

**CORPORATE PROFITABILITY IN IRELAND:
OVERVIEW AND DETERMINANTS**

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1. INTRODUCTION

The study of profits is important not only because of the information it provides about the health of the economy in any given year, but also because profits are a key determinant of growth and employment in the medium-term. Changes in profitability are an important contributor to economic progress via the influence profits have on the investment and savings decisions of companies. This is because a rise in profits improves the cash-flow position of companies and offers greater flexibility in the source of finance for corporate investment (i.e. through retained earnings). Easier access to finance facilitates greater investment which boosts productivity, productive capacity, competitiveness and employment.

This paper has a number of objectives. Firstly, it presents an overview of recent trends in profitability in Ireland, both at a manufacturing/sectoral level as well as at a broader macroeconomic level. Secondly, the paper tries to determine, in an impressionistic way, the range of likely factors (such as exchange rates and the degree of monopoly power) which influence movements in profitability. A third objective is to briefly review the capital structure of Irish industry and the implications for the financial well-being of the corporate sector. Finally, the paper explores the relation between profits/retentions with investment and employment, which is a key motivation for the study of profits in the first place.

2. PROFITS AND SECTORAL TRENDS

What is Profit?: A Theoretical Perspective

Profit, in effect, is a simple residual concept but its level is determined by the complex interaction of a multitude of factors. If we begin at the level of the firm, the

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typical firm's profit (denoted by Π) in a simple competitive market model is defined by:

$$\Pi = TR - w \cdot N - r \cdot K$$

where TR is the total revenue (or total sales) of the firm. The firm's costs are represented by the wage bill (the wage rate, w , times the workforce, N , of the firm) and the cost of capital (the rental cost of capital, r , multiplied by the capital stock of the firm, K). According to Sargent (1987) the 'rental' or 'user' cost of capital is equal to the interest rate on government bonds plus the depreciation rate minus the expected rate of increase in the price of new capital goods.¹ We know from corporate finance theory that in order for investment in fixed capital to be profitable, the rate of return should *at least* be equal to the cost of borrowing funds to finance that investment plus a charge for depreciation. In other words, if the initial cost of the investment undertaking is greater than the present value of expected future returns on the investment (i.e. the net present value is negative), then the firm should not proceed with the investment. If the net present value of available investment projects is positive, then in a world without capital rationing, the firm should continue to invest in projects until, at the margin, the firm is indifferent between the investment and the purchase of a government bond. Ultimately, the rate of accumulation of new capital (i.e. the level of net investment) depends on the gap between the rate of return on capital and the cost of capital.

Closely related to the cost of capital concept, is 'Tobin's q' – the ratio of the stock market valuation of the firm to the net-of-tax replacement cost of the firm's existing capital. A low value of q suggests that corporate profitability is insufficient to stimulate capital investment. In such an environment, firms tend to prefer the acquisition of existing firms rather than expand fixed investment. A high q value implies an incentive for firms to accumulate new capital goods, i.e., for shareholders to invest in the shares of the company and earn a profit when investment is financed through equity issues (see also Sargent (1987, p.11)). Estimates of Tobin's q for Irish companies using this measure will be discussed later in the paper in the context of the relationship between profits and investment at the macro level for Ireland.

We begin, however, at the sectoral level by taking a detailed look at the trends and possible determinants of profit in Irish manufacturing industry.

Recent Trends in Manufacturing Profitability

In the Irish context, the most detailed source of data available on sectoral profitability relates to manufacturing industry; these data are compiled by Forfás in its annual *Irish Economy Expenditure Survey* (IEE). Appendix 1 discusses some of the main sources of data on Irish corporate profits. This section analyses trends in the profitability of indigenous manufacturing industry using IEE data, while the next section provides an analysis of the possible factors which determine indigenous

profits.²

A sector-by-sector account of trends in profitability (i.e. profits as a proportion of sales) in Irish-owned manufacturing, over the period 1983 to 1996, is provided in the graphs in Appendix 2. The main features to note are as follows:

- there has been a steady trend improvement in total indigenous profitability, albeit from a very low base, since 1983;
- there has also been a steady improvement in profits since 1993 in most sectors, although there does not seem to have been a noticeable effect on the *overall* profit share arising from the '*currency crisis*' during late-1992/early-1993 (though this probably reflects the fact that the exchange rate turbulence did not last long enough to make a significant impact). An exception to this appears to be the textiles sector, which exports one-third of its gross output to the United Kingdom (UK), where profits collapsed to zero in 1993 even allowing for the exchange rate realignment;
- five out of ten sectors recorded a decline in profits in 1992;
- four out of ten sectors recorded a rise in profits in 1993 (the year of the realignment of the Irish pound in the ERM);
- only two out of the five sectors which recorded a fall in the profit ratio in 1992 experienced an increase in profits in 1993; and
- nine out of ten sectors registered a decrease in the profit ratio in 1996.

These results for indigenous manufacturing do not appear to be inconsistent with the pattern evident for the share of economy-wide indigenous profits in GNP presented later in the paper. The Forfás survey enables the user to identify the main factors driving developments in costs (i.e. identify growth in wage costs, as well as imported and Irish-sourced raw materials and service inputs). These three elements account for the bulk of total costs while charges for depreciation and interest are relatively minor in comparison. In Appendix 3, the evolution of the main components of costs in relation to turnover in indigenous manufacturing is presented. As can be seen, the decline in the profit rate in 1996 for total indigenous industry was mainly due to the increased usage of raw materials and services relative to sales.

In summary, this section has highlighted the main sources of sectoral and micro-data on profits in Ireland. Of these, the Forfás Survey was adjudged to be a good, accessible, source. It indicates a steady improvement in indigenous profits in recent years, although indigenous profits actually declined relative to sales in 1996. In addition, while aggregate profits in Irish-owned manufacturing did not seem to suffer significantly during the currency crisis, some traditional sub-sectors such as textiles and timber and wooden furniture, experienced a reduction in profitability. In the next section, exchange rate variables and other factors believed to be determinants of

profitability, are examined for their influence.

3. DETERMINANTS OF CORPORATE PROFITABILITY IN IRELAND

Before exploring the range of possible determinants of profits, it is worth outlining briefly some of the main strands of the economics literature on profits. One is immediately struck by the dearth of empirical research that has been conducted on this topic, particularly in Ireland. Part of the reason for the absence of much work on Irish profitability is possibly the poor quality and the relatively short span of data, especially at a sectoral level. Studies of profitability in the international literature have typically tended to focus on aspects such as:

- the analysis of profit trends obtained from census data, surveys, company accounts³, and proxy measures of profitability;
- panel data studies relating the degree of concentration (that is monopoly power in an industry, capital utilisation, etc.) to sectoral profits. See, for example, Denny and Van Reenan (1993), Thurik and Van der Hoeven (1989);
- macro studies of the determinants of corporate profits, see, for example, Uctum (1995);
- studies of ‘pricing to market’, for example Marston (1990), and the ‘pass-through’ effect, for example Foot and Klemperer (1989), which concern price discrimination across destination markets. These indirectly concern the profitability of export sales but do not address the feedback to overall profits.

This study aims to use some of the methods and sources involved in the above strands to examine some possible determinants of profits in manufacturing and its sub-sectors. The correlations between Forfás profits data and the factors listed below are examined in order to gauge the extent to which these variables fluctuate with profits.

The factors are as follows:

- an indicator of competitiveness trends/real exchange rate measure: relative *unit labour costs* (ULCs) of indigenous industry vis-à-vis the UK;
- two indicators of internal demand: a capacity utilisation measure in manufacturing and an output gap measuring the difference between actual and potential GDP;
- a measure of the degree of concentration (i.e. monopoly power) in an industry;
- two exchange rate variables: the sterling-Irish pound rate and the *effective exchange rate* (EER) index;

- two indicators of external demand proxied by foreign income based on UK and EU GDP.

The factors were among those included in Uctum's (1995) profit equation and Thurik and Van der Hoeven's (1989) mark-up equation. While not actually implying anything about causality, the correlations, presented in Table 1, are intended to help identify possible determinants.

Beginning with the relative ULC measure, theory suggests that profits should be negatively related to this measure (i.e. a rise in Irish ULCs relative to the UK equivalent, expressed in common currency, should make Irish goods less competitive relative to the UK such that profits fall). Table 1 indicates that in nine out of ten sectors the two variables are negatively correlated (and quite highly correlated in a number of sectors dependent on the UK for exports, such as textiles and timber and wooden furniture).

In the case of capacity utilisation, nine out of ten sectors, with the exception being metals and engineering, have the expected positive correlation (as profits are pro-cyclical). In addition, the correlations are generally significantly higher than for the relative cost measure. In the case of the output gap measure, however, the correlations are much smaller. As regards the foreign income variables, all ten sectors' profitability are positively, and highly, correlated with both measures of foreign income. This is consistent with the view that profits are pro-cyclical and that changes in profitability are attributed to changes in the economic growth rate.

Industry structure, in particular the degree of concentration, is often cited in the literature as an important determinant of profits. Denny and Van Reenan (1993) found that market share and concentration had significant and positive effects on firms' profit margins in the UK.⁴ The logic is that the greater the degree of monopoly power that a firm enjoys, the higher the profit margin the firm/sector can command. The measure of concentration, which is used in Table 1, is a four-firm concentration index based on gross value-added (i.e. gross output of the top four firms in a sector divided by the output of that sector). If the index has a value of one, this implies that the sector is concentrated (i.e. the four firms produce all the domestic output). A low value for the index implies a more competitive sector and, therefore, lower profit margins should *ceteris paribus* be a feature in that sector.

Table 1: Correlation Between Forfás Sectoral Profitability Estimates and Possible Determinants of Profits (1983-1996)

	<i>Relative ULC vis-à-vis UK</i>	<i>Capacity utilisation</i>	<i>Output gap</i>	<i>Sterling-Punt exchange rate (% D)</i>	<i>Effective exchange rate (% D)</i>	<i>EU GDP</i>	<i>UK GDP</i>	<i>Concentration</i>
<i>Non-metallic minerals</i>	-0.24	0.49	0.18	0.16	-0.03	0.56	0.46	
<i>Chemicals</i>	-0.36	0.63	0.22	-0.24	-0.35	0.64	0.66	
<i>Metals and engineering</i>	-0.01	-0.13	-0.18	-0.08	0.15	0.43	0.52	
<i>Food</i>	-0.20	0.65	-0.23	-0.13	-0.01	0.79	0.77	
<i>Drink & tobacco</i>	-0.25	0.36	0.17	0.03	0.01	0.58	0.57	
<i>Textiles</i>	-0.30	0.38	0.53	0.36	0.54	0.42	0.52	
<i>Clothing and footwear</i>	0.24	0.41	-0.18	0.49	0.13	0.62	0.67	
<i>Timber and wooden furniture</i>	-0.63	0.59	0.56	-0.44	-0.29	0.33	0.35	
<i>Paper and printing</i>	-0.42	0.85	0.26	-0.08	-0.04	0.93	0.96	
<i>Miscellaneous</i>	-0.19	0.63	0.11	-0.10	-0.38	0.87	0.83	
<i>Total</i>	-0.42	0.85	0.07	-0.39	-0.20	0.96	0.95	0.56

Source: Forfás IEE Survey; CSO; OECD Economic Outlook June 1998; IBEC/ESRI monthly industrial survey; Central Bank estimates.

Using a cross-section of data⁵ for the ten sectors between 1991 and 1996, it was found that both the drink and tobacco sector and the non-metallic mineral products sector had the highest index of concentration at 0.54 during the period. Each of these sectors also has a low degree of import penetration.⁶ It is not surprising, therefore, to note that these two sectors had the highest ratio of profits to sales over this period (at 16.4 percent and 11.3 percent, respectively). Likewise, the clothing and footwear sector has the lowest level of concentration at 0.12 on average over the period. This sector has a very high degree of import penetration as well. From the data used in Appendix 2, average profitability was low in this sector between 1983 and 1996 at just 3.7 percent of sales. Finally, using the cross-section of sub-sector correlations for each year between 1991 and 1996, the average correlation for total manufacturing was reasonably high at 0.56, suggesting an important role played by concentration.

The final variable examined, the exchange rate, should in theory be an important factor in profit determination - particularly in a small open economy like Ireland. According to Uctum (1995), the exchange rate affects profits via a number of channels:

1. *Cost channel*: a depreciation (appreciation) of the domestic currency will increase (decrease) the cost of imported inputs and lower (raise) profits. Some recent Central Bank of Ireland research has indicated, however, that there is only slow pass-through of exchange changes to import prices and, by implication, imported input prices (Kenny and McGettigan, 1996);
2. *Volume channel*: a depreciation (appreciation) leads the firm to lower (raise) its foreign currency price of exports, a move that increases (decreases) its sales and hence its profits;
3. *Valuation channel*: a depreciation (appreciation) of the currency also raises (lowers) the domestic currency value of exports, improving (lowering) profits in domestic currency. The degree to which this occurs depends on the extent to which firms pass-through the exchange rate effects to the foreign currency price of their exports. The greater the degree of pass-through the lower the valuation effect and the larger the volume effect. In a *small open economy* (SOE) like Ireland, we would expect that the degree of pass-through of exchange rate changes to export prices to be very low as it is likely to be a price-taker on the international market. Browne (1982, 1983) found that the price-taking, SOE hypothesis could not be rejected for Ireland. The domestic currency price of exports, and by implication the profit margin, bear the brunt of the adjustment to movements in the exchange rate. Preserving market share via pricing-to-market may be the key to exporters behaviour. The volume effect should, therefore, be dominated by the valuation effect in the case of Irish exports. Overall, the combined outcome of the valuation and volume effects is unambiguous, a depreciation (appreciation) of the currency benefits (lowers) profits. Judging by the evidence for Ireland, these two effects would be expected to outweigh the adverse cost channel effect, at least in the short-run.

In Table 1, the correlation between changes in profit as a percentage of sales and changes in the exchange rate variables are presented. We see that on a sector-by-sector basis, there are mixed results. For both the Sterling/Irish pound rate and the EER, six of the ten sectors have correlations with the expected sign (i.e. negative). Furthermore, the correlations are almost all on the low side. For indigenous manufacturing as a whole, changes in exchange rates are negatively related to changes in profit share but the correlations are not that large.

The problem with the use of nominal exchange rates is that they should ideally be adjusted by some relative price term. This adjustment results in a measure of the real exchange rate (such as in the relative ULC measure in Table 1). An alternative approach is to use a proxy for export profitability in a sector, defined as the ratio of the producer price for export sales (expressed in domestic currency) divided by the producer price for home sales.⁷ This relative price term indicates changes in export profitability. For example, as the cost of producing goods for the home and the export markets should not be materially different, a fall in the price of goods sold on export markets relative to the price of goods for sale at home indicates a fall in export profitability (assuming unchanged sales volumes). Export markets are a key outlet for most sectors of manufacturing industry in Ireland, so a decline in export profits adversely affects overall profits.

Table 2 presents the correlation coefficients between this export profitability proxy for most sectors of total manufacturing industry⁸ and the two exchange rates. For total manufacturing, the correlation between the export profitability proxy and the exchange rate with sterling is rather on the low side, at -0.26, despite the importance of the UK market for manufacturing exports.⁹ There is a higher correlation with the EER at -0.54, however, reflecting the trade-weighted nature of this index. The implications of this is that there is a near zero 'pass-through' of exchange rate changes to the foreign currency price of exports (since Ireland is a SOE the export price is effectively given in foreign currency). In other words, the profitability of export sales would tend to fluctuate with changes in the exchange rate (abstracting from hedging arrangements, fixed price contracts etc.) as the domestic currency price takes the full adjustment. In the case of individual sectors, as one would expect, there is a high correlation with sterling movements when the dependence on the UK market is important (e.g. the chocolate confectionery sector, timber and wooden furniture and textiles).

Table 2: Correlation of Export Profitability Proxy with Exchange Rates*
(Monthly Data: January 1990 to September 1998)

Sector	P_x/P_h with Stg/IEP	P_x/P_h with EER
<i>Production and preliminary processing of meats</i>	-0.22	-0.19
<i>Non-metallic mineral products</i>	-0.34	-0.17
<i>Chemicals</i>	+0.27	-0.30
<i>Pharmaceuticals and other chemical products</i>	+0.42	-0.06
<i>Metal articles</i>	+0.15	-0.58
<i>Mechanical engineering</i>	-0.44	-0.80
<i>Electrical engineering</i>	-0.17	-0.76
<i>Instrument engineering</i>	+0.44	-0.35
<i>Food</i>	-0.35	-0.67
<i>of which:</i>		
• <i>Vegetable/animal oils and fats</i>	-0.22	-0.29
• <i>Slaughtering, preparing and preserving of meats</i>	-0.30	-0.34
• <i>Dairy products</i>	-0.08	+0.35
• <i>Processing/preserving fruit and vegetables</i>	-0.59	-0.22
• <i>Grain milling, animal and poultry foods</i>	-0.50	-0.51
• <i>Sugar, cocoa, chocolate and sugar confectionery</i>	-0.68	-0.11
<i>Drink</i>	+0.02	-0.60
<i>Textiles</i>	-0.60	-0.22
<i>Leather, leather goods and footwear</i>	+0.02	+0.32
<i>Clothing</i>	-0.18	-0.09
<i>Timber and wooden furniture</i>	-0.63	-0.63
<i>Paper and paper products</i>	-0.55	-0.06
<i>Plastics</i>	-0.47	-0.12
<i>Other manufactured products</i>	-0.21	-0.08
<i>Total Manufacturing Industry**</i>	-0.26	-0.54

Notes: P_x/P_h is the ratio of the producer price of export sales to the producer price of home sales. The home sales and export price series for sub-sectors are unpublished.

*A positive (negative) sign on the coefficient implies that export profitability tends to move in the same (opposite) direction as the exchange rate. A correlation coefficient of +1 (-1) implies that a rise in the exchange rate is matched one-for-one with a rise (fall) in export profitability.

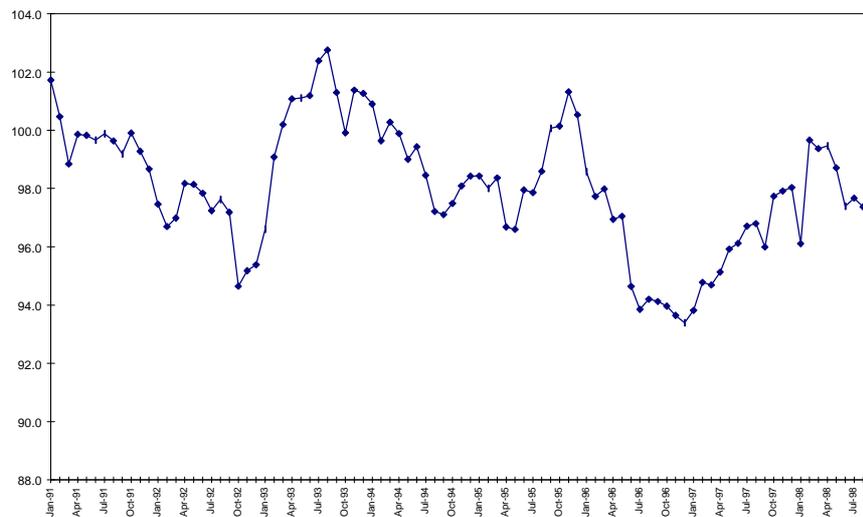
**Data for producer prices for total manufacturing industry begin January 1991.

Source: CSO Wholesale Price Index Series.

Finally, as an indication of recent trends in the profitability of manufacturing

exports, Figure 1 depicts the trend in the export profitability proxy from January 1991 to September 1998. Its movements are in broad agreement with the trend depicted in the Forfás survey (e.g., there was a decline in export profitability as well as the indigenous profit share in 1996). More recently, the profitability of exports seems to have recovered following the weakening of the Irish pound in the run-up to *Economic and Monetary Union* (EMU).

**Figure 1 Total Manufacturing Industry Export Prices Relative to Home Sales Prices
(A Rise in the Index Implies a Rise in Export Profitability, 1985 = 100)**



Source: CSO Wholesale Price Index Series.

To summarise, this section has discussed trends in sectoral profitability within indigenous manufacturing industry, as well as some possible determinants of profits. A good source of data on indigenous profits in manufacturing is the Forfás survey. Using this indicator, it was found that since 1990 overall profits have generally been on an upward trend. This pattern was echoed in most of the sub-sectors. Other important features of recent years included indications that the currency crisis of 1992/93 did have an impact on profitability in sectors dependent on the UK (notably textiles and, to a lesser extent, timber and wooden furniture).

On examination of the possible determinants of profitability, most of the results tend to support the theoretical priors. Practically all the variables selected as possible determinants of profits appeared to be correctly signed and quite highly correlated with profits. Among those variables which are most suggestive of a fundamental relationship include the demand-side variables (capacity utilisation and foreign income), the exchange rate, and to a lesser extent, a real exchange rate measure. Other supply-side variables which might also be factors determining profits (but

were not examined) include real energy costs and real total import prices.

Having examined sectoral trends in manufacturing profitability and a range of possible determinants of profits in detail, it is worthwhile looking at profits at a macroeconomic level. This is done in the next section.

4. PROFITS - A MACROECONOMIC OVERVIEW

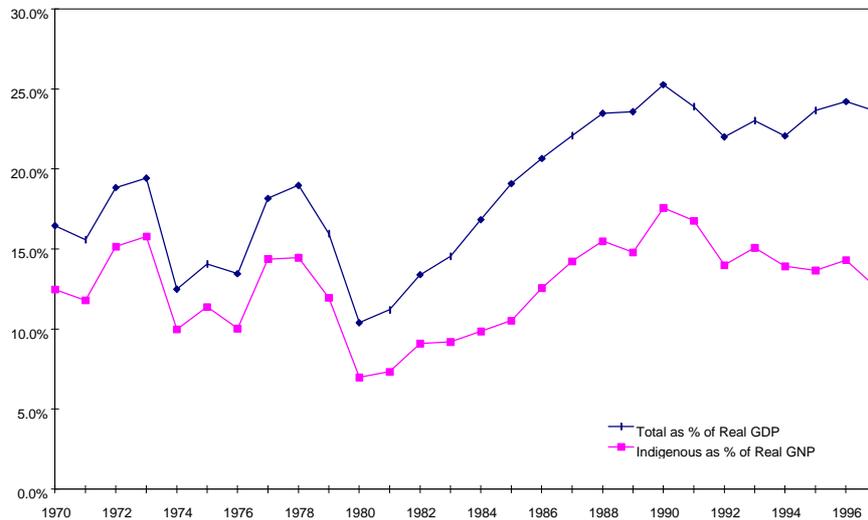
Factors Underlying the Evolution of Profits in the Economy

In the study of profits at the macroeconomic level, two concepts are typically used. The first is the *rate of profit per unit of output* measure (gross or net operating surplus as a proportion of GDP or GNP) and the second is the *profitability of capital* measure (net operating surplus per unit of net fixed capital stock). Gross operating surplus is defined as trading profits before tax, interest and depreciation expenses, while net operating surplus deducts the depreciation charge.¹⁰ Estimates for the unit profit rate are shown in Figure 2 for the whole economy and the indigenous economy (excluding profits of foreign-owned multinational corporations (MNCs)) over the 1970-97 period.

In Appendix 4, a more detailed discussion of the gross operating surplus concept and the estimation of the proxy for indigenous profits is provided. We can see that the two series generally move in tandem with, for example, similar significant declines in the profit share following the two OPEC oil shocks in the 1970s. During the early 1980s, however, the total economy net profit rate recovered more strongly and did not experience as significant a decline as indigenous net profits did in the first half of the 1990s. In 1997, total economy-wide net profits reached almost 24 percent of GDP while the indigenous net profits to GNP was almost 13 percent of GNP. It seems somewhat puzzling that the estimate of indigenous profits has declined steadily in recent years even though the Irish economy has performed strongly since 1993. The high levels of domestic demand, however, has given rise to a rapid expansion in employment; so while the absolute level of profits has been increasing due to the favourable economic climate, the national pay bill also has grown significantly (despite wage moderation).

Of more importance, however, is the fact that capital productivity growth has accelerated. As a result, even though output has been growing rapidly, the profit share was falling during these years. This suggests that the unit profit rate, or profit share, is not an ideal measure of the financial health of the economy. The performance of profits during recent years is more adequately captured by using an estimate of the capital stock as the scale variable or numeraire (this superior measure is discussed later).¹¹

**Figure 2 Total and Indigenous All Sector Profit 1970-1997
as a percentage of GDP and GNP respectively in Constant Market Prices**



Source: CSO (1997).

Movements in profitability over time reflect underlying changes in output, factor inputs and relative factor prices. The European Commission regularly monitors trends in these variables in its regular reports and occasional studies.¹² This section examines trends in profitability in relation to these variables. For ease of exposition, we can identify four distinct stages since the early 1970s:

1971-73:

This period represents a cyclical peak in the midst of a period of industrialisation which effectively commenced in the 1960s. The economy was at or near full-employment with the capital stock and output growing at broadly the same pace, see Table 3, in conjunction with high rates of labour productivity and profitability.

1974-78: _

This period was characterised by accommodative fiscal and monetary policies in the wake of the first oil price shock in 1974 and, later, in the expansionary budget of 1977. This was reflected in fixed capital investment, see Table 3, which did not decline significantly over this period, presumably due to the negative real rate of interest prevailing during this period and higher government investment. The two measures of profit declined sharply in 1974 when net profitability declined by 29 percent, and while they subsequently recovered significantly, by 1978 profits were still below their pre-oil shock peak. With regard to the distribution of national income, we can see from Table 3 that real labour costs per employee increased by

3.9 percent, on average, while the real rate of return on capital grew by just 1.7 percent.

Table 3: Growth of Output, Factor Inputs and Factor Costs in Ireland

Annual average % change in:	1971-73	1974-78	1979-86	1987-97
GDP	5.5	3.9	2.8	6.2
Employment	0.4	0.8	-0.3	2.0
Capital/labour ratio	4.8	4.2	4.6	0.3
Fixed capital	5.2	5.0	4.3	2.3
Real labour cost per employee	3.5	3.9	1.8	2.0
Real rate of return on capital	6.5	1.7	1.5	5.2
Capital productivity	0.3	-1.1	-1.4	3.8
Labour productivity	5.1	3.1	3.2	4.1
<i>of which:</i>				
Total factor productivity* ¹	3.6	1.7	1.7	4.0
Capital-labour substitution**	1.5	1.3	1.5	0.1
Memorandum Item				
Impact of capital deepening***	-3.3	-2.8	-3.1	-0.2

* Total factor productivity (i.e. a measure of technological progress) is defined as that part of output growth which is unexplained by the contribution of labour and capital inputs to total output growth. See Appendix 2 for derivation.

** Capital-labour substitution is defined as the weighted capital/labour ratio, the weight used being the profit share in output.

*** Defined as the difference between average capital productivity and total factor productivity. It measures the amount of the increase in capital stock that is absorbed by the substitution of labour by capital (i.e. it does not enhance productive capacity). The measure captures the degree of rationalisation.

Source: CSO (1997) and author's own estimates.

The rise in real per capita labour costs actually accelerated slightly during this period compared to the pre-oil shock period when, ideally, a moderation of wage growth was warranted. This reflected the inflexible arrangements regarding national pay bargaining in the 1970s.

The growth in labour costs also exceeded the average rise of 1.7 percent in total factor productivity. *Total factor productivity* (TFP) is usually taken as a measure of technological progress, improvements in skills and human capital, etc..¹³ The logic is that a rise in pay per employee, *ceteris paribus*, should not squeeze profits if

technological and other improvements raise productivity sufficiently to compensate for the increase in labour costs. Since per capita labour costs grew by more than the increase in TFP, there was a significant deceleration in the real rate of return on investment.

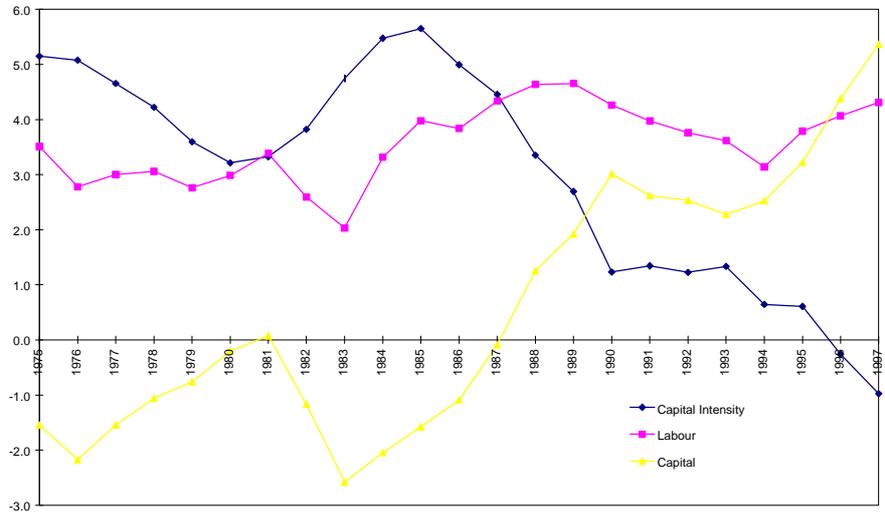
1979-86:

In the aftermath of the second oil price shock in 1979 and the anti-inflationary policies pursued internationally, profits suffered a further setback. However, Figure 2 indicates that total profits improved quite significantly after 1981 reflecting the growing importance of multinationals and transfer pricing in Ireland. Indigenous profits, though, never recovered to their 1978 level. We can see from Table 3 that output growth, on average, was significantly lower. In addition, while labour productivity still grew significantly, by 3.2 percent on average, this mainly reflected:

- a contraction in employment (for example, approximately 50 percent of manufacturing jobs were shed between 1980 and 1986);
- a process of capital restructuring in response to a change in relative input costs following the rise in energy prices;
- a rise in level of the capital/labour ratio. This arose from the contraction in employment and a high incidence of labour-saving, rather than labour-using, investment. It, therefore, reflected the impact of rationalisation not expansion, and hence did not contribute to any growth in productive capacity. This labour-saving investment, also known as 'capital deepening', was the result of a deterioration in the real cost of labour relative to the cost of capital. Successive increases in taxes on employment, to contain the fiscal deficit, compounded the problem of a lack of real wage flexibility. These factors induced a strong process of substitution of labour by capital (which explains 1.5 percentage points of the 3.2 percent rise in output per capita) and, therefore, a rise in capital intensity.

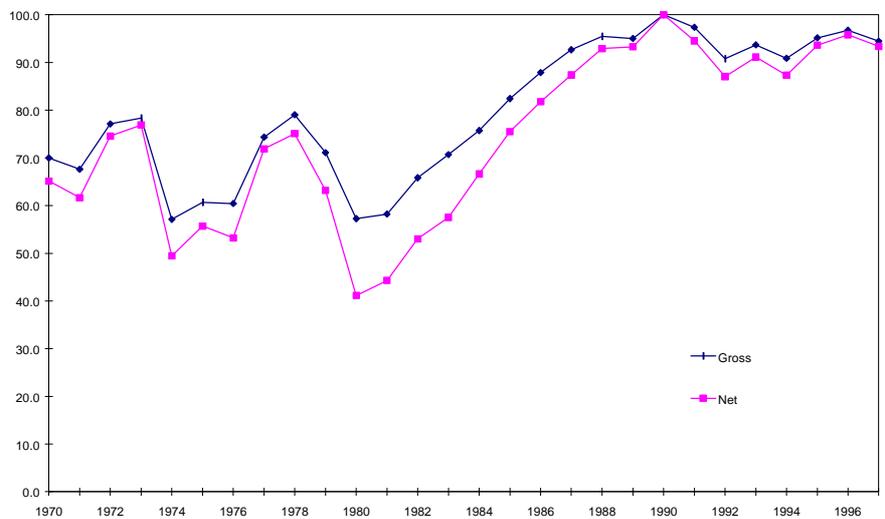
Figure 3 shows that, in the first half of the 1980s, the process of capital deepening gave rise to a sharp decline in the marginal efficiency of capital. In fact, the five-year moving average of the growth in capital productivity was negative until 1988. All the above factors, in combination with weaker GDP growth, resulted in lower profits. As Figure 4 indicates, the process of capital restructuring and capital deepening drove an increasing wedge between gross and net profits during this period (the higher capital stock resulted in a higher share of provision for depreciation in GDP).

**Figure 3 Labour Productivity, Capital Productivity and Capital Intensity
(Five year moving average of annual growth rate)**



Source: CSO (1997) and author's own estimates.

Figure 4: Real Gross and Net Operating Surplus for All Sectors as a percentage of GDP 1970-1997 (1990 = 100)



Source: CSO (1997).

Overall, it can be argued that the combination of inappropriate fiscal and monetary policies as well as the maintenance of wage indexation policies throughout the 1970s

and early 1980s contributed to the poor performance of profitability. With regard to fiscal policy, for example, in an attempt to contain the spiralling government budget deficit, income taxes were significantly increased pushing up labour costs.

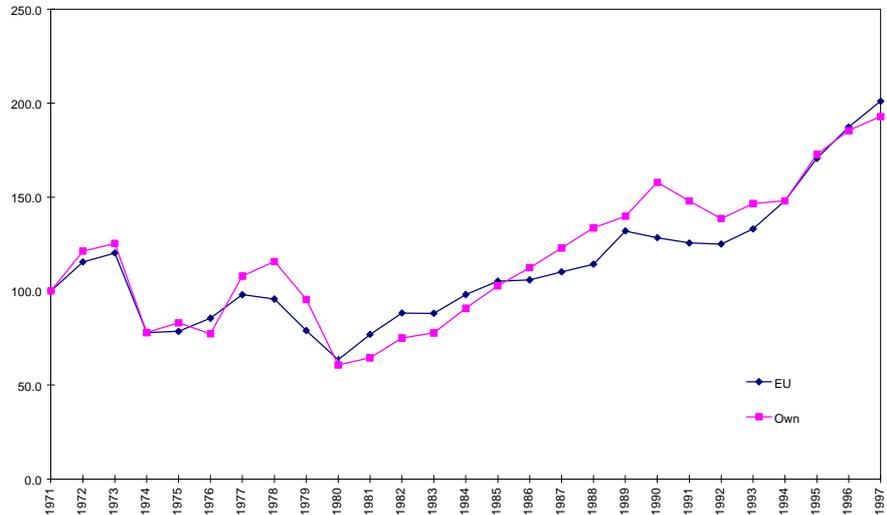
1987-97:

Following the downward realignment of the Irish pound in 1986, the fiscal consolidation starting in 1987 and a benign global economic environment, profitability improved further. Labour productivity growth increased, despite a significant rise in employment, due to accelerating output growth. As a result, the productivity of capital was sharply enhanced and the process of capital-labour substitution slowed almost completely. In addition, gains in competitiveness were underpinned by moderate increases in real per capita labour costs on foot of successive national wage agreements between the social partners. The annual average growth in real labour costs of 2.0 percent was well below the growth in TFP.

Lane (1998) argues that higher capital mobility improved the employer's bargaining power in wage negotiations (i.e., via the ability to relocate production) and, because of this, union leaders acquiesced as the price of maintaining employment. Given the moderation in labour costs, the growth in the fixed capital stock would have been due primarily to labour-using, rather than labour-saving, investment. These factors created the conditions for more efficient use of capital and, hence, for stronger growth in the real rate of return on capital than was the case for the previous two sub-periods. Lane also highlights the magnified role that increased capital mobility and labour inflows can have, in a small open economy, like Ireland, on sustaining the high growth rates and profitability.

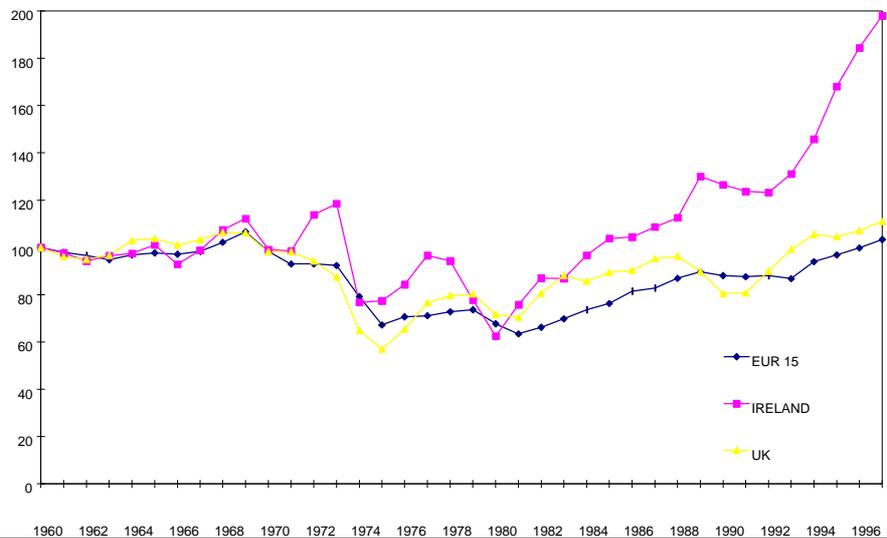
How do the estimates of profitability prepared for this paper compare with those produced for Ireland by EU Commission? Figure 5 presents these estimates. As can be seen, the two series are also closely aligned. Any differences possibly arise from different methods adopted in constructing the capital stock series and from the fact that the EU figures that were available did not contain the latest national accounts data. Finally, Figure 6 compares the evolution of Irish profitability with the rest of the EU and the UK, using European Commission figures for the period 1960 to 1997. It is clear that the three series move closely together until the early 1970s; from then on, the more volatile business cycle in the Irish economy is visible in the midst of the two oil price shocks.

**Figure 5 Comparison of Estimates of Net Rates of Return
on Net Capital Stock in Ireland (1971 =100)**



Source: EU Commission (DGII) data and author's estimates.

Figure 6 Comparison of Net Rates of Return on Net Capital Stock for Ireland, United Kingdom and the EU-15 for 1960-1997 (1960 =100)



Source: EU Commission (DGII) data.

Another noteworthy feature of Figure 6, of course, is the 'Celtic Tiger' performance since 1993-94. Part of this spiralling of profitability reflects both 'artificial' and genuine profits of MNCs, but there is little doubt that indigenous profits have also

improved substantially.

As a postscript to this section, it is interesting to note the development of UK profitability, which tracks the EU-15 quite closely. It is apparent, however, that the 'boom' years of the late-1980s in the UK did not translate into a corresponding surge in profitability (although an improvement in UK profitability is evident in the graph from 1982 onwards). Another notable feature of Figure 6 is the fact that both UK and EU-15 profitability, unlike Ireland's, are at levels similar to those prevailing in 1960. This, perhaps, is symptomatic of the so-called 'euro-sclerosis' problem.

4. PROFITABILITY, INVESTMENT AND CAPITAL STRUCTURE

The link between investment, profits and the capital structure of a company was touched on in the introduction. Corporate investment in plant and machinery depends on financial factors such as the availability of internally-generated funds and the relative ease of access to credit and equity markets. In effect, the corporation has at its disposal three main sources of finance to fund its investment undertakings. These are:

- retentions (profits after distribution of dividends);
- equity
- debt (bank loan and/or corporate bond issue).¹⁴

Given capital market imperfections, however, ease of access to equity markets, in countries such as Ireland has been restricted due to traditionally low levels of profitability in indigenous companies. There tends to be a universal preference for retained earnings to fund investment over any form of external finance on grounds of cost. This arises because of what are known as 'information asymmetries' between outside agents who might be willing to provide the finance (either through purchasing the new equity or bonds of the company, or the bank manager granting a long-term loan) and the firms' owners. Financing through debt, in turn, has a significant advantage in terms of information over outside equity (due to relationship banking etc.). This theory, known as the 'pecking order' hypothesis is firmly supported by evidence for a wide range of countries. Table 4, compares the industrial capital structure over the years 1978, 1982 and 1989. While data for more recent years was unavailable, there is no reason to doubt that the trends highlighted in Table 4 up to 1989 have not continued.

The *Nationl Economic and Social Council* (NESC, 1984) has shown that, in the early 1980s, the financing of Irish manufacturing firms was heavily dominated by bank borrowing and government grants. Finance through equity was weak; in

addition, the level of internal funds available for re-investment was severely constrained by the low levels of profitability recorded by indigenous firms. The report concluded that the financial health of indigenous Irish industry was poor, thereby adding a high degree of financial risk (e.g. through excessive gearing) to already high levels of commercial risk. While no evidence was found of a general lack of finance for industry, specific shortages were noted in relation to equity finance and the provision of long-term debt. The NESC emphasised the need to raise the level of equity investment and lengthen the time profile of borrowing in order to lower risk and provide a more suitable environment for future growth.

Table 4: Capital Structure of Indigenous Industry as percentage of Composition

	1978	1982	1989		
			<i>Number of employees</i>		
			20-49	50-249	250 +
<i>Share capital and reserves</i>	59	57	63	65	65
<i>Borrowings</i>	32	33	29	26	24
<i>of which:</i>					
- <i>within 1 year</i>	(16)	(15)	(9)	(13)	(10)
- <i>over 1 year</i>	(16)	(18)	(20)	(13)	(14)
<i>Government grants</i>	5	5	7	7	6
<i>Other</i>	5	5	2	2	5
<i>Total</i>	100	100	100	100	100

Source: NESC (1993).

By focusing on the results in Table 4 for 1978 and 1989, we can compare the capital structure of firms over time. The results for 1989 do not support the view that indigenous industry is over-borrowed. Moreover, it appears that a desirable shift has occurred in the capital structure of Irish industry since 1978, i.e. share capital and reserves have risen as a share of total capital from 59 percent in 1978 to 65 percent in 1989. This was balanced by a decline in the share of borrowings from 32 percent to 25 percent over the same period and the term structure of borrowing has lengthened.

More recent data for the profitability of indigenous manufacturing (at 6.2 percent in 1995 and 5.1 percent of sales in 1996 - up from 3.6 percent in 1993) would indicate that the constraint on expansion, due to traditionally low levels of profit, is gradually being lifted. An important benchmark, of course, is the return on other forms of

investment (e.g. the returns from investment on the capital markets) which have a lower risk profile. In relation to risk finance, concerns are typically focused on a lack of risk capital to fund, for example, substantial investments in new product or market development or support for new start-ups.

Turning to the relation between investment and profitability, we already mentioned the constraint imposed by traditionally low levels of profitability, both in absolute and relative terms, in indigenous industry. In Figure 7, the relationship between profitability for the whole economy and investment in Ireland over the 1971 to 1997 period is illustrated.¹⁵ We can see from the graph that from 1971 to about 1980, there seems to be a fairly close positive correlation between profitability and investment with changes in profitability preceding changes in investment a year or two later (as there are unavoidable delays between changes in profit conditions and the realisation of resulting investment decisions). For most of the 1980s, however, this relationship appears to breakdown with continuously growing profitability accompanied, somewhat paradoxically, by a declining rate of net investment. This relationship is ‘muddled’ by the increasing importance of transfer pricing practices by MNCs over this period.

Figure 7 Comparative Evolution of Fixed Capital Stock Growth with the Index of Fixed Capital Profitability Growth (1980 = 100)



Source: CSO (1997) and author's estimates.

In any case, the high growth rate of the capital stock (i.e. investment) experienced over the 1972-82 period was exceptionally high and unsustainable, with a significant contribution from public investment. With a stagnating economy in the first half of the 1980s, the underlying profitability of the indigenous economy would have been

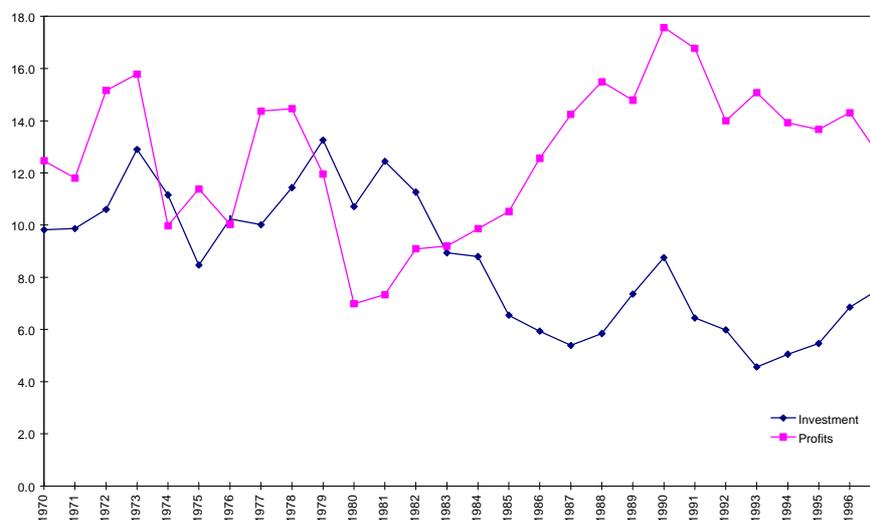
low. There are signs, however, of a relationship between profitability and investment re-emerging from about 1989 onwards.

In order to attempt to gauge more accurately the relation between underlying indigenous profitability and investment, one can adjust for the element of 'artificial' profitability of multinationals by deducting profits earned by the foreign-owned sector. In addition, as considerations other than profitability motivate government investment, it is better to focus on private (non-government) investment. Figure 8 graphs this relationship with both series expressed as a share of GNP. A similar picture to Figure 7 emerges for the 1970-80 period with a rise in the share of profits in GNP preceding a rise in the share of investment. In addition, the recovery in the profit rate over the course of the 1980s took a considerable length of time to reverse the trend of a declining share of investment in GNP. The improved economic environment in the late-1980s (which was mainly due to the policy initiatives outlined earlier) coincided with an increase in the indigenous profits share followed by a significant uptake in the share of private investment in the late 1980s. In the early 1990s, however, as economic activity decelerated there was an equally sharp slump in rate of private sector net investment.¹⁶ The picture in recent years reveals the responsiveness of the private sector investment to the buoyant economic climate since 1994, as reflected by an increase in the share of private investment in GNP.

The link between the cost of capital and Tobin's q (the ratio of the stock market valuation of the firm to the net-of-tax replacement cost of the firm's existing capital) was briefly dealt with in Section 1. To recap, a high value of q implies an incentive for firms to invest in new capital and vice-versa. Central Bank of Ireland estimates for the ten largest companies shows a weighted average value (where each firm was weighted according to its market capitalisation) of Tobin's q that steadily improved - rising from 1.56 in 1992 to 1.92 in 1995 (Devine, 1996). This trend was not reflected in a growing trend in the investment share until 1994. It may indicate, however, that the increasing values for 'Tobin's q ' over this period eventually had a positive influence investor sentiment.

Finally, the lack of a clear, discernible, link between profitability and investment, as indicated in some of the graphs presented earlier and in the profit 'signals' as proxied by the q measure, is supported by econometric results. These results showed that short-run variations in real final demand (i.e. GDP minus exports) were more important in determining changes in investment than any measure of profits presented in this paper.¹⁷ The rising investment share from 1994 onwards in response to strong, broadly-based economic growth, supports this finding. This suggests that if profits have an influence on private sector investment decisions in Ireland, then they appear to do so only after a considerable time lag.

**Figure 8: Indigenous Profits and Private Investment
as a percentage of GNP 1970-1997**



Source: CSO (1997) and author's estimates

To summarise, this section has focused on economy-wide, or aggregate, profit developments. The link between capital structure/profits and investment was highlighted and, on the basis of some preliminary work, there does not appear to be a strong immediate link between private investment and profits. In terms of the factors underlying the evolution of profits in past two decades, the lack of real wage flexibility, in addition to capital restructuring, induced rapid capital intensification and a reduction in employment during the 1980s. This problem was compounded by ill-advised policies such as raising income taxes, and thus the cost of labour, in an attempt to reduce the fiscal deficit. The decline in the efficiency of capital usage prolonged the very low growth in the rate of return on capital (i.e. profitability). In the 1987-97 period, factors such as moderation in wage growth (relative to the growth in technology-driven improvements in labour productivity) and rising capital productivity have raised the efficiency of capital and, thus, profitability in Ireland. This has also been facilitated by a desirable shift in the capital structure of Irish companies helping to ease the constraint on expansion experienced by some firms.

5. CONCLUSIONS

This paper has provided *inter alia* a review of trends in profitability in Ireland in recent years, both at a macroeconomic and at a sectoral/dis-aggregated level. In terms of the latter, the emphasis has been on the manufacturing sector due to a paucity of data for other sectors of the economy. A consistent feature emerging from

both aspects has been an encouraging growth in profitability in Ireland in recent years. At a macroeconomic level, the experience in recent years of wage moderation and an appropriate mix of monetary and fiscal policy has helped resuscitate domestic profits.

Furthermore, data on corporate structure indicates a relatively healthy state of balance sheets in Irish industry with little apparent excessive levels of gearing. High amounts of leverage, it is argued, increase the vulnerability of the economy to downturns in activity or interest rate increases, as these companies are at risk of insolvency due to a crippling interest burden. There are still gaps, however, in the provision of certain forms of equity capital; the Culliton Report (NESC, 1990), for example, highlighted a deficiency in the areas of seed and venture capital (although this is helped in part by *Business Expansion Schemes* (BES) seed capital schemes). In particular, one in three companies were cited in the Culliton Report as experiencing equity deficiencies (at a time for many of them when their creditworthiness was not yet established). This may indicate some structural imperfection in the financial markets as well as a limited ability of certain businesses to cope with what may be temporary adverse shocks.

On the issue of the determinants of profit, correlation analysis suggests that demand-side variables such as economic activity and, to a lesser extent, the exchange rate play an important role. There is also evidence that supply-side or cost measures, such as relative ULCs, also explain profits. Some of the indicators presented in this paper, therefore, could be useful guides for developments in profitability.

Endnotes

1. In reality, the cost of capital is a more complicated concept. Frain (1990) shows that, in addition to the above factors, taxation of interest and earnings, capital allowances and grants have also to be taken into account.
2. An advantage of using this source is that it allows one to distinguish between Irish-owned and foreign-owned manufacturing. This enables us to avoid the bias inherent in profit data for manufacturing due to the existence of transfer pricing by multinational firms in Ireland.
3. For example, the European Commission has created a harmonised data bank – the *Business Accounts Harmonised Data Bank* (BACH). Using BACH data one can compare trends in costs, profits and the financial structure of enterprises in manufacturing in 10 EU Member States (Ireland is not included), the US and Japan. See European Commission (1996a).
4. It should be noted that the empirical formulation of the profit margin variable matters as Conyon (1995) and Conyon and Machin (1991) argue. They found, for example, that a significant positive relation existed if output is in the denominator of the profit margin variable, excluded material costs. No such relation existed if material costs were included.
5. Concentration data calculated, and provided, by the Central Statistics Office.
6. Based on Eurostat trade data prepared on a NACE code (Microfiche SCE-2711) basis.
7. This proxy is used by Mann (1986) to describe the profitability of US export sales.
8. This includes both foreign-owned and indigenous manufacturing. This data is unpublished and was kindly provided by the CSO. A separate breakdown for the export and home sales components of wholesale prices of Irish-owned (indigenous) sectors is not available.
9. According to the 1996 Census of Industrial Production, manufacturing exports to the UK account for about 26 percent of total manufacturing exports.
10. Both these concepts should be expressed at factor cost that is inclusive of subsidies as they raise the level of profit.
11. The European Commission (1991a) show that it is possible for the rate of profit per unit of output to increase, due to capital deepening, without a corresponding uptick in the profitability of fixed capital due to lower capital productivity. This possibility is seen more clearly in the relation: $(\Pi/K) = (\Pi/GDP)*(GDP/K)$ where Π is net operating surplus and K net capital stock. Thus, the trend in the two profit measures can diverge over time.
12. See, for example, European Commission (1984a, 1984b, 1991b and 1996b).
13. For a more detailed treatment of this topic, see Appendix 5.
14. In addition, government grants have also tended to be an important source of finance in countries such as Ireland.
15. Profitability is measured by the economy's real net operating surplus at factor cost and investment by real changes in the stock of (net) fixed capital.

16. Lane (1998) cites the higher level of investment by Irish firms overseas as profits improved. Perhaps this factor, in conjunction with the relaxation of capital controls in late 1980s/early 1990s, had a role to play in the sluggish response of investment to economic growth and higher profits.
17. The results from regressing real private sector investment on the indigenous profit measure (both expressed relative to GNP) showed a significant coefficient on the profits variable. However, the sign of the coefficient was contrary to expectations. In addition, the R^2 was low as was the marginal significance level of the Q statistic. A similar picture emerged for the case of total net investment (as a percentage of the capital stock) and fixed capital profitability.

APPENDIX 1

MAIN DATA SOURCES ON IRISH PROFITS

The following list includes the main sources of data available on corporate profits:

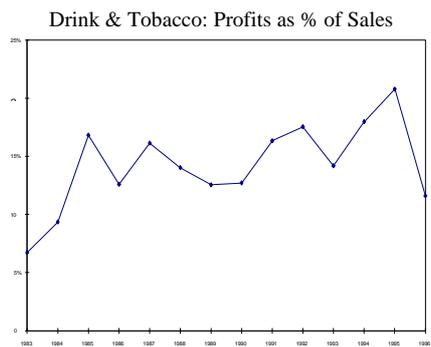
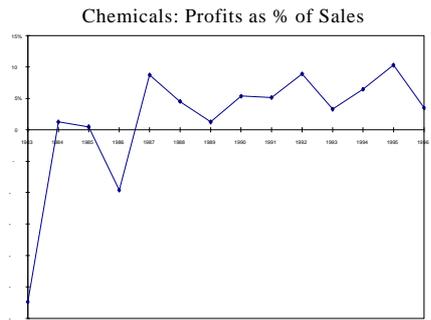
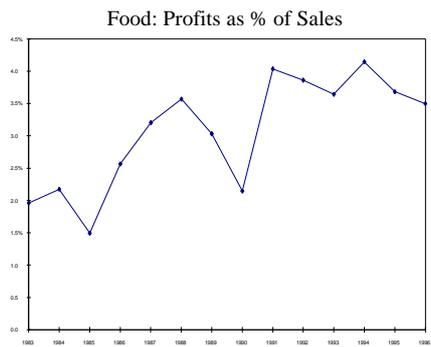
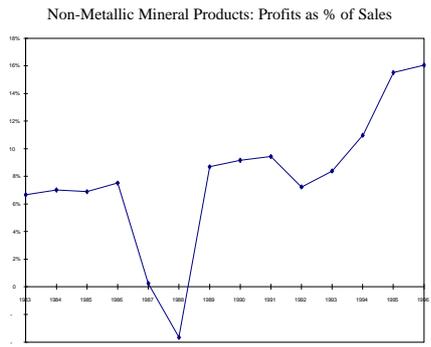
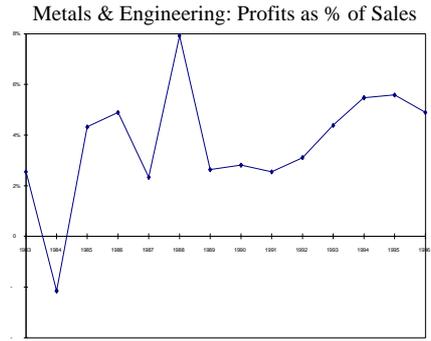
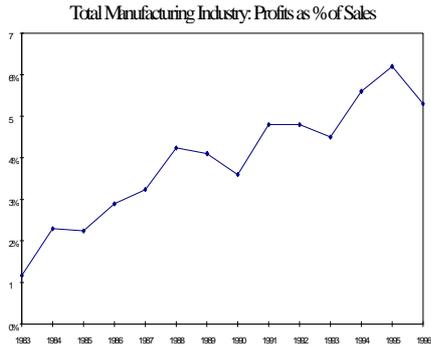
1. *The National Accounts*: a limited breakdown of industry gross (and net) profits into manufacturing, building and construction and other categories can be obtained from the CSO (unpublished). These data take figures on taxable profits of companies provided by the Revenue Commissioners, which is compiled using standard industrial classifications, and makes adjustments to them so that they conform to national accounting definitions (e.g. interest payments and provisions for bad debts are added back in, unrealised exchange rate gains/losses are excluded). Gillanders (1993) discusses the Revenue Commissioner's database on corporate profits which is based on corporation tax returns. This source, compiled in conjunction with the CSO, while potentially useful, does not provide a sufficiently long run of time series for meaningful analysis. In addition, the data for earlier years is not considered to be wholly reliable.
2. *Companies Registration Office and Publicly-quoted Companies*: the Companies Office is not a practical source of data given the differences in filing/reporting requirements for private firms. Approximately 97 to 98 percent of *all* companies are categorised as private; the remainder are PLCs which number about 5,000 in total. Small, private companies (of which the *Small Companies Task Force* estimated constitute 95 percent of all companies) are only required to file a very abridged version of the balance sheet and restricted notes. For medium-sized companies, all that is required is an abridged profit and loss and a full balance sheet and notes. A breakdown of gross profit between sales, cost of goods sold and other income is not obligatory. Even if private companies had the same, rigorous, reporting requirements that PLCs do, important problems would still remain; namely, non-synchronous reporting periods and non-uniformity in accounting methods (given the degree of flexibility still permitted under the new *Financial Reporting Standards* and especially the remaining SSAP's). By far the most important work which has been conducted into indigenous (and multinational) profits, using this source, has been Stewart (1988 and 1985). His detailed research also tackles some of the problems associated with this source mentioned above.
3. *Forfás Irish Economy Expenditure (IEE) Survey*: this is the most comprehensive database available on indigenous and foreign-owned manufacturing. This survey, which has been undertaken by Forfás/IDA every year since 1983, covers manufacturing firms employing 19 employees or more (prior to 1992 the cut-off was 30 employees). According to O'Malley (1992), although non-compulsory, the response rates are generally good (between 70 and 80 percent of employment in the entire sample). Response rates are usually higher for foreign-owned

companies. Respondent firms account for 66-77 percent of all foreign-owned firms and 38-45 percent of all indigenous industry (since a significant minority of indigenous companies employ less than 19 employees). A significant advantage of this source is that it enables the user to examine indigenous profitability etc. on a sectoral basis by separating out the foreign-owned enclave (i.e. it removes the problem of bias that is inherent in manufacturing data arising from transfer pricing).

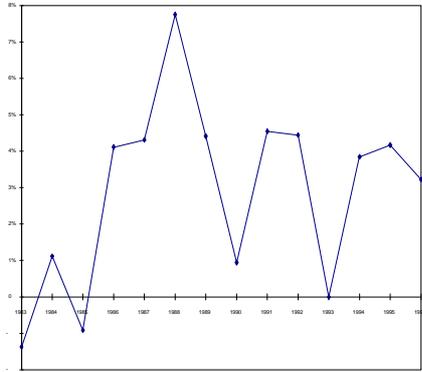
As the discussion above indicates, the Forfás Survey is the most useful and accessible source on manufacturing for analytical purposes. As a result, the IEE data is used when dealing with sectoral profits throughout Section 2 of this paper.

APPENDIX 2

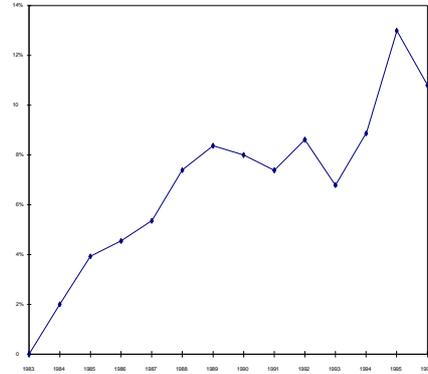
ESTIMATES OF PROFITABILITY FROM THE FORFÁS IRISH
ECONOMY EXPENDITURE (IEE) SURVEY:
PROFITS AS A PERCENTAGE OF SALES



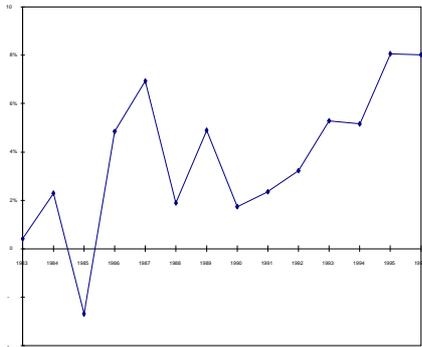
Textiles: Profits as % of Sales



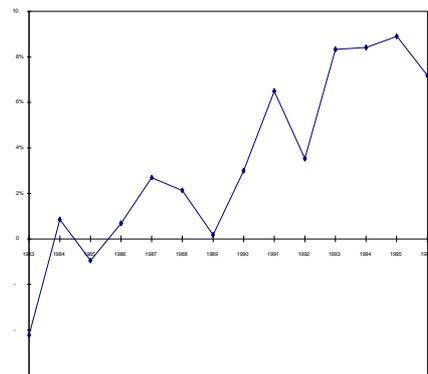
Paper & Printing: Profits as % of Sales



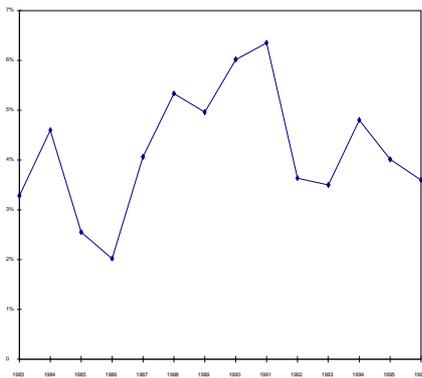
Clothing & Footwear: Profits as % of Sales



Miscellaneous Industry: Profits as % of Sales

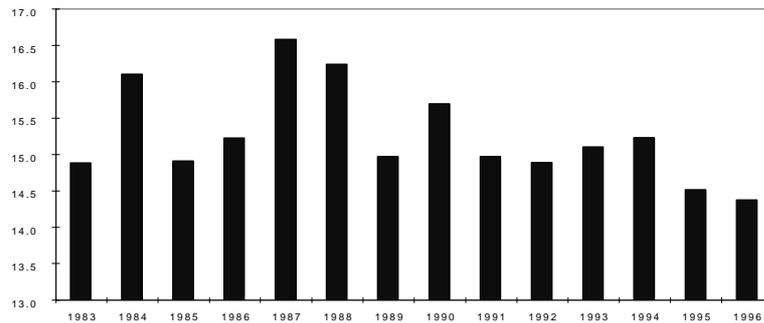


Timber & Wooden Furniture: Profits as % of Sales

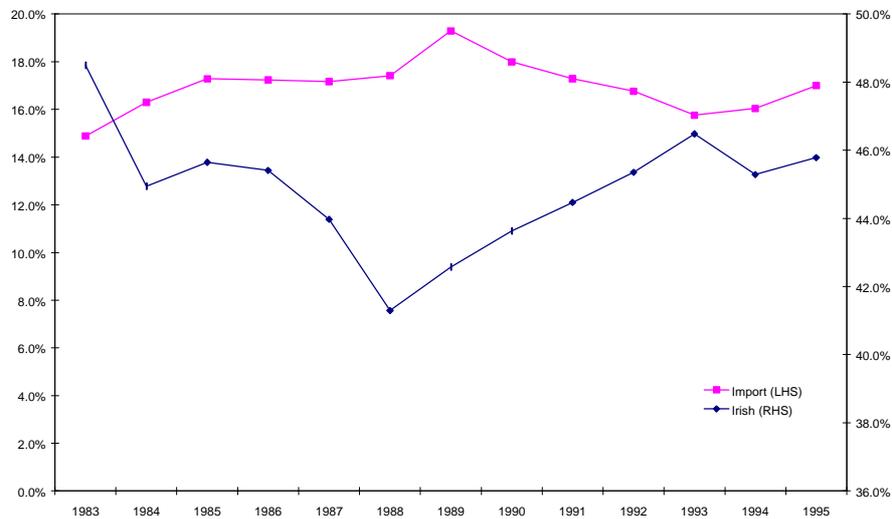


APPENDIX 3
EVOLUTION OF THE MAIN COST ELEMENTS IN INDIGENOUS
MANUFACTURING

Total Irish Owned Manufacturing Industry: Wage Costs as percentage of Sales

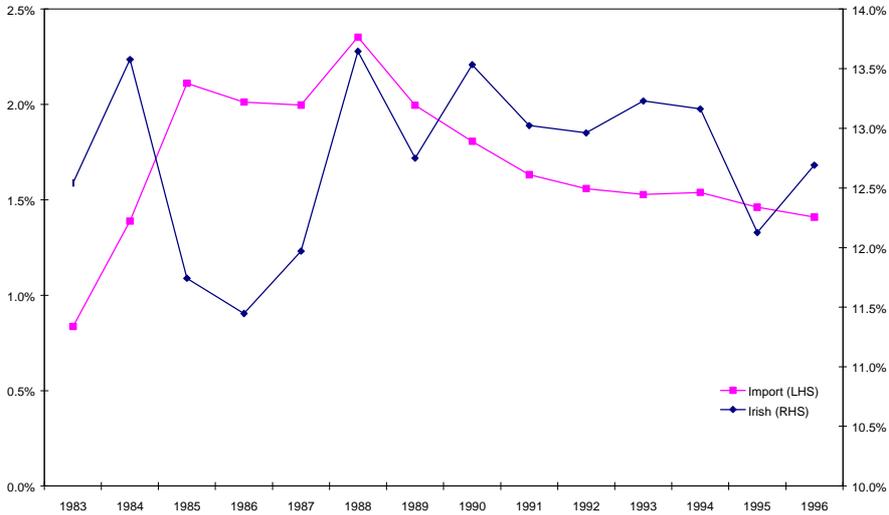


Total Irish Owned Manufacturing Industry: Irish and Imported Raw Materials
as percentage of Sales



Total Irish Owned Manufacturing Industry: Irish and Imported Services

as percentage of Sales



APPENDIX 4

DERIVATION OF THE PROFIT MEASURES.

Gross Operating Surplus: Economy-wide Profit

The estimates of profits in Section 2 of this paper are based on data available in the CSO's *National Income and Expenditure (NIE) Accounts* for 1997. The profits/capital income measure is known as *Gross Operating Surplus* and is defined as follows:

Net domestic product at factor cost (item 13, NIE Table 1)
minus
Wages and salaries (item 2 and 10, NIE Table 1)
minus
Employer's contribution to social insurance (items 3 and 11, NIE Table 1)
equals
Net operating surplus
plus
Provision for depreciation (item 24, NIE Table 2)
equals
Gross operating surplus

The total of items 2, 3, 10 and 11 in NIE Table 1 equals economy-wide labour income. By deducting labour costs from value added at factor cost (i.e. gross domestic product at factor cost), therefore, we arrive at capital income or gross operating surplus, see Poterba (1997). The gross and net measures of profit are deflated by the implicit investment deflator to derive profits in real terms. Gross operating surplus differs from company profits as declared in company accounts because of differences in the scope and timing of production and costs, e.g., interest payments are not treated as a cost of production but as a distribution out of profits in the National Accounts.

In accordance with OECD practice, an adjustment to the gross operating surplus measure is made to allow for the imputed labour income of the self-employed (net of relatives-assisting, i.e. unpaid family workers). The rationale behind this step is that, as the income of the self-employed is included in the unadjusted gross operating surplus measure, profits are, therefore, biased upwards. By assuming that the labour income of the self-employed equals average compensation in the rest of the economy, we can attempt to correct for this bias. As a result, the estimated return for the entrepreneurial effort of the self-employed would be included in the profits measure, whereas that part which is due to their labour effort is not. Data for the level of self-employment (and relatives assisting) are contained in the CSO's *Labour Force Survey (LFS)* for each year back to 1983; prior to that the LFS was available on a biennial basis back to 1975. To bridge the data gap in the intervening years

(and also between the 1971 Census of Population figures and the 1975 LFS) estimates have had to be made. No adjustment has been made to exclude the operating surplus of the household sector due to lack of data.

The capital stock series used to calculate rate of return figures is a net concept and so is used as the scale variable for the net operating surplus measure of profits. The assets included in the capital stock series also cover residential gross fixed capital formation. The capital stock series, evaluated using the perpetual inventory method, is from Kenny (1995) and has been updated using 1997 NIE accounts.

Net Operating Surplus Adjusted for MNCs: Estimate of Indigenous Profits

To arrive at an estimate of indigenous economy-wide profits, the figure for profits earned (reinvested profit *plus* repatriated profit) by MNCs is deducted from net operating surplus at factor cost. The data for profits earned comprises the debit items 8.1.1 and 8.1.2 in Table 30a of the National Accounts. Prior to 1990, however, a published breakdown of these separate items is not available. Under ESA79, profits retained in Ireland were treated as part of GNP. The newer ESA95 treats all profits from MNCs as being attributed to their foreign owners when earned, which implies a fall in GNP as profits earned exceed profits remitted. Furthermore, royalty payments by MNCs under ESA95 are no longer lumped in under the profits repatriation heading, they are treated as an import of services. In order to estimate a figure for profits 'earned' by MNCs prior to 1990, the average ratio of reinvested earnings of MNCs to total earnings of MNCs (debit items 8.1.1 plus 8.1.2) is first calculated for the period 1990 to 1997. It works out at around 20 percent for the period. Using this 20 percent ratio, total earnings of MNCs are estimated as follows:

Profits Remitted (PRM) + Profits Retained (PRE) = Total Earnings (TE)

$$\begin{aligned} \text{PRE} &= 0.2 * \text{TE} \\ \text{TE} &= \text{PRM} + 0.2 * \text{TE} \\ \text{PRM} &= 0.8 * \text{TE} \\ \text{TE} &= (\text{PRM}) / 0.8 \end{aligned}$$

In other words, profits remitted prior to 1990 are all grossed up by 25 percent to arrive at a profits earned figure which, in turn, are deducted from the net operating surplus figure to arrive at the estimate of indigenous profits.

APPENDIX 5
SEPARATING LABOUR PRODUCTIVITY GROWTH INTO ITS
CONSTITUENT PARTS

The annual percentage change in output per person employed (i.e. labour productivity) in the economy can be broken down into: total factor productivity (TFP) and the weighted change in the capital:labour ratio (substitution of capital for labour).

A production function for the economy can be depicted as follows:

$$V = A(t)F(K, L)$$

where V is the level of output, K and L the inputs of capital and labour, and A(t) the effect of technological progress (total factor productivity). The share of labour income in total income is assumed to be constant (by definition profits are also assumed constant). From a simplified form of this production function, labour productivity growth can be broken into (1) and (2) above:

$$y = g + TFI$$

$$TFI = (1 - S_k) \dot{L} + S_k \dot{K}$$

$$\left(y - \dot{L} \right) = g + S_k \left(\dot{K} - \dot{L} \right)$$

$$or \left(y - \dot{L} \right) = g + S_k k$$

where y = growth rate of the volume of output;
 g = rate of technological progress (increase in TFP);
 TFI = rate of growth of total factor inputs;
 S_k = share of profits in GDP at factor cost;
 k = rate of growth of the capital stock per person employed.

The term $S_k k$ represents the process of substitution of capital for labour. The structure, therefore, can separate (i) a movement *along* the underlying production function (which changes the K:L mix at a given output) from (ii) a *shift* in this function (which at the same K:L mix) would involve higher output for a given input of both factors. The term g represents this latter aspect of the structure.

Table A shows the evolution of labour productivity, capital-labour substitution and total factor productivity from 1972 to 1997 for Ireland (assuming that the labour share of income and, by definition profits, remain constant).

Table A: Evolution of Productivity in Ireland 1972 - 1997

	GDP/L growth <i>(1) = (2)*(3) + (4)</i>	S_k <i>(2)†</i>	$S_k(K/L)$ <i>(3)</i>	TFP growth <i>(4)</i>
1972	5.1	0.32	4.8	3.6
1973	4.2	0.32	4.0	2.9
1974	1.4	0.32	4.9	-0.2
1975	1.0	0.32	6.6	-1.1
1976	2.2	0.32	5.1	0.6
1977	6.2	0.32	2.7	5.4
1978	4.5	0.32	1.9	3.9
1979	-0.1	0.32	1.8	-0.7
1980	2.1	0.32	4.7	0.6
1981	4.2	0.32	5.7	2.4
1982	2.3	0.32	5.1	0.6
1983	1.7	0.32	6.5	-0.3
1984	6.3	0.32	5.4	4.6
1985	5.4	0.32	5.5	3.6
1986	3.5	0.32	2.4	2.7
1987	4.8	0.32	2.4	4.0
1988	3.2	0.32	1.0	2.9
1989	6.4	0.32	2.2	5.7
1990	3.4	0.32	-1.8	4.0
1991	2.0	0.32	3.0	1.1
1992	3.7	0.32	1.8	3.1
1993	2.5	0.32	1.5	2.0
1994	4.0	0.32	-1.3	4.4
1995	6.7	0.32	-2.0	7.3
1996	3.4	0.32	-1.4	3.9
1997	4.9	0.32	-1.7	5.4

† *Share of profits assumed to remain constant and is the average over 1970-1997.*

TFP has tended to play the dominant role in contributing to the growth in output per person employed in the last decade at least. Substitution of capital for labour has also played a significant role, particularly during the 1979-86 period. In the latest period, however, capital-labour substitution has been negative for some years and, in general, has added little to the growth in output per head (unlike the EU-15 where, for example, it has contributed 1 percent to the 2 percent increase in output per employee over the 1991-95 period), European Commission (1997).

The process of capital-labour substitution entails a movement along the production curve (a change in the capital:labour mix for a given level of output), so a rise in the real wage is inappropriate. As growth in TFP entails an outward shift in the production curve, a rise in real per capita labour costs need not reduce profit share.

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DISCUSSION

Professor Robert Hutchinson: I am on a six-month study leave, based at the Central Bank of Ireland, where I am being treated exceptionally well. It is, therefore, an added privilege to have been asked to propose this vote of thanks. Jim Nugent has presented a highly competent paper on a subject which has been under-researched in Ireland. In analysing the available data on corporate profitability, and in particular that of indigenous companies, the paper has more than fulfilled its objectives. It has provided an overview of the main factors which impinge on profitability in a small open economy.

In the manufacturing sectoral analysis, the key relationships in respect to cost competitiveness and domestic and foreign markets have been examined, in addition to a measure of monopoly power based on local industry four-firm concentration ratios. Jim recognises the problem with this concept of concentration, based as it is on a domestic industry output measure. By including exports, and excluding imports, it does not adequately measure the degree of monopoly power in home markets or the degree of competition which locally based firms face in foreign markets. The latter is not a serious problem, however, given the reasonable assumption that, in international terms, Irish firms are price-takers. In addition, the careful consideration which has been given to the role of exchange-rate changes, together with the inclusion of proxies for export profitability, shows that full consideration has been given to the overseas business opportunities facing domestic producers.

At the macroeconomic level, distinct cyclical phases have been identified from the early 1970s onwards, showing the growth of absolute profitability in recent years. A clear indication is given of how this growth has been fostered by wage moderation and a more effective stance on monetary and fiscal policy, relative to the earlier years covered in the study.

Providing an overall view of the trends in profitability is useful and interesting, however, it is how profitability is related to investment and financing in the corporate sector that is fundamental to an understanding of the dynamic of indigenous firms. It is also essential in helping to shape public policy views on the problems facing *small to medium-sized enterprises* (SMEs) which, in an economy of the size of Ireland's, comprise the bulk of indigenous companies. It is these issues which are at the core of Section 4 and where the author makes his most valuable contribution to what can be, at times, a contentious debate. To examine these issues in more detail it is useful to, first, summarise the main conclusions of the paper and, second, relate these to competing assumptions about the overall objectives of SMEs.

The conclusions are that:

- there does not appear to be a strong immediate link between private investment and profits;

- data on corporate structure indicates little apparent excessive levels of gearing;
- there is strong support for the pecking order hypothesis, with first preference for retained earnings to fund investment.

Furthermore, I would treat with relative scepticism the view, referred to, but not necessarily advocated, by Jim that there are imperfections in capital markets relating, particularly, to equity finance. I do recognise, however, that problems exist in relation to very high risk venture capital funding.

From the aspect of corporate finance theory, the interpretation that is placed on the investment and financing decisions of the SME sector depends on the principal assumption made in respect to management's objective function.

If a neo-classical value maximising assumption is made, the objective is to invest in all available projects whose expected future net cash flows, when discounted at the appropriate risk adjusted cost of capital, are positive. On this approach, imperfections in the supply of finance tend to be highlighted as a contributory cause of the generally observed weaknesses of SMEs. These weaknesses have been categorised as tendencies to:

- invest sub-optimally,
- exhibit slower than average growth rates and, in addition to retained earnings,
- rely on short-term debt capital provided by the banking system.

In other words, if SMEs are rejecting projects with positive net present values, the source of the problem must lie in the inability of financial institutions and markets to fully meet their funding needs; assuming market value maximisation. However, much of the recent research on SMEs, see Hutchinson (1995), suggests that market value maximisation is an inappropriate assumption. This is especially the case where the proprietorship model of ownership dominates and management's long-run survival objectives result in equity aversion. When combined with the principal-agent-problem and information asymmetries, which are reinforced by higher ratios of intangible/tangible assets in SMEs, relative to the large corporates, management behaviour deviates from profit maximisation. In these circumstances management can be expected to exhibit preferences for low risk investments and to avoid product market opportunities with high growth potential. Growth is associated, not only with high risk, but also with medium-term increases in intangible assets which exacerbate the principle-agent problem by raising bank investment monitoring costs.

The above is reinforced, on the financing side, by the pecking order model. As Hughes (1992) argues, this predicts that SMEs, relative to large-sized firms, will rely more heavily on:

- excess liquid assets to meet discontinuities in investment programmes;
- short-term debt, including trade-credit and overdrafts;
- hire purchasing and leasing agreements.

In other words, many of the apparent financing difficulties of SMEs – their reliance on short-term bank debt, their limited use of equity and their failure to exploit growth opportunities – are demand, rather than supply side determined. This can then be expected to be reflected in lowish profits and the lack of a relationship between profits and investments.

Furthermore, in considering the interrelationships between investment and financing decisions, the trade-off between operating and financial leverage has been used by Mills and Schumann (1985) to explain a tendency amongst SMEs to concentrate on labour intensive, rather than capital intensive, production techniques. This influences the capital stock in an economy whose indigenous industry is dominated by relatively small-sized firms. It can also imply that, other than in recessionary periods, SMEs may have a propensity, as explained by Chamberlin and Gordon (1991), to adopt below optimal target capital structures.

What these arguments demonstrate is that, without further research on the impact of firm size and ownership structure, it is difficult to interpret the change in Irish capital gearing and the trends in indigenous profitability. As Knight (1965) and Kilstrom and Laffont (1979) argue, it is ultimately an SME's willingness to be exposed to risk which has a significant bearing on its size and future expansion. For many SMEs, owner managers initial motivations in starting up a business may have resulted from a desire for independence, which produces a strong risk-averse attitude and a movement away from maximising the current market value of the firm. This point is reinforced by Burke (1992) who argues that many SMEs may be voluntarily capital constrained, preferring to trade-off independence against capital availability.

In conclusion, this paper has provided an important overview of the issues surrounding the trends and determinants of corporate investment and profitability in Ireland. As such, it is setting out an important future research agenda. In terms of challenging the views on Irish indigenous firms, which have been driven primarily by a public policy research agenda, it is well overdue. Congratulations Jim!

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Mr. Ronan Smith: I would like to join with Professor Hutchinson in thanking Jim Nugent for putting this paper before us and am delighted to be given the opportunity to do so. As institutional investors, we are always captivated by sources and determinants of company profits. Long term investors, in particular, have to be concerned with the type of trend in unit profit rate that Jim has analysed for us over historical periods.

We have seen periods in various markets when economic activity and corporate profits followed divergent growth paths. Among the most spectacular of these was the failure of Japanese corporate profits to grow during the strong economic growth phase of the 1980s.

In the investment business, we have to identify forces that are likely to move share prices from where they are today. One way is to evaluate a theoretically correct share price and use it as a predictor for an indefinite time horizon. This is the method used, without explicit quantification, however, by most active equity investors around the world. The notional model underlying this approach, whatever technique is used, is the dividend discount model which supposes we can estimate next years dividend and a constant growth rate. It also supposes we can find a suitable expected rate of return – on the financial investment, not on the capital stock – to use as a discount factor. The notional price of an equity is the next dividend, divided by the excess of the discount factor over the growth rate.

In trying to apply this model at the aggregate market level, all too often, investors

assume the growth rate of dividends is driven by economic growth. It isn't. It may not even be driven by corporate profit growth because of distribution policy but at least there is some likely connection here.

The US has seen substantial economic growth since the 1970s but Lester Thurow points out in his book *'The Future of Capitalism'* that something like 80 percent of US citizens are no better off in real terms today than they were in the mid 1970s. The intervening period saw massive growth in corporate profits. In other words capital took more than its fair share of GNP during the period. Labour lost out. It is no coincidence that equity markets experienced what was possibly their strongest upwave ever.

If we are about to see a reversal of that pattern, and there are some tentative signs about throughout the world, then it is unlikely that the golden age of equities will continue. A more modest weighting for equities in portfolios may be advisable. The real problem for investors is trying to quantify all of this and I was excited to try to think through the ways in which Jim's analysis could fit into this puzzle.

I came up with three problems, and I suppose all I can do is ask the experts in these matters, including Jim, for pointers as to how they might be overcome.

The Irish economy is not closely connected to the Irish equity market. This is best seen by examining where the profits of Irish quoted companies are made.

Table 1: Where the Irish Quoted Companies Make Their Profits

Percentage of operating profit before interest and taxation sourced in each region, ISEQ companies 1997/98.

Ireland	37%
UK	20%
US	31%
Europe	6%
Other	6%
Total	100%

Source: NCB Stockbrokers.

Only just over a third of the profits of these companies will have been included in the series that are analysed in Jim's paper. This is a problem often overlooked by top-down country pickers in the investment world, but it should not be. I can only suggest that studies of the profitability of capital on an aggregate global scale might provide a good background for equity analysis on the same global scale. Once you go to the country level, the economic statistics become intractable.

The return on capital we are looking at is investment return – return on financial capital, which is not the same as the profit on the capital stock, as economists would

measure it. I thought it would be interesting, ignoring my last point about the mismatch between the economy and the market, to see how investment returns behaved during the historical periods set out in the paper.

Table 2: Stockmarket Returns vs Rate of Return on Capital

Annual Average, %	1971-73	1974-78	1979-86	1987-96
Real Rate of Return on Capital	6.5	1.7	1.5	5.7
Real Total Return on Stocks	8.9	3.6	7.2	10.1
Total Return on Stocks	19.4	19.5	20.0	13.1

Source: Bank of Ireland Asset Management

Table 2 shows that real stock returns were, naturally, different from the real rate of return on capital. They did, however, behave quite sympathetically with each other, dipping in 1974-78 and remaining below average in 1979-86. It may be trite, but probably fair enough, to reduce this observation to confirmation through Jim's economic analysis, and these stockmarket returns, that if labour costs rise faster than total productivity, capital suffers, and if they rise slower than productivity, capital benefits.

But here is a little poser. I have measured the actual returns on Irish equities, unadjusted for inflation, over the same periods. Why is it that in three consecutive periods, the return is 19-20 percent? If the last period had extended by just two years, its return would also have been 19 percent. No doubt, someone will explain this some day, but it points to inflation as a factor that directly eats into real profits.

My third problem is with the notion of the capital stock in economists' production functions. I can't claim any familiarity at all with how such things are measured, but it strikes me that the capital stock probably excludes much of what financial analysts would regard as the capital stock, in the form of brand value, goodwill, and particularly, human capital in people businesses. Maybe these are included in the capital stock, but if not, their exclusion gives rise to a distinction between capital and labour that does not accurately reflect the real world's production function.

In conclusion, I found the paper a stimulating insight into one of the major elements of the big picture facing a long term institutional investor. I have difficulty knowing how to use material such as this or whether it can be used and this is a plea for help.

Indeed, given this time frame for the production of most economic data, and its historical bias, I wonder should I have been asking the question the other way around: “how can stock market data, which is forward looking and immediately measurable, be used as an aid to the kind of specification of the determinants of corporate profitability, that Jim has carried out?” Again, I thank him for this very stimulating paper.

Professor Brendan Walsh: I would like to join with the previous speakers who have praised this paper for its valuable contribution to our understanding of the Irish economy. I have only a few brief observations to make.

It is striking that the paper provides no evidence of a marked decline in the share of wage or labour income in national income or GNP. Figures 2 and 4 suggest that any impression to the contrary arises from using GDP in the denominator. At first sight the absence of such a trend is remarkable, but it can, I believe, be understood in terms of the stylised facts summarised in Figure 3. In the 1990s we have witnessed (i) a sharp decline in capital intensity, (ii) an equally sharp increase in the productivity of capital and (iii) a relatively stable level of labour productivity.

The author might have speculated further on the reasons for the dramatic improvement in the productivity of capital or, equivalently, the fall in the incremental capital/output ratio. In the early 1980s there was a good deal of debate about why the extraordinary rise in the investment ratio (“to Japanese levels”) had led to little or no growth. Was the low productivity of investment then due to an emphasis on long-lived infrastructure projects, money devoted to loss-making state enterprises, and misallocated capital grants? Is the improvement in the 1990s due to a reversal of these trends, as well as the much higher quality of the foreign direct investment now flowing into Ireland?

In conclusion, I would like to draw attention to the very labour-intensive nature of our recent growth. It is apparent from Table 3 that the growth in output (GDP) per person employed has changed little over the entire period since 1971, and was actually higher over the years 1987-97 than in the early 1970s. Recently released data show that employment grew by 6 percent in 1997-98 – a phenomenal rate of increase that must be kept in mind when assessing the impressive growth of GDP or GNP. When account is taken of the growth of employment, the recent growth of output is not all that remarkable.

Dr Philip Lane: For foreign direct investment, the author has subtracted *multinational corporation* (MNC) profits from total domestic profits and expressed this number as a ratio to GNP. This profit measure should include overseas profits earned by domestic firms, this is included in GNP but excluded from the profit measure used in the paper.

Professor Colm Kearney: I very much enjoyed reading this paper by Jim Nugent

on corporate profitability in Ireland. It is a very thorough piece of research, and the paper is written in a refreshing and interesting style - the latter aspect of the work being all too rare in the related literature. The work constitutes an important and useful addition to the Irish literature on corporate profitability, which remains a very data-challenged area. As the respondents have already given more considered and detailed comments on Jim's paper, I would like to confine myself to two points. They concern first, the treatment of causality in the paper and second, the relationship between micro and macroeconomic analysis.

Section 3 of the paper is titled "Determinants of Corporate Profitability in Ireland", and although the author expresses the caveat that correlation analysis does not imply anything about causality, much of the subsequent discussion in this section (and in the concluding paragraph of the paper) contains statements that do imply causality. I will give two examples of this. First, the author discusses the pass-through of exchange rate changes to prices, and states that the finding of a high correlation between the exchange rate and export prices implies near zero pass-through. Second, the author states that the maintenance of wage indexation policies throughout the 1970s and early 1980s contributed to the poor performance of profitability. Neither of these statements follows from correlation analysis, rather a careful causality study would be required in each case in order to verify or falsify the statements. My point here is not to attempt to undermine the thorough research that has gone into the paper, but to suggest that a more appropriate wording of the arguments would make them more convincing.

The paper focuses both on the microeconomics of investment and the macroeconomic perspective. One section considers variables such as capacity utilisation, concentration ratios, exchange rates, the output gap and GDP when analysing manufacturing profitability, while another section considers variables such as factor inputs and relative prices. I believe the two approaches could usefully be brought together to arrive at a more complete set of possible explanatory variables in the analysis of manufacturing profitability. Overall, I reiterate that Jim Nugent's paper is a welcome addition to our understanding of an important issue in Irish economics.

Mr. Joe Durkan: My comments are almost entirely in relation to the data and are as follows:

- The treatment of royalties is not clearcut. The change with ESA95 is not the only consideration. Royalty payments have risen very sharply since 1990 from £357 million (debit) and this has increased to £2729 million by 1997 - much faster than profits of multinationals. Part of this is tax driven, mostly as US laws tax royalties at a much lower rate than profits. Hence the profit figures used to determine the level of gross profits pre-1990 are not directly comparable. A simple solution would be to add the royalties since 1990 to the profits figure and redo the calculations based on the proportions

retained since. Perhaps also see if there is any trend.

- The private investment figure used includes housing. In Ireland, housing is almost entirely household wealth, so there is no counterpart in profits to housing investment. The data on investment separates out dwellings (though this includes both public and private we do have separate information on the mix) so dwellings can be taken out. An alternative would be to include rent in the profit figure, but the rent figure still looks low, even after the recent adjustment.
- It would be interesting to look at the capital/output ratio over the period, and to examine the *incremental capital/output ratio* (ICOR), using five year moving averages.
- Measures of concentration are possibly less valuable in a very open economy, and could be combined with import penetration data. This is not ideal, as even with a very high degree of concentration and little imports the major firms' pricing behaviour may be wholly influenced by the possibility of imports.

I would like to join with the other speakers in thanking Jim for a stimulating paper.