	6	11	33	45	5	4	4	3	11	67	15
5	3	3	7	26	61	5	2	2	2	11	83

Notes: Groups 1–5 correspond to firms below the 20th percentile of profit margins, between the 20th and 40th percentile, between the 40th and 60th percentiles, between the 60th and 80th percentiles, and above the 80th percentile in each year respectively. Each row sums to 100% and individual entries describe the proportionate chance of staying in the same group both before and after the warning.

## Balance-sheet changes

The impact of profit warnings on a company's balance sheet and profit and loss account might not be confined to profit margins alone. Under the listing rules for the dissemination of price-sensitive information, a quoted company is obliged to notify the market as soon as it anticipates lower profitability than previously envisaged. The immediacy with which these disclosures have to be made reduces the scope for firms to have revised their balance sheets before the warning and increases the probability of finding 'knock-on' revisions to other balance-sheet variables in response to the warning.

Firms might react initially to falling profitability by reducing cash holdings because cash holdings are the cheapest alternative source of income compared with debt or equity (Myers and Majluf (1984)). Otherwise companies might compensate for falling internal funds by increasing external finance (ie issuing new equity, increasing debt finance) and/or reducing

discretionary expenditures, such as those related to employment, dividends or investment (see, for example, Fazzari *et al* (1988), Bond and Meghir (1994), Bernanke *et al* (1996), Benito and Young (2001) and Nickell and Nicolitsas (1999)). This applies to all firms who experience falling profitability, whether following a profit warning or not. By comparing the different responses of companies who have and have not issued profit warnings to a fall in profitability we can assess whether profit warnings have incremental information for other balance-sheet variables.

There is some evidence for a greater propensity for firms who have experienced falling margins following a warning to have subsequently increased gearing, reduced investment rates and dividend payout ratios, in comparison with firms who experienced falling margins without issuing a warning. But there is little difference in the propensity of both groups to experience a fall in liquidity (Table C).<sup>(2)</sup> Profit-warning firms therefore seem to become more financially frail following the warning than do firms who also experience a fall in margins but who do not issue a warning.

**Table C**  
**Incremental information from firms with falling profit margins**

	Issued a profit warning (a)	Did not issue a warning (a)
Gearing rises	59.2	51.5
Liquidity falls	56.2	56.4
Investment rate falls	60.8	51.6
Dividend payout rate falls	63.5	43.1

(a) 77% of firms who issued a warning also experienced a fall in profit margins; 47% of firms who did not issue a warning experienced a fall in margins.

## Conclusions

Previous studies have concentrated on the relationship between profit warnings and share price changes. The analysis described in this paper is new in that it compares changes in profitability and other balance-sheet indicators between firms who have issued profits warnings and a control group of firms who have not issued warnings over the same period. There are three key findings.

First, over three quarters of firms experience falling profit margins in the financial year in which they issue a

(1) Table B also implies that firms in the least profitable quintile have less persistence in profitability than firms in the higher-profitability groups, irrespective of whether they issue warnings or not. This is also consistent with Benito (2001) who concludes that such companies are able to recover from periods of relatively poor performance more rapidly than linear models of profit persistence would predict, conditional on their survival.

(2) The distribution of all these variables is non-normal and measures of statistical significance for these results cannot easily be computed.

warning. Fewer than 20% of firms issue a profit warning and then experience increased growth in profit margins in the same financial year.

Second, there is evidence that the decline in profitability is not temporary, once it has occurred. Some 80% of profit-warning firms in the sample did not see their profit margins recover to prewarning levels within at least two years. This persistence is more marked than for firms who did not issue a warning.

Third, profit warnings are associated not only with falling profitability, but also with adverse developments in other balance-sheet variables—increased gearing, reduced investment and reduced dividend payout ratios—for greater proportions of profit-warning firms than of non profit warning firms. Profit warnings therefore appear to have some incremental information for overall balance-sheet health beyond that implied by falling profitability.

## Data appendix

### Capital gearing at replacement cost

Gross debt divided by capital stock measured at replacement cost. Gross debt (Datastream item (DS) 1301). Capital stock is measured on a replacement cost basis. The raw data provide cost of plant and machinery (DS328), buildings (DS327) and other assets (DS329) separately in gross historic cost terms.

Replacement cost capital stock,  $K$ , is estimated using the perpetual inventory method formula:

$$K_{it+1} = (1 + P_t) K_{it} (1 - \delta) + IJ_{it}$$

where  $P_t$  is the inflation rate for the particular asset type in year  $t$ ;  $\delta$  is the rate of depreciation of the asset. This is assumed to be equal to 0.025 for buildings, 0.08 for plant and machinery and 0.05 for other assets;  $IJ$  is investment in a particular asset. Total stocks and work in progress (DS364) are then added for each company in a particular year to obtain the company capital stock in that year. For the company's first observation, the replacement cost is assumed equal to the gross historic cost.

### Dividends

Ordinary dividends net of advance corporation tax (DS187). Dividend-sales payout ratio is DS187 divided by sales (DS104).

### Investment rate

Investment is the proportionate change in the capital stock measured at replacement cost.

### Liquidity

Ratio of cash and equivalents (DS375) to current liabilities (DS389).

### Profit margins

Earnings before interest and tax divided by sales. This is calculated as pre-tax profit (DS137) plus net interest paid (DS157-DS143), divided by sales (DS104).

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