

Corporate Indebtedness and Liquidations in Ireland

by Allan Kearns*

ABSTRACT

Private-sector indebtedness, measured as the debt to income level, has grown in recent years and is now at historically high levels. Previous authors have concluded that indebtedness is an important determinant of the rate of liquidation among non-financial companies (Wadhwani, 1986; Davis, 1987; Vleighe, 2001). Observing the number of corporate liquidations in an economy (and insolvent liquidations in particular) is important because of the significance of the financial health of non-financial firms for other agents in the economy. Insolvent liquidations, where corporates have not declared their ability to repay all outstanding debts from the proceeds of the liquidation process, in sufficiently high numbers could be a cause of financial instability by forcing banks to write-off bad debts. These liquidations could also transmit financial distress to other corporates (similarly through bad debts) and households (by making household members unemployed). Our analysis shows that the corporate debt to income level has risen in recent years and that the rate of all liquidations has begun to rise recently after several years during which the rate halved. However, the share of insolvent liquidations remains at a low level by historical comparison, suggesting, albeit with some noteworthy qualifications, that a link between the recent increase in corporate indebtedness feeding through to a higher rate of insolvent liquidations is not apparent.

1. Introduction

Private-sector indebtedness, measured as the debt to income level, has grown in recent years and is now at historically high levels (Chart 1). As a result the Irish private-sector debt to income ratio is relatively high by international comparison with Ireland now ranked 8th in terms of indebtedness (Chart 2) in a sample of 29 OECD countries (up from 13th in 1995). Rising debt to income levels are common, but not inevitable, during periods of rapid economic growth. There are examples of relatively fast-growing economies that have experienced a significantly greater proportionate increase in GDP by comparison with the increase in their indebtedness over the same time period (e.g., Mexico and Finland in Chart 3). This paper presents some descriptive statistics on corporate indebtedness and liquidations in Ireland in the context of international evidence which suggests a link between indebtedness and the rate of liquidations.

* The author is an economist in the Monetary Policy & Financial Stability Department (MPFS). The views expressed in this paper are the personal responsibility of the author and are not necessarily held by the CBFSAI or by the ESCB. All remaining errors and omissions are the author's. The author would like to thank his colleagues in MPFS and Statistics, participants at the 2003 Irish Economics Association Conference and the DETE for assistance in completing this paper.

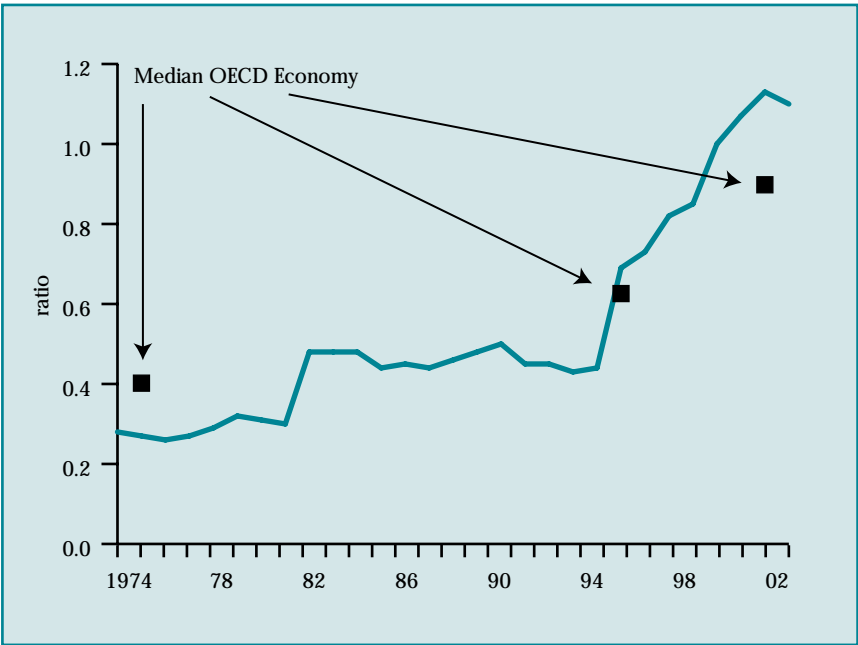
Previous authors have concluded that indebtedness is an important determinant of the rate of liquidation among companies (Wadhwani, 1986; Davis, 1987; Vleighe, 2001). A higher level of debt finance increases the vulnerability of firms to adverse income shocks. This is because a higher level of debt finance imposes obligatory interest and principal repayments on firms. A common defensive reaction of firms that have suffered an adverse income shock is to reduce discretionary expenses, for example, investment, employment, wages and/or dividend payments (Fazzari *et al*, 1988; Bond and Meghir, 1994; Bernanke *et al*, 1996; Nickell and Nicolitsas, 1999; Benito and Young, 2001). But the obligatory principal and interest payments have to be met regardless of the state of the firm's income. Thus, a relatively highly indebted firm can more easily fail under the weight of debt service costs that cannot be met out of current income or cash reserves. It is in this context that Irish corporates might appear to be more vulnerable now to an adverse shock to their income because their indebtedness, albeit measured on a short-time series, has increased somewhat in recent years.

Corporate liquidations in sufficiently high numbers can be a cause of financial instability by forcing banks to write-off bad debts. These liquidations also transmit financial distress to other corporates (similarly through bad debts) and households (by making household members unemployed). A new generation of models of banking crises incorporates the effects of weakened corporate balance sheets (Krugman, 1999). It is for these reasons that the corporate debt to income level is recommended as a "financial soundness indicator".¹

The paper is organised as follows. Section 2 briefly discusses the measurement of indebtedness among Irish corporates. Section 3 presents statistics on the rate of corporate liquidation. Section 4 employs a theoretical model to summarise how increasing indebtedness increases the probability of liquidation among firms. Section 5 summarises the other factors, in addition to the level of indebtedness, that may have a role in determining the corporate liquidations rate. Section 6 concludes. Our analysis shows that Irish corporate debt to income levels has risen in recent years and that an increasing share of this bank debt has been sourced from resident banks. The data show also that the rate of corporate liquidations has begun to rise recently after several years over which time the rate halved. However, the share of insolvent liquidations, where corporates have not declared their ability to repay all outstanding debts from the proceeds of the liquidation process, remain at a low level by historical comparison. Our analysis suggests, albeit with some noteworthy qualifications, that a link between the recent increase in corporate indebtedness feeding through to a higher rate of insolvent liquidations is not apparent.

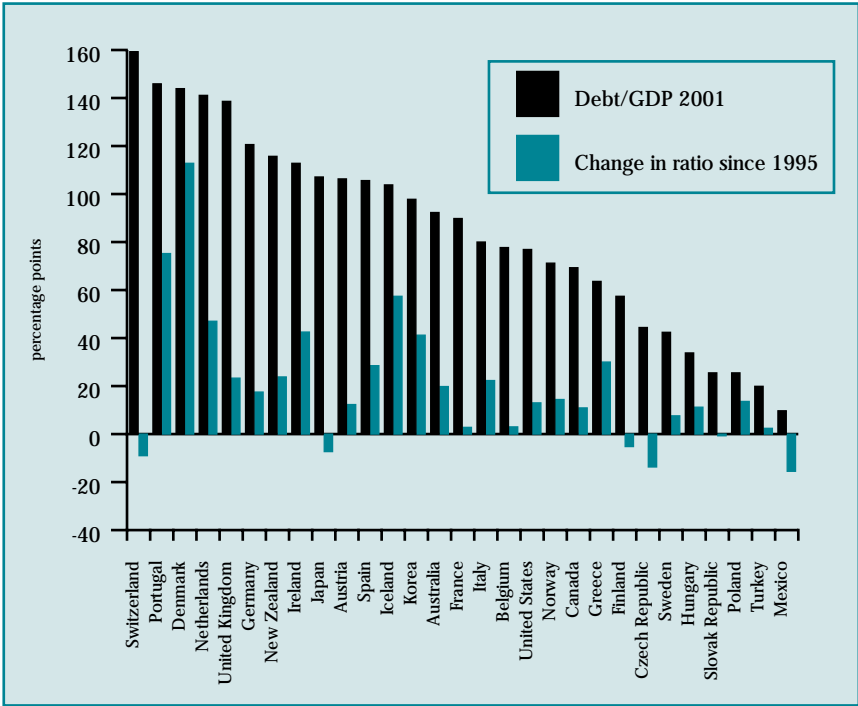
1 IMF (2001). A "financial soundness indicator" is any data series where changes in the series reflect changing levels of stress in the financial system.

Chart 1: Irish Private Sector Debt to GDP Ratio^{(a)(b)}



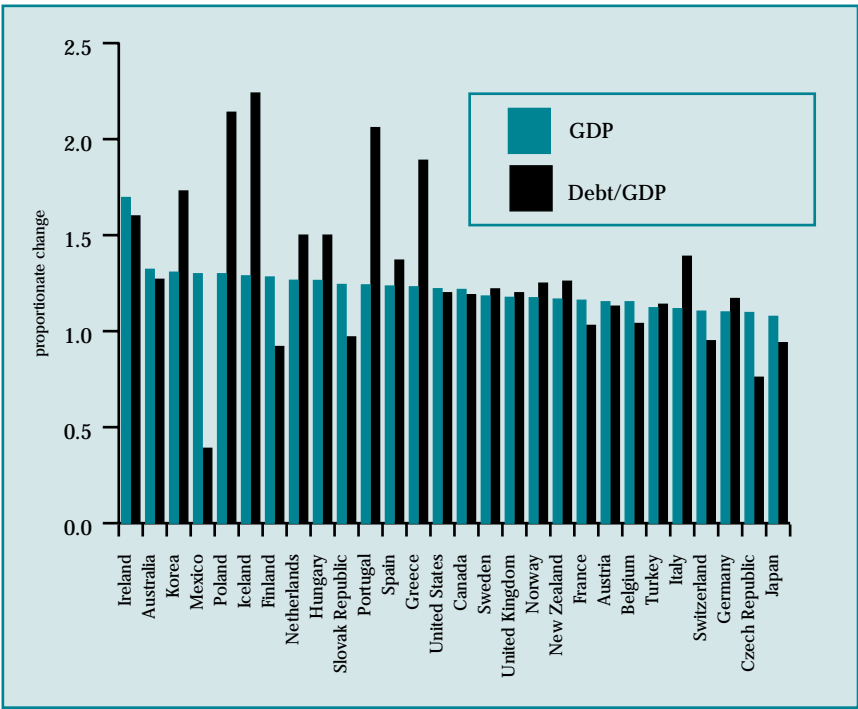
Source: IMF and CBFSAI Calculations.
(a) Debt is proxied by the banking systems' claim on private sector.
(b) The private sector debt to GDP ratio for the median OECD economy, to be used as a comparison with the Irish ratio, is noted for 1975, 1995 and 2001.

Chart 2: International Comparisons of Private Sector Debt to GDP Ratios^(a)



Source: IMF and CBFSAI Calculations.
(a) The change in the ratio is the absolute change (percentage points) between 1995 and 2001.

Chart 3: The Proportionate Change in the Level of GDP and the Debt/GDP Ratio between 1995 and 2001^{(a)(b)}



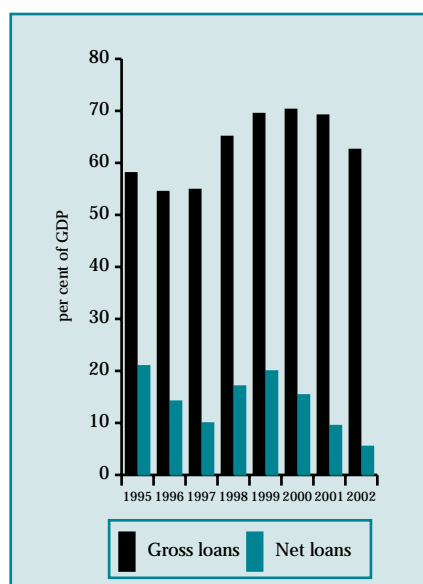
Source: IMF and CBFSAL Calculations.
(a) Proportionate changes are in real terms and are calculated between 1995 and 2001.
(b) Denmark has been omitted as an outlier. The debt to GDP ratio increased over 4.5 times during this period.

2. What has happened to Corporate Indebtedness?

Irish non-financial companies appear to have become increasingly indebted in recent years. The debt has been acquired from three sources: resident monetary financial institutions (MFIs), non-resident MFIs and the capital markets. Reliable data are available for the first two sources only (i.e., bank-sourced debt).² Non-financial corporates had gross loans outstanding at end-2001 from both resident and non-resident MFIs³ of approximately €80.2 billion or 69 per cent of GDP. In 1995⁴ these loans totalled €30.6 billion or 58.1 per cent of GDP (Chart 4).⁵ Provisional data for end-2002 suggests the level of the debt-to-GDP ratio has fallen to 62.6 per cent.

2 The omission of non-bank debt from the calculations may not be very significant in the Irish case because very few Irish non-financial companies appear to have a credit rating which is a general prerequisite to access the capital markets.
3 The data on amounts borrowed from non-resident MFIs are sourced from the Bank of International Settlements (BIS). The BIS produces 'locational' statistics on loans outstanding to the non-bank private sector in Ireland from non-resident MFIs. A non-resident MFI does not conduct business through a subsidiary or branch physically located in Ireland. The value of loans granted by these non-resident MFIs are not included in the lending statistics collected by CBFSAL.
4 1995 is the base year for comparison because the non-resident banking data are available from 1995.
5 An investigation into the reasons for the increased indebtedness is beyond the scope of this paper. Volcker (1986) suggests that taxation and interest deductibility of interest payments, inflation and factors affecting the supply of finance (for example, deregulation in loan markets and greater competition) are generally found to be important explanatory factors.

Chart 4: Total Corporate Borrowing (From Resident and Non-Resident Institutions)^{(a)(b)}

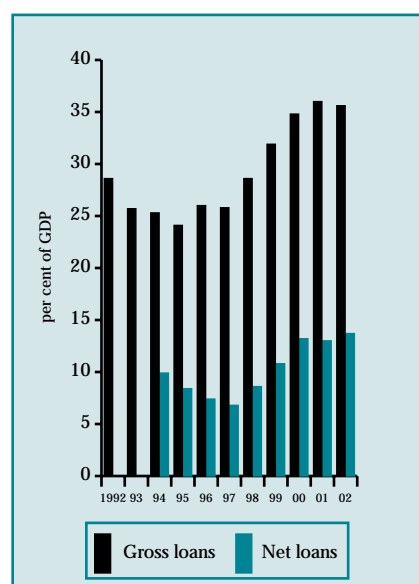


Source: BIS and CBFSAI Calculations.

(a) Net loans is gross loans minus deposits.

(b) BIS lending data are in \$US and have been converted to € with the average exchange rate during each period.

Chart 5: Total Corporate Borrowing (From Resident Institutions)^{(a)(b)}



Source: CBFSAI Calculations.

(a) Net loans is gross loans minus deposits.

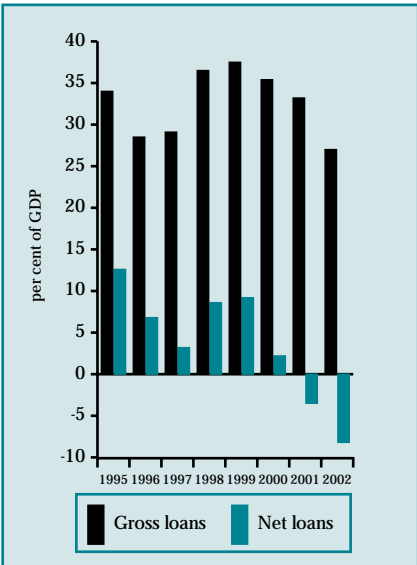
(b) Resident MFIs conduct business through a branch or subsidiary physically located in Ireland.

However, during this same period non-financial corporates have maintained substantial deposits with MFIs. Subtracting deposits from gross loans outstanding gives an estimate of the net position of the corporate sector *vis-à-vis* MFIs. Irish corporates on this net basis have become less indebted in recent years. These calculations show that net loans outstanding from all MFIs totalled approximately €10.6 billion or 9.1 per cent of GDP in 2001 (Chart 4). The net loan outstanding to GDP ratio was 21 per cent in 1995. Provisional data for end-2002 suggest this ratio has fallen to 5.5 per cent.

In recent times businesses have sourced an increasing share of new loans from resident MFIs. In 1995 the gross loans outstanding from resident MFIs to GDP ratio was 24.1 per cent. The corresponding ratio for non-resident MFIs was 34.0 per cent. By 2002 these positions had reversed somewhat. The gross position for corporates *vis-à-vis* resident MFIs was 35.6 per cent by comparison with 27.0 per cent for non-resident MFIs (Charts 5 and 6). The comparison between resident and non-resident MFIs is more significant on a net basis. The data for 2001 suggest that corporates were net lenders to non-resident MFIs (i.e., deposits exceed loans).⁶ By comparison the net loans outstanding to GDP ratio with resident MFIs was 13.0 per cent of GDP.

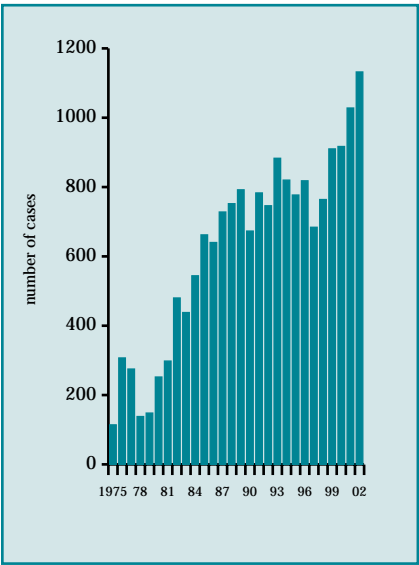
6 It is not always intuitive why corporates would simultaneously hold substantial loans and deposits. However, there are a number of possible explanations. Foremost among these observations is that aggregate figures offer no insight to the fact that a fraction of companies may hold substantial loans while another group of different companies may hold substantial deposits. This has been the case for large and small companies respectively in the UK (see Bank of England Small Business Statistics Bulletin).

Chart 6: Total Corporate Borrowing from Non-Resident MFIs (a) (b)



Source: BIS and CBFSAI Calculations.
(a) Net loans is gross loans minus deposits.
(b) Non-resident MFIs do not conduct business through a branch or subsidiary physically located in Ireland.

Chart 7: Absolute Number of Liquidations Initiated (a)



Source: Department of Enterprise, Trade and Employment.
(a) Total includes members voluntary liquidations, creditors voluntary liquidations and court-ordered liquidations.

The maturity profile of debt is an important consideration when analysing the financial burden associated with higher indebtedness. Firms can lower their principal repayments (i.e., their current debt service burden) by lengthening the repayment period of the debt. Conversely, an adverse income shock can be substantially more damaging to any firm if a large share of the outstanding principal has to be repaid within a short period of time. There is some evidence that the maturity profile of Irish firms' bank loans has lengthened in recent years (Table 1).

Table 1: Maturity Profile of Corporate Bank Loans

% share of loans due to be repaid:			
Year	Within 1 year	Between 1 and 5 years	More than 5 years
1999	41.6	23.8	34.6
2000	43.0	23.8	33.2
2001	41.8	26.0	32.2
2002	36.1	29.3	34.6

Note: Data are available for bank debt sourced from resident MFIs only and are compiled from internal sources.

3. The Level of Corporate Liquidations in Ireland

Observing the number of corporate liquidations is important because of the importance of the financial health of non-financial firms for other agents in the economy. There can be a myriad of channels through which non-financial corporates interact with other corporates, households and financial institutions. It is

through these channels that the financial distress caused by business liquidations can be transferred to the banking system directly through the bank-firm relationship or indirectly via other agents' relationships with the firm and their banks. Liquidations can be grouped into two categories; those liquidations where there are no outstanding bad debts because the proceeds of the liquidation are sufficient to repay any outstanding debts and the remaining liquidations where the proceeds from the liquidation process are insufficient to repay all outstanding debts. We label this latter category "insolvent liquidations".⁷

Insolvent liquidations could directly increase the probability of financial difficulties among banks by forcing the banks to write-off the liquidated firms' outstanding debt.⁸ These write-offs reduce the profitability of the banks. These write-offs can also be more damaging to the bank if the bad debt is unanticipated and no provisions out of past profits have been made to cover the losses. During 2002 approximately 0.75 per cent of private-sector credit outstanding from all credit institutions was non-performing.⁹ Provisions made by the credit institutions covered these non-performing assets quite comfortably. The credit institutions made provision for 0.96 per cent of outstanding private-sector credit to be non-performing. Write-offs above this latter level would, therefore, have been unexpected.

Insolvent liquidations could also increase the probability of financial distress in other associated firms and households. In similar fashion to banks, these firms may be forced to write-off outstanding credit to the company. Also, Bernanke and Campbell (1988) suggest that potentially insolvent liquidations can cause liquidity crises in other firms and/or households in two ways. First, a succession of bankruptcies can make all lenders in the economy more nervous. This can lead to a general tightening of

7 There are three types of liquidations: members voluntary liquidations (MVLs), creditors' voluntary liquidations (CVLs) and court-ordered liquidations (COs). The distinction is between MVLs and the other categories. A necessary condition for an MVL is a declaration of solvency. A majority of the directors must agree that the company can pay its debts in full within one year of the liquidation. There is no such declaration of solvency in the remaining two types of liquidations. Thus, we use the label "insolvent liquidations" as a summary term to describe CVLs and COs.

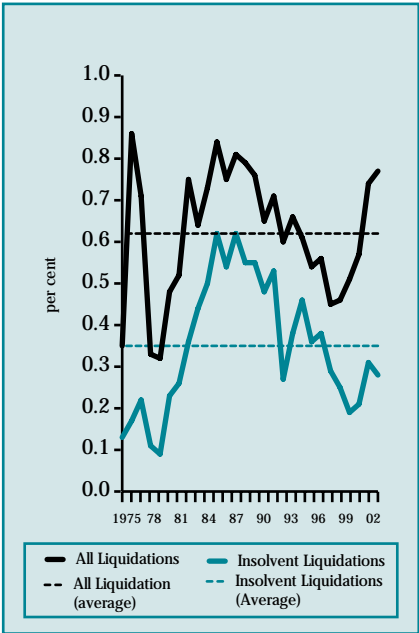
8 Interestingly, the banks themselves through their own actions may be partly responsible for causing these unanticipated bad debts. "Boom and bust" models of banking crises suggest a pivotal role for the indebtedness of non-financial firms in explaining one type of banking crisis. Logan (2000) suggests that this model describes best the last UK banking crisis where 25 banks failed in the early 1990s. The background to this model is a period of macroeconomic boom and bust. The demand for credit rises as economic growth accelerates. Banks are happy to lend against collateral based on increasing asset values. Honohan (1997) describes the banks as suffering from "disaster myopia". The banks over lend to projects with poor long-term prospects in an effort to compete in a booming economy with an increasing number of borrowers and lenders. But banks will have underestimated their credit risk if they have mistakenly overestimated the quality of their assets and/or the value of the collateral. Banks are vulnerable to a sharp deterioration in the health of borrowers especially if the values of the assets used as collateral are also falling. Both the financial health of borrowers (i.e., profitability) and asset values are likely to decline with falling economic growth rates.

9 This total for non-performing loans includes loans from the household sector as well.

the availability and/or cost of credit across the economy. This may hurt other firms who require additional financing to compensate for falling levels of internal finance (i.e., income). Second, the legal proceedings of bankruptcy freezes the assets of failing firms. This renders assets due to the short-term creditors illiquid and may worsen the creditors' liquidity situation. The employees will face a corresponding liquidity crisis, albeit probably temporary, arising from their unemployed status.

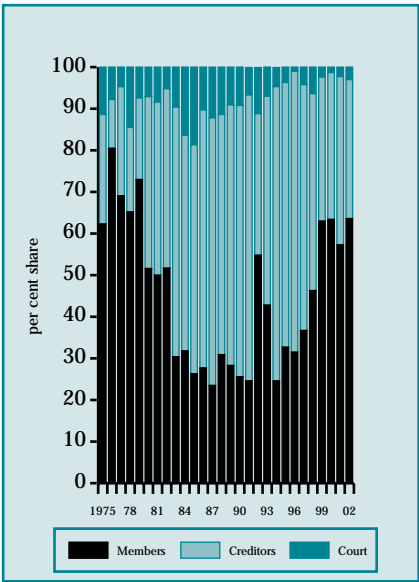
These write-offs and liquidity crises are first round effects on firms and households that were stakeholders in the liquidated firms. However, we can also highlight the possibility of second-round effects where these stakeholders adjust to their worsened financial situation and cut back on their discretionary expenditures. For example, financial accelerator models of economic growth highlight the importance of firms' spending decisions on access to finance and the current financial health of firms. These injured firms might cut investment (which will impact on the health of capital-goods firms) and cut dividends and wages (which reduces the income of households and other shareholders) (see, for example, Fazzari *et al.*, 1988; Bond and Meghir, 1994; Bernanke *et al.*, 1996; Nickell and Nicolitsas, 1999; Benito and Young, 2001). These cutbacks in discretionary expenditures could reduce economic growth and may start another round of adverse income shocks for corporates and households.

Chart 8: Liquidation Rate^{(a)(b)(c)}



Source: Department of Enterprise, Trade and Employment and CBSAI Calculations.
(a) Liquidations rate is the number of liquidations divided by the number of companies on the live register in the previous year.
(b) Insolvent liquidations rate includes creditors voluntary and court-ordered liquidations.
(c) Dashed lines are average rates between 1975 and 2001.

Chart 9: Types of Liquidation Initiated^(a)



Source: Department of Enterprise, Trade and Employment and CBFSAI Calculations.
(a) Members is members voluntary liquidation, Creditors is creditors voluntary liquidation and Court is court-ordered liquidation.

The number of all liquidations has risen almost continuously since 1975 and totalled 1,132 in 2002 (Chart 7).¹⁰ We can identify two time periods during which the number of liquidations fell for more than one year: 1976 to 1979 and 1993 to 1997. One obvious explanation for the rise in liquidations since 1975 is the rising number of businesses over this period. The annual liquidations rate is the share of all registered companies liquidated during each year. The corporate liquidations rate has trended upwards again in recent years (since 1997) after a decade during which time the annual rate almost halved (Chart 8).¹¹ The liquidations rate in 1997 (0.41 per cent) was the lowest rate recorded for seventeen years since 1980. In 2002, 0.77 per cent of registered companies were liquidated, a rate of liquidation above the historical annual average of 0.62 per cent over the period 1975 to 2001.

As noted earlier, some liquidated firms have outstanding debts at the end of the liquidation process (i.e., insolvent liquidations). These debts have to be written-off by the firm's stakeholders. In this way these liquidated firms impose financial pressure onto other agents (e.g., trade creditors, banks, shareholders and employees). The broad aggregate liquidation rate may overstate the scale of this financial pressure because the rate is calculated including firms that are wound up but have no outstanding debts. The share of liquidated firms with outstanding unpaid debts fluctuates over time; on average 55 per cent over the period 1975 to 2001 but fluctuating between a minimum recorded share of 20 per cent in 1976 and a maximum share of 76 per cent in 1987 (Chart 9). We can calculate a narrower aggregate liquidation rate for liquidated companies unable to pay all outstanding debts. Approximately 0.35 per cent of registered companies were liquidated with outstanding debts per annum over the period 1975 to 2001 (Chart 8). This narrower liquidation rate was 0.28 per cent in 2002 and below its long-run average. This narrower liquidation rate continued to fall after 1997 when the broader liquidation rate began to rise. The narrower rate reached a twenty-year low in 1999 (0.21 per cent).

The exact financial cost to credit institutions and other firms and households of liquidated firms with outstanding debts is unknown. This is because the magnitude of the outstanding

10 This total will include the liquidation of both indigenous and foreign-owned companies. Any company that is incorporated outside the State and establishes a branch in the State must register with the Companies Registration Office and also register any subsequent liquidation.

11 Part of the explanation for the rising liquidation rate is a decline in the total number of registered companies by comparison with the 1998 total. The interpretation of this series should be treated with some caution as (i) the register of companies is essentially a real-time database and determining the number of active companies at a historic point in time is not straightforward and (ii) the number of registered companies could be affected by periodic administrative initiatives to "clean-up" the list of registered companies or to restore companies to the register. These initiatives could significantly alter the number of registered companies between any two years.

debts from liquidated companies is unknown and the distribution of the debts across credit institutions, other firms and households is also unknown.

4. The Role of Indebtedness in the Probability of Liquidation

The following theoretical model of the probability of bankruptcy was suggested initially by Wadhwani (1986) to explain a relationship between inflation and the liquidation rate.¹² This model also suggests a positive relationship between indebtedness and the probability of bankruptcy (Davis, 1987; Vleighe, 2001).¹³ Increasing indebtedness results in a higher ratio of interest payments to income thereby reducing the safety margin for firms if interest rates rise, income falls or the market value of the firm declines in value (Davis, 1987).

Vleighe (2001) documented a stylised version of the Wadhwani (1986) model. A firm is assumed to be bankrupt when its current operating losses (π) are large enough to cancel the residual equity value of the firm (E).

$$\pi + E < 0 \tag{1}$$

The equity value of the firm is the residual of the total market value of the firm (MV) after the value of outstanding debt (D) has been deducted. This bankruptcy condition tightens as the ratio of debt to the total value of the firm increases

$$\pi + MV - D < 0 \tag{2}$$

A key assumption behind this bankruptcy condition is the ability of firms to borrow a value equal to the full market value of the firm. For a variety of reasons firms may not be able to borrow against the full value of the firm (i.e., the firms are credit-constrained).¹⁴

12 These models were designed to explain the role of indebtedness in the probability of bankruptcy. We have retained the original term “bankruptcy” in explaining the models and, therefore, we are assuming implicitly that a firm will be liquidated when it is bankrupt.

13 Any theoretical models that relate indebtedness to the probability of survival of individual firms contradict the Modigliani and Miller (1958) theorem. The MM theorem illustrates how capital structure (i.e., the ratio of debt to equity) should be irrelevant to the value of a firm under certain restrictive conditions. Two of these conditions are the ability of corporates to borrow unlimited amounts of debt at market interest rates and there is no bankruptcy.

14 There is a huge literature on capital market imperfections dating back to Modigliani and Miller (1958). Much of this literature considers possible market imperfections, such as information asymmetries, moral hazard and adverse selection, that may affect both the quantity and price of debt finance provided to companies. See, in particular, Jensen and Meckling (1976), Leland and Pyle (1977), Stiglitz and Weiss (1981) and Myers and Majluf (1984) for the classic references.

The bankruptcy condition for a firm that cannot access more debt in the future becomes

$$\pi + K < 0 \quad (3)$$

where K is the liquidation value of the firm's assets.

Current profitability can be decomposed into its constituent parts: sales revenue and costs.

$$\pi = pY - wL - qM - rD \quad (4)$$

where p is the price per unit of output, Y is total output, w is the wage rate, L is total employment, q is the input price, M is the volume of non-labour inputs (i.e., raw materials) and r is the nominal interest rate.

Exploring equations (2) and (4) highlights the two channels through which increasing indebtedness increases the likelihood of bankruptcy. In the first instance, increasing indebtedness reduces the residual equity value in the firm. In essence, the value of additional debt that the firm can acquire is diminished as the ratio of debt to market value increases.¹⁵ This occurs because either the firm has borrowed the total residual equity value already or the firm is credit-constrained before borrowing an amount equal to the full residual equity value of the firm. Second, increasing indebtedness reduces current operating profits (or increases current operating losses) through increasing interest payments.

A comparison of the recent trends of both corporate indebtedness and insolvent liquidations suggests that a link between increasing indebtedness and an increasing rate of insolvent liquidations is not apparent in the Irish case. However, there are two noteworthy qualifications to this analysis. First, the unavailability of a pre-1995 time series of corporate indebtedness does not allow us to compare the liquidation rate with the changing level of corporate indebtedness earlier than the mid-1990s. For example, we do not have sufficient data to determine whether there is any lagged effect of indebtedness on the rate of insolvent liquidations. Second, this is a very partial analysis. There are additional factors which determine the aggregate liquidation rate and which may be obscuring the link between indebtedness and liquidations.

¹⁵ It is possible that market value increases with increasing indebtedness. If the firm is borrowing to invest in projects with expected positive net worth, then the current market value of the firm might increase also to reflect this expected increase in future profits. This may slow the rate of any increase in the debt to market value ratio as the firm borrows additional funds.

5. Additional Factors Determining the Rate of Corporate Liquidations

The level of indebtedness, the level of operating profits and the level of interest rates are just some of a number of factors determining the rate of corporate liquidations in an economy and which have been highlighted by previous authors (Wadhwani, 1986; Davis, 1987; Vleighe, 2001). These other factors include the birth rate of new companies, the value of non-residential property and changes in the legal alternatives to liquidation. We consider in more detail below how each of these factors might affect the rate of corporate liquidations.

(A) *Birth Rate of New Companies*

An increasing birth rate of new companies is expected to increase the rate of corporate liquidations. The birth rate of new companies is measured as the ratio of new company registrations to the total number of companies “alive” on the companies register. This variable captures either a higher propensity of new firms to exit within a very short period of time or the increased likelihood that new firms will grow to displace incumbent firms and these incumbents will subsequently cease trading. It is through either of these two channels that an increasing birth rate is believed to increase the liquidation rate. Chart 10 confirms that the birth rate of new companies has fluctuated over the past three decades. The decline in the birth rate in the very recent past may suggest that the influence of new firms on the corporate liquidation rate may not be as significant either currently or in the near future.

(B) *The Value of Non-Residential Property*

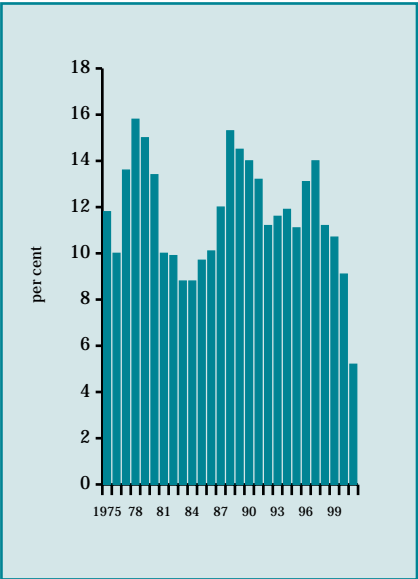
Firms often use property as collateral for loans. Falling property values reduces the value of collateral against which firms can secure additional borrowing. Falling property values may suggest that firms are more vulnerable to any adverse income shock because their ability to borrow additional funds against the value of this property, to compensate for the falling income, will have fallen also. The data in Chart 11 show that the value of commercial property, measured by a commercial property capital values index, has risen significantly in recent years but has levelled off in 2002.

(C) *Legal Alternatives to Liquidation*

There may be a legal alternative to liquidation, such as the examinership process, which might be an important factor when studying the rate of corporate liquidations across time. In the Irish case, the 1990 Companies (Amendment) Act and the 1999 Companies (Amendment No.2) Act might be important in this respect. The 1990 Act introduced the examinership process and allowed potentially viable companies to be saved from liquidation. The Act potentially reduced the liquidation rate.

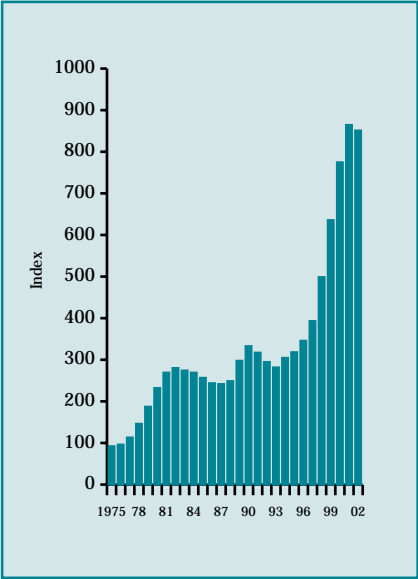
Under the 1990 Act a company had to have “some prospect” of survival to qualify for examinership. The 1999 Act tightened the conditions under which companies qualified to enter the examinership process and thereby potentially increased the liquidation rate. This qualifying criteria was tightened so that the company now has to have “a reasonable prospect of survival”.¹⁶

Chart 10: Corporate Birth Rates^(a)



Source: Department of Enterprise, Trade and Employment and CBFSAI Calculations.
(a) Calculated as the ratio of new companies admitted to live register to the total number of companies on the live register during the previous year.

Chart 11: Capital Values of JLLS Commercial Property Index



Source: Jones Lang LaSalle.
(a) Average values of index in each year.

6. Summary and Conclusions

Private-sector indebtedness, measured as the debt to income level, has grown in recent years and is now at a historically high level. Our analysis shows that corporate debt to income levels have risen in recent years and that the rate of corporate liquidations has begun to rise recently after several years during which the rate halved. However, the share of insolvent liquidations, where corporates have not declared their ability to repay all outstanding debts from the proceeds of the liquidation process, remain at a low level by historical comparison.

Observing the number of corporate liquidations is important because of the importance of the financial health of non-financial firms for other agents in the economy. Insolvent liquidations in sufficiently high numbers can be a cause of financial instability by forcing banks to write-off bad debts. These liquidations can transmit also financial distress to other corporates (similarly through bad debts) and households (by making household members unemployed).

¹⁶ See the Companies Registration Office at www.cro.ie for more details.

Previous authors have concluded that indebtedness is an important determinant of the rate of liquidations among companies (Wadhwani, 1986; Davis, 1987; Vleighe, 2001). It is in this context that Irish firms might appear to be more vulnerable now to an adverse shock to their income as the data show that the corporate debt to income level, albeit based on a short-time series of data, has risen in recent years. A higher level of indebtedness increases the probability of bankruptcy in two ways; namely, through lower profits because of the burden of interest repayments and a reduced ability to borrow further funds to see them through temporary cash flow difficulties. Our analysis suggests, albeit with some noteworthy qualifications, that a link between the recent increase in corporate indebtedness feeding through to a higher rate of insolvent liquidations is not apparent.

The level of indebtedness, the level of operating profits and the level of interest rates are just some of a number of factors determining the rate of corporate liquidations in an economy and which have been highlighted by previous authors (Wadhwani, 1986; Davis, 1987; Vleighe, 2001). The other factors in explaining the corporate liquidation rate, in addition to indebtedness, are the birth rate of new companies, the value of non-residential property and changes in legislation governing alternatives to the liquidation process. All of these variables, in similar fashion to the level of indebtedness, have changed significantly in Ireland over recent years.

References

- Benito, A., and Young, G., (2001), 'Hard times or great expectations? Dividend omissions and dividend cuts by UK firms', *Bank of England Working Paper*, No.147.
- Bernanke, B., Gertler, M., and Gilchrist, S., (1996) 'The financial accelerator and the flight to quality', *Review of Economics and Statistics*, Vol. 78, pages 1-15.
- Bernanke, B., and Campbell, Y., (1988) 'Is there a corporate debt crisis?', *Brookings Papers on Economic Activity*, 1, pages 83-125.
- Bond, S., and Meghir, C., (1994) 'Dynamic investment models and the firm's financial policy', *Review of Economic Studies*, Vol. 61, pages 197-222.
- Davis, E.P., (1987) 'Rising sectoral debt/income ratios: a cause for concern?', *BIS Economic Papers*, No. 20.
- Fazzari, S., Hubbard, R., and Petersen, B., (1988) 'Financing constraints and corporate investment', *Brookings Papers on Economic Activity*, 1, pages 141-203.

- Krugman, P., (1999) 'Balance sheets, the transfer problem and financial crises', *mimeo*.
- Honohan, P., (1997) 'Banking system failures in developing and transition countries: diagnosis and prediction', *BIS Working Paper*, No. 39.
- IMF (2001) Financial soundness indicators: policy paper.
- Jensen, H.C., and Meckling, W.H., (1976) 'Theory of the firm, managerial structure, agency costs and ownership of the firm', *Journal of Financial Economics*, Vol. 3, pages 305-360.
- Leland, H.E., and Pyle, D.H., (1977) 'Informational asymmetries, financial structure and financial intermediation', *Journal of Finance*, Vol. 32, pages 371-388.
- Logan, A., (2001) 'The United Kingdom's small banks' crisis of the early 1990s: what were the leading indicators of failure?', *Bank of England Working Paper*, No. 139.
- Modigliani, F., and Miller, M.H., (1958) 'The cost of capital, corporation finance and the theory of investments' *American Economic Review*, Vol. 48, pages 261-297.
- Myers, S., and Majluf, N., (1984) 'Corporate financing and investment decisions when firms have information that investors do not have', *Journal of Financial Economics*, Vol. 13, pages 187-221.
- Nickell, S., and Nicolitsas, D., (1999), 'How does financial pressure affect firms?', *European Economic Review*, Vol. 43, pages 1453-1456.
- Stiglitz, J. E., and Weiss, A., (1981) 'Credit rationing in markets with imperfect information', *American Economic Review*, Vol. 71, pages 393-410.
- Vleighe, J., (2001) 'Indicators of fragility in the UK corporate sector', *Bank of England Working Paper*, No. 146.
- Volcker, P. A., (1986) 'The rapid growth of debt in the United States', *Federal Reserve Bank of Kansas City Review*, Vol. 71, pages 3-12.
- Wadhvani, S., (1986) 'Inflation, bankruptcy, default premia and the stock market', *Economic Journal*, Vol. 96, pages 120-138.