IRISH EQUITY MARKETS

SEGMENTATION AND THE PROVISION OF SECONDARY MARKETS

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ABSTRACT

This paper addresses the issue of segmentation of capital markets within the context of the Dublin Stock Exchange. The Dublin Stock Exchange, having moved towards regulatory independence in 1995, was previously an integral part of the International Stock Exchange in London, and Irish firms could choose either a Dublin-only or a joint listing. The authors analyse key characteristics of firms quoted on the Dublin Exchange in 1992 and conclude that there exists evidence of segmentation with differences in characteristic size, gearing and dividend behaviour, and distinctive features of investor profile.

BACKGROUND

In this paper, we report on an investigation of the firms currently quoted on the Dublin Stock Exchange in 1992. There has been little research on the relationship of the Dublin market to the 'parent' exchange in London, despite the peculiarity of the relationship, as an instance of horizontal (choice of location) and vertical (differentiation of level of regulation) segmentation, and within a context where there are reasonable grounds for anticipation of segmentation based upon exchange risks and regulatory changes.

The paper addresses the core question of whether the previous arrangements in the Dublin market reflected segmentation between Dublin-listed and joint-listed equities: were there underlying differences in the nature of the companies listed in the two locations? From this question

will spring secondary concerns. Will the regulatory separation of the Dublin market from the London Stock Exchange affect Irish companies' financing? Will the future Dublin market be regarded as a segment of another, wider market in equities within Europe? Will the nature and degree of segmentation reflect differential risk pricing in the markets concerned?

The paper applies conventional analysis of secondary equity markets to the case of the Dublin Stock Exchange. The Dublin Stock Exchange was, until 1995, an integral part of the privately-run and regulated International Stock Exchange, whose most visible trading location is London. Prior to 1973, the Dublin exchange was one of the provincial arms of the then London Stock Exchange; other similar trading floors operating in centres such as Manchester, Bristol, Birmingham, Glasgow, Newcastle and Belfast. In 1973, when the provincial exchanges were absorbed into the London operation, Dublin alone retained some independent role. Whereas the other exchanges operated merely as feeders for orders to be executed on the London floor, Dublin preserved its ability to list securities and to trade in them. Securities could, therefore, be quoted in either or both locations of London and Dublin: what can be termed 'horizontal' segmentation.

Although the Dublin case was striking in that it formed the main equity trading location within a separate state, the independence of the Republic from the rest of the UK in 1922 did not lead to a break-up of the capital market. In horizontal segmentation, Dublin thus mirrored the position of subsidiary exchanges elsewhere in Europe, notably in France. It had a subsidiary relationship with a dominant, metropolitan parent, similar to the position of, say, Marseilles *vis-à-vis* the Paris bourse (Buckland, 1989, p. 11). The critical differences in Dublin were that:

- The Dublin SE operated in a different nation and jurisdiction for companies and investors
- With movement towards independence in management of the Irish Punt from the Pound Sterling, exchange risk was introduced into the pricing of Dublin-listed and joint-(Dublin/London-)listed securities
- The Dublin exchange had now moved towards regulatory independence from its London parent, albeit within the financial harmonisation of exchanges achieved under the Single European Act.

In relation to business finance, in practice, the Dublin Stock Exchange served three purposes:

- First, it provided a secondary trading environment for the securities issued by Irish companies, where the companies might not be attracted to quotation or listing in London (for reasons of extra-territoriality, for example)
- Second, it allowed Irish investors to gain indirect access to trading in securities traded on the ISE in London
- Third, it provided an opportunity for Irish securities to be listed on a major international exchange, through the joint listing in both Dublin and London.

In the remainder of the paper we establish the nature of the segmentation which is to be tested. Following this, data on the 1992 population of companies whose shares are listed in the market segments of Dublin and London are used to investigate differences and their significance for market segmentation. The paper concludes with comments on the implications for Irish companies and for future research.

THE NATURE OF MARKET SEGMENTATION IN RELATION TO IRELAND

Segmentation of markets is cast here in the context of principal agent analysis and transactions costs frameworks, concentrating upon the segmented structure of exchanges as they appeal to subsets of organisations and of investors. In this, we adopt the European tradition of segmentation in markets (see, for example, Schmidt's 1984 report for the European Commission). We are not at this point analysing the question of whether Dublin and London formed two locations of a single, integrated risk-pricing market. Such a co-integration approach[1] focuses on the consistency with which assets of a particular risk class are priced in institutionally separated or located market places. In this tradition, a branch of the CAPM (or APT) testing debate, rival hypotheses of 'integration' (where markets behave as though they are clone subsets of an underlying 'global' financial market) or of 'segmentation' (where equivalent risks are differentially priced in separable markets) arise (see, for example, Adler and Dumas, 1975; Stehle, 1977; Errunza and

Losq, 1985; Jorion and Schwartz, 1986). While this would be relevant to the case of Dublin, the emphasis of the paper is on market differentiation, through investigation of horizontal segmentation in a profile of Dublin quoted companies.

In principle, secondary markets service sets of investors and of organisations, sets which form subsets of the universe of investors and organisations which might be interested in dealing with each other. In all such sets, information processing is imperfect and entry to financial markets is neither universal nor equitable. That is, on the one hand, a firm or organisation (hereafter firm, for brevity) may provide a set of information, but the meaning which becomes attached to that information will be conditioned by the legal, regulatory, and disclosure context (the rules and habits of the firm's environment). Since the meaning of information available to the market is contextual, the value of it is contingent upon the parity of context between the firm and its investor audience. Likewise, from the opposite perspective in the market transaction, the information handling of (potential) investors[2] will be contingent upon their environment.

This suggests that location choice will be contingent on firm-specific features, where the differential costs of specifying, informing, policing and enforcing contracts between investors and (the management of) firms segment financial markets horizontally (Buckland and Davis, 1995; Schmidt, 1984). Investors separated from involvement in management of the firm will face uncertainty about promised/expected returns. They will invest only if offered returns that recompense their perception of default and returns risk (plus any precautionary premium caused by the uncertainty involved), which may not correspond to the inherent risk derived from the firm's prospective returns.[3] Conversely, firms will sell financing assets only if they anticipate that they can indefinitely earn sufficient excess returns to provide the premium necessary to bridge the information gap between them and the investor community.[4] There will be clusters of firms and/or investors which have common characteristics of information transmission and processing capacity. Such clusters will be characterised by one or more of the following:

- Common base sets of published and public business information
- Relatively low dissonance of information as provided from information as perceived

- Common, and relatively low-cost, access to contracting and enforcement mechanisms in establishing investment contracts.

However, such clusters are differentiated from other (clusters of) investors by language, culture, distance, regulation, taxation, or other distinctive features of the investment community.

Market participants will thus cluster around geographic, legal or economic poles of activity. This kind of market segmentation is clearly present in the Dublin case, and changes in the potential for forming contracts between investors and organisations should have an impact upon the choice of participants' trading location and activities. In researching these issues, one needs to focus on the characteristics of investors and the invested, exploring whether there are any distinctions between investors and organisations that elect quotation for their securities in the various linked locations. This level of exploration of segmentation is what is being pursued in this paper, rather than issues of 'vertical' segmentation[5] or of pricing integration.

On the other hand, there is an aspect of vertical segmentation in the Dublin–London relationship. In relation to European markets, Schmidt (1984) analyses the relationships of stock exchanges within Europe and proposes a hierarchy of quotation. Securities will normally advance from 'junior' tiers with less regulation and relaxed information requirements, to more sophisticated levels of provision. The examples of French provincial and metropolitan (that is, Paris) markets are one case in point. Securities are prevented from being dual listed in the segregated tiers, which are directed towards differing target investors and organisations. Similarly, the relationship of European Union national securities markets to any internationalised European exchange will, under these conditions, take on characteristics of vertical segmentation.

In relation to Dublin, vertical segmentation can be related to the place of Dublin-listed securities within the British Isles. In other words, Irish firms face a choice between Dublin listing and London listing corresponding to the (horizontal) relationship to investor communities; but the link between the markets also corresponds to a view of the Dublin market as a 'junior', sub-set, of the International Stock Exchange (ISE) in London. The ISE has already established the USM as a (lower) vertical

segment of the London Official List; Irish securities with a Dublin domestic listing may have the same status in relation to Irish stocks listed on the London market.

Until 1995, all companies quoted on the ISE abided by the regulations in *The Listing Rules*, applicable to their counterparts on the London Exchange. Thenceforth, the Central Bank of Ireland became the supervisory authority for stockbrokers and the Stock Exchange in Ireland. Legislation to empower the Bank to carry out this function reflects relevant provisions of the EC Investment Services Directive. The organisational and regulatory separation of Dublin from London will provide an opportunity to examine how vertical segmentation affects the returns and pricing of securities within British Isles, or now within European Union financial markets. Issues arise of how investors and organisations choose the appropriate trading location, and also of what happens to asset prices and returns when there are changes of trading location (movement up or down the vertical segmentation ladder).

THE NATURE OF DIFFERENTIATION IN FIRMS LISTED IN THE DUBLIN EXCHANGE

This section addresses key characteristics of the firms which were listed on the Irish Stock Exchange prior to separation of the exchanges. We are concerned to discover whether there are elements of segmentation in the set of firms utilising the Dublin exchange for equity quotation, or in the set of investors interested in trading in the exchange's listed assets.

Data

The date chosen for the analysis is 31 December 1992, at which time there were 85 companies quoted on the Dublin Exchange. The main source of data is the *Irish Stock Market Annual* (Irish Stock Exchange, 1993), while the *Risk Measurement Service* (London Business School, 1992) acted as a secondary source. The sample 60 companies chosen are those included in the above annual and whose annual accounts were obtained.

The 60 companies were classified according to whether they had a Dublin-only-listing or a Dual-listing.[6] There were 21 Dublin-only-listed

companies and 39 Dual-listed companies. At present the USM companies are not segregated for analysis.

Data were also gathered on a matched sample of UK domestic firms on the London market, providing a basis for comparison between Dublin-listed Irish companies and dual-listed Irish companies, and between dual-listed Irish companies and domestic London-listed stocks. This matching procedure paired joint-listed equities quoted in London with domestic equities of close market capitalisation in that *Financial Times* Actuaries' industry class. In this investigation, data relating to industry, firm size, liquidity, equity yields, equity risk, capital market behaviour and ownership structure are employed in the analysis. All such data are secondary, collected from the sources above.

Sector and Capital Raising

There is differentiation between the Dublin-listed and joint-listed groups according to their industry sector and their issuing behaviour. Research has supported both the hypothesis that listing is consequent upon financial distress (Hutchinson, Meric and Meric, 1988) and that listed firms display low gearing and arrive on exchanges because they are not distressed (Buckland and Davis, 1989). In a segmented market, one would expect that firms in markets would be differentially able to raise new capital from investors. There is, however, no agreement upon the direction of any difference between the two sections of the Dublin market. The frequency and scale of recourse to the market for new finance will be affected by the characteristic appetite of listed firms for new capital and by the capacity of the market to absorb new equity and to respond to firms' demands. In the UK USM, despite the relative illiquidity of the market in USM equities, USM entrants raised relatively high amounts and proportions of new money, both at the time of entry and afterwards (Buckland and Davis, 1989). Thus there is no *prima facie* expectation of the relationship of segmentation to capital-raising, to the 'use' of quotation by the firms concerned.

Initially, we examine the capital-raising behaviour of firms on the Dublin exchange by the creation of 'issuing indices'. Equity is raised either by Placings, where the new shares are marketed to issuing brokers' clients; or by Rights issues, where, following the pre-emption

principle, existing holders of shares are offered the opportunity to purchase additional ones. One can measure the capital-raising propensity of the market by measuring the proportion of firm's current equity that has been raised by means of new issues during its listing history. Accordingly, we present in **Table 1** data which show the member firms' recourse to capital-raising since flotation.

Table 1: Use of Market since Flotation across Each Sector (as at 31/12/92)

Sector		Placings Index (i)	Rights Index (ii)
Banks/Financials	Dublin-listing only	3	68
	Dual-listing	2	26
Food	Dublin-listing only	0	8
	Dual-listing	17	23
Minerals	Dublin-listing only	291	125
	Dual-listing	151	372
Manufacturing	Dublin-listing only	7	16
	Dual-listing	8	9
Construction	Dublin-listing only	0	41
	Dual-listing	11	0
Other	Dublin-listing only	3	9
	Dual-listing	69	23

(i) Placings as a percentage of net tangible assets, and weighted according to market capitalisation.

(ii) Rights as a percentage of net tangible assets, and weighted according to market capitalisation.

It is apparent that the data are affected by sharp sectoral differentials. In the minerals and exploration sector, for example, the investment of

equity in intangibles such as exploration licenses results in very high new capital/net tangible asset ratios. There is, on the other hand, no particular evidence here that the market also segments behaviour. The apparent absorptive capacity of existing shareholders in joint-listed equities to purchase more equity in Rights (pre-emption) issues may demand further attention, but Dublin-listed firms in Minerals and Exploration have displayed an ability to raise further capital through the Placings route. In contrast, in the Food sector, joint-listed firms display more use of equity-raising than Dublin-listed firms, but the picture is clearly confused and contradictory across sectors. More detailed research is necessary, particularly to clarify the direction of anticipated shifts that would occur were segmentation present.

Linkage to Variables: Company Size

One would anticipate that there would be a significant separation of Dublin-listed from joint-listed equities in terms of company size measures. This would follow from several linkages consistent with transactions cost and agency arrangements:

- Fixed-cost elements of information provision, leading to economies of scale for larger listed companies where regulatory requirements are more onerous
- Economies of scale in periodic disclosure and transmission of information in generating comprehension and assurance in distant investor communities[7]
- Limitations of investor diversification in local markets, leading to incentives for larger firms to access other, non-local investor communities.

It can be hypothesised, then, that:

> *H1: Joint-listed securities will be of larger firms than Dublin-listed securities.*

The population means for size, measured by net tangible assets and market capitalisation, were compared for the two groups using t-tests

(**Table 2**). There is a significant size difference, and, as expected, the size of firms retaining a solely Dublin listing is less than firms which have a joint listing in Dublin and London.

Table 2: T-tests on Means of the Two Groups

	Dublin-listed	Dual-listed	Significant @ 5%
Acquisitions for equity (i)	0.86	2.46	✓
Acquisitions for cash (i)	1.14	4.18	✓
Dividend yield %	2.59	4.39	×
Gearing % (ii)	15.71	49.23	×
Institutional shareholding %	30.85	31.82	×
Market capitalisation £m	21.73	88.24	✓
Net tangible assets £m	11.79	70.26	✓

(i) A simple average based on the number of firms.

(ii) Long-term debt to total capital.

Investors

A second potential indicator of segmentation is the investor profile of listed securities. This may arise for many reasons:

- Some investors will possess preferential or compacted knowledge of the firm. These can be classed as 'insider' investors, with superior contextual understanding of items of information, or with private, parallel sources of information which are not accessible to other, 'outsider' investors.

Insider investors will be less reliant than outsiders on the information available to markets. They will possess more security in their forecasting of returns and will be more cautious about marginal trading, since their trading behaviour will be valued by outsiders as signals of the value of private information which they, the insiders, possess. Hence, active markets with rigorous and extensive information disclosure are of less relevance to insiders than they are to outsiders. As a

corollary, they are of less relevance to firms which rely upon the investments of insiders.

- In a segmented market there will be differential involvement of insider investors. There will also be a tendency in a segmented market for differentials in the involvement of managed, institutional funding, with greater involvement of institutions in thin, 'junior' segments of the market. Such 'professionalised' investors will have advantages over other outsiders: they can retain specialist analysts and they can operate from a niche in the market by virtue of collectivising the investments of their own, well-diversified investors. Institutions will thus have advantages over private outsiders. In addition, they may be present as participants in the governance, direction, or even management of the firm, effectively with an insider position.

We hypothesise, then, that segmentation in Dublin will be reflected in a differential in the profile of investors in the market. Alternatively, if the profiles of investors in Dublin- and in joint-listed securities are essentially identical, that would suggest an absence of segmentation.

> *H2: Joint-listed securities display proportionately less institutional ownership than Dublin-only listings.*

Secondary data exist in the Stock Exchange Yearbook from which one can distinguish significant insider holdings in Dublin equities. It is also possible to identify institutions' holdings of the equity. However, when the population means for levels of institutional shareholding were tested (**Table 2**), no significant differences were observed.

Gearing and Debt Capacity

One of the most important indicators of segmentation will be the capacity of firms to raise debt finance. The hypothesis here is that joint-listed firms will be characterised by relatively high debt capacity. This will arise from creditors' perception of the differential in access to new equity backing for debt finance. If creditors perceive that joint-listed equities are systematically more liquid than those of Dublin-listed firms, they will be more willing to lend, particularly in the long term.

H3: Joint-listed securities display higher debt capacity than Dublin-only stocks.

However, the evidence from the data does not bear this out. **Table 2** indicates that no significant difference was observed between the population means for gearing for the two groups.

Acquisition Behaviour

Segmentation should impact upon firms' capacity to exploit their market advantage in acquiring other companies. One classic motive for gaining a quotation on any market is that quotation allows the firm to offer its own equity in acquisitions. Without quotation, equities' illiquidity constrains the expanding firm to offering cash or deferred cash of some kind (in earn-outs, for example). When the firm's equity is quoted, the target's owners can be offered the option to be paid in the acquiror's equity. This could be retained, or it can be sold in the market, allowing the acquiror to pay in paper while the target's shareholders receive cash. Segmentation, therefore, should be apparent in differential use of acquiror's equity in external growth.

H4: Joint-listed firms grow externally by acquisition of assets and other firms more than Dublin-listed firms.

Table 2 displays the evidence from current member firms' acquisitive behaviour. Dual-listed firms are indeed more acquisitive than Dublin sole-listed ones, with significant differences observed for the groups when testing the population means for both acquisitions for equity and acquisitions for cash.

Returns to Investors

In the end, all segmentation tests must result in a test of the hypothesis that there are returns differentials between identical assets traded in the several markets. Whilst one would expect yields on Dublin-listed equities to appear to be systematically higher than those of the dual-listed firms, the data from the two groups do not bear this out. No significant difference was observed when testing the population means for dividend yield.

Having looked at the variables separately, we consider whether they are, as a group, related to firms' choice of market. Logistic regression analysis was used to predict whether an Irish registered company would choose a Dublin-only-listing or a dual-listing. Other multivariate statistical techniques — for example, multiple regression analysis and discriminant analysis — are not suitable when the dependent variable can have one of only two values. As the size characteristic of firms, measured by market capitalisation and net tangible assets, is related to other variables used in the analysis, size is controlled running the logistic regression model with and without these measures. To determine the likelihood of accurately predicting the choice of capital market for an Irish registered company, the following variables were entered into the model at will[8] (the enter method): acquisitions for equity, acquisitions for cash, dividend yield, gearing, institutional shareholding, net tangible assets and market capitalisation.

The model constructed had 78.33 per cent accuracy. From **Table 3** we see that 32 dual-listed companies were correctly predicted to be dual-listed and 15 Dublin-listed companies were correctly predicted to be Dublin-listed. The equation for the model is given in **Table 4**. The model is interpreted as follows. As a company increased its value of *acquisitions for equity* by one unit, the probability of a dual listing increased by a factor of 1.854. For *acquisitions for cash*, this factor was 1.0942. As *dividend yield*, *gearing* and *institutional shareholding* increased by one percentage point, the probability that an Irish registered company would have dual listing increased by factors of 0.9436, 1.0149 and 0.9912 respectively. As the size of a company increased, the probability of a dual listing increased by a factor of 0.9852 for market capitalisation and by a factor of 1.081 for net tangible assets.

Table 3: Classification Table for Dual-listed and Dublin-listed Companies

Observed	Dublin-listed	Dual-listed	% Correct
Dublin-listed	15	6	71.43
Dual-listed	7	32	82.05
			Overall 78.33

Table 4: Enter Logistic Regression (without controlling for size)

$$\text{Probability} = \frac{1}{1 + e^{-z}}$$

where, z = -1.4974 + 0.6173 acquisitions for equity + 0.09 acquisitions for cash – 0.0581 dividend yield + 0.0148 gearing – 0.0088 institutional shareholding + 0.0779 net tangible assets – 0.0149 market capitalisation

The standard errors for each of the variables and the constant are as follows:

acquisitions for equity	0.2836
acquisitions for cash	0.2394
dividend yield	0.1025
gearing	0.011
institutional shareholding	0.0212
net tangible assets	0.0311
market capitalisation	0.0147
constant	0.8732

To control for size, the logistic regression analysis was run without market capitalisation and net tangible assets. Using the Enter method, the model had a prediction accuracy of 73.33 per cent. From **Table 5** we see that 32 dual-listed companies were correctly predicted to be dual-listed and 12 Dublin-listed companies were correctly predicted to be Dublin-listed.

Table 5: Classification Table for Dual-listed and Dublin-listed Companies (size controlled)

Observed	Dublin-listed	Dual-listed	% Correct
Dublin-listed	12	9	57.14
Dual-listed	7	32	82.05
			Overall 73.33

The model equation is given in **Table 6**. As a company increased its value of *acquisitions for equity* by one unit, the probability of a dual listing increased by a factor of 1.5361. For *acquisitions for cash*, this factor was 1.168. As *dividend yield*, *gearing* and *institutional shareholding* increased by one percentage point, the probability that an Irish registered company would have dual listing increased by factors of 1.0666, 1.014 and 1.0037 respectively.

Table 6: Enter Logistic Regression (controlling for size) — Dual Listing

$$\text{Probability} = \frac{1}{1 + e^{-z}}$$

where, z = -1.0313 + 0.4293 acquisitions for equity +0.1553 acquisitions for cash + 0.0645 dividend yield + 0.0139 gearing +0.0037 institutional shareholding

The standard errors for each of the variables and the constant are as follows:

acquisitions for equity	0.2317
acquisitions for cash	0.1363
dividend yield	0.0807
gearing	0.0105
institutional shareholding	0.0168
constant	0.7353

In addition, the analysis was performed using the two size variables only, with the model giving a prediction accuracy of 68.33 per cent (**Table 7**) which is of interest. Thirteen Dublin-listed companies were correctly predicted to be Dublin-listed, but only 28 Dual-listed companies were correctly predicted to be so. The equation is given in **Table 8**. As the market capitalisation increased by one unit, the probability of correctly predicting a company as dual-listed increased by a factor of 0.9909; for net tangible assets the factor was 1.0577.

Table 7: Classification Table for Dual-listed and Dublin-listed Companies (size only)

Observed	Dublin-listed	Dual-listed	% Correct
Dublin-listed	13	8	61.9
Dual-listed	11	28	71.79
			Overall 68.33%

Table 8: Enter Logistic Regression (size only)

$$\text{Probability} = \frac{1}{1 + e^{-z}}$$

where, z = -0.3395 constant – 0.0091 market capitalisation + 0.0561 net tangible assets

The standard errors for each of the variables and the constant are as follows:

net tangible assets	0.0239
market capitalisation	0.0104
constant	0.4015

Dual-listed Irish Companies and UK Domestic Companies

The population means for various factors of a sample of Irish-registered and UK-registered companies were compared using the t statistic. Forty-six Irish-registered dual-listed public companies were matched by turnover and sector with 46 UK plcs. Data was sourced from the *Risk Measurement Service* (London Business School, 1992). T-tests were run on the following variables:

Beta	(average sensitivity of shares in the sector to general market movements)
Trading Frequency	(average of the trading frequencies for shares in the industry — varies from 0, i.e. very frequent, to 99, i.e. 99 or more days)

Quarterly Abnormal Return (performance of the industry over the last quarter relative to the market as a whole)

Normal Market Size of a Transaction (average value in £000 of a normal market size transaction in each share in the industry).

Table 9 illustrates that a significant difference was observed for *Quarterly abnormal return* at the 5 per cent level. No other significant difference was observed, which indicates that we cannot reject the hypothesis that the two samples are significantly different based on the factors observed.

Table 9: T-tests on Means of Sample of Dual-listed Irish Registered Companies and Matched Sample of UK Registered Companies

	Dual-listed Irish	UK Companies	Significant at 5%
Beta	0.8776	0.898	×
Trading frequency	5.3422	2.0489	×
Quarterly abnormal return	-1.7333	-12.6222	✓
Normal market size of a transaction	6.6931	14.77	×

SUMMARY AND CONCLUSION

The profiles of firms listed in Dublin in 1992 are seen to exhibit characteristics of segmentation. Hypotheses relating to firm size, ownership structure, debt capacity, and market activity have been examined, and there are apparent differences in characteristic size, gearing, and dividend behaviour. There are also distinctive features of investor profiles. Further research on the nature of the market and more detailed and structured tests of segmentation and integration utilising accounts and returns data are now necessary.

NOTES

[1] The segmentation/integration issue in capital markets is exemplified in the work of Yagil and Forshner (1991).

[2] We shall hereafter consider firms and investors which *are* present in markets together with *potential* entrant firms and investors which might exercise their rights of access.

[3] Perceived returns may be influenced by underlying riskiness of the asset returns, but the investor's view of risk may be higher or lower, dependent upon the combination of the size and sign of false perception and the size of cautionary provision against risk.

[4] We abstract here from the potential for firms and insider shareholders to exploit occasions when they, as insiders, perceive that outsider investors hold perceptions of risk and potential returns that permit the sale of financing assets at favourable, but unsustainable prices.

[5] In 'vertical' segmentation, tiers of markets are created by the differentiation of regulation, as in the Irish Stock Exchange's innovation of the USM in 1981, for example, or in contemporary attempts to create 'Globex' as an international exchange of global scope.

[6] Sectoral data were analysed during the study. However, because of the small sample sizes, it was not possible to draw reasonable conclusions. Data are available from the authors.

[7] Classic examples of these costs are seen in the relatively low interpenetration of UK and Continental exchanges, where language translation impinges, and more sharply, in the barriers to listing of non-US firms on exchanges regulated by the US Securities and Exchange Commission. In the latter case, foreign stocks are listed indirectly, through the mechanism of American Depository Receipts issued against the equity holdings of US brokers, and the requirement to publish parallel financial reports in both domestic and US formats has hindered the entry of foreign securities. Daimler-Benz, for example, became listed in the US only in 1993.

[8] Forward stepwise logistic regression was also run using the variables acquisitions for equity, acquisitions for cash, dividend yield, gearing, institutional shareholding, net tangible assets and market capitalisation. At each step, the variable with the smallest significance level

for the score statistic is entered into the model. The variables were entered in the following order:

Entered on step no.	Variable
1.	*Acquisitions for equity*
2.	*Net tangible assets*
3.	*Gearing*

Backward stepwise logistic regression was run using the variables acquisitions for equity, acquisitions for cash, dividend yield, gearing, institutional shareholding, net tangible assets and market capitalisation. At each step, the variable with the smallest significance level for the score statistic is removed from the model. The variables were removed in the following order:

Removed on step no.	Variable
2.	*Acquisitions for cash*
3.	*Dividend yield*
4.	*Institutional shareholding*
5.	*Market capitalisation*

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