The
STOCK EXCHANGE OF SINGAPORE:
Recent developments

by

Steven D. Dean

A research paper submitted in fulfillment of the requirements for 3 credits, GRADUATE INDEPENDENT PROJECT IB 750, Fall Term 1987, Professor Lim, Faculty Supervisor.

Faculty Comments

(Evaluative comment in which the faculty supervisor should briefly describe the nature of the research project and add an avaluating comment.)

____
Signature of Facutly Supervisor

____
Title

In 1987 Singapore is a country on the verge of becoming fully developed. On 2 December 1985 the Stock Exchange of Singapore (SES) suspended trading for three days due to the crisis of confidence caused by the collapse of Pan-Electric Industries and the subsequent revelation of widespread forward trading and buy-back schemes within the exchange. Singapore is now facing many issues common to bourses (i.e. stock exchanges) in developing countries. This paper will examine the SES as an example of a emerging security market, the regulatory environment that existed before the default of Pan-El, how regulators dealt with the crisis, and how regulations have evolved since the reopening of the market on 5 December 1985. Also, this paper will examine the development of a second equities market in Singapore and the privatization of Singapore government holdings. Finally, this paper will analyze the liquidity and efficiency of the Singapore market and the overall attractiveness of the market to investors.

The Stock Exchange of Singapore: A Brief Overview

The SES, like the New York Stock Exchange, is an auction-style market. The exchange offers equities that are divided into seven groups: Industrial and Commercial, Finance, Hotel, Property, Plantations, Mining, and Debentures Bonds and Loan Stocks. 317 companies with a paid-in-capital of S$ 28.29 and a 31 December

1986 market capitalization of S$ 86.29 billion are listed on the exchange. Also, the exchange is divided into two sections; these sections are divided on the basis of the quality of the listing. The SES has three trading sessions each day: the first is from 10:00AM until 11AM, the second from 11:15AM until 12:30PM, and the final session is conducted between 2:30PM and 4:00PM. Commissions are fixed and normal trading requires the purchase of lots of 1,000 shares, although more expensive counters are sometimes sold in lots of 500 or 100. [1]

Developing Securities Markets: The Framework

In his description of developing countries and the internationalization of the world financial system, Rybczinski (1986) points out that financial markets and systems pass first through the "bank-oriented phase" then move to the "market-oriented phase" before they finally develop into the "strongly-market-oriented phase." In the bank-oriented phase, investors obtain their funds from savers through financial intermediaries. In the market-oriented phase investors acquire more funds directly from savers, who are willing to invest in risk capital. In the strongly-market-oriented phase investors raise even greater amounts of their capital requirements through direct capital markets, and new instruments develop which hedge risk. Rybczynski further contends that developing countries are currently in the bank-oriented phase. The question for Singapore, a developing country is this: "What is the use and importance of an equity market in a country in the bank-oriented phase?"[2]

In his examination of Emerging Securities Markets, Antoine W. van Angtmael provides a number of answers to this question. First, corporations in countries with underdeveloped equity markets rely too heavily on debt. High debt to equity ratios engender high agency costs of debt as well as increased cost of financial distress. Also, risk capital gives savers the opportunity to reap higher rewards than they can through financial intermediaries. Through competition with the capital markets, intermediaries will have to reward savers at a rate closer to the true market value of funds. Through the market mechanism savers allocate funds to where they are most useful. Start-up ventures that have good prospects will not face as much difficulty raising funds. Also, securities markets bring higher accounting standards with them to the nation.[3]

Angtmael cites the problems emerging securities markets face. First, all markets go through inevitable cycles. Markets will act as sporadic, not steady sources of capital. Second, interest rate fluctuation can lead to increased demands for funds (due to the desire to borrow as a hedge against inflation), which will make it more difficult for corporations to raise funds through the capital markets. Third, even capital markets engender intermediation costs. These costs are, however, borne by the beneficiaries of the intermediation - companies who issue equity, and investors who purchase it. Finally, regulation is necessary due to the newness and size of the market.[4]

Ayling (1986) shows that equity markets with a number of qualities will more easily attract both domestic and international capital than equity markets that lack these characteristics. These include high standards of auditing and disclosure by publically traded companies. Bourses also need listing standards that are high enough so as to ensure that traded issues represent quality companies. Insider trading must face control, and supervision must guide the market floor. Underwriting procedures that safeguard against default must be in place. Also, investors need access to information quickly and accurately. A country with a tradition of highly qualified, professional trading will more easily attract overseas investment; a safe political environment is important also. Finally, to attract investors a bourse needs a good supply of quality companies to list on the exchange from which investors may choose.[5]

Angtmael suggests a number of characteristics to look at when evaluating the liquidity and efficiency of a securities market. Market capitalization and the number of listings are two criteria to check; markets with low capitalization and few listings will tend to be inefficient and illiquid. Among the companies listed, a comparison of the country of incorporation as well as an industry breakdown is valuable in order to evaluate what national economies will influence market performance. Market turnover indicates the level of trading that takes place over a period; the higher the turnover, the more liquid that market is. The "float" tells what percentage of shares are available for trading by the general public (versus the amount controlled by insiders); high floats indicate liquid markets - shares can be easily bought and sold. Another comparison of interest is the weight of individual versus institutional investors in a market. Also revealing is the constraints a government may put on domestic savings. Finally, markets need evaluation on their stand on foreign ownership of stock and the taxation of capital gains and dividends earned by foreigners.[6]

Finally, Angtmael lists several "models for regulation" of securities markets worldwide. The "US model" features comprehensive market regulating legislation, high standards of disclosure and reporting, penalization of market manipulators, and general legislative oversight of the trading industry. The "British model" on the other hand stresses high listing requirements, and industry self-regulation with little official legislation relating to the market; this more informal system favors brokers over investors and has less power of enforcement over the industry. The "New model" follows the US model in terms of legislation, but seeks to nurture a developing market through protection from overegulation.[7]

<u>SES Regulatory Environment in December, 1985</u>

The SES has been in existence since May 1973 when the Malaysian government forced the split of the joint Stock Exchange of

Malaysia and Singapore. Since that time all Malaysian and Singapore- incorporated equities have continued to be listed on both exchanges. After the split, the Kuala Lumpur Stock Exchange (KLSE) has allowed no new foreign listings. Singapore, however, has followed a policy of virtually automatic listing of KLSE issues. By the end of 1985, the SES traded 183 of the 222 Malaysian KLSE listings as well as a handful of foreign listings traded on the SES. This compares with the 122 Singapore- based equities that also traded on the SES.[8]

Prior to the Pan-El crisis foreigners could hold shares traded on the SES and Singaporeans could also invest overseas. No foreign broker, however, could trade on the SES, although in his speech of 25 October 1985, the SES chairman indicated that the situation might soon change. All commissions were fixed-rate. Although Singapore had no capital gains tax, investors did pay a 40% withholding tax on dividends and interest. Any foreigner wishing to borrow funds in excess of S$5 million (for example, to invest in the SES) required approval of the Monetary Authority of Singapore (MAS).[9]

The SES, traditionally self-governing, followed the British model of security market regulation. The Securities Industry Act (SIA) of 1973 governed the industry. The SIA contained laws common to all developed bourses, prohibiting insider trading and the rigging of share prices. Also, the SIA required a float of at least 500 investors who own at least 25% of shares issued. In recent times the MAS, the quasi-central bank of Singapore, had cut its staff size by 20%. Also, the MAS had taken increasing authority over enforcement of the SIA away from the governing SES committee which traditionally had policed the trading activities on the SES. Thus, the MAS placed distance between regulators and brokers during a time when those reglators were experiencing declines in manpower.

Forward contracts were legal, and buy-back dealings had occurred since 1980. Trading was done by paper scrip, which did not have to be delivered until the date of sale, often months later. Thus "deals would only be booked a couple of days before settlement, defying detection by the SES until they appeared in the brokers account."[10] Additionally, no rule prohibited the sale of scrip before delivery was taken, further impeding regulatory oversight.

Hence, going into December, 1985, the SES found itself depending on the judgement of Malaysian authorities to determine the quality of many listed shares and an understaffed domestic agency to police its security industry. The additional allowance of forward trading combined with regulator's inability to see through the maize of trading created an environment ripe for disaster.

The Pan-El Crisis

In an action unprecedented on any other major world bourse, the SES suspended trading on 2 December, 1985 in an effort to limit the damage caused by the default of Pan-Electric Industries. The KLSE immediately followed suit. Pan-El moved into default when it was unable to pay S$7.3 million on aggregate debt of S$400 million, much of which was used in buy-back schemes to artificially inflate the value of Pan-El and associated shares. In the ensuing panic, it was revealed that between them, brokers had buy-back arrangements valued at upwards of S$2-3 billion.

Much of this crisis can be viewed as a response to Malaysia's "bumiputra" policy, whereby the governement is forcing Malaysian Chinese entreprenuers to sell large amounts of their equity in Malaysian incorporated companies to indigenous Malays. *The Far Eastern Economic Review* states:

> Proprietors . . . undertook to buy back the shares they issued . . . to avoid the dilution of their control over the quoted vehicle. But to avoid losses themselves on such buy-backs, the control groups had to support the prices of their own companies in the market. To finance these buy-backs and market-support operations, control groups . . . borrowed heavily from banks and from brokers with shares as collateral. Because lending banks insisted on a basket of shares, the groups were encouraged to form further cross-holdings, complicating corporate relations even more.[11]

As the MAS intervened, it outlawed forward dealings, instead requiring the immediate delivery of scrip; it declared the SES under the direct authority of the MAS; it established a tax of 0.25% on all transactions to fund a S$12 million broker-relief fund; and it pledged to overhaul the Securities Industries Act. The transaction tax was established strictly to benefit brokers in their difficulties with inter-broker buy-back plans; it did not affect broker-bank or broker-client relations. In all, about 4,500 small investors, owning 46.1% of Pan-Electric were left exposed.

The MAS exerted pressure on brokers' banks not to call loan obligations of the brokers, arranging a three-month moratorium on the loans. Of the almost S$1 billion of debt (excluding forward-dealing debt of S$617 million) owed to the banks, brokers owed S$715 million to foreign bankers and S$241 million to Singaporean banks. In imposing the loan moratorium, the MAS restricted the freedom of choice of the foreign institutions.

The MAS committee given power to oversee the SES consisted of eight members: four bankers, representing each of Singapore's four largest banks, three brokers, and one MAS representative. On 20 January 1986 these banks forced the SES to agree to the creation of a new seat on the exchange for each bank. Thus, the four Singapore banks had the "unusual opportunity" to act as both brokers on the SES and regulators of it - a clear conflict of interest situation.[12]

Post Pan-El Regulations

Since December 1985 the SES has continued to evolve toward the "US" market model as regulators have established new trade guidelines and the MAS has taken more authority in the oversight of the SES. Two types of contracts are now permissible: ready and settlement. A ready contract states a fixed delivery and date of sale in the immediate future. A settlement contract sets delivery and settlement four weeks hence and requires higher margins than did pre-1986 contracts. Additionally, both contracts require dealers to recognize a common settlement date. Also, the MAS has made provision for the establishment of surprise audit teams to monitor broker liquidity and adherence to margin requirements. Exhibit 1 shows the specific limits of dealer exposure to clients and issues as well as caps on lending and indebtedness under the new Securities Information Act.

The new SIA requires that before brokers make share recommendations, they have a "reasonable" knowledge of both the financial backing of the equity in question and the individual needs of the client.[13] To encourage foreign investment, the government has: "exempted from tax the capital gains and trading income derived from non-resident funds under management."[14]

The refusal throughout 1986 of the SES to sell trading seats to foreign brokerage houses continued to hinder foreign investment and market liquidity. In July 1986 the SES governing committee (of which four of the eight members werre Singapore banks with seats on the bourse) reaffirmed their unwillingness to allow foreign investors to purchase more than 49% of any SES brokers' equity. On 25 October 1986 the SES annual meeting approved the new distribution of governing board seats as follows: four seats to stock brokers and five to outsiders - of which minimally two must represent listed companies or the public.

1987 Regulatory Changes

Prior to Black Monday (Black Tuesday on the Asian markets) the SES had returned to health: turnover in the first quarter of 1987 was S$ 4.92 billion (versus S$ 8 billion in all of 1986) and the level of market capitalization reached U.S. $26.62 billion in September, up from U.S. $12.1 billion eighteen months previously; Profits to Earnings ratio were in the 40s - double their level of January 1986. The S$ 180 million lifeboat established to aid brokers was wound down. (The five most adversely affected firms had only borrowed S$ 15 million from this fund). The MAS implemented a new settlement system which required that all transactions be registered; this was expected to increase market turnover substantially since many foreign transactions currently were transacted outside of the exchange. The SES published a list of 190 stocks with which margin trading was allowed; in margin transactions purchasers were required to pay 30% of the value of the shares traded. Commission were still fixed rate, but a move to negotiated commissions was under consideration.

Also, by June 1987 the new board had allowed eight foreign dealers (Hoare Govett, Kuwaiti Investment Office, Morgan Grenfell, Bankers Trust, Deak Morgan, Elders IXL, and a partnership of Gulf International Bank and the Bank of Bangkok) to buy 49% of local investment houses with seats on the bourse. A survey at this time revealed the unsurprising fact that 78% of local brokers surveyed oppossed the sale of seats to foreign competitors. Thus, it was also not unexpected that the SES arbitrarily rejected the applications of four other foreign brokers (including Standard Chartered Bank) to buy minority shares of Singapore houses with seats on the SES. With these rejections the SES also suspended its acceptance of further applications. The only possible path for a foreign stock broker to gain a seat on the SES was through the wholly unacceptable option of the purchase of one of the SES firms that had failed in the Pan-El crisis with the assumption of the liabilities of the failed firm. Firms whose minority purchase of local firms was approved were required to have at least S$10 million in capital and to pay the purchase price of the SES seat as well as for the infrastructural support necessary for the operation - an estimated S$20 million investment. In order to earn the privilege of majority ownership of a seat on the Singapore exchange a foreign broker must for three years demonstrate active support of new markets, visibly show technology transfer and improvement of acquisition research and service capabilities, and give proof that over 50% of business transacted is foreign in origin. If foreign brokers pass these hurdles they may increase their level of ownership to 70%. 100% ownership is only possible in the distant future.

Scripless Trading: SESDAQ

In 1987 the Stock Exchange of Singapore Dealers Automatic Quotation (SESDAQ) was established to facilitate the issuance of stock shares of companies that would not qualify according to the requirements listed in Exhibit 1 for listing on the main SES board. SESDAQ shares are traded electronically rather than with scrip as is done on the SES. The aim of issuance of shares on the SESDAQ is to prepare companies for eventual share listing on the SES. To qualify for SESDAQ listing a company must have been in operation for three years; also, firms must issue a minimum of 500,000 shares, worth at least 15% but not over 50% of firm value. The 50% upper limit is to prevent issuers from abandoning the business upon receipt of the share capital. Through the Small Enterprise Bureau of the Economic Development Board the government of Singpapore assists businesses which desire to list on the SESDAQ with management, legal, and accounting issues that arise in the course of listing.

Singapore National Printers (SNP), the first SESDAQ listing, met with success when it was issued in Febrtuary, 1987. The 4.5 million shares, valued at S$ 1 each were 119 times oversubscribed. The share price rose to $2.80 by the end of the first trading day and turnover averaged 936,000 shares per day over the first three days of trading. Unfortunately, subsequent trading levels have not sustained these initial levels. As the table below demonstrates, both SNP and Tibs, the second SESDAQ issue, have shown dramatic declines from initial trading levels.

Estimated Volume of Shares Traded (in Thousands)

Trading Days	SNP	Tibs
Day 1 - 10	8,086	15,953
Day 11 - 20	5,191	4,683
Day 21 - 30	3,204	2,287
Day 31 - 40	2,394	1,772
Day 41 - 50	2,308	1,588
Day 51 - 60	1,034	-

Source: The Straits Times, July 11, 1987, p. 19.

By November, 1987 daily volume for the seven SESDAQ listings had fallen to 200,000 shares per day. Prior to Black Monday the level of the SES in 1987 had risen 34%; even during this bull market SESDAQ issues saw only marginal increases in share value. Part of this low level of interest was due to the difficulty required to purchase SESDAQ shares. Initially, to purchase shares investors were required to open SESDAQ accounts with the Central Depository and then wait 24 hours before purchasing shares. The Depository charged shareholders S$ .01 per day for their scrip account. Also, shares had to be sold through the same broker who bought them. Further decreasing liquidity was the requirement that shares be bought in lots of 1,000. With some initial offerings market makers completely liquidated their positions. The SESDAQ computer listed only dealer quotes and deals that had already been struck. Brokers were often difficult to reach by phone and often changed the quotes listed on SESDAQ computers if the customer did not purchase the volume listed.

To overcome these difficulties, the SES institued a number of reforms in the SESDAQ in July, 1987. First, buyers are now allowed to purchase SESDAQ shares before opening their account with the Central Depository. Also, shareholders can now sell SESDAQ shares through any broker - regardless of which agent was used to purchase the shares. The Central Depository no longer charges for its script accounts and the minimum lot size was decreased to 500 shares. Brokers must now dedicate 2 phone lines to SESDAQ orders and market makers must quote volumes of at least 2,000 shares with a difference in the bid-ask spread of no more than 5%.

Although these reforms should clear up liquidity difficulties with SESDAQ sales, the lack of attractive listings still presents a problem. To overcome this, the SESDAQ has pursued linkages with the National Association of Securities Dealers Automatic Quotation (NASDAQ) is the U.S., and the Stock Exchange Automated Quotation (SEAQ) in the U.K. 35 NASDAQ stocks were scheduled to be listed on the SESDAQ on November 30th. Due to Black Monday, this link-up has been delayed until February or March, 1988. Singapore authorities are to be given credit for their attempts to increase interest in the SESDAQ, but it remains to be seen whether or not their efforts will significantly deepen and liquify the market.

The Privatization of Singapore, Inc.: Divestment

Along with the SESDAQ, the SES is attempting to deepen its market. The most significant step toward this is the divestment of many Government Linked Corporations (GLCs) as outlined by the "Report of the Public Sector Divestment Committee" (21 February 1987). The committee recommended that the privatization of as many GLCs as possible, with the exception of those GLCs that are unprofitable, that have links with foreign governements, or that are single project entities. The committee gives three reasons for privitization: first, to withdraw the government from businesses which no longer require direct involvement by the public sector; second, to broaden and deepen the SES through the introduction of new listings and the release of more shares of current listings; and finally, to reduce or eliminate government competition with the private sector.[15]

At the beginning of the committees' evaluation, 634 GLCs existed. The committee examined 99 GLCs and recommended the total privatization of 17 companies, and partial privatization of 24 GLCs. (Exhibit 11 lists these GLCs) The committee also recommended that 25% of four of seven statuatory boards examined be privatized. At market levels at the time of the report, this would have added S$ 5.91 billion to the value of the market - a 20% increase in the level of market capitaliztion. 25% of the four statuatory boards, Civil Aviation Authority, Port of Singapore Authority, Public Utilities Board and Telecoms, account for S$ 3.03 billion of this amount.

The committee recommends that the government take ten years to accomplish this divestiture. The ten year guideline is based on an estimate by the committee of the capacity of the market to absorb from $590 to 700 million in new issues per year. This estimate is based on the absorption of new issues in the SES from 1976 through 1985. It does not take into account inflows of funds from CPF funds (below), foreign investors, or local investors who will have excess funds for investment if the suggested separation of the SES and the Kuala Lumpur Stock Exchange occurs (see below). [16]

A question exists about the political will of the Singapore government to privatize. The government can profit greatly from timely divestiture. The government owns 63% of Singapore Airlines. Prior to the crash of October, if the government had sold 10% of its share in the airline, it would have collected almost as much capital as it did when it initially offered 37% of the carrier several years earlier. Between May and June, 1987 the government did divest portions of three holdings worth S$ 172 million.

During 1987, however, Singapore has completed a S$ 6 billion construction of a mass rapid transit system. The Mass Rapid Transit Corporation (MRTC) was to be privatized in November to raise the S$ 100 - 200 million in capital necessary to run the system. The rationale for listing the corporation before it began operation was based on the fact that the MRTC will not have to repay the S$6 billion cost of construction. It will only have to pay for its operating expenses. Thus, the corporation is virtually guaranteed to turn a profit. In August, 1987 the government suddenly reversed its logic and announced that it was in the best interest of potential shareholders for the MRTC to operate as a government-owned entity before privatization. No cost projections for the MRTC had changed - only the disposition of the Singapore government toward an attractive divestiture had.

Market Liquidity and Efficiency

The Pan-El crisis raises questions that each equity market - developed or developing - needs to examine: namely, the liquidity and efficiency of the bourse. A divorce between the SES and the Kuala Lumpur Stock Exchange is often mentioned as a possible result of the Pan-El crisis. A de-listing of Malaysian incorporated companies would have a large impact on the liquidity and depth of the SES. In 1986 Singapore-incorporated stocks accounted for 56.2% of the volume of SES trades and 72.9% of transaction value. Shares incorporated in Malaysia accounted for 43.6% of SES volume and 26.7% of the value of SES trades. As noted above, 58% of the companies listed on the SES are incorporated in Malaysia. If the divestment of GLCs procedes as slowly as is projected above, a complete separation between these two exchanges will have a grave impact on SES liquidity and efficiency.

Even if the SES continues to list Malaysian shares, a number of different factors must be considered in the examination of SES market efficiency. Of these seven SES sections mentioned above, the Industrial sector is by far the largest in number of listings and market capitalization. Exhibit 2 shows the returns on Fraser's Industrial index of the Singapore bourse between October 1985 and October 1986. Exhibit 2A shows SES returns between November 1986 and November 1987 according to Morgan Stanley's index. Exhibit 3 and 3A, comparing the market capitalization of the major bourses of the world, reveal the relative smallness of the Singapore bourse. Exhibit 4 and 4A sum the capitalization of the ten largest corporations listed on each exchange and shows them as a percent of the total market capitalization on their respective bourses. Singapore's ten largest companies make up 34% of total market capitalization of the SES.

A number of factors unique to Singapore affect the liquidity of the SES. It is estimated that 60% of all shares on the SES are closely held by families and corporations in this individual investor dominated bourse. Anecdotal evidence of liquidity exists in that 40 million shares of Consolidated Plantation were placed on the SES in October, 1986 in a week when a total of 152.5 million shares changed hands; during the week the price of Consolidated Plantation rose from S$2.36 to S$2.56. On the other hand, in Septemeber, the state holding company, Temasek, placed 17.5 million shares of United Industries and 6.6 million shares of National Iron and Steel in London, not on the SES, proportedly due to fear of market illiquidity.[17] Between 1969 and 1980, SES market capitalization grew 2300%; during the same period turnover increased 374%.

Liquidity is hurt by the registration and queuing processes followed by the SES. Investors using their Central Provident Fund accounts to make investments need up to a month to register their purchases (see below); thus, these shares are off the market during the registration process. Also, foreigners who wish to purchase stock with foreign ownership limits must line up in a queue. To get in the queue they must commit to the purchase of the stock. These same investors, however, can purchase the same stock outside of the SES (at a price they can, thus, control).

In order to enhance market liquidity, Singapore authorities have allowed Singaporean investors to use portions of their Central Provident Fund (CPF) accounts to invest in certain SES shares. The CPF is the mandatory retirment account of Singapore. Traditionally, CPF funds have been used to acquire government securities, which, in turn, were used for development projects as well as overseas investments and national money supply needs. Singaporeans contribute to the CPF according to the following schedule:

Age of Employee	Contribution of Employee	Contribution of Employer
under 55	20.0%	20.0%
55 - 60	12.5%	12.5%
60 - 65	7.5%	7.5%
over 65	5.0%	5.0%

This explains why Singapore has the highest domestic savings rate in the world (42.8%). In 1986 total CPF funds under management reached S$29 billion, or 82% of Singaporean GDP. This has ballooned from 16% of GDP in 1966 and 40% in 1980. This forced savings has had a marked impact on the private sector. Local Manufacturing Investment equalled 0.7% of GDP in 1986, while spending by the government and its statuatory boards amounted to 46% of GDP. (When non- productive Housing Development Board projects are taken out of this figure, government spending drops to 25% of GDP - this brings up the interesting point that thanks substantially to the CPF, Singapore now has many nice buildings and no businesses with which to fill them).

In May, 1986, to help liquify the market, the government allowed CPF savers to use 20% of their "investible" CPF accounts for the purchase of SES stock and gold. The government defined CPF investible funds as deposits in excess of S$30,000. Of the 1.8 million CPF depositors at the end of 1984, 300,000 had more than S$30,000 in their accounts. Of these 366,000, however, only 50,000 had more than S$6,000 in CPF investible funds at the end of 1985. The government action in May, 1986 released S$2.4 billion for investment on the bourse in approved "trustee" stocks; trustee stocks are Singapore- incorporated equities which have paid dividends in the last five years. These stocks number seventy-one in total. It is estimated that 80% of the stock of trustee shares is closely held. In late October 1986, authorities gave CPF savers permission to use 40% of their CPF investible savings on the SES and gold markets (releasing an additional S$2.4 billion to the market).

By 1987 the number of eligible CPF members had grown to 366,000 yet only 15,000 members had invested funds in the SES. During 1987 the government also introduced the possibility in the developing government bond market with CPF funds.

Few Singaporeans have invested their CPF funds in the SES, in part, due to the onerous routine that must be followed to make investments with these funds. Saw describes the process as follows:

> In the first place, he must approach the CPF Board for a statement of the available withdrawal limit to ascertain the exact amount of money that is at his disposal for investment purpose. With the statement and proof of identity, he can choose to open a CPF Investment Account with any of the five approved banks. He must submit two completed forms, an *Application for CPF Investment Account* form to the chosen bank and a *Notification of Opening of CPF Investment Account* form to the Board. Once the investment account has been opened with his bank, the member can commence trading in any of the 72 approved trustee shares and the 3 loan stocks of the Stock Exchange.
>
> If a member wishes to buy any of the approved securities, he would place his buy orders with the broking subsidiary of his bank or another broker. In either case he must submit the *Application for Withdrawal under the Central Provident Fund Board (Approved Investment Scheme) Regulations 1986* form to the bank in order to withdraw his investible savings from the CPF Board to pay for the purchase of the shares. In completing the form, he must complete *PartI: Settlement Instructions to the Bank* as well as *Part II: Application for Withdrawal.* If the purchase is executed through his own broker, he must also submit to the bank the contract note containing details of the purchase so that the bank can pay the broker and collect the scrips for registration. If the purchase is executed through

> the bank's stockbroking firm, the contract note is automatically forwarded to the bank. It may take some six to eight weeks from the date of purchase for the shares to be registered in the nominee company of the bank. Once the bank informs him that his securities have been registered and are held in safe custody, he can take action to sell these securities if he wishes to do so. He may sell his securities through his bank's stockbroking firm or his own broker. But he must complete *Part I: Settlement Instructions to the Bank of the Application for Withdrawal Under the CPF Board (Approved Invcestments Scheme) Regulations 1986* form to the bank. The net proceeds of the sale of shares are credited to his CPF Investment Account maintained in the bank.[18]

Obviously, CPF funds are not of use for those who wish to move quickly in the market.

Monthly Price/Earnings (P/E) ratios of the SES are listed in Exhibit 5. Readers will note a jump in the SES P/E ratio in May - the month in which CPF funds came available to the market, and a drop in October 1987 when the markets crashed. A comparison of SES P/E ratios of major world bourses is found in Exhibit 6. The P/E ratio of the SES prior to the closure of the market in December, 1985 was in the 20's. This is high by world standards and indicates a high level of investor confidence in future market earnings.

Exhibit 7 shows data on the turnover on the SES from 1970 through 1983, and Exhibit 8 shows recent SES turnover from November 1985 through October 1986. Exhibit 9 and 9A compare turnover on the SES vis-a-vis other major world bourses. Comparatively speaking, turnover is low on the SES; this is expected in a market that is small and where shares are closely held. It is not uncommon for single issues to dominate market turnover at any one time, as Singapore International Airlines did when it accounted for up to 50% of market turnover during its initial offering in December 1985. As of September 1986 Singapore had only three "market makers" (so named because each transaction requires a buyer and a seller; "market makers" are willing to take either side of a transaction, and thus, make a market).

Several qualitative issues arise concerning market liquidity. Exhibit 10 gives requirements for the listing of stock on the SES. The standards are considered high in Singapore. As a result, only thirty-one Singaporean stocks have listed on the SES in the last six years - an increase of only ten percent of all market listings. Also, unofficial guidelines occasionally impair market liquidity. When selling its shares of Singapore International Airlines, Temasek imposed a 20% limit on the amount of airline stock that foreignors could buy. Though bound by no law, Temasek has refused to allow more than 20% of this blue-chip stock onto the world market.

The question of market efficiency arises here. If the market is "weak-form efficient", past prices can not be used to predict future prices. In "semi-strong-form" efficiency stock prices reflect all publically known information. Prices in "strong-form" efficient markets reflect all information, whether public or private; few, if any, world markets are strong-form efficient. In regards the question of weak-form efficiency on the SES, studies using data from the early 1970's [Ang and Pohlman, 1978, D'Ambrosia, 1980] give contradictory answers to this question. Other analyses [Koo, 1983, Huang and Finn, 1984], using later data, have generally pointed to weak-form market efficiency.[19] In his study, Dawson (1985) finds that technical analysis can be used to obtain better than market results; yet, the extra returns are so minimal, he concludes, that the Singapore exchange is weak-form efficient. More recent studies by Chu (1985), using data from 1975 though 1979, and Saw and Tan (1986), using data from 1975 through 1984, conclude that the SES is only efficient in the Finance sector or in the Finance and Plantation sectors.[20]

In a previous study, Dawson (1984) addresses the question of semi-strong form efficiency in the SES. Does the price of stock reflect all publically known information? Again, Dawson finds some evidence for inefficiency at the semi-strong level, but argues that this evidence is not truly convincing. He concludes: "it is only a matter of time before the market evolves to semi-strong efficiency if it has not achieved this already."[21]

Recent studies of world bourses have questioned traditional assumptions surrounding market efficiency. Even markets considered to show semi-strong efficiency also demonstrate a "January effect" and a "weekend effect." During the month of January markets in the U.S., Australia, and Japan show abnormally high returns. Markets in the U.S., U.K., and Canada also demonstrate a weekend effect; returns on Monday in these countries are abnormally low, while Friday returns are abnormally high. Japan and Australia also show a weekend effect on Tuesdays. Wong and Ho reveal a weekend effect in Singapore which occurs, unlike its Asian counterparts, on Monday. Singapore also demonstrates a January effect.[22]

Discussion of the Market

In the 1980's Singapore is seeking to develop itself as a leading international financial center. The city-state has recovered from the damage it suffered as a result of the Pan-El crisis and is taking steps to develop its domestic markets through government divestment and the growth of new secondary markets. It appears to be doing a commendable job: in the first quarter of 1987 the finacial sector grew 10.8% from its level in 1986.

Yet, in comparison with the large bourses of the world, the market capitalization of the SES is still quite small. Turnover is also low, although a number of other securitites exchanges in developed countries have little more activity than the SES. In the several years both market capitalization and turnover have been increasing. The percentage of capitalization of the ten largest firms in Singapore is a respectably low 34%; many of the world's largest bourses have higher percentages than this.

Given that Singapore is a developing country, the fact that the SES faced a severe crisis through the Pan-El failure is not surprising. As Angtmael reminds observers, emerging securities markets are subject to fluctuation. The SES and MAS are not, however, without blame. The MAS had wide powers to inspect broker's accounts, and yet, was caught unawares of the pyramid-like structure of the many buy-back schemes. Additionally, the regulation over SES trading floor practices allowed many transactions to go undetected for great stretches of time. More careful scrutiny would have mollified a good deal of the damage caused by the default of Pan-El. Since that time, the MAS has become much more proactive in the supervision of the market.

In discussing the response of the MAS to the Pan-El crisis, various members of the financial press contend that if authorities had not intervened, many brokerage houses would have fallen. The broker bailout by the SES did prevent the default of many brokers. They further claim that if authorities had not closed the market, that SES share prices would have fallen to more "realistic" levels, and P/E ratios on the SES would more accurately reflect investment opportunities in Singapore; they believe high P/E's will scare foreign investors away. This claim is dubious. First, it must be remembered that the P/E ratio is the ratio of current price to current earnings - that is, it is a comparison of a market-driven number to an accounting-derived value. Thus, P/E's are only directly comparable when two countries have identical accounting standards and practices.

Second, it is not clear that high P/E ratios necessarily mean that foreign investors will not be attracted to Singapore. In corporate financial theory it remains a matter of dispute whether or not investors prefer income in the form of dividends or in the form of capital gains. It is theorized that investors make their investment decisions, all other factors being equal, on the avoidance of tax; thus, if the tax structure penalizes dividend income more than capital gains, the investor will prefer to take his income in the form of capital gains (and will demand a premium for holding issues with high dividend payout ratios). Most developed countries penalize dividend income vis-a-vis capital gains income (the Tax Reform of 1986 in the U.S. not withstanding). Therefore, Singapore, with low dividend payout yields and high capital gains should be more attractive to investors than other bourses with higher dividend yields. Also, because Singapore does not tax foreign investors on their equity income earned in Singapore, the SES is even more attractive to those (rational) investors who wish to escape double taxation (at home and abroad). And, the SES is a logical place for individuals and institutions to invest funds where the goal is diversification and consequent risk reduction.

Third, the primary question is that of market efficiency; as noted above, the price of an issue of stock is market driven. Investors evaluate the worth of potential holdings; they pay only what they think a particular issue is worth. Financial journalists who claim that a P/E ratio is too high are making the case that systematic mispricing exists within a market. In Singapore several possibilities exist that could explain this mispricing. First, Malaysian shares may still be subject to price-fixing efforts by Chinese Malaysian businessmen who need to keep share prices high until they unload their requisite percentage of ownership under the New Economic Policies' bumiputra requirements. Perhaps, but the post Pan-El crackdown makes these price-fixing schemes more difficult to accomplish. Also, the fact that CPF savers can only invest their S$4.8 billion in the SES or gold could lead to systematic overpricing - too much money with too few places to go. This, however, assumes that Singapore's investors are irrational - it assumes they will invest in the SES for its own sake rather than for the sake of their return (CPF investors receive 3.31% as of May 1987 on uninvested CPF funds). Finally, the SES could simply be an inefficient market. If, however, Dawson is correct, the SES is weak- and semi-strong form efficient and becoming more so. This leads to the only logical conclusion: the SES is efficient and high current prices of stock issues are a measure of investor confidence abouth the furture earnings prospects of Singapore-listed shares. It is interesting to note that the only major bourse with higher P/E ratios than Singapore is Japan; this underscores the fact that optimism abouth the future earnings potential of local stocks will be correlated with high P/E ratios.

Though investor confidence is high, market liquidity still could be improved. The queueing process, whereby foreign investors must commit themselves to the purchase of stock will dampen international interest. The refusal of parochial interests to give the foreign investor shares that he wants (e.g. in the Singapore International Airlines case, above) will further hamper efforts to increase SES activity. Also, the extremely slow registration process for CPF investors will contribute to the continued thinness in many SES shares.

The move to increase SES liquidity through the release of Central Provident Funds is interesting. On the surface the move gives an infusion of new, investible funds into the SES. Looking further, however, the CPF is a significant hindrance to the investor-structure and liquidity of the SES. As noted above, the SES is dominated by individual investors. Angtmael notes that government-sponsored forced social security and retirement funds dramatically hinders the development of private insurance and pension funds. In developed countries these funds make up a significant proportion of institutional investors. Thus, the existence of the CPF hinders the development of investment funds that could aid the deepening of SES liquidity and the broadening of its investor structure.[23]

As noted above, Singapore has traditionally followed the "British model" of regulation. Obviously, the high listing requirements and lax regulation of this model has not served it well. Regulators did not catch market problems until they had to close the bourse for three days. In doing this they showed another characteristic of the British model - a bias that favors brokers over investors. The MAS closed the SES for three days in order to set up their broker bail-out package. The proceeds of the 0.25% tax on all SES transactions went to the broker-relief fund. The SES left individual investors to bear the burden of the failure of Pan-Electric and related companies. The MAS also tied the hands of foreign banks in terms of their dealings with the brokers. This heavy-handed behavior, while possibly not altering bank behavior, had implicit opportunity costs for the bank.

Also, the MAS stumbled in its interaction with the large local banks. By allowing the four local banks to work as both brokers and regulators for almost all of 1986, the MAS gave them far too much authority. This conflict of interest situation has since come to an end.

Since December 1985 authorities have basically moved in the right direction. The new Securities Industries Act, more reflective of the "US" model, keeps brokers from such high levels of exposure as before. Additionally, the elimination of taxes on securities earnings makes the Singapore market more attractive to the international investment community. The allowance of CPF funds into the exchange still can increase liquidity, although doubt remains as to whether or not the SES will be able to tap this resevoir of funds in the near future.

The Singapore market still needs to evolve in a number of ways. First, the SES needs to examine the continuing effects of its relationship with the Kuala Lumpur Stock Exchange and how Malaysia's "bumiputra" policy on the fiscal stability of SES listings. The policy of virtually automatic listing of Malaysian shares must be examined and either modified or abandoned.

Also, as Ayling points out, to internationalize, a bourse needs quality listings.[24] Singapore must continue its divestment of GLCs and the development of SESDAQ. The links between SESDAQ, NASDAQ, and the London exchange will spped the development of Singapore markets. The listing of foreign-incorporated shares is not intrinsically bad. Angtmael notes that few countries allow foreign issues to list on their bourse[24]; if Singapore can become an important selling site in the "24-hour market," it will reap great rewards.

Yet, Singapore faces the danger of missing its opportunity to displace Hong Kong as Asia's second most important financial center through its conservatism. Singapore demonstrates this through the slow pace with which it intends to privatise GLCs, through its deliberate underestimation of the ability of the market to absorb new shares, and by its unwillingness the list the MRTC when the market is able to absorb a corporation that is guaranteed to make money. This philosophy is consistent with a government that consistently projects deficits when, in fact, surpluses then occur. This seems to be reflective of the unwillingness of the government to give power to the private sector, rather than its lack of confidence in business prospects.

At the same time, the MAS did perform well on Black Tuesday. Brokers pressured the MAS to close the markets, but the MAS refused because it was eager to undo some of the damage caused by the Pan-El market closure.

Lastly, and most importantly, Singapore must open her doors wider to foreign trading houses. As Ayling shows, restrictions on foreignors greatly slows the development of a market.[26] Singapore needs to actively recruit foreign market makers, many of whom are eager for a piece of the Singapore action. These firms will give additional liquidity to the SES as they "make markets." Also, these foreign firms will attract foreign capital as foreign investors find a known dealer through whom to invest. Additionally, foreign brokers will increase competition in the market through the introduction of their expertise. This will result in the increased efficiency of the SES, resulting in further attractiveness to investors and fund managers worldwide.

The SES and the Development of Singapore

The need for Singapore to internationalize its domestic equity markets brings the development philosophy of Singapore's ruling PEP (People's Action Party) into question. Pang notes:

> The state plays a high interventionist role in Singapore's economic development. The ruling party, in power since 1959, wields complete political control through its near exclusive representation in parliament . . . and its de facto control of the government bureaucracy, the labor movement . . . and local community organizations. Development policy is decided by the government in limited consultation with groups of workers, employers and other citizens.
>
> Though it intervenes heavily in the economy and society,

the govenment believes strongly in free enterprise and open competition. [27]

Lim notes that when a State assumes leadership in development, it will either adopt the socialist model of permanent economic leadership and hegemony, or the free-enterprise model of temporary leadership.[28] Politically, Singapore does not fit into the socialist camp. Thus, the State must continue to relinquish its power over the great majority of the economy. This is difficult because the State continue to give up power. The proposed divestiture of many GLCs is a proper next step. The time has come for the State (specifically the MAS) to begin to withdraw from its control over who participates on the SES trading floor, and to allow the market to work. This entails the allowance of foreign traders into the market.

The financial sector is important to the development of Singapore. In 1985 the financial sector accounted for 13.3% of GDP (up from 4.95% in 1970). Though the SES is far smaller than the banking industry, the pressure that the MAS put on the banks during the crisis is "an institutional recognition of the fact that the fortunes of Singapore's securities industry, and of local and foreign banks, were inextricably interwoven."[29] Chandavarkar points to the importance of the financial sector in development, as well:

> To sum up, finance is relevant for development. But its more basic causal links are not so much through the number and variety of financial institutions and instruments as in the adoption of appropriate policies, notably the liberalization of the financial structure . . . . [30]

Singapore will not advance significantly until it is willing to integrate itself more fully with the world economy. It is hoped that Singapore has learned lessons from the Pan-El crisis and is will further open and deepen its markets. If it aggressively pursues its potential, earned though openness, it will thrive; if it does not, it will face as a financial power.

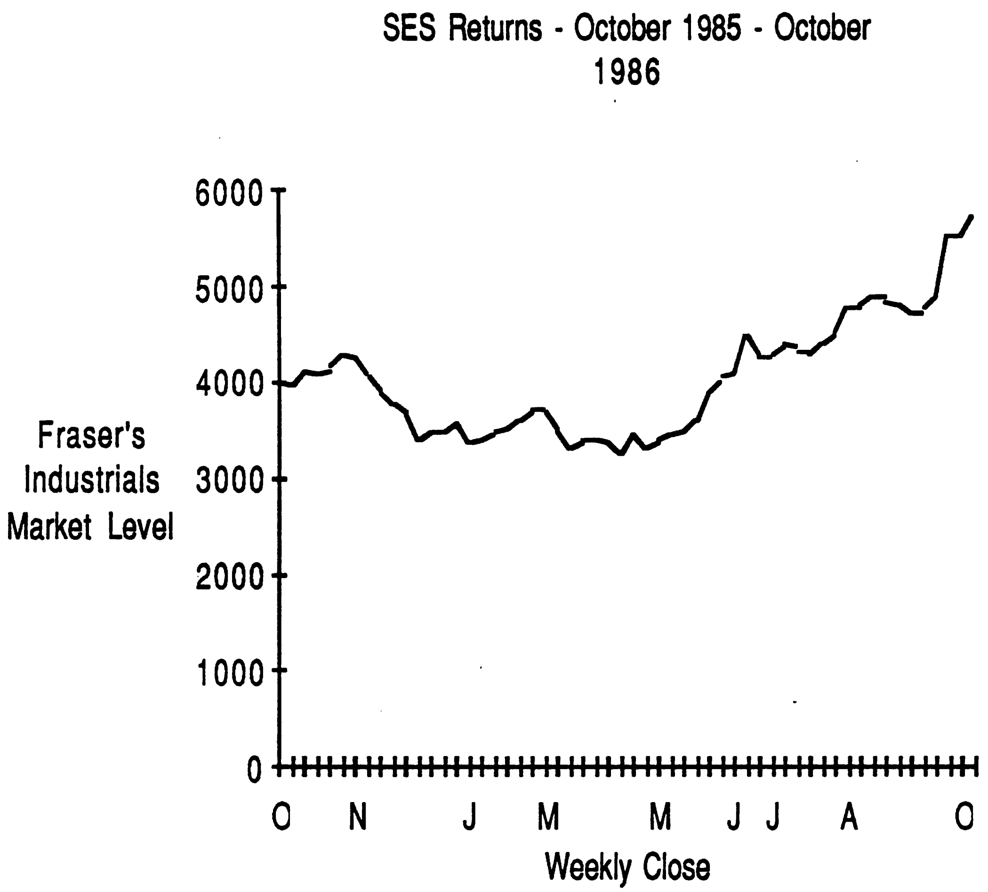
Exhibit 1

New *Securities Industries Act* Broker Guidelines

- Directors of stockbroking companies may not make unsecured loans in excess of S$5,000.
- Brokers may trade on their own account only up to 150% of their adjusted net capital.
- Aggregate broker indebtedness may not exceed twelve times brokers' adjusted net capital.
- Limit on broker exposure to any one client is 30% of net capital.
- Limit on broker exposure to any one security is 300% of net capital.
- Brokers must set aside portion of after tax profits for reserve fund.

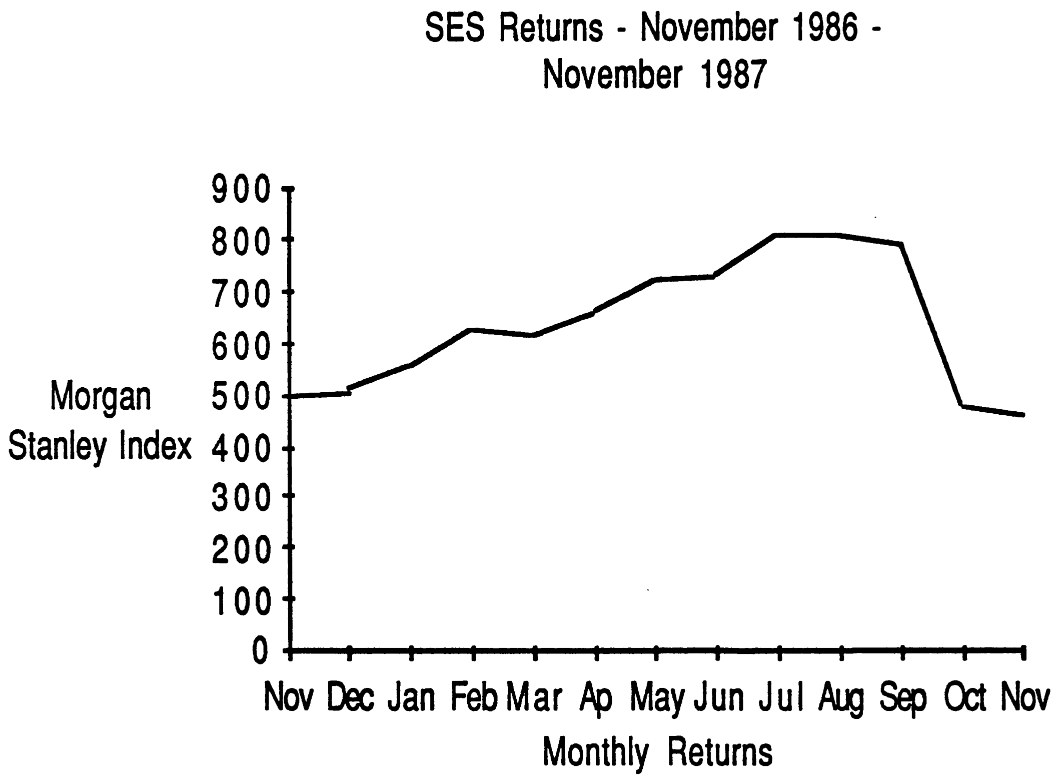
Source: Country Report: Singapore; p. 13

Exhibit 2



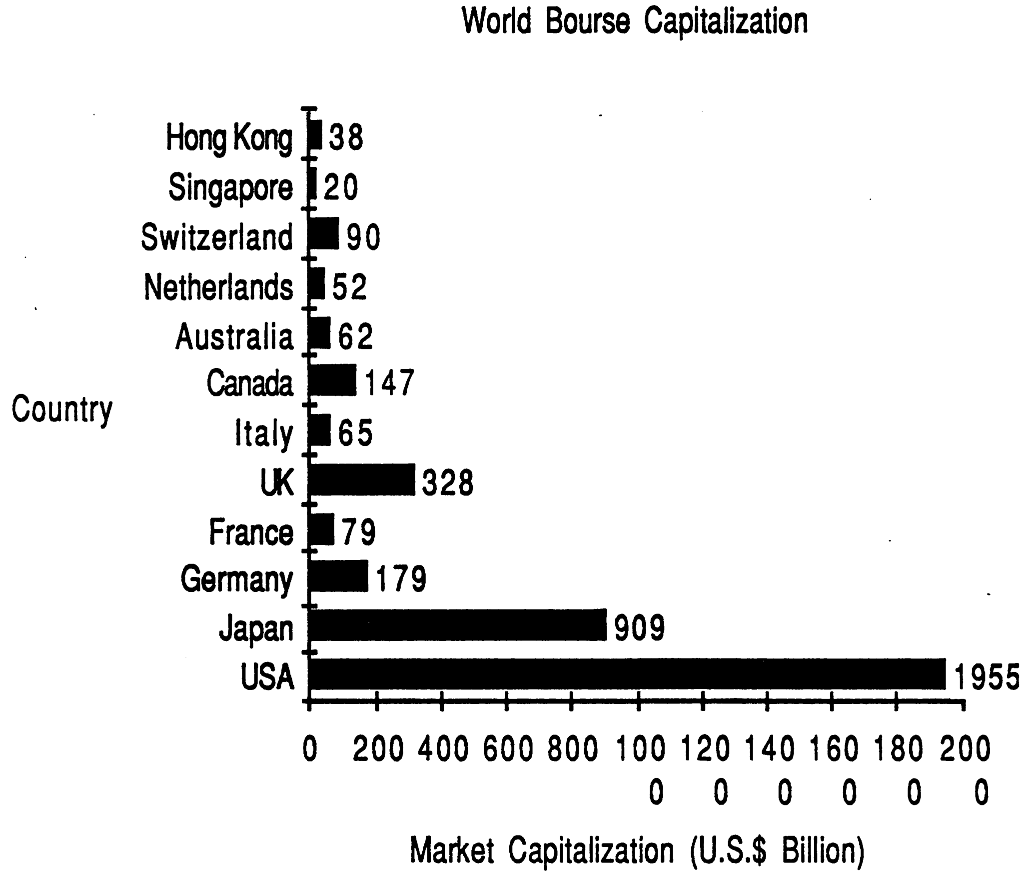
Source: Far Eastern Economic Review and Asian Wall Street Journal

Exhibit 2A



Source: Morgan Stanley Capital Markets

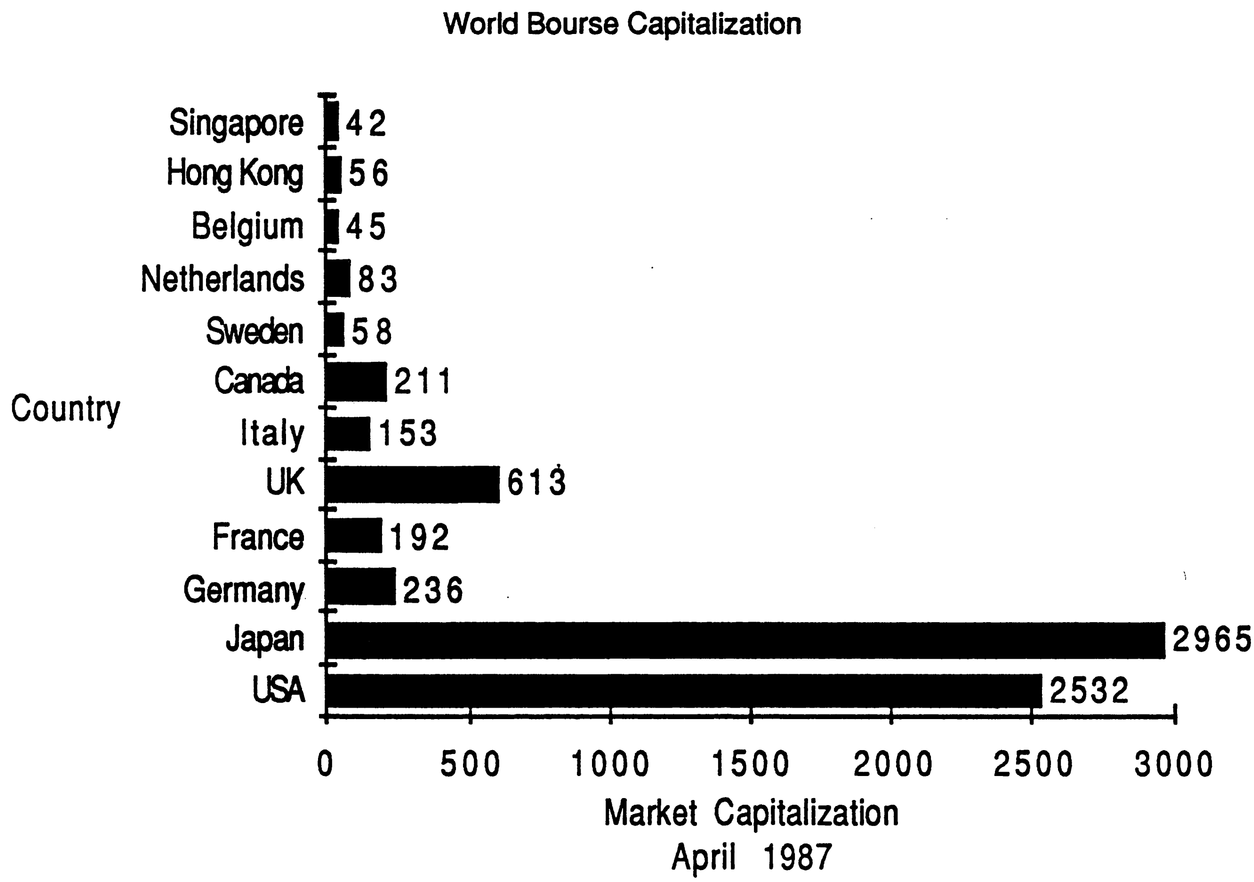
Exhibit 3



April 1986

Source: Morgan Stanley Capital International

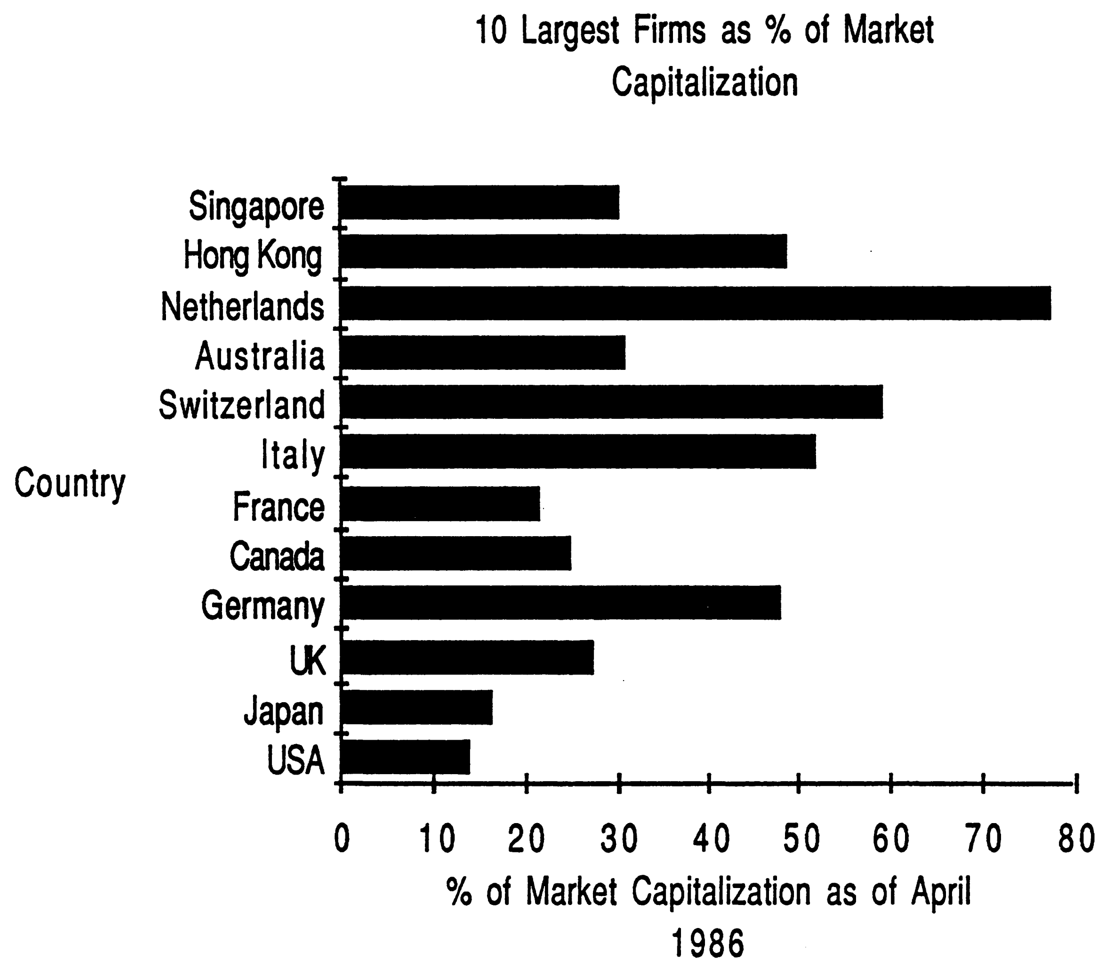
Exhibit 3A



(U.S. Billion)

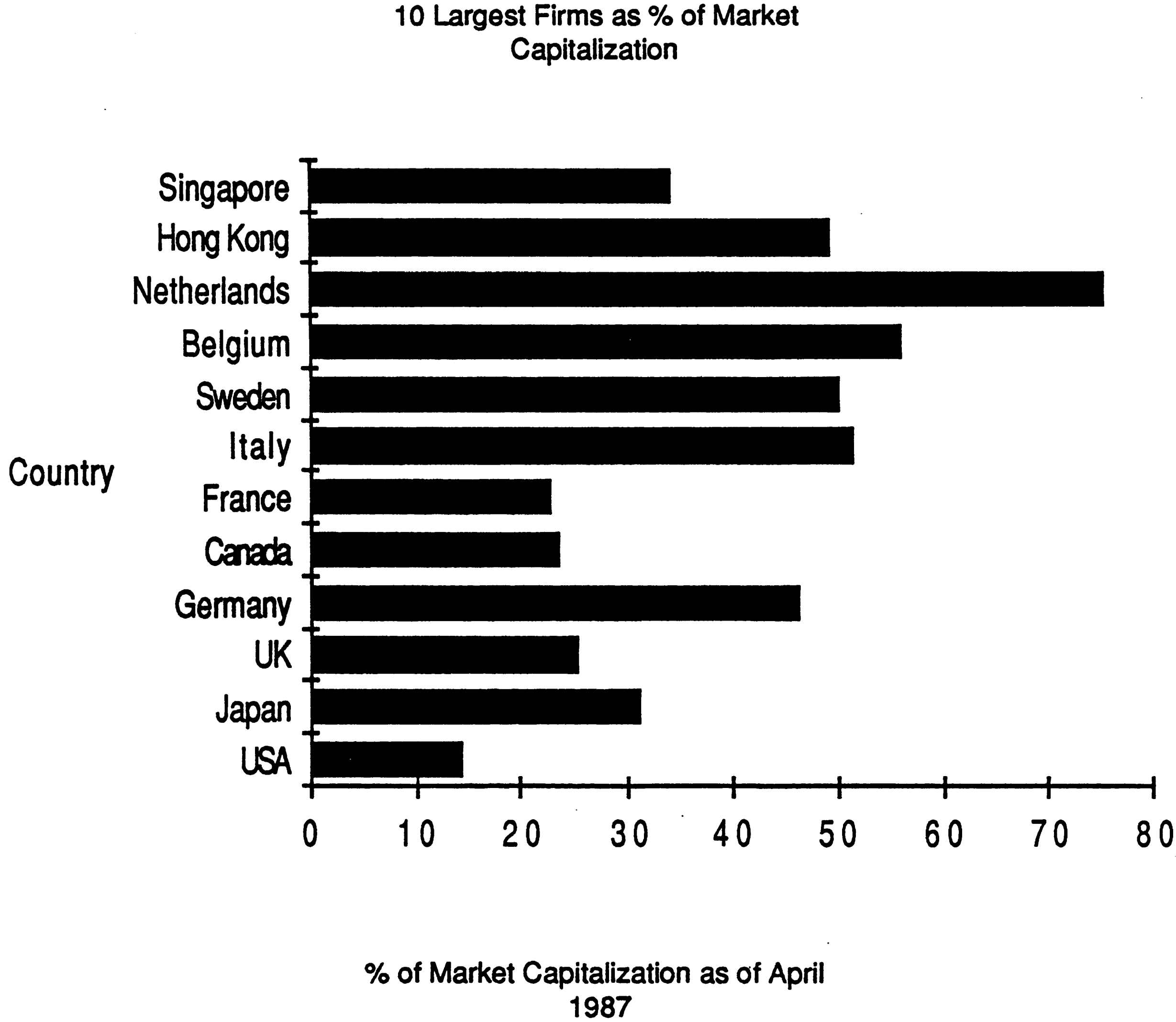
Source: Morgan Stanley Capital International

Exhibit 4



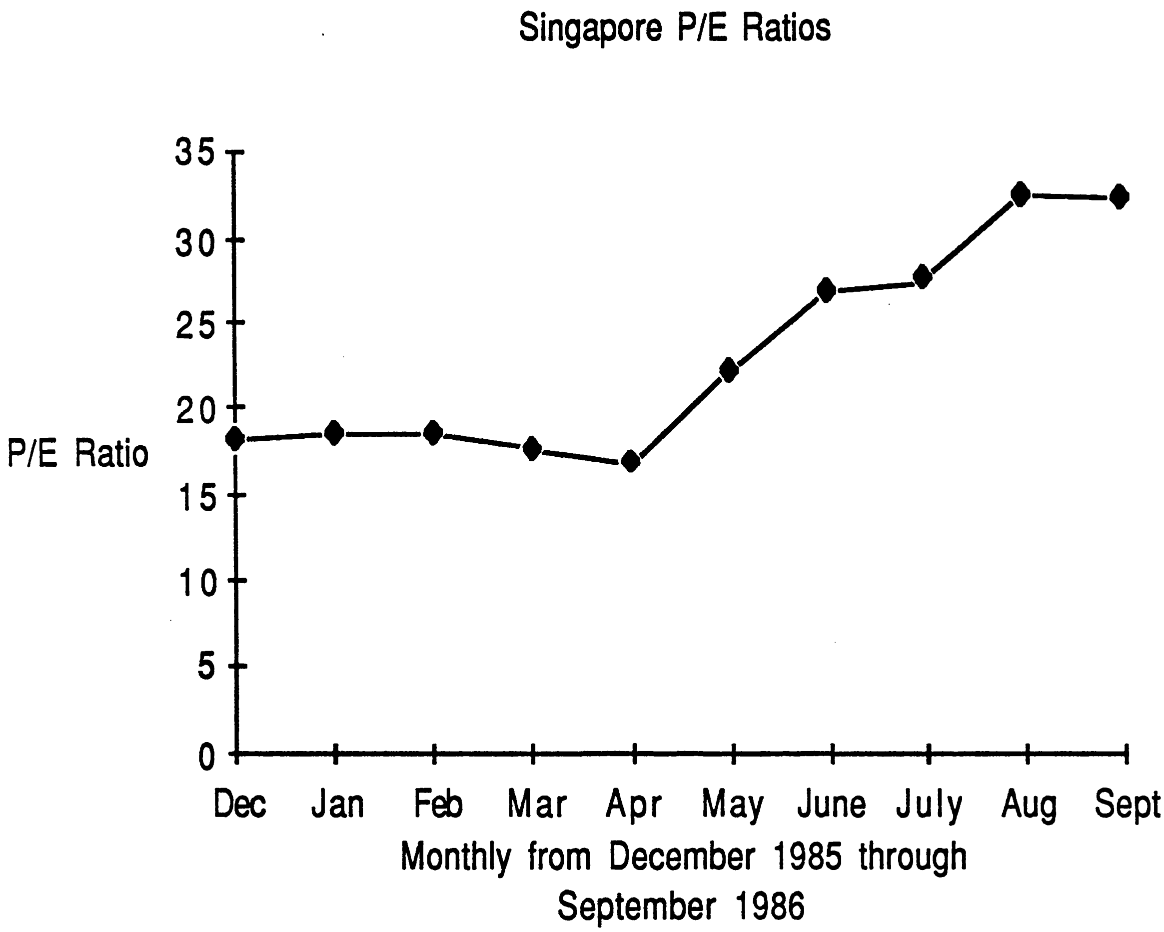
Source: Morgan Stanley Capital International

Exhibit 4A



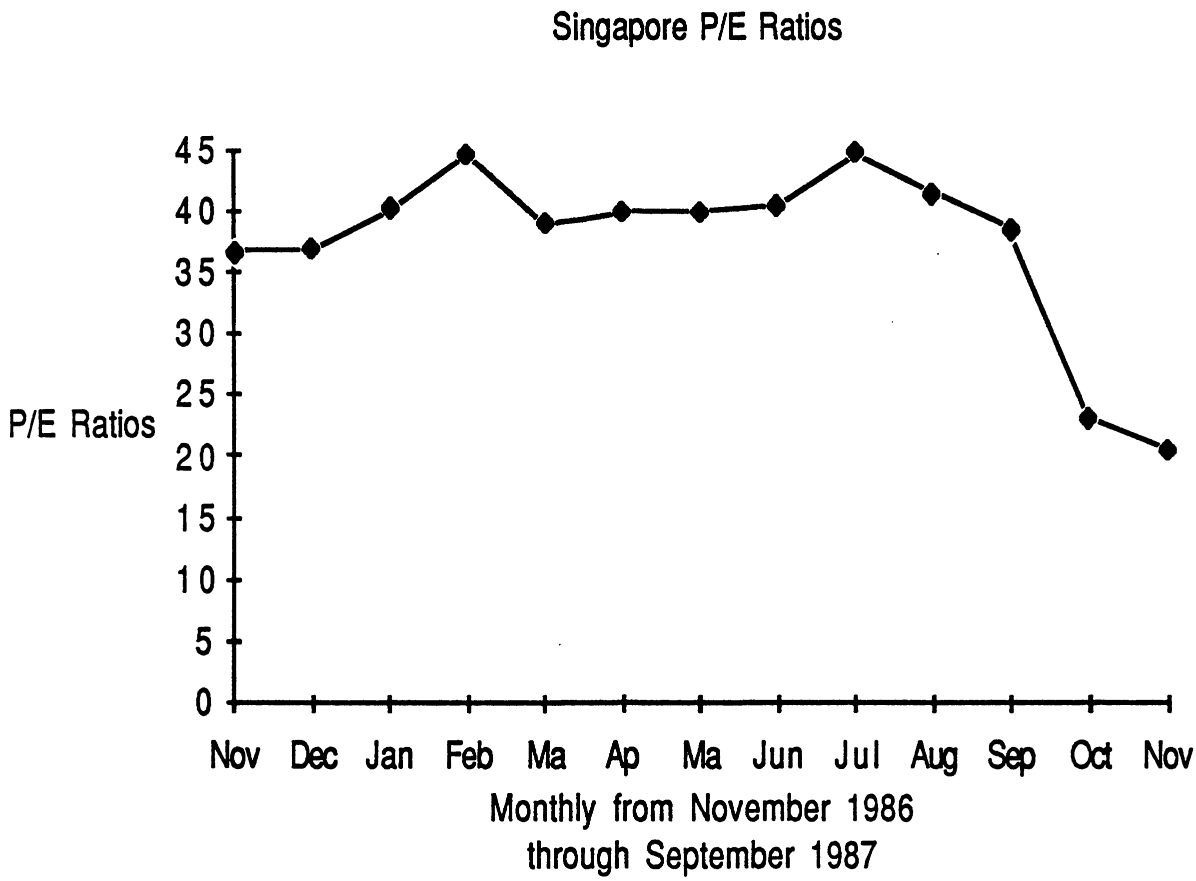
Source: Morgan Stanley Capital International

Exhibit 5



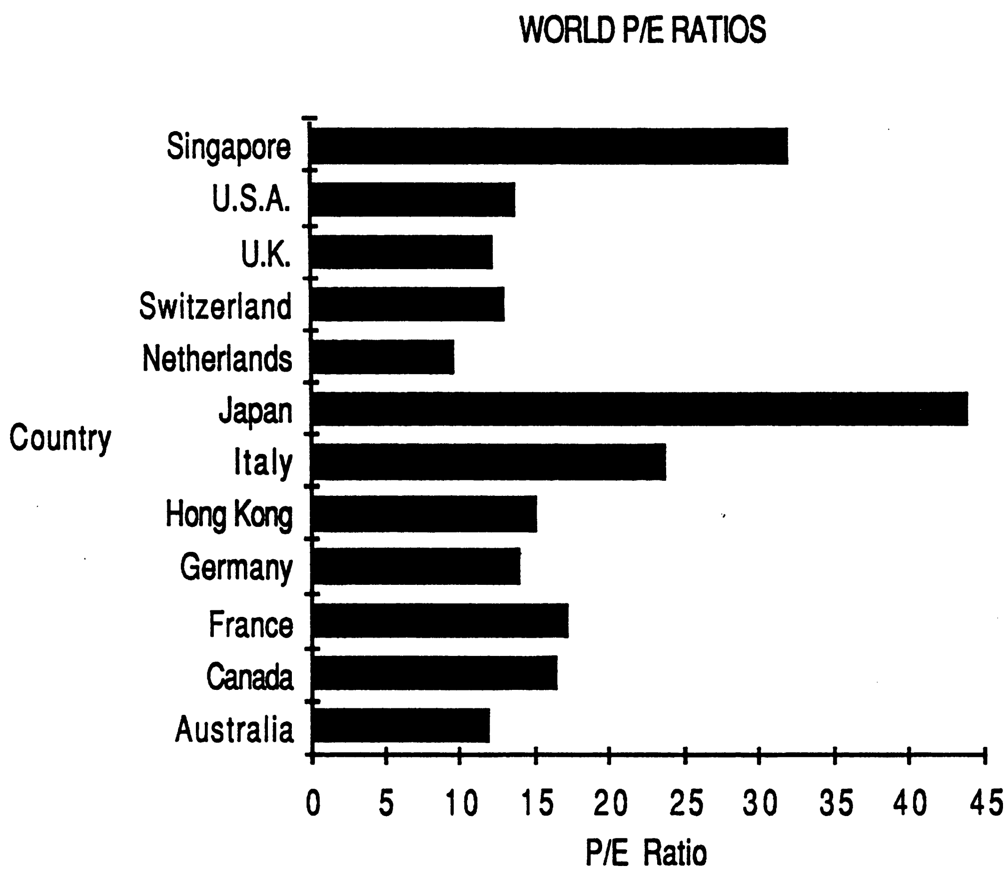
Source: Morgan Stanley Capital International

Exhibit 5A



Source: Morgan Stanley Capital International

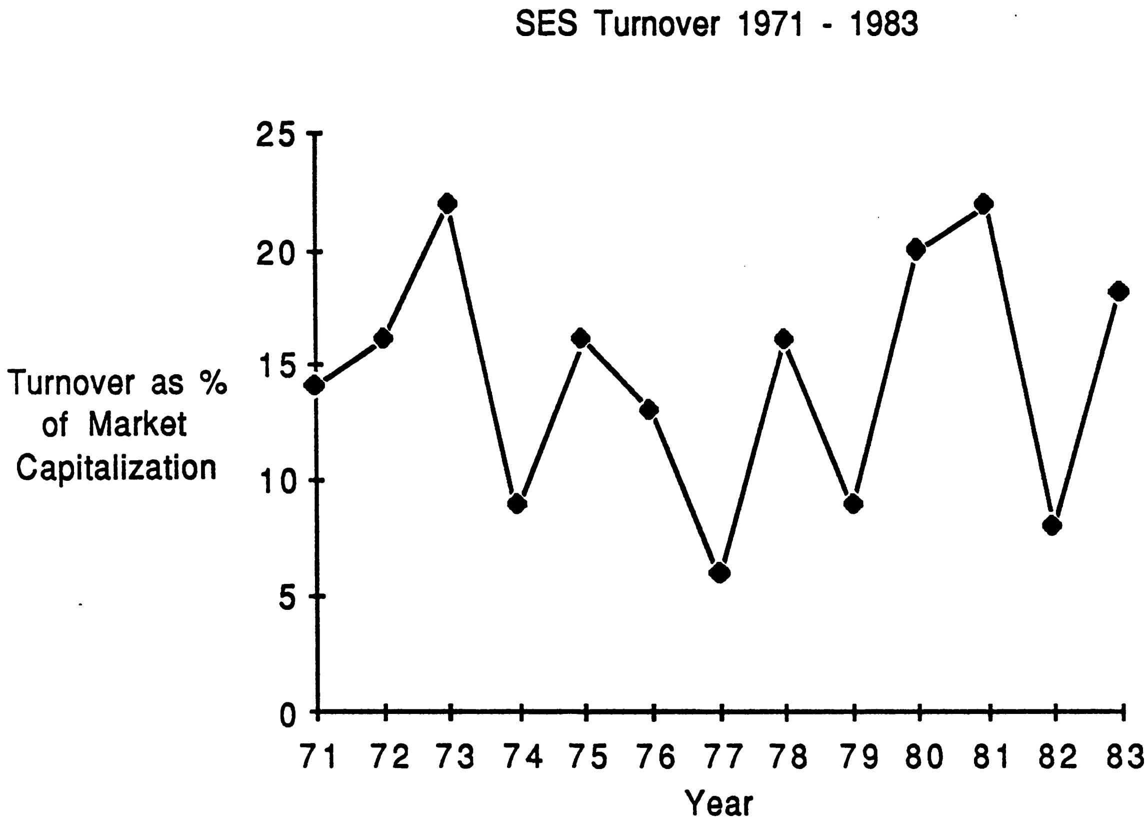
Exhibit 6



As of October 1986

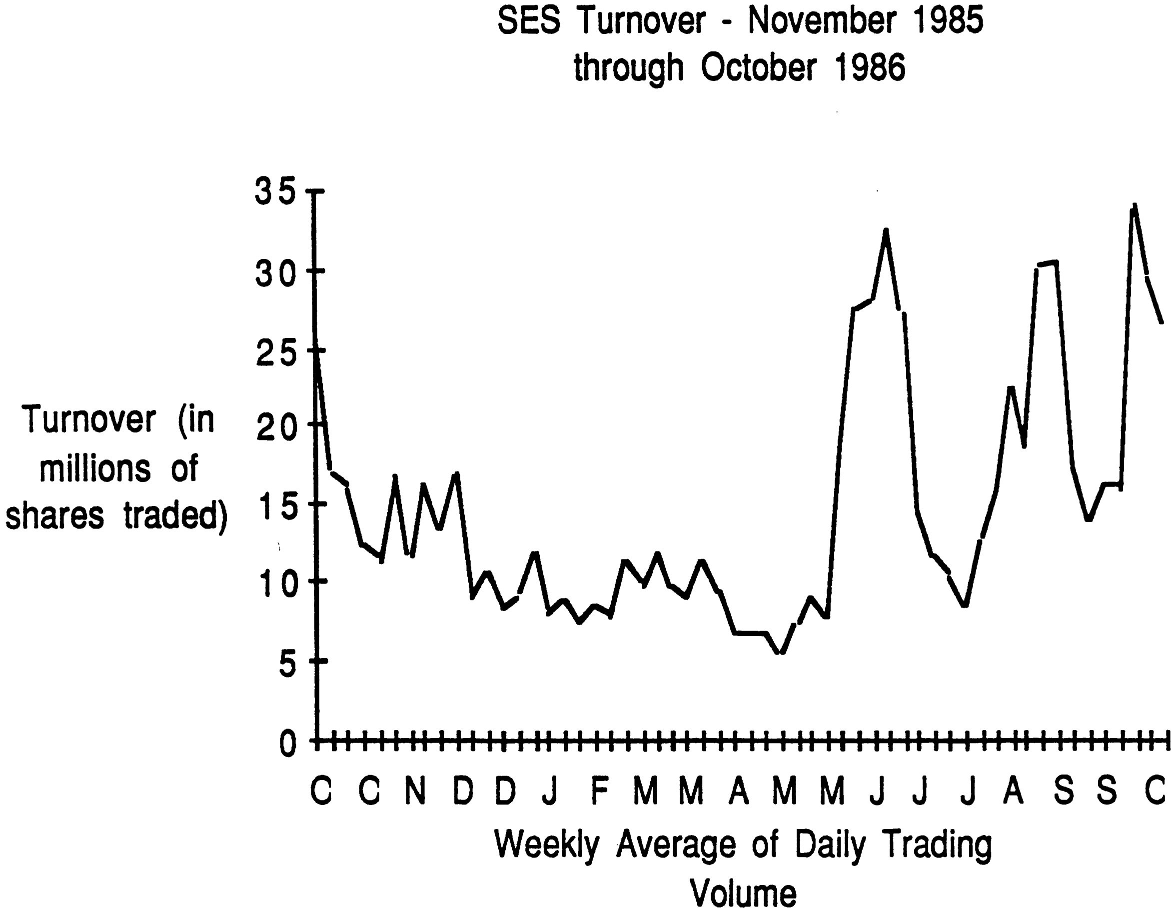
Source: Morgan Stanley Capital International

Exhibit 7



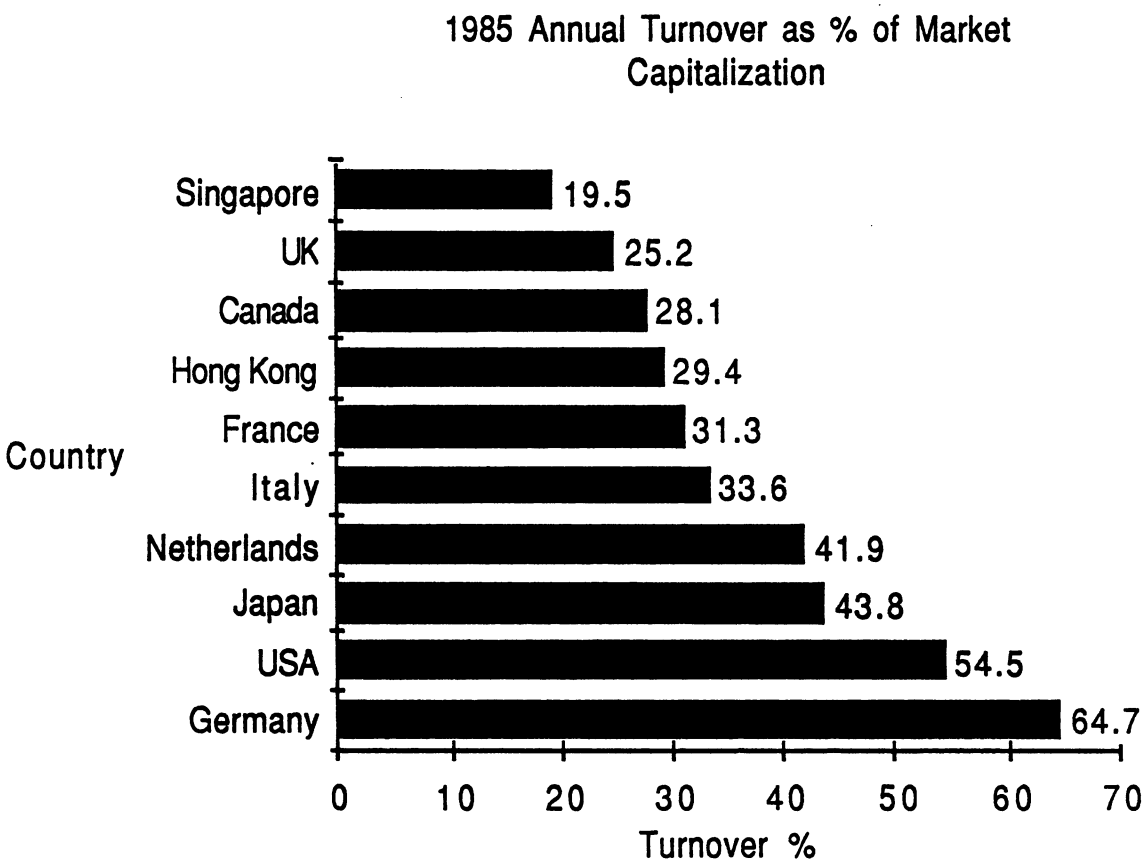
Source: Singapore Stock Exchange Journal (monthly); Vickers da Costa; as cited in Angtmael: Emerging Securities Markets

Exhibit 8



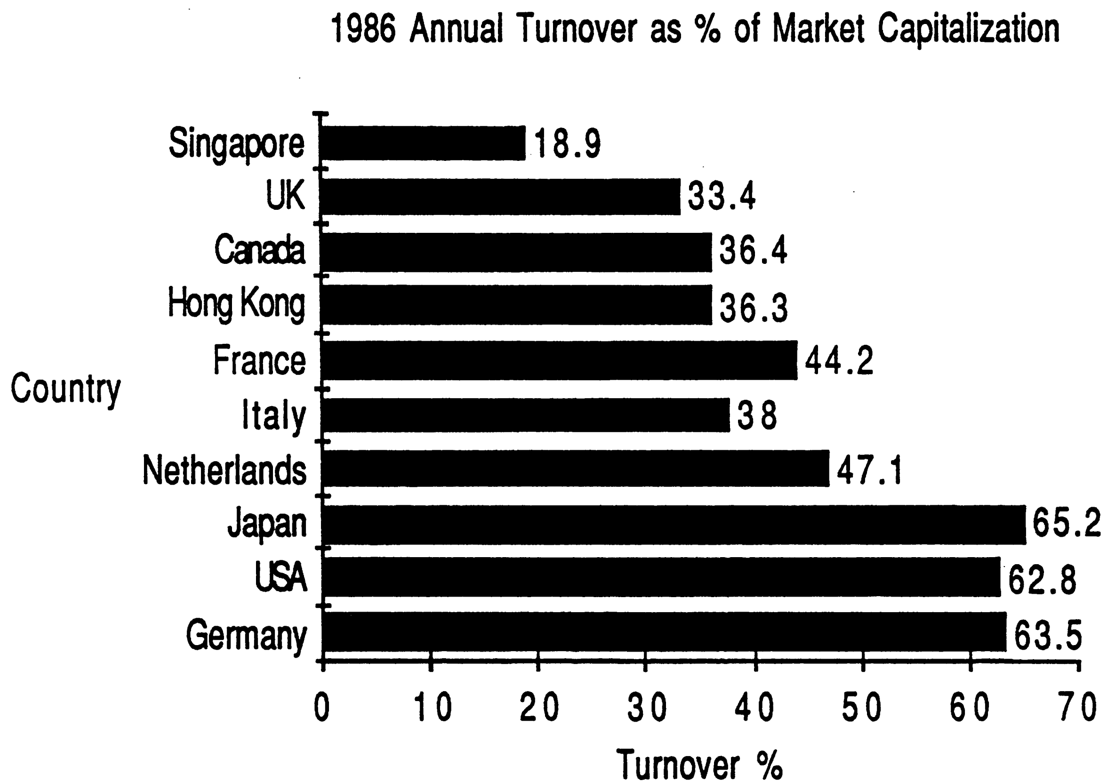
Source: Far Eastern Economic Review and The Wall Street Journal

Exhibit 9



Source: Morgan Stanley Capital International

Exhibit 9A



Source: Morgan Stanley Capital International

Exhibit 10

SES LISTING REQUIREMENTS

Numerical standards for eligibility which follow apply equally to domestic and foreign companies.

1. The company should have a paid-up capital of at least S$4 million.

2. At least S$1.5 million or 25 percent of the issued and paid-up capital (whichever is greater) should be held by not less than 500 shareholders.

3. A minimum percentage of the issued and paid-up capital is in the hands of shareholders each holding not less than 500 shares nor more than 10,000 shares:

Nominal value of issued paid-up capital	Minimum percentage
S$4 million to S$50 million	20%
S$50 million to S$100 million	15% or S$10 million, whichever is the greater
S$100 million and above	10% or S$15 million, whichever is the greater

In addition to the standards above, the SES conducts a qualitative review of the company seeking listing on the exchange.

Source: World's Major Stock Exchanges: Listing Requirments, p. 35-36

Exhibit 11

Divestment Committee Recommendations

CATEGORY A: COMPANIES RECOMMENDED FOR PRIVATISATION

CATEGORY A1: COMPANIES RECOMMENDED FOR LISTING

FIRST-TIER COMPANIES
Under Temasek Holdings
1. Jurong Shipyard Ltd
2. Singapore National Printers (Pte) Ltd[1]
3. Singapore Offshore Petroleum Services Pte Ltd
4. Singapore Pools (Pte) Ltd
5. Yaohan Singapore Pte Ltd

Under MND Holdings
1. Resources Development Corporation (Pte) Ltd[1]

Under Statutory Boards
1. Changi International Airport Services Pte Ltd

SECOND-TIER COMPANIES
Under Temasek Holdings
1. DBS Land Ltd
2. DBS Finance Ltd
3. MMGU Insurance Pte Ltd
4. Sembawang Towing Co Pte Ltd
5. Shing Loong Finance Ltd
6. Singapore Airport Terminal Services (Pte) Ltd
7. Singapore Aviation and General Insurance Co (Pte) Ltd

Under Statutory Boards
1. Container Warehousing & Transportation (Pte) Ltd

CATEGORY A2: COMPANIES RECOMMENDED FOR REDUCTION IN GOVERNMENT SHAREHOLDING

LISTED COMPANIES
Under Temasek Holdings
1. DBS Bank Ltd
2. Keppel Corporation Ltd
3. Neptune Orient Lines Ltd
4. Sembawang Shipyard Ltd/ Sembawang Holdings Pte Ltd
5. Singapore Airlines Ltd

UNLISTED COMPANIES
Under MND Holdings
1. International Development & Consultancy Corporation (Pte) Ltd

Under Statutory Boards
1. SBC Enterprises Pte Ltd
2. SPECS Consultants Pte Ltd

CATEGORY A3: COMPANIES RECOMMENDED FOR TOTAL PRIVATISATION

LISTED COMPANIES
Under Temasek Holdings
1. Acma Electrical Industries Ltd
2. Chemical Industries (FE) Ltd
3. Intraco Ltd
4. National Iron and Steel Mills Ltd[2]
5. United Industrial Corporation Ltd[2]

UNLISTED COMPANIES
Under Temasek Holdings
1. Dowty Aviation Services Pte Ltd[2]
2. Hitachi Electronic Devices (S) Pte Ltd
3. Sembawang Salvage Company Pte Ltd
4. Singapore Airport Duty-Free Emporium Pte Ltd[2]
5. Van Ommeren Terminal (S) Pte Ltd

Under MND Holdings
1. Construction Technology Pte Ltd

UNLISTED COMPANIES
Under Statutory Boards
1. GATX Terminals Pte Ltd
2. Jurong Environmental Engineering Pte Ltd
3. Setsco Services Pte Ltd[2]
4. Singapore Airport Bus Services Pte Ltd
5. Suzue-PSA Cold Storage Pte Ltd

Under Ministry of Education
1. Educational Publications Bureau Pte Ltd[2]

Note: [1]The company has since been partially divested through a public listing
[2]The company has since been divested

SUMMARY OF RECOMMENDATIONS ON COMPANIES

CATEGORY B: COMPANIES NOT RECOMMENDED FOR PRIVATISATION

CATEGORY B1: COMPANIES RECOMMENDED TO BE WOUND UP

Under Temasek Holdings
1. Fullerton Pte Ltd
2. Singmanex Pte Ltd[3]

Under MND Holdings
1. Primary Industries Enterprise (Pte) Ltd

Under Statutory Boards
1. International Technology Centre Pte Ltd
2. POSB Investment Pte Ltd
3. Sentosa Transportation Services Pte Ltd
4. Setsco Pte Ltd[3]
5. Singapore Aquarama (Pte) Ltd[3]
6. Singapore Bulking Co Pte Ltd

CATEGORY B2: COMPANIES WHICH HAVE FOREIGN GOVERNMENT PARTICIPATION

Under Temasek Holdings
1. Asean Bintulu Fertilizer Sdn Bhd
2. Asean Copper Products Inc
3. Asean Soda Ash Co Ltd
4. P T Asean Aceh Fertilizer
5. Singapore Biotech Pte Ltd[4]
6. Kedah Cement Sdn Bhd

Under Statutory Boards
1. Asean Cableship Pte Ltd

CATEGORY B3: COMPANIES WHICH ARE SINGLE-PURPOSE OR SERVE IN-HOUSE NEEDS

Under Temasek Holdings
1. Fullerton (Overseas) Holdings Pte Ltd
2. Hotel Premier Pte Ltd
3. Loyang Valley Pte Ltd
4. Singapore National Oil Co Pte Ltd
5. Temasek Management Services Pte Ltd

Under MND Holdings
1. Development & Construction Co (Pte) Ltd
2. Urban Development & Management Co Pte Ltd

Under Statutory Boards
1. Development Resources Pte Ltd
2. Map Services Pte Ltd
3. National Computer Systems Pte Ltd
4. Offshore Joint Services Co (S) Pte Ltd
5. Offshore Joint Services (Bases) Co of Singapore Pte Ltd
6. Tanker Mooring Services Co Pte Ltd

CATEGORY B4: COMPANIES WHICH HAVE A SOCIAL MISSION

Under Temasek Holdings
1. Jurong Bird Park (Pte) Ltd
2. National University Hospital (S) Pte Ltd
3. Singapore Zoological Gardens

Under Statutory Boards
1. 'Instant Asia' Cultural Shows Pte Ltd
2. Jurong Country Club Pte Ltd
3. Sentosa Golf Club Pte Ltd
4. Singapore Cable Car Pte Ltd

CATEGORY B5: COMPANIES WHICH MAY NOT PRESENTLY BE ATTRACTIVE TO INVESTORS

Under Temasek Holdings
1. Denka (S) Pte Ltd
2. Ethylene Glycols (S) Pte Ltd
3. Export Credit Insurance Corporation of Singapore Ltd
4. National Grain Elevator Ltd
5. Paktank (S) Tankstorage (Pte) Ltd
6. Paktank (S) Terminal Pte Ltd
7. Phillips Petroleum Singapore Chemicals (Pte) Ltd
8. Raffles City (Pte) Ltd
9. Singapore Treasury Building (Pte) Ltd
10. Sugar Industry of Singapore Ltd
11. Tata Elxsi Pte Ltd
12. The Polyolefin Co (S) Pte Ltd

Under Ministry of Finance
1. Petrochemical Corporation of Singapore Pte Ltd

CATEGORY B6: COMPANIES WHICH HAVE A PROMOTIONAL ROLE

Under Statutory Boards
1. Cybernex Advanced Storage Technology Pte Ltd
2. Integrated Information Pte Ltd
3. Robot Leasing & Consultancy Pte Ltd

CATEGORY C: COMPANIES RECOMMENDED FOR FURTHER STUDY

CATEGORY C1: SHENG-LI COMPANIES

1. Allied Ordnance Co of Singapore (Pte) Ltd
2. SAFE Enterprises Pte Ltd
3. Singapore Aircraft Industries Pte Ltd
4. Singapore Food Industries Pte Ltd
5. Singapore Shipbuilding & Engineering Ltd
6. Singapore Technology Corporation Pte Ltd

Note: [3]The company has since been wound up
[4]Designated as an ASEAN joint-venture project

Source: Report of the Public Sector Divestment Committee, pp. 77-78

Notes

1. Stock Exchange of Singapore, Fact Book 87, (Singapore: Singapore National Printers, 1987), pp. 12 - 18.

2. T. M. Rybzinski, The Internationalization of the Financial System and the Developing Countries, (Washington D. C.: The International Bank for Reconstruction and Development, 1986), pp. 1 - 40.

3. Antione W. van Angtmael, Emerging Securities Markets, (London: Euronmoney Publications, 1984), pp. 1 - 50.

4. Angtmael, pp. 1 - 45.

5. D. E. Ayling, The Internationalisation of Stockmarkets, (Hants, England: Gower Publishing Company, 1986), pp. 1 - 200.

6. Angtmael, pp. 1 - 45.

7. Angtmael, pp. 1 - 45.

8. Michael T. Skully, Financial Institutions and Markets in Southeast Asia, (New York: MacMillan, 1984), p. 274.

9. Skully, p. 274; and Ayling, p. 127.

10. Nigel Holloway, "A new campaign to increase SES appeal," Far Eastern Economic Review, 23 October 1986, p. 156, col. 3.

11. "Markets blow a fuse," Far Eastern Economic Review, 12 December 1985, p. 90, cols. 2 - 3.

12. Nigel Holloway, "Lessons on how to abort a takeoff," Far

Eastern Economic Review, 22 May 1986, p. 87, col. 3.

13. "Crime and Punishment," The Economist, November 22, 1986, p. 20 Survey Singapore, col. 3.

14. "Rising on new foundations," Far Eastern Economic Review, 23 October 1986, p. 152, col. 1.

15. Report of the Public Sector Divestment Committee, (Singapore: Singapore National Printers, 21 February 1987), p. 1.

16. Divestment Committee, p. 55.

17. Angtmael, p. 14.

18. Saw Swee-Hock, "The Securities Investment Scheme for Central Provident Fund Members," Securities Industry Review, Vol. 13, No. 1 (April 1987), pp. 4-5.

19. Steven M. Dawson, "Singapore Share Recommendations in Singapore's Financial Press," Asia Pacific Journal of Management, Vol 2, No. 3 (May 1985), p. 182.

20. Simon C. S. Chu, "The Behavior of the Singapore Stock Market: Weak Form Test," Securities Industry Review, Vol. 11, No. 1 (April 1985), p. 31 - 45; and Saw Swee-Hock and Tan Khye Chong, "The Stock Exchange of Singapore All-Share Price Indices: Testing of Independence," Securities Industry Review, Vol 12, No. 1 (April 1986), p. 1 - 7.

21. Steven M. Dawson, "Share Recommendations in Singapore's Financial Press," Asia Pacific Journal of Management, (January 1984), p. 152.

22. Wong Kie Ann and Ho Hin Dong, "The Weekly Seasonal Pattern of Stock Returns in Singapore," Securities Industry Review, Vol 13, No. 1 (April 1987), pp. 35 - 42.

23. Angtmael, pp. 1 - 50.

24. Ayling, pp. 1 - 200.

25. Angtmael, pp. 1 - 50.

26. Ayling, pp. 1 - 200.

27. Pang Eng Fong, "Industrial Policy and Economic Reconstruction in Singapore," in <u>National Industrial Policies</u>, ed. Robert E. Driscoll and Jack N. Bernham, (Cambridge, Massachussets: Oelgeschlager, Gunn, and Hain, 1984, pp. 160 - 61.

28. Personal conversations with Linda Y. C. Lim, Fall 1986.

29. <u>Far Eastern Economic Review</u>, 8 May 1986, p. 68.

30. Anand G. Chandavarkar, "How Relevant is Finance for Development," <u>Finance and Development</u>, Vol. 10, No. 3, (September 1973).

Bibliography

Angtmael, Antoine W. van. Emerging Securities Markets. London: Euromoney Publications Limited, 1984.

Ayling, D.E. The Internationalisation of Stockmarkets. Hants, England: Gower Publishing Company Limited, 1986.

Keane, Simon M. Stock Market Efficiency: Theory, Evidence and Implications. Oxford: Philip Allan Publishers Limited, 1983.

Pang, Eng Fong. "Industrial Policy and Economic Reconstruction in Singapore". In National Industrial Policies. Ed. Robert E. Driscoll and Jack N. Bernham. Cambridge, Massachusetts: Oelgeschlager, Gunn, and Hain, 1984.

Price Waterhouse. World's Major Stock Exchanges: Listing Requirements. New York: Price Waterhouse, 1984.

Rybczynski, T.M. The Internationalization of the Financial System and the Developing Countries. Washington, D.C.: The International Bank for Reconstruction and Development, 1986.

Stock Exchange of Singapore. Fact Book 87. Singapore: Stock Exchange of Singapore, 1987.

The Public Sector Divestment Committee. Report of the Public Sector Divestment Committee. Singapore: Singapore National Printers, 1987.

Chandavarkar, Anand G. "How Relevant is Finance for Development?" Finance and Development, Vol. 10, No. 3, September 1973.

Chu, Simon C. S. "The Behaviour of the Singapore Stock Market: Weak Form Test." Securities Industry Review, Vol. 11, No. 1, April 1985.

Economist Intelligence Unit, The. Country Report: Singapore No. 3 - 1986. London: The Economist Publications, Ltd., 1986.

Dawson, Steven M. "Share Recommendations in Singapore's Financial Press." Asia Pacific Journal of Management, January 1984.

Dawson, Steven M. "Singapore Share Recommendations using Technical Analysis." Asia Pacific Journal of Management, Vol. 2, No. 3, May, 1985.

Dufey, Gunther and Mirus, Rolf. "Teaching Note #9: International Portfolio Investment." The University of Michigan, Ann Arbor, Corrections: August, 1985.

"Morgan Stanley Capital International Perspective." New York: Morgan Stanley, No. 1 - 10, 1986.

Sat Pal Khattar. "Major Changes as Incorporated in The New Securities Industry Act 1986 and Regulations Made Thereafter." Securities Industry Review, Vol. 13, No. 1, April 1987.

Saw, Swee-Hock. "The Securities Investment Scheme for Central Provident Fund Members." Securities Industry Review, Vol. 13, No. 1, April 1987.

Saw Swee-Hock and Tan Khye Chong. "The Stock Exchange of Singapore All-Share Price Indices: Testing of Independence." Securities Industry Review, Vol. 12, No. 1, April 1986.

Ter Kah Leng and Catherine Tay Swee Kian. "Insider Trading after the Securities Industry Act 1986." Securities Industry Review, Vol. 12, No. 1, April 1986.

Wong Kie Ann and Ho Hin Dong. "The Weekly Seasonal Pattern of

Stock Returns in Singapore." Securities Industry Review, Vol. 13, No. 1, April 1987.

Craig Heimark. Phone Conversations. Fall 1986.

Linda Y. C. Lim. Personal Conversations and Lectures. Fall 1986.

Adrian Tschoegle. Personal Conversations and Lectures. Fall 1986.