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# The Challenges before the Singapore Economy

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## ABSTRACT

This paper analyzes the economic challenges faced by the small city-state of Singapore. This country is one of the few small developing economies that has successfully maintained its international competitiveness in an era of globalization and growing regionalism in the Asia-Pacific region. Singapore's early transition towards a knowledge-based economy, driven by the presence of multinational corporations, has given it an early advantage as it adjusts to globalization forces. This paper aims to analyze the strategies that have been adopted and evaluate their success in achieving sustainable high growth in the future. In the aftermath of the East Asian crisis, Singapore has been forced to look beyond its immediate neighbors and traditional trading partners. In this context, Singapore's role in the newly emerging regional groupings in the region, like the Indian Ocean Rim Association for Regional Cooperation (IOR-ARC) is also highlighted in this paper.

## INTRODUCTION

Globalization and the concomitant rising importance of multilateral institutions such as the World Trade Organization (WTO) and the International Monetary Fund (IMF) have reduced the economic policy autonomy of most countries, particularly in the areas of trade and investment. Learning to cooperate while simultaneously competing with others has become a vital skill for firms, organizations and nations in the globalized and increasingly knowledge-based<sup>1</sup> world economy.<sup>2</sup>

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Globalization is reflected in the rapid pace and widening scope of transnational economic activities. The increased integration of financial and capital markets among different countries, irrespective of their levels of development, has had far-reaching implications for the economic, social and political systems both within and between these countries.<sup>3</sup> Financial integration has brought into sharp focus the high cost of information and perception gaps among economic agents. Thus, the need for consultation among different countries has also increased, leading to the emergence of new regional groupings in or among congruent small geographical regions for greater sub-regional co-operation within a multilateral framework.

In this context, small states<sup>4</sup> have faced substantial challenges with respect to creating sustainable growth and competitiveness within the new globalized environment. Developing small states are finding it difficult to keep pace with the increasing application of knowledge and information in the global production process and are unable to expand their international market access; meanwhile, the developed countries, despite having greater success in their transition towards a knowledge-based economy, are facing stiff competition in the international market to maintain and improve upon their position.

Singapore has stood out as one of the few small states that have recognized the need to quickly adapt to a knowledge-based economy in order to remain competitive in today's globalized world, and has accordingly adopted strategies to achieve the same. Singapore has also adopted strategies to expand its access to regional markets, since its domestic economy is very small in size. The recent East Asian economic crisis has led Singapore to look beyond its traditional trading partners in South-East Asia and identify opportunities for expanding trade and investment in new regional groupings like the Indian Ocean Rim Association for Regional Cooperation (IOR-ARC).

This paper analyzes the challenges Singapore faces in maintaining its competitiveness in the era of globalization, and evaluates its strategies for creating sustainable growth in the coming decades. It also examines Singapore's simultaneous trend toward expanding its economic relations outside the region, particularly among members of the IOR-ARC, in the wake of the recent economic crisis. The paper is organized as follows. The first section provides an overview of the Singapore economy and its performance in the 1990s, during the advent of globalization. The second section analyzes the country's strategies to face the challenges of globalization and its success in terms of maintaining its competitiveness in the global market. The third section analyzes the post-crisis economic scenario for Singapore and its efforts to move away from the region and expand its economic relations with trading partners through participation in new regional groupings like the IOR-ARC. This section further analyzes the possibility of other small states drawing lessons from the Singapore experience.

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## AN OVERVIEW OF THE SINGAPORE ECONOMY

The Republic of Singapore, with a total population<sup>5</sup> of 3.9 million in 1999 (Table 1, see appendix), is located at the southern tip of the Malaysian peninsula. It is an affluent but rapidly aging society. In 1999, Singapore had a per capita GNP of S \$36,979, or nearly US \$30,000 in PPP terms.<sup>6</sup> It has the ninth highest per capita GNP in the world<sup>7</sup> and is ranked 22nd in the Human Development Index (HDI).<sup>8</sup> Singapore has been one of the world's fastest growing economies; its average rate of growth was 6.4 percent in the period 1980-90, and was 8.7 percent during the first half of the 1990s. However, the growth rate slowed down in the mid-1990s, with a decline from 8.4 percent to 7.5 percent from 1995 to 1996, and a sharp decrease to 0.4 percent in 1998, largely due to the adverse impact of the East Asian crisis (Table 2, see appendix). The rate, however, has recovered quickly, and is thought to have grown by 5.4 percent in 1999.<sup>9</sup>

Over the years, Singapore has been able to combine rapid economic growth with low inflation, increasing foreign exchange reserves, low levels of external debt (though its internal debt at 87.4 percent of GDP in 1999 is on the higher side), and an appreciating currency in relation to the U.S. dollar (Table 1, see appendix). Its GDP in constant prices grew at an annual compound rate of 9.68 percent during the 1985-97 period.

Singapore is also among the most internationalized economies in the world.<sup>10</sup> In 1999, its total trade to GDP ratio was 2.45, among the highest in the world. The country is host to a very large number of multinational corporations (MNCs), approximately 5000, in both manufacturing and services. It has given high priority to maintaining its international competitiveness<sup>11</sup>, so that it can continue its strategy of being internationally oriented within a globalized framework.

This international orientation of Singapore began much earlier than the globalization era as a result of a well-planned development strategy based on export-led growth and foreign direct investment. This focus attracted multinational enterprises from abroad to set up local production and marketing capabilities and expand their activities in the region. In response to Singapore's strategy, these MNCs have not only increased their presence over the years, but have also diversified their operations to include research and development, management development, warehousing and distribution, fund management and technical support. These factors, combined with a central location in the Asia-Pacific region, that links the Indian Ocean Rim countries, Australasia and the countries along the Pacific Ocean, have given Singapore the status of a leading manufacturing, logistics and IT hub in the global market. It competes effectively as a city-state that has developed core capabilities in high value-added manufacturing and services that are essential for a competitive, modern-day business environment. Thus, it is now labeled as a competitive city-state with total business capabilities.<sup>12</sup>

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Singapore's economy is fairly well diversified. It has developed a significant industrial and manufacturing base in certain niche areas such as electronics, petrochemicals and pharmaceuticals (Table 2, see appendix).

While the country has been open to trade, investment and manpower flows from abroad, its domestic sector is highly cartelized; some of the key markets—such as land, housing and labor—are significantly and systematically influenced by the government. Besides the MNCs, the statutory boards (numbering around 100, though only a dozen are of major importance) and the approximately 600 government-linked companies (GLCs), occupy a dominant position in the economy. The statutory boards of the government and the GLCs constitute the public and domestic private sector of the economy. While the statutory boards are principally engaged in administrative activities, the GLCs are domestic enterprises that are often government-owned and compete with the MNCs in the manufacturing and services sector.

The dominant role played by them is likely to continue as the Singapore government plans to form a core-group among the GLCs to lead the technological advance in the country. Government economic plans recognize that the management and technological skills of the GLCs will enable them to adapt easily to technology- and knowledge-intensive production and allow them to lead other smaller, local companies on this growth path.

There is considerable cross ownership among the statutory boards and the GLCs, since a relatively small number of top civil servants hold directorships in a fairly large number of organizations. This suggests considerable concentration of economic power. The demarcation line between the public and the domestic private sector is blurred. The GLCs are, however, commercially oriented and little or no attempt is made to keep consistently unprofitable GLCs in operation. They are also required to benchmark themselves against the leading foreign competition in terms of quality of goods and services provided, while pursuing policies that are consistent with Singapore's growth strategy. Nevertheless, the statutory boards and the GLCs have emphasized engineering and commercial profitability rather than economic efficiency<sup>13</sup>. Such an emphasis on commercial profitability requires a strong fiscal position and high growth environment to plan supply ahead of demand. The state enterprises must also be able to make the prices that generate surpluses stick.

The policymakers in Singapore, however, recognize that past success does not guarantee the same in the future, particularly in the globalized, post-Cold War world. Therefore the government has been and must remain proactive.

## **SINGAPORE: STRATEGIES FOR GLOBALIZATION**

As argued earlier, Singapore is today one of the world's most internationally oriented and integrated economies. Its ability to attract substantial Foreign

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Direct Investment FDI flows has turned Singapore into a manufacturing base for foreign multinationals and a major international financial, logistics, trading and transportation hub in the global economy.<sup>14</sup> There is evidence that during 1987-95, FDI-intensive industries in Singapore contributed significantly to the Total Factor Productivity Growth (TFPG) of the economy, and the economy's growth rate of 11 percent was higher than the 7 percent obtained by non-FDI intensive industries. This figure indicates that FDI led to significant spillovers of technology, managerial and marketing skills into the manufacturing sector.<sup>15</sup>

According to Menkhoff and Wirtz<sup>16</sup>, four factors have helped achieve Singapore's present economic status in the global economy. These include:

1. Singapore's favorable location along South-East Asia's major shipping and air trade routes and possession of a deep natural harbor.
2. Favorable external factors in terms of better world market conditions during its industrialization phases.
3. Cultural factors, like the absence of language and creed barriers and the use of English as an official language, make Singapore more appealing to multinationals.
4. Structural factors, like high quality infrastructure and IT development, and a results-oriented, politically stable and efficient government framework, have helped in the formulation and implementation of policies to address future challenges.

The business friendly approach of the government and its quest to maintain competitiveness have led Singapore to become second only to the U.S. in terms of competitiveness, according to the world competitiveness index, compiled by the World Economic Forum in 1998.<sup>17</sup> The index is based on eight factors: domestic economic performance, internationalization, government, finance, infrastructure expertise, management, science and technology and people.

However, this success has not led to a sense of complacency among Singapore's policymakers. The Economic Development Board (EDB) of Singapore, which is the statutory board responsible for planning and implementation of economic strategies for the Singapore economy, has been instrumental in formulating and implementing new and innovative strategies to maintain sustainable high growth and competitiveness in the international market. The major challenges before the Singapore economy in achieving success in the globalization era may be outlined as follows:

1. Singapore suffers from an acute shortage of skilled labor. Given that it aims to become a knowledge-based economy, there is an urgent need for a greater participation of highly skilled professionals in the labor force to support

and sustain future growth. However, the resident population in Singapore is rapidly aging and has grown at an average rate of only 1.9 percent in the past four years.<sup>18</sup> The proportion of skilled workers in the labor force is also declining. This is a major cause of concern as the present population base makes it unsustainable to support the growth of knowledge-based industries for long. Singapore thus has to depend on inward manpower flows of relatively unskilled as well as professional and technical personnel.

2. Singapore's small domestic market size and high trade orientation, has increased its vulnerability to external macroeconomic shocks like the ones experienced during the East Asian crisis of 1997-98. There is thus a need to expand its external economic relations beyond its traditional trading partners in the South-East Asian region, thereby increasing the size of its external market.

3. Severe scarcity of land in Singapore will make it difficult to continue its existing policy of inviting foreign companies to set up regional business headquarters in Singapore. It therefore needs to venture overseas and invest in markets that have an easier availability of land.

4. The regional economic crisis has led to attempts by Singapore's neighbors, such as Malaysia and Thailand, to develop competing infrastructures.<sup>19</sup> This has forced Singapore to try to attract large, growing and globalizing economies that lack adequate infrastructures, and convince them to utilize Singapore's infrastructure, thereby lowering per unit cost. At the same time, it also needs to upgrade and improve its existing infrastructure facilities.

The Economic Development Board has identified four thrust areas to enable Singapore to sustain future growth. These are incorporated into the following four globalization strategies adopted by the Board in the 1990s:

1. Manufacturing 2000 aims at strengthening the manufacturing sector by maintaining its share of the GDP at 25 percent or more<sup>20</sup>, and thus continuing to complement and support the service sector in the economy, which is believed to be the future engine of growth for the Singapore economy. The strategy also aims to upgrade the skills of the workforce as well as emphasize R&D, application development, process engineering and project design. The main targeted activities are electronics, petrochemicals and pharmaceuticals. This strategy has therefore prepared Singapore to become a knowledge-based economy since it lays the foundation for the workforce to be adapted to new technology and make more use of the information flows incorporated in the production process.

2. International Business Hub 2000 aims to attract multinationals to establish regional or overseas headquarters in Singapore and also use it as a base for production, trade and investment in the region.<sup>21</sup> Singapore has had a first mover advantage because of a well laid out promotion program and package of incentives that included tax concessions on the transfer and application of new technology, export of services, warehousing and servicing and offshore dividend income.

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Singapore has had these tax concessions in place since 1986, well before its competitors adopted similar measures.

Besides these strategies, due to the regular re-launching of such schemes by the EDB, Singapore is less likely than other countries to suffer from information failure problems.<sup>22</sup> This implies that, unlike many other countries, Singapore regularly provides information on its policies regarding foreign investment and incentives. In addition, the EDB regularly modifies its foreign investment incentives so as to differentiate itself from competing countries; in this way, Singapore is able to attract more regional and global enterprises to invest in Singapore and establish their operational or regional headquarters in the country. As a result, in 1998, a total of 26 industrial establishments from diverse backgrounds set up their overseas headquarters in Singapore; nine of these were Fortune 500 companies.<sup>23</sup>

3. Promising Local Enterprise (PLE) 2000 is designed to promote those small and medium local enterprises capable of becoming major players in the regional market and to link them with MNCs to explore synergies for mutual benefits. The PLE 2000 scheme is seen as key to building up a competitive domestic market, within the framework of fostering a larger open economy. The idea is to develop at least 100 local enterprises, each with an annual turnover of S \$100 million by 2005. To remain competitive and sustain growth in the global economy, Singapore needs to have strong domestic enterprises capable of competing with the MNCs in the global economy.

Following this strategy, 37 out of 300 PLEs achieved revenues of S \$100 million or more in 1998. They accounted for S \$800 million, or 10 percent of total fixed asset investment in 1998, and created 20 percent of the total employment in the manufacturing sector in the same year.<sup>24</sup> These PLEs engage in co-investment, collaboration and consolidation strategies with existing MNCs in the market to enhance their competitiveness and improve their production and managerial capabilities.

4. Regionalization 2000 aims to expand Singapore's external economy in order to provide stronger support for the domestic economy. As noted earlier, the Singapore economy is constrained by the limited availability of land and competitive labor and has to depend largely on its external economy. Its industrialization policies in the 1980s encouraged liberal foreign investment and allowed local companies to benefit from any spillover effects. However, with the increasing globalization of economic activity and growing international division of labor, it has become essential for Singapore companies to look for opportunities for expansion in other rapidly growing markets in the region, like India and China. Expanding into these new markets is vital for Singapore because its domestic market is gradually reaching the saturation point for further expansion. The increasing importance of MNCs in these emerging markets has also encouraged Singapore businesses to venture into the new markets, since its own economy is home to many such MNCs.

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Expanding into these emerging markets, Singapore can benefit from easier availability of land and competitive labor, thus turning its comparative disadvantage in these resources into a comparative advantage position. In a similar way, these markets will benefit from Singapore's expertise in the area of infrastructural development, software technology and other activities that are largely knowledge-based. This strategy has led the government to establish growth triangles and industrial parks overseas through a consortium approach to enhance the complementary strengths. An important example of this strategy is the International Tech Park, Bangalore (ITPB) that combines Singapore's capital resources and technical expertise in infrastructural development and international marketing with India's abundant supply of internationally competitive labor and easier land availability. ITPB is already profitable, and further phases are now being actively pursued.

Singapore aims to become a knowledge-based economy in the 21st century so as to keep itself competitive in this rapid wave of globalization. This requires incorporating knowledge and information as factors of production in the manufacturing and service sectors. The primary requirement for creating a knowledge-based economy is to spend heavily in R&D activities, and upgrade the skills of workers by training them to adapt to changes in technological development. It is envisaged that Singapore's regional rivals will not easily duplicate core capabilities required to reach such an objective. This would provide Singapore with a competitive edge in the world markets.<sup>25</sup> The "Industry 21" economic blueprint of the government aims to achieve this competitive edge by designing policies to derive about 40 percent of GDP from knowledge-driven manufacturing and exportable services.<sup>26</sup>

Electronic commerce (e-commerce) is an important activity that is knowledge-based and rapidly growing in the Singapore economy.<sup>27</sup> It is creating new business opportunities by reducing costs and extending the reach of local business. Since 91 percent of the population of Singapore has access to the Internet, this has generated the potential for increased use of e-commerce in the economy.

Thus, the *Singapore e-commerce master plan* is designed to develop Singapore into an international e-commerce hub, and create and sustain a services sector based on e-commerce. The target is to have S \$4 billion worth of products and services transacted electronically through Singapore, with 50 percent of firms using some form of e-commerce by the year 2003. A survey shows that e-commerce transactions expanded from S \$958 million in 1997 to S \$1.6 billion in 1998, and was expected to further increase to S \$9 billion in 1999.<sup>28</sup>

Besides developing a strong infrastructure for facilitating the use of e-commerce, Singapore is also in the process of amending and strengthening its legal system to facilitate authentic and confidential transactions over the Internet, which is essential for the smooth running of e-commerce business. Steps are also being taken to resolve issues on taxation of e-commerce, which,

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because transactions over the Internet are not transparent, has emerged as a major challenge before policymakers in a globalized economy.

The banking sector, which plays a leading role in electronic transactions, has also adopted several innovations in Singapore to facilitate the use of e-commerce<sup>29</sup>. The presence of a well-developed credit card/payments systems market in Singapore has also helped in the development of e-commerce, because the use of credit cards is important for purchases made over the Internet. Also, Internet banking is one of the latest service innovations being provided by banks<sup>30</sup> in Singapore. All such innovations and adoption of an e-commerce friendly environment have helped Singapore boost cross-border trading through electronic commerce. Recently, the government has also announced plans to provide incentives to companies to set up training institutes of e-learning, so that the existing workforce can upgrade to using e-commerce more widely.<sup>31</sup>

Reversing its past policies, the government has encouraged regional economic organizations to establish secretariats in Singapore. As a result, the secretariats of both APEC and the Asia-Europe Foundation are now located in Singapore. The government is also creating strategic partnerships with leading universities and business institutes in selected areas, and is setting up specialized centers and institutes in science, business and strategic studies. Singapore government agencies are also providing training to officials from developing countries.

The performance of the Singapore economy in the last decade highlights that the above strategies have been quite successful in providing sustained high rates of economic growth, except for the crisis years. Singapore's strategies of attracting multinationals, letting domestic companies co-invest with them and moving towards a knowledge-based economy have provided the economy with an early advantage and allowed Singapore to adjust more quickly to the forces of globalization and also to maintain its international competitiveness.

#### **SINGAPORE IN THE POST-CRISIS PERIOD: LOOKING BEYOND ASEAN**

The East Asian economic crisis, which started with the devaluation of the Thai Baht on July 2, 1997, brought to the fore the diverging policies, perceptions and interests among the Association of Southeast Asian Nations (ASEAN) economies, and has brought about a marked change in Singapore's relations with its neighboring ASEAN countries. It is important to note that among the crisis-affected countries, Singapore has been the fastest to recover, suffering only two quarters of negative growth in the third and fourth quarters of 1998.<sup>32</sup>

However, as a result of this crisis, Singapore has become aware of the danger of being too closely and exclusively tied to its own region and is therefore

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in the process of expanding its economic relations with countries in South Asia, Europe and North America. In particular, it is re-focusing on North America and Europe because, as a high-income economy and a financial center, Singapore's interests are more closely aligned with them than with the developing countries in South America and Africa. Nevertheless, Singapore is exploring ways to enhance economic linkages with selected developing countries through its recent membership in the Indian Ocean Rim Association for Regional Cooperation (IOR-ARC).

However, Singapore also needs to ensure that it is not perceived as moving away from its immediate region in times of crisis, because the region has a crucial bearing on Singapore's role in the international division of labor.

Being a maritime trading nation, Singapore has always been eager to participate in regional groupings, especially if they have been organized around an ocean. Therefore, it is not surprising that Singapore became a member of the 14-member IOR-ARC, formed in Mauritius in March 1997<sup>33</sup>, even though the grouping consists of many underdeveloped and developing small states, including Madagascar, Mozambique and Tanzania, with which Singapore had no formal economic relations before. However, the grouping also includes member countries with which Singapore has already had many opportunities to interact, including Malaysia, Australia and Indonesia; these are countries with which Singapore currently has significant economic linkages on a bilateral basis and in multilateral fora such as the ASEAN and APEC.

The rationale for Singapore to become a member of this new grouping lies in its desire to see the liberalization of trade and investment regimes in other countries, an objective it can better pursue from within an economic grouping. In this respect, the rapid globalization of such IOR-ARC countries as India and South Africa has the potential to provide economic benefits to Singapore. Also, apart from Australia, Singapore is the only high-income developed country in the IOR-ARC, which gives it the potential to play an influential role in the grouping.<sup>34</sup>

Recent analysis on trade and investment linkages between Singapore and other members of the IOR-ARC shows that apart from Malaysia, Australia, and Indonesia, with which Singapore has traditionally had significant bilateral and multilateral economic relations, India has been emerging as an important trading partner for Singapore in South-Asia. In addition, the institutional basis for strengthening such relations between the two countries is getting stronger.<sup>35</sup> This is because India is in a good position to benefit from the emerging knowledge economy due to its acknowledged competitiveness in information technology, particularly software.

The bulk of the existing merchandise trade relations between Singapore and the IOR-ARC, including intra-industry trade (IIT), is driven by the electronics sector and petroleum products, areas in which MNCs play a vital role.

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This implies that the expansion of trade with other IOR-ARC members will depend on the extent to which they succeed in participating in the MNC-led international division of production and distribution activities; in other words, the extent to which India succeeds in its globalization efforts will have an important impact on Singapore's future IOR-ARC trade relationships.

Since services are the main engine of growth in Singapore's economy, some of the IOR-ARC members, like India, could provide large markets for Singapore in such services as port management, telecommunications, trade logistics and tourism. It is the commercial logic arising from much wider economic, technological and other factors, which will help shape the future investment relations between Singapore and the other IOR-ARC countries. Singapore's small and mature domestic market, and the diminished medium term growth prospects in South-East Asia suggest that Singapore will be increasingly looking for investments beyond its immediate region. This will provide opportunities for other IOR-ARC countries to attract investments from Singapore-based firms.<sup>36</sup>

However, it is also noted that Singapore has not placed as high a priority on the IOR-ARC as it has on ASEAN and APEC; this is due to marked difference in interests and globalization strategies of the majority of the members of IOR-ARC, who belong to the low-to-middle income category. It is therefore likely that Singapore will play a fairly passive role in the organization and that it will not allocate substantial energy or resources to the development of IOR-ARC at this time.

However, the IOR-ARC can serve many important ends, including allowing developing small states to learn from the economic success that Singapore has experienced in the globalizing environment; these small states can benefit by using Singapore agencies and firms as consultants, project executors, consortium partners and the like. There are many areas where Singapore's experience is indeed worth close study. Planning and managing infrastructure projects like housing estates and industrial parks, and the organizational and motivational aspects of its civil service and promotional agencies are notable examples of areas worth study. It is also worth appreciating Singapore's art of management to minimize transaction costs, including hassle costs involved in trade and customs documentation, without adversely affecting compliance.

Singapore may provide a model to other IOR-ARC countries, particularly the small states in the grouping. The Singapore government could provide training facilities and higher educational opportunities to other IOR-ARC members. This also has the potential to expand the talent pool for Singapore and provide opportunities for networking. When drawing lessons from Singapore's experience, however, one should keep in mind Singapore's unique conditions, capabilities and resources.<sup>37</sup>

Thus, even though economic relations between Singapore and the IOR-ARC countries as a group are not very strong at present, it does not preclude development

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of significant economic linkages with them in future. The opportunities outlined above will, however, remain unrealized unless the other IOR-ARC members—particularly the developing countries with both larger economies (India, Indonesia and South Africa) as well as smaller ones—make determined efforts to adjust to the forces of globalization and more fully participate in the international division of production and distribution activities, while sustaining macroeconomic stability, economic growth and social cohesion.

### CONCLUDING REMARKS

This paper has shown that the early transition of Singapore towards a knowledge-based economy, driven by the presence of MNCs, has given it an early advantage, allowing Singapore to adjust more quickly to globalization forces. This has been possible largely due to the various globalization strategies supporting the growth of multinational corporations and knowledge-based activities that have been pursued and implemented effectively in the 1990s. To a large extent, the present challenges faced by the economy have been met effectively through these strategies. However, Singapore being a small state and highly dependent on its external economy, it will have to constantly upgrade and improve upon these strategies as it strives to maintain its international competitiveness. In the aftermath of the crisis, it has begun to expand its external economic relations in other regional economic groupings involving small states, particularly the IOR-ARC, and refocused its attention away from ASEAN. Although there may not be substantial short-term economic benefits to Singapore in actively participating as a member of the IOR-ARC, the other developing small states across the Indian Ocean Rim can learn some important lessons from the Singapore experience. A multilateral forum for addressing issues of sub-regional cooperation in today's globalized world, like the IOR-ARC, therefore provides a valuable platform for the lesser developed small states to learn valuable skills of cooperating and competing in the international market from its developed members, like Australia and Singapore.

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## APPENDIX:

TABLE I: Singapore: Selected Economic and Demographic Indicators: 1985-99

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
<b>ECONOMIC INDICATORS</b>															
GDP at market prices S\$ bn.	38.9	38.8	42.9	50.7	58.3	66.5	74.0	79.9	93.1	106.6	113.2	128.7	140.5	138.5	144.0
GDP at constant prices S\$ bn.*	38.9	39.6	43.4	48.2	52.6	57.3	61.0	77.3	85.3	94.8	102.3	110.5	119.3	121.1	126.8
Real GDP Growth %	-1.6	1.8	9.4	11.1	9.2	8.8	6.7	6.2	12.6	11.2	8.4	7.5	8.0	0.4	5.4
Consumer price index**	99.8 (0.5)	98.4 (-1.4)	98.9 (0.5)	100.4 (1.5)	102.3 (2.4)	106.3 (3.4)	110.0 (3.4)	98.3 (2.3)	100.5 (2.3)	103.6 (3.1)	105.4 (1.7)	106.9 (1.4)	109.0 (2.0)	108.8 (-0.3)	103.8 (-5.0)
Exports S\$ bn.	50.2 (-2.3)	49.0 (-2.4)	60.3 (23.0)	79.1 (31.2)	87.1 (10.2)	95.2 (9.3)	101.9 (7.0)	103.4 (1.4)	119.5 (15.6)	147.3 (23.3)	167.5 (13.7)	176.3 (5.2)	185.6 (5.3)	183.7 (-1.0)	194.2 (5.8)
Imports S\$ bn.	57.8 (-5.4)	55.5 (-3.9)	63.4 (13.2)	88.2 (29.0)	96.9 (9.8)	109.8 (13.4)	114.2 (4.0)	117.5 (2.9)	137.6 (17.1)	156.4 (13.7)	176.5 (12.7)	185.2 (5.0)	196.6 (6.2)	169.8 (-13.6)	183.1 (10.8)
Total Foreign Reserves S\$ bn.	27.1	28.2	30.4	33.3	33.6	48.5	55.8	65.8	77.9	85.2	97.3	107.8	119.6	124.6	123.4
Exchange rate (avg.) S\$:US\$	2.20	2.17	2.10	2.01	1.95	1.81	1.72	1.63	1.62	1.53	1.49	1.41	1.43	1.67	1.69
Total Labour force Participation rate %	62.2	62.3	62.7	62.9	63.1	66.0	64.8	65.3	64.5	64.9	64.4	64.6	64.2	63.9	64.7
Total Internal Government debt S\$ bn.	31.6 (15.1)	33.3 (5.6)	38.0 (13.9)	41.6 (9.5)	46.1 (10.8)	51.4 (11.5)	59.0 (14.9)	67.2 (13.9)	69.8 (3.8)	75.3 (7.9)	86.5 (14.8)	94.8 (9.6)	102.4 (8.0)	115.2 (12.5)	125.3 (9.2)
Total Internal Government debt as % of GDP	81.2	86.4 (6.4)	89.1 (3.1)	83.3 (-6.5)	80.1 (-3.8)	77.6 (-3.1)	80.8 (4.1)	83.1 (2.8)	74.1 (-10.8)	69.6 (-6.1)	71.7 (3.0)	71.2 (-0.7)	71.6 (0.6)	81.6 (14.0)	87.4 (7.1)
<b>DEMOGRAPHIC INDICATORS</b>															
Total Population (millions)	2.7 (0.1)	2.7 (0.1)	2.8 (0.5)	2.8 (2.6)	2.9 (3.0)	3.0 (2.9)	3.0 (2.4)	3.2 (2.9)	3.2 (2.6)	3.3 (3.2)	3.4 (3.1)	3.6 (4.2)	3.7 (3.5)	3.8 (3.1)	3.9 (0.7)
Resident Population (millions)	2.5	2.5	2.6	2.6	2.7	2.7	2.8	2.8	2.9	2.9	3.0	3.0	3.1	3.1	3.2
Resident Population as a % of Total Population	92.6	92.6	92.9	92.9	91.4	90.3	92.0	88.1	89.7	88.8	88.2	84.4	85.8	81.6	82.0
Total Fertility rate (per 1000 resident female population aged 15-44 years)	1614	1433	1621	1956	1754	1865	1770	1760	1778	1749	1708	1696	1637	1494	1475

N.B: Figures in parentheses indicates the growth rates over the previous year

\* Figures for 1983-91 are calculated at 1985 prices while that from 1992 onwards are at 1990 prices

\*\* Base for figures from 1983-91 is Sep.87-Aug.88=100 while from 1992-97, the base is Oct.92-Sep.93=100

SOURCE: Yearbook of Statistics, Singapore, Department of statistics, various issues

TABLE 2: Major statistics of the Manufacturing Sector in Singapore

	1987	1992	1993	1994	1995	1996	1997	1998
Number of Establishments	3,514	3917	3,993	4013	4036	4068	4108	4,171
Output \$ S million	46,084	77,276	87,639	100,622	113,358	119,869	126,531	123,880
Output per worker (in 2000 \$)	166.8	215.6	246.7	275.2	306.1	325.6	345.1	348
Value added \$ S million	10,995	18,302	21,351	23,567	26,903	28,214	29,654	29,637
Value added per worker (in 2000 \$)	39.8	51.1	60.1	64.5	72.7	76.6	80.9	83.2
Direct Exports (\$ million)	30,380	46,907	53,022	61,532	69,013	72,964	76,450	75,485
Direct Exports to Output (%)	65.9	60.7	60.5	61.2	60.9	60.9	60.4	60.9
OUTPUT OF MAJOR INDUSTRIES (MILLION \$)								
Refined petroleum products	7,446 (16.16)	10,216.7 (13.22)	11,154.4 (12.73)	10,909.5 (10.84)	10,653.8 (9.40)	13,746.5 (11.47)	14,637.5 (11.57)	13,364.0 (10.79)
Chemicals and chemical products	3,701.4 (8.03)	5,035.3 (6.52)	5,154.4 (5.88)	5,918.7 (5.88)	6,865.1 (6.06)	7,163.1 (5.98)	9,339 (7.38)	10,295.3 (8.31)
Electronic products and components	16,364.9 (35.51)	31,912.2 (41.30)	39,706.6 (45.31)	48,725.3 (48.42)	57,872.7 (51.05)	60,912.8 (50.82)	62,905.2 (49.72)	61,200.5 (49.40)
Total manufacturing output	46,084	77,276	87,639	100,622	113,358	119,869	126,531	123,880

N.B: Figures in parentheses indicates the share of each industry in total output  
SOURCE: Yearbook of Statistics, Singapore, Department of Statistics, 1997

## NOTES

<sup>1</sup> A knowledge-based economy may be characterized as one that uses, produces and distributes knowledge and information as factors of production in the manufacturing and service sectors. Although statistical measurement of knowledge input is difficult, the improvements in information and communication technology are considered to constitute knowledge (Eliasson, et.al. 1990). It is supported by a strong technological capability and a vibrant and innovative entrepreneurial culture (Lim, 1999).

<sup>2</sup> M.G. Asher and R. Sen, "Economic Relations between Singapore and the IOR-ARC: Trends, Strategies and Prospects," *Indian Ocean Centre Occasional Paper No. 7*, (1999) Curtin University of Technology, Perth.

<sup>3</sup> R.U. Ayres, *Turning Point: An End to the Growth Paradigm* (London: Earthscan, 1998)

<sup>4</sup> Although there is no strict definition of what may constitute a small state, the term is used in this paper to describe such nations that are either geographically small in size or less populated (around 3 million or less). The economies of small states are usually characterized by low levels of per capita GNP, barring exceptions such as Singapore.

<sup>5</sup> In addition to the Singapore citizens and permanent residents who comprise the resident population, the total population includes foreigners working in Singapore and their dependants. In 1999, foreign workers accounted for 18 percent of the total resident population (Table 1, see appendix).

<sup>6</sup> GNP measured at PPP is GNP converted to US \$ by PPP exchange rate. At PPP rates, one dollar has the same purchasing power over Singapore GNP as one U.S. dollar has over U.S. GDP. This measurement allows comparison of real price levels between two countries. The PPP conversion factors are calculated through the survey conducted by the International Conversion program of the World Bank, (World Development Indicators, 1999).

<sup>7</sup> The World Bank, *World Development Indicators, 1999/2000* (Washington D.C: The World Bank, 1999).

<sup>8</sup> UNDP, *Human Development Report 1999*, (New Delhi: Oxford University Press, 1999).

<sup>9</sup> V. Menon, "Singapore economy turns better than expected performance in 1999," *Keppel Securities Daily Highlights*, February 24, 2000.

<sup>10</sup> H Mirza, *Multinationals and Growth of the Singapore Economy* (London: Groom Helm, 1986)

G. Peebles and P. Wilson, *The Singapore Economy* (Cheltenham: Edward Elgar, 1996).

G. Rodan, *Political Economy of Singapore's Industrialization: State and International Capital* (Basingstoke: Macmillan, 1989).

<sup>11</sup> Policymakers in Singapore assess international competitiveness in terms of ability to attract MNCs to locate business activities in Singapore. This task is approached through systematic targeting of the leading MNCs in the relevant sectors, lubricated by firm, specific fiscal and other tax incentives, infrastructural support, MNC-friendly manpower, taxation and other policies. In 1998, manufacturing establishments employed 165,431 workers, and had an output of S \$86,211 million, value added of S \$19,932 million and direct exports of S \$59,228 million, accounting for nearly two-thirds of Singapore's non-oil domestic export. It is noteworthy that

the share of capital income in Singapore's national income is around 55 per cent, among the highest in the world. (Republic of Singapore, Department of Statistics, 1999).

<sup>12</sup> C.H. Tan "Venturing Overseas: Singapore's External Wing" (Singapore: Mc Graw Hill, 1995).

<sup>13</sup> Asher and Sen (1999).

<sup>14</sup> In 1998, total net investment commitments in the manufacturing sector were S \$7.8 billion, of which S \$5.2 billion consisted of foreign investments (nearly 67 percent of the total). This was nearly 90 percent of the S \$8.5 billion investments level attained in 1997, despite the economy being affected by the regional economic crisis during the period. However, over the past few years, the share of foreign investments in total has been declining. It is worth noting that foreign investments consisted of 75 percent of total net investment commitments in the manufacturing sector in 1994, which reduced to 67 percent in 1998 (Economic Development Board, 1999).

<sup>15</sup> V.V.B. Rao and S.M. Thangavelu "TFP Growth in Manufacturing Industries in ASEAN: A study of FDI-intensive and Other Industries in Singapore," paper presented at the International Symposium on Foreign Direct Investment in Asia, Tokyo; Economic Research Institute, Economic Planning Agency, Japan 1998.

<sup>16</sup> T. Menkhoff and J. Wirtz, "From Entrepot to NIC: Economic and Structural Policy Aspects of Singapore's Development," *Faculty of Business Administration Working Paper*, National University of Singapore, April 1998.

<sup>17</sup> World competitiveness may be defined as the ability of a nation to provide an environment that sustains the competitiveness of business enterprises. Singapore was ranked second in terms of world competitiveness in the recent report on world competitiveness published by the World Economic Forum in 1998.

<sup>18</sup> According to the latest official figures, the resident population in Singapore has grown by 1.7 percent in 1999. (Statistics Singapore website <http://www.singstat.gov.sg/FACT/KEYIND/keyind.html>)

<sup>19</sup> A. Chin and J. Tongzon, "Maintaining Singapore as a Major Shipping and Air Transport Hub," in Toh Mun Heng and Tan Kong Yam, ed. *Competitiveness of the Singapore Economy: A Strategic Perspective* (Singapore: Singapore University Press—National University of Singapore, 1998).

<sup>20</sup> It is important to note that in 1998, this share was almost 23.2 percent of GDP (Republic of Singapore, 1999).

<sup>21</sup> Some countries, such as Australia, have sought to discourage companies from setting up regional and overseas headquarters in Singapore through tax disincentives. This is because these countries regard such fiscal incentives by Singapore as the equivalent of fiscal dumping, because it erodes their own tax base. Indeed, Singapore's aggressive fiscal incentive strategy is likely to come under increasing scrutiny by its major economic partners in this era of globalization (Asher, 1999).

<sup>22</sup> S. Avenell, "The Competition for Corporate Regional Headquarters," *Asia Research Centre, Murdoch University, Western Australia*, working paper no. 67.

<sup>23</sup> Economic Development Board, *Annual Report, 1999/2000*, (Singapore: 1999).

<sup>24</sup> Ibid.

<sup>25</sup> R. Lim, "Singapore Unveils Blueprint for Knowledge-based Economy," *Business Times* (Singapore), January 21, 2000.

<sup>26</sup> Ibid.

<sup>27</sup> By definition, e-commerce involves the exchange of goods and services through the electronic medium, of the Internet. In Singapore e-commerce is conducted over Singapore ONE, a high-speed network that aims to link all homes, businesses and schools on the island via the Internet.

<sup>28</sup> J. Wong and E. Lam, "Measuring Electronic Commerce in Singapore: Methodological Issues and Survey Findings," paper presented at the conference on The Measurement of Electronic Commerce, December 6-8, 1999, Singapore.

<sup>29</sup> For instance, the Inter-bank Giro (IBG) system was implemented in 1984 and formulated as part of the government's vision of a cashless society. It uses a paperless payment mode that enables pre-authorized deductions to be made from one party's account in favor of another party who initiated the deduction.

<sup>30</sup> The on-line "Internet Banking" services offered by banks have different names—like DBS's Internet Banking, the UOB's Cyberbank and POSBank's POSBnet.

<sup>31</sup> S. Khalik, "Virtual Institute to Promote E-learning," *The Straits Times*, Singapore, March 5, 2000.

<sup>32</sup> C.Y. Lim, "Wages Policy and Macroeconomic Crisis Management in Singapore," excerpts from presentation at the Department of Economics Graduate Seminar, National University of Singapore, February 21, 2000.

<sup>33</sup> The group comprises 14 countries across the continents whose shores are washed by the Indian Ocean, namely Australia, India, Indonesia, Kenya, Madagascar, Malaysia, Mauritius, Mozambique, Oman, Singapore, South Africa, Sri Lanka, Tanzania and Yemen. The ministerial meeting of the IOR-ARC was held in Maputo in March 1999. The group decided to admit, later in the year, five new members to the organization. They are Bangladesh, Iran, Seychelles, Thailand and the United Arab Emirates (UAE).

<sup>34</sup> Asher and Sen (1999).

<sup>35</sup> For a detailed analysis on Singapore's economic relations with the IOR-ARC, the author may be contacted.

<sup>36</sup> Asher and Sen (1999)

<sup>37</sup> Ibid.

