Research Study

The LSE's AIM Market: Effect on Returns and Trading of Canadian Stocks

John Board
Stephen Wells

Alfonso Dufour
Charles Sutcliffe

July 10, 2006

Commissioned by the
Task Force to Modernize Securities Legislation in Canada

John Board

John Board is Professor of Finance and the Director of the iCma Centre, University of Reading. Before joining the Centre, he spent a number of years at the London School of Economics. His overall research agenda is characterized by the application of finance theory to real world problems and issues. In pursuit of this he has been widely published in journals as diverse as the Journal of Accounting Research, Management Science, Journal of Regional Studies and Journal of Financial Services Research. His recent research has been in the area of market regulation and transparency in which he has acted as consultant to, among others, the Financial Services Authority, the Corporation of London, the London Stock Exchange, LIFFE and a number of London's other financial markets. Some of this work has been based on large-scale analyses of trading data, while other parts have considered more general issues of the effects of market fragmentation and consolidation. His work with Charles Sutcliffe into market transparency at the Stock Exchange was the first major empirical analysis of this issue, and led to a substantial increase in the transparency of UK equity markets.

More recent work, commissioned by the Financial Services Authority, investigated the likely regulatory effects of market fragmentation arising from new technology and was influential in the debate surrounding the MiFID. Transparency was a major component of that project including the extension of equity market transparency levels to other markets. Among his most recent publications in these areas are Transparency and Fragmentation: Financial Market Regulation in a Dynamic Environment, (Palgrave, 2002) and Distortion or Distraction: US Restrictions on EU Exchange Trading Screens (Corporation of London, 2004). His research interest in the interaction of spot and derivatives markets led both to a number of research publications and to his appointment as Specialist Advisor to the House of Commons Treasury Committee in its investigations into Baring's Bank (before which he also gave evidence), Derivatives Markets, and the London Stock Exchange. He has subsequently given expert advice in several derivatives based cases. Earlier, he was been funded by the Department of Trade and Industry to investigate the effects of innovation in financial markets.

He has led a large number of successful sponsored research projects including those described above and, more recently, a DTI funded project to examine the prospects for developing a corporate bond market in China and a project on the AIM market for the London Stock Exchange. This project (conducted with the same research team of Dufour, Sutcliffe & Wells and completed in September 2005) was a study of the relative risks of trading on the UK AIM market and the main LSE 'Official List'. After adjusting for size and liquidity, this study finds almost no differential between the two markets, confirming the success of AIM and the fact that it is now the market of choice for new listings by small capitalization stocks.

Stephen Wells

Stephen Wells is an independent consultant in financial markets. Since 1997 he has conducted projects on capital markets, stock market structure and regulation in developing markets – China, Philippines, Vietnam, India, Egypt, Bulgaria, Indonesia, Sri Lanka -the UK and for the World Federation of Exchanges. These projects have covered regulatory structures, market abuse, capital adequacy, development of bond markets, development of derivative markets, competitive position of stock exchanges, impact of new trading systems, finance and trading of smaller companies and barriers to cross-border trading.

He is also a senior visiting fellow at the ISMA Centre at the University of Reading. Before that from 1997 to 2001 he was a research fellow at the London School of Economics. He has conducted research projects for the FSA, London Stock Exchange, World Federation of Exchanges, Federation of European stock Exchanges, Quoted Company Alliance. His research work has covered a wide range of market topics including market trading mechanisms, impact of changes to trading mechanisms, regulation, market transparency and smaller companies' markets. Prior to 1997 he was chief economist at the London Stock Exchange and was involved in the major market structure developments affecting the London market through involvement in research and negotiation with participants. He also le the Exchange's research covering the functioning of dealer markets, cross-border trading, smaller companies markets, and impact of regulation particularly on transparency of markets.

He is a graduate in economics from the London School of Economics and also has an MBA from City University in London.

Table of Contents

1. Executive Summary

The team from the ICMA Centre, University of Reading, U.K. was commissioned to examine and report on two aspects relating to the London Stock Exchange's AIM market:

- Any differential in returns between comparable companies on the AIM market and those on the Official List (Main) market
- Any impact on the trading of TSX-listed Canadian companies that have been admitted to the LSE's AIM market

The AIM market has been operational for over 10 years and currently (End of February 2006) has some 1,426 (1,200 U.K., 226 foreign) companies trading, with a total market value of £65bn.

AIM is distinguished from the Official List market primarily by a different regulatory regime. In the U.K., listing of stocks and supervision of their compliance is the responsibility of the FSA. AIM stocks are regulated by intermediaries - Nomads – who are in turn regulated by the LSE. AIM-listed companies enjoy a number of advantages, such as special tax breaks and the ability to effect takeovers using shares without seeking approval from shareholders. Companies joining AIM are not required to have a track record.

AIM has been the market of choice for smaller capitalization companies in the U.K., both for new companies and by attracting transfers from the Official List. AIM has attractions, but our overall conclusion is that the tangible advantages for issuers are not large: disclosure requirements and entry requirements are, in practice, fairly similar, for example. We suspect the attraction of AIM is partly due to better coverage, and partly to motivation by the LSE and Nomads to "sell" AIM, but mainly because there is a considerable bandwagon effect.

In recent years AIM, which is actively marketed by the LSE, has sought to attract foreign companies. Companies on most major markets can be admitted to AIM without producing a separate prospectus.

A key question for the Task Force is whether investors see AIM as inherently less well-regulated than the Official List market, and whether they demand a return premium for this.

We found that the average age of AIM stocks was very much lower than the average age of similarly sized Official List stocks – something that is recognized as a risk factor. This made it difficult to identify comparable stocks in both markets. Instead we made an analysis of the significant number of stocks that have switched between the two markets.

In an earlier study using transaction data, the authors have demonstrated that the level of risk - as measured by volatility - of stocks that switch between markets is not significantly different before and after the switch. Any differences in volatility are very small, usually not significant statistically, and tend, if anything, to indicate a slightly lower volatility when on AIM.

Further investigation of this result suggested that investors did not see significant regulatory differences between the AIM and Official List markets. The disclosure requirements were seen as similar in practice: most Nomads would insist on a sustainable free-float so the lower minimum requirement was not a real difference, and the lower requirement to consult shareholders was only rarely a concern. In general, investors are comfortable with the level of regulation provided by the Nomads.

The analysis of switching companies showed that:

- stocks switching to AIM do not display significantly improved performance following the switch, compared to their position at the time of the switch;
- stocks switching to the Official List display marginally worse performance following the switch;
- in both cases the number of statistically significant changes was small, and among the significant changes, gainers and losers were roughly equal in number; and
- these results are true in the immediate aftermath of the switch and persist for the medium and longer term.

Overall the results are consistent, with no significant "AIM effect" in which companies switching to AIM benefit or lose. It is certainly not true that a switch to AIM is taken by investors as an overall negative development.

A further question for the Task Force is whether the trading of Canadian stocks on AIM reduces liquidity on the TSX. Currently, 31 TSX stocks have joined AIM. These companies have mostly seen substantial volumes on that market. In 2005, AIM turnover in TSX listed stocks represented 29% of the total (TSX+AIM) trading in those stocks – and in 12 of the 31, AIM represented over 50%.

Comparison of volumes before and after joining AIM suggests that the TSX stocks have experienced substantial volume growth on the TSX market. Only three of the 17 stocks selected for comparison (14 of the 31 stocks did not have a long enough data series for a valid comparison) saw falls in TSX trading (relatively small in two of the three cases); most of the 14 saw large increases. This result persists even after adjustment for the recent rapid growth in TSX overall volume and the (more rapid) growth in volumes in the resources sector.

We conclude that it is unlikely that TSX turnover would be higher if the companies had not joined the AIM market. Therefore, AIM has added additional business in its own right and stimulated greater interest in the domestic market.

2. Introduction

This report gives the results of two pieces of analysis conducted for the Task Force by the International Capital Markets Centre (ICMA Centre) at Reading University, England. The research relates to the AIM market in the U.K. and the trading of Canadian stocks that have joined the AIM market

The two research pieces are:

1. An analysis of returns on stocks that have switched between markets. The focus is on the impact on returns on stocks switching from the Official List market to the AIM market or from the AIM market to the Official List. A significant number of companies have made this switch (in recent years mainly from the Official List to AIM). These switchers are all U.K. Stocks, but the interest, from a Canadian point of view, is whether the switch between regulatory regimes is seen as significant by investors and therefore leads to a change in returns to reflect different perceptions of risk.

The analysis of switching stocks allowed us to abstract from other differences in the stocks that may affect risk perceptions and hence returns. In particular, the rapid growth of AIM in recent years has meant that the vast majority of AIM stocks have been on the AIM market for less than three years. Conversely, because AIM has been the market of choice in recent years and relatively few smaller companies have joined the Official List, most of the smaller companies on the Official List have been there for more than three years. Age of company is clearly seen as a risk actor – our interviews with practitioners have confirmed this and also suggested that three years was a cut-off at which age becomes less important as a risk factor. This precluded the use of matching stocks or portfolios as a basis for comparison since it is not possible to distinguish the effect of market from the effect of age.

2. An analysis of trading volumes in Canadian stocks that have joined AIM. Some 36 stocks that have a TSX listing have joined AIM. The analysis looks at monthly trading volumes on the TSX markets before and after the company joined AIM, and at total volumes (AIM plus TSX) before and after. We have attempted to normalize the figures to ensure that the results exclude the normal growth of the TSX market – and in particular the growth of the resources sector to which most of the companies belong.

The issue to be addressed is whether the business transacted on AIM is additive to business on the TSX or replacement for business on the TSX market. The companies that have joined AIM have tended to say that they felt that AIM allowed them to tap into a different pool of investors. If true, this would imply that the trading on AIM is additive in that it reflects the trading of these new investors plus any arbitrage trading between the two markets. An alternative explanation is that the AIM market is, in some way, a more attractive trading venue and has been able to attract business away from the TSX market.

The two pieces of research are essentially separate and therefore they are presented as separate parts (Parts 3 and 4) of this final report. They are preceded by an extended literature review which, as well as reviewing the academic literature, also discusses the development and success factors of smaller capitalisation markets particularly AIM. Part 5 restates the conclusions of the two research projects and draws some policy implications from those results.

3. Literature Survey – Success and Failure of Small-Cap markets

i. Introduction

Two main issues will be addressed in this literature review: a) the factors leading to a successful small-capitalization exchange, and b) the issues involved in the decision to cross-list stocks on a foreign exchange.

While there is a potential overlap between these two issues - the ability of successful small-capitalization exchanges to attract cross-listed stocks - it has not been addressed in the academic literature. Therefore, these two issues will be treated separately in this literature review.

Section ii. briefly summarizes the development of European small-capitalization exchanges. Section iii. gives some reasons for the failure of small-capitalization exchanges in North America and Europe, while section iv. presents some survey evidence on success factors for AIM and other small-capitalization exchanges. Section v. considers some success factors for small-capitalization exchanges and their applicability to AIM; and section vi. discusses the listing of international companies on AIM. Section vii. has the conclusions on success factors; while section viii. deals with the reasons for cross-listing. Finally, section ix. provides a list of literature references.

ii. Europe's Small-Capitalization Exchanges

Table 2.1 contains the names, location, start and closure dates of the eight small-capitalization markets which were founded in Europe over the last decade, and for which there is at least one empirical study. Of these markets, AIM has proved very successful, while the Neuer Markt closed in 2003 after initially being very successful. The only other market that continues to trade is the Nuovo Mercato (which was renamed in September 2005), but it has not achieved the success of AIM. For a review of the literature on small-capitalization exchanges, including some reasons for their success or failure, see Board, Dufour, Sutcliffe and Wells (2005).

Table 2.1: European Small-Capitalization Exchanges			
Market	**Country**	**Start Date**	**Closure Date**
Alternative Investment Market (AIM)	U.K.	19 Jun 1995	
Nouveau Marché	France	14 Feb 1996	Eurolist as from 21 Feb 2005
EASDAQ (subsequently NASDAQ Europe)	Europe	Jun 1996	28 Nov 2003
Neuer Markt	Germany	10 Mar 1997	31 Dec 2003
NMAX	Netherlands	25 Mar 1997	Eurolist as from 4 Apr 2005
Euro.NM Brussels	Belgium	11 Apr 1997	Oct 2000
Nuovo Mercato (MTAX as from 19 Sept. 2005)	Italy	17 Jun 1999	

Table 2.2 (which is based on Burghof and Hunger, 2004) shows that the Neuer Markt was the biggest small-capitalization exchange in Europe in both 2001 and 2002. While the market capitalization of all these markets fell very sharply over the period, the Neuer Market experienced one of the largest drops (63%).

Table 2.2: Market Capitalizations 2001-2002			
Market	**Market Capitalization €m**		
	August 2001	**Sept 2002**	**% Change**
Neuer Markt	58,553	21,625	-63
AIM	20,579	14,812	-28
Nuovo Mercato	12,909	6,483	-50
Nouveau Marché	13,000	6,000	-54
Nasdaq Europe	9,380	2,807	-70

Recently, a number of new small-capitalization exchanges have been opened across Europe, including Alternext in France; the Irish Enterprise Exchange in Ireland; the Guernsey Stock Exchange; the Nordic Growth Market in Sweden; the Local Business Exchange in Birmingham, U.K.; First North as part of OMX in Copenhagen; the Entry Standard of the Deutsche Börse; and M:access in Munich. Among the reasons for the opening of so many new exchanges in the light of the failure of so many others are that:

- exchanges think they should offer markets for smaller companies (e.g. to promote innovation);
- exchanges need to increase the number of companies that can be traded on their market so innovate to attract companies;

- they believe that their market is innovative enough that to be the winner.

iii. Reasons for Failure of Small-Capitalization Exchanges

There have been a few studies of the reasons for the failure of small-capitalization exchanges, and these are summarized below. By highlighting what has gone wrong, these studies provide pointers to the important aspects of a successful small-capitalization exchange.

Amex Emerging Company Marketplace (ECM)

Aggarwal and Angel (1999) examined the reasons for the failure of the Amex Emerging Company Marketplace in 1995. They concluded that an important reason why this small-capitalization market failed was because it was part of Amex, a not-for-profit co-operative. Amex members had little incentive to ensure the survival of the ECM because they did not share its profits, and feared it might cause reputational damage to the main market. In particular, there was no effort to ensure that successful ECM companies remained listed on the ECM, and did not graduate to the main Amex market. In consequence, the ECM suffered from adverse selection: it lost its successful companies, but retained its failures. This tended to give the ECM a poor reputation. The ECM suffered further reputational damage from the poor screening of companies it admitted, leading to a number of scandals.

The ECM failed despite offering lower bid-ask spreads due to its order-driven trading mechanism, and higher trading volume and higher visibility than a control group of similar companies listed on Nasdaq. Aggarwal and Angel (1999) offered three reasons why other small-capitalization markets (such as Nasdaq and Jasdaq) succeeded:

a) They grew out of successful over-the-counter markets. This gave them an existing set of companies traded on the exchange and a suitable trading mechanism, together with an existing set of investors, market-makers, etc.,
b) They are dealer markets with market-makers acting as intermediaries, and this is the trading mechanism best suited to illiquid stocks.
c) They are separate entities from other exchanges, and so concentrate on making the small-capitalization market a success. For example, they have a strong incentive to try to retain the listing of successful companies.

Tykvová (2002) presented a theoretical model that explains why the Neuer Markt closed in 2003. The issue prices of firms floated on the Neuer Markt in 1999 and 2000 were set much too high, relative to their fundamental value. These highly priced shares were purchased by naive positive feedback traders who based their valuations of these IPOs on the rapid growth of Neuer Markt share prices in the late 1990s. The prices of Neuer Markt companies rose by almost 900% over the two-year period, 1998-1999, while the proportion of Germans adults who owned equities more than doubled between 1997 and 2000 (9.0% to 19.3%, Audley, 2004). Between March 2000 and September 2001, Neuer Markt prices fell by over 90%. The naive positive-feedback traders felt they had been swindled by the investment banks and venture capitalists who sold them shares in Neuer Markt companies, at what turned out to be grossly inflated prices.

Burghof and Hunger (2004) describe how the creation of the Neuer Markt was followed by initial public offering (IPO) frenzy in Germany. The number of IPOs on the Neuer Markt rose from 10 in 1997, to 117 in 1999, and 120 in 2000. The average increase between the IPO price and the initial market price for IPOs on the Neuer Markt was 80% in 1998, 55% in 1999 and 49% in 2000. Since prices also rose very rapidly during most of this period, very large profits were made by those who bought shares in Neuer Markt IPOs. However, with the market downturn from March 2000 onwards, the number of IPOs on the Neuer Markt dropped to only one in 2002, and this had an overpricing of 0.34%. At the same time, forty cases of insider trading, fraudulent announcements and insolvency due to fraud were exposed amongst Neuer Markt companies. Burghof and Hunger (2004) attribute the closure of the Neuer Markt on December 31, 2003, to its loose listing regime, the general stock market bubble and ineffective auditing.

Vitols and Engelhardt (2005) outline two different explanations for the failure of the Neuer Markt. The first explanation is that the scandals, frauds and conflicts of interest that arose around the Neuer Markt were due to weak regulation, and this destroyed confidence in the market. However, they reject this explanation in favour of a "varieties of capitalism" approach. The Neuer Markt was designed for high-tech companies, and such firms require a good supply of risk capital and experienced scientists, engineers, managers and entrepreneurs. Table 2.3 shows that IPOs are much more common in liberal market economies than in co-ordinated market economies (N.B. the table does not attempt to consider differences within these two groups). This difference is attributed to a plentiful supply of risk capital in liberal market economies, and a willingness of highly skilled and experienced labour to work for risky new companies. They argue that the Neuer Markt was initially successful because of a temporary increase in the supply of risk capital in Germany. However, German labour markets never changed, and the high-tech companies

listed on Neuer Markt were unable to recruit and retain the experienced scientists and managers they needed to succeed.

Table 2.3: IPO Rate per Million Residents		
	Country	**IPO Rate per Million Residents**
Liberal Market Economies	Canada	61
	U.K.	55
	Australia	51
	USA	45
Co-ordinated Market Economies	Japan	12
	Germany	7

Oxford Analytics (2005) offered some suggested reasons for the failure of Easdaq and other European small-capitalization exchanges:

a) The establishment of many European small-capitalization exchanges in the 1995-1999 period diluted the liquidity that would otherwise have been available to a single small-capitalization exchange;
b) The stock market crash after 2000 undermined the embryonic small-capitalization exchanges before they could become firmly established;
c) Some of the new small-capitalization exchanges were poorly diversified and over-dependent on listing firms from one industrial sector, e.g. Easdaq;
d) Some small-capitalization exchanges had insufficient regulation; and
e) Easdaq had a regulatory burden that was perceived as high.

Audley (2004) offered some explanations for the failure of the Neuer Markt, and other European small-capitalization exchanges. They include:

a) There was a lack of institutional investment, which limited the development of the market infrastructure, such as security analysts following the stocks, suitable trading mechanisms, liquid markets etc;[1]

[1] There is no formal evidence on this point. However, our observation is based on statements made to us during our research comparing AIM with the Official List. (Naturally larger companies are more likely to be covered, other things equal, than smaller.)

b) These markets were run by staff from the main market, and they have tended to concentrate on larger companies;
c) The hi-tech boom of the late 1990s led to an over-concentration on a few industrial sectors; and
d) The hi-tech boom led to some unsuitable companies being listed.

iv. Survey Evidence on Success Factors

The Grant Thornton Business Survey 2002 (reported in Oxford Analytics, 2005) asked European medium-sized companies about the benefits and barriers to being listed. Their replies give an indication of the factors that European firms think are relevant to a successful small-capitalization exchange, together with their relative importance.

Barriers	
(a) The floatation process is too time consuming	20%
(b) The Entry criteria	14%
(c) Floatation is too expensive	14%
(d) Lack of liquidity in the market	9%
(e) Vetting by the stock exchange	4%
(f) Language difficulties	1%
Benefits	
(a) Ability to make acquisitions using shares	24%
(b) Raising the profile of the company	20%
(c) Lowering the cost of capital of the company	10%
(d) Ability to grant share options to employees	8%

A survey of 150 AIM-listed companies in 2005 (Baker Tilly, 2005b) found that being listed on AIM:

(a) Added to the company's credibility	85%
(b) Provided long-term growth potential	82%
(c) Provided access to institutions	81%
(d) Gave the company a profile in the City (London)	79%
(e) Gave access to informed shareholders	71%
(f) Made it easier to make acquisitions	57%

(g) Gave the company control over their future	54%
(h) Provided access to venture capital trusts	44%
(i) Made it easier to win customers	41%
(j) Made it easier to raise debt	37%

This Baker Tilly survey also found that amongst these 150 firms, the important factors in deciding to list on AIM were:

(a) Generate revenue (i.e. raise funds)	60%
(b) Raise company profile	26%
(c) Expansion plans	15%
(d) Ease of entry	6%
(e) Create liquidity	5%
(f) Less regulation	5%

v. Success Factors for Small-Capitalization Exchanges

In this section a range of factors relevant to the success of a small-capitalization exchange are outlined, coupled with a discussion of the position of AIM on each of these factors.

Fundraising

Stock exchanges provide both primary and secondary markets for shares, and the relative importance of these two functions differs as between the main and small-capitalization markets. The ability to raise new capital (usually by an IPO) is relatively more important for a small-capitalization market than for a main market. The main market is more concerned with offering liquidity for the secondary trading of shares. Therefore it is particularly important for a small-capitalization market to offer an easy and cheap route for raising new capital. A small-capitalization exchange needs access to investors willing to buy and hold shares in the companies it lists.

Since opening in 1995, by January 2006 AIM has raised over £24 billion and listed over 2,200 companies, including 276 foreign companies. In January 2006, 1,408 companies were listed on AIM from 33 industrial sectors, of which 220 were from overseas (22 different countries). Over 90% of flotations on AIM involve placing the shares with institutions, venture capital trusts and private investors, rather than an offer for sale to the public. This strong preference for placings has been reinforced by the European

Prospectus Directive. From July 2005 this requires that, if the company offers shares to more than 100 persons, other than qualified investors, a full prospectus must be issued. Similarly, if a qualified investor, such as a private client broker, passes on such shares to more than 100 of their clients, it (or the company) must issue a full prospectus. This will reduce the pool of capital available to buy new AIM shares.

Since AIM is based in London, it offers direct access to a large and sophisticated investor base. London also has a leading financial services sector that offers the competitive supply of all the services required by the firm for listing, floating, reporting, auditing, broking, public relations, security analysis, printing, legalities, registering shareholders, etc.. In September 2005, institutional investors owned 40.9% by value of the shares listed on AIM, up from 35.2% in September 2003 (Growth Company Investor, 2005). Therefore, for a small-capitalization market, AIM has a very substantial institutional involvement.

Trading

In order to attract investors to supply capital, the firm's shares should be traded on an exchange that offers low trading costs (bid-ask spread, commissions, exchange fees, taxes). Shareholders will also be interested in the immediacy and depth available for trading shares. It is particularly difficult to provide cheap and quick trading for small-capitalization companies, as trading tends to be thin.

As from December 5, 2005, the 50 constituents of the FTSE AIM U.K. 50 index (plus reserves) have been traded via SETSmm. This is an electronic order book operated by the London Stock Exchange, supported by continuous liquidity provision from market-makers. Committed principals post two-way prices on the SETSmm screen that are firm up to the normal market size of the stock. Hence investors can trade via an order-driven auction system, but have the assurance that there will always be firm two-way prices available. It is hoped that this hybrid system offers the best of both worlds. Board and Wells (2005a, 2005b) found that the introduction of SETSmm in November 2003 (for FTSE 250 stocks) led to a significant reduction in transaction costs.

The remaining AIM stocks are traded on either SEAQ or SEATS Plus. SEAQ trades mid-cap securities listed on the main market and the most liquid AIM securities using two-way continuous quotes offered by competing market-makers. Prices are displayed on more than 100,000 terminals around the world. SEATS Plus is the electronic trading service for the less-liquid main market and AIM securities. This service offers basic order-driven execution capabilities, with guaranteed liquidity provided by market-makers. Since AIM lists large, frequently traded stocks, as well as small, infrequently traded stocks; no

single trading mechanism is suitable for all AIM stocks. These three mechanisms allow the trading method to be adjusted to some degree to suit the needs of the stock.

Since its foundation, AIM has exhibited very rapid growth in trading volumes: see Table 2.4 (London Stock Exchange, 2005). Over the 1996-2005 period (10 years), the average annual growth rates were: turnover - 36%; number of trades - 28%; and number of shares traded - 35%. Over this period the average number of shares per trade grew by 5% per year, while the average value per trade grew by 6% per year. The growth of trading on AIM occurred in two phases. The first phase was the bull market, from the foundation of the exchange in 1995 to 2000. During the substantial drop in stock market prices of 2001-2002 there was negative volume growth. However in 2003, as stock market prices recovered, trading on AIM resumed its very rapid growth.

Table 2.4: AIM Trading Volumes for the First 10 Years

Year	Turnover (£m)	Number of Trades	Number of Shares Traded (m)	Average Number of Shares per Trade	Average Value per Trade (£)
1995 from June	270.2	29,009	544.3	18.63	9,14
1996	1,944.2	187,975	5,529.1	29,10	10.43
1997	2,145.3	217,426	6,443.0	29.33	9.67
1998	1,948.2	225,494	6,921.4	30.94	8.40
1999	5397.5	845,556	2,158.5	25.41	6.83
2000	13,605.6	2,013,584	3,910.3	19.22	6.57
2001	4,854.8	706,582	2,866.6	39.63	6.71
2002	3,517.6	449,876	2,491.8	55.08	7.19
2003	6,615.8	823,948	5,762.3	69.83	8.29
2004	18,125.9	1,675,955	9,725.9	58.72	10.15
2005	42,158.2	2,241,323	10,865.5	48.04	18.10

Light Regulatory Burden

Regulations can generate substantial compliance costs, delays and uncertainty for companies. These regulatory costs can relate to:

- listing the firm on an exchange (restrictions on which firms can be listed, free float requirements, lock-in period, the disclosure of information in the admission document (prospectus) etc.);
- trading the shares (bans on insider trading, corporate governance codes, transparency rules, etc.); and
- reporting (accounting standards, reporting frequency, auditing requirements etc.).

These regulations add to the costs of gaining and maintaining a listing on an exchange, and to the costs of raising capital. However, if the regulations (or their enforcement) are insufficient to prevent problems, this may prove to be a false economy (see below). Therefore, there is a trade-off between the costs of regulation, and the costs of scandals.

AIM set out to reduce the regulatory burden for companies listing on this exchange. For example, in order to list on AIM,

- no trading record is required, so start-ups and cash shells[2] can be listed immediately;
- there is no minimum market capitalization, and so very small companies can list;
- the admission documents are not pre-vetted by AIM or the U.K. Listing Authority, reducing the costs and time delays of a listing. The admission process for AIM takes about three months, depending on circumstances (Audley, 2005);
- there is no requirement for a specified percentage of the company's shares to be in public hands. The lack of a minimum free float allows firms to be listed on AIM without selling off a substantial part of the business; and
- prior shareholder approval is not required for acquisitions (apart from a reverse takeover or disposal resulting in a fundamental change of business), reducing the time and cost of acquisitions. This facilitates acquisitions by AIM-listed companies.

AIM has, in effect, outsourced much of the regulation of its listed companies to Nominated Advisors (or Nomads). In January 2006, there were 85 registered Nomads. It is a requirement that each AIM-listed company employ a Nomad at all times. Nomads have three main functions:

[2] On 1 April 2005 AIM restricted the ease of admission for cash shells – companies with no real assets or trading history usually set up to raise funds for takeovers. They now need to raise at least £3m before they can join AIM. Some 38 inactive shells were suspended. A further 100 or so cash shells then listed on AIM were required to have completed an acquisition by April 2006 to avoid their shares being suspended. Some 38 were suspended on.

- to decide whether the company should be admitted to AIM;
- to manage the floatation process; and
- to advise the company on compliance with AIM and other rules before and after it has been listed

Nomads have an incentive to maintain standards because their reputation will suffer if a firm they advise has problems, and interviews with Nomads have found that they tend to impose higher standards on the firms they advise than are required by the rules. For example one Nomad we interviewed requires the firms it advises to have a minimum free float of 25%. Firms choose a Nomad with high standards because this sends out a signal about the quality of the firm, and makes raising capital easier as the floatation is endorsed by a Nomad with a good reputation. The performance of the nomads is crucial to the regulation of AIM. Recent press reports have suggested some concern that not all nomads are screening companies with appropriate rigour, and the LSE has recently announced it is "doing a review of the role of nomads and seeing whether there are any steps we need to take to clarify or change the rules".

Poor Screening

Companies seeking a listing on an exchange are subject to a screening process. If this is not strict enough, some weak companies may be allowed to list, leading to poor returns to investors. Weak screening may also mean that a few listed companies run into scandals (fraud, insider trading, embezzlement, false accounting, etc.). This damages the reputation of the exchange, e.g. the Neuer Markt and ECM.

AIM has delegated the screening of applicants for listing on AIM to Nomads. While the formal admission standards of AIM are not very restrictive, to protect their reputations Nomads both vet applicants carefully and offer advice to companies before and after listing. Nomads have the sanction that, if they resign as the company's Nomad, unless they can be replaced, the company is automatically delisted.

The number of scandals concerning AIM-listed companies has been small. However, in one case, the founder of an AIM-listed company had three previous drug convictions for possession of marijuana, selling heroin to an undercover police officer, and hiding heroin in his garden and underwear. He was a former heroin addict who had gone bankrupt, falsified a CV submitted to the Toronto Stock Exchange, and lied about mineral deposits discovered by his company. In another case, the chief executive of an AIM-listed company had previously been fined £290,000 by the Financial Services Authority for twelve cases of issuing materially inaccurate statements which created a false or misleading impression amounting to market abuse. In March 2006, an AIM-listed company, under investigation by the Serious

Fraud Office for an alleged £365 million fraud, launched a legal action against its former chief executive and former finance director. This legal action claimed damages for deceit, conspiracy to defraud and breach of fiduciary duties.

Low Costs

The costs to the firm of listing on AIM include:

- the initial costs involved in obtaining the listing (e.g. production of the admission document (prospectus), professional fees, floatation costs);
- the costs of any subsequent capital raising after the initial floatation; and
- the annual costs of maintaining the listing (e.g. annual listing fees, professional fees, etc).

The firm may also consider the costs to its shareholders of trading its shares in the secondary market (e.g. bid-ask spread, broker's fees, immediacy, exchange fees, taxes).

AIM has an admission fee of £4,180, and an annual listing fee of £4,180 per year. U.K. companies must add value-added tax to these admission and annual fees. These fees are small relative to the other costs. AIM keeps admission and listing costs under control by allowing Nomads to undertake much of this process. Any subsequent capital-raising is also handled by the Nomad. The total costs of admission to AIM (including professional fees, underwriting etc) are about £350,000 to £450,000, plus broker's fees of 3% to 6% of any funds raised (Audley, 2005). The cost of a floatation on a U.S. exchange is £430,000 to £1,700,000 (Financial Times, September 3, 2005).

Main Market

Trading on a small-capitalization exchange usually offers the option of progression to the associated main market, where larger amounts of capital can be raised, and liquidity is further improved. The greater the attractions of listing on the main market, the more attractive it is to list on the associated small-capitalization exchange.

AIM offers progression to the London Stock Exchange: one of the world's leading stock exchanges. However, movement is both ways. For their sample companies, Dufour, Sutcliffe and Wells (2005) found that during the five years from January 2000 to December 2004, a total of 160 companies switched

between the main market and AIM: 19% went from AIM to the main market, while 81% went from the main market to AIM. Thus, for every company that graduated from AIM to the main market, four moved in the opposite direction.

For the 17 firms in the (Baker Tilly, 2005b) survey who moved from the main market to AIM, the main reasons were:

(a) Less regulation	53%
(b) More flexibility	41%
(c) Less expensive	24%
(d) Tax benefits	12%
(e) Suited the firm better	12%

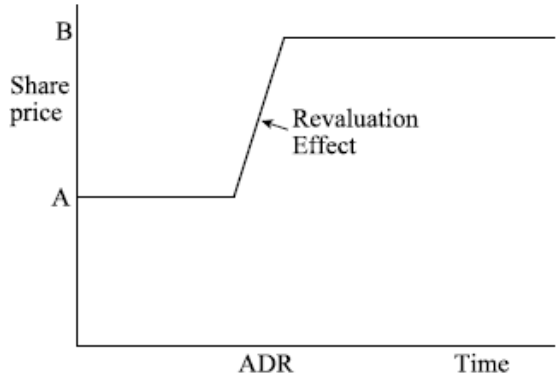
Although 64% of the main market companies in the Baker Tilly (2005b) survey have considered moving (in some cases back) to AIM, and 34% thought that the step would benefit them (because of the lack of restrictive regulation, ease with which acquisitions can be made, greater flexibility and tax advantages), only 26% actually planned to move.

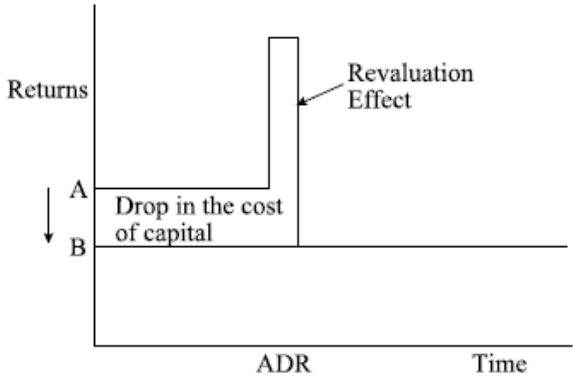
Cost of Capital

The firm will be concerned about its cost of capital. Whether a cross-listing lowers the firm's cost of capital depends on circumstances. Cross-listing on a well-regulated market with an associated large pool of potential investors tends to lower the firm's cost of capital. This is particularly true when the home market is segregated from world capital markets, is poorly regulated, and has a shallow pool of investors.

There has been considerable empirical interest in the effects of cross-listing in the U.S. via American Depositary Receipts (ADR). This evidence supports the view that the creation of an ADR leads to a rise in the share price, with a subsequent reduction in returns. Figure 2.1 shows the rise in the share price (the revaluation effect) when an ADR is created. The revaluation produces a large return. But in subsequent periods, with largely unchanged expected dividends and share price increases, returns drop to below their initial level (as in figure 2.2). Therefore, creating an ADR leads to a drop in the cost of capital.

Figure 2.1: Revaluation Effect	Figure 2.2: Drop in the Cost of Capital





However, this need not be the case. Errunza and Miller (2000) found that, while the average cost of capital in each country drops; the change in the cost of capital for a particular company depends on the change in the beta value of that company as the market segmentation is removed. For example, a company may have a low correlation with its domestic market portfolio, but a much higher correlation with the world market portfolio. This may be because the company is the only firm in its sector in its home market, but has many international competitors. In this case, the removal of the market segmentation will probably raise this firm's beta, and increase its cost of capital.

Karolyi (1998) estimated that the creation of an ADR leads to a reduction in the cost of capital of about 126 basis points. Consistent with this result, Errunza and Miller (2000) studied 126 ADRs (40% from the EU), and found that the creation of the ADR led to a decline of 42% in the company's cost of capital. They rejected market timing as the explanation for the price rise on the creation of an ADR. They also found that the effects of an ADR spill-over to other domestic firms whose returns are highly correlated with those of the firm creating an ADR, due to the integrating effects of ADRs.

The reduction in the cost of capital of a Canadian company cross-listing on AIM is likely to be small. This is because there is not a major segmentation between the U.K. and Canadian capital markets, and AIM is not subject to more extensive regulation. AIM does offer a wider pool of investors, and this may result in some fall in the cost of capital.

Taxation

Tax concessions may be offered by the government to investors who own shares traded on small-capitalization exchanges. This makes investment in such shares more attractive.

The following areas of tax relief are available for individual U.K. investors in U.K. companies listed on AIM (Baker Tilly, 2005a):

- Capital gains tax - business asset taper relief (which can lower the effective tax rate of capital gains tax from 40% to 10%), and gift relief (payment of capital gains tax is postponed until a subsequent disposal by the recipient). Investors are also able to delay the payment of capital gains tax by investing their gains in new AIM shares.
- Inheritance tax - business property relief. Investment in AIM trading companies can qualify for complete exemption from inheritance tax.
- Enterprise investment scheme. This scheme offers relief from both income tax and capital gains tax. One fifth of the cost of the initial investment in new AIM shares can be offset against income tax. In addition any capital gain is exempt from capital gains tax, while any capital loss (less the 20% income tax relief) can be offset against capital gains elsewhere.
- Venture capital trusts (VCT). Investors are exempt from tax on dividends from the VCT, and capital gains on their shares in the VCT. Investors also receive an initial income tax relief equal to 40% of their investment in new VCT shares.

Corporate investors in AIM stocks can benefit from the corporate venturing scheme. One fifth of the cost of buying new AIM shares can be offset against corporation tax. Companies are also able to delay the payment of tax on their capital gains in AIM shares by investing their gains in new AIM shares.

AIM offers worthwhile tax exemptions to both individuals and corporate investors, and these serve as a powerful factor in drawing tax-paying investors to AIM.

Governance

Most small-capitalization exchanges have been founded by an associated main exchange. This can offer many advantages to the small-capitalization exchange: progression to the main market; economies of scale in the management of the exchange (e.g. IT trading systems); the reputational benefit of being run

by the main exchange; and improved access to the market-makers, brokers and investors who are active on the main exchange. However, if the main exchange is a not-for-profit organization run by its members, there may be little interest in making a success of the small-capitalization exchange, e.g. the ECM.

AIM is an integral part of the London Stock Exchange. This has the advantages that they share the same building in central London, use the same trading systems (SETSmm, SEAQ and SEATS Plus), and share a common website. AIM has the prestige and credibility of being part of the London Stock Exchange, and the associated access to market participants. AIM does not suffer from the disadvantages resulting from many of its most successful companies leaving to list on the main market. Indeed, the reverse is true, with companies moving down to AIM from the main market. Thus AIM has all the advantages, and none of the disadvantages, of being run by the main market. This happy outcome may be because since July 2001, the London Stock Exchange has been a for-profit company, whose shares are listed on the London Stock Exchange. Therefore, it is a profit maximizing entity, and this implies trying to make AIM a success. In addition, since the spring of 2000, the FSA has been the listing authority for the Official List, removing the incentive of the main market to attract AIM stocks in order to get the listing fees.

Adverse Selection

As was the case for the ECM run by Amex, the small-capitalization exchange may see its successful companies leave to join a bigger exchange, while the unsuccessful companies remain small and stay on the small-capitalization exchange. If the small-capitalization exchange is an independent entity, it will take all reasonable steps to prevent successful companies from leaving.

The largest firm listed on AIM in January 2006 was capitalized at £1.7 billion (Sportingbet), with two more firms valued at over £1 billion (First Quantum Minerals - a Canadian company - and New Star Asset Management), demonstrating that, despite being part of the London Stock Exchange, AIM is able to retain the listing of large and successful companies. For example, Sportingbet would be one of the larger companies in the FTSE 250 index if it were listed on the main market. Table 2.5 shows the size distribution of firms in January 2006 (London Stock Exchange, 2006b). The average market capitalization of an AIM company in January 2006 was £44.2 million.

Table 2.5: AIM Size Distribution in January 2006				
Market Value Range (£m)	**Number of Companies**	**%**	**Equity Market Value (£m)**	**%**
Over 1,000	3	0.2	4153.8	6.7
500-1,000	10	0.7	8036.8	12.9
250-500	21	1.5	6977.3	11.2
100-250	106	7.5	16416.4	26.4
50-100	165	11.7	11732.6	18.8
25-50	201	14.3	7043.2	11.3
10-25	341	24.3	5740.1	9.2
5-10	182	12.9	1339.9	2.2
2-5	196	13.9	672.4	1.1
0-2	153	10.9	171.2	0.3
Suspended	28	2	-	-
Totals	1,406	99.9	62,283.7	100.1

AIM's retention of large companies does create a risk for AIM. Since shareholders in AIM companies receive substantial tax breaks, the Treasury may withdraw this favourable tax treatment if a substantial number of large companies, such as Sportingbet, remain listed on AIM. It should be noted that none of our interviewees saw tax breaks as critical for AIM.

Benchmarks

Institutional investors are encouraged to buy shares listed on an exchange if there is a benchmark against which their performance can be measured. Therefore an index, or set of indices, covering the shares listed on an exchange encourages professional investment.

Since May 16, 2005, AIM has been covered by a set of three real time indices:

a) FTSE AIM 50 index - the largest 50 U.K. companies listed on AIM.
b) FTSE AIM 100 index - the largest 100 companies listed on AIM.
c) FTSE AIM All-share index - all AIM-listed companies. These indices encourage institutional investment in AIM companies.

Skilled Labour

If the exchange lists firms from a sector that needs a skilled workforce, the success of these firms (and hence of the exchange) depends on a ready supply of skilled labour, e.g. Neuer Markt.

Companies listed on AIM have a reasonable degree of industrial diversification (see table 2.6 below), while the 220 international companies decrease reliance on the U.K. labour market. In addition, labour market mobility rates for science and technology personnel in the U.K. are approaching double the rate in Germany (Vitols and Engelhardt, 2005).

Diversification

When an exchange lists only firms from a particular industrial sector (e.g. biotechnology, natural resources, etc.), it is poorly diversified and vulnerable to a sector downturn. Table 2.6 shows that AIM has listed a diversified portfolio of companies, (London Stock Exchange, 2006b). This shows that the largest sectors by market capitalization in January 2006 were oil and gas (16%), mining (14%), consumer services (15%), and financials (21%). Table 2.6 also reveals that the average size of the oil and gas companies (£111.8m) is well above the market average (£44.2m). The other resource-based companies are also of above average size.

Table 2.6: AIM-Listed Firms in January 2006 by Sector

Sector	Number of Companies	%	Market Cap. (£million)	%	Average Size (£million)
Oil and Gas	87	6.1	9,734	15.6	111.8
Chemicals, Forestry & Paper, Industrial Metals	25	1.8	2,216.4	3.5	88.7
Mining	142	10.1	8,837.3	14.1	62.2
Support Services	130	9.2	4,517.3	7.2	34.7
Industrials	116	8.2	3,764.1	6.0	32.4
Consumer Goods	74	5.2	1,722.1	2.7	23.2
Health Care	88	6.2	3,201.6	5.1	36.3
Consumer Services	233	16.6	9,192.9	14.7	39.4
Telecommunications	22	1.5	744.6	1.1	33.8
Utilities	8	0.5	390.2	0.6	48.7
Financials	308	21.9	13,161.2	21.1	42.7
Software & Computer Services	142	10.1	3,664.7	5.9	25.8
Technology Hardware & Equipment	31	2.2	1,137.3	1.8	36.7
Totals	1,406	100	62,283.7	100	44.2

Lock-Up Period

Small-capitalization exchanges may require the owners and managers of the company to maintain ownership of their shareholding for a specified period after the floatation - the lock-up period. According to Field and Hanka (2001) this is to:

a) reassure the market that key employees (who also own shares) and directors will remain committed to making the company a success;
b) provide a credible signal that those with inside information about the company (directors, major shareholders, employee shareholders) are not selling out their stake in the company via an IPO before bad news about the company becomes public; and
c) assist the aftermarket by constraining the supply of shares during the lock-up period.

If a firm listing on AIM has not been a revenue-earning independent company for the previous two years (i.e. it is a start-up), all related parties and applicable employees are barred from selling their shares in the company for at least one year after listing. Related parties include directors, shareholders with more that 10% of the share capital, and their respective families. Applicable employees are those who own more than 0.5% of the share capital, or possess price-sensitive information. However, if the company has been independent and earned revenue for the previous two years, no lock-up is required by AIM. This enables the owners to substantially reduce their ownership of the company as part of the floatation.

Visibility

Investors restrict the shares they hold to those of which they are aware, and this limits the diversification of their portfolios. If investors have incomplete information this raises the risk of their portfolios, and also the rate of return required to compensate them for these risks. Any action that increases the number of investors who know about the company will improve diversification and lower the cost of capital. Therefore firms benefit from the provision of credible information about the company to existing and potential investors. Because AIM has a substantial base of institutional investors, firms listed on AIM are more likely to be researched by security analysts, which increases their visibility. It also leads to improved monitoring of the company management.

Growth from an OTC Market

Aggarwal and Angel (1999) argued that the development of a successful small-capitalization exchange is assisted if it develops out of an OTC market.

AIM did not develop from an OTC market, but did succeed the Unlisted Securities Market.

vi. AIM and International Companies

Throughout its life, but particularly recently, AIM has sought to attract listings from foreign companies. Table 2.7 shows that from 1996 to 2003 the percentage of international companies listed on AIM was 6%-8% (London Stock Exchange, 2006b). However, in the two years since 2003 this percentage has almost doubled to nearly 16%. By January 2006 there were 220 international companies listed on AIM from 22 countries.

Table 2.7: Number of U.K. and International Firms Listed on AIM					
Year	**U.K.**	**International %**	**Total**	**International %**	**AIM Market Capitalization (£m)**
1995	128	3	131	2.3	2,382.4
1996	235	17	252	6.7	5,298.5
1997	286	22	308	7.1	5,655.1
1998	291	21	312	6.7	4,437.9
1999	325	22	347	6.3	13,468.5
2000	493	31	524	5.9	14,935.2
2001	587	42	629	6.7	11,607.2
2002	654	50	704	7.1	10,252.3
2003	694	60	754	8	18,358.5
2004	905	116	1,021	11.4	31,753.4
2005	1,179	220	1,399	15.7	56,618.5
Jan 2006	1,188	220	1,408	15.6	62,283.7

Twelve Israeli IT companies with a market capitalization of £273 million are listed on AIM. Avoidance of the Sarbanes-Oxley legislation has been a factor in encouraging U.S. companies to list on AIM, and during 2005, 19 U.S. companies listed on AIM, raising a total of £1.2 billion. This resulted in a total of 29 U.S. companies being listed on AIM. AIM is also undertaking a drive to become the European small- and medium-enterprise exchange. Oxford Analytical (2005) have claimed that the creation of a pan-European market for small-capitalization stocks would increase the EU GDP by between 28 and 57 billion euros. Table 2.8 has the country distribution of international companies listed on AIM in July 2005 (Financial Times, 3rd September 2005). This shows that Canada was one of the biggest sources of international companies listed on AIM.

Table 2.8: Country Distribution of International Companies on AIM in July 2005	
Country	**Percentage**
Australia	21%
Canada	21%
Ireland	13%
USA	12%
Bermuda	8%
Israel	6%
Cayman Islands	6%
British Virgin Islands	5%
Others	8%
Total	100%

Table 2.9 gives the 2005 proportions of AIM-listed companies by industrial sector; disaggregated by U.K. and international firms (London Stock Exchange, 2006a). The big differences between the two sector distributions are that international firms are much more likely to be in the mining and oil and gas sectors, while U.K. firms are more likely to be in the others category.

Table 2.9: AIM Stocks by Sector - Number of Companies in 2005

Sector	U.K. (%)	International (%)	Difference (%)
Automobiles	0	2	-2
Electronic & Electrical Equipment	2.6	3	-0.4
Engineering & Machinery	3.3	0	3.3
Health	2.7	2	0.7
Household Goods & Textiles	2.7	0	2.7
IT Hardware	0	2	-2
Investment Companies	0	2.6	-2.6
Leisure & Hotels	5.5	2.6	2.9
Media & Entertainment	9	4.6	4.4
Mining	7.3	29	-21.7
Oil & Gas	4.5	12.8	-8.3
Others	18.7	10.7	8
Pharmaceuticals & Biotechnology	3.3	4	-0.7
Real Estate	3.7	0	3.7
Software & Computer Services	11	7.7	3.3
Speciality & Other Finance	16	10.7	5.3
Support Services	9.7	6	3.7
Totals	100	99.7	

Like U.K. companies, every international company must have a Nomad. Nomads usually require that overseas companies wishing to list on AIM have an international business. Overseas firms should at least have international markets, or seek to expand internationally.

The introduction of AIM Designated Markets in June 2003 has provided a low-cost fast-track route to listing on AIM. Companies listed for at least 18 months on one of a specified set of exchanges can be admitted to AIM without the need to publish an admission document (prospectus). They simply need to make a detailed pre-admission announcement. The specified exchanges are the Australian Stock Exchange, Euronext, Deutsche Börse, Johannesburg Stock Exchange, Nasdaq, NYSE, Stockholmsbörsen, Swiss Exchange, Toronto Stock Exchange and the U.K. Listing Authority Official List. AIM-listed

companies can publish their accounts in conformity with International Accounting Standards, U.K. GAAP or U.S. GAAP. There is no need to restate accounts drawn up under any of these accounting conventions, reducing the costs of maintaining an AIM listing for foreign companies.

For non-U.K. companies listed on AIM, U.K. investors can benefit from capital gains tax business asset taper relief; enterprise investment scheme relief (provided the funds invested are employed mainly in the U.K.); venture capital trust relief (provided the funds invested are employed mainly in the U.K.); and inheritance tax relief (Baker Tilly, 2006).

Dropping a listing in the home country in favour of listing on AIM may alienate home investors. The demise of the other leading European small-capitalization exchanges has created an opportunity for AIM to attract international listings.

A 2005 survey asked 15 international companies why they chose to be listed on AIM (Baker Tilly, 2005b). The reasons given were:

(a) Suits company size	20.0%
(b) Less regulation	13.3%
(c) Access to the U.K. marketplace	13.3%
(d) Well known	13.3%
(e) Want to buy AIM companies	6.7%
(f) London based	6.7%
(g) Funds available	6.7%
(h) Less competition	6.7%
(i) Earlier investors familiar with the market	6.7%
(j) Recommended	6.7%

vii. Cross-Listing

There are a number of reasons why a foreign company may wish to cross-list their shares, and this section lists these reasons. This section considers the extent to which these reasons may apply to Canadian firms cross-listing on AIM.

- Market segmentation. If the foreign and home capital markets are segmented by various barriers and market imperfections, listing on the foreign market may reduce these problems, leading to a lower cost of capital.
- Liquidity. A foreign listing may increase the liquidity of the shares, e.g. reduce the bid-ask spread. This may be due to improved transparency and stronger regulation, or to access to a larger pool of potential investors. Greater liquidity increases the attractiveness of the shares to potential investors.
- Signalling. Listing on a foreign exchange may be seen as a mark of quality, or that the company has valuable growth opportunities.
- Agency and bonding not to harm minority shareholders. A foreign listing may mean that the foreign regulations prevent the company from harming minority shareholders. It may also lead to enhanced monitoring of the behaviour of the company management.
- Investor recognition. Merton (1987) argued that investors restrict the shares they hold to those of which they are aware, and this limits the diversification of their portfolios. Merton's investor recognition hypothesis states that if investors have incomplete information this raises the risk of their portfolios, and also the rate of return required to compensate them for these risks. Any action which increases the number of investors who know about the company will improve diversification and lower the cost of capital.
- Access to the foreign capital market. Listing in a foreign country allows capital to be raised in that country, as well as in the home country.
- Acquisitions. Listing on a foreign market may facilitate acquisitions and mergers with companies based in that country, as shares can more easily be used to pay part of the acquisition price.
- Executive Share Options. Having a cross-listing may assist in the use of stock options to incentivize company management employed in the overseas country.
- Receptive Investors. A cross-listing can give the company access to investors in a foreign market who are more receptive to investing in the company, possibly due to its high tech nature, Blass and Yafeh (2001).

viii. Reasons for Cross-Listing on AIM

The reasons for cross-listing given in this section, although couched in terms of Canadian companies, will, of course, apply to firms from other jurisdictions as well.

- Market segmentation. The degree of market segmentation between the U.K. and Canadian stock markets is probably small, and so any benefits from the reduction in market segmentation is modest.
- Liquidity. Listing on AIM may increase the liquidity of the shares, possibly due to access to a larger pool of potential investors. Chapter 4 of this report shows that listing on AIM increases the total volume of shares traded.
- Signalling. Listing on AIM may be seen as a mark of quality, although the Nomad system means that AIM regulation is permissive. Listing on AIM may be a signal that the company has valuable growth opportunities, as such a listing is probably a prelude to raising new capital.
- Agency and bonding not to harm minority shareholders. The lower listing requirements on AIM may mean that listing on AIM may damage minority shareholders, but the evidence does not support this argument. Listing on AIM may also lead to enhanced monitoring of the behaviour of the company management.
- Investor recognition. Listing on AIM will bring the Canadian company to the attention of U.K. investors, and probably result in a wider pool of investors.
- Access to the foreign capital market. Listing on AIM allows Canadian companies to raise capital in the U.K..
- Acquisitions. An AIM listing may facilitate acquisitions and mergers with U.K. firms.
- Executive Share Options. Canadian companies listed on AIM can use stock options to incentivise their U.K. management.
- Receptive Investors. AIM investors may be more receptive to investing in some types of company than Canadian investors.

ix. Annex – Literature References

Aggarwal, R. and Angel, J.J. (1999) The Rise and Fall of the AMEX Emerging Company Marketplace, Journal of Financial Economics, vol. 52, no. 2, May, pp. 257-289.

Audley, M. (2004) AIMing High, The European Lawyer, March, 6 pages.

Audley, M. (2005) Joining AIM - A Quote in London - The Lawyer's Perspective, Faegre & Benson, 15 November, 7 pages.

Baker Tilly (2005a) A Guide to AIM Tax Benefits, London Stock Exchange.

Baker Tilly (2005b) Taking AIM: Annual Survey 2005, Baker Tilly, 10th edition.

Baker Tilly (2006) A Guide to AIM Tax Benefits -Non-U.K. Companies, London Stock Exchange.

Blass, A. and Yafeh, Y. (2001) Vagabond Shoes Longing to Stray: Why Foreign Firms List in the United States, Journal of Banking and Finance, vol. 25, no. 3, March, pp. 555-572.

Board, J.L.G., Dufour, A., Sutcliffe, C.M.S. and Wells, S. (2005) A False Perception? The Relative Riskiness of AIM and Listed Stocks, ICMA Centre Discussion Papers in Finance, DP 2006-01, October.

Board, J.L.G. and Wells, S. (2005a) Review of the Evidence and Issues Relating to the Performance of the SETSmm System and the Impact of Extending SETSmm, London Stock Exchange, February.

Board, J.L.G. and Wells, S. (2005b) Review of the Evidence and Issues Relating to the Performance of the SETSmm System and the Impact of Extending SETSmm, London Stock Exchange, May.

Burghof, H.P. and Hunger, A. (2004) The Neuer Markt: An (Overly) Risky Asset of Germany's Financial System. In The Rise and Fall of Europe's New Stock Markets, edited by G. Giudici and P. Roosenboom, Elsevier, pp. 295-327.

Errunza, V.R. and Miller, D.P. (2000) Market Segmentation and the Cost of Capital in International Equity Markets, Journal of Financial and Quantitative Analysis, vol. 35, no. 4, December, pp. 577-600.

Field, L.C. and Hanka, G. (2001) The Expiration of IPO Share Lockups, Journal of Finance, vol. 56, no. 2, April, pp. 471-500.

Growth Company Investor (2005) Institutional Investors in AIM 2005, Growth Company Investor, September.

Karolyi, G.A. (1998) Why Do Companies List Shares Abroad? A Survey of the Evidence and its Managerial Implications, Financial Markets, Institutions and Instruments, vol. 7, no. 1, January, pp. 1-60.

London Stock Exchange (2005) Joining AIM: A Professional Handbook, London Stock Exchange.

London Stock Exchange (2006a) AIM:The Most Successful Growth Market in the World, London Stock Exchange.

London Stock Exchange (2006b) AIM Market Statistics, London Stock Exchange, January.

Merton, R.C. (1987) A Simple Model of Capital Market Equilibrium with Incomplete Information, Journal of Finance, vol. 42, no. 3, July, pp. 483-510.

Oxford Analytical (2005) Assessment of the Economic Benefits and Opportunities for a Pan-European Growth Market, London Stock Exchange, October.

Tykvová, T. (2002) Rise and Fall of the Germany's Neuer Markt: A Behavioural Approach, Working Paper, Centre for European Economic Research (ZEW), Mannheim.

Vitols, S. and Engelhardt. L. (2005) National Institutions and High Tech Industries: A Varieties of Capitalism Perspective on the Failure of Germany's "Neuer Markt", Discussion Paper SP 11 2005-03, Social Science Research Centre, Berlin.

4. Rate of Return Effects

i. Introduction

This analysis examines the differences in returns between the AIM market segment and the Official List market segment operated by the London Stock Exchange. From a Canadian perspective, the interest lies in answering the question – do the investors in AIM discern any difference in risk (and therefore require higher returns) as a consequence of the different regulatory regimes applied to the two market segments?

The differences in the regime have been described in Part 3 of this report and will be covered in exhaustive detail by other papers produced for the Task Force. The main difference can, however, be described as the heavy reliance on self-regulation of issuers through regulation of intermediaries (Nomads). The LSE has relatively little direct involvement with the issuers themselves, (though it can and does apply pressure to the Nomads where an issuer is showing signs of poor compliance). The main pressure for compliance is through the reputational risk to the Nomads: if the companies they are involved with do not comply with investors needs for information, for example, then the Nomad's reputation – and therefore business – will suffer.

Markets are a complex bundle of features. One market may offer different returns on similar investments for a number of reasons. Only one of these reasons is differences in regulation and so perceived risk. Other reasons include differences in taxation, segmentation between investors, and differences in information coverage. Less tangibly, markets may perform differently for reasons of reputation: Nasdaq was seen as the place to go for tech stocks in the 1990's and was believed to offer better prices for IPOs than other markets. All of these features are present in the AIM/Official List comparison – most especially, we believe, the reputational effect. For reasons possibly linked to marketing, analytical coverage and motivation in the AIM segment, AIM is widely seen as a market for growth stocks, and conversely, stocks admitted to AIM are likely to have higher growth potential.

Thus, we have seen that there may be well developed reasons for seeking a listing on one market or another, in particular, the discussion in Part 3 lists a number of reasons why firms seek to list, including:

- adding to the company's credibility, in the 'City' and outside;
- providing long-term growth potential;
- providing access to institutions, informed shareholders and venture capital trusts;

- making it easier to raise debt; and
- while these, and the other reasons listed there, apply to the question of whether to list, they also apply to the decision as to where to list (AIM, the Official list, or the home market). In this case, the questions must be posed in terms of "Which potential market will …"?

In pure finance terms, these questions can be reduced to: "Will my cost of capital be lower if I list on AIM, the Official List or the home market?" At first sight, it would seem that the cost of capital should not be affected by the choice of listing venue. However, the evidence presented in earlier sections gives a different message – insofar as the markets offer either different trading conditions or different perceptions of issuers' quality, then we would expect rate of return differences between otherwise similar stocks on different markets. The evidence in the earlier sections points clearly to a perceptual difference between AIM and the Official List, with investors and market participants regarding AIM as the market of choice for new small-cap listings.

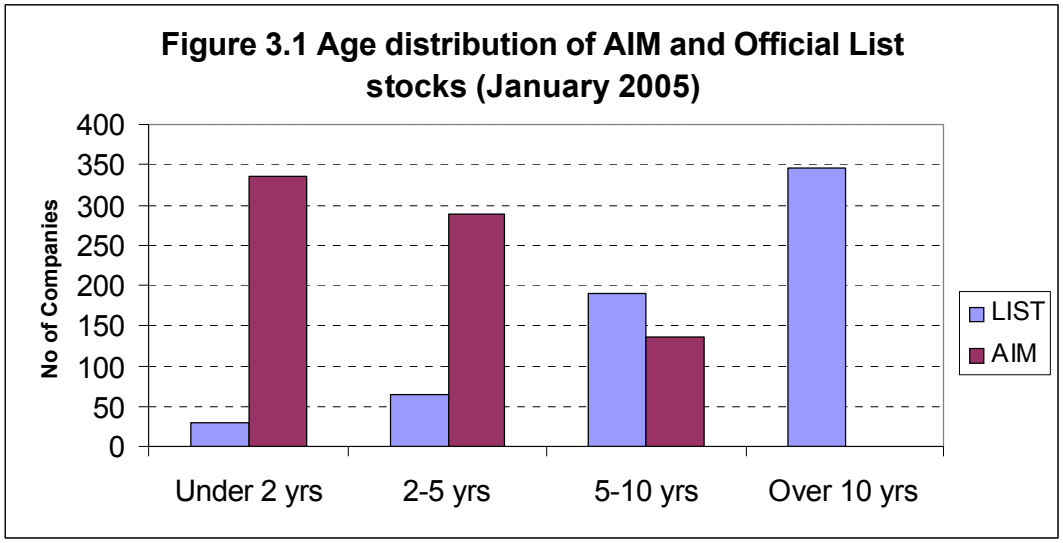
The difficulty in analysing the scale of the effect directly is that all firms are different (particularly at the small-cap end of the market) and trading is often irregular. Firms are sufficiently different that forming samples of AIM and OL stocks matched by size, industry, trading volume and date of listing was impossible. However, we identified a set of stocks that is more amenable to analysis: switchers (i.e. those stocks that changed their market). These stocks allow a before-and-after approach to the question.

The analysis in this chapter develops on work conducted for the AIM Group at the London Stock Exchange and uses high-frequency tick data supplied by them. The focus of that work was on the riskiness of AIM Stocks. The conclusion of that work – some of which is re-stated here (and the full report is cited in the Literature Review of Part 3) – is that there is no evidence of increased risk on AIM. In contrast, the focus of the work presented here is price and returns. Together the research forms a total picture of the relative (to the Official List) risk and return of stocks on the AIM market.

For reasons described below, the analysis was concentrated on stocks that have switched between the AIM and Official List segments of the LSE's market. Since switching behaviour has been confined to U.K. stocks, this analysis looks exclusively at U.K. stocks. However since the issue being addressed here is the response of investors to differences in regulation, the absence of Canadian stocks is not a weakness.

We conducted analyses of the companies in the two market segments to identify factors other than market segment that might cause differences in returns or risk. The most striking factor was the age difference:

broadly, most AIM Stocks have joined the market in the last two or three years and most similarly sized Official List stocks had been there for three years or more. Figure 3.1 shows the comparative ages profiles at the start of 2005.



The near complete correlation between age and market segment meant that comparative analyses between the segments would not be able to distinguish the AIM effect from the age effect. Therefore we moved the analysis to a comparison of companies that have switched market segments - of which there are a fair number, mostly Official List to AIM - in recent years.

The analysis is centred on an empirical examination of returns for the switcher companies using high frequency trading data from the London market. The data were used to create weekly returns and volatility measures. These results were used for two analyses:

- Comparison of abnormal returns (after adjusting for index movements) between stocks switching away from AIM and stocks switching away from the Official List;
- Regression analysis to detect any "AIM effect" among the switching stocks after normalising for index and volume effects. This is extended to address the degree to which the AIM effect is associated with temporary and permanent effects on returns.

ii. Switching Stocks

In this section, we address two questions:

1. Do stocks which switch from the Official List to AIM obtain an increased rate of return as a result of switching?
2. Is this gain attributable to the act of switching (in which case it should decay shortly after the switch), or is it of longer duration?

We do this by analysing stocks which switched from one market to the other. Using the same stock on a "before and after" basis means that we can ignore many long-term features of the company itself (e.g. its size and industry group) and focus on the effect of the switch in marketplace.

For any change in regime (be it regulatory, market venue-, reporting- or product-related), it is conventional to consider two types of effect:

- Transitory (or "Announcement") – these are the one-off effects associated with the change. They might relate to savings in transactions or regulatory costs or to immediate changes in perceptions. In price terms, this effect might manifest itself as a single price rise (or short sequence of rises) over a short period of time around the announcement of the switch. If we believe that traders compete to interpret news, then this price rise can be interpreted as reflecting the sum of the market's expectations of the likely impact of the switch on the company's future profitability.
- Permanent (or "Ongoing") – these are effects that lead to longer-lasting effects beyond the short term. The obvious permanent effect might be if the switch in market is accompanied by a significant change in market risk which is reflected in a price change. In a competitive market, these effects could be interpreted in terms of ongoing issues such as risk changes.

Our principal focus in this research is on the permanent effects of the switch, for two reasons:

- These effects should arise at the time when market participants are aware that the change will occur, not when it is implemented. Thus, proper measurement of this effect would require more precise identification of the 'event date' (i.e. the date of the announcement that a switch would occur). However, we do not have these dates and can only use the date on which the switch was

implemented, which will necessarily be after the date on which it was announced – introducing inaccuracy to the analysis, were we to attempt it[3].

- Our focus (and research brief) is on the long-term benefits of listing on AIM rather than the Official List. While temporary effects may well occur, our concern is with the longer term effects of the switch - whether there is an "AIM effect" and, for this, we focus on the longer periods before an announcement and after the switch.

We select all companies that switched markets during the sample period. We then exclude those that both switched exchange and changed their ISIN[4] (because the ISIN change may be associated with structural changes). We also excluded the small number of companies that switched more than once. This results in a sample of 160 switchers: 130 companies switched from the Official List to AIM, and 30 companies switched from AIM to the Official List (table 3.1).

Table 3.1 Summary data for switchers

	All Sample in Jan 05		Switchers	
	N.	Average Mkt Cap	N.	Average Mkt Cap At Switch Time
AIM	760	£29.33m	30	£193.28m
OL	629	£183.52m	130	£17.25m
	1389		160	

Clearly companies that switch from AIM to the Official List have greater market capitalization than the average AIM stock, and companies that switch from the Official List to AIM have lower market capitalization than the average Official List stock.

[3] Our discussions with market practitioners suggest that the announcement and switch dates are close but we have not been able to get data on the exact announcement date.

[4] International Securities Identification Number. Similar to CUSIP number. In the U.K. an change of ISIN tends to mean that the company has fundamentally changed its nature.

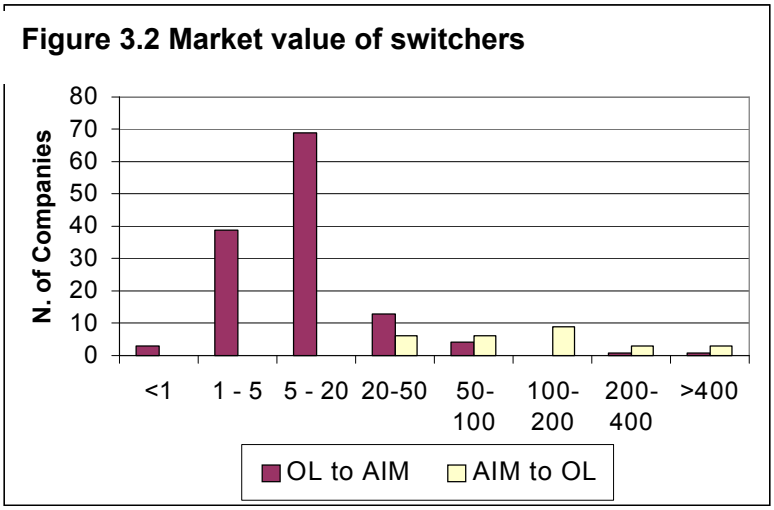
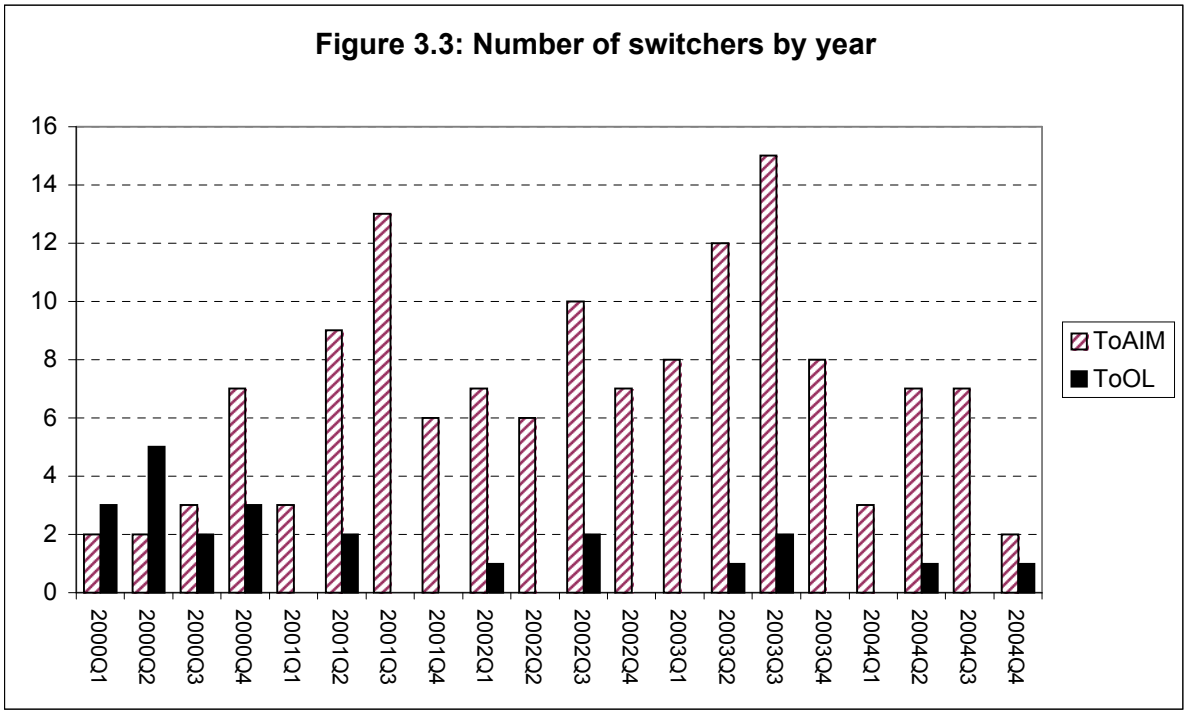
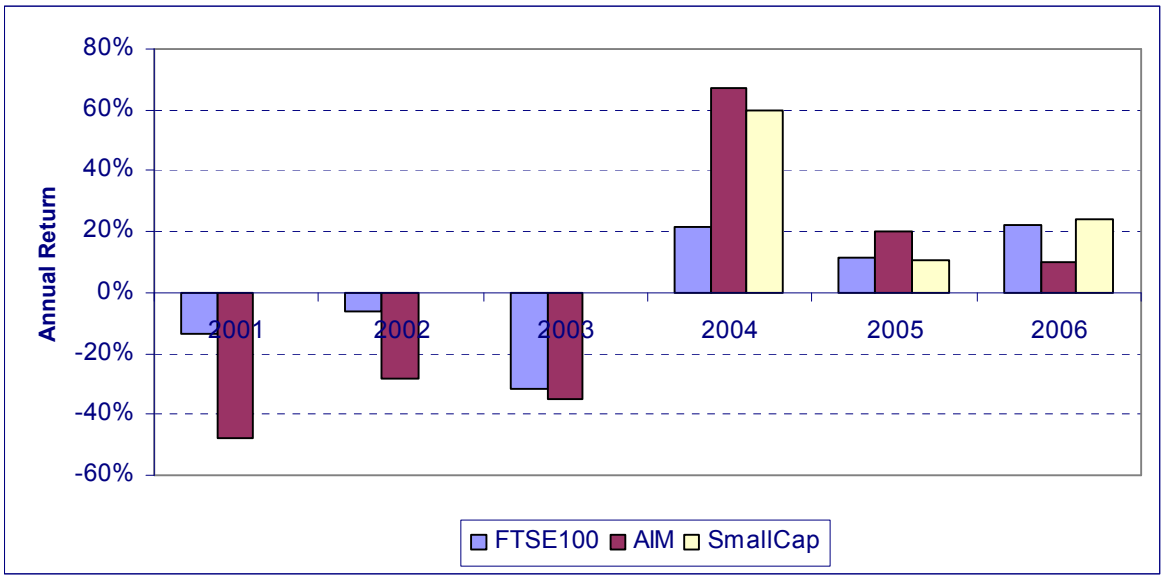


Figure 3.3 shows the number of stocks switching in each part year:



This shows clearly that the imbalance between the numbers of switching firms with increasing numbers switching from Official List to AIM, particularly from 2001 onwards.

In contrast, the following chart shows the annual rates of return on the FTSE100, the FTSE SmallCap index and the AIM index. The latter indices have been available since 2001 and 2003 respectively.



This shows that the indices moved together, although the AIM and SmallCap indices displayed much greater swings in 2001, 2002 and 2004 than did the FTSE100. It is helpful to note that there is no obvious, simple return-based explanation for the switch to AIM as the preferred market – which began in 2001.

The analysis was conducted for all 160 stocks using weekly data for the 229 weeks surrounding the switch date (i.e. two years and three months before and after the switch). Using long windows allowed us to separate the immediate pre- and post- announcement periods from those reflecting the normal markets for the stocks in their new and old locations.

iii. Risk

There is an obvious reason why firms might be affected over the long term by a change in market: their risk also changes. An earlier study[5] examined the LSE Official List and AIM for differences in volatility and also summarized some of the reasons why companies listed on AIM may be riskier than firms on the OL:

[5] The material in this section draws heavily on the report "A False Perception? The relative riskiness of AIM and listed stocks" by John Board, Alfonso Dufour, Charles Sutcliffe, Stephen Wells which was prepared for the London Stock Exchange in 2006. References to individual papers referenced in this section will be found in that report.

- Firms listed on AIM tend to be smaller than firms on the OL. It is well known that small-capitalization firms have higher total risk than similar large capitalization firms. Small companies are less diversified than large companies, and may in extreme cases effectively be a bet on whether there is oil or gas at the bottom of a hole in the ground. Eckert (2002) found that German firms which choose to list on the Neuer Markt, rather than the 1st Market Segment, are riskier, smaller and younger.
- Firms listed on AIM tend to be younger than firms on the OL. Young firms tend to be riskier than well-established firms because their business model may be unproven, and the staff less experienced.
- Firms listed on AIM tend to be in industrial sectors, like mining and oil and gas, which are inherently risky.
- AIM has weaker regulations and surveillance than the OL. For example, there is no requirement for a minimum proportion of the shares to be in public hands, no trading record requirement, no requirement for shareholder approval of transactions, and no minimum market capitalization. This permits the listing of inherently riskier companies, run by people who may have criminal convictions and are more willing to take risks.
- Firms traded on AIM tend to be less liquid than those on the OL with less frequent trading, and this results in fewer, larger price movements. If risk is quantified using a measure like the standard deviation, this will result in higher measured risk. The presence of liquidity providers can reduce price volatility by smoothing out demand and supply for uninformed traders.
- The steady flow of information to the market may be less well-developed for small-capitalization companies. Small companies may make fewer announcements, leading to fewer, but larger, information disclosures. They may also be followed by fewer analysts, who discover and publicize relevant information on the firm. If risk is quantified using a measure such as the standard deviation of returns, this lumpiness of the information flow will also increase risk.
- Firms listed on AIM tend to have a smaller free float than firms on the OL. Since the ratio of tradable shares to total shares is lower for firms listed on AIM, the price impact of news tends to be larger for AIM companies, leading to higher measured risk.
- Firms listed on AIM are subject to the expiration of the lock-up period, which can lead to return volatility around the expiration date.
- Firms listed on AIM may be more highly geared than firms on the OL. In which case, even if the income streams of two companies are equally risky, the share price of the more highly geared company will be more volatile. Hutchinson, Meric and Meric (1988) compared firms that floated on the USM with those of a similar size and industrial group that did not. Prior to joining the

USM, the quoted firms were more highly geared, growing faster and had less liquid assets. Bottazzi & Rin (2002) present a large amount of information on companies which listed on the Nouveau Marché, Neuer Markt and Nuovo Mercato. The gearing (Debt/(Debt + Equity)) of firms that were about to list on the Nouveau Marché was 77%, while for the Neuer Markt it was 75%. After the IPO, gearing dropped to 43% and 28% respectively. For 135 companies that listed on the main markets in France, Germany and Italy during the same period, the pre and post gearing was 34%. This indicates that for France, firms on the small-capitalization exchange had higher gearing than firms on the main market. Burghof and Hunger (2004) report that the gearing of firms before they listed on the Neuer Markt was 70%, while the corresponding figure for firms listing on other German markets was 73%, which is consistent with the results of Bottazzi & Rin (2002) for Germany.

- Venture capitalists are more likely to be involved with firms listed on AIM, and they may create price volatility when they end their involvement. However, the level of involvement of venture capitalists in Germany is lower than in the U.S.. Vitols (2000) argues that the Neuer Markt was not creating companies similar to those of Silicon Valley because there was much less involvement of venture capitalists in Neuer Markt firms, and these firms were older and more profitable than those in Silicon Valley.
- A trading mechanism involving market-makers produces bid-ask bounce, leading to more volatile prices than if prices are set by an order-driven process (e.g. SETS, SETS-MM). Since small firms on AIM use market-makers, while some firms on the OL use an auction mechanism (where bid-ask bounce between market-maker quotes is absent), AIM price volatility will be higher.
- If the distribution of returns for shares listed on AIM is more negatively skewed than for shares in the OL, there will be more big negative returns on AIM, and this may give the impression that AIM is riskier.

Risk is usually measured in two alternative ways: total risk, and systematic risk (or beta). Total risk is simply the variability of returns on the company's shares. Systematic risk measures the extent to which a firm's returns move with those of the market as a whole.

A number of empirical studies have investigated the change in the systematic risk (or beta) of a company's shares when it moves from a small-capitalization exchange to the main market, or lists for the first time on the main market (almost always in the U.S.). There is no evidence from any of these studies that a change in listing affects systematic risk. This indicates that the additional visibility and bonding (i.e. agreeing to comply with the regulations) of the main exchange do not reduce systematic risk. The

evidence is limited, and none is for AIM, but it suggests that the tougher listing requirements of the main exchange do not lead to a drop in systematic risk. If this result applies in the U.K., it implies that whether a firm is included in the OL or listed on AIM has no effect on systematic risk.

If firms listed on AIM are riskier than those on the OL, this extra risk may be priced, i.e. expected returns on AIM stocks are higher than for firms on the OL, and this compensates for the higher AIM risk. In support of this view, Schulman (1999) describes small-capitalization firms as having greater price volatility, default risk and price manipulation risk, but expected returns are higher to compensate for these increased risks.

iv. Regression Model

The principal method of analysis used in this, and many other quantitative studies, is to construct a regression model. Whose purpose is to allow the quantification of the separate effects of a series of variables on a chosen "dependent" variable. This approach allows us to control for some effects, while allowing us to examine the remaining impact of the variables of real interest.

It is conventional in finance to assume that the only (or at least the main) common effect on stocks' returns is the "market portfolio", usually measured by a general market index. Because of this, most models control for this effect by including the market index as an explanatory variable (in effect "subtracting" its effect from stocks' returns). In the present case, however, we include two market indices: a general index (the FTSE 100), which measures the behaviour of the largest stocks on the Official List and an AIM index (also prepared by the LSE), which measures the behaviour of the AIM market of small stocks not listed on the main exchange. It is important to realize that the two indices fundamentally capture the general effects of "big firm, liquid, blue-chip" and "small, new, less illiquid" components of the market – and both of these may to a greater or lesser extent affect all stocks in the present study, irrespective of the market on which they are listed.

The benefits of allowing for two separate effects[6] are:

- it allows for the possibility that the small cap market does behave differently, in general, than the blue-chip FTSE 100 (for example, by 'pricing' illiquidity);

[6] Note that the econometric problem of multicollinearity, caused by a statistical association between the two indices, is not problematic in this case. The reason is that multicollinearity affects the statistical assessment of significance for the affected variables, but the focus of this study is for the POST variable only.

- it allows some firms to be more affected by one or other market; and
- it allows the effect of the indices to *change* as the stock moves between markets. We can model this effect by including a dummy variable that captures the periods in which the stock was quoted on AIM.

a) Overall Effect

The first regression model has the following form:

$$R_{it} = \alpha_i + \beta_{1i}FTSEret_t + \beta_{2i}AIMret_t + \beta_{3i}D_{it} \times FTSEret_t + \beta_{4i}D_{it} \times AIMret_t + \delta_i POST_{it} + \varepsilon_{it}$$

Where:

R_{it} represents the return on the stock in week t

Control variables

$FTSE_t$ represents the return on the FTSE index in week t

$AIMRet_t$ represents the return in the FT-AIM index in that week

D_{it} is a dummy variable taking the value 1 if the stock was quoted on AIM and 0 otherwise

Explanatory variable

$POST_{it}$ represents a dummy variable that indicates whether the stock has switched market (taking the value 1 when in the new market, whether AIM or the OL, and 0 before its switch).

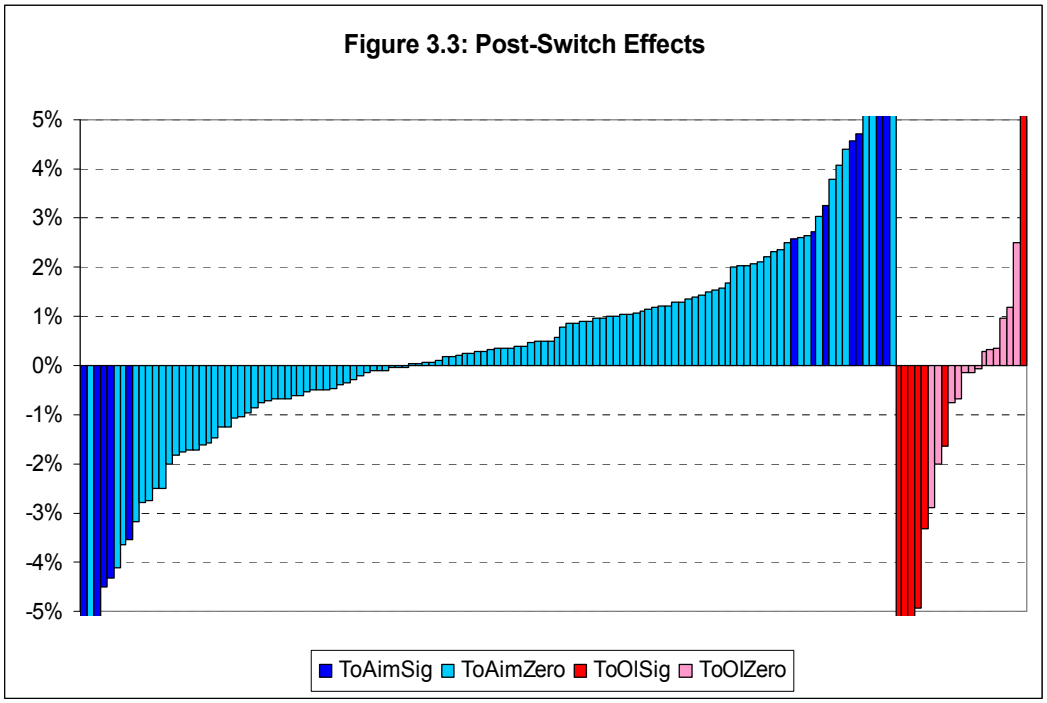
The Greek letters represent coefficients estimated by the regression process. These coefficients quantify the size of the effect (for example, if β_{1i} =0.5 then this means that, all other things are held constant, a 3% return on the FTSE100 index will be associated with a 1.5% return in the stock's return; similarly, if β_{3i} = 0.75, then the same 3% return on the FTSE100 would result in an additional 2.25% increase in the stock's return –3.75% in all – during the periods the stock was quoted on AIM).

Similarly, if δ_i was estimated to be 0.005 then, on average, the stock's return was 50 basis points higher in weeks when it was traded on AIM than in the weeks when it was traded on the OL, after allowing for the influences associated with the returns in those periods on the two market indices, as captured by the four beta coefficients.

Finally, in any regression model, the coefficients can be statistically tested for significance – i.e. the likelihood that the value of 0.005 really is different from zero and not just a chance finding.

The following figure, 3.3, shows the distribution of this coefficient over the stocks in our sample. The stocks are divided into two groups "ToAIM" and "ToOL" indicating stocks that moved to one or other market, and, within each group, into "significant" and "insignificant".

Figure 3.3: Post-Switch Effects



This shows that the overwhelming bulk of stocks switching to AIM experienced returns *higher* than the market conditions would normally have warranted during the period following the switch. The figure also shows that a small number of stocks showed very large effects. We treat these as outliers and indicate some reasons why the effects might arise in Part 4, section iv.

The result is summarised in the following table (coefficients showing a post-switch effect in excess of 15% have been omitted):

Table 3.2: Coefficients for switcher regression			
		Number	Average
ToAIM	Negative	4	-0.049
	Insignificant	110	-0.004
	Positive	6	0.046
	Total	120	0.004
ToOL	Negative	4	-0.049
	Insignificant	13	-0.001
	Positive	0	
	Total	17	-0.012

This shows that, overall, stocks switching to AIM had an additional return of 0.4% over the period following their switch to AIM (ignoring the stocks with coefficients not significantly different from zero). However, the table also shows that very few stocks exhibited significant rises or falls (only 10 of the 120 switchers to AIM and 4 of the 17 switchers to the OL – about as many as we might expect to find as false positives in a random sample). This suggests that there appears to be no significant long-term effect of stocks' return and hence cost of capital from switching markets.

b) Permanent and Temporary Effects

In order to see whether stocks exhibited temporary price fluctuations around the switch of markets, we re-specified the regression model as:

$$R_{it} = \alpha_i + \beta_{1i}\mathrm{FTSEret}_t + \beta_{2i}\mathrm{AIMret}_t + \beta_{3i}D_{it} \times \mathrm{FTSEret}_t + \beta_{4i}D_{it} \times \mathrm{AIMret}_t + \delta_{1i}\mathrm{Ann}_{it} + \delta_{2i}\mathrm{Temp}_{it} + \delta_{3i}\mathrm{Perm}_{it} + \varepsilon_{it}$$

Where:

R_{it} represents the return on the stock in week t

Control variables

$\mathrm{FTSEret}_t$ represents the return on the FTSE index in week t

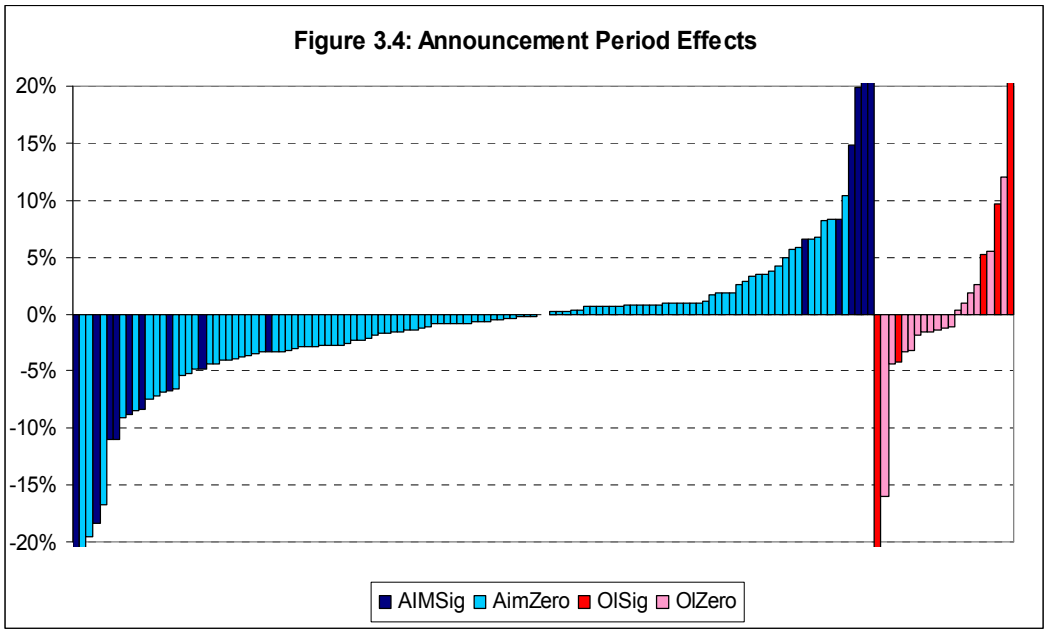
AIMret_t represents the return in the FT-AIM index in that week

D_{it} is a dummy variable taking the value 1 if the stock was quoted on AIM and 0 otherwise

Explanatory variable

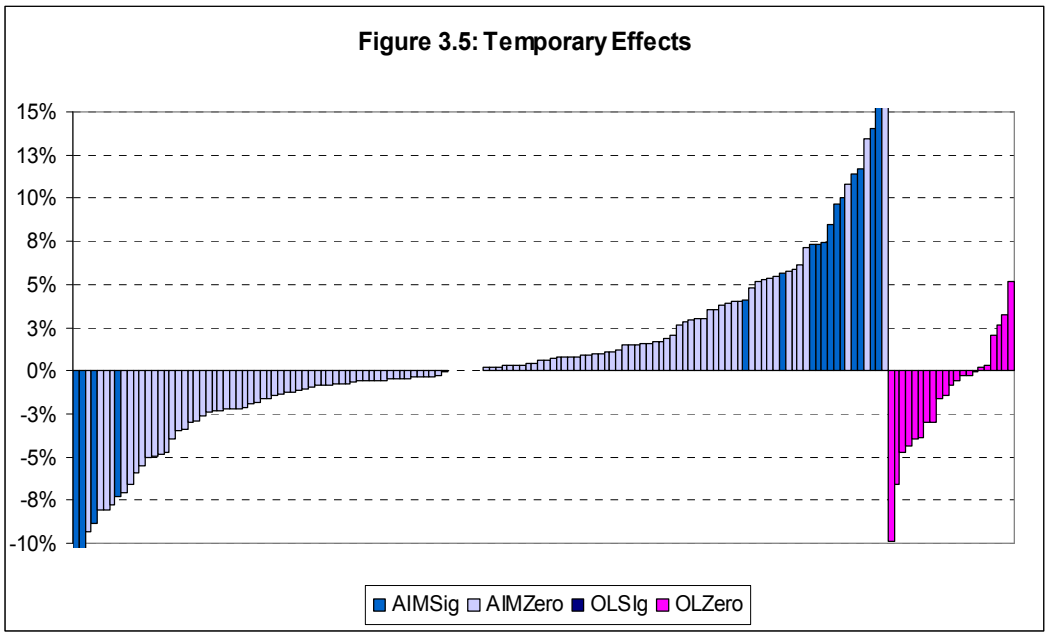
Ann_{it}	represents a dummy variable that takes the value 1 in the eight week period preceding the switch[7]
$Temp_{it}$	represents a dummy variable that takes the value 1 in the eight weeks immediately following the switch
$Perm_{it}$	represents a dummy variable that takes the value 1 from the ninth week following the switch to the end of the sample period (or the end of the stock's data)

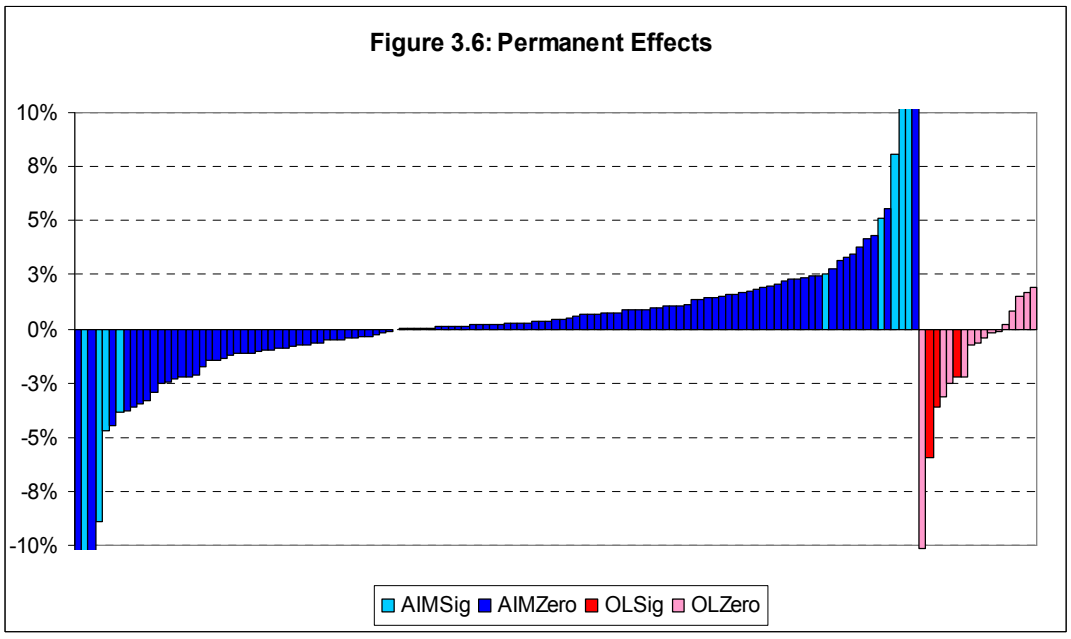
The following plots show the distribution of coefficients for each of these periods.



The "pre-switch" effect is very mixed. This is to be expected because the date of the announcement (which should be the event that causes event-driven changes) will be contained within this period.

[7] As noted above, we do not know the precise date of the switch announcement; however, we believe it to be less than eight weeks before the switch event. Thus, this coefficient will understate and true announcement effect because some part of the eight week period will be a pre-announcement segment, in which no abnormal return need be expected.





As in earlier results, the figure shows a strikingly small number of significant effects. While all companies exhibit either higher or lower returns after the change period, the number of significant changes is small, and roughly evenly balanced between positive and negative values.

Finally, the following summarises the significant effects

Table 3.3: Summary of regression results				
			Number	**Average**
To AIM	Announce	Negative	7	-0.0768
		Insignificant	103	-0.0053
		Positive	3	0.0991
		Total	113	-0.0070
	Temporary	Negative	3	-0.0906
		Insignificant	118	0.0001
		Positive	11	0.0882
		Total	132	0.0054
	Permanent	Negative	3	-0.0584
		Insignificant	111	0.0015
		Positive	3	0.0523
		Total	117	0.0012
To OL	Announcement	Negative	1	-0.0420
		Insignificant	15	0.0026
		Positive	2	0.0744
		Total	18	0.0081
	Temporary	Insignificant	21	-0.0147
		Total	21	-0.0147
	Permanent	Negative	3	-0.0394
		Insignificant	14	-0.0100
		Total	17	-0.0152

As can be seen, the overall average permanent effect was of the order of 0.1% across stocks switching to AIM, and a negative 1.5% for the (very much smaller number of) stocks switching to the OL.

v. Conclusions

This section has briefly examined the statistical effect of the switch of a stock's listing from one market to another. The switchers provided the best basis for comparison given that, as we found, the age profiles of AIM and Official List stocks are very different (making it difficult to build an analysis of comparable stocks on the two market segments).

The results can be summarized as demonstrating consistently that the switch to AIM (or the OL) produces a very small effect overall. This result appears to be persistent whatever the period of analysis – it is true at times close to the switch and it persists for the full 2+ year period after the switch.

The results are subject to a caveat that they may be affected by firm-specific reasons for switching, including:

- There will be a degree of sampling bias in the results caused by the needs for a relatively long lived sample;
- Stocks' risks or other characteristics may change as a result of the switch, for example, the switch might herald increasing need for new debt capital;
- The use of relatively simple statistical methods. More robust approaches are, however difficult with small and illiquid stocks.

However, the absence of significant effects is revealing and is consistent with earlier findings and the perception of the market. Elsewhere we have discussed the role of Nomads in enforcing discipline on AIM companies. The perception of users (and claims of the nomads) is that there is no practical difference in regulation applied in the two segments. The results in this section are consistent with that belief. The results are also consistent with the absence of tax effects (these were discussed at some length earlier in the report, and the market view, also noted above, was that these effects were not major factors in the listing decision).

The results are entirely consistent with the results presented in the following Annex which reports an analysis of riskiness produced for the London Stock Exchange. The conclusion of that was that risk was no affected by the switch from Official List to AIM (or vice versa).

vi. Annex – Analysis of Switchers' Volatility

The following text, including the conclusions section, is extracted from a report prepared for the London Stock Exchange on the relative volatilities of AIM and the Official List. In this report, we examined the same set of switching stocks analysed above[8].

[8] Note that this annex summarises an existing piece of research. Because of the somewhat different research questions addressed, some of the research methods used in that work differ from those described in section 3 above – in particular, the annex describes work carried out using monthly returns, while section 3 is based on *weekly*

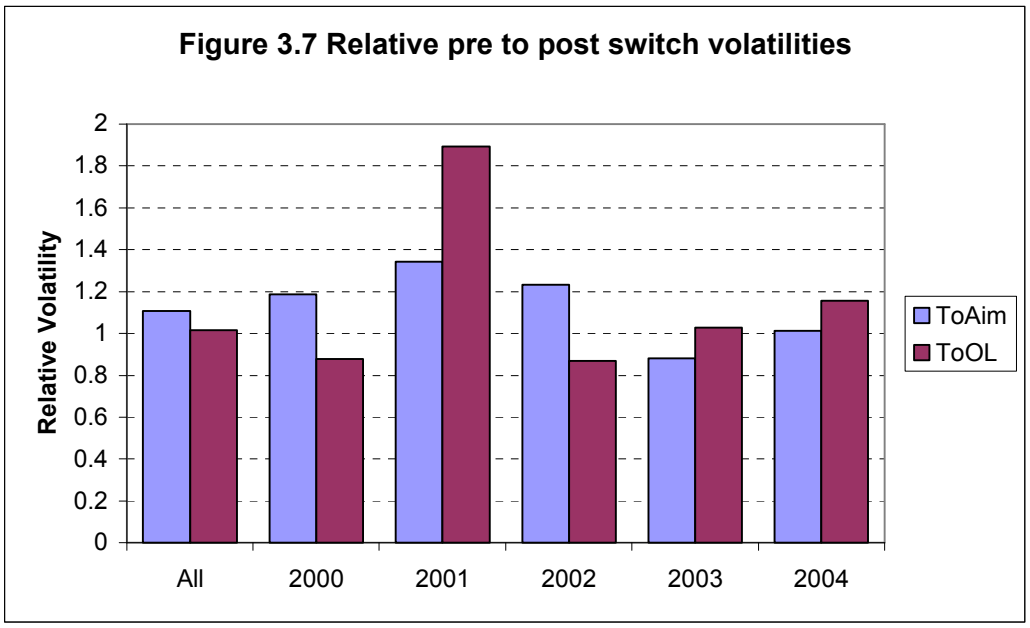
a) Relative Volatility Analysis

In this ratio analysis of the "switchers", we used the following procedure:

1. For each stock which switched between markets once (either AIM-Official List or Official List-AIM), we defined the 'switch' period as the three month period centred on the switch date (e.g. one month before the switch, the switch month and the month following).
2. We then considered the two six month periods surrounding the switch period and defined these as the "pre-switch" and "post-switch" periods.
3. For each switching stock we calculated the average monthly volatility during the pre and post-switch periods.
4. We then calculated the relative volatility for each switching stock – defined as the average volatility in the post-switch period divided by the average volatility for that stock during its pre-switch period. Thus, a decline in volatility following a switch from one market to another would be revealed as a relative volatility of less than one. Note that this measure is independent of the absolute volatility of the stock – we are focussing only on changes in volatility.
5. We then averaged the relative volatilities across stocks both in total and based on the year of the switch (e.g. for all stocks which switched market in 2001).

returns. As a result, this annex should be taken as being complementary to the results in section 3.3, rather than as a direct extension of it.

The following diagram summarises the results:



This shows that on average stocks switching to AIM from the Official List experienced a 10% increase in volatility, while those switching from AIM to the Official List experienced a 1% increase. Equally, the later years show a much more varied set of results, with switchers to AIM in 2003 experiencing a decrease in volatility. In three of the five years analysed, switchers to the Official List experienced larger rises in volatility than did switchers to AIM.

It should however be noted that, although there were 130 switchers to AIM, there were only 30 switchers to the Official List. So on average, each "ToOL" column in the figure represents only 6 stocks, and the results will be heavily influenced by the behaviour of individual stocks.

b) Conclusions on Relative Riskiness of AIM Stocks

The purpose of this research was to examine the truth behind the perception that the AIM market was systematically and consistently more risky than the Official List market in comparable stocks. The research was conducted by the ICMA Centre at the University of Reading to a commission from the AIM Group of the London Stock Exchange. The main finding of the research is that while at a superficial level AIM stocks may seem more risky than comparable Official List stocks, as the analysis is refined to ensure that the comparisons focus purely on the effect of being on different markets the difference shrinks and

finally disappears. The final conclusion of the research is that the empirical analysis concurs with the current market practitioner view that there is no significant risk differential.

A significant number of stocks have moved between the two markets. More recently, the direction has been almost exclusively from Official List to AIM. Such companies offer an opportunity to study the single event, a market switch, and abstract from other company-specific factors. Again, a succession of progressively more complex analyses was applied A simple analysis of switchers' volatility using ratios of pre and post-switch volatility to assess the impact of the switch with the following results:

- Official List to AIM switchers: 55% of these has greater volatility on AIM.
- AIM to the Official List: 45% of these has greater volatility on AIM.
- Overall switching stocks showed 10% higher volatility on AIM

These results are consistent with the notion that AIM is viewed as slightly more risky. However they are at odds with some previous studies of the U.S. market[9] that showed that a switch from the NASDAQ market to either NYSE or AMEX had no effect on volatility.

Our overall conclusion is that the analysis of switchers shows that the differences in volatility when stocks switch between AIM and the Official List are very small, usually not significant statistically and tend, if anything, to indicate a slightly lower volatility when on AIM.

It is worth speculating briefly as to why AIM might not be more risky than the Official List. By and large those we have spoken to and the literature we have reviewed have suggested that the regulatory differences, while important in attracting companies to AIM, may not have a large effect on investors because:

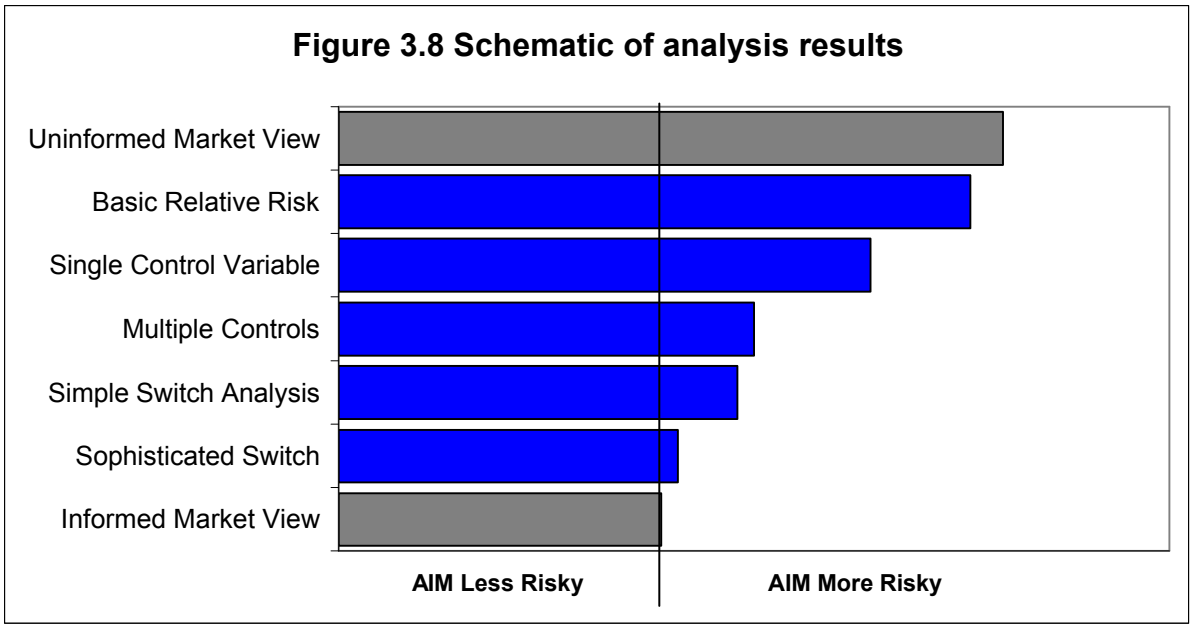
- initial and on-going disclosure requirements are similar;
- nominated advisors are strict in ensuring companies comply with higher standards than the basic requirements;
- the lower free-float requirements for AIM are rarely an issue as, we understand, most advisors would insist on an AIM issue having similar free float to the Official List requirement;

[9] See Board, Dufour, Sutcliffe & Wells (2006) *ibid*

- the lower requirements for consulting shareholders on corporate actions are rarely a problem – though in special cases one can see this might not be true; and
- the shorter track record requirement, which could be an important risk factor, is less important than one might expect – largely because the minimum requirements for AIM and the Official List both lie within the "young company" time horizon of 2 to 3 years.

The main conclusion that comes out of this analysis is that the initial conception that AIM has higher volatility than the Official List is perfectly understandable. Our simpler analyses generally found a large difference between volatility of AIM and Official List stocks. However, as we moved to more complex analyses the difference dwindled or vanished. The schematic diagram below represents the results of the various analyses we have conducted.

Figure 3.8 Schematic of analysis results



It is clear that more sophisticated - and therefore, we believe, more accurate – analyses have been associated with smaller or zero differences between the markets. It is revealing that the opinion of market practitioners and the conclusions of the most sophisticated analyses concur: when other factors are adjusted for, AIM and the Official List do not display significantly different volatilities.

5. Turnover on TSX and AIM in TSX-Listed Stocks

i. Introduction

This research represents a part of the Task-Force component being undertaken by the ICMA Centre at the University of Reading, England. This part examines the trading volumes of stocks that are both listed on one of the Toronto Stock Exchange markets (TSX or TSX-V) and on the London Stock Exchange's (LSE) AIM market.

The question we address is, broadly, whether business transacted on the AIM market in TSX stocks is additive to the total business, or whether it replaces business that would otherwise be routed to the TSX. We note in this report that AIM trading represents a substantial – sometimes over 50% - share of total trading in these stocks so it is undeniable that AIM is a significant trading venue for the TSX stocks that have joined AIM. The question then is whether the level of trading on the TSX is less than it would be in the absence of AIM.

To address this we have analysed monthly trading volumes on TSX and AIM in a selection of the stocks that trade in both markets over the period 2001 to 2005 inclusive. The period is appropriate because:

- AIM has experienced a very significant growth in that period and has made strenuous efforts to present itself as a market for foreign as well as U.K. companies, and,
- with one exception, the TSX companies that have joined AIM have joined within the last five years.

We have examined the turnover in the framework of an event study where the event is the stock joining AIM. We have made a number of comparisons of volumes pre- and post- the event. These comparisons include absolute comparisons and comparisons which adjust for the growth of volumes on the TSX market and for the growth of volumes in the resources sectors where the AIM companies tend to be classified.

The structure of this section is:

- Section ii. looks at the historical background of cross-border listing and trading;
- Section iii. looks at the data sources used;

- Section iv. gives descriptive statistics of trading levels in the relevant stocks;
- section v. examines the list of stocks traded on both markets and identifies those for the comparison;
- Section vi. presents the results of the event study, and
- Section vii. gives our findings and conclusions.

ii. Cross-Border Trading - Historical Context

a) Historical Context

The impact of cross-listing on volumes has been a question that has attracted considerable interest over the past 20 years or so. Prior to the early 1980's trading was pretty much confined to the domestic market of the issuer and cross-listing was rare. The LSE and NYSE both listed a number of foreign companies but this was largely a matter of status or prestige for the issuer (and the exchange). Trading in the foreign market was negligible. The lack of trading reflected technical difficulties – particularly settlement – and a general lack of interest among investors in foreign companies.

From the early 1980s two important centres of trading in foreign stocks emerged:

1. The LSE offered a platform that allowed trading in foreign, particularly European stocks. The relatively well-capitalised London brokers were able to offer liquidity and trading in size which was not then available in mainland European markets. The London market attracted a significant market share in many major European stocks. Stocks from Hong Kong were also actively traded on the LSE's market. In general the investors were funds based in the U.K. and U.S. which, until then, had not had access to mainland European markets.
2. The main U.S. exchanges began to offer markets in the American Depository Receipts of foreign (then mostly U.K.) stocks. The use of ADRs removed the settlement difficulties (or more correctly transferred them to specialist custodian banks that took them on for a price – initially paid by the investor, but more recently paid by the issuer) and allowed U.S. investors access to foreign stocks that were of interest because they had U.S. activities. The U.S. trading in many stocks represented a large, often over 50%, share of the total trading. The main users were U.S. investors that previously had not had access to European markets because of the difficulties of settlement.

Since the 1980s two related developments have changed this situation:

- European markets have entirely changed and are now offering high levels of liquidity, better regulation, effective settlement, etc. This has meant that the attraction of trading in London has been reduced and while much business in European stocks is managed in London (and hence appears in LSE's volumes), the transactions themselves are now effected on the domestic European markets. The LSE has turned its attention towards emerging markets offering markets in Global Depository Receipts. The current level of total business in European stocks is massively larger than volumes in the 1980s.
- U.S. investors moved away from ADRs partly because of the higher perceived cost, but mainly because the improvements in European markets gave large U.S. institutions easy access to easy trading and settlement in the domestic markets. The ADR market remains but now attracts mid-sized U.S. institutions rather than the largest. Again, the trading and investment by U.S. investors in European stocks remains many times larger than in the 1980s. The U.S. exchanges have, like the LSE shifted their attention to emerging markets – with varying degrees of success.

In both the cases described the opening of trading on other exchanges opened the stocks to a new group of investors who had not previously had access to the domestic markets. The situation of Canada has historically been different. The main, non-domestic, competition to its exchange has been from the U.S.. Both U.S. and Canadian investors had relatively easy access to both markets, so the issue has been more one of comparative liquidity than one of opening new markets to previously excluded investors.

The AIM market is different in this regard in that it does open Canadian markets to new (European) investors. The main reason, we understand, given by Canadian companies when they join AIM is access to a new pool of capital. However, those European investors may have been able to access the TSX markets (some funds had mandates restricting them to stocks on 'approved' exchanges) – just as U.S. investors now access European markets – but the companies have seen advantages in joining the AIM market.

There is a literature on cross-border trading. During the 1980s and 90s a number of studies looked at European markets in relation to the LSE, at Hong Kong in relation to the LSE, and also at the U.S. ADR markets. By and large the studies found that the effect was to increase the volumes on both the domestic and foreign market. A summary of literature relating to the North American market is given below. Partly

this was purely technical arbitrage trading – which caused the other key finding that inter-exchange pricing anomalies were very rare – but mostly it was through attracting a new group of investors.

b) Literature Review

The theoretical analysis by Chowdhry and Nanda (1991) of cross-listed stocks predicts that after a cross-listing the total volume of trading will increase, and will concentrate in the market with the lowest transactions costs. Subsequently Baruch, Karolyi and Lemmon (2003) constructed a model in which the volume of a cross-listed stock concentrates in the exchange where the correlation of the stock's returns with other stocks traded on the exchange is highest. There have been a number of empirical tests of these theoretical predictions.

Foerster and Karolyi (1993) studied 53 Canadian stocks cross-listed on U.S. exchanges over the 1981-90 period. Using monthly data they found that when the Canadian stock was cross-listed, Canadian volume over the next six months rose by 20%, while total volume rose by 118% (i.e. more than doubled). Knight and Pretty (2003) analysed 767 ADRs over the period 1980-2003 and found an increase in volume for the underlying shares of about 28% (at least for the next 260 days) when a level 1, 2 or 3 ADR was created. These studies support the general view that a cross-listing is followed by an increase in volume in both the home market, and in total volume. However, evidence is accumulating that such effects are not permanent.

Karolyi (2003) considered the merger of Daimler Benz and Chrysler in 1998 to form DaimlerChrysler, and the location of trading of the resulting global registered shares. Initially there was an increase in volume in both New York and Frankfurt. Prior to the merger about 20% of the trading was in New York, but a few years after the merger this had dropped to just 5%. Halling, Pagano, Randl and Zechner (2004) investigated data on 111 cross-listed European companies, of which 84 were cross-listed in the U.S., and 27 were cross-listed within Europe. They found widespread evidence of flow-back: after an initial increase in volume after the cross-listing, foreign trading declined rapidly to very low levels. However, there was considerable variation in flow-back between stocks. Flow-back was lower for small, export-oriented high-tech companies listed on exchanges with lower transactions costs and better insider trading protection than the home market.

Pulatkonak and Sofianos (1999) used trading volume for 254 non-U.S. stocks that were cross-listed on the NYSE in 1996. They found that the closer is the time zone of the home exchange to New York, the

greater is the NYSE share, while if the home market was in a developed country, the smaller was the NYSE share of volume. Baruch, Karolyi and Lemmon (2003) examined monthly volume on 275 non-U.S. stocks cross listed on U.S. exchanges. They found strong support for trading concentrating in the exchange whose stocks have the highest correlation of returns with those of the cross-listed share. These studies show that in the long run, volume may flow back to the home exchange, and the magnitude of this flow back depends on the nature of the home exchange and the company concerned. (References are attached as an annex to this chapter)

iii. Data

The analysis is conducted using monthly turnover data. The sources were:

- TSX/AIM companies and start dates from LSE web site and from TSX
- TSX main market monthly turnover data – supplied by TSX
- TSX-V trading data was compiled from daily data on the TSX web site. Companies that had moved from TSX-V to the main market were sourced from the web site and TSX.
- AIM monthly turnover data – AIM monthly fact sheets from the LSE web site.
- Exchange rates were calculated from the monthly U.S. $ rates published by the World Federation of Exchanges.

In several cases companies had more than one line of stock – for example, a main line and a warrant. As far as possible we combined these into a single result for each company. This is not ideal as the different lines may be priced differently but, given the small size of trading in the warrants etc the effect is slight.

iv. Overview of Trading on TSX and AIM

The Toronto Stock Exchange (TSX) identifies 36 stocks listed on the TSX or TSX venture (TSX-V) as also having joined the London Stock Exchange (LSE AIM Market). In addition, four Canadian companies have joined AIM but have not joined the TSX or TSX-V. Table 4.1 shows these 36 stocks

Table 4.1: Companies listed on TSX And Admitted to AIM

AIM Joining Date	Company	Exchange	TSX Sector	Country of Origin
25/09/2003	ADASTRA MINERALS INC	TSX	MM	Canada
12/11/2004	AFRICA COPPER	TSX	MM	U.K.
11/07/2005	AFRIORE	TSX	MM	BVI
30/07/2003	ANTRIM ENERGY INC	TSX	OG	Canada
12/08/2004	AZURE DYNAMICS CORP	TSX	DI	Canada
07/07/2005	BANKERS PETROLEUM	TSX	OG	Canada
30/09/2003	BEMA GOLD CORP	TSX	MM	Canada
08/12/2003	BRAZILIAN DIAMONDS LTD	TSX	MM	Canada
27/06/2005	CALEDONIA MINING CORP	TSX	MM	Canada
22/06/2005	CANACCORD CAPITAL INC	TSX	FI	Canada
21/09/2004	CASPIAN ENERGY INC	TSX	OG	Canada
12/06/2003	CENTURION ENERGY INTERNATIONAL INC	TSX	OG	Canada
26/08/2005	EASTERN PLATINUM LTD	TSX	MM	Canada
30/11/2004	EUROPEAN GOLDFIELDS	TSX	MM	Canada
29/09/2004	EUROPEAN MINERAL CORP	TSX	MM	BVI
30/07/2002	FIRST CALGARY PETROLEUMS	TSX	OG	Canada
09/04/2001	FIRST QUANTUM MINERALS	TSX	MM	Canada
04/12/2003	FUN TECHNOLOGIES	TSX	TECH	U.K.
04/08/2004	GREYSTAR RESOURCES	TSX	MM	Canada
01/07/2004	KIRKLAND LAKE GOLD INC	TSX	MM	Canada
27/04/2005	MARCH NETWORKS CORP	TSX	DI	Canada
30/09/2005	MOYDOW MINES INTERNATIONAL INC	TSX	MM	Canada
23/12/2003	OILEXCO INC	TSX	OG	Canada
06/08/2004	ONDINE BIOPHARMA CORP	TSX	LS	Canada
11/03/2004	ORIEL RESOURCES	TSX	MM	U.K.
21/12/2004	QUESTAIR TECHNOLOGIES INC	TSX	DI	Canada
13/08/2002	SOUTHERNERA DIAMONDS INC	TSX	MM	Canada
14/08/2002	THISTLE MINING INC	TSX	MM	Canada
07/10/2004	WESTERN CANADIAN COAL CORP	TSX	MM	Canada
28/11/2003	YAMANA GOLD INC	TSX	MM	Canada
12/06/2002	YM BIOSCIENCES INC	TSX	LS	Canada
02/12/2004	GROVE ENERGY	TSX-V	OG	Canada
18/09/1998	MANO RIVER RESOURCES INC	TSX-V	MM	Canada
02/03/2004	MEDORO RESOURCES	TSX-V	MM	Canada
02/12/2004	SOLANA RESOURCES	TSX-V	OG	Canada
15/12/2004	URUGUAY MINERAL EXPLORATION	TSX-V	MM	Canada

In addition, four Canadian stocks have been admitted to AIM but not TSX (table 4.1.a).

Table 4.1.a: Canadian stocks listed on AIM but not TSX				
AIM Joining Date	**Company**	**Exchange**	**TSX Sector**	**Country of Origin**
30/09/2004	BDI MINING	AIM ONLY	MM	Canada
14/07/2004	HARD ASSETS INC	AIM ONLY	FI	Canada
28/07/2005	SANATANA DIAMONDS INC	AIM ONLY	MM	Canada
06/05/2005	VISUAL DEFENCE INC	AIM ONLY	DI	Canada

Table 4.2: TSX Turnover in Value AIM cross-listed stocks					
CAD million					
	2001	**2002**	**2003**	**2004**	**2005**
ADASTRA MINERALS INC	2	1	11	25	20
ANTRIM ENERGY INC	6	8	20	89	66
AZURE DYNAMICS CORP	-	-	-	15	63
BANKERS PETROLEUM	-	-	-	56	925
BEMA GOLD CORP	31	618	1,854	2,151	1,911
BRAZILIAN DIAMONDS LTD	5	2	28	12	7
CALEDONIA MINING CORP	1	19	36	14	8
CANACCORD CAPITAL INC	-	-	-	133	221
CASPIAN ENERGY INC	0	0	5	49	119
CENTURION ENERGY INTERNATIONAL INC	7	7	54	634	1,661
EASTERN PLATINUM LTD	-	-	-	-	36
EUROPEAN GOLDFIELDS	9	7	11	60	36
FIRST CALGARY PETROLEUMS	12	63	436	1,234	2,443
FIRST QUANTUM MINERALS	37	42	328	694	1,253
GREYSTAR RESOURCES	2	9	23	31	116
GROVE ENERGY	-	-	-	23	124
KIRKLAND LAKE GOLD INC	-	-	63	105	90
MANO RIVER RESOURCES INC	-	0	1	2	1
MARCH NETWORKS CORP	-	-	-	-	181
MEDORO RESOURCES	-	-	-	12	3
MOYDOW MINES INTERNATIONAL INC	2	2	33	3	1
OILEXCO INC	0	1	26	740	397
ONDINE BIOPHARMA CORP	-	-	-	28	20
QUESTAIR TECHNOLOGIES INC	-	-	-	1	3
SOLANA RESOURCES	0	0	1	52	190
SOUTHERNERA DIAMONDS INC	63	284	262	186	22
THISTLE MINING INC	1	37	135	57	-
URUGUAY MINERAL EXPLORATION	-	9	23	59	35
WESTERN CANADIAN COAL CORP	1	1	2	154	263
YAMANA GOLD INC	1	2	130	378	945
YM BIOSCIENCES INC	-	1	14	71	39
Grand Total	**181**	**1,113**	**3,494**	**7,066**	**11,199**

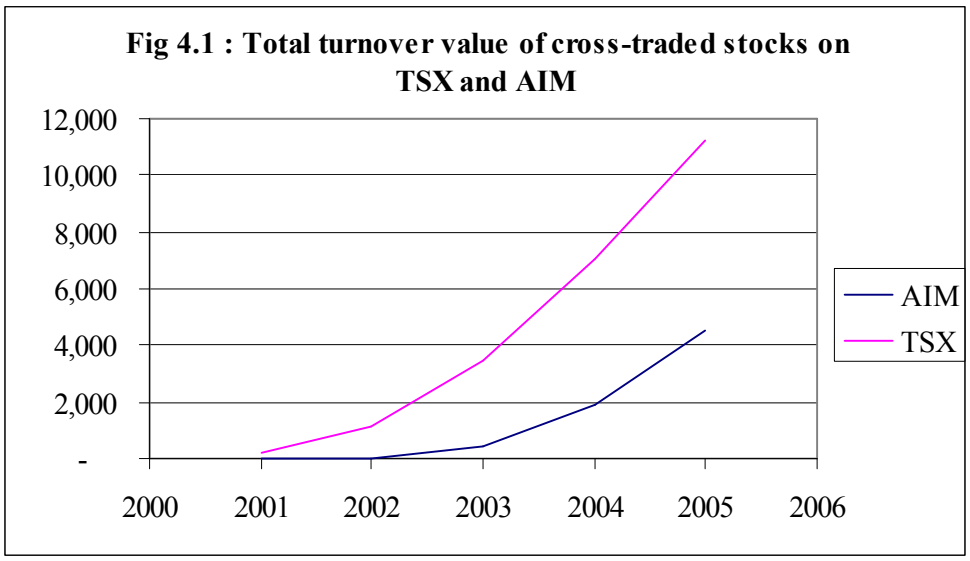
Of the 36 cross-traded stocks, five originate from outside Canada (3 from the U.K. and 2 from BVI). As the focus of this research is on the impact on TSX (and TSX-V) volumes of TSX Canadian stocks joining AIM, we have discarded those stocks that originate from outside Canada and those not listed on TSX or TSX-V. This leaves 31 stocks. Tables 4.2 and 4.3 below show the annual turnover (as measured in thousands of Canadian $) on TSX and AIM in the 31 stocks. Table 4.4 shows the share of business accounted for by the AIM market.

Table 4.3: AIM Turnover in Value TSX cross-listed stocks					
CAD million					
	2001	**2002**	**2003**	**2004**	**2005**
ADASTRA MINERALS INC	-	-	53	52	37
ANTRIM ENERGY INC	-	-	8	20	12
AZURE DYNAMICS CORP	-	-	-	9	81
BANKERS PETROLEUM	-	-	-	-	42
BEMA GOLD CORP	-	-	51	156	103
BRAZILIAN DIAMONDS LTD	-	-	0	16	10
CALEDONIA MINING CORP	-	-	-	-	0
CANACCORD CAPITAL INC	-	-	-	-	7
CASPIAN ENERGY INC	-	-	-	23	71
CENTURION ENERGY INTERNATIONAL INC	-	-	6	33	34
EASTERN PLATINUM LTD	-	-	-	-	3
EUROPEAN GOLDFIELDS	-	-	-	79	107
FIRST CALGARY PETROLEUMS	-	3	92	832	2,390
FIRST QUANTUM MINERALS	1	1	2	4	161
GREYSTAR RESOURCES	-	-	-	19	26
GROVE ENERGY	-	-	-	4	194
KIRKLAND LAKE GOLD INC	-	-	-	94	75
MANO RIVER RESOURCES INC	2	1	6	58	37
MARCH NETWORKS CORP	-	-	-	-	178
MEDORO RESOURCES	-	-	-	17	10
MOYDOW MINES INTERNATIONAL INC	-	-	-	-	0
OILEXCO INC	-	-	2	320	623
ONDINE BIOPHARMA CORP	-	-	-	23	31
QUESTAIR TECHNOLOGIES INC	-	-	-	1	4
SOLANA RESOURCES	-	-	-	19	138
SOUTHERNERA DIAMONDS INC	-	1	9	12	14
THISTLE MINING INC	-	1	131	31	2
URUGUAY MINERAL EXPLORATION	-	-	-	1	34
WESTERN CANADIAN COAL CORP	-	-	-	24	37
YAMANA GOLD INC	-	-	32	63	64
YM BIOSCIENCES INC	-	0	4	8	6
Grand Total	**3**	**7**	**396**	**1,919**	**4,531**

Table 4.4: AIM share of trading value in TSX cross-listed stocks					
AIM%					
	2001	**2002**	**2003**	**2004**	**2005**
ADASTRA MINERALS INC	-	-	83	67	65
ANTRIM ENERGY INC	-	-	28	18	16
AZURE DYNAMICS CORP	-	-	-	37	56
BANKERS PETROLEUM	-	-	-	-	4
BEMA GOLD CORP	-	-	3	7	5
BRAZILIAN DIAMONDS LTD	-	-	1	56	57
CALEDONIA MINING CORP	-	-	-	-	3
CANACCORD CAPITAL INC	-	-	-	-	3
CASPIAN ENERGY INC	-	-	-	32	37
CENTURION ENERGY INTERNATIONAL INC	-	-	10	5	2
EASTERN PLATINUM LTD	-	-	-	-	8
EUROPEAN GOLDFIELDS	-	-	-	57	75
FIRST CALGARY PETROLEUMS	-	5	17	40	49
FIRST QUANTUM MINERALS	1	1	1	1	11
GREYSTAR RESOURCES	-	-	-	39	18
GROVE ENERGY	-	-	-	14	61
KIRKLAND LAKE GOLD INC	-	-	-	47	46
MANO RIVER RESOURCES INC	-	81	91	97	98
MARCH NETWORKS CORP	-	-	-	-	50
MEDORO RESOURCES	-	-	-	59	76
MOYDOW MINES INTERNATIONAL INC	-	-	-	-	3
OILEXCO INC	-	-	9	30	61
ONDINE BIOPHARMA CORP	-	-	-	45	61
QUESTAIR TECHNOLOGIES INC	-	-	-	62	55
SOLANA RESOURCES	-	-	-	27	42
SOUTHERNERA DIAMONDS INC	-	0	3	6	39
THISTLE MINING INC	-	4	49	35	-
URUGUAY MINERAL EXPLORATION	-	-	-	2	49
WESTERN CANADIAN COAL CORP	-	-	-	14	12
YAMANA GOLD INC	-	-	20	14	6
YM BIOSCIENCES INC	-	4	24	10	13
Grand Total	**2**	**1**	**10**	**21**	**29**

The tables show:

- The TSX, itself, has seen growth in that at the start of 2001 only 13 of the 31 stocks were trading on the TSX's markets. Eighteen have joined the TSX in the 5-year period (5 during 2001).
- AIM had only one Canadian stock at the start of 2001 (Mano River Resources which joined AIM in 1998). It attracted one stock in 2001, four in 2002, seven in 2003, 12 in 2004 and six in 2005. This pattern is consistent with the general growth of AIM, which has attracted a large number of companies in the last three years.
- Trading has risen rapidly both at the overall level, as new stocks have joined, and in individual stocks. This has been true on both markets. Figure 4.1 shows the growth in value traded (in thousands) with TSX growing slightly more rapidly than trading on AIM.



- Business is strongly concentrated on both markets. The top 5 by trading value in 2005 represented 73% of the total traded on the TSX in all 31 stocks and 77% of the total traded on AIM in those stocks. Trading on AIM was highly concentrated in two stocks: First Calgary Petroleum, which traded $2,390 million or 68% of the total and, much smaller, Oilexco which traded $623 million or 18% of the total.
- Trading on AIM represents a significant share of the total. Across the 31 stocks, AIM trading represents 29% of the total (TSX + AIM) and has risen over the past five years, partly as a result of new companies joining AIM and partly through growth in its share of existing companies. The

share in several companies was over 50% in 2005, particularly the two companies mentioned above, which represented the major part of the AIM trading in Canadian stocks.

v. Comparison Stocks

In this section we examine the trading of TSX stocks that have listed on AIM to assess whether the AIM trading has been additive or has replaced TSX trading. We have already noted that the general experience of cross-listing is that total trading is increased and that both markets gain.

We have taken the approach of treating the joining of AIM as an event and studied trading volumes on either side of the event.

Five of the current TSX stocks have moved from the TSX-V. The stocks are: Bankers Petroleum, European Goldfields, Oilexco, Ondine Biopharma and Western Canadian Coal. We have not made any analysis of the effect of the move from TSX-V to TSX on these stocks, though this could be an additional area of enquiry for a study looking at the generality of Canadian stocks that have moved from TSX-V to TSX.

Using the trading data (discussed below) plus the AIM joining date taken from the LSE we have, for the five-year period covered by the study, examined the start and end dates on both markets and the period of overlap. Table 5 shows this data for the 31 stocks. TSX First and TSX Last show the first and last month (yyyymm) for which we have TSX trading data, similarly for AIM First and AIM Last. AIM Join is the month in which the stock joined AIM. TSX Only shows the number of months trading data available when the stock was traded only on the TSX (i.e. the months before the month it joined AIM). TSX and AIM is the number of months for which we have trading data for both markets – i.e. the number of months after the month in which it joined AIM.

Table 4.5: Cross-listed stocks - start/end dates and AIM overlap							
Company	TSX First	TSX Last	AIM First	AIM Last	AIM Join	TSX Only	AIM And TSX
ADASTRA MINERALS INC	200101	200512	200309	200512	200309	32	27
AZURE DYNAMICS CORP	200406	200512	200408	200512	200408	2	16
ANTRIM ENERGY INC	200102	200512	200307	200512	200307	29	29
BEMA GOLD CORP	200101	200512	200309	200512	200309	32	27
BRAZILIAN DIAMONDS LTD	200101	200512	200312	200512	200312	35	24
BANKERS PETROLEUM	200406	200512	200507	200512	200507	13	5
CANACCORD CAPITAL INC	200406	200512	200506	200512	200506	12	6
CASPIAN ENERGY INC	200101	200512	200409	200512	200409	44	15
CALEDONIA MINING CORP	200101	200512	200506	200512	200506	53	6
CENTURION ENERGY INTERNATIONAL INC	200101	200512	200306	200512	200306	29	30
EUROPEAN GOLDFIELDS	200103	200512	200403	200512	200403	36	21
EASTERN PLATINUM LTD	200501	200512	200508	200512	200508	7	4
FIRST CALGARY PETROLEUMS	200101	200512	200207	200512	200207	18	41
FIRST QUANTUM MINERALS	200101	200512	200104	200512	200104	3	56
GROVE ENERGY	200406	200512	200412	200512	200412	6	12
GREYSTAR RESOURCES	200101	200512	200408	200512	200408	43	16
KIRKLAND LAKE GOLD INC	200303	200512	200407	200512	200407	16	17
MANO RIVER RESOURCES INC	200203	200512	200101	200512	199809	-42	87
MARCH NETWORKS CORP	200504	200512	200504	200512	200504	0	8
MOYDOW MINES INTERNATIONAL INC	200101	200512	200509	200512	200509	56	3
MEDORO RESOURCES	200403	200512	200403	200512	200403	0	21
ONDINE BIOPHARMA CORP	200404	200512	200408	200512	200408	4	16
OILEXCO INC	200107	200512	200312	200512	200312	29	24
QUESTAIR TECHNOLOGIES INC	200412	200512	200412	200512	200412	0	12
SOLANA RESOURCES	200110	200512	200412	200512	200412	38	12
SOUTHERNERA DIAMONDS INC	200101	200512	200208	200512	200208	19	40
THISTLE MINING INC	200101	200412	200208	200512	200208	19	28
URUGUAY MINERAL EXPLORATION	200203	200512	200412	200512	200412	33	12
WESTERN CANADIAN COAL CORP	200104	200512	200410	200512	200410	42	14
YAMANA GOLD INC	200101	200512	200311	200512	200311	34	25
YM BIOSCIENCES INC	200206	200512	200206	200512	200206	0	42

Table 4.5 shows a number of stocks that were not suitable for comparison (marked with shading in the table):

- One stock , Mano River Resources, joined AIM before joining the TSX. This stock was discarded.[10]
- Four companies – March Networks, Medoro Resources, Questair Technologies and YM biosciences – joined AIM and TSX (or TSX-V) at the same time so there was no period when the stock traded only on the TSX. These were discarded.
- A further nine companies have a very short period of trading (less than 10 months) either before joining AIM (when they were only traded on the TSX) or after joining AIM (when they traded on both markets). In order to avoid confusing issues surrounding new listings from those involving switches between markets, we excluded these companies. Table 6 lists the discarded companies.

[10] One stock, Thistle Mining, appear to have stopped trading on the TSX before the end of the five year study period – last trading on TSX is in December 2004. The company continued to trade on AIM until December 2005 but is no longer quoted on AIM. We saw no reason to discard the stock.

The remaining 17 companies are split between:

- TSX main list always – 12 companies
- TSX main list, moved from TSX-V – 3 companies
- TSX-V – 2 companies

The 17 stocks are all in the Minerals and Mining (12 companies) or Oil and Gas sectors (5 companies).

vi. Results

In this section we present the results of the event study. The study aims to assess whether volumes in the 17 stocks on the TSX have been reduced by the effect of trading on AIM. In the first two analyses, we look at the absolute volumes of the 17 stocks on TSX and on TSX+AIM. In the second two analyses, we examine the change relative to the overall volumes on the TSX and in the two sectors (Minerals and Mining and Oil and Gas) where the 17 stocks are concentrated.

Table 4.6 shows the average monthly share volumes on TSX in the three years leading up to and the three years following entry into AIM. (AIM -1 is the year before joining AIM, AIM -2 the year before that and so on.) Naturally some stocks will not have three years before or three years after – for example Solana, which joined AIM in December 2004, only has entries after joining AIM for AIM+1 and AIM+2 (AIM+2 is an "average" of one month, December 2005)[11].

[11] Note that the month in which the listing occurred "AIM+0" is omitted. This is because that month's data will be a mix of pre- and post- listing values, with a relative importance that will be determined by the point in the month when the listing occurred.

Table 4.6: Average Monthly Volumes on TSX Before and After AIM						
	AIM-3	**AIM-2**	**AIM-1**	**AIM+1**	**AIM+2**	**AIM+3**
ADASTRA MINERALS INC	265,212	141,040	230,914	1,522,482	756,739	1,633,623
ANTRIM ENERGY INC	534,618	374,449	1,657,806	1,923,666	5,485,604	4,107,094
BEMA GOLD CORP	4,631,637	23,879,801	34,690,287	48,243,627	52,117,454	58,908,161
BRAZILIAN DIAMONDS LTD	1,978,585	732,728	4,607,457	1,826,707	1,631,010	
CASPIAN ENERGY INC	97,662	192,380	1,043,497	4,185,690	5,421,246	
CENTURION ENERGY INTERNATIONAL INC	1,285,562	718,525	1,504,883	3,543,906	12,013,855	8,591,767
EUROPEAN GOLDFIELDS	248,877	182,623	798,298	977,010	1,762,798	
FIRST CALGARY PETROLEUMS		1,721,472	2,262,564	7,484,447	9,035,662	13,866,640
GREYSTAR RESOURCES	2,204,011	511,700	1,072,744	1,431,878	2,083,602	
KIRKLAND LAKE GOLD INC		1,644,945	1,912,246	1,930,980	1,819,709	
OILEXCO INC	285,437	250,811	1,605,419	24,421,243	10,223,077	
SOLANA RESOURCES	88,522	50,954	1,439,547	7,135,019		
SOUTHERNERA DIAMONDS INC		2,042,403	3,834,629	3,309,540	4,640,667	5,894,465
THISTLE MINING INC		306,659	3,193,331	12,762,281	23,530,040	98,903,292
URUGUAY MINERAL EXPLORATION	955,276	682,261	1,181,059	612,159		
WESTERN CANADIAN COAL CORP	85,647	233,489	949,602	5,869,291	6,369,601	
YAMANA GOLD INC	652,300	1,261,680	4,992,821	9,845,624	15,567,673	29,897,469

In only 3 of the 17 stocks was turnover volume lower in the year after joining AIM than in the year before: Brazilian Diamonds, Southernera Diamonds and Uruguay Minerals. Two had slight increases, Kirkland and European Goldfields. The other 12 saw substantial increases in volumes.

Looking over the longer period - up to six years - it is clear that turnover in many stocks (e.g. Bema Gold) was rising rapidly before they joined AIM and the rises in AIM+1, AIM+2 etc are likely just a continuation of that process. Equally, some saw turnover increase very significantly in the years after AIM+1 (e.g. Centurion Energy). We would expect that rapidly growing companies would see rapidly growing turnover and a greater tendency to look to access further investors in other markets.

Table 4.7 shows the total picture of average volumes on TSX plus AIM. The figures are identical to Table 6 for the period before AIM, but the years AIM+1 To AIM+3 reflect the business transacted on AIM and TSX.

Table 4.7: Average Monthly Volumes on TSX plus AIM Before and After AIM						
	AIM-3	**AIM-2**	**AIM-1**	**AIM+1**	**AIM+2**	**AIM+3**
ADASTRA MINERALS INC	265,212	141,040	230,914	6,756,387	2,315,109	3,702,924
ANTRIM ENERGY INC	445,515	374,449	1,657,806	2,857,481	6,665,839	4,816,092
BEMA GOLD CORP	4,631,637	23,879,801	34,690,287	51,884,828	54,426,007	63,549,002
BRAZILIAN DIAMONDS LTD	1,978,585	732,728	4,607,457	4,158,102	3,320,461	
CASPIAN ENERGY INC	97,662	192,380	1,043,497	6,781,475	7,963,135	
CENTURION ENERGY INTERNATIONAL INC	1,285,562	718,525	1,504,883	4,216,599	12,304,485	8,860,947
EUROPEAN GOLDFIELDS	248,877	182,623	798,298	2,916,049	6,934,878	
FIRST CALGARY PETROLEUMS		1,721,472	2,262,564	8,244,038	11,767,940	27,267,015
GREYSTAR RESOURCES	2,204,011	511,700	1,072,744	2,388,200	2,211,403	
KIRKLAND LAKE GOLD INC		548,315	1,912,246	4,236,542	2,814,109	
OILEXCO INC	129,744	250,811	1,605,419	33,986,721	26,354,775	
SOLANA RESOURCES	88,522	50,954	1,439,547	12,144,761		
SOUTHERNERA DIAMONDS INC		2,042,403	3,834,629	3,394,064	4,982,880	8,560,459
THISTLE MINING INC		306,659	3,193,331	26,846,519	33,409,854	61,205,137
URUGUAY MINERAL EXPLORATION	716,457	682,261	1,181,059	1,220,212		
WESTERN CANADIAN COAL CORP	85,647	233,489	949,602	6,746,561	6,712,349	
YAMANA GOLD INC	652,300	1,261,680	4,992,821	12,178,030	16,489,008	32,319,196

All stocks except Brazilian Diamonds saw an increase in their total trading following their joining AIM. Some stocks, such as Adastra, saw very substantial interest on AIM – as the AIM market share figures in

Table 4.7 illustrate, and so joining AIM appears to have substantially increased the trading in those stocks.

We have noted that the rise in trading may have been the continuation of a trend. To assess this we analysed trading in each of the 17 stocks in relation to trading volumes on the whole TSX market in relation to TSX trading in the resources sectors. Table 4.8 shows the results for the whole market. The methodology was to calculate a value, which we have called SHARE, as the percentage of total TSX trading by value that each stock represented in each month. The value SHARE was then scaled by multiplying by one million to simplify the presentation (i.e. $SHARE_i = 1{,}000{,}000 * \text{Trading value}_i / \text{Total TSX trading}$).

Table 4.8: Average Monthly Volumes on TSX in relation to total for TSX Before and After AIM

	AIM-3	AIM-2	AIM-1	AIM+1	AIM+2	AIM+3
ADASTRA MINERALS INC	259	140	297	3,421	1,538	2,531
ANTRIM ENERGY INC	1,012	650	2,865	3,577	11,410	7,766
BEMA GOLD CORP	3,170	72,584	141,028	281,963	204,140	188,961
BRAZILIAN DIAMONDS LTD	802	258	3,580	1,387	634	
CASPIAN ENERGY INC	64	134	2,823	10,567	11,339	
CENTURION ENERGY INTERNATIONAL INC	1,382	725	2,392	12,896	169,598	109,821
EUROPEAN GOLDFIELDS	1,512	1,043	2,852	4,727	3,553	
FIRST CALGARY PETROLEUMS		1,574	3,828	36,018	100,376	257,235
GREYSTAR RESOURCES	1,207	1,360	3,592	7,427	14,659	
KIRKLAND LAKE GOLD INC		9,410	10,575	12,446	7,132	
OILEXCO INC	105	126	2,280	88,772	35,565	
SOLANA RESOURCES	38	29	5,055	16,728		
SOUTHERNERA DIAMONDS INC		10,966	31,796	42,811	28,488	3,853
THISTLE MINING INC		100	2,788	15,721	11,553	7,467
URUGUAY MINERAL EXPLORATION	1,690	2,411	7,152	3,302		
WESTERN CANADIAN COAL CORP	83	189	1,817	35,617	19,530	
YAMANA GOLD INC	211	351	5,736	44,596	71,706	210,975

The results in relation to the total market are little different from the absolute results given in table 4.7. Two stocks, Brazilian Diamonds and Uruguay Mineral Corporation (which saw a very small absolute increase), showed a decrease. As with the absolute figures, other companies showed substantial increases. However, it is likely that the resources sector has been growing rapidly relative to the overall market so Table 4.9 shows the same analysis for as table 10, but with SHARE calculated as total trading value in the Minerals and Mining sector and Oil and Gas sectors.

$SHARE_i$ = 1,000,000 * Trading $value_i$ / Total TSX trading in MM and OG sectors

Table 4.9: Average Monthly Volumes on TSX in relation to total for TSX Resource Sectors Before and After AIM						
	AIM-3	**AIM-2**	**AIM-1**	**AIM+1**	**AIM+2**	**AIM+3**
ADASTRA MINERALS INC	1,269	509	1,159	11,210	4,120	5,932
ANTRIM ENERGY INC	4,090	2,662	9,737	11,529	31,058	18,234
BEMA GOLD CORP	13,504	255,595	506,350	910,434	543,261	445,141
BRAZILIAN DIAMONDS LTD	3,369	967	12,843	4,239	1,538	
CASPIAN ENERGY INC	225	522	8,829	27,694	26,434	
CENTURION ENERGY INTERNATIONAL INC	7,279	2,834	8,648	42,998	465,149	263,581
EUROPEAN GOLDFIELDS	5,918	3,591	9,728	13,978	8,145	
FIRST CALGARY PETROLEUMS		7,032	14,065	126,337	324,591	699,784
GREYSTAR RESOURCES	4,329	5,049	11,833	19,734	35,162	
KIRKLAND LAKE GOLD INC		36,830	35,806	33,630	16,852	
OILEXCO INC	396	472	8,036	273,052	89,489	
SOLANA RESOURCES	142	99	14,536	42,062		
SOUTHERNERA DIAMONDS INC		45,123	115,303	151,663	92,064	10,273
THISTLE MINING INC		434	9,948	55,081	38,671	20,598
URUGUAY MINERAL EXPLORATION	6,208	8,603	21,637	8,640		
WESTERN CANADIAN COAL CORP	302	643	5,558	96,147	47,829	
YAMANA GOLD INC	908	1,234	22,200	134,048	184,964	496,979

Some stocks appear to see a sharp rise in year AIM+1 which tails off in subsequent years. This could be a result of specific factors, but equally it could be because the share of the AIM market rises at the expense of the TSX market. To address this we present two analyses – one (Table 4.10) shows the same figures as Table 4.9 but with the AIM market added in, the other (Table 4.11) shows the AIM market share in the years AIM+1 to AIM+3.

Table 4.10: Average Monthly Volumes on TSX + AIM in relation to total for TSX Resource Sectors Before and After AIM

	AIM-3	AIM-2	AIM-1	AIM+1	AIM+2	AIM+3
ADASTRA MINERALS INC	1,269	509	1,159	47,692	12,693	13,700
ANTRIM ENERGY INC	3,409	2,662	9,737	17,120	37,624	21,434
BEMA GOLD CORP	13,504	255,595	506,350	978,375	566,426	481,180
BRAZILIAN DIAMONDS LTD	3,369	967	12,843	9,567	4,224	
CASPIAN ENERGY INC	225	522	8,829	46,268	38,879	
CENTURION ENERGY INTERNATIONAL INC	7,279	2,834	8,648	51,638	474,598	271,458
EUROPEAN GOLDFIELDS	5,918	3,591	9,728	41,237	34,973	
FIRST CALGARY PETROLEUMS		7,032	14,065	140,451	443,616	1,377,450
GREYSTAR RESOURCES	4,329	5,049	11,833	31,589	37,335	
KIRKLAND LAKE GOLD INC	-	12,277	35,806	76,294	25,990	
OILEXCO INC	180	472	8,036	393,642	233,859	
SOLANA RESOURCES	142	99	14,536	75,989		
SOUTHERNERA DIAMONDS INC		45,123	115,303	155,261	98,750	13,086
THISTLE MINING INC		434	9,948	116,201	57,822	11,166
URUGUAY MINERAL EXPLORATION	4,656	8,603	21,637	16,005		
WESTERN CANADIAN COAL CORP	302	643	5,558	111,616	50,485	
YAMANA GOLD INC	908	1,234	22,200	166,082	195,185	537,005

Table 4.10 suggests that the falls in TSX turnover in AIM+2 were part of a general fall in the turnover of the stock which affected the AIM market also.

Table 4.11: AIM Market Share %			
	AIM+1	**AIM+2**	**AIM+3**
ANTRIM ENERGY INC	29.5	14.7	13.1
BEMA GOLD CORP	7.1	4.1	7.2
BRAZILIAN DIAMONDS LTD	50.3	49.6	
CASPIAN ENERGY INC	30.4	28.8	
CENTURION ENERGY INTERNATIONAL	14.6	3.0	3.1
EUROPEAN GOLDFIELDS	66.9	80.1	
FIRST CALGARY PETROLEUMS	9.8	21.2	48.2
GREYSTAR RESOURCES	30.4	8.3	
KIRKLAND LAKE GOLD INC	46.2	35.2	
OILEXCO INC	31.8	57.3	
SOLANA RESOURCES	41.9		
SOUTHERNERA DIAMONDS INC	2.9	6.7	10.7
THISTLE MINING INC	38.1	31.0	77.3
URUGUAY MINERAL EXPLORATION	47.8		
WESTERN CANADIAN COAL CORP	13.1	5.3	
YAMANA GOLD INC	15.6	4.9	7.5
Grand Total	32.0	28.0	41.1

Table 4.11 shows that in general the AIM market share has not increased in the years after a stock joins AIM. In most cases it stabilises or falls. The significant exception is Oilexco where AIM market share has risen (though TSX turnover remains many times its pre-AIM levels). The same is true of European Goldfields – which is a much smaller stock – where TSX turnover remains two to three times its pre-AIM level. (Thistle was suspended on TSX for all of 2005 but still traded on AIM which accounts for AIM's high market share in AIM+3).

vii. Findings and Conclusions

In recent years AIM has attracted a number of Canadian stocks. 31 are currently listed on TSX and have joined AIM. These stocks are mainly in the Resources sectors: Minerals and Mining or Oil and Gas, though there are some from the Technology and Finance sectors.

TSX companies joining the AIM market have mostly seen substantial volumes on that market. Irrespective of any question of additivity to, or replacement of, TSX turnover, the Canadian stocks that have joined the AIM market have collectively seen substantial turnover in London. In 2005 AIM turnover in TSX listed stocks represented 29% of the total (TSX+AIM) trading in those stocks.

Growth of volumes has been rapid on both markets. Since 2002, turnover in the cross-traded stocks on TSX has more than doubled each year. Growth on AIM has been even more rapid reflecting the influx of companies in the last two years. In 12 of the 31 TSX stocks that have joined AIM, trading on AIM represented over 50% of the total in 2005

Business on both markets is highly concentrated with AIM showing the higher level of concentration. The top five stocks by trading value in 2005 represented 73% of the total traded on the TSX in all 31 stocks, and 77% of the total traded on AIM in those stocks. Trading on AIM was highly concentrated in two stocks: First Calgary Petroleum, which traded $2,390 million or 68% of the total; and, much smaller, Oilexco, which traded $623 million, or 18% of the total.

Comparison of volumes before and after joining AIM suggests that the TSX stocks have experienced substantial volume growth on the TSX market. Only three of the 17 stocks selected for comparison saw falls in TSX trading (relatively small in two of the three cases), most of the 14 saw large increases.

Comparisons of before and after TSX turnover, making adjustments for TSX overall volume growth and the (more rapid) growth in the resources sector volumes, suggest that the TSX stocks that listed on AIM saw more rapid growth in volumes than the market as a whole and than the resources sector as a whole.

While it is conceivable that the stocks that TSX stocks listing on AIM would have seen even more rapid growth in volumes if all their volumes had been on the TSX, the scale of the increases in volume on the TSX are rather too large and it is more likely that, as has happened in other cross-traded stocks, the increase in overall volumes represents a combination of technical (arbitrage) trading and the increased interest caused by involvement of a wider group of investors.

Similarly, while we would expect that companies that were seeking to access new pools of investment would generally be relatively more dynamic and so tend to be showing volume growth greater than their less dynamic peers, again the scale of the relative (to the market and sector) increase before and after joining AIM suggests something more than increased interest generated by purely internal factors. We therefore conclude that it is unlikely that TSX turnover would be higher if the companies had not joined the AIM market. Therefore, AIM has added additional business in its own right and stimulated greater interest in the domestic market.

It is worth considering the longer term. The historical pattern has been for cross-trading to initially lead to overall volume increases and substantial market share for the foreign market. However, over time, volumes (at the new higher level) tend to concentrate into the domestic market and trading in the foreign market decreases, and its share of the total market shrinks to a low level. This process is not fully understood but is always reckoned to be caused by two factors:

- There are economies of scale and network effects in concentrating trading in one market, so eventually all the trading will tend to be on the domestic market or on the foreign market.
- The domestic market has a number of advantages - including investor interest, direct access to information on the firm which is generated during the trading hours of the domestic exchange, currency, and settlement - that tend to give it the long-term advantage.

This appears to be true as long as the domestic market is not too unattractive to foreign investors. Wherever this has been a factor, the domestic market has been able to make sufficient improvement to ensure that it eventually becomes the dominant market of the (increased) volumes. The message of history is that domestic markets have to be pretty appalling in order to permanently "lose" market share to foreign markets – and to date this has not happened.

a) Annex – Literature References

Baruch, S., Karolyi, A. and Lemmon, M.L. (2003) Multimarket Trading and Liquidity: Theory and Evidence, Working Paper, University of Utah, December.

Chowdhry, B. and Nanda, V. (1991) Multimarket Trading and Market Liquidity, Review of Financial Studies, vol. 4, no. 3, pp. 483-511.

Foerster, S.R. and Karolyi, G.A. (1993) International Listings of Stocks: the Case of Canada and the U.S., Journal of International Business Studies, vol. 24, no. 4, Fourth Quarter, pp. 763-784.

Halling, M., Pagano, M., Randl, O. and Zechner, J. (2004) Where is the Market? Evidence from Cross-Listings, Discussion Paper, University of Vienna, March.

Karolyi, G.A. (2003) DaimlerChrysler AG, the First Truly Global Share, Journal of Corporate Finance, vol. 9, no. 4, September, pp. 409-430.

Knight, R.F. and Pretty, D.J. (2003) Depositary Receipts: Investing in a World Class Asset, Oxford Metrica, June, 22 pages.

Pulatkonak, M. and Sofianos, G. (1999) The Distribution of Global Trading in NYSE-Listed Non-U.S. Stocks, NYSE Working Paper 99-03, March

6. Conclusions

This section reprises conclusions from the analyses in the report . It is divided into three sections mirroring the structure of the report:

- The AIM market
- Effects on returns
- Cross-market trading

i. The AIM Market

This paper investigates a number of aspects of the AIM market operated by the London Stock Exchange. The AIM market has been operational for over 10 years – a significant achievement in itself as other smaller-capitalization or growth markets have fallen by the wayside. AIM currently (End Feb 2006) has some 1,426 (1200 U.K., 226 foreign) companies traded with a total market value of £65 billion. AIM includes a number of larger stocks : currently (Feb 2006), the largest has a market value of £1,662 million – but the usual size for AIM Stocks is below £250 million. Up to January 2005, when AIM had admitted 1,035 stocks, some 376 stocks have left the AIM market: 93 to the Official List (only 15 since 2001), 138 to takeovers and 145 for "Other" reasons including failure.

AIM is distinguished primarily by a different regulatory regime. In the U.K., listing of stocks is the responsibility of the FSA. The LSE admits listed stocks for trading but the main regulatory responsibilities (and revenue) lie with the FSA. AIM stocks are regulated by intermediaries - Nomads - and the LSE regulates the Nomads. AIM enjoys a number of advantages, such as special tax breaks. AIM companies face disclosure requirements that, in practice, are the same as those for listed companies. AIM companies are able to effect takeovers using shares without seeking approval from shareholders. Companies joining AIM are not required to have a track record.

In recent years AIM, which is actively marketed by the LSE, has sought to attract foreign companies. Companies listed in a list of markets – including all major markets – may be admitted to AIM through a process that does not require a separate prospectus. AIM has been successful in attracting foreign companies, including 31 Canadian stocks. Naturally companies have diverse reasons for joining AIM but our sense from discussions is that the Canadian companies felt that AIM would give them access to a different (European) pool of capital.

Trading on AIM has traditionally been through the competing market-maker mechanism: registered market-makers are obliged to post firm two-way quotes and execute business at (or better than) those quotes. In practice, since many AIM stocks are relatively illiquid quote spreads are relatively wide. Most significant trading was done by negotiation conducted by brokers (who would likely be Nomads). Market-makers generally improved on their posted quotes when trading. This was the regime for the period analysed in this report. More recently, the LSE has introduced a hybrid trading system, SETSmm, which has committed principals making continuous quotes combined with an electronic order book.

AIM has been the market of choice for smaller capitalisation companies in the U.K., both in terms of it being the place where new companies issue and in terms of attracting transfers from the Official List. AIM has attractions, which we have mentioned, but our overall conclusion is that the tangible advantages for issuers are not large: disclosure requirements and entry requirements are in practice fairly similar and so on. We suspect that the attraction of AIM is partly better coverage, partly motivation (on LSE and Nomads) to sell AIM, but mainly because there is a considerable bandwagon effect: AIM is the place to be because it is the place to be. We discussed this recently with someone involved in the early days of AIM who described the marketing strategy as creating an "aspirational brand" and a "community from the very start", and this was only likely to work with a brand new market. Leaving aside the marketing, there is clearly a clustering or network effect working to AIM's advantage.

ii. Effect on Returns

A key question for the Task Force is whether investors see AIM as inherently less well-regulated than the Official List market and whether they demand a return premium for this. There is a perception that AIM is a more risky market – though no significant U.K. institutional investors any longer bar investment in AIM stocks. It is widely known that AIM stocks tend to be smaller than Official List stocks: that is the purpose of the market, to provide a venue for issuance and trading of smaller-capitalization stocks.

It may be that this reflects not the effect of regulation but of other factors affecting AIM companies. In particular we found that the average age of AIM stocks was very much lower than the average age of similarly sized Official List stocks. Our interviews have identified age as a significant risk factor for investors – they tend to see stocks with a time since listing/joining AIM of less than three years as inherently more risky. Most current AIM stocks joined AIM within the last three years. Aside from its effect on perceptions, this made empirical comparisons difficult. Fortunately there has been a significant

level of movement between the two markets – in recent years mainly from the Official List to AIM – and we were able to use these switchers to draw comparisons which abstracted from the age effect.

In an earlier study using transaction data, the authors have demonstrated that the level of risk, as measured by volatility, of stocks that switch between markets is not significantly higher. The main conclusion that came out of that analysis is that the initial perception that AIM has higher volatility than the Official List is perfectly understandable - especially given the marked age difference. Our simpler analyses - for example, attempts to create industry-based portfolios for comparisons - generally found a large difference between volatility of AIM and Official List stocks. However, as we moved to more complex analyses focussing on switching stocks to eliminate other risk-related features, the difference dwindled or vanished. The overall conclusion was that the analysis of switchers shows that the differences in volatility when stocks switch between AIM and the Official List are very small, usually not significant statistically and tend, if anything, to indicate a slightly lower volatility when on AIM.

It is worth speculating briefly as to why AIM might not be more risky than the Official List. By and large those we have spoken to and the literature we have reviewed have suggested that the regulatory differences, while important in attracting companies to AIM, may not have a large effect on investors because:

- initial and on-going disclosure requirements are similar;
- nominated advisors are strict in ensuring companies comply with higher standards than the basic requirements;
- the lower free-float requirements for AIM are rarely an issue as, we understand, most advisors would insist on an AIM issue having similar free float to the Official List requirement;
- the lower requirements for consulting shareholders on corporate actions are rarely a problem, although in special cases one can see this might not be true;
- the shorter track-record requirement, which could be an important risk factor, is less important than one might expect, largely because the minimum requirements for AIM and the Official List both lie within the “young company” time horizon of two to three years.

The analysis in this report has focussed on the effect of the switch between market segments on returns. Our initial expectation was that since there was no discernable effect on risk, there would be no effect on returns. The analysis generally confirmed this:

- Stocks switching to AIM do not display significantly improved performance following the switch, compared to their position at the time of the switch.
- Stocks switching to the Official List display marginally worse performance following the switch.
- In both cases the number of statistically significant changes was small, and among the significant changes, gainers and losers were roughly equal in number.
- We find that these results are true in the immediate aftermath of the switch and persist for the medium- and longer-term.

It would be paradoxical if switching to AIM led to an increase in return and no increase in risk, and would suggest market failure though it would be consistent with a mistaken perception of greater riskiness on AIM. Overall, the results are consistent with no significant "AIM effect" in which firms switching to AIM benefit or lose. It is certainly not true that a switch to AIM is taken by investors as an overall negative development.

iii. Cross-Border Trading

In recent years AIM has attracted a number of Canadian stocks. Thirty-one are current TSX stocks and have joined AIM. TSX companies joining the AIM market have mostly seen substantial volumes on that market. Irrespective on any question of additivity to, or replacement of, TSX turnover; the Canadian stocks that have joined the AIM market have collectively seen substantial turnover in London. In 2005, AIM turnover in TSX listed stocks represented 29% of the total (TSX+AIM) trading in those stocks.

Growth of volumes has been rapid on both markets. Since 2002, turnover in the cross-traded stocks on TSX has more than doubled each year. Growth on AIM has been even more rapid reflecting the influx of companies in the last two years. In 12 of the 31 TSX stocks that have joined AIM, trading on AIM represented over 50% of the total in 2005

Comparison of volumes before and after joining AIM suggests that the TSX stocks have experienced substantial volume growth on the TSX market. Only three of the 17 stocks selected for comparison saw falls in TSX trading (relatively small in two of the three cases), while most of the 14 saw large increases.

Comparisons of the periods before and after TSX turnover (making adjustments for TSX overall volume growth and the (more rapid) growth in the resources sector volumes), suggest that the TSX stocks that

listed on AIM saw more rapid growth in volumes than the market as a whole and than the resources sector as a whole.

While we would expect that companies that were seeking to access new pools of investment would generally be relatively more dynamic and so tend to be showing volume growth greater than their less-dynamic peers, again the scale of the relative (to the market and sector) increase before and after joining AIM suggests something more than increased interest generated by purely internal factors. We therefore conclude that it is unlikely that TSX turnover would be higher if the companies had not joined the AIM market. Therefore AIM has added additional business in its own right and stimulated greater interest in the domestic market.

The historical pattern has been for cross-trading to initially lead to overall volume increases and substantial market share for the foreign market. However, over-time volumes (at the new higher level) tend to concentrate into the domestic market and trading in the foreign market decreases, and its share of the total market shrinks to a low level.

John Board
Alfonso Dufour
Charles Sutcliffe
Stephen Wells

ICMA Centre
University of Reading
U.K.