

## FDI in Telecommunications Services in Asia

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### Abstract

After a decade of FDI coming into the telecommunication services sector in the Asia-Pacific region during the 1990s, the twenty-first century has witnessed something of a retreat. Many European and US strategic investors have liquidated their positions and sold their holdings in joint ventures, often to local investors. The general economic recovery detectable from mid-2003 may be reversing this trend again, but perhaps in a way that is more selective towards the larger economies of the Asia Pacific. On the other hand, some regional companies have extended their offshore investments, for example Singapore Telecom and Telstra. The background to these cycles has been the liberalization of the telecommunications services sector over the period, but a closer examination of different economies in the region will show marked differences in timing and the way liberalization has occurred. It will also show that investment patterns in each of the countries of the region also differed, especially in reaction to the 1997 downturn. It appears that investment in South Asian economies was relatively unaffected. This raises questions as to why the differences, and does FDI make an economy more or less vulnerable to economic fluctuations.

The paper begins by looking at the data on the scale of investment in the telecommunication services sector across the Asia Pacific region, the reactions to 1997, and traces the country differences, which are displayed in graph form in Appendix 3. Private sector investment in public infrastructure projects is examined, and it is noted that divestitures have played a lesser role in the Asia Pacific region than in others, such as South America and Europe. Greenfield projects and investment in sector expansion, especially in the mobile cellular markets, has dominated private investment in the region. Table 1 records the growth of mobile services as they overtake fixed line subscribers. Where privatization has taken place it is often associated with developing the capacity of local capital markets, and data in Appendix 1 illustrates the relatively high weightings of telecommunication stocks on local stock markets. Appendix 2 provides a snapshot contrast with the number of privately listed companies in 1994. There has been a large increase in the number of listings across the region.

The paper suggests there has been a strong correlation between cases where governments have strong commitments to the development of the ICT sector in general and to the development of the telecommunications network in particular, and investment coming into the sector. The paper looks at various mechanisms through which private sector participation, including FDI, has been achieved, including means by which governments have circumvented various legal and political restrictions on the foreign ownership of national resources. In this regard, China's model is a special case, where foreign

participant is prevented in the operations of basic services, but FDI encouraged in the investment vehicles set up to finance the continued expansion of the sector. Generally the signatories to the WTO's Basic Telecommunications Agreement have committed to the opening of the sector according to various timetables and with a variety of reservations. Table 2 provides a brief summary of the restrictions still in force on FDI.

An early step towards sector liberalization is usually the full or partial privatization of the state owned telecommunications enterprise (SOTE), although in the Asia Pacific governments have seemed reluctant to remove themselves entirely from ownership for a variety of reasons. These include ideological and nationalist reasons, a commitment to state planning or industrial policy, or simply delays in the privatization process itself. The paper reviews the variety of mechanisms available for divestiture, giving examples from the region.

Finally the paper turns to a series of questions concerning FDI and its relationship to both local domestic private capital investment and to public investment and the policies of the local state and local regulator. This section is not intended to be a definitive statement of the issues, rather it is a request for further discussion to identify the key questions that are in need of data, research and analysis to reach useful conclusions for good policy making and to achieve a productive balance between private and public sector investment in telecommunication services, especially in developing economies. The paper ends with a brief assessment of the potential for further growth of this sector in the Asia Pacific region.

## Introduction

This paper is mainly exploratory. The author is currently engaged on a World Bank project to examine the recent history of public and private investment in the telecommunication services sector in developing economies of East Asia and Pacific (EAP) region. The theme of this seminar is foreign direct investment (FDI). There is no immediately available data that disentangles public and private sector investment in this sector, nor any that conveniently measures FDI in the sector. International and multilateral agencies such as the World Bank, the ITU, UNCTAD and so forth, usually rely upon official country statistics and in developing economies the data is often not available, or it does not distinguish between domestic and foreign investment or perhaps between posts and telecommunications and maybe transport or general 'communications' investment. Even private financial banks and securities houses who track equity and debt data will not usually possess details of investments in non-listed companies or in subsidiary companies where investment data is consolidated with the holding company's accounts.

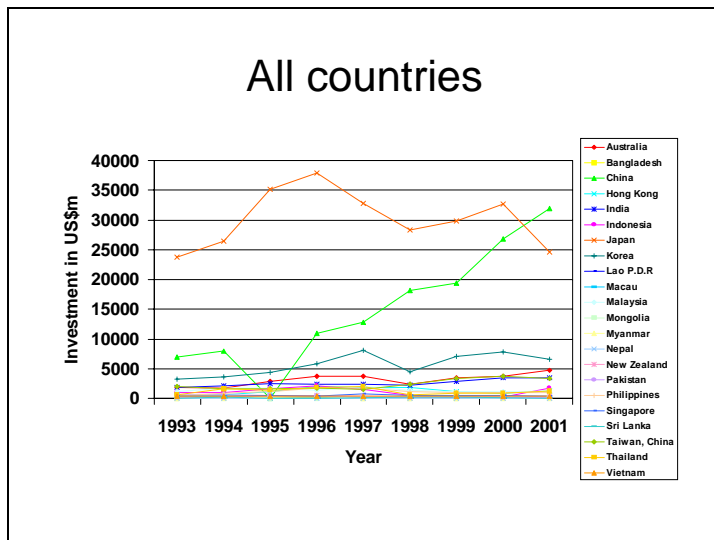
One of the data collection tasks I have set myself is to garner as much country and company information as possible over the coming months to arrive at an estimate of private domestic investment and inwards and outwards private investment, and as far as possible estimate what forms that investment takes, for example is it equity, debt, vendor credit, etc. The analysis will then include an assessment of the drivers of investment in different forms and from different sources, the contribution that investment makes to

various economic, industry and social objectives. A major point of the analysis is to examine the relative roles of public and private sector investment, to see where and under what circumstances they are complementary to one another. These are ambitious targets, and a clear understanding of the nature and role of FDI will go a long way to achieving them.

### Scale of Investment

According to data from the International Telecommunications Union (ITU) annual investment in the telecommunication services sector in the Asia Pacific region rose from around US\$45 billion in 1993 to over US\$80 billion by 2001, reaching in total more than US\$600 billion for the entire period, just under 40% of world investment in the telecommunication services sector.<sup>1</sup> The trend was upwards to 1996 when it reached about US\$74 billion, fell to US\$65 billion during and after the 1997 Asian economic crisis in 1998, then recovered during the dot.com boom before beginning a slide in 2001 as the bubble burst. The overall story is therefore one of rapid growth combined apparent resilience to the economic recession. See graph 1.

Graph 1  
Annual Investment Flows in the Telecommunication Services Sector, 1993-2001



Source: ITU database

These aggregate figures disguise different country stories. Looking at the graphs (see Appendix 3) the economies of the region fall into various categories. Taking the mean of annual investment 1998-2001 as a percentage of the mean for the whole period, China is outstanding with a growth of 60 per cent. Taiwan comes second at 35% and then grouped together at between 13% - 17% come Australia, India, Nepal, South Korea and Sri Lanka.

<sup>1</sup> ITU Database

Of these economies only China shows little influence of cyclical growth. This is probably due to the fact that throughout the period China did not rely upon private sector investment to any great extent,<sup>2</sup> instead financing its network expansion largely from installation and connection fees and a rapid rise in domestic revenues, especially from the mobile cellular sector. Taiwan shows a marked fall in annual investment in 1997 coming after several years of slow decline, but thereafter Taiwan's growth is strong. By contrast Australia's growth has been quite steady despite a sharp downturn during the 1997 Asian crisis, while South Korea's growth has been equally strong but more obviously cyclical. The economic crisis of 1997 does not seem to have been an influence on telecommunications investment in South Asia. While India's growth was fairly flat with a slow decline from 1995 to 1998 but without any sharp falls, growth picked up strongly thereafter. Nepal showed strong growth to 1996, followed by a sharp decline just prior to 1997, followed by a slight recovery from 1997 onwards. Defying all the trends, Sri Lanka showed strong growth throughout the crisis period, but then from 1999 investment fell off rapidly.

There is a second group of economies bunched around standstill or small declines in average annual investments flows of up to 10%. This group consists of Bangladesh, Hong Kong, Japan, Macau, New Zealand, Philippines, Singapore, Thailand.<sup>3</sup> All these economies show the effects of 1997 with the exception of Bangladesh, which experienced a long decline in annual investment from 1994 and then a sharp pick-up from 1998. This again seems to suggest that South Asia was relatively unscathed by the Asian economic crisis in this sector, and this may be indicating that where foreign direct investment plays a small role the sector is less vulnerable to external shocks. Of the other economies in this grouping, only Japan and Singapore were not showing rebound by the end of the period. The best indicator of the resilience of most Asian economies to the crisis is Thailand's rapid recovery in annual investment after a dramatic decline in 1997 to 1993 levels.

A third group of economies consists of Indonesia, Lao P.D.R, Malaysia and Pakistan. Their mean annual investment rates fell to 61%, 85%, 83% and 59% respectively. Indonesia, Lao and Malaysia all show the effects of 1997 and then recovery, especially rapid in the case of Indonesia after 2000, much weaker in the other two cases. The South Asian story retells itself in the case of Pakistan where an uninterrupted fall is recorded throughout the period starting 1994.

Mongolia and Myanmar share a fourth category of economies that suffered major reductions in annual investments, down to 24% in the case of Mongolia and to 7% in the case of Myanmar, although their early cycles are different. Mongolia saw declines to 1995, then two years of much higher levels of investment, followed by a very sharp decline during the Asian economic crisis and no sign of recovery. Myanmar experienced

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<sup>2</sup> Less than 20% of investment in China's telecommunication services sector came from overseas sources, such as vendor credits, development loans, etc. Around 40% came from installation and connection fees.

<sup>3</sup> Vietnam has been excluded because the ITU database has only three years figures for Vietnam, 1997-1999, which show a strong recovery from the downturn.

a sharp increase in investment in the early 1990s, but a collapse after 1996 and no sign of recovery.

### Infrastructure Investment with Private Participation

Private investment is also involved with many infrastructure investments that are either led by the public sector or involve public funds. According to the World Bank's PPIbook<sup>4</sup> there were 65 such infrastructure projects with private participation in telecommunications in 15 East Asia and Pacific (EAP) countries, 1990-2001, involving a total annual investment of US\$65 billion.<sup>5</sup> The top ten projects accounted for approximately half, US\$31.7 billion.<sup>6</sup> Greenfield projects involved around US\$35 billion, divestitures over US\$25 billion, and concessions nearly US\$5 billion.<sup>7</sup> As these figures suggest, divestitures in Asian economies did not play a leading role in attracting private sector investment, while greenfield investments, especially in mobile cellular markets, did. The importance of mobile is illustrated by the following table from the ITU.

**Table 1**  
**Dates when mobile subscribers overtook fixed-line subscribers**

1993-1998	1999	2000	2001	2002
Cambodia	Hong Kong, China Korea (Rep.)	Brunei Malaysia Mongolia Philippines Singapore Taiwan, China	Australia French Polynesia Macau, China New Caledonia New Zealand Thailand	Bangladesh China Fiji Indonesia Japan Lao PDR Maldives Sri Lanka

Source: ITU Asia Pacific Telecommunication Indicators, 2002, table 1.1.

### Private Investment

Unlike other regions where private investment was largely attracted by divestment of fixed-line state-owned telecommunications enterprises (SOTEs), for example in Latin America and Eastern Europe, in the Asia Pacific it has been mostly driven by the market entry and rapid expansion of competitive mobile cellular telephone companies. By contrast, the divestiture of SOTEs in the Asia Pacific region has been a more nuanced and varied process. Until the 1980s when NTT in Japan was partially privatized the only telephone company with listed and traded stock in the region was the Philippines Long Distance Telephone Company, or PLDT. In 1988 Hongkong Telecom, an international and domestic fixed line monopoly, was listed by Cable & Wireless plc., and in 1989 S.K. Telecom was divested from Korea Telecom and separately listed. New Zealand Telecom was privatized by auction and listed in 1991, followed by the partial privatizations of Telekom Malaysia in 1991, Singapore Telecom in 1993 and Korea

<sup>4</sup> [http://www.worldbank.org/privatesector/ppi/ppi\\_database.htm](http://www.worldbank.org/privatesector/ppi/ppi_database.htm)

<sup>5</sup> PPIbook, tables 2.1 and 10.2. This accounted for 20% of worldwide total infrastructure investment in telecommunications that included private investment.

<sup>6</sup> PPIbook, Box 2.1. Telecommunications projects accounted for 31% of all project investments in EAP. (Figure 2.4), 1990-2001, second highest after electricity.

<sup>7</sup> PPIbook, Figure 2.5.

Telecom in 1994. Also in 1994 P.T.Indosat was listed in Indonesia, and P.T.Telkom in 1995. Others have followed and some have been planned, partially realized and then delayed due to constitutional, political or commercial reasons, for example in Australia, India, Pakistan, Taiwan and Thailand. In some cases the divestments have been total, in others the state remains the majority or minority shareholder.

The case of China is especially interesting both because of the scale of the market capitalization involved and because the initial price offering (IPO) is the sale of claims on assets administered by Chinese SOTEs who are using the funds raised by the IPOs to purchase operating assets from state-owned holding companies. The IPO model was introduced by the Ministry of Information Industries (MII) as an alternative to the traditional funding model that relied upon domestic installation and connection fees that accounted for around 40% of investment in China's telecommunications sector during the 1990s.

Boosting the capacity of local stock markets has been a policy objective associated with some of these privatizations, for example in Malaysia, Singapore and Taiwan. As Appendix 1 shows, telecommunications stocks today account for a significant proportion of total market capitalization in developing Asian economies and in the more developed small open economies of Hong Kong, Singapore and Taiwan. Appendix 2 is included for comparison with the situation in the early 1990s.

At the same time many new entrants, especially in the mobile cellular sector, have listed on local markets. Some of these companies were no doubt established to take advantage of the bull markets of the mid-1990s, often using their close personal and political connections to gain operating licences. Their owners were not necessarily expecting to nurture their companies for the long term, but rather were looking for buyers. The early and mid-1990s was a time when many Western telecommunication companies in particular were looking towards strategic investments in the Asia Pacific region. Some were simply looking East towards growing markets. Others were following their major MNC accounts, building international networks and looking for local backhaul opportunities to provide their customers with global end-to-end services. Yet others may have been motivated by their own plans to IPO and were looking for a portfolio of Asian investments to pad their prospectuses. The period from the early 1990s to the Asian economic crisis of 1997 was replete with high expectations, seemingly unending growth in the sector and not a little irrational exuberance in some of the asset valuations and acquisition prices paid. Different companies adopted different strategies, some more cautious or focused than others, but collectively they fueled the fires of investment that were already kindling locally.

This last point is perhaps a critical one. Even from the 1980s many newly industrializing Asian economies were planning for the expansion of their information technology sectors and coming to recognize the importance of the telecommunications infrastructure to promote efficient networking. Those economies where governments showed commitment to development experienced steady and sometimes rapid growth in the telecommunications sector. The paths adopted to achieve growth varied, but each was

driven by a policy recognition that the sector warranted 'promotion and facilitation' to use the phrase frequently occurring in Hong Kong Government policy statements. In some cases governments were faced with the need to push through constitutional reforms to permit the liberalization of their telecoms sectors, and adopted interim measures such as build-transfer-operate (BTO) schemes as in Thailand, or the KOS joint operating schemes in Indonesia. Macau adopted the concession approach. Vietnam introduced the Business Cooperation Contract (BCC) which left network assets in state hands but allowed Telstra to revenue-share in exchange for investment, management skills and technology. For a short time in China a China-China-Foreign scheme was adopted by China Unicom to attract investment, management skills and technology transfer from Western companies as a way to circumvent a prohibition on FDI in the sector. These schemes collapsed when the State Council ruled that the revenue-sharing of these schemes must not include any element of the installation and connection fees which were strictly earmarked for reinvestment into network expansion. But these are seen mostly as transitional measures leading towards the full liberalization of the sector. For example, Malaysia followed the partial privatization of Telekom Malaysia with the issuing of competing fixed and mobile licences. In Cambodia the opening of the market has led directly to private overseas investments in competing mobile networks. Whether it is due to the open and export-oriented nature of the smaller market economies, or the objectives of central planning of the command economies now in transition, or the industrial policies of the larger market economies, where central government has shown commitment to development, the telecommunications sector has flourished.

## WTO

The commitment to development has been closely associated with market opening. In some cases, such as China, the opening has been to entities that are state-owned, in other cases to a mix of partially privatized and totally private companies, in yet other cases to completely liberalized markets with no state ownership involved. WTO commitments have generally opened the sector to FDI, although in many cases there are FDI ceilings which fall short of major equity ownership. In the forthcoming Doha Round proposals include further liberalization on FDI and an extension of market opening to sectors that were previously excluded, such as media and audio-visual services which are closely associated with trends towards convergence with telecoms, especially with broadband networks that can multiplex high speed high definition services such as TV and video signals. These are contentious issues and agreement is likely to prove difficult but the general direction is clear.

The following table illustrates the point that many economies in the Asia Pacific region have now reduced or removed entirely their restrictions on FDI in the telecommunication services sector.

**Table 2**  
**Levels of Restrictions on FDI in Selected Asia Economies**

<b>Economy</b>	<b>Restrictions on FDI</b>	<b>Comment</b>
Australia	None	FDI is limited to 35% of Telstra's 49.9% equity; individual foreign investors limited to 5% of the 49.9%. Approval required for FDI in other entities.
Bangladesh	None	International is a SOTE
Bhutan	None	FDI up to 20% in resale services
Brunei Darussalam	SOTE	FDI in resale services
China	49%	FDI up to 50% in VAS
Hong Kong, China	None	Fully liberalized from 2003
India	49%	All markets open
Indonesia	35%	Local services provided by KOS schemes
Japan	None	FDI in NTT limited to 33% of equity
Korea	49%	Foreigners can be largest shareholders in KT
Lao PDR	SOTE	Foreign participation in State JVs encouraged
Macau, China	Concession	FDI in fixed/international concession; FDI in mobile
Malaysia	30%	Permit >50% but has to be reduced after 3 years
Mongolia	None	All markets open 1999-2002
Myanmar	SOTE	FDI in VAS
Nepal	80%	National Communications Company a SOTE
New Zealand	None	49.9% in Telecom NZ for any single foreign investor
Pakistan	None	Liberalization since 2003
Papua New Guinea	SOTE	Under review
Philippines	40%	All markets open
Singapore	49%	49% only applies to facilities-based supply
Sri Lanka	None	Foreign participation in BOO and BOT encouraged
Taiwan	49%	Plans to liberalize 100% indirect foreign investment
Thailand	49%	Privatization of SOTEs planned
Vietnam	SOTE	Foreign participation in State JVs and VAS

### Privatization

Since 1988 over US\$70 billion worldwide has been raised by the privatization of public telecommunication service companies operating in 76 developing countries. Of this 14% or nearly US\$10 billion has come from East Asia and the Pacific region.<sup>8</sup>

The term privatization is usually associated with divestiture, most commonly through a share issue or initial public offering (IPO) or sometimes an auction. However there are other means through which private capital can enter the market previously the preserve of the public sector, and a wider definition of 'privatization' could, for example, include

<sup>8</sup> Christine Zhen-Wei Qiang and Pierre Guislain (2003) Foreign Direct Investment in the Telecommunications Sector' The World Bank.  
[http://info.worldbank.org/ict/WSIS/docs/comp\\_FDI.pdf](http://info.worldbank.org/ict/WSIS/docs/comp_FDI.pdf)>[http://info.worldbank.org/ict/WSIS/docs/comp\\_FDI.pdf](http://info.worldbank.org/ict/WSIS/docs/comp_FDI.pdf)

public-private joint ventures, and also outsourcing, ranging from large scale contracts such as network construction, to the local provision of a telephone or facsimile service through kiosks run by small entrepreneurs on street corners.<sup>9</sup> The following is a checklist of mechanisms through which public and private capital may come to mix.<sup>10</sup>

- **Employee and Management Buyouts** - are not usually practical for large undertakings of strategic importance such as telecommunication enterprises, although employee share-ownership schemes can be part of a negotiated stakeholder agreement to win the backing of labour unions, and management share-ownership and stock options can become part of an incentive scheme designed to drive growth.
- **Auctions** - have been used to sell state-owned telecommunications enterprises (SOTE) to domestic and foreign bidders where the state wants to raise large stakes and also wants to ensure, through vetting and pre-selection, that the bidders are competent investors with telecommunications management skills. For example, in 1990 New Zealand Telecom was auctioned to Bell Atlantic (USA) and Ameritech (USA) for NZ\$4.25 billion.
- **Voucher and Certificate Based Transfers** - have been used in Eastern Europe to allocate shares to local citizens, but the procedures can be dangerously lacking in transparency.
- **The Concession Method** - was used in 1981 when Macau awarded a twenty-year Build-Operate-Transfer (BOT) contract to Companhia de Telecomunications (CTM), a joint venture involving CPRM of Portugal and led by the Cable & Wireless company. Under this arrangement remaining asset values are transferred to the Macau Government only at the end of the Concession period. After negotiations in the mid-1990s the franchise was extended for a further ten years but the cellular and Internet markets were opened to competition. By contrast in 1992 Thailand used the Build-Transfer-Operate (BTO) model to grant two revenue-sharing Concessions.<sup>11</sup> Now that both the Communications Authority of Thailand (CAT) and the Telephone Organization of Thailand (TOT) are scheduled for SIP privatization these schemes are being reconsidered because the JV partners are concerned that through revenue-sharing they will be subsidizing a direct competitor.
- **Liquidation** - the most spectacular recent cases of liquidation have arisen in the private sector in the USA as companies like Worldcom, Global Crossing, 360 Networks and others have either sought protection under Chapter 11 or have passed

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<sup>9</sup> International Finance Corporation (IFC, 1995) states 'A generous stance would admit any transfer of ownership or control from public to private sector. A more exacting definition would require that the transfer be enough to give the private operators substantive independent power.'

<sup>10</sup> From J.Ure (2003) 'Regulatory Issues and Privatization'; APDIP/UNDP Asia Forum on ICT Policies and e-Strategies, Kuala Lumpur, October 2003: [http://www.trp.hku.hk/papers/2003/apdip\\_031017-1.PDF](http://www.trp.hku.hk/papers/2003/apdip_031017-1.PDF)

<sup>11</sup> BTOs were awarded to TelecomAsia, a joint venture between Charoen Pokphand and Nynex of the USA, and TT&T, a joint venture between two Thai companies Loxley and Jasmine. The Thai Constitution prohibits the private ownership of national infrastructure.

into receivership. Restrictions are sometimes placed upon who can buy these assets, often for national security reasons.<sup>12</sup>

- **Joint Ventures** - (JVs) between foreign-owned telecommunications companies and local state-owned telecommunications enterprises (SOTEs) became popular in Asia in the 1990s but most have collapsed since then. PT Telekom in Indonesia experimented with the KOS joint venture scheme under which the foreign partner in each province was required to employ PT Telekom staff, but the Asian economic crisis undermined the commercial viability of these schemes. PT Telekom has since adopted the more conventional road to privatization.
- **Near Joint Ventures** - in 1988 Vietnam adopted something less than a joint venture when a Business Cooperation Contract (BCC) arrangement was started with Telstra, based upon payments from revenues. Mobile operator China Unicom experimented with China-China-Foreign (CCF or 'Zhong-Zhong-Wai' in Chinese) partnerships in the mid-1990s. Operating revenues were shared with the local China partner who in turn shared revenues with their foreign partner in exchange for management, technology and network consultancy services. When the State Council upheld the directive of the Ministry of Posts & Telecommunications that installation fees must be excluded from revenue-sharing agreements and instead be ploughed back into network investment, the foreign partners no longer found these CCFs to be commercially viable.<sup>13</sup>
- **Public Offer and Closed Subscriptions** - IPOs and private placements are the most frequently used mechanisms for the privatization of SOTEs, partly because the state is looking for a windfall income, but also because of the sheer size of the holdings and because of the strategic importance of the sector. Often the state will retain part or the majority of shares, releasing them in tranches according to the market price and the ability of the market to absorb them
- **Outsourcing** - from 1989 Indonesia experimented with the Pola Bagi Hasil (PBH) model that allowed domestic private capital to revenue share as building contractors and consultants to PT Telekom, an arrangement known as the Build-Transfer (BT) model, an early form of outsourcing.

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<sup>12</sup> Privately-owned Hutchison Global Communications, the Hong Kong telecommunications company, was recently denied permission to buy a stake in Global Crossing in the USA because of concerns about its close links with China, but partially state-owned Singapore Telecom was given the go-ahead. On the other hand, SingTel was rebuffed in its efforts to buy Hongkong Telecom and buy into Time Telekom in Malaysia, while its efforts to purchase Optus from Cable & Wireless in Australia faced a similar uphill battle before clearance was finally given.

<sup>13</sup> The dispute illustrates a wider issue, that various forms and degrees of involvement of 'outside capital', which could be domestic or foreign investment, run up against objections from different interest groups and stakeholders within the telecommunications establishment, sometimes from the incumbent operator, sometimes from the regulator, sometimes from policy makers and politicians.

## Scope of the Issues

This paper has indicated the scale of investment in the telecommunication services sector across the Asia Pacific region. It has shown the general upwards trend in the early-middle 1990s, the decline following the Asian economic crisis, and the recovery through the period of the dot.com bubble. It has also shown these trends disguise marked variations in the experience of different economies. For example, investment patterns in South Asian economies seem to have been relatively immune to the 1997 crisis. What do these differences tell us? For example, are the difference experiences of 1997 symptomatic of greater or lesser exposure to FDI? Or are they rather explained by the general openness of the economies in question, or to their specific trading patterns?

The data and data sources can be a problem. How to get data that can distinguish between domestic and foreign capital, and to capture private investment in non-listed companies or in listed subsidiary companies where the figures disappear into consolidated accounts? Most international organizations, such as the World Bank, the ITU, the IMF, ESCAP, UNCTAD, the OECD and so forth, rely largely, although not exclusively, on official country statistics and these can be incomplete and rudimentary in some developing countries. Even comprehensive data may not separate telecommunications from posts and communications which may also include transport services. Finance houses and securities firms usually only track listed company reports, so collecting comprehensive data is a challenge. Is comprehensive data absolutely necessary? Are broad trends sufficient to reach conclusions for good policy?

Having good data allows us to distinguish between greenfield investment, sector expansion investment, investment in divestitures and other mechanisms for opening up the sector. It seems that divestiture has been far less important in the region than the first two and far less important than in other regions, South America and Eastern Europe for example. Is this because governments in Asia are more reluctant to let go? Is this because of inherited ideologies and fears for national security? Or because industrial policy and planning plays a more important role in Asia? Is it for fear of slowing down the achievement of universal service and closing the digital divide, in which case most of the evidence suggests opening to FDI is a better way to go? Is it due to powerful domestic interests who fear competition from foreign firms, or is it more to do with painfully slow processes of political and constitutional reforms in some countries in the region? Is there an optimal mix between public and private investment, a "Second Best" solution where the "First Best" solution of sustainable self-funding network development is not achievable?

Who are the investors? Are they strategic investors such as overseas carriers, or financial and institutional investors, or manufactures offering vendor credits? Do they share similar or common interests? Are they equally sustainable? Are they subject to different cycles? How do they relate to each other and to lending institutions such as banks, development agencies and import-export banks? Is there a typical project finance structure and what does it look like? What are the ratios of equity to debt to institutional lending? Is there a trend towards local currency debt rather than US dollar debt? How do world currency

fluctuations and trends in the value of the US dollar impact on the different types of investment and the different private sector investment agents?

What drives private investment and FDI? Are FDI and domestic investment motivated by similar or different drivers? In the case FDI is it push or pull factors at work? Does FDI increase when home (Western) markets are booming, or do booming home markets raise the ROR hurdle for FDI? Does FDI increase when home (Western) markets are collapsing, or is this a period of generalized retreat as seems to have happened after 2000-2001? Does domestic investment complement or substitute for FDI? In the mid-1990s FDI was looking for local partnerships, but since 2001 local investors have tended to buy out foreign investors. Are these purely cyclical issues or do they represent a repositioning of local Asian capital and capital markets? Local companies are often family run businesses and the families are often loath to relinquish either ownership or control. Are there successful models to overcome these types of conflicts of interests?

What are the local conditions favourable to FDI? And how can host governments ensure a win-win situation? Regulation clearly plays an important role. For example, how can the regulator approach the rebalancing of tariffs to restore profitability and investment in the local loop when this may meet social and political resistance? What are the rules governing interconnection between networks, or access by international carriers to cost-based backhaul facilities? Does the regulator adopt a technology neutral approach, for example, towards GSM and CDMA mobile standards? A technology-driven approach will unquestionably cut out some overseas investors, but does it reduce overall FDI? Generally the WTO's Reference Paper provides regulatory guidelines, but if these represent best practice serving the interests of foreign investors, are there incentives for local operators to collaborate with liberalization?

Macro-economic policy extends to fiscal and monetary policies. What impact do local rules governing investment credits, retained earnings and repatriation of profits have on FDI? Are they decisive in any way or does the impact vary according to other market considerations? What impact do import duties on equipment and technology have? They clearly raise operating costs and lengthen operating timelines. (In the telecoms sector many countries have signed the Information Technology Agreement (ITA) to abolish tariffs on technology equipment.)

What are the costs of FDI? There are numerous insurable risks, such as country, currency, regulatory, security risks, but at what cost? Non-insurable risks include the competence and honesty of local partners, local managers, quality of staff, etc. We mentioned above that relations between the foreign partner and the local host can become difficult if control over the use of resources and strategic directions becomes an issue.

Within a country, do domestic companies lobby for access to foreign funds or lobby to deny foreign access to markets? What is the capacity of local capital markets and banks to fund the sector? How available is foreign currency for imported technology, and how prohibitive or stable are local interest rates? Which of these factors inhibits local investment the most, and does that make FDI more attractive? At the local level, what

can be done to encourage very small entrepreneurs to enter the market, for example in remote rural areas or running small kiosks in the poor districts large cities and small towns? Is low-cost finance available? Do regulations aid access to radio spectrum at low prices? Are long distance interconnection charges set in a way that allows local entrepreneurs to retain earnings?

Finally, but only in terms of concluding this paper, what are the emerging patterns of investment? Is FDI becoming more intra-regional? Is this a trend or due to a temporary retreat by Western companies? Is FDI influenced by trade patterns, or more by domestic markets? If FDI does follow trade patterns, will the increasing number of free trade agreements (FTAs) influence FDI flows in the region? On that note, will the work of ASEAN have a positive effect on FDI and will a new model of public-private collaboration emerge in Asia's developing economies?

## Conclusion

Asia Pacific is home to over one-third of all fixed line and mobile subscribers, but also home to over 50% of the world's population. So there is enormous growth opportunity as well as need, and also a sustainable market. For example, India today has just over 4 telephones per 100 people, exactly the ratio of the region-as-a-whole in 1991, while the region-as-a-whole today has 21 telephones per 100 people.<sup>14</sup> If India's recent expansion continues and matches China's during the 1990s, India could reach China's current teledensity of 25 by 2006. These are both countries of one billion people. Indonesia and Pakistan have nearly 200 million and 150 million people respectively, but teledensities of only 7 and 3. FDI may not find many profitable opportunities in remote rural areas, but it defies imagination to assume that a judicious blend of public, local private and FDI initiatives could not transform the situation.

This paper has identified a series of issues that affect the investment climate, and many of the factors may be beyond the immediate control of governments in developing Asian economies, for example global recessions and periods of wild currency fluctuations. But there is much that lies within the control of governments. Recognition of this is the easy part. Bringing the investor community together with the host countries to focus on sector specific opportunities and the best blend of public, domestic private and foreign investment is perhaps the next necessary step if practical progress is to be made across the region-as-a-whole.

There used to be a 'flying geese' analogy in development economics. There is a lead goose and the others follow in its slip-stream in a delta formation, pulled along by the collective urge to fly. Modern computer modeling has confounded this analogy. According to computer analysts the delta formation can be simulated by three simple algorithms. First, each bird must fly as close to the one next to it as possible. Second, none must touch. Third, each flies as fast as possible. What then appears to be a single lead bird turns out to be a different lead bird with every sudden shift in direction. This is

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<sup>14</sup> ITU (2003) Asia Pacific Telecommunications Indicators 2002

a more collective holistic approach to development. When all economies adopt the same algorithms, the flock can fly fast and with deft.

## Appendix 1

### APPENDIX - Capitalisation of Major Private Telecom Companies in Asia 10/2/2003

<u>Company</u>	<u>Currency</u>	<u>Local price</u>	<u>Mkt cap (US\$ bn)</u>	<u>Date of IPO</u>	<u>Weight in local Index</u>
<b>Cellular carriers</b>					
<b>Pan Asia</b>					
SmarTone	HK\$	11.95	0.9	10/31/96	-
SUNDAY	HK\$	0.37	0.1	3/16/00	-
CMHK	HK\$	20.80	52.4	10/23/97	11.695%
Unicom	HK\$	6.65	10.7	6/22/00	2.375%
SK Telecom	Won	186,000	13.3	11/7/89	5.240%
KT Freetel	Won	21,750	3.5	12/7/99	10.474%
LGT	Won	3,810	0.9	9/20/00	2.662%
MobileOne	S\$	1.42	0.9	12/4/02	0.816%
TAC	US\$	1.48	0.7	10/13/95	0.278%
AIS	Bt	57.0	4.2	8/5/93	-
Digi	RM	3.72	0.7	12/18/97	0.787%
Maxis	RM	6.45	4.2	7/8/02	4.511%
PT Indosat	Rp	9,600	1.2	10/19/94	2.815%
TCC	NT\$	27.00	3.6	9/19/00	1.065%
Far EasTone	NT\$	22.30	1.5	12/10/01	-
Globe Telecom	P	700	1.9	1/2/90	11.620%
<b>Japan</b>					
NTT DoCoMo	Yen	279,000	126.2	10/22/98	0.114%
<b>Integrated carriers</b>					
<b>Pan Asia</b>					
PCCW	HK\$	5.25	3.6	10/18/94	0.801%
China Telecom	HK\$	2.05	19.9	11/15/02	-
SingTel	S\$	1.68	17.4	11/1/93	8.333%
Telstra	A\$	4.83	42.5	11/14/97	4.518%
Telecom NZ	NZ\$	5.10	5.8	7/18/91	22.0%
Korea Telecom	Won	47,350	12.0	12/23/98	4.713%
CHT	NT\$	47.90	13.7	10/27/00	3.938%
PLDT	P	670	2.1	1/2/90	12.764%
PT Telkom	Rp	6,450	7.8	11/14/95	18.229%
Telekom Malaysia	RM	7.45	6.2	11/7/90	6.782%
Telecom Asia	Bt	6.45	0.5	12/22/93	-
<b>Japan</b>					
NTT	Yen	516,000	74.1	1/8/88	0.212%
KDDI	Yen	598,000	22.9	10/1/93	2.404%
Japan Telecom	Yen	353,000	10.2	9/6/94	0.366%

Source: Bloomberg, CSFB estimates

## Appendix 2

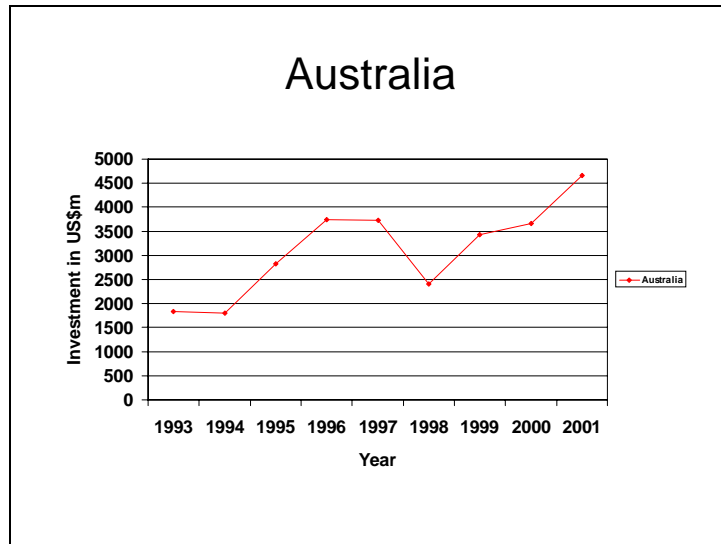
### Quoted Telecommunications Service Companies in the Asia-Pacific region, August 1994

Company	Country	Year Quoted
Hong Kong Telecom	Hong Kong	1988
Champion Technology	Hong Kong	1992
Star Paging	Hong Kong	1991
ABC Communications	Hong Kong	1991
Philippine Long Distance Telephone	Philippines	NA
Philippine Telegraph and Telephone	Philippines	NA
Globe Telecom	Philippines	NA
Easycall	Philippines	1991
Time Engineering	Malaysia	NA
Technology Resources Industries	Malaysia	NA
Telecom New Zealand	New Zealand	1991
Telekom Malaysia	Malaysia	1991
Singapore Telecom	Singapore	1993
TelecomAsia	Thailand	1993
Shinawatra	Thailand	1991
Advance Info Services	Thailand	1991
United Communications	Thailand	1993
Loxley	Thailand	1993
Thai Telephone and Telegraph	Thailand	1994
Jasmine	Thailand	1994
Samart	Thailand	1994
Shinawatra Satellite	Thailand	1994
Korea Telecom	Korea	1994
Korea Mobile Telecom	Korea	1992
DACOM	Korea	1992
Videsh Sanchar Nigam Limited	India	1992
Mahanagar Telephone Nigam Limited	India	1992

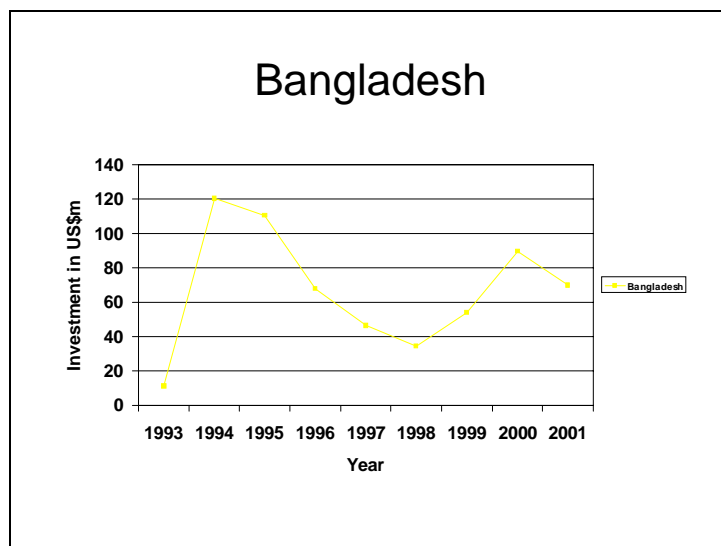
NA Not Available; Source: Ure and Vivorakij (1997) 'Telecommunications and Privatization in Asia' in Wu Rong-I and Yun-Pen Chu (eds) *Business Markets and the Government in the Asia-Pacific*, Addison Wesley Longman, Melbourne (pp.237-263)

### Appendix 3

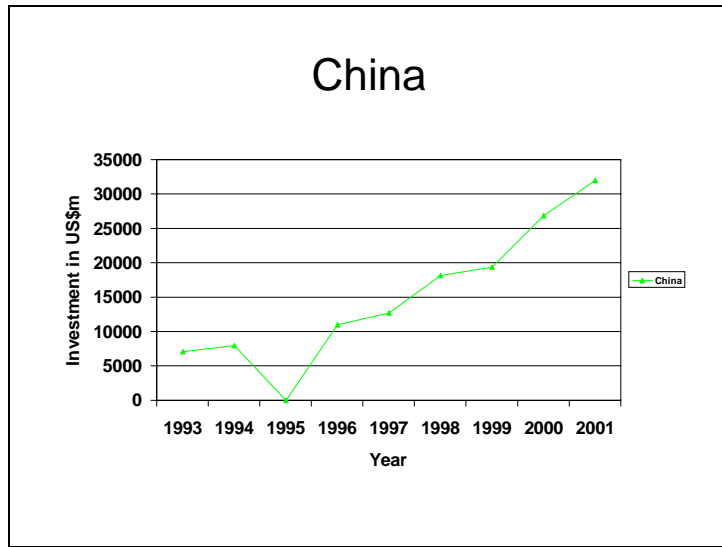
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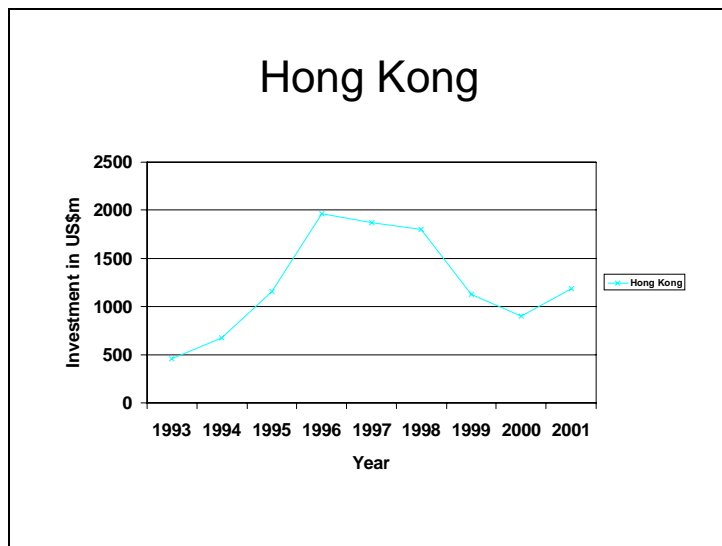
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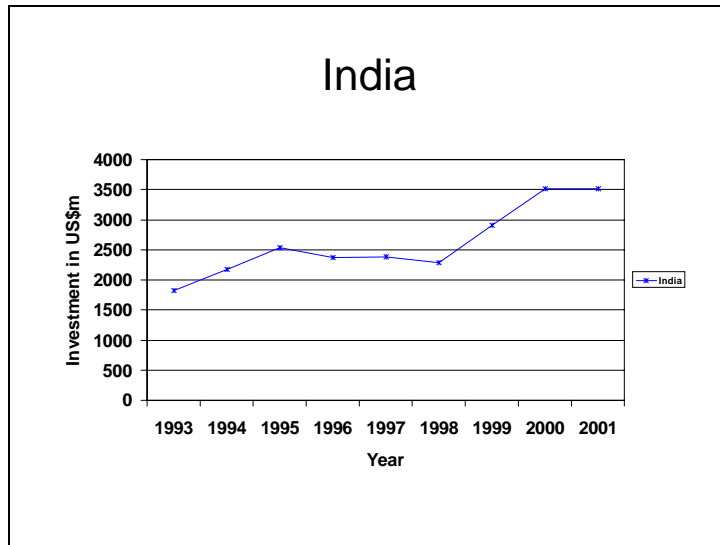
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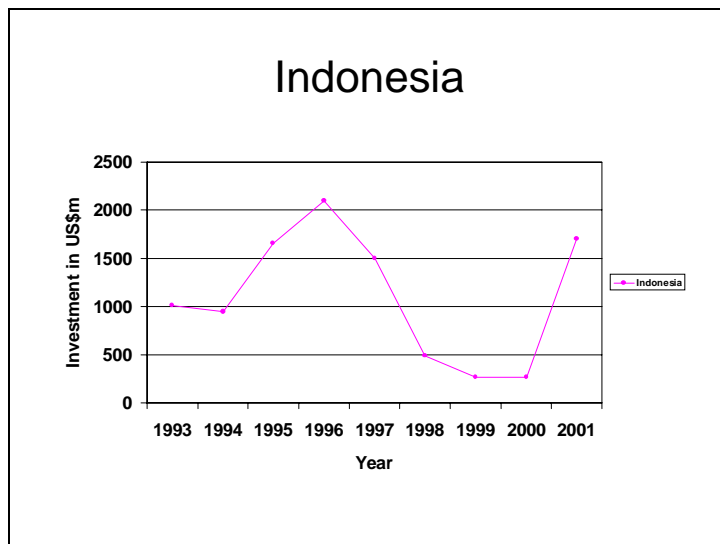
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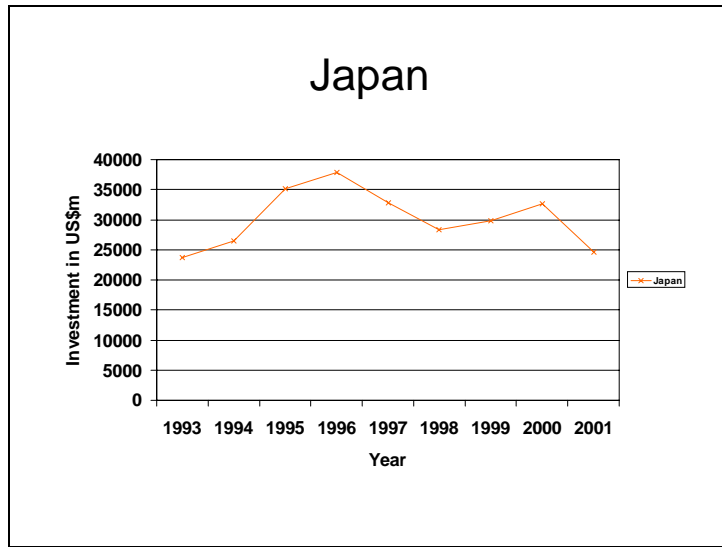
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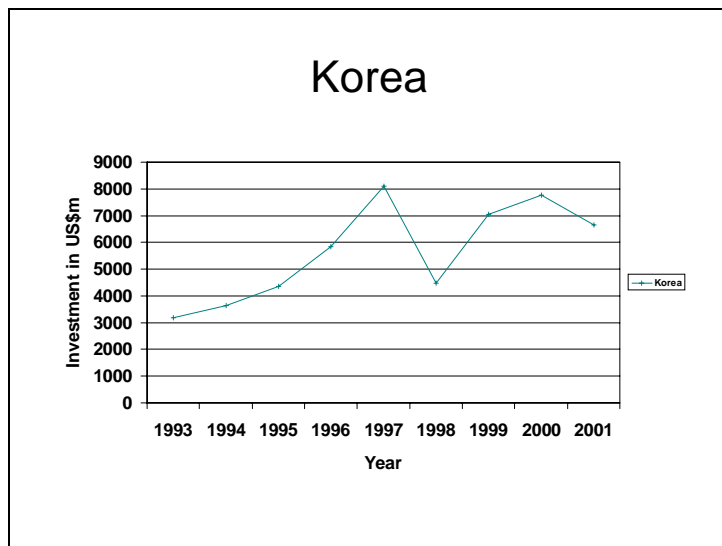
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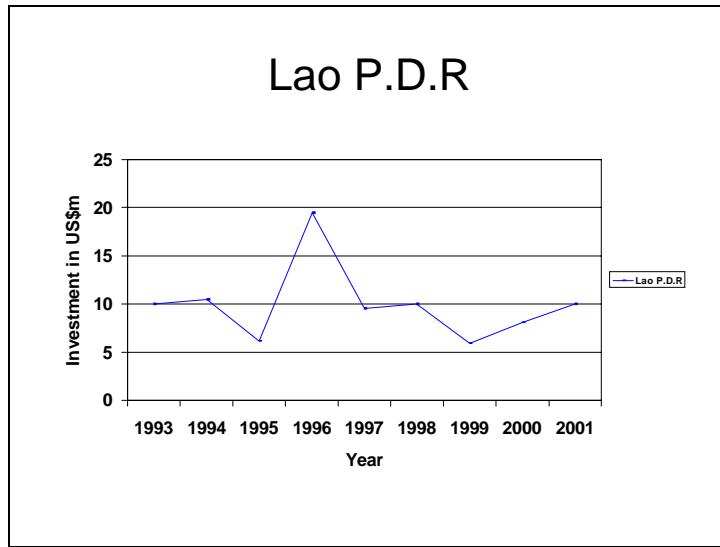
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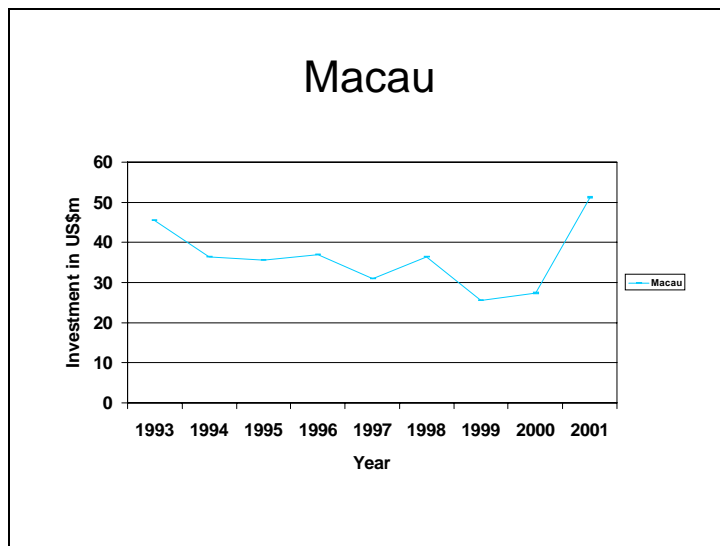
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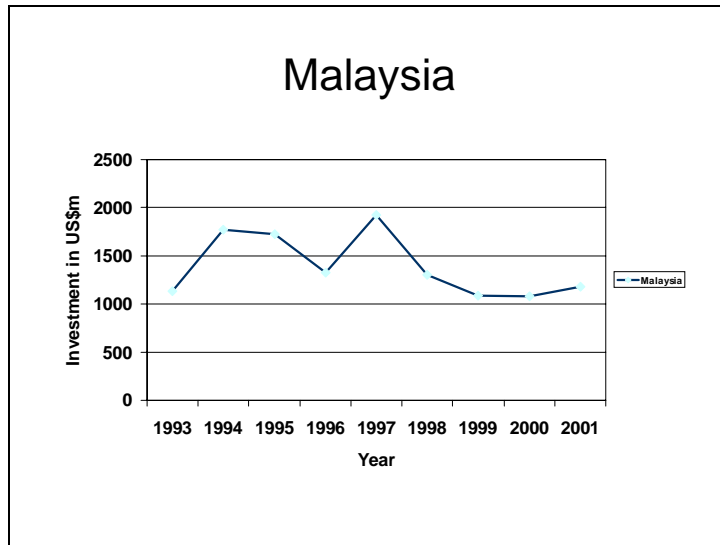
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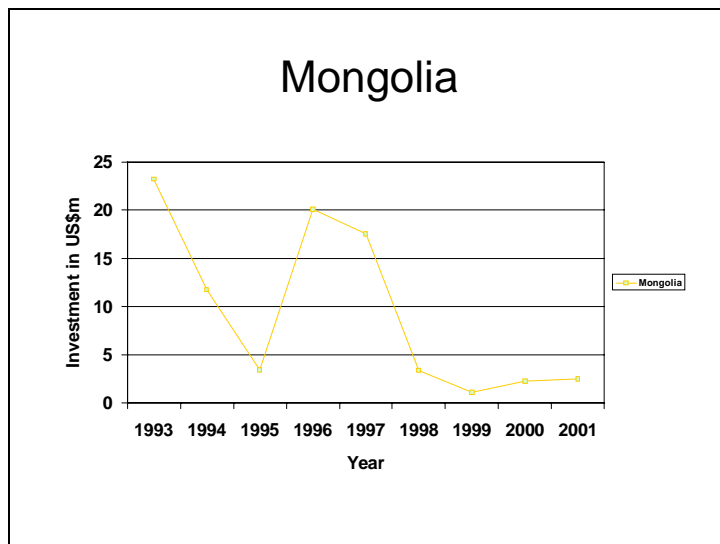
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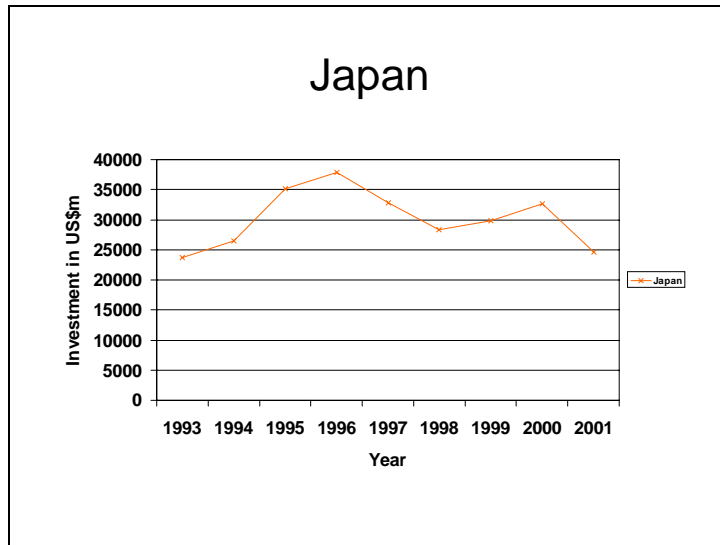
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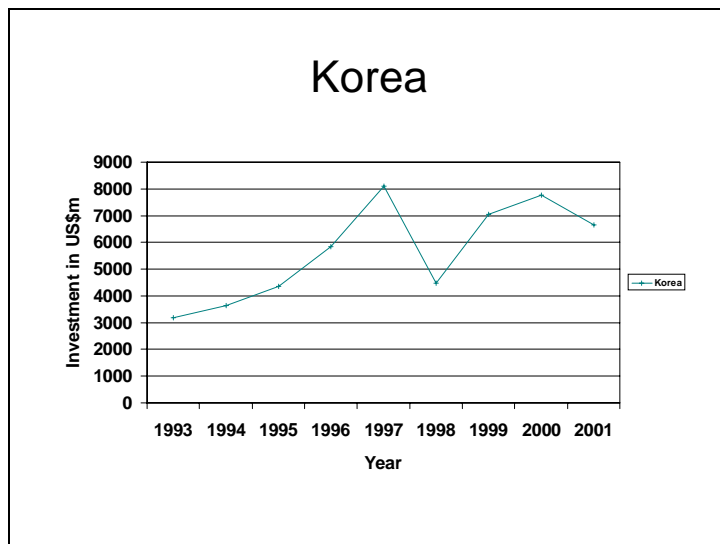
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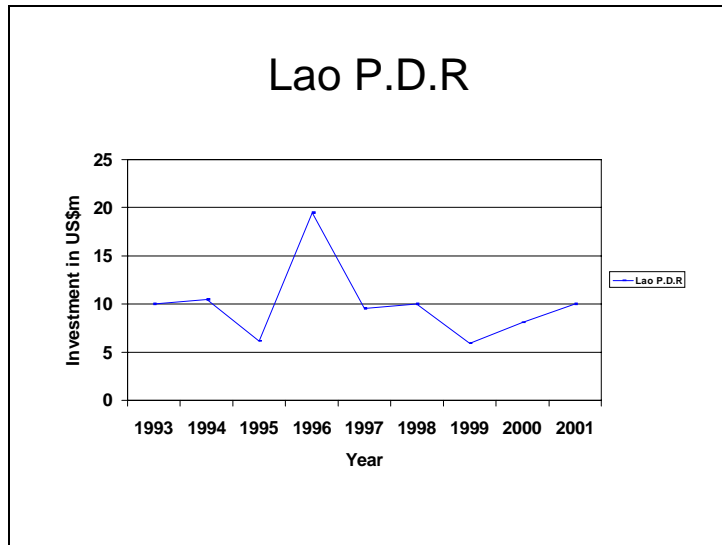
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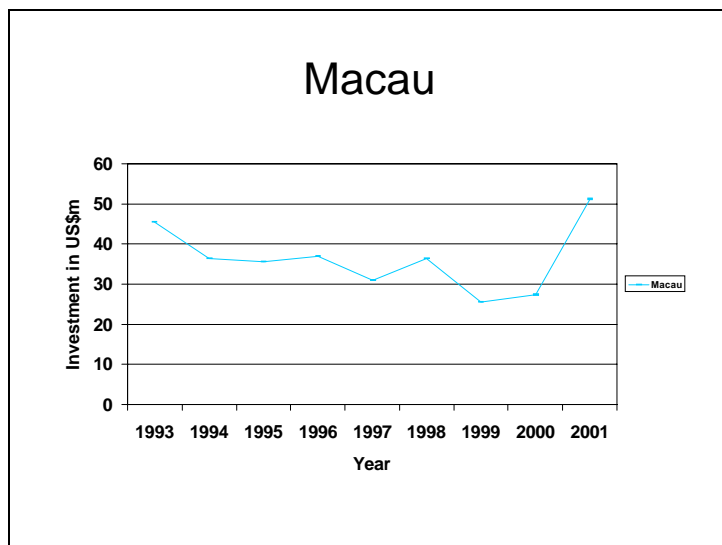
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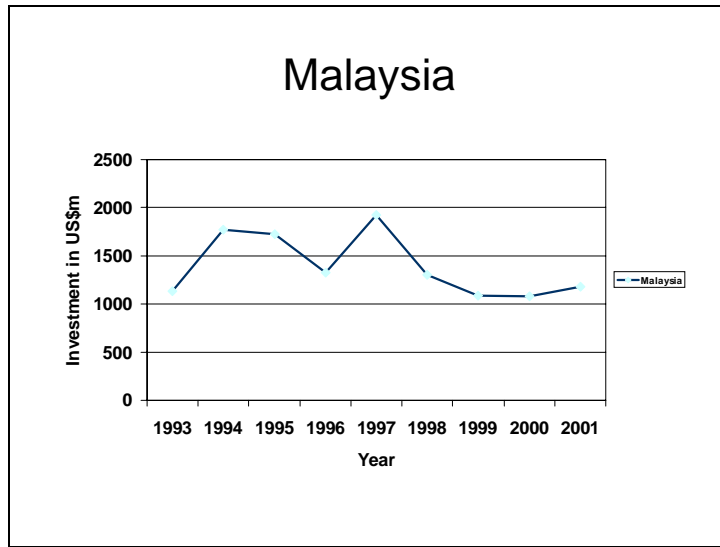
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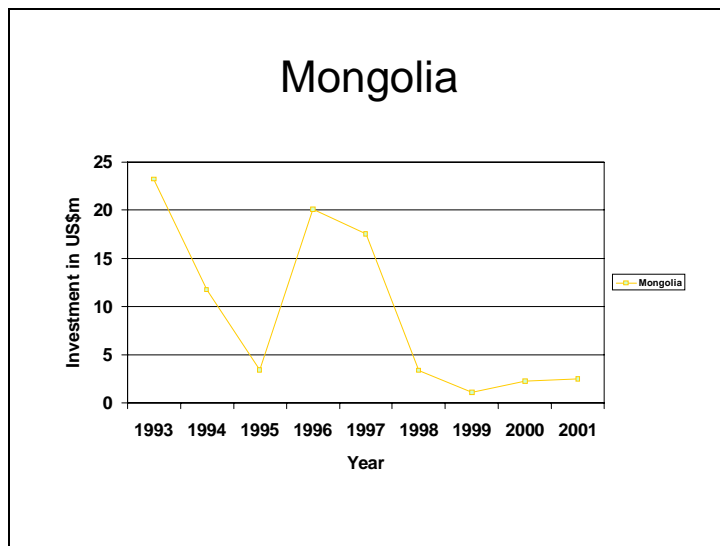
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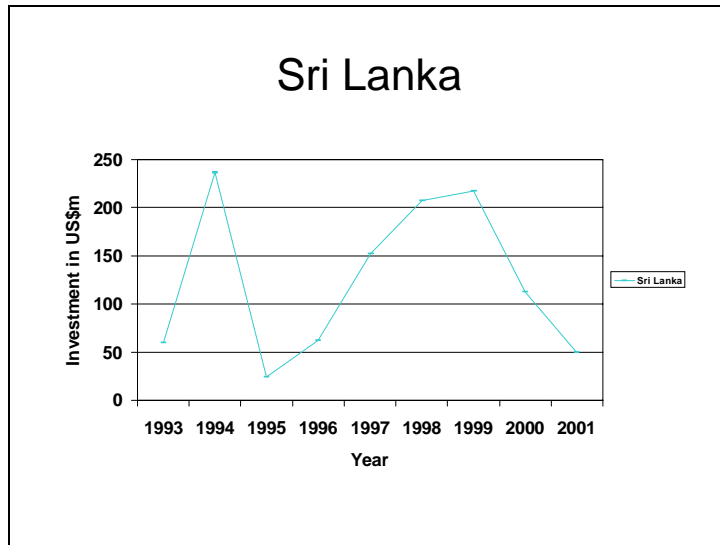
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