ASEAN 50
2017

A Historic Milestone for FDI and MNEs in ASEAN

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The Association of Southeast Asian Nations (ASEAN) was established on 8 August 1967. The Member States are Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Viet Nam.
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ASEAN at 50: A Historic Milestone for FDI and MNEs in ASEAN aims to facilitate a better understanding of FDI developments in ASEAN. The findings, interpretations, and analysis in the Report should be treated with care, as work on harmonising and improving FDI quality across the region is on-going.

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FOREWORD

"ASEAN at 50: A historic milestone for MNEs and FDI in ASEAN" presents 50 years of remarkable expansion and progress in attracting foreign direct investment (FDI) to the economies of ASEAN Member States.

Looking back over 50 years, ASEAN has transformed from being a relative backwater in the international operations of Multinational Enterprises (MNEs) to a premier hub in their network of Global Value Chains (GVCs). Along the way, FDI has contributed to ASEAN's economic growth, development and regional integration, as well as the rise of new industries, the growing competitiveness of Micro, Small and Medium Enterprises (MSMEs), the entry of the region into the digital era, and the improvement of gender equality.

In recent years ASEAN has received FDI inflows of the order of $100 billion or more, up from a third of a billion dollars in 1967. The increase has been more rapid than the expansion of global FDI. ASEAN is host to a vast stock of FDI and capital assets held by literally thousands of multinationals, from all corners of the world and in all sectors and industries. Intra-ASEAN investment, which barely existed 50 years ago, is now reaching a quarter of total FDI inflows last year. The growth of intra-ASEAN FDI also reflects the rise and increasing internationalisation of formidable ASEAN MNEs.

ASEAN has played a considerable role in the rise of GVCs and the architecture of the contemporary international economy: the region facilitated multinationals' shift from primarily market- and natural resources-oriented FDI to a greater use of host locations as international production bases. ASEAN is already an important hub in global production systems and value chains: over 90 of the world's 100 largest non-financial MNEs are present in ASEAN. With the ASEAN Economic Community (AEC) Blueprint 2025 and its Strategic Action Plan in place, ASEAN continues to enhance its attractiveness as an investment destination globally through the establishment of an open, transparent and predictable investment regime in the region.

LE LUONG MINH
Secretary-General of ASEAN

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ABBREVIATIONS

ACIA	ASEAN Comprehensive Investment Agreement
AEC	ASEAN Economic Community
AFTA	ASEAN Free Trade Area
AIA	ASEAN Investment Area
AMS	ASEAN Member States
APSC	ASEAN Political-Security Community
ASCC	ASEAN Socio-Cultural Community
ATIGA	ASEAN Trade in Goods Agreement
BITS	bilateral investment treaties
BOT	build-operate-transfer
CEPT	Common Effective Preferential Tariff
CLMV	Cambodia, Lao PDR, Myanmar and Viet Nam
FDI	foreign direct investment
GDP	gross domestic product
GLCs	Government-linked companies
GNI	gross national income
GVCs	global value chains
HDD	hard disk drive
ICT	information and communication technology
IFDI	inward foreign direct investment
MNEs	multinational enterprises
MSME	micro and small medium enterprise
NEMs	non-equity mode
ODM	original design manufacturer
OEM	original equipment manufacturer
OFDI	outward foreign direct investment
RCEP	Regional Comprehensive Economic Partnership
R&D	research and development
RVCs	regional value chains
SEZ	special economic zone
SME	small and medium-sized enterprise
SOEs	State-owned enterprises
UNCTAD	United Nations Conference on Trade and Development

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Executive Summary

In 50 years ASEAN has come a long way economically, in part because of the region's deep participation in the world economy, including through inward and outward foreign direct investment (FDI). The level of FDI and the presence of multinational enterprises (MNEs) in ASEAN is formidable and will remain so in the future. FDI stock in the region – across all 10 Member States – stands at some $1.9 trillion and is found in every sector and virtually every industry. This stock of FDI amounts to some 21 per cent of the total in all developing countries. Foreign MNEs and ASEAN MNEs are increasingly pursuing ASEAN-wide regional investment strategies. Intra-ASEAN FDI has doubled to 21 per cent of FDI in ASEAN in the past two decades; and intra-ASEAN trade accounts for a quarter of all ASEAN trade (figure 1).

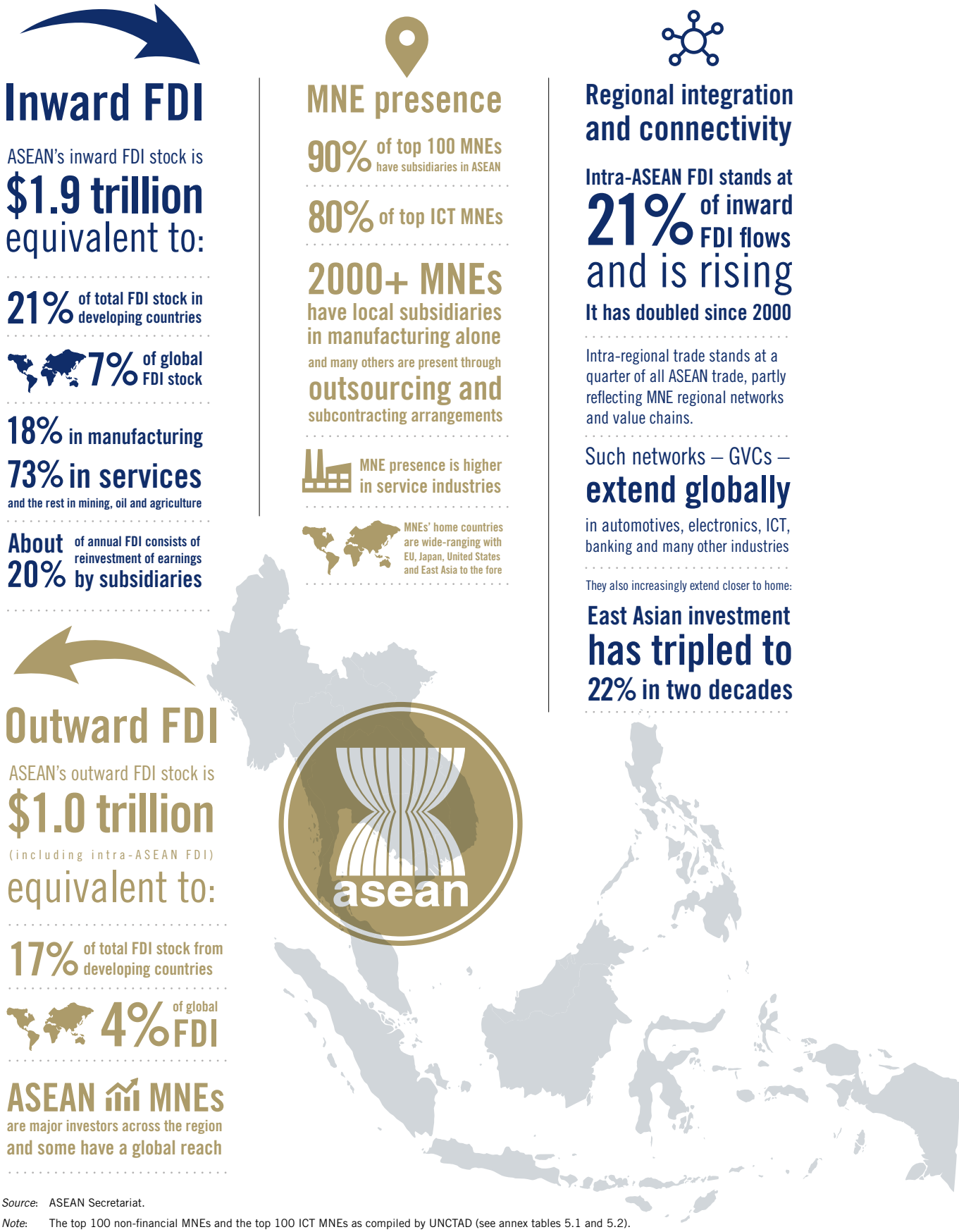
ASEAN is an important hub in MNEs' global production systems and value chains: at least 94 of the world's 100 largest non-financial MNEs have set up subsidiaries ASEAN. Many have also established non-equity relationships with local firms, for instance by subcontracting, outsourcing services or franchising the production or delivery of goods and services. Investment in ASEAN by literally thousands of MNEs is dispersed across all sectors and most industries. With the rise of the digital economy, ASEAN is fortunate to have a gateway to the future: most of the largest information and communication technology (ICT) MNEs are present and active in the region; for instance, Apple (United States), Samsung Electronics (Republic of Korea) and Hon Hai Precision Industries (Taiwan) in information technology (IT) devices and components; Microsoft (United States), Infosys (India) and Capgemini (France) in IT software and services; and Softbank Group (Japan), Vodafone (United Kingdom) and Telenor (Norway) in telecommunication.

The majority of large MNEs present in ASEAN possess extensive subsidiary networks across the region, some numbering in the hundreds. This is especially the case for those MNEs that have a long history in the region and are market-oriented, such as Unilever (United Kingdom–Netherlands, food and beverages), Nissan (Japan, motor vehicles), General Electric (United States, industrial and commercial machinery), Royal Dutch Shell (United Kingdom–Netherlands, oil and gas) and Mitsui & Co. (Japan, general trading company). Other MNEs, large and small, such as Seagate (United States) and Quanta Computers (Taiwan), have a more focused presence in ASEAN because they are using the region as a competitive location to supply global markets as part of their global value chains (GVCs).

In the 50 years since its inception, ASEAN has changed beyond recognition. Already on the vanguard of international trade and investment routes in 1967, the regional economy has been transformed by the enormous influx of manufacturing and services FDI to Indonesia, Malaysia, the Philippines, Singapore and Thailand – the founding Member States of ASEAN – and increasingly to the five Member States – Brunei Darussalam, Cambodia, Lao PDR, Myanmar and Viet Nam – that have joined since. FDI has affected ASEAN Member States through multiple routes, including jobs, linkages with micro, small and medium-size enterprises (MSMEs) and technology transfer. It has thus been one of the motors driving economic growth, industrialization and development across the region.

Between 1967 and 2016 ASEAN's GDP grew manyfold and faster than the world economy as a whole: at the start of the period, it was about 3.4 per cent of the world's GDP; by the end of the period this share stood at 6.2 per cent. ASEAN's exports have also grown rapidly over the last 50 years and today account for 7.2 per cent of world exports, up from 2.0 per cent in 1967. The poverty rate across the region, which stood at 47 per cent even in 1990, is far less at 14 per cent today (figure 2).

FIGURE 1 **ASEAN: Key dimensions of inward and outward FDI and MNE presence, 2016**



Source: ASEAN Secretariat.

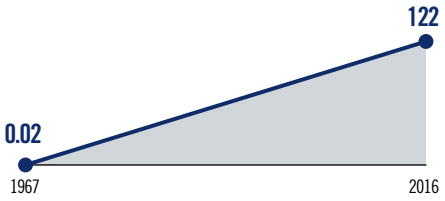
Note: The top 100 non-financial MNEs and the top 100 ICT MNEs as compiled by UNCTAD (see annex tables 5.1 and 5.2).

From a global perspective, ASEAN is a bastion for both foreign and ASEAN MNEs, and increasingly a part of a broader Asian megaregion. The ASEAN region has been relatively stable for decades. Markets are growing, with sustained high GDP growth rates, a large and growing urbanized middle class and continued regional integration promising greater opportunity to access that middle class from anywhere in ASEAN. The average GDP per capita for ASEAN in 2016 was about $4,000 in current dollars; it is due to double by 2030, but it is much higher in terms of purchasing power parity (PPP).

FIGURE 2 ASEAN: Selected economic and development indicators, 1967 and 2016

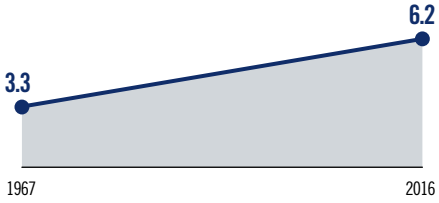
a. GDP

(Trillions of dollars)



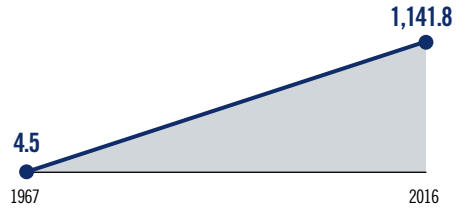
b. ASEAN share of world GDP

(Per cent, based on international $ PPP)



c. ASEAN exports

(Billions of dollars)

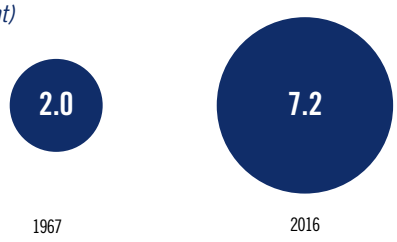


d. Intra-ASEAN share of ASEAN exports

(Per cent)

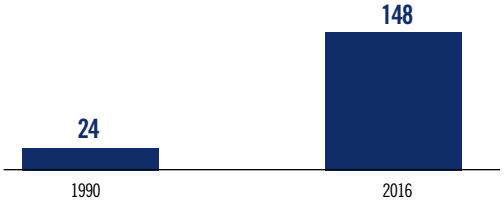
e. ASEAN share of world exports

(Per cent)



f. ASEAN food production index

(2004–2006 = 100)

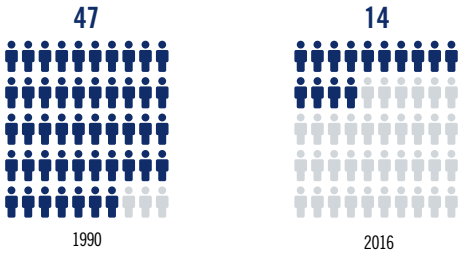


g. Urbanisation

(Per cent of population)

h. Poverty rate

(Per cent of population on less than $1.25 per day)



Source: ASEAN 2017a.

Note: Poverty rate excludes Brunei Darussalam and Singapore (not applicable) and Malaysia and Myanmar (not available).

At current growth rates, by 2050 ASEAN's GDP is projected to be the fourth largest in the world. The region is populous and increasingly well-educated, including in the CLMV Member States. It possesses deep pockets of skills honed in many advanced manufacturing and service industries, some cutting edge. And it will remain a relatively young society for decades to come. On top of these advantages, the region contains a wealth of natural resources and is well positioned logistically: astride the main trade routes between West and East Asia, well connected to the physical components of the digital economy and a hub for global financial markets. The next 50 years will bring challenges as well as opportunities, and ASEAN is well placed to face them. The future of FDI and MNEs in the region, as partners in achieving the goals of the ASEAN Community, remains bright.

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Chapter 1
An unexpected journey

1.1 ASEAN economic development and foreign direct investment

The Association of South-East Asian Nations (ASEAN) was born in 1967 as an institution aimed at promoting peace and dialogue, encouraging cooperation and embarking on the road to prosperity. In this ASEAN has succeeded, perhaps beyond the expectations of its founding fathers. Over the course of 50 years, it has grown to a membership of 10 States which together constitute the territorial expanse of Southeast Asia and represent a large, cohesive and thriving regional group (box 1.1). That said, ASEAN remains an economically, politically and culturally diverse group, which it views as a source of strength (table 1.1).

BOX 1.1 A glossary of ASEAN groups

ASEAN Member States as a whole are referred to as ASEAN-10, while the founding States are normally denoted as the ASEAN-5; beyond these basics is a constellation of sub-ASEAN and ASEAN+ groups. The subgroups are normally in place for analytical reasons – e.g. the CLMV (Cambodia, Lao PDR, Myanmar and Viet Nam) are less developed Member States within ASEAN. The ASEAN+ groups are used in reference to various trade and economic initiatives that ASEAN is pursuing with its Dialogue Partners, most commonly in Asia and the Pacific. This glossary is provided because a number of these groups will be referred to in the report.

ASEAN-10	All Member States
ASEAN-5	The founding Member States: Indonesia, Malaysia, the Philippines, Singapore and Thailand
ASEAN-4	Indonesia, Malaysia, the Philippines and Thailand
ASEAN-6	ASEAN-5 plus Brunei Darussalam. The other four are the CLMV economies
CLMV	Cambodia, Lao PDR, Myanmar and Viet Nam
ASEAN-7	ASEAN-6 plus Viet Nam
ASEAN+1	ASEAN plus any other country
ASEAN+3	ASEAN plus China, Japan and the Republic of Korea
ASEAN+6	ASEAN+3 plus Australia, India and New Zealand

Source: ASEAN Secretariat.

ASEAN today is a region of nearly 650 million people, spread across Member States with populations ranging from 0.4 million (Brunei Darussalam) to 264 million (Indonesia). Indonesia is also territorially the largest, at 1.9 million square kilometres (40 per cent of the area of South-East Asia), followed by Myanmar and Thailand; at the other extreme are Singapore (0.7 million square kilometres) and Brunei Darussalam (5.8 million square kilometres). ASEAN is a region with vast agricultural and mineral resources (Shivakoti et al. 2016). Singapore and Brunei Darussalam are among the wealthiest economies in the world (per capita income of over $80,000 dollars on the basis of purchasing power

parity (PPP)), although for very different reasons: a major business hub in the case of the former, and vast oil and gas resources in the case of the latter (table 1.1). However, in contrast, Cambodia, Lao PDR, Myanmar and Viet Nam (the CLMV economies) have per capita incomes only 4–7 per cent of those of the richest in ASEAN (on a PPP basis). Nevertheless, ASEAN's average per capita income of $11,376 places it firmly at the top end of upper-middle-income economies in the World Bank's 2017 classification.[1] Cambodia, which has the lowest per capita income in ASEAN, is still in the World Bank's lower middle-income group.

ASEAN's position as an upper-middle-income region can be witnessed in the high life expectancies in all Member States, with an average of 68 years at birth for men and 73 years for women, and higher in the wealthier economies such as Brunei Darussalam, Malaysia, Singapore and Thailand, as well as Viet Nam (table 1.1). The region is highly urbanized at 48 per cent of the population, with Brunei Darussalam, Malaysia and Singapore exhibiting a much higher rate (the last, as a small island state, is 100 per cent urbanized). With development and urbanization, population growth is tapering off. The population is estimated to grow by a little over 20 per cent in the next 30 years, to 786 million people. However, it is not aging as rapidly as those of developed economies or developing East Asia, so it will retain a sizeable population of young people in 2050.[2]

TABLE 1.1 ASEAN: population and income data and estimates, various years

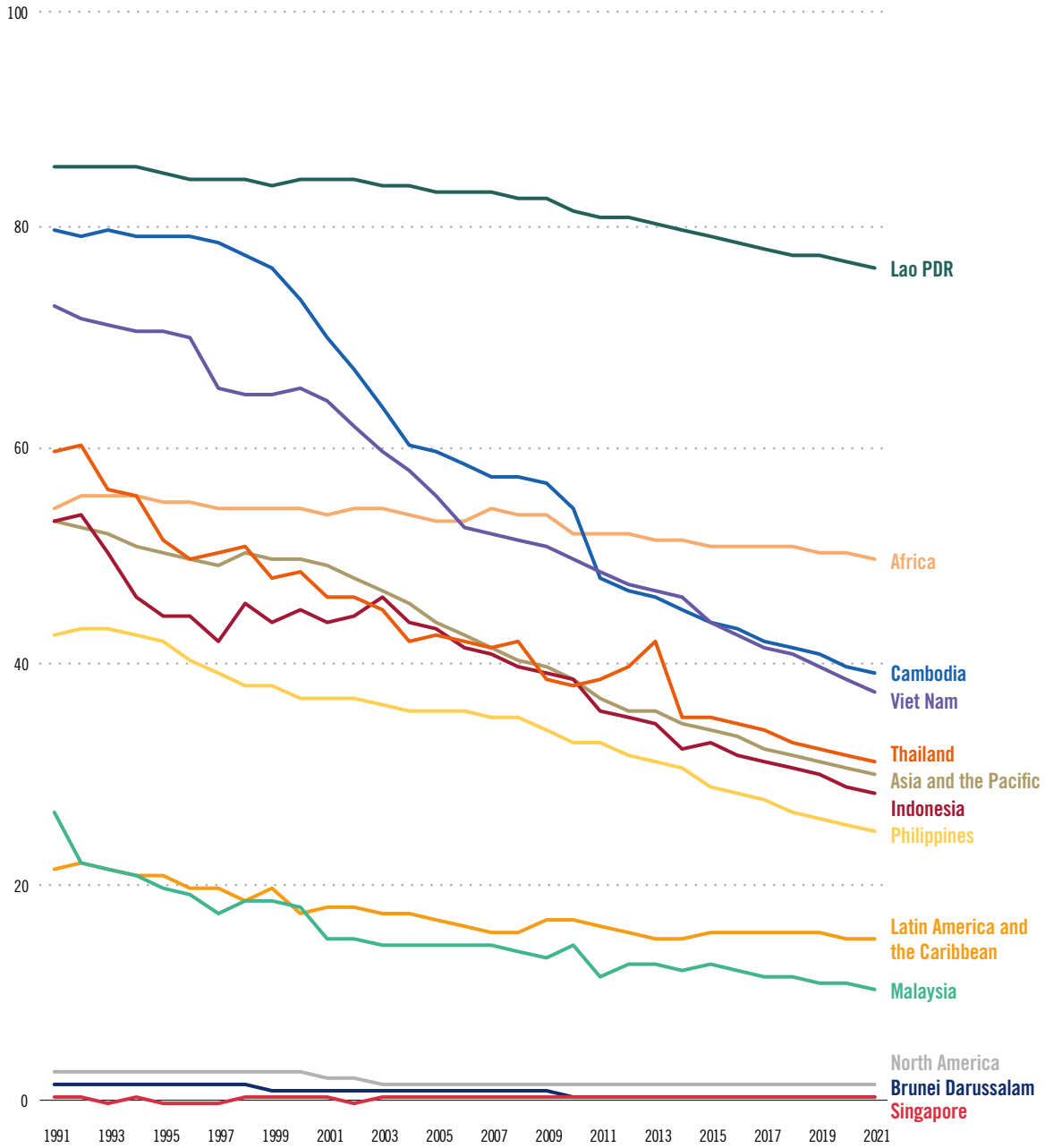
Member State	Population mid-2017 (millions)	GNI per capita PPP (international $) 2016	Life expectancy at birth (years)		Urban population (per cent of population)	Population, mid-2050 (millions)	Population age 15–24, mid-2050 (millions)
			Men	Women			
Brunei Darussalam	0.4	83,250	75	79	77	0.5	0.1
Cambodia	15.9	3,510	66	71	21	21.8	3.2
Indonesia	264.0	11,220	67	71	54	321.6	44.2
Lao PDR	7.0	5,920	65	68	40	9.3	1.3
Malaysia	31.6	26,900	73	77	75	41.7	5.3
Myanmar	53.4	5,070	64	69	35	62.4	8.6
Philippines	105.0	9,400	66	73	45	151.4	23.9
Singapore	5.7	85,050	81	85	100	6.5	0.6
Thailand	66.1	16,070	72	79	49	62.6	6.0
Viet Nam	93.7	6,050	71	76	33	108.2	12.4
ASEAN	**642.8**	**11,376**	**68**	**73**	**48**	**786.0**	**105.6**

Source: Population Reference Bureau (prb.org).

One of the most notable indicators of ASEAN development over the last 25 years is the speed at which the region's population has shifted out of the agriculture sector (figure 1.1). In 1991, 50 per cent or more of the populations of all ASEAN Member States except Brunei Darussalam, Malaysia, the Philippines and Singapore depended on agriculture for their livelihoods. By 2016 this applied only to Lao PDR,[3] and for most economies the share was 30 per cent or less (much less for Brunei Darussalam, Malaysia and Singapore). All the while, food production has continued to rise, as have other agricultural crops (figure 1.2). The region's shift from agriculture as the main source of employment and livelihoods to manufacturing and services is one manifestation of a fundamental transformation of ASEAN's economy that has roots reaching back to the organization's inception.

Between 1967 and 2016 ASEAN's GDP grew manyfold and faster than the world economy as a whole: at the start of the period, it was about 3.4 per cent of the world's GDP; by the end of the period this share stood at 6.2 per cent. ASEAN's exports have also grown rapidly over the last 50 years and today account for 7.2 per cent of world exports, up from 2.0 per cent in 1967.[4] The poverty rate across the region, which stood at 47 per cent even in 1990, is far less at 14 per cent today (figure 1.2). Perhaps most noteworthy of all, while improvements can still be made, every single ASEAN Member State has seen its score on the UNDP's human development index increase progressively since the index began in 1990 (figure 1.3).

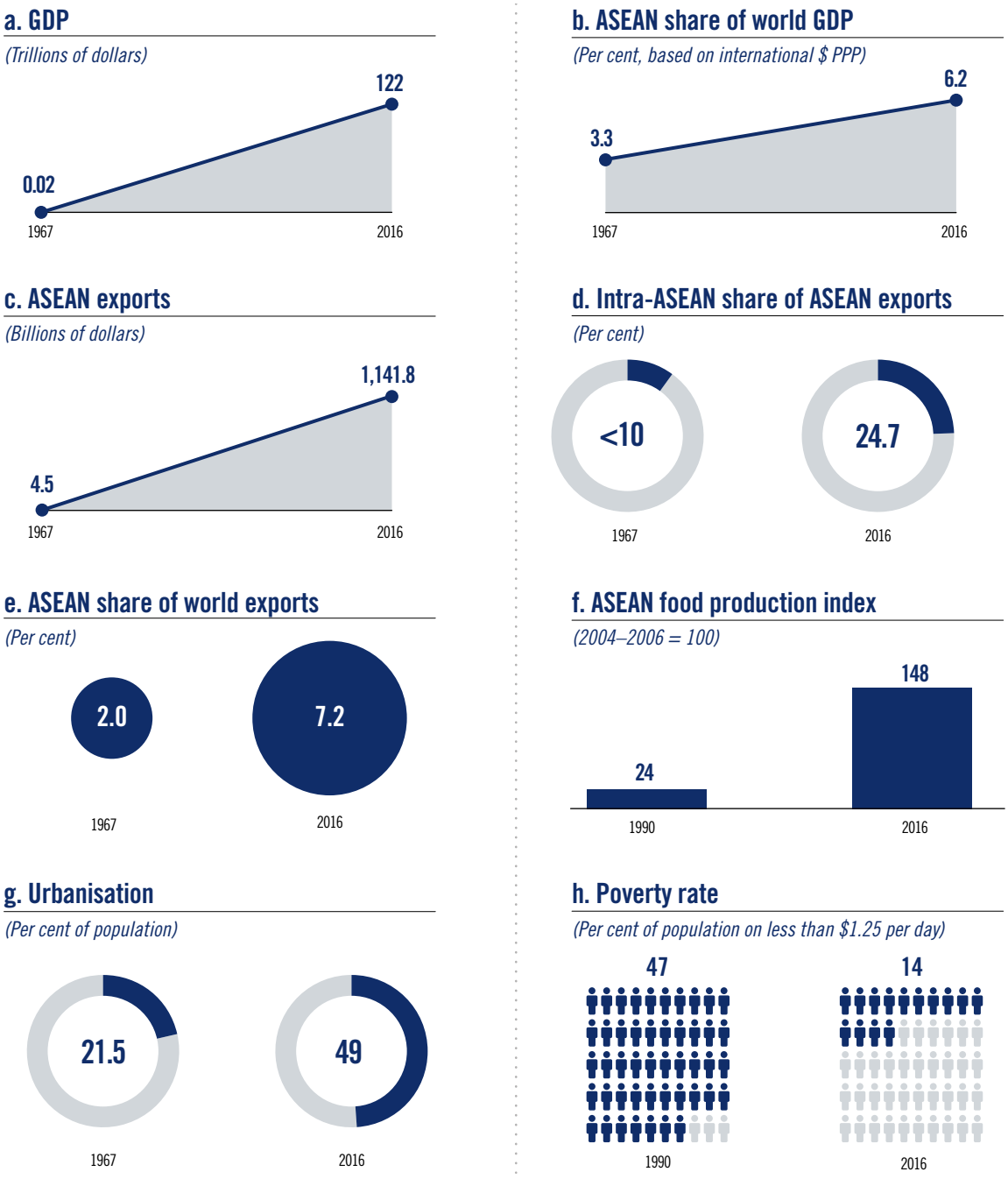
FIGURE 1.1 ASEAN: share of population earning an agricultural livelihood, 1991–2021
(Estimated)



Source: ILOSTAT.

Note: Data for Myanmar on the same basis are not available.

FIGURE 1.2 ASEAN: selected economic and development indicators, 1967 and 2016

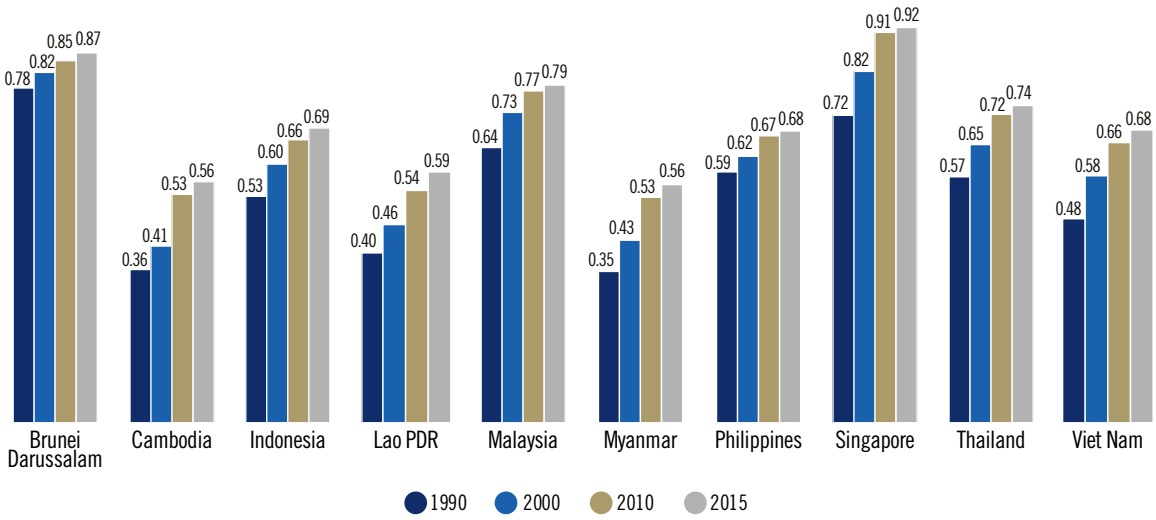


Source: ASEAN 2017a.

Note: Poverty rate excludes Brunei Darussalam and Singapore (as it is not applicable) and Malaysia and Myanmar (as data are not available).

Many factors underlie the region's striking economic development and transformation over the last 50 years, including the policies of Member States, ASEAN regional policies, improvements in human capital and the associated investment in education and training, and investment by the private and public sectors (Intal and Chen 2017; ASEAN Secretariat and UNCTAD 2014, 2015; Cowan 2012; Rasiah 2004; and Lall and Urata 2003). The focus of this Report is on just one of these factors, but a highly significant one: foreign direct investment (FDI).

FIGURE 1.3 ASEAN: human development index values for Member States, 1990–2015

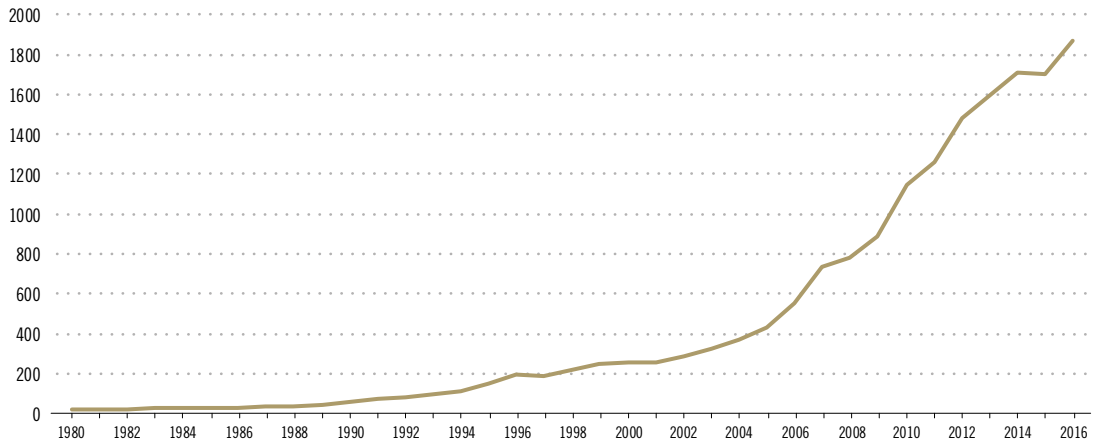


Source: UNDP, http://hdr.undp.org.

Note: The human development index is based on four components: life expectancy at birth, expected years of schooling, mean years of schooling and gross national income per capita. A perfect score is 1.0.

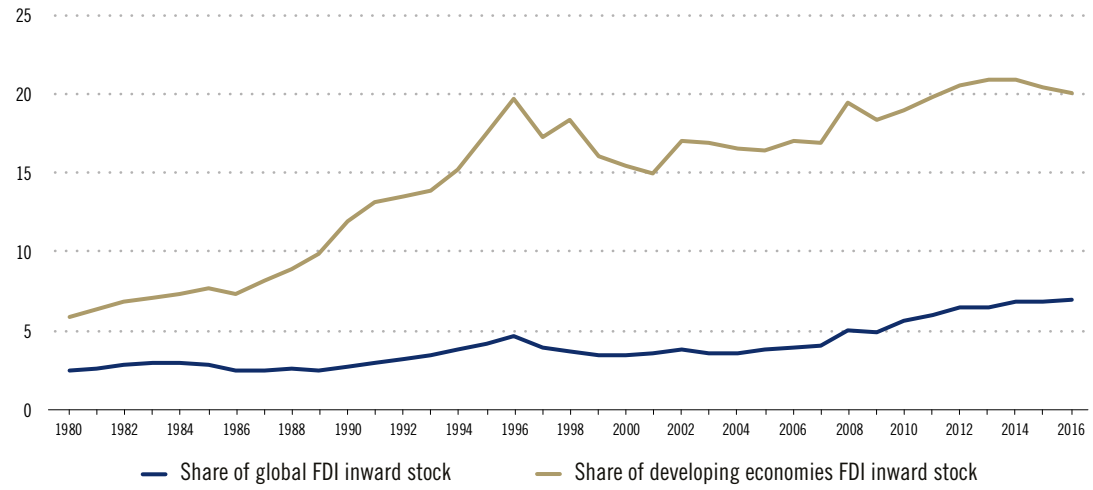
When ASEAN was established, most FDI was in the primary sector, though there was some in services (e.g. trade and communications, in line with the region's historical role of entrepot in a strategic geographic location) and manufactured goods (both historical and a little recent market-oriented investment in products such as cars). This was similar to most locations in the developing world after the second world war. From the 1970s onward FDI into ASEAN rose rapidly, at first targeted at specific Member States but soon spreading across the entire region. The earliest investments by multinational enterprises (MNEs) in the late 1960s and early 1970s were in manufacturing industries such as automobiles, electronics and garments and textiles; but FDI has since flourished in many other industries in the primary, manufacturing and services sectors. Over five decades, the stock of FDI in ASEAN has risen steadily to $1.9 trillion in 2016 (figure 1.4), a level far higher than in any other regional association or grouping in the developing world. ASEAN holds over 20 per cent of all FDI stock in developing countries, and its share of global inward FDI stock is 8 per cent (figure 1.5).

FIGURE 1.4 ASEAN: inward FDI stock, 1980–2016 *(Billions of dollars)*



Source: UNCTADStat.

FIGURE 1.5 ASEAN: share of global FDI inward stock and developing economies FDI inward stock, 1980–2016 *(Billions of dollars)*



Source: UNCTADStat.

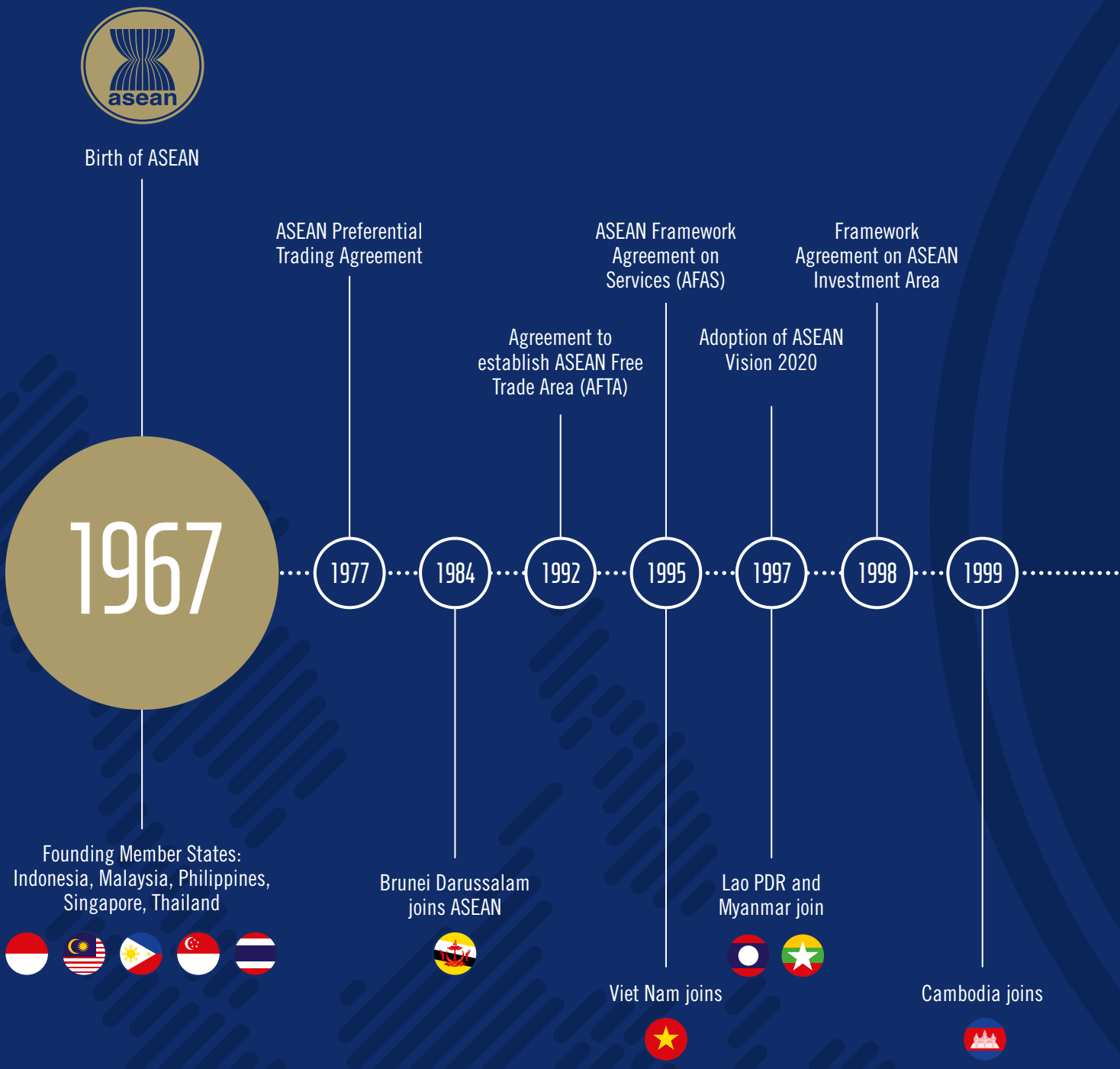
Today, more top-tier MNEs are active in ASEAN than anywhere else in the world apart from Europe and North America. These MNEs, coming from across the world and representing a diverse set of sectors, industries and business activities, play a prominent role in the region, and will continue to do so in the future. ASEAN has grown from one among many developing regions seeking the attention of international investors to a region of choice for many MNEs. It is the only developing region with a significant and diverse degree of regional integration and value chains, in large part led by MNEs, both ASEAN and foreign.

ASEAN's pivotal future position in global MNE networks was certainly not evident at its inception in 1967. At that time, three quarters or more of all global FDI took place between developed countries, mostly the transatlantic economies of North America and Western Europe. At the same time, FDI in developing countries was concentrated in natural resources sectors such as mining, oil and gas, and (albeit falling) in agriculture – a pattern of FDI very different to the diversity and dynamism observed today in ASEAN and in many other parts of the developing world.

ASEAN's first 50 years is a remarkable story. And one worth telling.

The remainder of this chapter sketches the development of ASEAN regional policy. The elaboration of specific policies, measures and instruments over the last few decades has provided an important underpinning for the growth of FDI and the rise of MNE regional networks and value chains (ASEAN Timeline).

ASEAN TIMELINE



Source: ASEAN Secretariat.

ASEAN 50
2017

2003

ASEAN Leaders resolve to establish an ASEAN Community, consisting of:

- ASEAN Economic Community (AEC),
- ASEAN Political-Security Community,
- ASEAN Socio-Cultural Community

2007

Acceleration of formation of AEC by 2015

2008

ASEAN Charter enters into force

2009

ASEAN Trade in Goods Agreement (ATIGA)

2012

ASEAN Comprehensive Investment Agreement (ACIA)

2015

Formal establishment of the AEC and adoption of AEC Blueprint 2025

2017

ASEAN 50th Anniversary

Manila Summit, Philippines

2025

ASEAN Economic Community 2025

1.2 The regionalization of ASEAN

The historical backgrounds, sociocultural characteristics and natural resource endowments, as well as the levels of development and varying corporate structures, of the ASEAN member countries are remarkably diverse for 10 countries in such close proximity. To weld such diverse countries together into a cohesive and increasingly connected economic space that encourages FDI and regional production networks involving MNE subsidiaries and local firms is a considerable achievement. The process has required considerable political and policy effort, especially given the consensus-oriented decision making at the heart of ASEAN structures. Progress can be slow – but over the years the process has yielded considerable progress in policy mechanisms encouraging regional integration, such as liberalizing trade and investment flows between ASEAN Member States, while remaining open to ASEAN's partners in the world economy (Kurlantzick 2012, Broinowski 1982).

Until the mid-1970s ASEAN pursued limited regional economic integration, and policies encouraging and facilitating FDI were made at a national level (which is still the case) (box 1.2). After this point, ASEAN leaders began to commit themselves increasingly to the drive towards regional integration, beginning on the trade front with an ASEAN preferential trading agreement in 1977, moving progressively into areas such as trade in services and FDI, and culminating since 2003 in an ambitious goal to create an ASEAN Community, with economic, political security and sociocultural elements (ASEAN timeline).

BOX 1.2 AMS national policies, institutions and mechanisms for attracting and building on FDI

ASEAN Member States were among the earliest of today's developing economies to pursue active Government policies on industrialization, growth and development, including on the promotion and facilitation of inward FDI. A crucial aspect was the decision to pursue an outward-oriented, export-led model of development, though this has been modified over time to deepen beneficial impacts across all sections of an economy, and to promote two-way trade and investment in line with ASEAN regional integration. Singapore was the earliest ASEAN member to systematically embark on this endeavour (other East Asian economies also did so in the 1960s), with the other founding Member States – Indonesia, Malaysia, the Philippines and Thailand – moving down the same path. Newer Member States have also evolved their policies, especially as each joined ASEAN, in a similar fashion, with different points of departure (Narula and Pineli 2017; Athukorala 2017; Kuroiwa 2017; Andreoni and Chang 2017; Rasiah 2015, 2004; ADB 2015; ASEAN Secretariat and UNCTAD 2012; Nguyen 2011; Rodrik 2010; Hirotsuka 2005; Brooks and Hill 2004; Giroud 2003; Lall and Urata 2003; UNCTAD 1998).

The promotion and facilitation of FDI (and private investment more generally) involves governments liberalizing their economies and attracting FDI through a variety of incentives and inducements. These included fiscal incentives (tax holidays, lower tax rates), financial incentives (grants, subsidized credit, and guarantees), along with complementary investments in human capital and infrastructure. Although incentives can be very important for investors, overall investment in the latter are most crucial in attracting, retaining and building

.../

on FDI (UNCTAD 2013). Huge investment by ASEAN Member States in infrastructure and education goes back to the 1960s; as does the support of MNEs (e.g. in vocational education). For example, since the 1960s Singapore has invested considerable amounts in education and training, infrastructure and other aspects of a conducive investment climate. This required the creation of an institutional framework to support these processes, including Government departments and agencies: an economic development board for overall oversight; a productivity board; educational and training institutions; and specialist bodies for important industries. Various economic zones were also established, such as export processing zones overseen by the Jurong Town Corporation – including the vast integrated chemical hub on Jurong Island (McKendrick et al. 2000, Chong 1983, McMullen 1982, Pang 1982, Utrecht 1978, Lim 1977, Pang and Lim 1977). Parallel developments have occurred in all other ASEAN Member States.

Special economic zones (SEZs), in particular, have been a notable feature of ASEAN industrial policy, including as efforts to attract and build on FDI. Economic zones refer to all industrial infrastructure that facilitates industrialization and the attraction of investment. In ASEAN, these zones range from industrial estates to free trade zones and export processing zones to mega-SEZs and specialized facilities such as technology parks or those that are targeted at attracting specific industrial clusters (e.g. in the petrochemical or aerospace industries).

Economic zones have played an important role in industrialization, socioeconomic development and FDI attraction across ASEAN (ASEAN Secretariat and UNCTAD 2017, Zeng 2016, UNIDO 2015). For instance, the Penang free industrial zones or free trade zones have helped that State in Malaysia attract many major electronic MNEs since the 1970s. These MNEs in turn have generated significant employment and linked Malaysia into electronic global value chains. Singapore's first industrial estate (i.e. Jurong Industrial Estate), and subsequent industrial facilities, have made possible significant FDI inflows, which makes that Member State host to many major global companies across many industries. Economic zones in the Philippines have played an important role in the development of the country's IT-BPO industry. The 365 economic zones in the country have generated some 1.4 million jobs, and the 200 IT centres have contributed to shaping the country into one of the major global locations for the IT-BPO industry. In Thailand, economic zones such as export processing zones and industrial estates have contributed to developing the country's automotive industrial cluster involving the majority of the global automotive manufacturers and many parts and components companies.

Economic zone development in the region has been evolving since ASEAN's inception. These zones have progressed from simple industrial estates, free industrial zones and export processing zones to SEZs involving an integrated industrial-commercial-residential township concept. Malaysia introduced free industrial zones in the 1970s, and in the period 2010–2016 the country established five regional economic corridors, drawing on the locational strengths of the contiguous States or areas to facilitate investment, industrialization and the development of services industries. Indonesia developed industrial estates in the 1970s, free trade zones in the 2000s (e.g. in Batam, Bintan and Karimum in 2007) and the first integrated zone in the form of special economic zone (Sei Mangkei in North Sumatra) in 2012. Economic zones in Thailand have evolved from industrial estates developed in the 1970s, to export processing zones in the 1970s–1980s to specialized SEZs and border SEZs. Many ASEAN countries have also developed science and technology parks to attract science, technology-oriented and research and development activities.

Furthermore, many countries in the region have developed and are planning to develop more SEZs involving an integrated model. They include the CLMV countries, Indonesia and Thailand. In some countries, economic zones now encompass border SEZs involving cooperation between contiguous Member States to facilitate trade, investment and production such as that between Thailand and the CLMV countries. Overall, economic zones have been a successful mechanism, yet not all economic zones in ASEAN are successful. Some have failed to attract investment or generate employment or achieve other socioeconomic objectives. The challenge is to develop the types of economic zones that match demand and industrial development and align with national socioeconomic objectives.

Increasingly, in the context of the evolving AEC and associated regional frameworks in trade, investment and other areas, regional and national policies towards MNEs and FDI are coming into greater alignment.

Source: ASEAN Secretariat.

Liberalization in trade between ASEAN Member States was given a boost in 1992 with the establishment of the ASEAN Free Trade Agreement (AFTA) and a Common Effective Preferential Tariff (CEPT) scheme designed to reduce tariffs applied among Member States. Since then, there have been additional agreements with a parallel liberalization thrust, including the ASEAN Framework Agreement on Services in 1995; a Mutual Recognition Agreement (MRA) in engineering in 2005; MRAs in architectural services and nursing services in 2006; a Framework Agreement for the Mutual Recognition of surveying qualifications, also in 2006; an MRA for medical and dental practitioners in 2008, as well as an MRA Framework in accountancy services; the signing of the ASEAN Trade in Goods Agreement (ATIGA), incorporating CEPT, in 2009 with more ambitious targets for tariffs and non-tariff measures; and others. The targets in these various agreements are being achieved at different rates, with exceptions (or a slower pace) agreed for some ASEAN Member States, especially the CLMV economies, but considerable progress is being made (ASEAN 2017b, Chirathivat and Srisangam 2013, Kleimann 2013). For example, tariffs on imports among ASEAN Member States fell precipitously between 2005 and 2015: average tariff rates on intra-ASEAN imports to Brunei Darussalam and Singapore are zero; near zero for Indonesia, Malaysia, the Philippines and Thailand; and very low for the CLMV countries. For instance, Cambodia's average tariff rate of 8.79 per cent in 2005 (the highest among the CLMV Member States) had fallen to 0.72 per cent by 2015 (ASEAN 2015b).

In a similar vein to trade, initial efforts on regional integration in regard to FDI kicked off in the 1980s with schemes to promote joint manufacturing production activities (e.g. in the automobile industry) between ASEAN-based firms in different Member States; examples include the Brand to Brand and ASEAN Industrial Cooperation schemes (Yoshimatsu 2000, Dobson and Chia 1997). In parallel, bilateral intra-ASEAN investment treaties (BITS) were concluded between ASEAN Member States, as were BITS between ASEAN Member States and other countries. The first regional scheme, the 1987 ASEAN Agreement for Promotion and Protect of Investments, led to the broader 1998 Framework Agreement on the ASEAN Investment Area (AIA). Where the former focused on protecting individual investors, the latter aimed to expand intra-ASEAN FDI. Targets included opening industries in all ASEAN Member States to ASEAN MNEs by 2010 and to foreign MNEs by 2012, as well as progressively extending national treatment to all investors. The AIA was superseded in 2012 by the ASEAN Comprehensive Investment Agreement (ACIA). As with the AIA, the ACIA is primarily designed to support intra-ASEAN investment, explicitly drawing upon international best practices in investment agreements to this end. Moreover, the joint promotion of ASEAN as an integrated investment area by ASEAN Member States is explicitly seen as part of the region's development objectives (recognizing further the particular needs of the CLMV countries). With this in mind, the ACIA draws on lessons of the application of international investment agreements – especially investors-state disputes – to build in safeguards. These include explicit guidelines on issues such as fair and equitable treatment of investors; the treatment of subsidies and Government procurement; and the conditions under which most-favoured-nation treatment applies to investor–state disputes. Nevertheless, with its comprehensive and clear definitions that are in line with international agreements, the ACIA offers the benefits of a transparent investment regime, furthering the attractiveness of ASEAN as a single investment destination (Cho and Kurtz 2017, Desierto 2016, Nipawan 2015).

Since 2013, ASEAN has pursued the goal of an ASEAN Community (envisioned as a fully fledged, politically cohesive, economically integrated and socially responsible community), with three core

components: an ASEAN Economic Community (AEC), an ASEAN Political-Security Community (APSC) and an ASEAN Sociocultural Community (ASCC). The ATIGA, in trade, and the ACIA, in investment, are best viewed as elements within the first of these pillars, the AEC. In 2013, four years after the goal of an ASEAN Community was announced, it was agreed to accelerate the formation of the AEC, moving it up to 2015. In that year, the ASEAN Community was formally launched, the AEC formally established and a further set of goals for its fulfilment announced in the form of the AEC Blueprint 2025 (and equivalent blueprints for the APSC and the ASCC).

The ASEAN Community and the Blueprints have a monitoring system in place, reporting annually, with clear targets and a multitude of indicators to track progress (ASEAN 2017b). The AEC Blueprint 2025 has five pillars (ASEAN 2017b, KPMG 2016):

1. A highly integrated and cohesive economy (with trade, the investment environment, financial integration, the movement of skilled labour and business visitors, and enhanced cooperation in global value chains as the principal elements)

2. A competitive, innovative and dynamic ASEAN (involving nine elements, including competition policy, consumer protection, productivity-driven growth and sustainable economic development)

3. Enhanced connectivity and sectoral cooperation (especially in information and communications technology (ICT), e-commerce, energy and transportation, and a number of industries such as health care and tourism)

4. A resilient, inclusive, people-oriented and people-centred ASEAN (including action related to MSMEs, the private sector, PPP and narrowing the development gap, including for CLMV Member States)

5. A global ASEAN (a group with a more systematic and coherent approach to its external economic relations, including as a facilitator and driver towards broader Asian economic integration)

Although it is too early to pronounce on progress on the AEC Blueprint 2025, there was reasonable optimism on similar targets for the AEC until 2015 (Desierto 2016, ILO 2015, Deloitte 2014).

The ASEAN Community and the AEC Blueprint are aspirational goals. The latter builds on ASEAN's many regional policy achievements in trade and investment, and refocuses ambitions to look to the development of the region, emphasizing among others infrastructure and connectivity, human capital development and the free flow of skilled labour, the deepening of economic integration in ASEAN, and the widening of such integration – especially to East Asia. It celebrates the diversity of ASEAN and promotes that diversity as a strength, with firms able to combine the complementarity of differential capital, labour, skills and natural resources across the region into competitive products for ASEAN's burgeoning market and markets worldwide. The AEC, rightly, looks to the future; but the continuing spread of FDI across the region is a reminder that MNEs recognized such potential 50 years ago.

The remainder of the report maps the growth of FDI into and across ASEAN, spreading from initial footsteps in various founding Member States to other economies. It establishes how and why MNEs (foreign and domestic) have established regional networks and value chains along the way, by exploiting the region's complementary natural, human and man-made endowments (chapter 2). Chapter 3 complements this analysis of FDI and MNEs by providing profiles of sectors and industries. The impact of FDI on ASEAN economies is examined in chapter 4, with a focus on micro-, small- and medium-sized enterprises (MSMEs) and women. The concluding chapter considers how the large stock of FDI in ASEAN and the diversity of MNEs present, especially in ICT and digital industries, provide a crucial building block for the region's future economic development (chapter 5).

Notes

1 See worldbank.org/knowledgebase.

2 Ibid.

3 Comparable data for Myanmar are not available.

4 The 1967 figures in the text and figure 1.2 are only for the ASEAN-5 (as opposed to the ASEAN-10 in 2016). At the time, the economies of the founding Member States were much bigger and more internationalized than the other five economies, so the broad thrust of the argument remains the same.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Chapter 2
FDI and MNEs in ASEAN: patterns of expansion and the current landscape

2.1 From the new international division of labour to global value chains

At the time of ASEAN's inception in 1967, South-East Asia typically received 2–4 per cent of global FDI flows (about 10 per cent of investment in developing countries), much of it in mining and oil extraction – not surprising, given the region's wealth of natural resources (chapter 3). This reflected the "old international division of labour" (OIDL)[1] established in colonial times; and the original five ASEAN Member States (and indeed the region as a whole) were no exceptions to this type of specialization.[2] Manufacturing and services FDI[3] in South-East Asia, and in the rest of the developing world, focused primarily on local markets, as part of MNEs' domestic strategies (i.e. market-seeking FDI). Some subsidiaries were colonial remnants;[4] others were newly established to circumvent the high tariff walls that many newly independent countries had put in place in pursuit of import-substitution industrialization.[5]

The expansion of Japanese automobile makers to developing countries early in the post–World War II era is a typical example of local-market-oriented manufacturing investments jumping tariff walls. In some cases, this trend was reinforced by local content requirement policies (box 2.1). During the period 1959–1972 half of all plants established were located in three of the original five ASEAN Member States (Indonesia, Malaysia and Thailand). By the mid-1970s, Japanese automobile manufacturers had 60 per cent or more of the market share in car sales in most ASEAN Member States (box table 2.1.2).

Even in the late 1960s, there was some hint at a shift towards FDI to serve foreign markets in ASEAN. In 1968, for instance, because of rising wages in Japan some Japanese manufacturers were exporting manufactured parts from ASEAN to production plants in their home economy, and Singapore was establishing export processing zones under the auspices of the Jurong Town Corporation (Mirza 1986). However, the international crises that marked the end of the "Golden Age of Capitalism" (broadly spanning the 1950s and 1960s) heralded a very different international investment and trade regime, one that was increasingly defined by export-oriented industrialization and investment, including FDI (Marglin and Schor 1990, Webber 1996). Firms, primarily in Western industrialized countries, found themselves facing slow-growth markets, declining profits and intensifying competition (conditions that became perennial).

The abiding features of the 1970s and much of the 1980s were systemic convulsions leading to the end of the gold standard, oil crises, recessions, and the international sovereign debt crisis, which began in 1982 (Marglin and Schor 1990, Webber 1996). Beset by domestic and international turmoil, and faced with rising input prices, stagnating markets and falling profits, firms – especially in developed countries – were compelled to adopt survival strategies, including cutting production costs (Mirza 2000). In an ultimately paradigmatic shift in mindset, for the first time in the post-war era, many companies from industrialized countries began to focus on developing countries, investing significantly in manufacturing and later in services in order to take advantage of cheaper labour costs (i.e. a type of cost-cutting or efficiency-seeking FDI).

BOX 2.1 International expansion by Japanese automobile investments in the 1960s and 1970s

During the 1960 and 1970s a regional pattern emerged, with most new assembly plants established by American and European automakers being located in Latin America, and most plants established by Japanese firms in Asia. There were exceptions to this pattern, namely GM and Ford's investments in Taiwan and a few small Japanese investments in Brazil, Peru and Ecuador.

BOX TABLE 2.1.1 Japanese Assembly Plants in Emerging Markets, 1996

Company	Country	City	Inception	Employment	Unit Production	Capacity
Toyota	Brazil	Sao Bernardo	1959	630	3,203	5,000
Toyota	South Africa	..	1962	9,423	92,402	..
Toyota	**Thailand**	**Samut Pakran**	**1964**	**4,810**	**147,326**	**..**
Nissan	Peru	..	1966	..	..	..
Toyota	New Zealand	..	1966	532	9,982	..
Toyota	Peru	Lima	1967	124	900	6,000
Toyota	**Malaysia**	**Shah Alam**	**1968**	**1,050**	**29,395**	**70,000**
Honda	**Malaysia**	**Johor Bahru**	**1969**	**..**	**..**	**13,488**
Toyota	**Indonesia**	**Jakarta**	**1970**	**5,101**	**74,761**	**100,000**
Toyota	**Thailand**	**Chachoengsao**	**1972**	**885**	**2,090**	**..**
Toyota	Kenya	..	1977	433	1,263	..
Toyota	Ecuador	..	1979	398	1,286	..
Toyota	Venezuela	Cumana	1981	1,077	14,280	21,000
Toyota	Bangladesh	..	1982	77	146	..
Suzuki/Maruti	India	Palam	1983	..	..	..
Toyota	Taiwan	Chung Li	1986	2,825	79,071	70,000
Toyota	**Philippines**	**Laguna**	**1989**	**2,057**	**36,867**	**15,000**
Honda	**Thailand**	**Ayutthaya**	**1992**	**..**	**..**	**40,000**
Mitsubishi	**Viet Nam**	**Ho Chi Minh City**	**1995**	**151**	**..**	**1,000**

Source: Sturgeon and Florida 2000: 41.

Note: ASEAN Member States in bold.

Investments by Japanese automakers, however, tended to be of a vastly different character than those of American and European firms. Across the board, American and European firms tended to build larger, more integrated plants, whereas for long periods Japanese plants relied heavily on completely knocked down (CKD) kit production. The former approach led to falling trade in intermediates and rising local content, and the latter approach did not. Japanese investments were highly conservative, in that assembly plant investments remained scaled to the actual, not potential, size of the local market – an observation that was still true in the 1990s (table 2.1.1). Nonetheless, in places where Japanese automakers faced no competition from more aggressive investors, including ASEAN Member States such as Indonesia, Malaysia and Thailand, they were able to capture the lion's share of these markets, especially in countries where local content rules became more stringent over time (table 2.1.2).

BOX TABLE 2.1.2 Japanese automaker market share in ASEAN Member States, 1978–1982 *(Per cent)*

	1978	1980	1982
Thailand	90.7	90.5	90.1
Indonesia	92.1	88.0	87.7
Philippines	71.7	78.7	87.3
Malaysia	63.9	79.1	80.5

Source: Doner, 1991.

Source: ASEAN Secretariat, based on Sturgeon and Florida 2000.

In the 1970s this shift resulted in the transfer of some manufacturing production to developing countries such as Mexico in Latin America, all of the founding ASEAN Member States, and some East Asian economies such as Hong Kong and the Republic of Korea. Japan and the United States were at the forefront of this shift in corporate mindsets, including in ASEAN: until the 1960s former colonial powers such as France, the Netherlands and the United Kingdom possessed up to 80 per cent of FDI stocks in South-East Asia, but by the mid-1970s their share had been overtaken by Japanese and United States MNEs. The ability of MNEs to dominate developing-country economies – especially in sophisticated products such as automobiles and electronics – stemmed from their firm-specific technological advantages that offset any "liability of foreignness" emerging from cultural, economic, institutional or geographic distance.

A critical initial feature of these investments, exemplified by industries such as garments and electronics, was the splitting up of the manufacturing process into capital- or skilled-labour-intensive elements and unskilled- or cheap-labour-intensive elements and locating them accordingly, both domestically and internationally (i.e. offshore production). This was sometimes supported by home and host Government policies and programs. For instance, electronic components might be produced by an MNE in the United States, shipped to Mexico or the Philippines for assembly, and shipped back to the United States for further processing and sale in the local and international markets. This emerging specialization between developed and developing countries became known as the "new international division of labour" (NIDL), which supplemented the OIDL[6] and took root in ASEAN and some other locations beginning in the 1970s (Fröbel et al. 1980, Grundwald and Flamm 1985).[7]

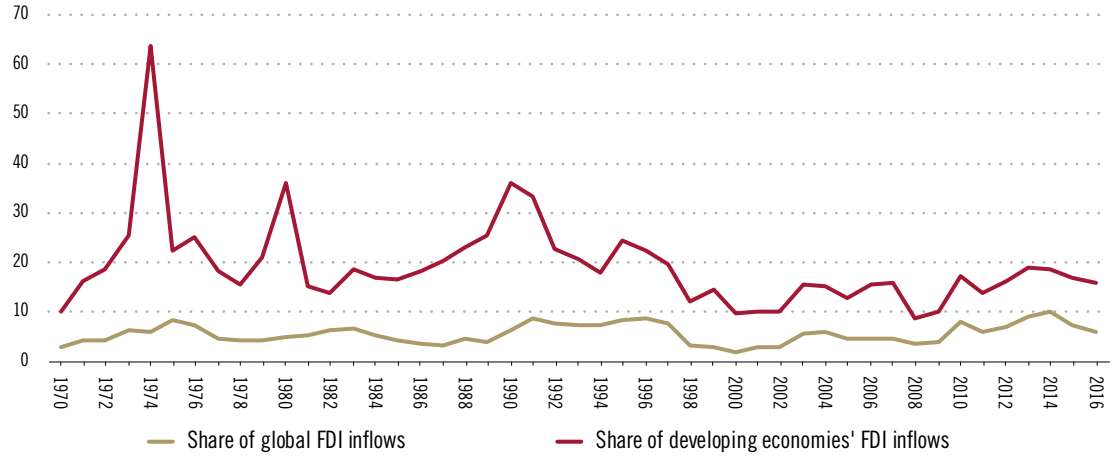
By the early 1980s, although FDI between developed countries remained paramount (as it does today), MNEs were locating more and more manufacturing and services operations in developing countries, especially across East Asia and South-East Asia.[8] This transfer intensified and accelerated as developing countries, especially those in these two regions, improved the quality of local infrastructure and the skills of their respective workforce. More broadly, the stance of developing-country Governments towards industrialization and investment began to shift from one supporting import substitution to one more favourable to export promotion. Investment into ASEAN jumped in the 1970s and 1980s, approaching 10 per cent of global flows and averaging more than 20 per cent of inward FDI into developing countries (figure 2.1).

In the 1990s manufacturing MNEs faced extreme pressure from financial markets to further lower costs, outsource risk, and offload fixed assets such as factories to suppliers. With slower growth at home creating additional pressure to enter big emerging markets such as Brazil, China and India, MNEs were motivated to accelerate the localization of parts and components production at the behest of developmental states. The result was a rationalization of supply chains that had become unmanageable as global production sites multiplied, with increased outsourcing to fewer, larger, more capable and multinational suppliers (box 2.2).

From a highpoint in the mid-1990s, ASEAN's share of global FDI inflows fell from around 9 per cent to just 2 per cent in 2000 (figure 2.1), in part due to the Asian financial crisis of 1997–98. The crisis, and its after-effects, damaged investor perceptions of some South-East Asian countries as economically sound and socio politically stable host countries for FDI, but these perceptions have since been repaired and investment has rebounded (section 2.2). The fall in ASEAN's share of global FDI inflows in the late 1990s also partly arose because competition for MNE investment was increasing, especially from China, which combined the lures of low operating costs and a huge

domestic market. FDI inflows to China included investments in the same kinds of manufacturing operations that ASEAN Member States had previously believed to be their forte, and this undoubtedly diverted some FDI activity away from the region. However, most MNEs in ASEAN maintained a presence in both ASEAN and China, and this has driven regional integration across ASEAN and China, with material and components sometimes shipped to ASEAN Member States for further processing or assembly. Indeed, China is now a significant source of FDI into the region, including to the less-developed members such as Cambodia, the Lao People's Democratic Republic (PDR), Myanmar and Viet Nam.

FIGURE 2.1 ASEAN share of FDI inflows, global and developing countries, 1970–2016
(Per cent)



Source: UNCTAD.

By 2000, despite the hiatus of the late-1990s, FDI-driven industrial development meant that 6 of the 10 ASEAN Member States[9] were among the 20 countries in the world that had increased their shares of non-resource-based manufactures the most since 1985. Specifically, countries made great strides in high-technology manufacturing exports (mostly electronics): e.g. among export "winners" Malaysia was second only to China, followed by Singapore, the Philippines, Thailand and Indonesia in fifth, seventh, eighth and twelfth positions respectively (table 2.1). Research on global value chains (GVCs) shows that gross export figures often overstate the degree of upgrading of countries, for two reasons: (i) they do not include imported knowledge-intensive inputs such as advanced semiconductors (Koopman et al. 2008), and (ii) high value-added business functions such as research and development (R&D) and marketing often stay in or near MNE headquarters (Linden et al. 2009). Nevertheless, ASEAN as a region certainly did benefit from the large-scale relocation of the manufacturing segments of the automobile and electronics GVCs, among others.

The ingenuity of countries in ASEAN, as well as some others in East Asia and beyond, was to recognize the potential of the new international division of labour and put into action the design, enactment and implementation of policies to support MNEs' international relocations – in other words, to promote inward FDI in specific industries and, later, in more sophisticated and evolving iterations, specific business functions and higher-value segments of the value chain, such as R&D. Over the years, mutual awareness by countries and multinationals of each other's motives and drivers has led to the symbiotic co-evolution of corporate strategies and national and regional policies that have been so important to ASEAN's growth and progress over the years (see chapter 1 and Yueng 2016).

BOX 2.2 Global value chains, what are they?

International trade and FDI have long been important features of the world economy, and both have grown enormously since the end of World War II. Today the picture has grown more complex, with the emergence of new types of MNEs, multi-layered international sourcing networks and technology-enabled business models that better integrate and accelerate cross-border economic activity.

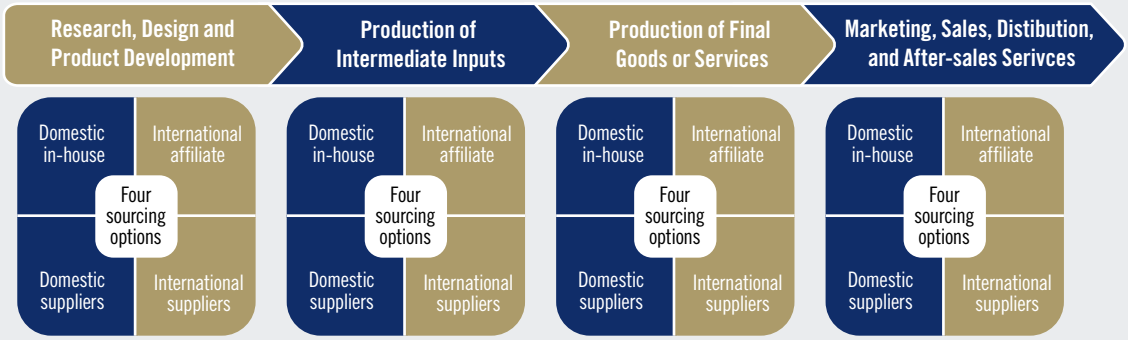
The concept of GVCs provides a heuristic for understanding the structure of the contemporary global economy and its effects on development. GVCs (and related global supply chains) make international business and trade into a vertical sequence of value added activities, or steps, that comprise the creation, delivery, and end-use of a given product or service. Although business linkages are, in fact, much more complex and more akin to a series of overlapping networks or webs, the chain metaphor provides a simplified point of entry and a useful focus on how, where and by whom value is added.

Although most production continues to be entirely local or domestic, and regional value chains (RVCs) are of growing importance, more and more often value is added to products and services in more than one country before its end-use. In key industries such as ICT hardware, automobiles, and apparel, GVCs typically span a few — or more than a few — countries before the resulting products find their way to final customers. Focusing attention on cross-border, global-scale business systems leads to key insights into the processes of contemporary economic development.

GVCs tend to be governed by powerful firm-level actors that initiate and often orchestrate the cross-border flow of goods and services. GVC scholars refer to such firms as "lead firms." These can be either MNEs (e.g. Ford, Samsung) or "global buyers" that engage in international sourcing without directly investing in production (e.g. Nike, Apple, Wal-Mart). International trade that is "explicitly coordinated" by lead firms and other powerful actors in the chain make GVCs distinct from arms-length, market-based trade, in which contracts are simple and prices can be fully determined in advance of transactions.

Advances in computerization, beginning in the 1980s, accelerating in the 1990s and becoming mainstream in the 2000s, have facilitated the organizational and geographic separation of R&D, innovation and design from production (in manufacturing and services), thereby enabling the creation, deepening or extension of GVCs. Whereas higher-value business functions such as branding and product design have tended to stay in established technology clusters, vast new investments in production have been made in lower-cost, market-proximate and – increasingly – key-skill-rich locations such as Brazil, China, Malaysia, Singapore Viet Nam and South Africa. This has created vast numbers of production jobs but also jobs in related activities and operations such as materials and supply chain management, manufacturing engineering and logistics.

BOX FIGURE 2.1.1 A simple four-stage value chain with four sourcing possibilities



In principle, any business function or activity, from manufacturing or service operation to R&D and innovation, can be carried out in GVCs. This is not to say that all business functions are easily separable from other functions, organizationally or geographically, but sourcing options do in fact exist for most functions (with variability between some products and service). At each stage of a value chain, a firm can choose to conduct an activity internally or externally, domestically or internationally (box figure 2.2.1). A value chain for a specific product or service, leading from research to sales or fulfilment, might include any of these options at each stage; and it would be global inasmuch as a significant part of the full process crossed international boundaries.

Source: Sturgeon 2013.

TABLE 2.1 The top 20 "export winners" by technology category, 1985–2000

	All sectors	Resource-based manufactures	Non-resource-based manufactures	High-technology manufactures	Medium-technology manufactures	Low-technology manufactures
1	China	Ireland	China	China	China	China
2	United States	United States	Mexico	**Malaysia**	Mexico	United States
3	Republic of Korea	China	**Malaysia**	Taiwan	United States	Mexico
4	Mexico	Republic of Korea	United States	Republic of Korea	Republic of Korea	**Indonesia**
5	**Malaysia**	India	**Thailand**	**Singapore**	Spain	**Thailand**
6	Ireland	Russian Federation	Republic of Korea	Mexico	Taiwan	**Malaysia**
7	**Thailand**	**Thailand**	**Singapore**	**Philippines**	**Malaysia**	Canada
8	Taiwan	**Indonesia**	**Philippines**	**Thailand**	**Thailand**	Turkey
9	**Singapore**	Israel	**Indonesia**	Ireland	Hungary	India
10	Spain	Japan	Taiwan	Finland	**Indonesia**	Poland
11	Poland	Switzerland	Ireland	Hungary	Poland	**Viet Nam**
12	Hungary	Chile	Hungary	**Indonesia**	Czech Republic	Bangladesh
13	**Viet Nam**	Spain	Spain	Israel	Portugal	Honduras
14	India	Australia	Poland	Costa Rica	**Singapore**	Dominican Rep.
15	Israel	Poland	Turkey	Poland	Turkey	Pakistan
16	Poland	Hong Kong	India	Czech Republic	Argentina	Tunisia
17	Turkey	United Arab Emirates	Israel	Turkey	India	Sri Lanka
18	Czech Republic	Mexico	**Viet Nam**	Malta	Ireland	El Salvador
19	Chile	Iran	Czech Republic	Spain	Slovakia	Guatemala
20	Portugal	Argentina	Bangladesh	Morocco	Australia	Morocco

Source: UNCTAD 2002, based on United Nations Comtrade database.

Note: "Winners" are economies that have raised their world trade market shares by at least 0.1 per cent over the period. Member States are bold.

Over time, as the opportunities of the new international division of labour gained traction among MNEs, a new momentum emerged and with it an increasingly global business vision. Job creation in poor economies created incomes and market opportunities. Continued splitting of the manufacturing process into ever finer sub-processes allowed the ever more precise matching of production requirements with skills and expertise, potentially anywhere in the world, and opened up opportunities for local firms to participate in GVCs. Improvements in communication and transportation, and the consequent declines in the costs of coordination and logistics, made the allure of a global production system (a "global factory") ever more economically feasible for many companies. For instance, MNEs began to locate production processes that required specific skills in countries where the requisite skilled labour was present, signalling the emergence of a new thrust for FDI: capability-seeking strategies. MNEs took advantage of increasingly qualified labour in developing countries by not only assembling products but also finalizing production in such locations too. From this development it was then but a short step to shipping final products to consumers and industrial customers worldwide.

Not least, the computerization of various business processes along the value chain – from design to manufacturing and logistics – facilitated the fine-splitting of the value chain because complex information and specifications could be codified in software and passed along the chain. This increase in "value chain modularity" (Sturgeon 2002, Gereffi et al. 2005), which spread to software and services in the 2000s, helped to drive an unprecedented wave of FDI to and exports from well-connected developing economies. The challenge, for local firms, was in understanding the requirements, knowing the standards, and making ongoing and escalating investments in information

and communication technology (ICT) hardware and software. The existence of these challenges worked to reinforce the first-mover advantages of suppliers in ASEAN and Taiwan, leading to south–south FDI by suppliers that could meet increasing MNE requirements, and also the emergence of a class of "global suppliers", often based in developed economies, with the scale and capabilities needed to meet the requirements of MNEs on a global basis (chapters 3 and 4, Sturgeon and Lester 2004).

In effect, ASEAN and some other East Asian economies were collectively the crucible for a new system of global production governed by MNEs, taking advantage of – and orchestrating the use of – skills and resources located anywhere in the world: in other words, a system of GVCs (box 2.2).

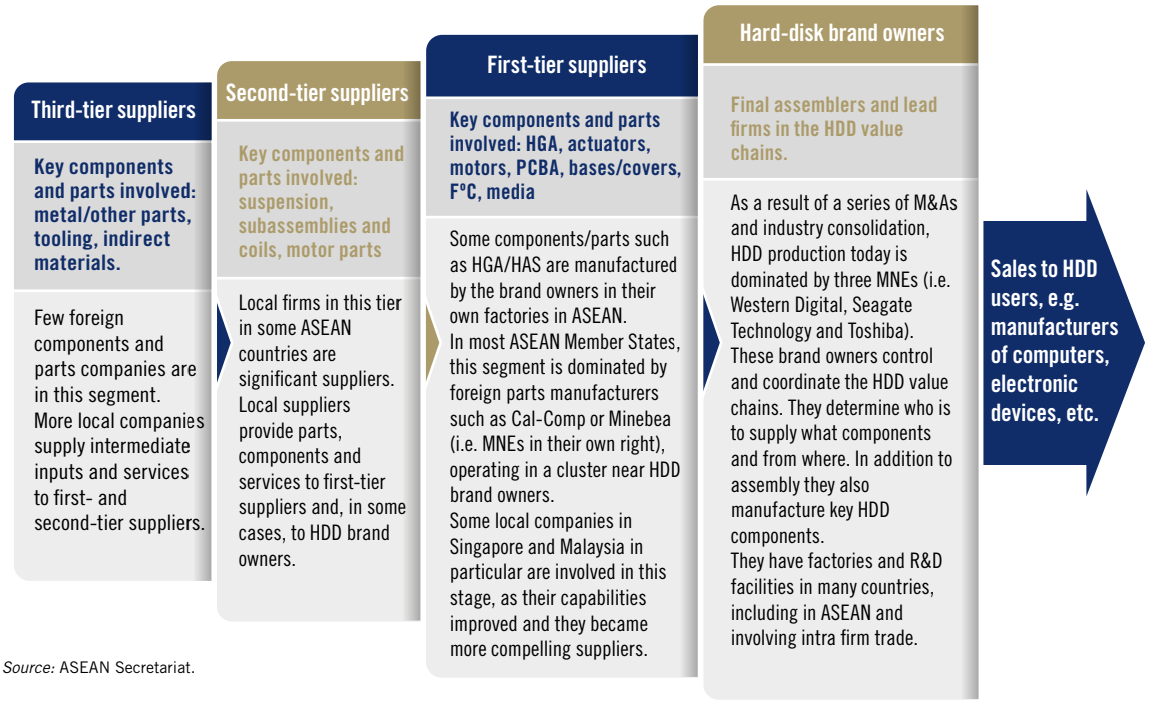
Initially, MNEs undertook most of their offshore production by relocating processes through directly controlled subsidiaries in host countries (i.e. FDI). Since the 1990s, they increasingly have chosen not to undertake new in-house investments and turned instead to independent or semi-independent firms under contract.[10] Such outsourcing led to the rise of cross-border non-equity modes (NEMs) of production, including contract manufacturing, services outsourcing, management contracts, concessions (normally granted by public entities) and franchising (annex table 2.1) (UNCTAD 2011). Such NEMs were an important way for many ASEAN firms to establish linkages with MNEs, enter GVCs and upgrade their capabilities in technology, business processes and management (chapters 3 and 4). National and regional policies supported and sometimes incentivized the setting up and development of NEM arrangements, as the new international division of labour gathered pace in the 1970s, gained traction in the 1980s and evolved into a system of GVCs in the 1990s (box 2.2). NEM arrangements were vital in the rise of many ASEAN MNEs and, along with FDI, play a major part in ASEAN's regional integration (chapters 3 and 4, ASEAN Secretariat and UNCTAD 2014, 2015).

One of the best-known examples of the shift of high-technology manufacturing to ASEAN is the hard disk drive (HDD) industry, which also illustrates the type of fine-splitting of a value chain that is conducive to offshoring (relocation of production geographically) and outsourcing (of production or services, under contractual or NEM arrangements) (figure 2.2) (McKendrick et al. 2000). Singapore was a pioneer, targeting not only a specific industry (ICT hardware), but a specific product segment (HDDs), approaching specific firms directly, offering investment incentives and also ongoing trade facilitation and other supports. This sort of sophisticated, highly targeted industrial policy, developed in line with the specific needs of specific industrial sectors, became a hallmark of ASEAN and other East Asian developers. The alignment of industrial policy with prevailing MNE strategy as a search for a "strategic external fit" can, when successful, set up a co-evolutionary dynamic between FDI attraction policies and MNE strategies (Kimura 2007).

In the case of the HDD industry in ASEAN, all major MNEs eventually set up operations in the region, including Seagate (United States), Toshiba (Japan), Western Digital (United States), Cal-Comp (United States), Minebea (Japan) and Rencol (United Kingdom). As investments grew, and policies became more sophisticated, incentives and supports were extended to MNEs' suppliers in home economies as well, eventually leading to a large segment of HDD value added being transferred to ASEAN Member States. Even though product development has tended to remain in the home economies of lead firms, one of the three largest HDD brand owners – Seagate – became active in some 30 countries, with production concentrated in four ASEAN Member States (Malaysia, the Philippines, Singapore and Thailand), as well as China and the United States (section 2.3). Product development is primarily in the United States, but also in the Republic of Korea and Singapore.

Many home-grown companies, such as Engtek (Malaysia) and Beyonics (Singapore), are also active in this value chain in ASEAN Member States and across the region (chapter 4).

FIGURE 2.2 The HDD cluster in ASEAN: characteristics of the value chain and relationship between brand owners and suppliers



Source: ASEAN Secretariat.

As GVCs have matured and techniques for segmenting, relocating and reintegrating work have improved (increasingly through the use of ICT), manufacturing GVCs have evolved beyond production per se to include services and more recently, elements of R&D and other types of knowledge work (UNCTAD 2013). The rise of MNEs such as Apple, H&M and Nike – "factoryless" firms that externalize most of their international production to firms under contract through NEMs – can be contrasted with "classic" MNEs such as Ford and Toyota which still retain a high degree of internal international production in house, even as their supply base has expanded through NEMs. Such industry differences are legion and depend on the operational characteristics of business processes, levels of market concentration and the prevailing culture of both the specific MNEs and the business systems of their home countries – all the more reason for policymakers, as in ASEAN, to be tuned into the structure and dynamics of specific industries (Whittaker et al. 2010).

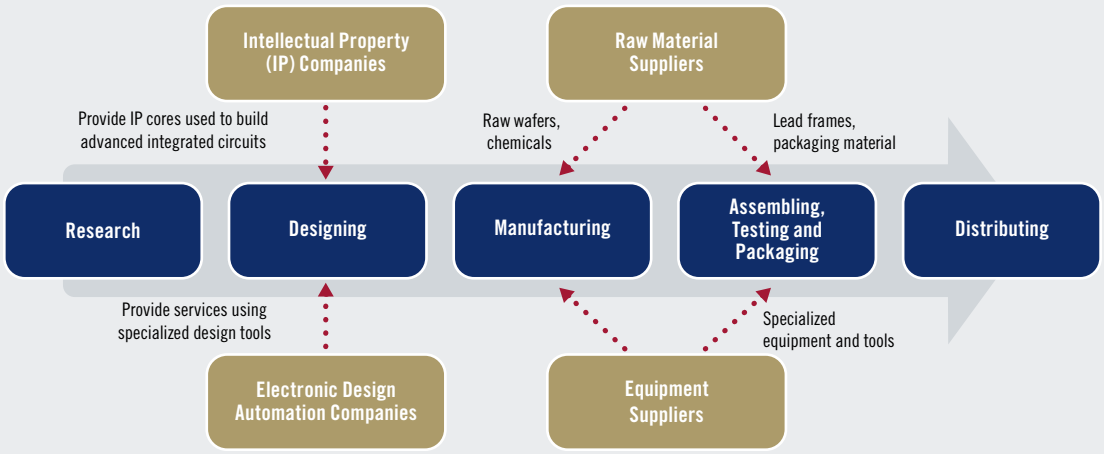
Modern GVCs are complex, potentially involving many MNEs (both lead firms and suppliers) and local companies at various levels (and sublevels) in the value chain, and can encompass FDI, NEMs (contractual arrangements) or both (i.e. "NEM FDI", whereby a contracted firm establishes a foreign subsidiary to supply the contractor firm in or from a host economy). The semiconductor industry offers a good example (box 2.3). ASEAN Member States and the region as a whole both figure prominently in the semiconductor GVC (figure 2.3), with a division of labour within regional value chains (RVCs); e.g., primary manufacturing in Singapore and back-end chip assembly in Malaysia, the Philippines and Thailand (formerly labour intensive, now automated). The same is the case in GVCs in other industries, such as automotives, banking and financial services, chemicals and chemical products, electronic and electrical products, food and beverages, garments and textiles.

BOX 2.3 Beyond borders, the global semiconductor value chain

Semiconductors are complex products critical to the functioning of everyday consumer electronics, communications and computing devices. They are used in all economic sectors: aerospace, automobiles, financial, medical and retail, to name but a few. Few industries have a value chain and ecosystem so complex, so geographically widespread and so intertwined. For example, one United States semiconductor company has over 16,000 suppliers worldwide. More than 7,300 of its suppliers are based in 46 American states, and over 8,500 are located outside of the United States

End-users depend on a globally integrated supply chain comprising these activities: R&D, design, manufacturing, assembly, testing, packaging and distribution (box figure 2.3.1). Completing the semiconductor "ecosystem" are specialized companies whose activities support the value chain – in an industry characterized by unprecedented technological advancement. The contribution of these companies is essential to producing semiconductors that are competitive in terms of price, quality, performance and consumer preference. The main types of supporting companies in the semiconductor ecosystem are intellectual property companies, which develop and license predesigned "blocks" of circuits for semiconductor companies; electronic design automation companies, which provide computer-aided design and other design services; materials companies, which produce wafer-fabrication and packaging materials; and equipment manufacturers, which produce specialized equipment and machine tools for manufacturing, assembly, testing and packaging.

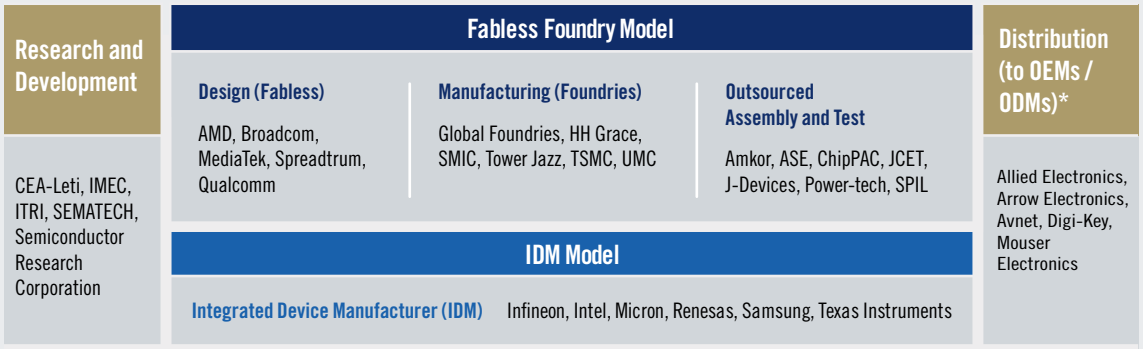
BOX FIGURE 2.3.1 Semiconductor value chain and ecosystem



This international structure evolved over decades and is still changing. In the 1950s, individual companies tended to engage in all stages of production and operate in one country. The industry is now characterized by an ever-diversifying range of business models and by relationships crossing national and regional boundaries. Technological advances and competition have driven this evolution. Corporate responses to different levels of specialization and functional delineation in the value chain have led to the emergence of two key operating models in the semiconductor industry: integrated device manufacturers (IDMs) and "fabless" foundries. Box figure 2.3.2 illustrates these two models and the industry participants, including R&D companies, and identifies some companies undertaking different activities in the value chain. In the IDM model, one company carries out all stages of production—design, manufacturing, assembly, testing and packaging. In the fabless-foundry model, production is split: Design companies focus on design but contract out manufacturing (fabrication) and are thus "fabless". Foundry companies concentrate on contract manufacturing. A third group, called outsourced semiconductor assembly and test companies, perform assembly, testing and packaging. This third group is not part of the fabless-foundry model.

The IDM model derives efficiencies from vertical integration; the fabless-foundry model derives them from delineation of tasks and specialization. Fabless companies focus on design and innovation and avoid heavy investment in setting up, maintaining and upgrading foundries. Foundries try to achieve high-capacity utilization and efficiency by servicing many fabless companies in the market. Outsourced semiconductor assembly and test companies focus on achieving operational efficiencies by also serving many companies to ensure a profitable capacity utilization rate, just as foundries must.

BOX FIGURE 2.3.2 Operating models in the semiconductor industry



** Original equipment manufacturers and/or original design manufacturers (ODMs) buy semiconductors to integrate into consumer end-products.*

The industry is uniquely structured to derive maximum benefit from the diverse and varied skills of human resources and locational advantages of participating countries in MNE GVCs. Canada, European countries, and the United States tend to specialize in semiconductor design, along with high-end manufacturing. Japan, the United States, and some European countries specialize in supplying equipment and raw materials. China, Taiwan, Malaysia and other ASEAN Member States tend to specialize in manufacturing, assembling, testing and packaging. Canada, China, Germany, India, Israel, Singapore, the Republic of Korea, the United Kingdom, and the United States are all major hubs for semiconductor R&D. Major semiconductor companies have located facilities in countries as far flung as Costa Rica, Latvia, Mexico, South Africa, and Viet Nam. Several key factors drive and facilitate GVCs in semiconductors:

Relative advantage of countries in undertaking certain activities: The semiconductor GVC enables countries to focus on activities in which they have a competitive advantage and trade for other goods and services. In the semiconductor GVC, countries "trade in tasks" within specific segments of the value chain. Generally, countries with abundant labour perform labour-intensive tasks (e.g., assembly and testing), countries with skilled labour (process knowledge) primarily undertake technology-intensive tasks (e.g., manufacturing) and developed economies focus on knowledge-intensive tasks (e.g., design). A country's comparative advantage is not static but will constantly adjust as some activities grow and some decline, and as a country's economic and structural policy environment changes.

Trade-facilitating conditions: The emergence of GVCs has also been facilitated in recent years by advancement in ICT, improving the quality and reducing the cost of global communications and business operations through real-time interaction and resource sharing. Technological advancements have also facilitated the development of international standards for technology, product descriptions and protocols. Greater trade liberalization and the resultant greater access to worldwide resources and markets have also contributed to the emergence of a semiconductor GVC. Another promoting factor has been the reduction in costs associated with international trade (port costs, freight and insurance costs, tariffs and duties, transportation and communication costs, and so on).

Positive business environment: Elimination of tariffs, provision of tax benefits such as R&D credits, provision of grants, establishment of industrial clusters, protection of intellectual property and government investment in skill development are all incentives that prompt firms to move their operations to countries to improve competitiveness. At the same time, changing perceptions of the stability and openness of markets, concerns about intellectual property protection, rising costs and a range of other factors also prompt firms to "back-shore" or relocate activities. A positive and stable business and policy environment is a key factor in a firm's decision to invest and engage in economic activities in a country.

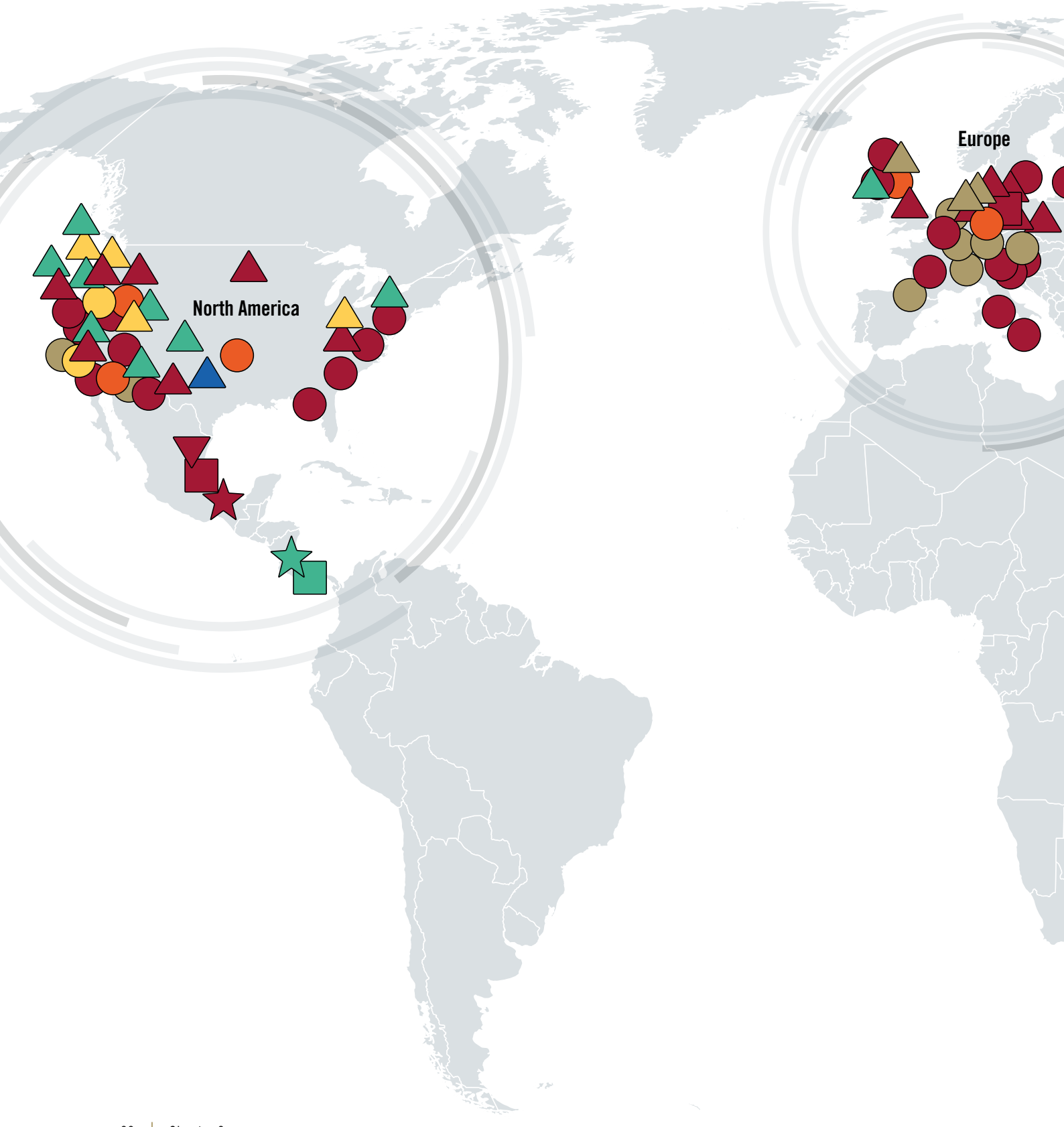
Proximity to end-use markets: Increased demand for electronic products in emerging markets, especially in Asia, has pushed semiconductor companies to move production facilities closer to these markets.

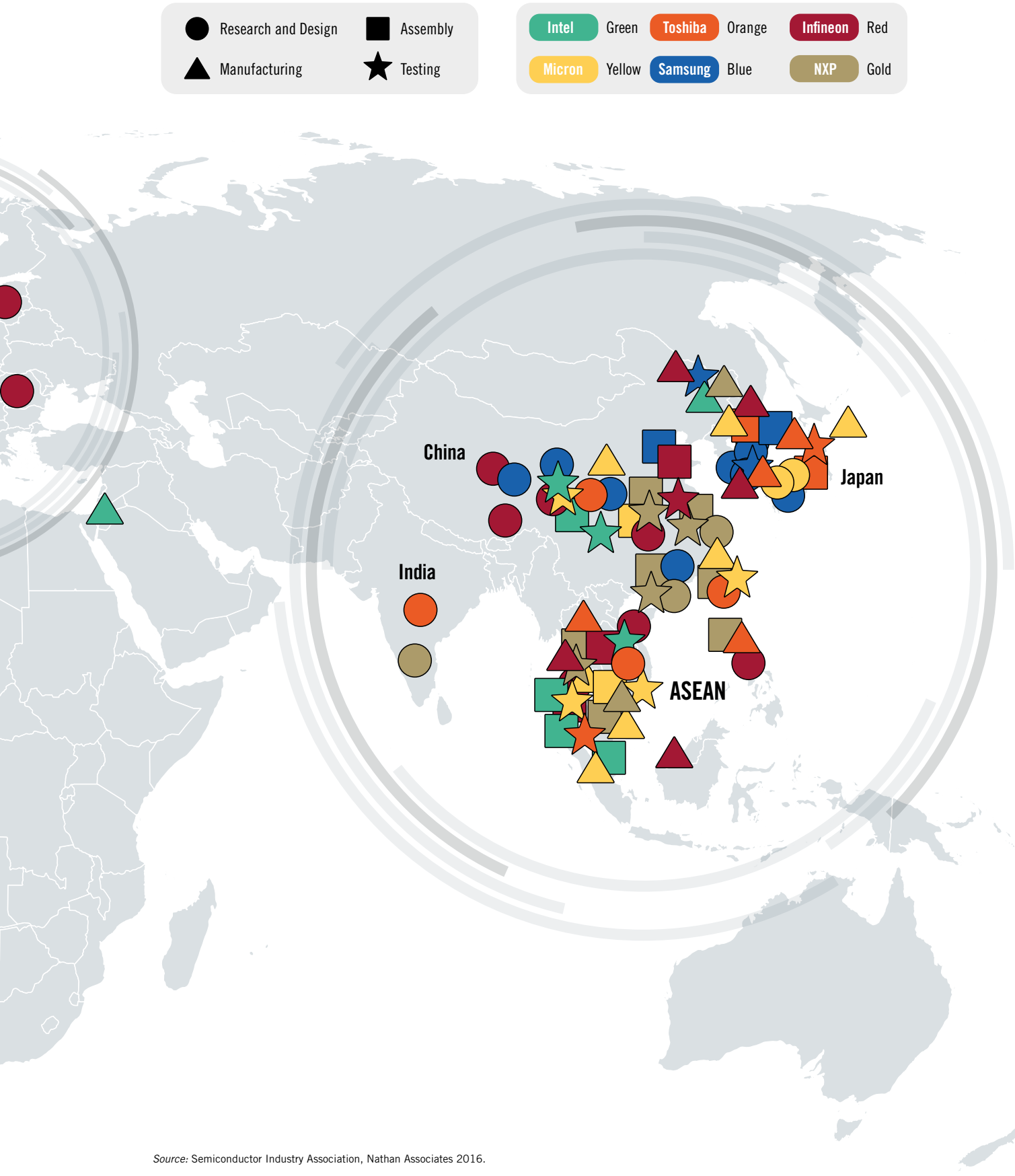
Physical characteristics of semiconductors: Semiconductor manufacturing involves physically distinct stages of production, which allows for geographic dispersion of the production process. Furthermore, the high value-to-weight ratio of semiconductors makes possible easy and economical transportation during the various stages of production.

Source: Semiconductor Industry Association and Nathan Associates (2016).

FIGURE 2.3

Geographic dispersion of the semiconductor value chain by six integrated device manufacturers

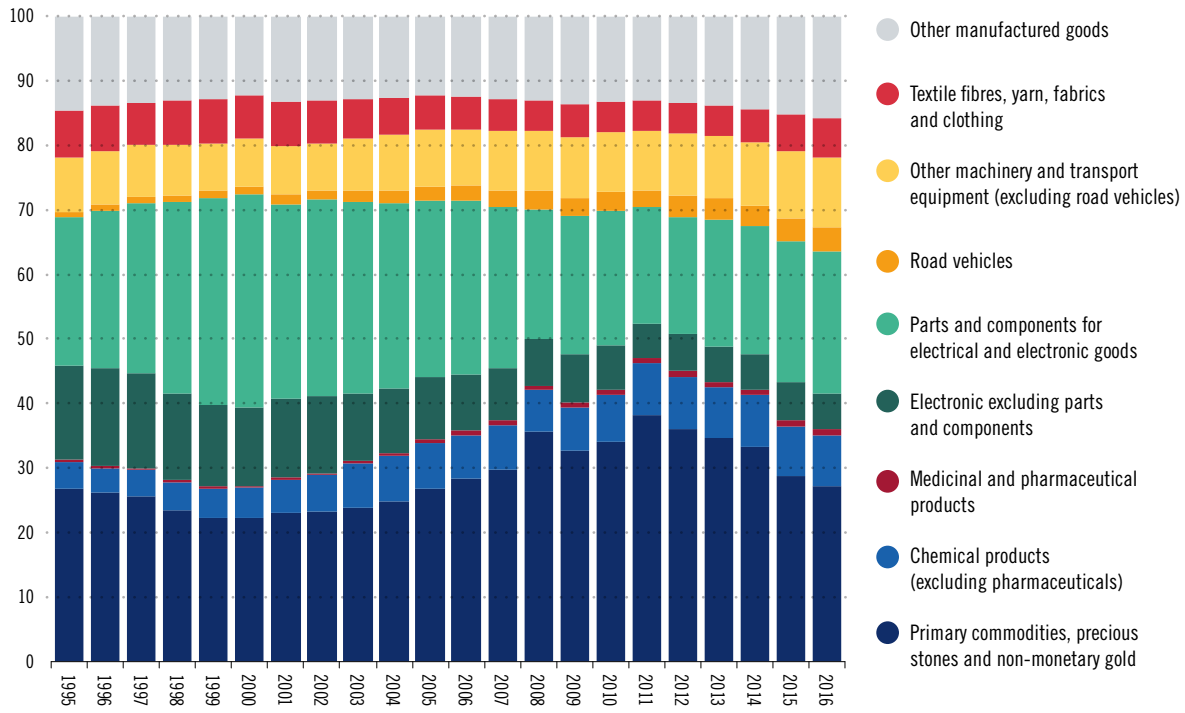




Source: Semiconductor Industry Association, Nathan Associates 2016.

In the 50 years since its inception, ASEAN has changed beyond recognition. Already on the vanguard of international trade and investment routes in 1967, the regional economy has been transformed by the enormous influx of manufacturing and services FDI to Indonesia, Malaysia, the Philippines, Singapore and Thailand – the founding Member States of ASEAN – and increasingly to the five Member States – Brunei, Cambodia, Laos PDR, Myanmar and Viet Nam – that have joined since (chapters 4 and 5). For instance, merchandise exports by ASEAN Member States have grown nearly four-fold since 1995, to $1.14 trillion in 2016, and the structure of trade for the Association as a whole is a far cry from the OIDL. Though South-East Asia is rich in natural resources, in recent years primary commodity exports from ASEAN have been less than 30 per cent of the total. The remaining exports are accounted for by manufacturing – much of them in industries associated with MNE GVCs, such as electric components, electronic products, machinery, road vehicles and textiles and clothing (figure 2.4). And even in resource industries such as oil and gas, the shift to more difficult geologies has raised the importance of technology, allowing oil rich states such as Malaysia to extend incentives to attract investment in R&D.

FIGURE 2.4 ASEAN: structure of merchandise exports, 1995–2016 *(Per cent)*



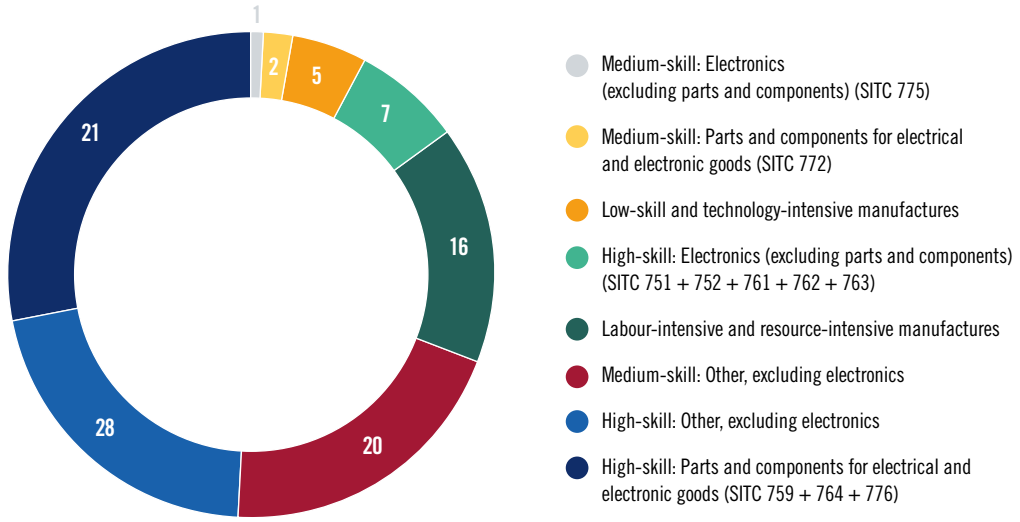
Source: UNCTADStat.

Note: All merchandise exports by ASEAN Member States, i.e. including intra-ASEAN trade.

It is always difficult to definitively assign low or high skill designations to trade data, as low-tech industries increasingly include technology-intensive segments and labour-intensive processes persist (or can be made to persist) in high-tech industries (Sturgeon and Gereffi 2012). Yet the region as a whole has decisively shifted away from low-skill and/or low-technology and from labour- and/or resource-intensive manufacturing trade. Low-tech industries accounted for about 20 per cent of mechandise exports in 2016, while high- and low-skill goods represented 56 and 23 per cent respectively (figure 2.5). It is worth noting that low skills do not necessarily denote the absence

of MNEs or GVC activity. For example, MNEs regulate much of the global production and trade in garments by controlling end-markets, R&D and design, and contractual arrangements with specialist manufacturing MNEs and MSMEs (micro, small and medium-size enterprises) – usually through a contractual-tier system, as with the fabless part of the semiconductor industry. Similarly, many ASEAN MNEs are involved in resource-based manufacturing and GVCs, such as for palm oil (section 2.4).

FIGURE 2.5 ASEAN: structure of manufactured goods exports by type of manufacturing, 2016 *(Per cent)*



Source: UNCTADStat.

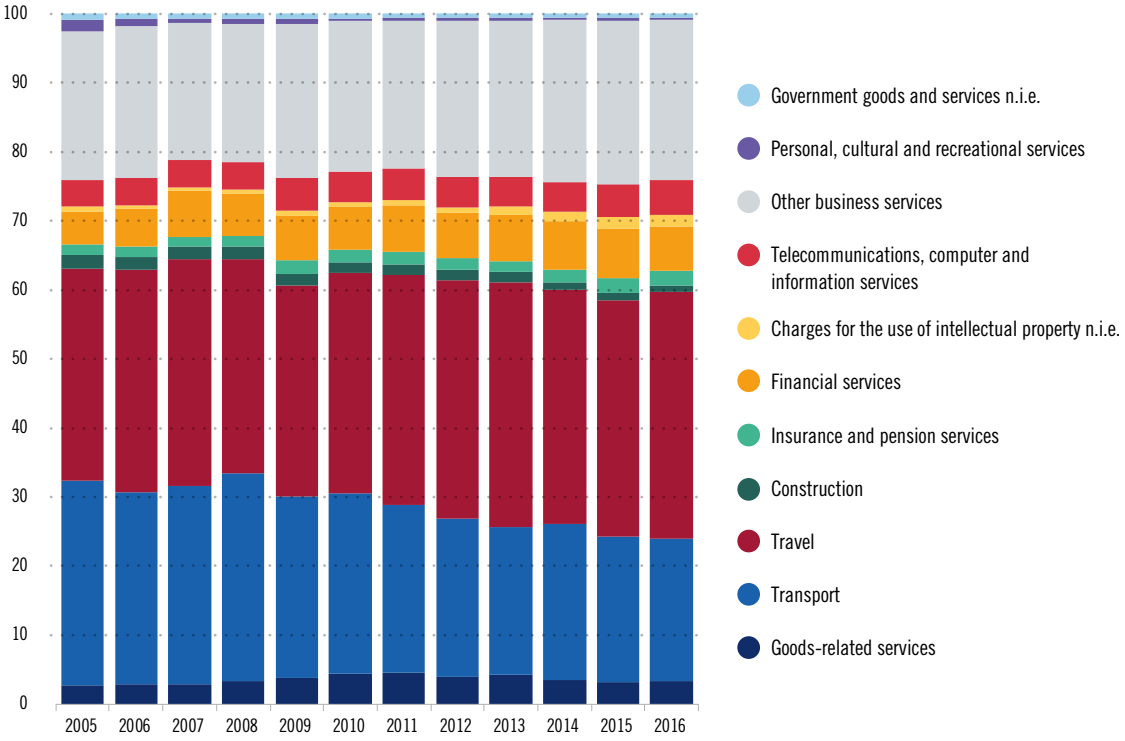
Note: All manufacturing exports by ASEAN Member States, i.e. including intra-ASEAN trade.

Trade in services is also indicative of the shift from the OIDL to the NIDL, with transport, travel, telecommunication and information services, financial services and other business services all representing significant shares of ASEAN's $327 billion in export services in 2016 (figure 2.6). Transport represents not only traditional services, such as rail, road and shipping, but also, for instance, pipelines and electricity transmission. Representing about 20 per cent of ASEAN's exports (and imports), it is a good indicator of regional integration, and MNEs play a major role in regional infrastructure (ASEAN Secretariat and UNCTAD 2015). The same applies to telecommunication, computer and information services, which also make up about 5 per cent of services exports. The Philippines, for instance, has carved out a major role in GVCs as an exporter of outsourced business process services (Bird and Ernst 2009). Although travel (35 per cent of services exports in 2016) includes a traditional and major industry for ASEAN, i.e. services related to tourism, a large part also includes business travel consequent to the region's role in GVCs and RVCs.

Construction, financial and insurance services (a little under 10 per cent of exports) are also strongly connected to RVCs. The category among the most strongly connected to GVCs and RVCs and integration is exports in other business services. This category, unfortunately, mixes tradable service such as R&D, professional and management consulting services (e.g. legal, consulting and market research services, accounting and tax planning services), and technical and trade services (e.g. architectural and engineering services) with non-tradable services such as water and sewerage

services (UNCTAD 2015). Nevertheless, taken together, this category of services accounted for 23 per cent of ASEAN exports in 2016. They are both intracompany (e.g. services provided to related enterprises by MNE regional headquarters in one or other Member State, most commonly Singapore) and also services provided by MNEs, including smaller foreign and ASEAN MNEs, under contract (i.e. often NEMs when undertaken for MNEs). Charges for intellectual services and goods-related services (about 5 per cent of the total) are also closely linked to cross-border interfirm activity under contractual or NEM arrangements.

FIGURE 2.6 ASEAN: structure of services exports, 2005–2016 *(Per cent)*



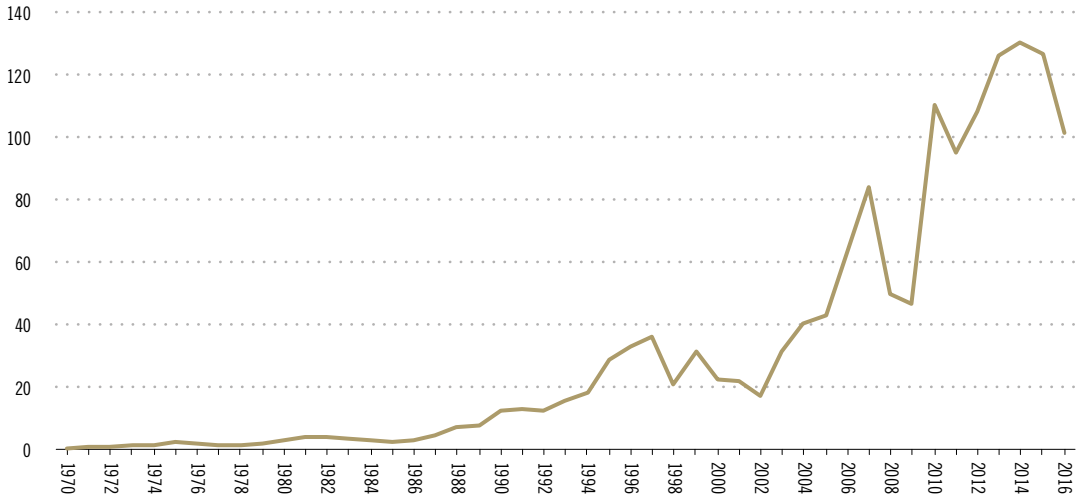
Source: UNCTADStat.

Note: All services exports by ASEAN Member States, i.e. including intra-ASEAN trade.

2.2 The expansion and characteristics of FDI flows to ASEAN

ASEAN's significant role in the rise of the new international division of labour and its deep participation in many GVCs is reflected in the level and structure of FDI inflows to the region (section 2.1). The nominal or current value of FDI inflows to ASEAN rose dramatically from about a third of a billion dollars annually in the late 1960s and early 1970s to well over $100 billion every year in recent years (figure 2.7). To put this expansion into perspective: while the absolute nominal value of global FDI has surged some 60-fold over the five decades since ASEAN's inception, the rate of increase of FDI to the region has been even greater. Consequently, ASEAN's share of annual global FDI flows has risen from 2–4 per cent of the total in the late 1960s to 7–10 per cent in recent years, with a number of ups and downs in between. In the main, this expansion is mirrored among ASEAN Member States, albeit with variations relecting conditions in each economy (figure 2.8).

FIGURE 2.7 ASEAN: inward FDI flows, 1970–2016 *(Billions of dollars)*



Source: UNCTAD FDI/MNE database.

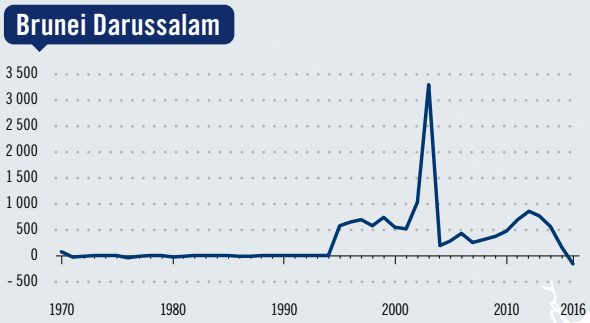
The origin of FDI to ASEAN by type of economy has also changed over the years. When ASEAN was established, the lion's share of inward investment was by MNEs from developed economies. In 2000–2004, these economies still accounted for two thirds of inflows to the region; however, since then the increase in developing countries' share of FDI to ASEAN has been inexorable. It stood at 40 per cent by 2015–2016, with advanced countries accounting for 55 per cent (figure 2.9). Intra-ASEAN FDI flows represent a large part of flows from developing countries, with developing East Asia accounting for much of the rest (figure 2.10).

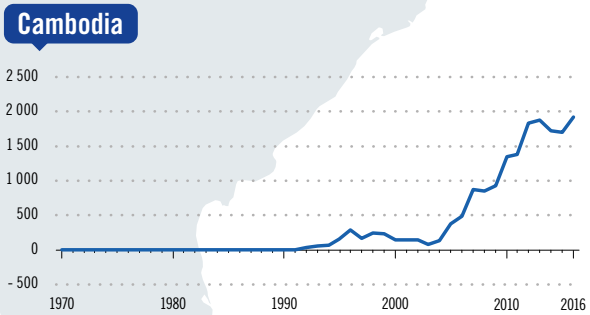
FDI inflows in industries or sectors such as automobiles, oil and gas, R&D and software design, or regional headquarters operations, means that flows from developed economies remain important in a number of Member States, especially Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore and Thailand (chapter 3). Developing-economy investment, and especially intra-ASEAN

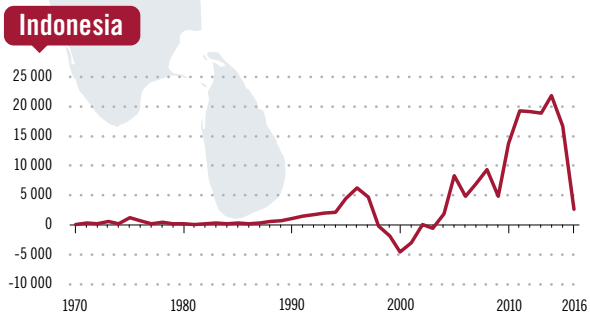
FIGURE 2.8

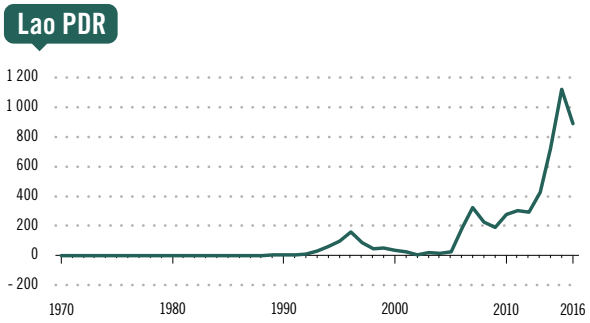
ASEAN: inward FDI flows, 1970–2016

(Millions of dollars)



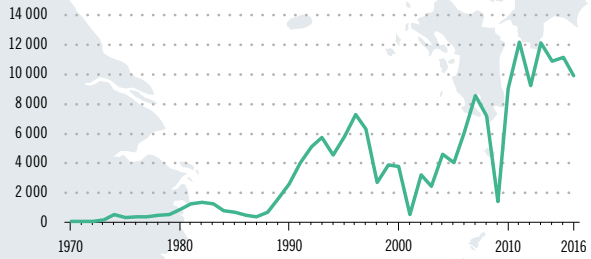




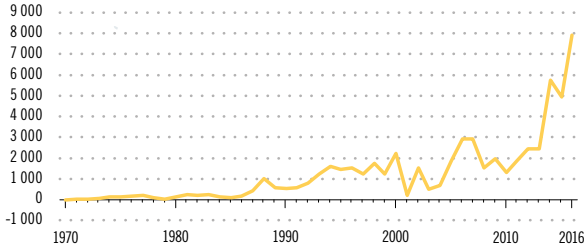


Source: ASEAN Secretariat, based on UNCTAD FDI/MNE database.

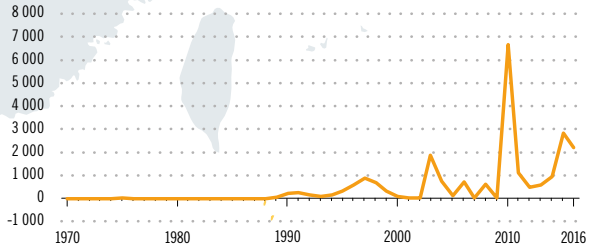
Malaysia



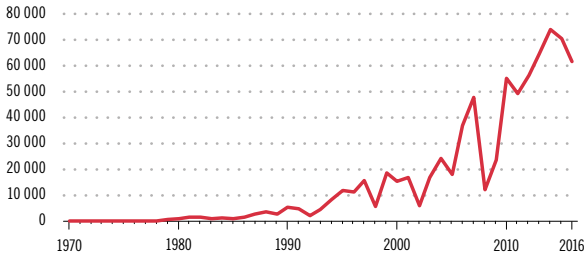
Philippines

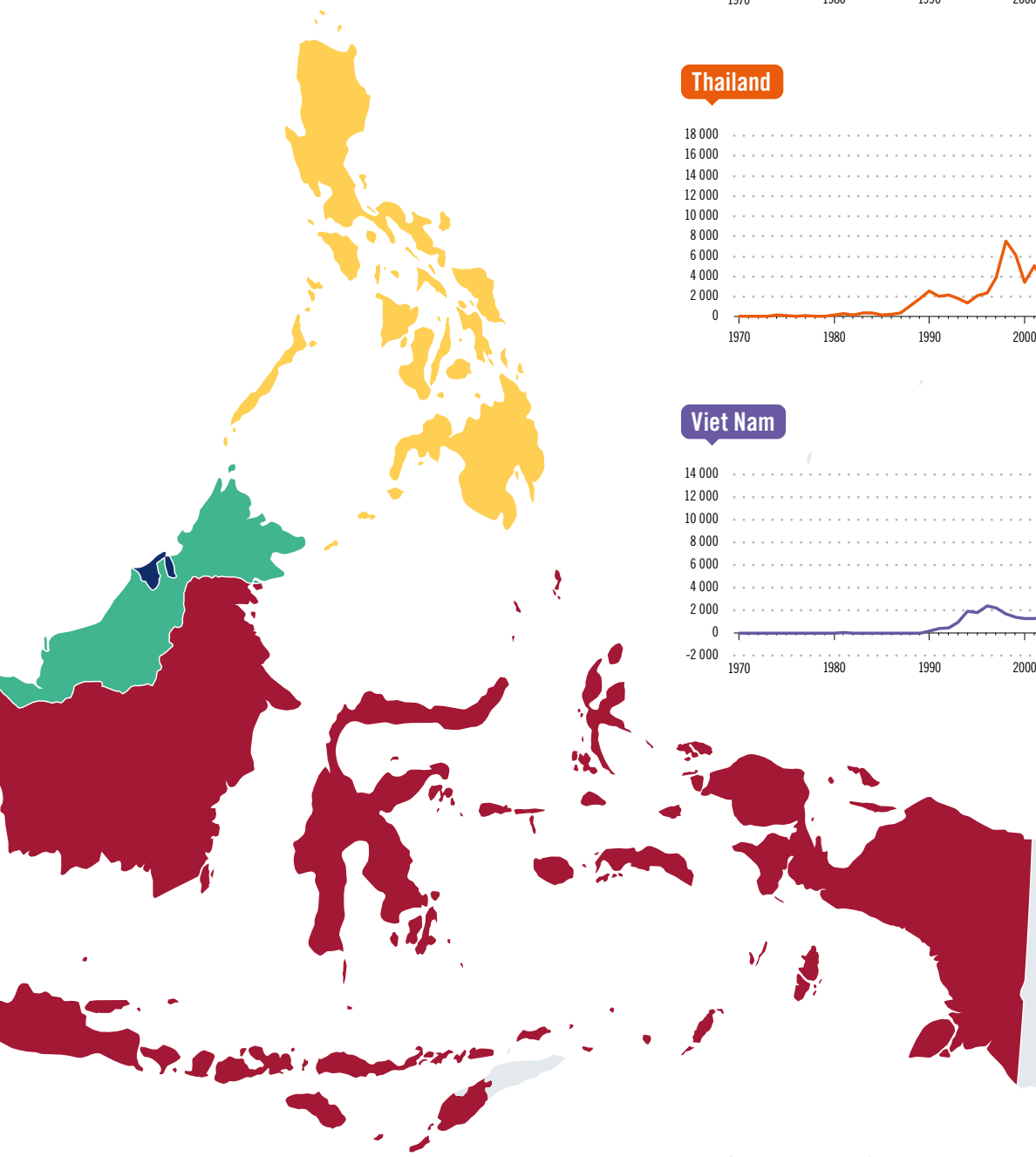


Myanmar

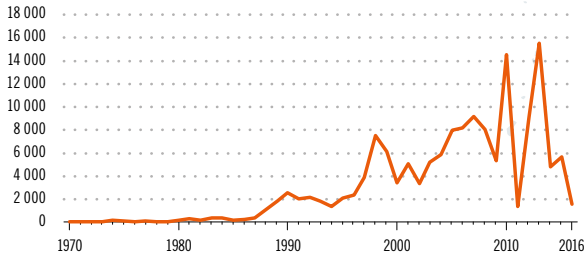


Singapore

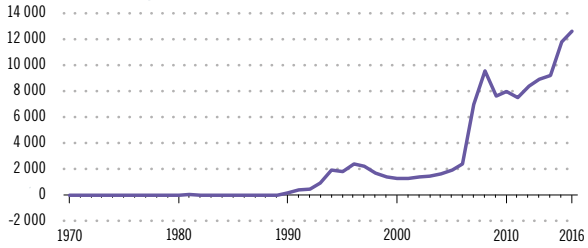




Thailand

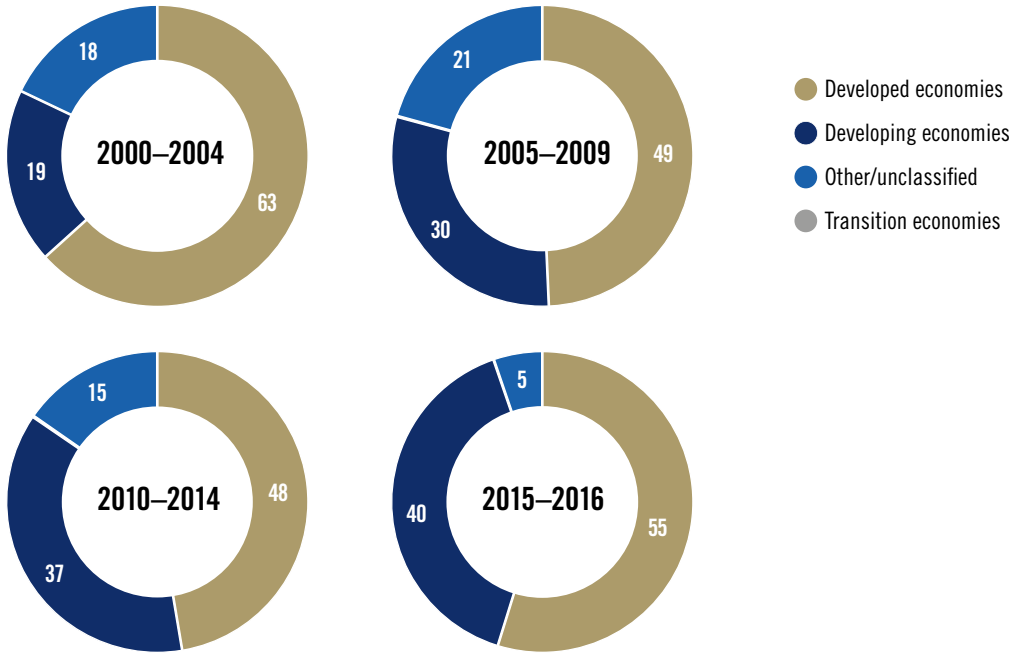


Viet Nam



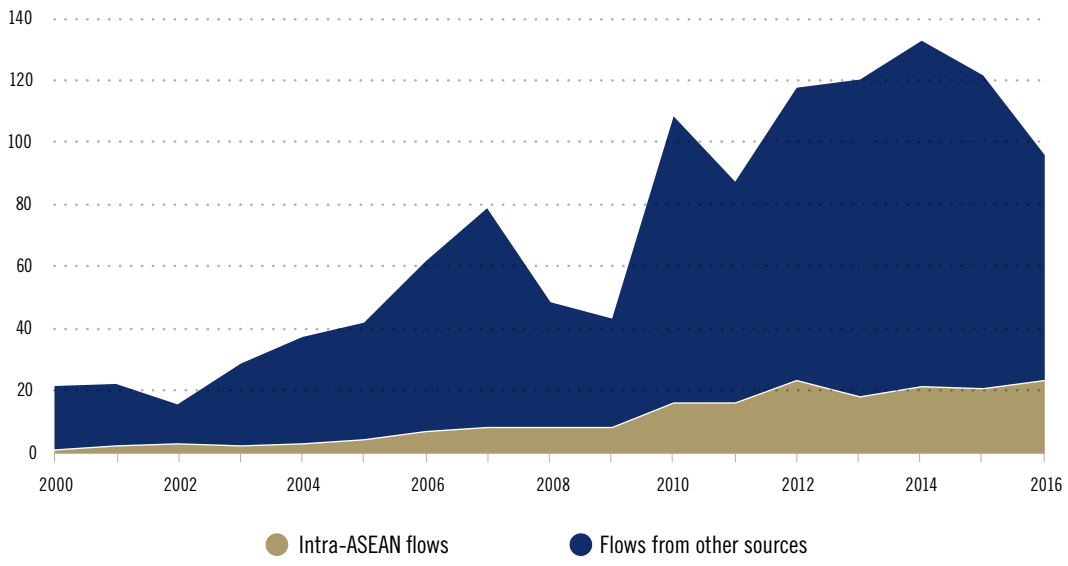
investment, is highly important for the CLMV Member States (figure 2.11). Both foreign and ASEAN MNEs have expanded their presence, especially in the context of cross-border value chains making use of complementary resources (agriculture, minerals, diverse industrial base, skilled and unskilled labour) across the region. As they have done so, all Member States have been drawn into MNE networks (section 2.3, 2.4 and 2.5).

FIGURE 2.9 ASEAN: inward FDI flows, by major economic grouping, 2000–2016
(Per cent)



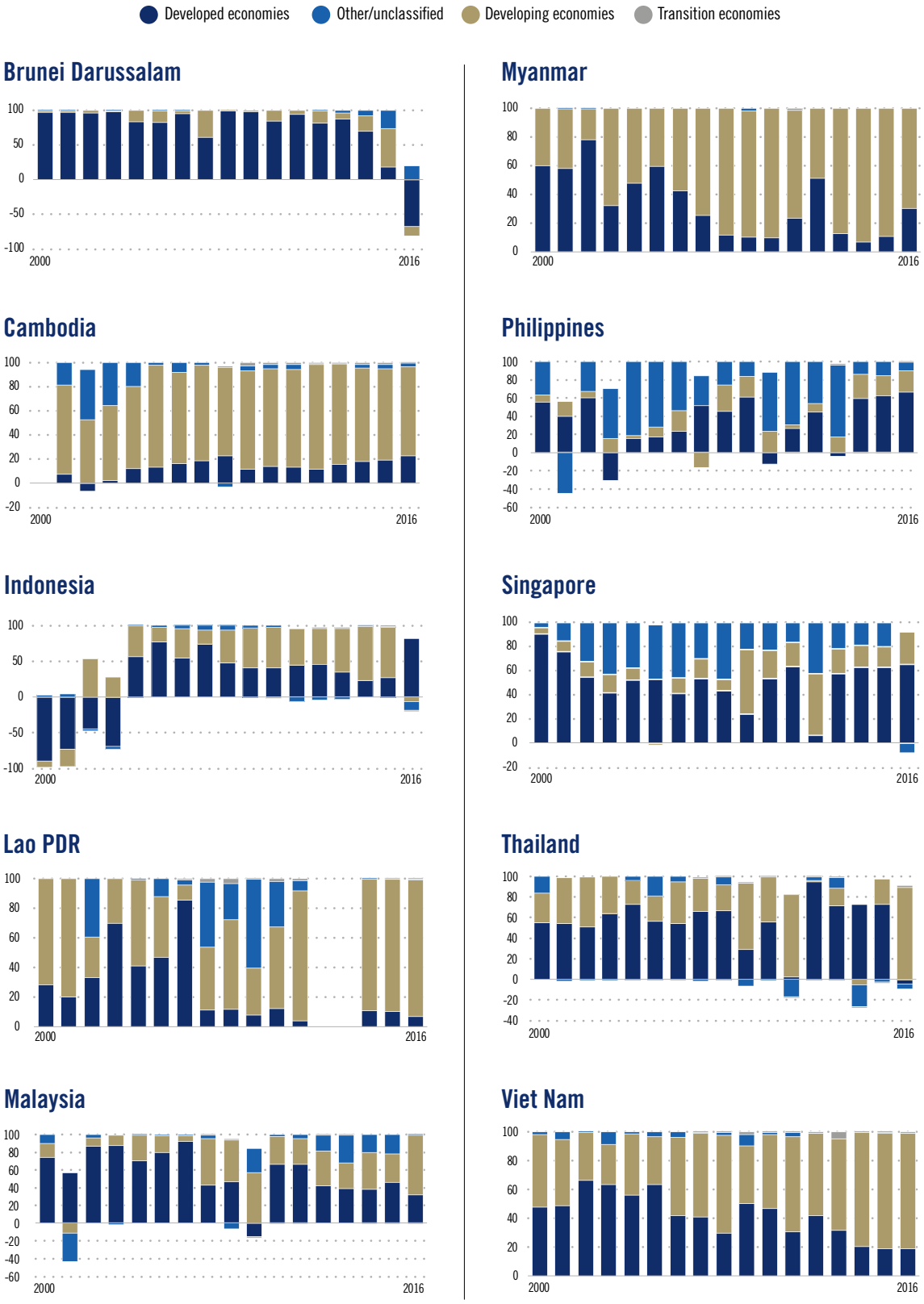
Source: ASEAN Secretariat.
Note: Other/unclassified primarily due to technical issues in a small number of countries.

FIGURE 2.10 ASEAN: total inward FDI flows, by source, 2000–2016 *(Billions of dollars)*



Source: ASEAN Secretariat.

FIGURE 2.11 ASEAN: inward FDI flows, by major source region, 2000–2016 *(Per cent)*



Source: ASEAN Secretariat.

Note: Other/unclassified category is primarily due to technical issues in a small number of countries.

At a more granular level, the changing sources of FDI to ASEAN reflect fundamental changes in the structure of the world economy (section 2.1). Until the 2000s, Europe remained by far the biggest FDI source to ASEAN. Since then, there has been a steady shift away from developed countries and towards FDI partners in developing East Asia and South-East Asia – though there has been a small bounce back by Europe and North America very recently (table 2.2, figure 2.12). This is because of a relative shift of the manufacturing parts of many value chains to East Asia (box 2.3). Only Japan belies this trend, with its share of inward FDI to ASEAN consistent at about 15 per cent over the last two decades. Japan is by far the largest FDI partner among the other developed countries group. The shift of manufacturing to Asia has increased cross-investment (and trade) between developing East and South-East Asia, as a result of Pan-Asian networks established by many non-Asian and local MNEs in the two regions (chapter 4). In terms of inward FDI to ASEAN, there is currently rough parity between investment from developing East Asia and that from ASEAN Member States. Other developing countries remain as yet-distant prospective FDI partners for ASEAN, although India's proposed membership in the Regional Comprehensive Economic Partnership (RCEP) may boost investment and trade relationships between South and South-East Asia.

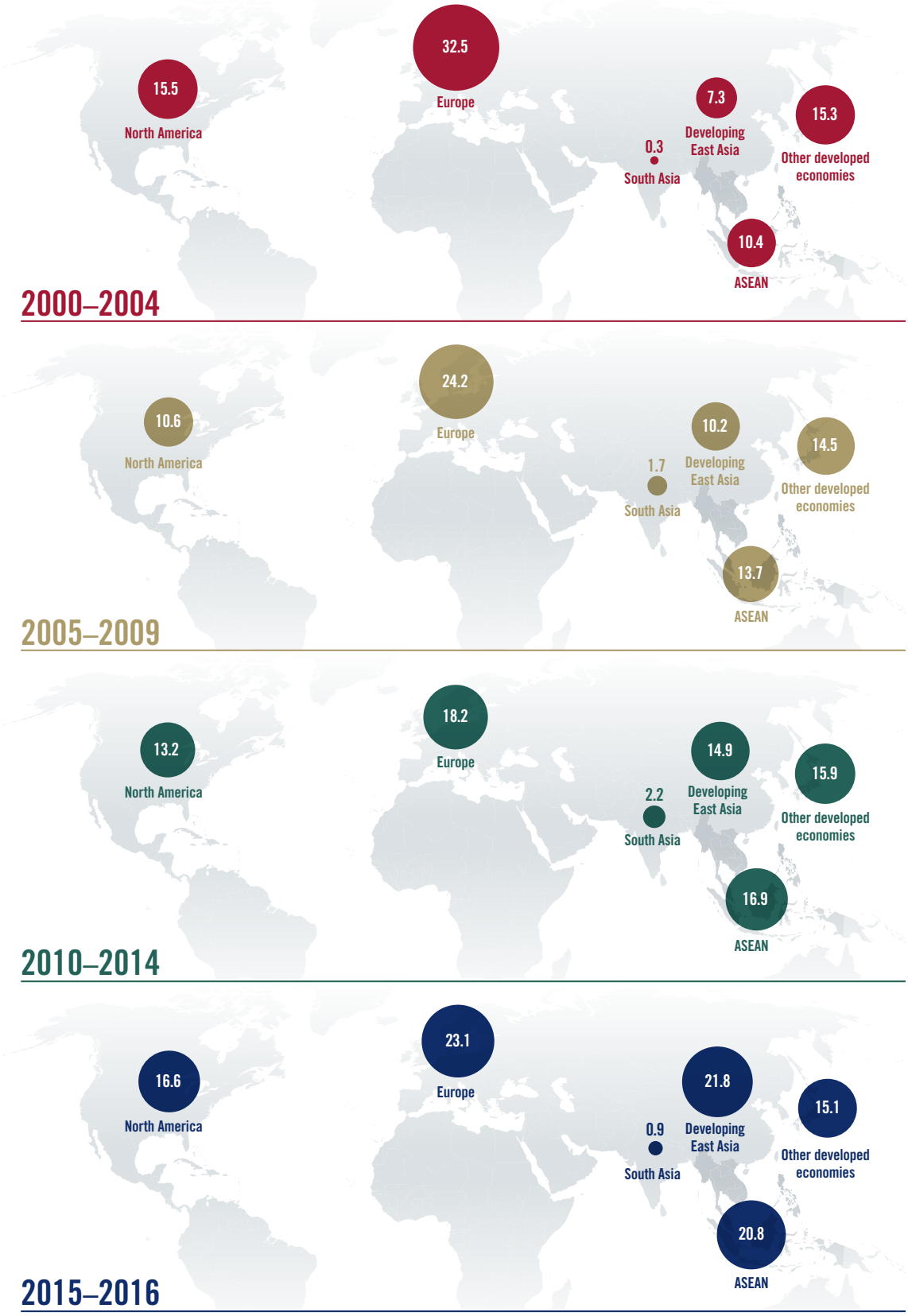
TABLE 2.2 ASEAN: share of total inward flows by major investing regions, 2000–2016

(Per cent)

Region	2000–2004	2005–2009	2010–2014	2015–2016
Developed economies	63.3	49.3	47.4	54.8
Europe	32.5	24.2	18.2	23.1
European Union	31.6	23.4	16.9	22.5
Other developed Europe	0.9	0.8	1.4	0.7
North America	15.5	10.6	13.2	16.6
Other developed economies	15.3	14.5	15.9	15.1
Developing economies	18.8	29.9	37.2	40.0
Africa	0.0	0.0	1.6	-5.1
Asia	18.2	26.7	34.6	43.8
ASEAN	10.4	13.7	16.9	20.8
East Asia	7.3	10.2	14.9	21.8
South Asia	0.3	1.7	2.2	0.9
Other	0.2	1.0	0.6	0.3
Latin America and the Caribbean	0.6	3.2	0.8	0.7
Caribbean	0.4	2.8	0.9	0.6
Other	0.2	0.4	-0.1	0.0
Oceania	0.0	0.0	0.2	0.5
Transition economies	0.0	0.1	0.1	0.0
Other/unclassified	17.9	20.7	15.3	5.2

Source: ASEAN Secretariat.

FIGURE 2.12 **Breakdown of total inward FDI flows to ASEAN by major investing region and group, 2000–2016** *(Per cent)*



Source: ASEAN Secretariat.

2.3 Foreign MNEs in ASEAN: who and where

As can be expected in a region the size of South-East Asia, which has been part of MNE networks for more than five decades, there are many thousands of foreign MNEs operating in ASEAN, ranging from giants such as the AIA Group (Hong Kong) and Toyota Motors (Japan) to relatively small ones such as Car and Motors (Kenya), Intex Consulting (Germany), and Oz Minerals (Australia). Top MNEs in ASEAN (those with the largest total assets in the region) are generally among the largest MNEs worldwide (table 2.3). For example, Royal Dutch Shell (United Kingdom–Netherlands) and Toyota Motors (Japan) are the two largest non-financial companies in the world by total assets (UNCTAD 2017). They are also among the largest in ASEAN, with respectively the sixth and eighth largest total assets in the region (table 2.3; the table includes financial as well as non-financial companies). Royal Dutch Shell's assets in ASEAN are roughly 10 per cent of its global assets (it has a long and deep history in the region), and for Toyota it is about 6 per cent. Certainly, for many MNEs the region is on the corporate map.

ASEAN's importance on MNEs' corporate maps depends on circumstances. For example, whereas Vodafone (United Kingdom) and BMW (Germany) appear relatively high on the 2017 UNCTAD list of top non-financial MNEs (at numbers 11 and 25 respectively), they rank much lower among top investors in ASEAN and may not even appear at all among the very biggest (table 2.3).[11] Much of this depends on strategy: e.g. BMW (89th on the ASEAN list), in common with many other German vehicle manufacturers, has emphasized China more than ASEAN in establishing its production system in Asia, though it does have factories in South-East Asia. Japanese car makers, in contrast, have concentrated more on the ASEAN market, at least in their early internationalization efforts (box 2.1). Geographical proximity may also be important; for instance, Tata Steel (India) and Huaneng Power International (China) hail from neighbouring countries and are number 20 and 30 respectively on the list (table 2.3). However, they do not appear on the UNCTAD list even though it contains only non-financial MNEs.

The same applies to Qualcomm, which is number 7 on the list; but in this case the primary reason is because it is a semiconductor and telecommunication manufacturer with a large presence in East and South-East Asia. Even large companies in this industry are smaller than the very biggest MNEs by assets; but in the case of Qualcomm (United States), Western Digital (United States) and others, all appear on the list because the region is a major production zone for the electronics and electronic components industry (table 2.3). In a similar vein, because ASEAN is still very much a developing industrial region, many foreign MNEs in heavy industry and infrastructure appear on the list – such as Tata Steel (India), Dow Chemicals (United States), Huawei International (China), Engie (France), LafargeHolcim (Switzerland) and J-Power (Japan).

The presence of foreign MNEs in ASEAN varies significantly, ranging from operations in just one or two Member States if the investor is small, or if the investment is recent or niche, to business activity across all or nearly all of the region – for instance, when the company has a long local history. An MNE's size, age, history, industry, value chain segment, capabilities, motivation and

TABLE 2.3 Selected top MNEs with investments in ASEAN, by total assets, 2016

	Company	Type of company	Home country	Total assets in ASEAN ($ millions)
1	Mitsubishi UFJ Financial Group Inc	Bank	Japan	67000
2	AIA Group Ltd	Insurance company	Hong Kong (China)	64100
3	Standard Chartered Plc	Bank	United Kingdom	50600
4	Prudential Plc	Insurance company	United Kingdom	48100
5	HSBC Holdings Plc	Bank	United Kingdom	45200
6	Royal Dutch Shell Plc	Oil and Gas	United Kingdom–Netherlands	42000
7	Qualcomm Inc	Computer and electronic products	United States	26600
8	Toyota Motor Corp	Motor vehicles and transportation equipment	Japan	24000
9	Merit Corp Sal	Financial company	Lebanon	17400
10	Tokio Marine Holdings Inc	Insurance company	Japan	16200
11	Citigroup Inc	Bank	United States	16000
12	Citicorp Holdings Inc	Bank	United States	15900
13	Deutsche Bank AG	Bank	Germany	15100
14	Toronto Dominion Bank	Bank	Canada	14600
15	First Pacific Company Ltd	Bank	Hong Kong (China)	14200
16	Pfizer Inc	Pharmaceuticals	United States	13900
17	Allianz SE	Insurance company	Germany	13800
18	General Electric Company	Machinery (electrical and general)	United States	13500
19	Lanius Ltd	Mutual Pension Fund	Hong Kong (China)	13500
20	Tata Steel Ltd	Steel and steel products	India	13400
21	Apple Inc	Computer and electronic products	United States	12800
22	Agilent Technologies Inc	Precision instruments	United States	12700
23	TCC Group International Ltd	Transport and logistics	Hong Kong (China)	12100
24	Keysight Technologies, Inc	Precision instruments	United States	11300
25	Bank of Nova Scotia - Scotiabank	Bank	Canada	11100
26	Mitsubishi Corp	Wholesale and retail trade	Japan	9792
27	Honda Motor Co Ltd	Motor vehicles and transportation equipment	Japan	9744
28	Dow Chemical Co	Chemicals and chemical products	United States	9717
29	Chevron Corp	Oil and Gas	United States	9647
30	Huaneng Power International, Inc	Power utility	China	9562
31	JPMorgan Chase & Co	Bank	United States	9269
32	Aluminum Corp of China Overseas Holdings Ltd	Aluminium and Aluminium products	Hong Kong (China)	9153
33	Sumitomo Mitsui Financial Group, Inc	Bank	Japan	9098
34	Lenovo Group Ltd	Computer and electronic products	Hong Kong (China)	8849
35	Panasonic Corp	Consumer electronics	Japan	8614
36	A.P. Moller - Maersk	Transport and logistics	Denmark	8573
37	HP Inc.	Computer and electronic products	United States	8569
38	GlaxoSmithKline Plc	Pharmaceuticals	United Kingdom	8472
39	Texas Instruments Inc	Computer and electronic products	United States	8148
40	Paypal Holdings, Inc	Financial company	United States	8090
41	Glencore Plc	Mining and quarrying	United Kingdom–Switzerland	7998
42	Danone	Food and Beverages	France	7912
43	Visa Inc	Financial services	United States	7698
44	Salim Wanye (Shanghai) Enterprises Co, Ltd	Industrial company	China	7589
45	Australia and New Zealand Banking Group Ltd	Bank	Australia	7483
46	Western Digital Corp	Computer and electronic products	United States	7465
47	Credit Suisse Group AG	Bank	Switzerland	7457
48	Aban Offshore Ltd	Mining and quarrying	India	7055
49	Huawei International	ICT solutions	China	6816
50	Engie	Power utility	France	6624
51	Seagate Technology Plc	Computer and electronic products	Ireland	6573
52	Marubeni Corp	Wholesale and retail trade	Japan	6523
53	Nestle SA	Food and Beverages	Switzerland	6450
54	Applied Materials Inc	Computer and electronic products	United States	6337

.../

	Company	Type of company	Home country	Total assets in ASEAN ($ millions)
55	Integrated Holding Group, LP	Industrial company	United States	6247
56	Goldman Sachs Group, Inc	Bank	United States	5953
57	Hitachi Ltd	Machinery (electrical and general)	Japan	5800
58	LafargeHolcim Ltd	Other manufacturing	Switzerland	5654
59	J-Power	Power utility	Japan	5581
60	Valepar SA	Mining and quarrying	Brazil	5548
61	Philip Morris International Inc	Tobacco	United States	5405
62	Sun Life Financial Inc	Insurance company	Canada	5396
63	ASUSTeK Computer Inc	Computer and electronic products	Taiwan	5393
64	Manulife Financial Corp	Insurance company	Canada	5299
65	Microsoft Corp	Information and communication	United States	5192
66	Tesco Plc	Wholesale and retail trade	United Kingdom	5091
67	Noble Group Ltd	Wholesale and retail trade	Bermuda	5049
68	Rio Tinto Plc	Mining and quarrying	United Kingdom	5015
69	Isuzu Motors Ltd	Motor vehicles and transportation equipment	Japan	4858
70	Franklin Resources Inc	Financial services	United States	4824
71	Asahi Group Holdings Ltd	Food and Beverages	Japan	4787
72	Mizuho Financial Group	Financial company	Japan	4699
73	Aviva Plc	Insurance company	United Kingdom	4644
74	Sinochem Corp	Chemicals and chemical products	China	4492
75	John Swire & Sons Ltd	Transport and logistics	United Kingdom	4399
76	International Business Machines Corp	Computer and electronic products	United States	4350
77	Orix Corp	Financial services	Japan	4298
78	American International Group Inc	Insurance company	United States	4280
79	BP Plc	Oil and Gas	United Kingdom	4174
80	Nomura Holdings Inc	Bank	Japan	3929
81	Morgan Stanley	Bank	United States	3870
82	Daimler AG	Motor vehicles and transportation equipment	Germany	3856
83	Lotte Chemical Corp	Chemicals and chemical products	Republic of Korea	3702
84	Vitol Holding II SA	Administrative and support service activities	Luxembourg	3665
85	Toshiba Corp	Computer and electronic products	Japan	3588
86	Jabil Circuit Inc	Computer and electronic products	United States	3579
87	Bridgestone Corp	Other manufacturing	Japan	3577
88	AXA SA	Insurance company	France	3566
89	BMW	Motor vehicles and transportation equipment	Germany	3546
90	Nissan Motor Co Ltd	Motor vehicles and transportation equipment	Japan	3530
91	NXP Semiconductors NV	Computer and electronic products	Netherlands	3416
92	Samsung Electronics Co, Ltd	Computer and electronic products	Republic of Korea	3394
93	Merck & Co, Inc	Pharmaceuticals	United States	3383
94	Denso Corp	Motor vehicles and transportation equipment	Japan	3313
95	Daikin Industries Ltd	Machinery (electrical and general)	Japan	3312
96	MS&AD Insurance Group Holdings Inc	Insurance company	Japan	3305
97	Bank of America Corp	Bank	United States	3296
98	First Solar, Inc	Computer and electronic products	United States	3284
99	Mitsubishi Motors Corp	Motor vehicles and transportation equipment	Japan	3213
100	Mitsubishi Electric Corp	Machinery (electrical and general)	Japan	3182

Source: ASEAN Secretariat, based on data extracted from Bureau van Dijk's Orbis database, company reports.

Notes: 1. Total assets in ASEAN are the sum of each MNE's principal subsidiaries in the region.This table provides an order of magnitude insight on key foreign MNE players in ASEAN, but the precise figure for total assets may vary. The phrase "selected top" MNEs – rather than "top 100 MNEs" – is used for a number of reasons. First, some MNEs do not provide details of their assets in ASEAN countries (or do so patchily), so cannot be included. Second, most other MNEs provide asset details only for their largest subsidiaries, so the numbers given may result in a rank differing from what it might be if all relevant data were available. Third, where possible companies with complex structures, e.g. conglomerates, do not appear separately from their major subsidiary companies, where the latter are regarded as principal companies in their own right, for instance in a particular industry. Fourth, there are several issues concerning MNEs owned by States; e.g. many do not provide financial data and are not listed, while others are not primarily engaged in FDI. Thus, the table includes State-owned enterprises (SOEs) that operate subsidiaries overseas, but not sovereign wealth funds because their overseas investments are primarily of a portfolio nature. Nevertheless, the asset numbers here reflect the scale of investments by these top MNEs in ASEAN. They should not be used as a basis for a definitive ranking, and the potential scale and significance of excluded MNEs for the reasons given should be borne in mind.

2. The industry type indicated for each MNE in this table is that assigned to the parent company by Orbis; local subsidiaries might be involved in different industries and activities.

3. A subsidiary is defined as "an incorporated enterprise in the host country in which another entity directly owns more than half of the shareholders´ voting power, or is a shareholder in the enterprise, and has the right to appoint or remove a majority of the members of the administrative, management or supervisory body" (unctad.org/en/Pages/DIAE/Glossary.aspx). MNEs may possess other affiliates in ASEAN, including incorporated enterprises in which they do not possess more than half of voting power, associate enterprises and branches.

much else can determine its scale, scope and dispersion in the region, as well as whether it is part of a RVC (i.e. outputs from operations in one Member State input into operations in another) or if its regional network consists mostly of stand-alone operations (perhaps with some direction from a regional headquarters). MNE regional networks are thus very varied, but most tend to fall into one of two not entirely mutually incompatible types. One type of network is global production oriented, i.e. operations have been established in ASEAN to serve GVCs either through an MNE's internally integrated subsidiaries (e.g. IDMs in the semiconductor industry; box 2.3) or through a more loosely integrated network of companies (e.g. the fabless foundry model in the same industry); there may or may not be an RVC in ASEAN (figure 2.13). The other type of network is market-oriented, usually focusing on individual Member States but increasingly acknowledging and taking advantage of the scale and scope economies inherent in a region of 650 million people. Again, RVCs may exist in this type of network, in order for an MNE to take advantage of the different endowments and specializations available across ASEAN (figure 2.14). In addition, MNE networks might reflect a mix of these two types or represent a company, industry or product niche variant (figure 2.15).

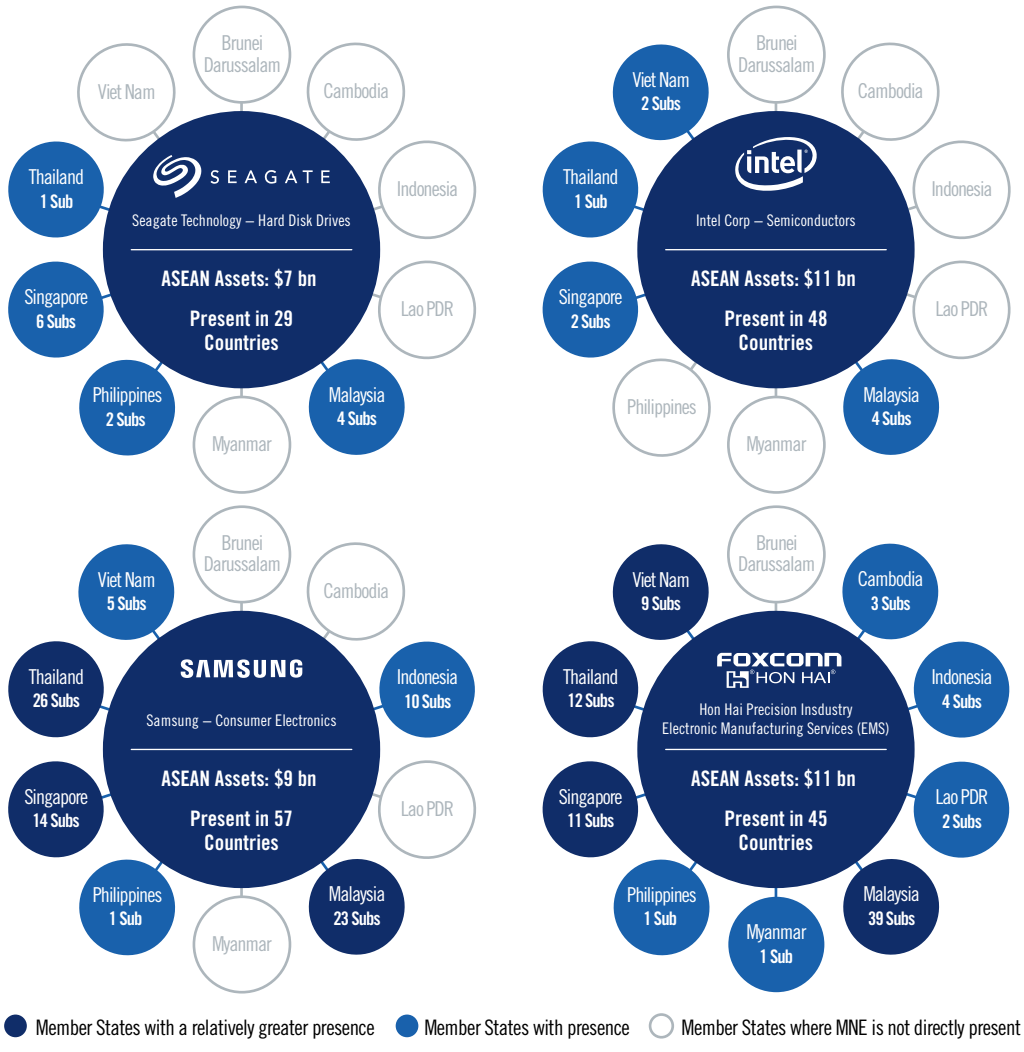
MNEs' global production-oriented strategies vary, especially depending on the nature of the product (or products), the production process and the structure of the value chain (figure 2.13). Intel (United States) and Seagate (United States) both have large investments and assets in ASEAN but are present in only a small number of Member States, and their few subsidiaries are very large firms on average. In the HDD (Seagate) and semiconductor (Intel) production processes, some elements are capital intensive, but others require significant numbers of relatively skilled workers. Especially in the case of HDDs, components can be sliced into constituent parts and produced under contract by relatively small firms (figure 2.2). The ideal locations for such operations are countries with the requisite industrial development, skilled labour and a critical mass of local and foreign parts suppliers with the needed capabilities (or the absorptive capacity to learn quickly). Malaysia, Singapore and Thailand have been a part of electronics production for most of ASEAN's existence; hence, both Intel and Seagate use them as primary locations for production and their respective RVCs. The Philippines and Thailand are also now established destinations in the industry.

Samsung Electronics (Republic of Korea) has a much larger number of subsidiaries in ASEAN and a presence in six Member States (Indonesia, Malaysia, Philippines, Singapore, Thailand and Viet Nam). This wider regional footprint is because, unlike Intel or Seagate, the company has a much larger number of products (indeed, it is present in virtually every type of consumer electronics product from fridges to televisions). Moreover, some products require low or moderately low skills (e.g. for assembly). In addition, because many Samsung products made worldwide are aimed at consumers, some subsidiaries specialize in distribution and sales to ASEAN markets.

Unlike the other three electronics companies, which each own the technology and brands and make their own products, Foxconn (the trading arm of Hon Hai Precision Industries, Taiwan) is the world's largest contract manufacturer.[12] In a business model akin to the fabless foundry in semiconductors (box 2.3), major MNEs use contract manufacturers such as Foxconn to manufacture products in their entirety – including sub-processes and managing parts supplier – as a service to them, the brand owner (who will normally, but not necessarily, handle pre- and post-manufacturing segments of the value chain, such as R&D, design, distribution, promotion and sales). Foxconn's biggest customer is Apple (United States), though it manufactures products for many other big names, such as Sony (Japan) and Dell Computers (United States). Because of the scale and breadth of

manufacturing activities required, Foxconn and similar contract manufacturers typically operate extremely large, integrated factories that are closely connected with other factories owned by the manufacturer or by its suppliers, in host-country or regional clusters. Driven by the efficiency and effectiveness of production, such contract manufacturers' comparative advantage relies very much on the management and integration of processes, labour and skills, even relatively unskilled labour. As a result, though, again Malaysia, Singapore and Thailand (and Viet Nam) are the core locations of Foxconn's subsidiaries in ASEAN. The MNE has also drawn nearly all ASEAN Member States into its regionally integrated operations and value chains (figure 2.13).

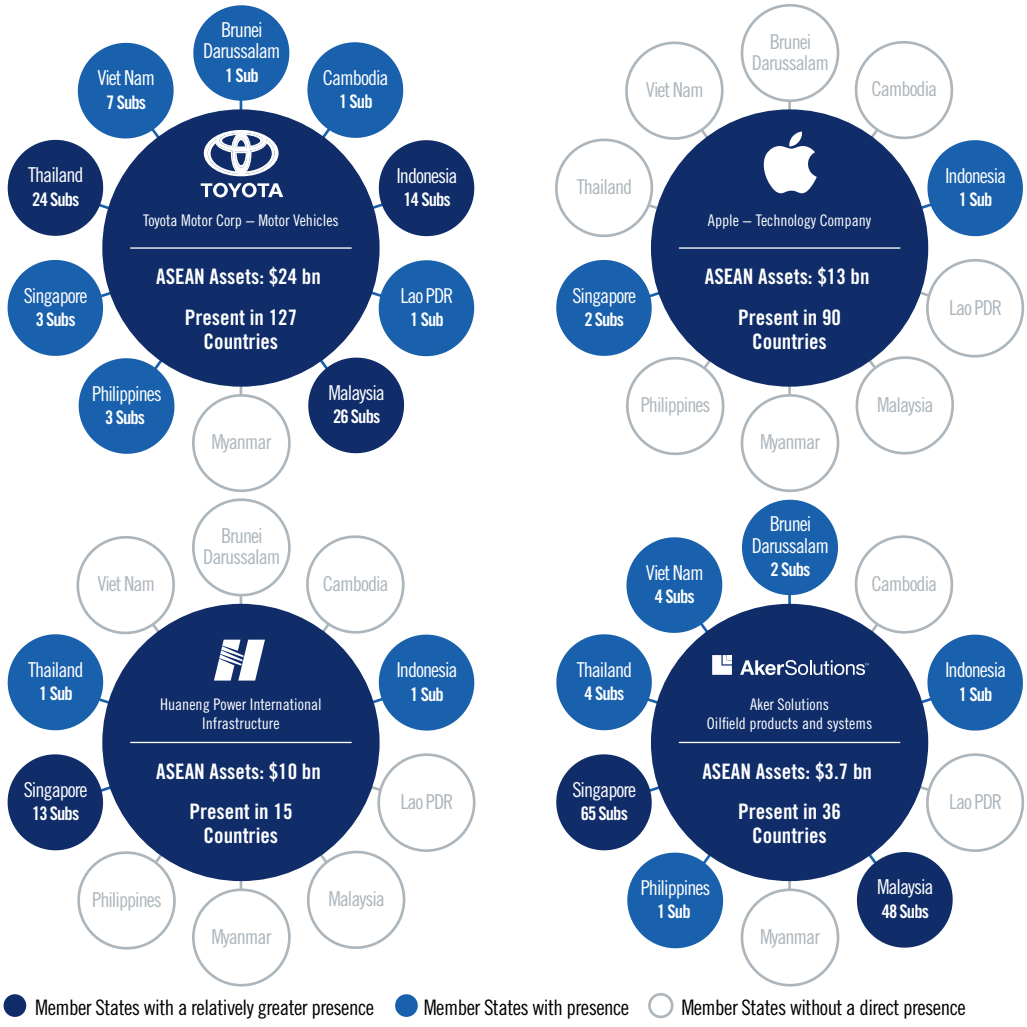
FIGURE 2.13 Global production-oriented MNE regional networks



In market-oriented regional networks there is a greater likelihood of MNEs having subsidiaries in each Member State than there is in global-production-oriented ones. Differences and variations arise from a number of factors, including how long a company has been in the region and its industry, size and product mix (figure 2.14). Danone (France) is a major food and beverages company which has a relatively narrow range of products, including milk products, waters (Evian is a brand) and baby foods. It did not enter ASEAN until the late 1990s, having shifted to a strategy emphasizing growth

in emerging markets, but by 2016 it was present in nearly all ASEAN Member States; indeed, in that year the market where the company grew fastest was Indonesia. Given the nature of the product, it is likely that the company's subsidiary network will expand to the remaining ASEAN Member States in the foreseeable future. There is no RVC as such, but regional headquarters functions are primarily based in Singapore. Allianz (Germany), founded in 1890 and present in Asia by 1910, is the world's largest insurance company. It began its expansion into ASEAN by setting up a subsidiary in Thailand in 1951, subsequently followed by others in Indonesia and Singapore. In consequence, its subsidiary network and business activities are the most established in these Member States, but today it is present across the region, with the exception (in terms of subsidiaries) of Cambodia and Myanmar. As with Danone, this is only a matter of time.

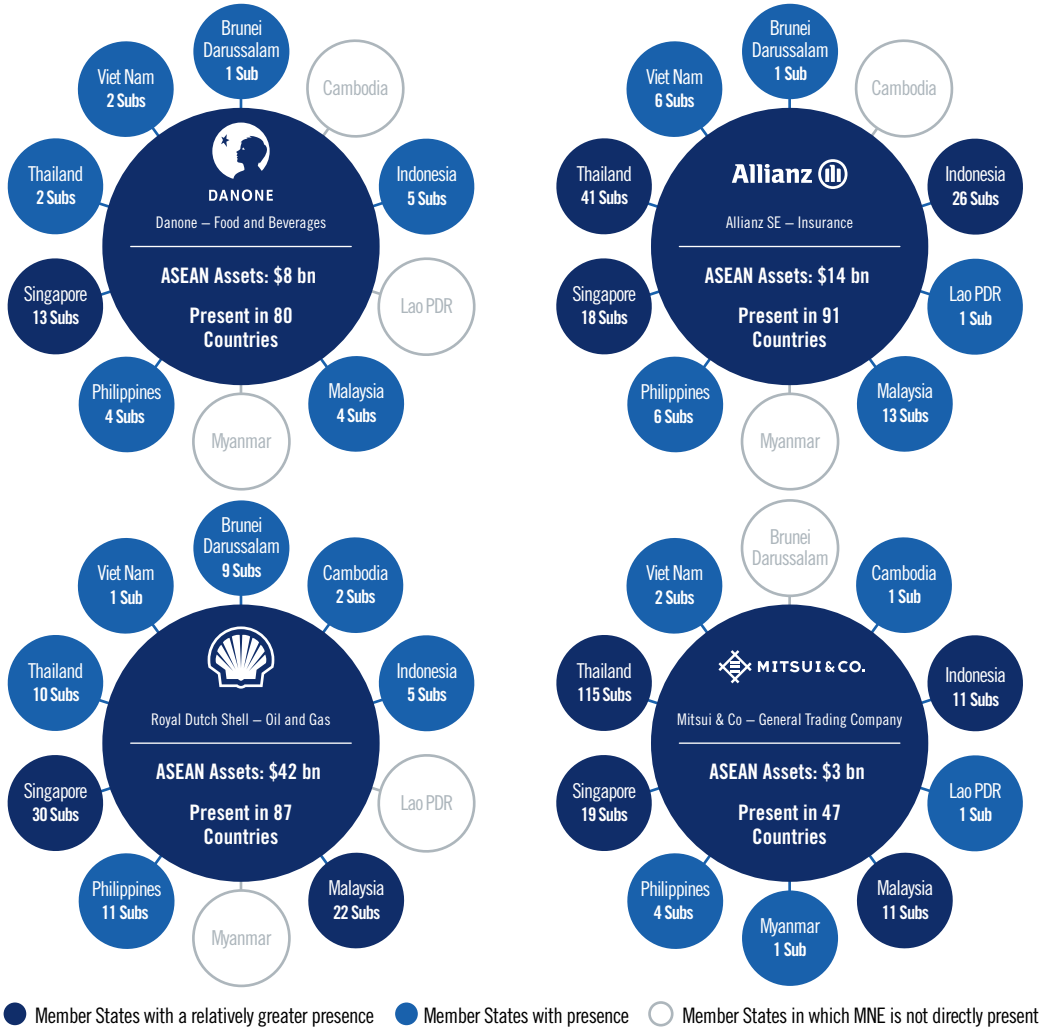
FIGURE 2.14 Market-oriented MNE regional networks



In contrast to Danone and Allianz, Royal Dutch Shell (United Kingdom–Netherlands) does have an RVC in ASEAN. Within ASEAN it produces oil and gas in some Member States (e.g. Brunei Darussalam and Malaysia) and refines, makes and sells oil and gas products across the region and further afield. The company does not have subsidiaries only in Lao PDR and Myanmar. As a colonial era MNE with deep roots in South-East Asia, its RVC is very much a part of its global value chain;

arguably it could be treated as having a globally oriented ASEAN network with local sales. Mitsui & Co. (Japan) has an enormous number of subsidiaries in ASEAN and is directly present in nearly every country. This is the case for several reasons. First, its origin as a general trading company means that its subsidiaries are a channel of exports from, and imports to, ASEAN Member States by a large array of companies, both Japanese and non-Japanese. Second, over the years it has diversified away from pure trading, especially into resource-based ventures, including in a number of ASEAN Member States. Finally, given the vast Japanese MNE presence in some ASEAN Member States (e.g. in automobiles and electronics), Mitsui & Co. plays a number of supporting roles, for instance in terms of importing raw materials and components and exporting semi processed and fully processed products. In Thailand, in particular, it has been more or less continuously present since 1906 (figure 2.14).

FIGURE 2.15 Mixed or specialist MNE regional networks



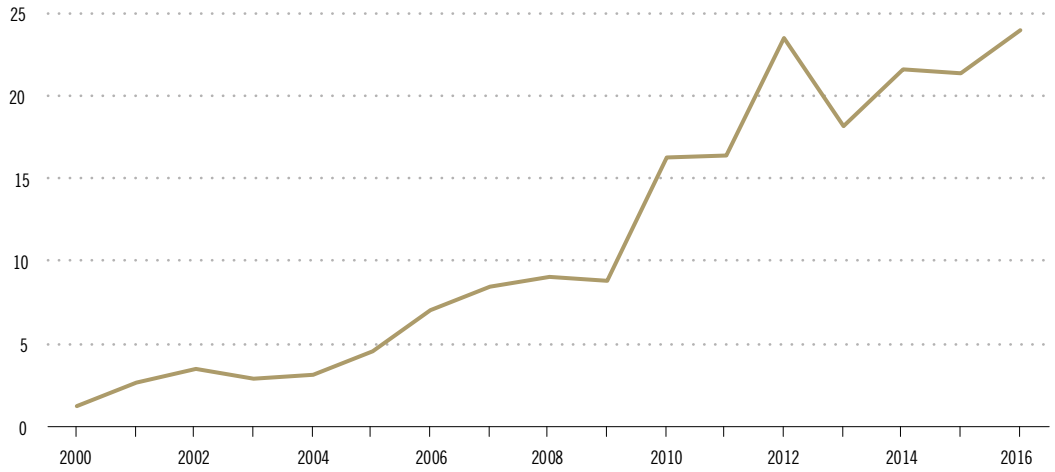
Very few MNEs are purely oriented towards local or ASEAN markets or focusing on the region solely as a production base; a mixed approach evolves over time. For instance, Toyota Motors (Japan) established its earliest subsidiaries in Indonesia, Malaysia and Thailand to serve local markets (box 2.1), but since then its global strategy has evolved, so it uses its ASEAN operations as the prodction

bases for some vehicles worldwide (and vice versa). At the same time, ASEAN demand for vehicles has soared stratospherically since the 1960s, so the company has expanded its marketing presence to nearly all countries in the region (figure 2.15). Aker Solutions (Norway) is very much a market-oriented company, but its market consists of oil and gas MNEs; consequently it has subsidiaries in seven ASEAN Member States, primarily because there is active production and exploration across the archipeagic region. Huaneng Power International (China) is similar to Aker, but its customers are in the main Governments in the very competitive power industry. Though a large Chinese company, it is therefore present only in Indonesia, Thailand and Singapore, where it has managed to secure access by concession or acquisition (in 2008 it purchased Tuas Power from Temasek Holdings (Singapore). Finally, interestingly, though Apple (United States) has large assets in ASEAN, it has few subsidiaries in the region (figure 2.15). This is because its business model involves outsourcing manufacturing (e.g. to Foxconn, as mentioned earlier) and much of its distribution. Its first Apple Store in the region opened in Singapore only in 2017.

2.4 ASEAN multinational enterprises: who and where

Along with the rest of the developing world, FDI from ASEAN Member States began to pick up at the start of the 1980s (UNCTAD 2006), though it did not accelerate until the turn of the millennium. Today, it is substantial, with intra-ASEAN FDI contributing a quarter of all inward FDI to the region in 2016 (figure 2.16). Although a proportion of outward FDI from ASEAN is by the subsidiaries of foreign MNEs based in Member States (e.g. establishing "grandchildren" affiliates in nearby countries), the majority of outward FDI – especially outside ASEAN – is made by ASEAN MNEs.

FIGURE 2.16 Outward FDI flows by ASEAN economies, 2000–2016 *(Billions of dollars)*



Source: ASEAN Secretariat.

Many of the largest ASEAN companies, calculated by total assets, are MNEs (table 2.4). Whether measured by total assets or by the number of overseas subsidiaries (table 2.5), banks and other financial institutions are the largest single group of ASEAN-headquartered MNEs. The largest include Overseas Chinese Banking Corporation (OCBC, Singapore), Malayan Bank Bhd (Maybank, Malaysia), Siam Commercial Bank (Thailand) and BDO Unibank Inc. (Philippines). One reason for the primacy of these and other banks (apart from the fact that they have a wide branch network) is that many have a long history. For example, OCBC and Siam Commercial Bank hail from the colonial period, and Maybank and BDO Unibank were set up in the 1960s. Over time they have built up assets and experience that support their internationalization. This is also the case for another group of ASEAN-based MNEs – mostly family-based conglomerates – with a long history, sometimes going back to the 1800s or early 1900s, such as Charoen Pokphand (Thailand), Genting (Malaysia), Hong Leong Group (Singapore), San Miguel Corp (Philippines) and Siam Cement (Thailand).

Both banks and conglomerates, as well as other local companies, have benefited from the rapid economic growth across ASEAN over the last few decades, often playing complementary roles to MNEs (e.g. banking services, real estate, construction and infrastructure) (box 2.4). To this extent the domestic and international expansion of such MNEs is at least partly linked to the influx of FDI. In addition to banks and firms set up by conglomerates, other ASEAN MNEs also benefited from such growth indirectly, as partners or in direct competition to foreign MNEs. For instance, companies such as Analab Resources (Malaysia), Asia Pulp and Paper (Indonesia), Atlas Consolidated Mining and Development (Philippines), Indofood (Indonesia), Kluang Rubber (Malaysia) and Wilmar International (Singapore) – most involved with products associated with natural resource industries – thrived during the expansion of the Member State and regional economies. Some have ventured even further afield, especially after the rapid appreciation of international commodity prices in the 1990s (chapter 3). Another group which has thrived and internationalized are the Government-linked companies (GLCs) established in strategic industries by several Member States, in particular Malaysia and Singapore. These have tested their mettle against MNEs because they were created either as national champions or to maintain competitive markets (though they may also have crowded other local competitors). Axiata, CIMB and Maybank are Malaysian GLCs that are now MNEs. The same applies for such Singapore GLCs as DBS Bank, Mediacorp and Singtel. Interestingly, the largest ASEAN MNEs are very far flung, with all having a presence in at least 14 countries, and some considerably more (table 2.5). Most also have extensive networks in ASEAN.

TABLE 2.4 Selected top ASEAN MNEs and their regional presence, 2015–2016 *(Ranked by total assets)*

Name	Headquarters	Industry	Cash and near-cash items ($ millions)		Total assets ($ millions)		Presence in selected ASEAN countries
			2015	2016	2015	2016	
DBS Group	Singapore	Banking	13 287	18 551	323 078	332 852	Indonesia, Thailand
Oversea-Chinese Banking Corporation	Singapore	Banking	14 946	11 446	275 344	283 304	Indonesia, Malaysia, Thailand, Viet Nam
United Overseas Bank	Singapore	Banking	22 797	16 811	222 999	235 020	Indonesia, Malaysia, Philippines, Thailand
Malayan Banking	Malaysia	Banking	15 531	16 386	164 567	164 020	Cambodia, Indonesia, Philippines, Singapore, Thailand, Viet Nam
CIMB Group	Malaysia	Banking	8 600	7 844	107 236	108 261	Cambodia, Indonesia, Lao People's Democratic Republic, Myanmar, Philippines, Singapore, Viet Nam
Public Bank	Malaysia	Banking	5 656	4 365	84 510	84 701	Cambodia, Indonesia, Philippines, Singapore, Thailand, Viet Nam
Bangkok Bank	Thailand	Banking	1 703	1 850	78 632	82 124	Malaysia, Philippines, Singapore
Siam Commercial Bank	Thailand	Banking	1 081	1 129	76 925	81 254	Cambodia, Indonesia, Lao People's Democratic Republic, Myanmar, Philippines, Singapore, Viet Nam
Kasikornbank	Thailand	Banking	1 559	1 690	70 853	79 380	Lao People's Democratic Republic
Bank Mandiri	Indonesia	Banking	5 873	5 568	65 637	76 714	Malaysia
Krung Thai Bank	Thailand	Banking	1 982	2 011	78 063	75 017	Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Singapore, Viet Nam
Bank Rakyat	Indonesia	Banking	7 052	6 661	63 356	74 124	Singapore
PTT PcL	Thailand	Oil and gas	6 654	6 013	60 280	62 267	Cambodia, Malaysia, Myanmar, Philippines, Singapore, Viet Nam
RHB Bank	Malaysia	Banking	4 218	4 218	52 956	52 748	Cambodia, Lao People's Democratic Republic, Indonesia, Singapore, Thailand
Hong Leong Financial Group*	Malaysia	Banking #	3 446	3 982	52 721	50 738	Cambodia, Singapore, Viet Nam
Bank Central Asia	Indonesia	Banking	4 012	4 458	42 869	49 981	Singapore
Great Eastern Holdings*	Singapore	Insurance	2 464	2 438	46 447	49 159	Indonesia, Malaysia, Viet Nam
BDO Unibank	Philippines	Banking	6 702	7 244	43 282	46 926	Indonesia, Malaysia, Singapore, Thailand, Viet Nam
Bank Negara Indonesia	Indonesia	Banking	3 161	3 516	36 682	44 537	Singapore
Bank for Investment and Development	Viet Nam	Banking	1 259	1 885	37 833	44 209	Cambodia, Lao People's Democratic Republic
Vietnam JS Commercial Bank	Viet Nam	Banking	755	821	34 667	41 664	Lao People's Democratic Republic
Metropolitan Bank and Trust Co	Philippines	Banking	5 268	5 356	37 517	37 865	Singapore
Wilmar International	Singapore	Food products	1 804	2 785	36 926	37 032	Indonesia, Malaysia, Viet Nam

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Name	Headquarters	Industry	Cash and near-cash items ($ millions)		Total assets ($ millions)		Presence in selected ASEAN countries
			2015	2016	2015	2016	
Bank of the Philippine Islands	Philippines	Banking	5 341	5 555	32 310	34 831	Malaysia, Singapore
Bank for Foreign Trade JSC	Viet Nam	Banking	1 256	1 189	29 993	34 603	Singapore (plan to open operations in Cambodia and Lao People's Democratic Republic in 2017)
Tenaga Nasional	Malaysia	Electric utilities	592	976	28 037	32 662	Indonesia
AMMB Holdings	Malaysia	Banking	32 061	30 304	34 260	32 246	Brunei Darussalam, Indonesia, Singapore
CapitaLand	Singapore	Real estate development	2 931	3 302	33 203	31 615	Malaysia, Viet Nam
Singapore Telecommunications Group	Singapore	Diversified telecommunication services	3 468	3 739	30 598	31 534	Indonesia, Malaysia, Philippines, Thailand
Thanachart Capital	Thailand	Banking	370	337	27 661	26 969	Indonesia, Malaysia, Philippines, Singapore, Viet Nam
San Miguel Corporation*	Philippines	Conglomerate	703	597	26 550	26 377	Indonesia, Malaysia, Singapore, Thailand, Viet Nam
TMB Bank	Thailand	Banking	479	461	23 262	22 900	Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Viet Nam
Genting	Malaysia	Hotels, restaurants and leisure	5 486	5 643	20 777	20 625	Indonesia, Myanmar, Singapore
Keppel Corporation	Singapore	Industrial conglomerates	1 336	1 443	20 408	20 206	Indonesia, Myanmar, Philippines, Viet Nam
Ayala Corporation	Philippines	Diversified financial services	1 751	1 216	16 920	18 402	Indonesia, Malaysia, Singapore,Viet Nam
Frasers Centrepoint*	Singapore	Real estate development	964	1 591	16 199	17 752	Indonesia, Malaysia, Myanmar, Philippines, Thailand, Viet Nam
SM Investments Corporation	Philippines	Conglomerate	1 242	1 513	16 737	17 387	Indonesia, Malaysia, Singapore, Thailand, Viet Nam
Singapore Airlines	Singapore	Airline	2 949	..	17 648	17 205	Indonesia, Malaysia, Philippines, Thailand, Viet Nam
LT Group*	Philippines	Industrial conglomerates	2 931	3 526	15 971	16 734	Singapore
Charoen Pokphand Foods	Thailand	Food products	1 011	951	13 705	16 239	Cambodia, Lao People's Democratic Republic, Malaysia, Philippines
Olam International	Singapore	Food and staples retailing	1 512	1 482	14 672	16 221	Indonesia, Lao People's Democratic Republic, Malaysia, Thailand, Viet Nam
YTL Corporation	Malaysia	Multi-utilities	5 427	5 112	17 081	16 216	Indonesia, Singapore
Axiata Group	Malaysia	Wireless telecommunication services	1 276	1 122	13 038	15 710	Cambodia, Indonesia, Philippines, Singapore, Thailand, Viet Nam
Sime Darby Group	Malaysia	Conglomerate	1 076	849	15 936	15 478	Indonesia, Myanmar, Singapore, Thailand
Sembcorp Industries	Singapore	Conglomerate	1 134	1 301	14 054	15 407	Indonesia, Myanmar, Philippines, Viet Nam
Affin Holdings	Malaysia	Banking	1 446	1 448	15 662	15 352	Indonesia, Myanmar, Philippines, Singapore
Siam Cement	Thailand	Construction materials	446	773	14 141	15 054	Cambodia, Indonesia, Lao People's Democratic Republic, Myanmar, Philippines, Singapore, Viet Nam
Saigon Thuong Tin Commercial	Viet Nam	Banking	626	651	13 011	14 637	Cambodia

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Name	Headquarters	Industry	Cash and near-cash items ($ millions)		Total assets ($ millions)		Presence in selected ASEAN countries
			2015	2016	2015	2016	
BIMB Holdings	Malaysia	Banking	561	1 310	13 327	14 073	Indonesia
City Developments	Singapore	Real estate development	2 430	2 539	14 338	13 684	Malaysia, Thailand
JG Summit Holdings	Philippines	Industrial conglomerates	965	876	12 707	13 449	Singapore
Telecommunikasi Indonesia	Indonesia	Telecommunication services	2 028	2 198	11 985	13 265	Malaysia, Singapore
MISC	Malaysia	Marine	1 314	1 462	11 045	12 514	Singapore, Viet Nam
Bank Permata	Indonesia	Banking	1 071	931	13 176	12 225	Singapore
Military Commercial Joint Stock	Viet Nam	Banking	419	506	9 831	11 254	Cambodia, Lao People's Democratic Republic
Asia Commercial Bank	Viet Nam	Banking	330	380	8 960	10 263	Malaysia
DRB-HICOM Bhd*	Malaysia	Automobiles	785	733	10 854	10 135	Brunei Darussalam, Indonesia, Singapore, Thailand
CP ALL	Thailand	Food and staples retailing	597	933	9 125	9 826	Myanmar, Viet Nam
Malaysia Building Society	Malaysia	Thrifts and mortgage finance	1 610	1 480	9 546	9 643	Singapore
PLDT	Philippines	Wireless telecommunication services	990	782	9 697	9 590	Malaysia, Singapore
Aboitiz Equity Ventures	Philippines	Industrial conglomerates	1 355	1 289	7 247	9 367	Singapore, Viet Nam
Hong Leong Finance	Singapore	Consumer finance	1 267	1 027	9 376	8 511	Cambodia, Indonesia, Malaysia, Thailand, Viet Nam
Sapura Energy	Malaysia	Energy equipment and services	470	795	8 799	8 462	Brunei, Indonesia, Thailand, Singapore
Berli Jucker*	Thailand	Conglomerate	31	97	1 239	8 419	Malaysia, Myanmar, Singapore, Viet Nam
Golden Agri-Resources*	Singapore	Food products	227	123	8 036	8 306	Indonesia
IHH Healthcare	Malaysia	Health care providers and services	460	544	8 247	8 288	Indonesia, Myanmar, Singapore, Viet Nam
UOL Group	Singapore	Real estate development	195	208	8 116	7 989	Malaysia, Myanmar, Viet Nam
Thai Airways International	Thailand	Airlines	576	373	8 387	7 897	Singapore
Bangkok Life Assurance	Thailand	Insurance	197	366	6 920	7 876	Cambodia, Myanmar, Lao People's Democratic Republic, Philippines, Singapore
Advanced Info Service	Thailand	Wireless telecommunication services	274	313	5 040	7 689	Singapore
Tisco Financial Group	Thailand	Banking	31	32	7 772	7 567	Cambodia, Viet Nam
First Philippine Holdings Corporation*	Philippines	Electric utilities	2 255	2 086	7 492	7 312	Philippines, Indonesia
Indorama Ventures*	Thailand	Chemicals	90	83	6 146	7 207	Indonesia, Malaysia, Myanmar, Philippines, Singapore
CapitaLand Mall Trust	Singapore	Equity real estateInvestment trusts	426	334	7 308	7 138	Malaysia, Viet Nam
Petronas Chemicals Group*	Malaysia	Chemicals	1 951	1 650	7 163	7 120	Thailand, Viet Nam
Metro Pacific Investments*	Philippines	Diversified financial services	510	393	6 439	7 097	Thailand, Viet Nam
Banpu	Thailand	Oil, gas and consumable fuels	396	455	6 557	6 969	Lao People's Democratic Republic, Singapore
Indah Kiat Pulp and Paper*	Indonesia	Paper and forest products	172	211	7 038	6 879	Malaysia

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Name	Headquarters	Industry	Cash and near-cash items ($ millions)		Total assets ($ millions)		Presence in selected ASEAN countries
			2015	2016	2015	2016	
Malakoff Corporation	Malaysia	Independent power producers	663	670	6 874	6 745	Indonesia
Adaro Energy	Indonesia	Oil, gas and consumable fuels	702	1 077	5 959	6 522	Singapore
Kiatnakin Bank	Thailand	Banking	29	33	6 548	6 521	Lao People's Democratic Republic
Sembcorp Marine*	Singapore	Machinery	444	841	6 493	6 507	Indonesia
Petron Corporation*	Philippines	Oil, gas and consumable fuels	402	350	6 270	6 436	Malaysia, Singapore
Genting Malaysia	Malaysia	Hotels, restaurants and leisure	1 050	1 082	6 394	6 217	Singapore
Thai Oil	Thailand	Oil, gas and consumable fuels	992	868	5 328	6 073	Singapore, Viet Nam
Berjaya Corporation	Malaysia	Conglomerate	1 660	1 918	5 708	6 005	Brunei Darussalam, Cambodia, Indonesia, Myanmar, Philippines, Singapore, Viet Nam
Singapore Tech Engineering	Singapore	Aerospace and defense	671	625	5 765	5 782	Malaysia, Myanmar, Thailand
Alliance Global Group*	Philippines	Real estate development	485	331	5 363	5 626	Indonesia, Malaysia, Singapore, Viet Nam
OUE Realty	Singapore	Hotels, restaurants and leisure	122	165	5 737	5 587	Malaysia
Telekom Malaysia	Malaysia	Telecommunication services	816	652	5 672	5 572	Singapore
Electricity Generating	Thailand	Independent power producers	243	125	4 986	5 502	Lao People's Democratic Republic
IOI Properties Group	Malaysia	Real estate development #	1 682	1 916	4 721	5 499	Singapore
Thai Beverage	Thailand	Beverages	1 403	1 420	5 240	5 316	Myanmar, Viet Nam
PPB Group*	Malaysia	Food Products	168	263	5 094	5 060	Indonesia, Myanmar, Singapore, Viet Nam
MMC Corporation	Malaysia	Conglomerate	302	273	5 058	5 059	Several ASEAN countries
Globe Telecommunication	Philippines	Wireless telecommunication services	252	174	4 170	5 043	Singapore
Bumi Armada	Malaysia	Energy equipment and services	354	672	4 199	4 923	Indonesia, Singapore
AirAsia	Malaysia	Airlines	564	388	4 952	4 881	Most ASEAN countries
Batu Kawan	Malaysia	Chemicals, palm oil products, real estates	615	375	4 245	4 799	Indonesia
Felda Global Venture	Malaysia	Palm oil producers	467	412	4 969	4 699	Cambodia, Indonesia, Thailand
Total 100 major ASEAN MNEs			255 687	251 244	2 996 868	3 140 646	

Sources: ASEAN Investment Report 2017 research, based on Bloomberg, Orbis and companies' reports.

Notes: 1. This table provides an order of magnitude insight on key ASEAN MNE, but the precise figure for total assets may vary. The phrase "selected top" MNEs – rather than "top 100 MNEs" – is used for a number of reasons. First, some companies do not provide details of their assets (or do so patchily), so cannot be included. Secon, there are several issues concerning MNEs owned by States; e.g. many do not provide financial data and are not listed, while others are not primarily engaged in FDI. Thus, the table includes State-owned enterprises (SOEs) or Government-linked companies (GLCs) that operate subsidiaries overseas, but not sovereign wealth funds because their overseas investments are primarily of a portfolio nature. Nevertheless, the asset numbers here reflect the scale of investments by these top MNEs in ASEAN. They should not be used as a basis for a definitive ranking, and the potential scale and significance of excluded MNEs for the reasons given should be borne in mind.

2. Some major conglomerates and companies are not in the list such as Petronas (Malaysia), Sinar Mas (Indonesia) and TCC Corporation (Thailand).

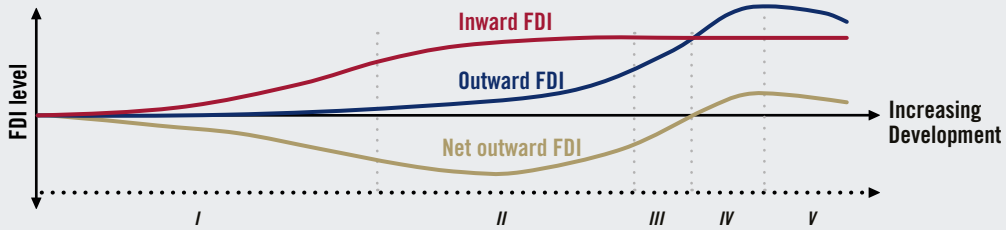
3. The industry type indicated for each MNE in this table is that assigned to the parent company by Orbis; local subsidiaries might be involved in different industries and activities.

4. A subsidiary is defined as "an incorporated enterprise in the host country in which another entity directly owns more than half of the shareholders´ voting power, or is a shareholder in the enterprise, and has the right to appoint or remove a majority of the members of the administrative, management or supervisory body" (unctad.org/en/Pages/DIAE/Glossary.aspx). MNEs may possess other affiliates in ASEAN, including incorporated enterprises in which they do not possess more than half of voting power, associate enterprises and branches.

BOX 2.4 The investment development path and ASEAN companies

The investment development path is a useful framework for understanding the dynamic relationship between FDI and the level of development of a given economy. It has become the basis for a wide range of theoretical and empirical studies covering many countries. There are five schematic stages. Stage I reflects the situation in most of the least developed countries, where both inward and outward FDI are very small, often due to the combination of a limited domestic market, a lack of infrastructure and a low-skilled labour force as well as weak institutions and government policies. In stage II inward FDI grows significantly thanks to the development of some locational advantages (e.g. investment in better infrastructure, investment-friendly policies) that increase the country's attractiveness to MNEs. There is a significant growth in inward FDI, but outward FDI remains very limited. A country with no discernible locational advantages beyond resource endowments, basic infrastructure, limited knowledge infrastructure and weak markets for capital will spawn only a small handful of firms with sufficient competitive advantages to engage in outward FDI, mostly those dependent on natural resource or labour-intensive inputs. Domestic firms may also be engaged as suppliers and customers within GVCs (whether through FDI or NEMs), and are typically firms that ultimately become MNEs.

BOX TABLE 2.4.1 The investment development path



Source: ASEAN Secretariat, based on Dunning and Narula 2010 and Narula and Pineli 2017.

At stage III, inward FDI continues to grow rapidly in response to rising local markets, more effective institutions and an improving skills base; and outward FDI also starts to grow significantly, as domestic firms' capabilities improve and become more competitive in comparison with those of foreign firms. Over time domestic companies develop into knowledge-intensive companies, and the economy comes to possess strong, advanced knowledge infrastructure, universities, and well-regulated and efficient business support sectors. MNEs from such countries are increasingly deeply embedded in value chains. In stage IV, countries normally have advantages that are on par with the best in the world; as homes to world-class firms and MNEs, they receive a substantial amount of inward FDI as well. Finally, in stage V (the most developed countries), the expected outcome is an unstable equilibrium around net zero for outward and inward FDI, although often this unstable equilibrium is not achieved at zero but rather at a substantially positive or negative position.

Progression along the investment development path is a learning process for an economy's policymakers and companies that involves developing domestic capabilities in an appropriate sequence to create the conditions needed to benefit from knowledge flows and to attract higher value adding FDI. In parallel, the level and nature of industrial policies that can promote FDI-assisted development also change throughout the different stages. In stage I a key role of governments is to set up the basic legal and commercial institutions and infrastructure. In stage II education, transport and ICT infrastructure become increasingly important, while in stage III the main role of governments is often to enforce competitive markets. In stage IV key policies seek to minimize transaction costs, support innovation and foster economic restructuring.

As Member States progress through these stages, ASEAN companies' capabilities improve, sharpen and become more competitive – often in a variety of roles relative to foreign MNEs. These include building a country's economic infrastructure, which helps to attract inward FDI; collaborating with foreign MNEs more directly, but in a similar vein (e.g. building offices and factories for investors); becoming suppliers through contracts to supply parts or services to MNEs or partners through alliances or joint ventures (e.g. in large infrastructure projects or products and services new to an economy); or competing in a variety of market and product niches, in line with their capabilities, motives and strategies (chapters 4 and 5). ASEAN Member States range from the relatively underdeveloped to the economically advanced, and so between them their companies exhibit characteristics of all stages in the path. Many of them, ASEAN MNEs at various levels of proficiency, are fanning out across the region. For the economically less advanced Member States this intraregional FDI is helping them kick off or advance on their own investment development paths.

Source: ASEAN Secretariat, based on Narula and Dunning 2010.

TABLE 2.5 Selected top ASEAN MNEs with the most widespread foreign subsidiary network, 2016 *(Number of subsidiaries)*

	Company	Home country	Foreign subsidiaries	ASEAN subsidiaries	Countries in which present	ASEAN countries in which present
1	Oversea-Chinese Banking Corp Ltd (OCBC)	Singapore	933	322	19	5
2	Global Logistic Properties Ltd	Singapore	899	1	17	1
3	Charoen Pokphand Group Co Ltd	Thailand	881	18	31	5
4	Islamic Bank of Asia (The)	Singapore	828	8	28	3
5	Thai Rayon Public Co Ltd	Thailand	823	34	50	6
6	Sembcorp Marine Ltd	Singapore	813	6	27	2
7	Metro Holdings Ltd	Singapore	813	27	41	7
8	United Overseas Bank Ltd UOB	Singapore	806	111	34	4
9	Kluang Rubber Co (Malaysia) Bhd	Malaysia	776	113	24	6
10	Genting Bhd	Malaysia	744	162	26	3
11	Bank Islam Malaysia Bhd	Malaysia	708	5	20	1
12	Thai Beverage Public Company Ltd	Thailand	699	230	25	7
13	Hong Leong Bank Bhd	Malaysia	680	351	28	7
14	Ayala Corp	Philippines	671	37	26	3
15	GKE CORP LTD	Singapore	666	9	52	3
16	BDO Unibank Inc	Philippines	666	3	35	2
17	BIMB Holdings Bhd	Malaysia	661	6	21	2
18	Hong Leong Company (Malaysia) Bhd	Malaysia	660	60	29	7
19	CIMB Group Sdn Bhd	Malaysia	651	472	25	8
20	Viking Offshore and Marine Bhd	Singapore	651	7	52	3
21	Malayan Banking Bhd - Maybank	Malaysia	645	336	39	8
22	Great Eastern Holdings Ltd	Singapore	643	99	25	6
23	GT Capital Holdings Incorporated	Philippines	641	8	44	3
24	TT International Ltd	Singapore	638	4	51	3
25	Analabs Resources Bhd	Malaysia	637	341	39	8
26	SM Investments Corp	Philippines	636	14	39	5
27	City Developments Ltd	Singapore	610	98	48	6
28	United Engineers Ltd	Singapore	606	39	31	6
29	Alsons Power Holdings Corp	Philippines	605	4	35	3
30	RHB Bank Bhd	Malaysia	605	275	35	9
31	Kuok Brothers Sdn Bhd	Malaysia	602	237	43	5
32	Philippine Telecommunication Corp	Philippines	596	3	31	2
33	Atlas Consolidated Mining and Development Corp	Philippines	596	3	31	2
34	PLDT Inc	Philippines	596	3	31	2
35	Hong Leong Holdings Ltd	Singapore	592	87	45	6
36	PPB GROUP BHD	Malaysia	591	221	43	5
37	Flex Ltd	Singapore	587	30	52	4
38	Philodrill Corp (The)	Philippines	586	3	31	2
39	Anglo-Philippine Holdings Corp	Philippines	586	3	31	2
40	First Metro Investment Corp	Philippines	583	5	41	3
41	Singapore Telecommunications Ltd (Singtel)	Singapore	577	115	53	7
42	Lepanto Consolidated Mining Company	Philippines	577	4	33	3
43	PhillipCapital	Singapore	576	370	36	8
44	Metropolitan Bank & Trust Company (Metrobank)	Philippines	576	6	40	3
45	The Great Eastern Trust Private Ltd	Singapore	575	43	27	7
46	Oversea-Chinese Banking Corp Ltd (OCBC)	Singapore	574	374	27	8
47	Philex Mining Corp	Philippines	573	4	35	3
48	Hotel Holdings (Private) Ltd	Singapore	564	71	46	6
49	Bank of Singapore Ltd	Singapore	563	336	34	8
50	Lee Rubber Company (Pte) Ltd	Singapore	559	365	26	7

Source: ASEAN Secretariat, based on data extracted from Bureau van Dijk's Orbis database, company reports.

2.5 Multinational enterprises in Member States: who and what

Which MNEs are present in ASEAN Member States depends on a number of factors: their longer-term colonial history; their degree of participation in the new international division of labour since the 1970s, especially in the case of the five founding members; factor endowments and hence the nature of their involvement in the world economy, although factor endowments are not static (e.g. better or more infrastructure, education or training all affect a country's locational advantages) the rise of ASEAN MNEs; and the continuing imperatives of industrialization and development. These factors are not mutually exclusive. Thus, for example, many of the top MNEs investing in all Member States are banks or financial companies (tables 2.6 to 2.12).[13] This is partly because many arose in the colonial period in the region – e.g. OCBC (Singapore), AIA Group (Hong Kong, China), Standard Chartered (United Kingdom), HSBC Holdings (United Kingdom), Australia and New Zealand Banking Group (Australia) and UOB (Singapore) and continue to reinforce their existing presence across ASEAN. In some cases they have moved into new pastures, as in the case of HSBC and Australia and New Zealand Banking Group Ltd. (table 2.12). This move into Viet Nam by colonial era banks also reflects the motives of banking more generally: most MNE banks and financial institutions are moving into new ASEAN Member States to take advantage of new clients in growing markets – and to following existing clients (i.e. industrial companies). Finally, a number of ASEAN cities – most notably Singapore – have become financial hubs from which business can be conducted regionally and globally. This mix of motives explains the high presence of MNE banks in all Member States.

In some Member States, the range of industries in which MNEs have invested is relatively narrow. For instance, in Brunei Darussalam oil and gas receives the lion's share of investments, followed by banking, finance and other market-oriented activities – a logical development, given the country's very high GDP per capita (chapter 3). In Cambodia, nearly all the largest MNEs are banks or financial institutions, apart from Hong Leong Co (Malaysia), a conglomerate, and Maruhan Corporation (Japan), an entertainment company (table 2.6).

While reflecting a growing economy, the dominance of big MNEs can obscure critical FDI in other key industries; in Cambodia, for instance, investment in tourism, infrastructure, and the garment and footwear industry is also very important. In infrastructure, much MNE activity (mostly ASEAN MNEs) is in the form of concessions – which are NEMs, not FDI. In the garment industry, FDI is very significant, with MNEs employing well over half a million workers, but each of these foreign companies are small (ILO 2015 and 2016, ODI 2005, Mirza et al. 1997).[14] Because Cambodia has a relatively inexpensive, skilled workforce in this industry, companies from across East Asia and ASEAN have invested there over the last two to three decades. These MNES are mostly from China, Hong Kong (China), the Republic of Korea and Taiwan, outside of ASEAN, and from Indonesia, Malaysia, Singapore, Thailand and Viet Nam, within the region.

This type of bifurcation of activity between larger MNEs and smaller ones plays out in similar ways in Cambodia's CLMV neighbours, Lao PDR and Myanmar. In the case of Lao PDR, the biggest investments (and MNEs) are in banking, infrastructure (e.g. hydropower) and mining (with China, Thailand, Viet Nam and the Republic of Korea the biggest-investing countries), but there many smaller investments, including in agriculture (box 4.2). The MNE presence in Viet Nam differs from that in its CLMV neighbours. Viet Nam has a strong industrial base, much of it still State-owned, as well as a skilled population approaching 100 million; it has also pursued a consistent industrial policy over many years (Bui 2004, Mirza and Giroud 2004, Nguyen 2010). Consequently, although banks are still among the top investors in Viet Nam, the majority of the biggest MNE investors are industrial companies, especially in heavy industries such as chemicals, steel and industrial machinery – e.g. Posco (Republic of Korea), China Steel (China), Siam Cement (Thailand), Hyundai Heavy Industries (Republic of Korea), Wintek (Taiwan) and Sembcorp (Singapore) (table 2.12). There are investors in light industries such as footwear – e.g. Yue Yuen (Taiwan), the world's largest footwear company – as well as in services (but levels of investment are smaller; see chapter 4). The local consumer market is attracting MNEs such as Lotte Shopping Group (Republic of Korea), Nestle (Switzerland) and Coca-Cola (United States). An interesting investor is Phu My Hung Corp Asia Holdings (Taiwan), which is an alliance between the Ho Chi Minh City Authorities and CT & D (Taiwan). Since 1989 this MNE has been involved in major urban development projects in and around Ho Chi Minh City, including overall urban planning, the Saigon South New City Centre, export processing zones and a power utility.

MNEs from across the world are deeply rooted in the economies of the founding ASEAN Member States (Indonesia, Malaysia, the Philippines, Singapore and Thailand). Although MNE banks and financial institutions from ASEAN, East Asia and Europe are prominent investors in Indonesia, the region's most populous nation (260 million people) with its vast agricultural, oil and mineral wealth attracts large investments across many industries. This is reflected in the identity of some of the biggest investors: Magna Resources Corp (United States, oil and gas), Salim Wanye (China, real estate, construction, heavy industry), Axiata Group (Malaysia, telecommunication), HeidelbergCement (Germany, cement) and Golden Agri-Resources Ltd (Singapore, agriculture) (table 2.7).

Malaysia, which is significantly embedded in various GVCs, numbers among its biggest investors long-standing MNEs such as Panasonic Corp (Japan), BMW (Germany), and Toyota Motors (Japan). It is also attracting large investments from newly founded MNEs such as First Solar (United States) and OCI Company (Republic of Korea), both manufacturing renewable energy products (table 2.8). It is also resource-rich, hence attracting large investments from MNEs such as Royal Dutch Shell (United Kingdom–Netherlands), ConocoPhillips (United States) and Wilmar International (Singapore).

The Philippines too is deeply involved in a number of GVCs; hence the presence among its largest investors of Texas Instruments (United States), Nidec Corp (Japan) and Rohm (United States) (table 2.9). It is also very populous (over 100 million people), with expanding infrastructure and urban areas, which has influenced the composition of the top MNEs there: on the one hand, companies in heavy industries and utilities such as LafargeHolcim (Switzerland), Cemex (Mexico) and Korea Electric Power (Republic of Korea); and on the other hand, consumer-goods-oriented MNEs such as Nestlé (Switzerland), Zuellig Pharma (Malaysia) and Fomento Economico Mexicano (Mexico). The presence of Mexican MNEs in the Philippines reflects its historical ties with Spain. The Philippines is also rich in natural resources; hence Royal Dutch Shell (United Kingdom–Netherlands) and Sumitomo Metal Mining (Japan) are also major investors.

For decades Thailand has been regarded as the primary hub of automobile manufacturing in ASEAN, so it is no surprise that a third of the top MNEs there are manufacturers of vehicles or motor parts, including Toyota (Japan), Honda (Japan), Daimler (Germany) and Denso (Japan). Others in the industry are from North America, Europe and Asia. Thailand also hosts large investments by many other financial MNEs (e.g. Mitsubishi UFJ Financial Corp, the largest investor) and non-financial MNEs (Mitsubishi Electric Corp, Kubota Corp and Hitachi Ltd, all from Japan). The presence of Western Digital Corp (United States) underscores that Thailand is a major manufacturing hub for MNES in many GVCs and from many countries.

Finally, ASEAN's richest Member State, and one of the smallest in both size and population (6 million people), Singapore: though still a base for much manufacturing, it has increasingly targeted MNEs that use the island as a regional and global hub. Such hub activities include regional headquarters for MNEs with regional networks or RVCs (perhaps locating corporate functions such as R&D, marketing, finance or support services in Singapore), and bases for the provision of specialist business or technical services (e.g. consultancy, legal services or technical services in, for instance, the oil industry). Because of this regional focus, major MNE investors come from across all sectors and industries, including oil and gas (Royal Dutch Shell (United Kingdom–Netherlands) has had huge bunkering and refining facilities for decades); electronics (e.g. Qualcomm (United States), Apple (United States) and Lenovo (Hong Kong, China)); and, apart from banking and finance in general, specialist services such as Paypal (United States) (table 2.10).

TABLE 2.6 Cambodia: selected top foreign MNEs by total assets, 2016

	Company	Company type	Home country	Total assets in country ($ millions)
1	Public Bank Bhd	Bank	Malaysia	1 627
2	National Bank of Canada	Bank	Canada	1 098
3	Australia and New Zealand Banking Group Ltd	Bank	Australia	1 016
4	Maruhan Corporation	Industrial company	Japan	932
5	Malayan Banking - Maybank	Bank	Malaysia	901
6	RHB Bank Bhd	Bank	Malaysia	627
7	Mitsubishi UFJ Financial Group Inc	Bank	Japan	586
8	CIMB Group Holdings Bhd	Bank	Malaysia	453
9	Hyundai Swiss Financial Group	Financial company	Republic of Korea	414
10	Cathay Financial Holdings Co Ltd	Bank	Taiwan	296
11	Hong Leong Co (Malaysia) Bhd	Industrial company	Malaysia	239
12	Siam Commercial Bank Pcl	Bank	Thailand	223
13	Saigon Thuong Tin Commercial Joint-Stock Bank- Sacombank	Bank	Viet Nam	160
14	Phillip MFIS Pte Ltd	Financial company	Singapore	147
15	KB Financial Group, Inc	Bank	Republic of Korea	134
16	MS&AD Insurance Group Holdings Inc	Insurance	Japan	8

Source: ASEAN Secretariat, based on data extracted from Bureau van Dijk's Orbis database, company reports.

Note: 1. Total assets in the country are the sum of each MNE's principal subsidiaries. This table provides an order of magnitude insight on key MNEs players in the country, but the precise figure for total assets may vary. Some large MNEs present in the country may not appear in the table because data were not available, or were not directly comparable.

2. Company types is a very broad-level division to indicate whether the MNE is a 'financial' or non-financial' (i.e. industrial) company. Industrial companies in this division include those in manufacturing, the primary sector, infrastructure and various other services.

TABLE 2.7 Indonesia: selected top foreign MNEs by total assets, 2016

	Company	Company type	Home country	Total assets in country ($ millions)
1	CIMB Group Holdings Bhd	Bank	Malaysia	18 400
2	HSBC Holdings Plc	Bank	United Kingdom	13 000
3	First Pacific Company Ltd	Bank	Hong Kong (China)	11 400
4	Oversea-Chinese Banking Corp Ltd (OCBC)	Bank	Singapore	10 500
5	United Overseas Bank Ltd (UOB)	Bank	Singapore	7 003
6	Sumitomo Mitsui Financial Group, Inc	Bank	Japan	5 674
7	Citicorp Holdings Inc	Bank	United States	5 421
8	Standard Chartered Plc	Bank	United Kingdom	5 248
9	AIA Group Ltd	Insurance	Hong Kong (China)	5 183
10	DBS Group Holdings Ltd	Bank	Singapore	4 924
11	Magna Resources Corp Pte Ltd	Industrial company	United States	4 699
12	Prudential Plc	Insurance company	United Kingdom	4 545
13	Salim Wanye (Shanghai) Enterprises Co, Ltd	Industrial company	China	4 298
14	Axiata Group Bhd	Industrial company	Malaysia	4 085
15	Manulife Financial Corp	Insurance	Canada	3 349
16	Philip Morris International Inc	Industrial company	United States	3 163
17	Mizuho Financial Group	Financial company	Japan	3 153
18	Australia and New Zealand Banking Group Ltd	Bank	Australia	2 628
19	Allianz SE	Insurance company	Germany	2 259
20	Heidelbergcement AG	Industrial company	Germany	2 244

Source: ASEAN Secretariat, based on data extracted from Bureau van Dijk's Orbis database, company reports.

Note: See note table 2.6.

TABLE 2.8 Malaysia: selected top foreign MNEs by total assets, 2016

	Company	Company type	Home country	Total assets in country ($ millions)
1	Oversea-Chinese Banking Corporation Ltd (OCBC)	Bank	Singapore	42 300
2	AIA Group Ltd	Insurance	Hong Kong (China)	25 100
3	HSBC Holdings Plc	Bank	United Kingdom	23 700
4	United Overseas Bank Ltd (UOB)	Bank	Singapore	22 400
5	Standard Chartered Plc	Bank	United Kingdom	12 700
6	Prudential Plc	Insurance	United Kingdom	12 500
7	Citigroup Inc	Bank	United States	9 598
8	Royal Dutch Shell Plc	Industrial company	United Kingdom–Netherlands	7 648
9	Allianz SE	Insurance	Germany	6 646
10	Mitsubishi UFJ Financial Group Inc	Bank	Japan	6 562
11	Lotte Chemical Corp	Industrial company	Republic of Korea	3 497
12	First Solar, Inc	Industrial company	United States	3 284
13	Sumitomo Mitsui Financial Group, Inc	Bank	Japan	3 197
14	Deutsche Bank AG	Bank	Germany	3 174
15	Wilmar International Ltd	Industrial company	Singapore	3 164
16	ConocoPhillips	Industrial company	United States	3 133
17	Panasonic Corp	Industrial company	Japan	3 053
18	BMW	Industrial company	Germany	3 008
19	JPMorgan Chase & Co	Bank	United States	2 514
20	Aeon Co Ltd	Industrial company	Japan	2 461

Source: ASEAN Secretariat, based on data extracted from Bureau van Dijk's Orbis database, company reports.

Note: See note table 2.6.

TABLE 2.9 Philippines: selected top foreign MNEs by total assets, 2016

	Company	Company type	Home country	Total assets in country ($ millions)
1	AIA Group Ltd	Insurance	Hong Kong (China)	6 641
2	Sun Life Financial Inc	Insurance	Canada	4 511
3	Philip Morris International Inc	Industrial company	United States	2 057
4	Prudential Plc	Insurance	United Kingdom	2 023
5	Malayan Banking - Maybank	Bank	Malaysia	2 000
6	LafargeHolcim Ltd	Industrial company	Switzerland	1 921
7	Manulife Financial Corp	Insurance	Canada	1 692
8	Texas Instruments Inc	Industrial company	United States	1 659
9	Royal Dutch Shell Plc	Industrial company	United Kingdom	1 417
10	Fomento Economico Mexicano SAB de CV (Femsa)	Industrial company	Mexico	1 310
11	Nestle SA	Industrial company	Switzerland	1 305
12	Melco International Development Ltd	Industrial company	Hong Kong (China)	836
13	Australia and New Zealand Banking Group Ltd	Bank	Australia	814
14	Mizuho Americas LLC	Bank	United States	766
15	Nidec Corp	Industrial company	Japan	719
16	Korea Electric Power Corp	Industrial company	Republic of Korea	687
17	Murdock Holding Co	Industrial company	United States	682
18	Zuivelcoöperatie FrieslandCampina UA	Industrial company	Netherlands	660
19	HSBC Holdings Plc	Bank	United Kingdom	660
20	CTBC Financial Holding Co Ltd	Bank	Taiwan	650

Source: ASEAN Secretariat, based on data extracted from Bureau van Dijk's Orbis database, company reports.

Note: See note table 2.6.

TABLE 2.10 Singapore: selected top foreign MNEs by total assets, 2016

	Company	Company type	Home country	Total assets in country ($ millions)
1	Royal Dutch Shell Plc	Industrial company	United Kingdom–Netherlands	32 900
1	Citigroup Asia Pacific Holding LLC	Industrial company	United States	31 000
3	AIA Group Ltd	Insurance	Hong Kong (China)	26 800
2	Qualcomm Inc	Industrial company	United States	26 600
5	Prudential Plc	Insurance	United Kingdom	26 100
6	Standard Chartered Plc	Bank	United Kingdom	26 100
7	Merit Corporation Sal	Financial company	Lebanon	17 400
8	Toronto Dominion Bank	Bank	Canada	14 600
9	Pfizer Inc	Industrial company	United States	13 600
10	Lanius Ltd	Mutual & pension fund	Hong Kong (China)	13 500
11	General Electric Co	Industrial company	United States	13 000
12	Apple Inc	Industrial company	United States	12 800
13	Tokio Marine Holdings Inc	Insurance	Japan	12 700
14	Tata Steel Ltd	Industrial company	India	12 500
15	Agilent Technologies Inc	Financial company	United States	11 900
16	Keysight Technologies, Inc	Industrial company	United States	11 300
17	Bank of Nova Scotia (Scotiabank)	Bank	Canada	10 000
18	Deutsche Bank AG	Bank	Germany	9 828
19	Huaneng Power International, Inc	Industrial company	China	9 562
20	Aluminum Corporation of China Overseas Holdings Ltd	Industrial company	Hong Kong (China)	9 153

Source: ASEAN Secretariat, based on data extracted from Bureau van Dijk's Orbis database, company reports.

Note: See note table 2.6.

TABLE 2.11 Thailand: selected top foreign MNEs by total assets, 2016

	Company	Company type	Home country	Total assets in country ($ millions)
1	Mitsubishi UFJ Financial Group Inc	Bank	Japan	59 600
2	Toyota Motor Corp	Industrial company	Japan	18 600
3	United Overseas Bank Ltd (UOB)	Bank	Singapore	12 700
4	Tcc Group International Ltd	Industrial company	Hong Kong (China)	12 100
5	Cimb Group Holdings Bhd	Bank	Malaysia	9 182
6	Honda Motor Co Ltd	Industrial company	Japan	8 566
7	Engie	Industrial company	France	6 589
8	Citicorp Holdings Inc	Bank	United States	5 974
9	Electric Power Development Company Ltd	Industrial company	Japan	5 581
10	Mitsubishi Corp	Industrial company	Japan	5 576
11	Standard Chartered Plc	Bank	United Kingdom	5 423
12	Western Digital Corp	Industrial company	United States	5 054
13	Asahi Group Holdings Ltd	Industrial company	Japan	4 461
14	Allianz SE	Insurance	Germany	4 338
15	Tesco Plc	Industrial company	United Kingdom	3 582
16	Isuzu Motors Ltd	Industrial company	Japan	3 533
17	Nissan Motor Co Ltd	Industrial company	Japan	3 437
18	Mitsubishi Motors Corp	Industrial company	Japan	2 870
19	Mitsubishi Electric Corp	Industrial company	Japan	2 729
20	Prudential Plc	Insurance	United Kingdom	2 712

Source: ASEAN Secretariat, based on data extracted from Bureau van Dijk's Orbis database, company reports.

Note: See note table 2.6.

TABLE 2.12 Viet Nam: selected top foreign MNEs by total assets, 2016

	Company	Company type	Home country	Total assets in country ($ millions)
1	HSBC Holdings Plc	Bank	United Kingdom	3 210
2	Shinhan Financial Group Co, Ltd	Bank	Republic of Korea	2 480
3	Australia and New Zealand Banking Group Ltd	Bank	Australia	1 977
4	Standard Chartered Plc	Bank	United Kingdom	1 183
5	Posco Co, Ltd	Industrial company	Republic of Korea	1 003
6	Formosa Investment Corp	Industrial company	Taiwan	965
7	Hyosung Corp	Industrial company	Republic of Korea	913
8	Phu My Hung Corp Asia Holdings (Taiwan)	Industrial company	Taiwan	800
9	China Steel Corp	Industrial company	Taiwan	761
10	Yue Yuen Industrial (Holdings) Ltd	Industrial company	Taiwan	607
11	Siam Cement Pcl	Industrial company	Thailand	573
12	Wintek Corp	Industrial company	Taiwan	557
13	Canon Inc	Industrial company	Japan	521
14	Hyundai Heavy Industries Co, Ltd	Industrial company	Republic of Korea	454
15	Kotobuki Realty Co, Ltd	Mutual & pension fund/ Nominee/Trust/Trustee	Japan	434
16	Tokyu Corp	Industrial company	Japan	430
17	Lixil Group Corp	Industrial company	Japan	421
18	Doosan Heavy Industries & Construction Co, Ltd	Industrial company	Republic of Korea	419
19	Sembcorp Industries Ltd	Industrial company	Singapore	394
20	Lotte Shopping Co, Ltd	Industrial company	Republic of Korea	391

Source: ASEAN Secretariat, based on data extracted from Bureau van Dijk's Orbis database, company reports.

Note: See note table 2.6.

Annex

ANNEX TABLE 2.1 Examples of cross-border non-equity modes or contractual arrangements used by MNEs

NEM type	Definition
Contract manufacturing/ Services outsourcing	• A contractual relationships whereby an MNE contracts out to a host-country firm some production, service or processing element in its GVC. In some relationship, this can extend to other GVC segments, such as design and logistics. All fall under the general rubric of "outsourcing". Services outsourcing commonly entails the externalization of IT, business and knowledge functions, which are generally regarded as support processes rather than a direct part of value chains.
Contract farming	• A contractual relationship between an international buyer and (associations of) host-country farmers (including through intermediaries), which establishes conditions for the farming and marketing of agricultural products.
Licensing	• A contractual relationship in which an international firm (licensor) grants to a host-country firm (licensee) the right to use an intellectual property (e.g. copyrights, trademarks, patents, industrial design rights, trade secrets) in exchange for a payment (royalty). Licensing can take various forms, including brand licensing, product licensing and process licensing. In-licensing refers to a company acquiring a license from another firm, and out-licensing entails the sale of intellectual property to other firms.
Franchising	• A contractual relationship in which an international firm (franchisor) permits a host-country firm (franchisee) to run a business modeled on the system developed by the franchisor in exchange for a fee or a mark-up on goods or services supplied by the franchisor. Includes international master franchising, with a single equity owner of all outlets in a market, and unit franchising, with individual entrepreneurs owning one or more outlets.
Management contract	• A contractual relationship in which operational control of an asset in a host country is vested to an international firm, the contractor, which manages the asset in return for a fee.
Concession	• A contractual relationship in which operational control of an asset – frequently built or modernized by the firm – in a host country is vested to an international firm, the concessionaire. The firm manages the asset in return for an entitlement to (part of) the proceeds generated by the asset. Concessions are complex agreements, such as build-own-transfer (BOT) arrangements, which might include elements of investment by an MNE, ownership of the asset for a period, management contracts, etc. Legally they can be structured in many ways, including as public–private partnerships (PPPs).
Strategic alliances	• A relationship between two or more firms to pursue a joint business objective. Partners may provide the alliance with products, distribution channels, manufacturing capability, capital equipment, knowledge, expertise or intellectual property. Involves intellectual property transfer, specialization, shared expenses and risk. Contracts set forth terms, obligations and liabilities of the parties but do not entail the creation of a new legal entity.
Contractual (non-equity) joint venture	• A legal entity into which two or more firms transfer assets for specific, delineated and usually time-limited purposes (e.g. joint R&D), the output of which is normally used by partner firms in their own specific value chains.

Source: UNCTAD 2011.

Notes

[1] OIDL refers to the production and trade structure that evolved in colonial times: very broadly, developed countries specialized in manufacturing and services and exported them to developing countries (and each other), and developing countries in return produced minerals and agricultural products and exported them to developed countries (and each other). In the "new international division of labour" (NIDL) there is a further division of labour within manufacturing and services, with some elements transferred to developing countries, resulting in intra-manufacturing (and services) trade between developed and developing countries. As the world economy has evolved, intra-product trade (i.e. within global value chains) is now perhaps a more apt description as – for example – a final manufactured product such as a smartphone is the result of both manufacturing and services segments and processes, all of which can – in principle – be located anywhere in the world.

[2] Except for Singapore, which as a small island is essentially devoid of raw materials.

[3] Apart from foreign-owned banks and finance institutions, many of which had focused on international markets since the colonial period.

[4] Of course, not all market-seeking investment were purely colonial. Before World War I and in the interwar period, United States automakers were the vanguard of market-seeking FDI. The model T (and later model A) was produced in more than two dozen countries, from kits, mainly for the purpose of reducing transport costs: kits took up less space on ships than assembled cars. Two of these plants were in future ASEAN Member States: Ford Canada went into Malaysia in 1926 and Ford USA into Indonesia (Java) in 1927 (Sturgeon and Florida 2000).

[5] The analysis in this section is collapsed for brevity, but in reality, the evolution of investment and the phases depicted are more complex. Temporally speaking, there were three non-mutually exclusive phases that become layered over time: resource seeking (OIDL), market seeking, and efficiency seeking (i.e. cost cutting, or NIDL). With cost-cutting investments the focus was on very specific (labour-intensive) products, processes and business functions in ever finer-grained and more subtle ways, especially once (latterly) ICT was married to design, manufacturing and supply chain management. Today a fourth motivation drives a new layer of capability- and technology-seeking FDI, with the globalization of R&D and "technology-driven FDI", some of it flowing from developing to developed countries.

[6] The two divisions of labour existed, and still exist, side by side.

[7] Although the policies of East and South-East Asian Governments were very important in encouraging investment by both foreign and local companies, it is worth mentioning that Asia was fortunate in at least two respects compared with other developing economies. On the one hand was the proximity of Japan, the first non-Western industrialized country that was both a model and a source for much early investment. On the other were local political conditions that made countries in Eastern Europe, South America and the Mediterranean, among other countries, less attractive to foreign investors (in the short run).

[8] Sturgeon and Florida (2000) divide cost-cutting investments into proximate, regional investments (Mexico for the United States, and East Europe and North Africa for West Europe) and ultra-low-cost investments that might be farther away. Tariff regimes and operational characteristics (JIT) were at play.

[9] Only Brunei Darussalam, Cambodia, Lao PDR and Myanmar are missing, which largely reflects their small size and minimal industrial base and an implicit bias of the table. Of these, Cambodia has certainly increased its manufacturing base considerably (in garments) since the mid-1990s.

[10] This has been especially true following successive industry-specific and generalized bubbles and crises in 1985 (early PC bubble), 1991, 1998 and 2001. Many firms cut back on in-house manufacturing during these downturns, searched for and found lower-cost alternatives offshore, and were reluctant to invest in new in-house capacity during recoveries (Sturgeon 2003).

[11] Even allowing for the fact that the ASEAN list includes financials.

[12] However, its total assets in ASEAN are smaller than the 50 companies which appear in table 2.3.

[13] Because the available data on corporate assets and investment were not robust, equivalent tables were not possible for Brunei Darussalam, Lao PDR and Myanmar.

[14] Moreover, they are very often "NEM FDI" in the sense that they are non-Cambodian companies (mostly MSMEs) that have been contracted to manufacture garments and footwear for brand manufacturers and major retailers, which the latter sell under their own labels. As most of them are small companies, quite often an intermediary such as Li & Fung (Hong Kong, China) is involved.

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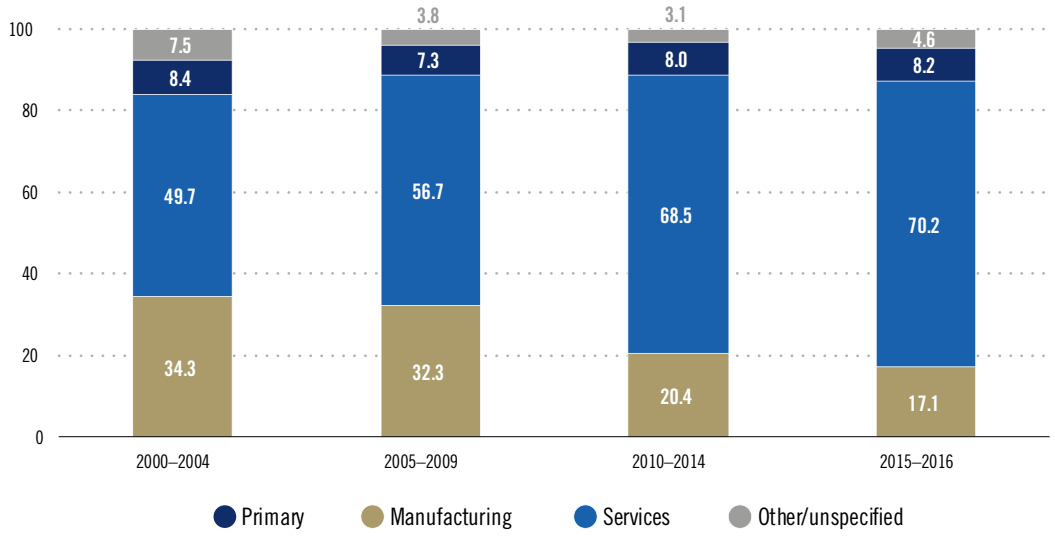
Chapter 3
FDI and MNEs in ASEAN: sector and industry profiles

3.1 Sectoral trends and patterns of FDI in ASEAN

Although most FDI into ASEAN in its first 25 years was in manufacturing, there has been a steady decline in this sector and a commensurate rise in services FDI into the region over the last two decades. In 2000–2004, inward manufacturing investment was still a third of total FDI flows into ASEAN; by 2015–2016 the share had nearly halved, to 17 per cent (figure 3.1). In contrast, 70 per cent of inward FDI flows to ASEAN is in services (the level in the primary sector is stable at about 8 per cent). These shifts reflect the changing structure of the world economy, as well as the composition of global FDI: as economies industrialize, the structure of GDP moves more towards the production and consumption of services[1] (UNCTAD 2004).

FIGURE 3.1 ASEAN: structure of inward FDI flows, by major economic sectors, 2000–2016 *(Per cent of total)*



Source: ASEAN Secretariat.

In addition, some of the shift to services in global FDI patterns, including to ASEAN, represents the services content of global value chains (GVCs) in manufacturing (Lanz and Maurer 2015). As GVCs have increasingly been "fine-sliced" into constituent activities, each of which is situated internationally based on locational advantages (e.g. costs, skills, availability of inputs, infrastructure), a number of services functions which were once under the overall rubric of manufacturing are being broken out and sited accordingly (section 2.1, box 2.2). Such activities – including research and development (R&D), branding, logistics, distribution and sales – are services FDI and are recorded as such, even if they are a part of a manufacturing GVC (box 2.3).[2] Increasingly such facilities are established by MNEs to offer services to other companies, further boosting the level of services FDI. Regional headquarters and holding companies established by MNEs to orchestrate and support subsidiaries – say, in an ASEAN Member State such as Malaysia, Singapore or Thailand – are also regarded as services FDI.

Total FDI inflows to ASEAN during 2000–2016 were $1.2 trillion (table 3.1). The biggest sources of FDI inflows to ASEAN over the period were from the European Union (EU), ASEAN, Japan and the United States, each of which invested in varying degrees in different sectors and industries (tables 3.1 and 3.2). Their dominance reflects in part the competitive advantages of their respective MNEs. For instance, two thirds of Japanese FDI in ASEAN over that period was in manufacturing, in absolute terms double the amount from the EU and well ahead of total manufacturing investments by ASEAN and other East Asian economies (all of which nevertheless were significant investors in the sector, which was the second highest recipient of FDI after financial services).

In a similar vein to the focus of FDI from Japan, 60 per cent of FDI inflows to ASEAN from the United States were in financial services, with a further 15 per cent in trade and hospitality. The sheer scale of investment by EU firms in these two industries meant that although they invested 50 per cent less than the United States in financial services over the period, their highly proficient MNEs in trade and hospitality outpaced United States FDI by nearly three times. Hong Kong (China) and Taiwan also invested a large share of their total FDI in the region in financial services. (A considerable proportion of financial services is regional headquarters and holding companies.) The EU and ASEAN have relatively large shares of their FDI in mining and quarrying (including oil and gas) and in agriculture, as does Australia (under "other" in tables 3.1 and 3.2). In this they share a common heritage as many primary sector MNEs hail from the colonial period.

FDI in ASEAN displays a number of distinct locational patterns. Over the 2012–2016 period, the largest recipients of manufacturing FDI were Indonesia, Viet Nam, Malaysia and Thailand (table 3.3). All are populous economies, with strong industrial bases and well-trained workforces (section 3.2). Cambodia received a considerable amount of manufacturing FDI relative to its population and economic size, for similar reasons. In the primary sector, Brunei Darussalam, Cambodia, Indonesia, Malaysia and Myanmar were the main recipient States because of their large agriculture sectors and their mineral oil and gas resources (section 3.4).[3] The CLMV countries – especially Lao PDR, Myanmar and Viet Nam – are significant recipients of FDI in infrastructure (including utilities, information and communication), as are Indonesia and Malaysia among the ASEAN-5 (table 3.3). Governments are keen to stimulate FDI in these industries, which is attracting many infrastructure MNEs. In addition, infrastructure operations by MNEs are often linked to concessions granted by Governments (e.g. running a power utility), so MNE participation in such services is greater than the FDI numbers alone imply (ASEAN Secretariat and UNCTAD 2015). Finally, in most other services but especially in financial, trade and professional, scientific and technical services, the main recipient countries are Singapore, Malaysia, the Philippines and Thailand (section 3.3).

This chapter provides profiles of FDI and MNEs in ASEAN by sector. The tables for this section can be found on page 80, and subsequent pages.

3.2 Profile of FDI and MNEs in the manufacturing sector in ASEAN

3.2.1 FDI in manufacturing

Having built up a large stock of FDI in manufacturing over five decades, MNEs have slowed the pace of new investment in the sector, especially in the face of their expansion in the services sector. However, FDI in manufacturing is still increasing; in 2013 it hit a peak of about $40 billion, although 2012 and 2016 witnessed drastic downturns. Overall, Cambodia, Indonesia, Malaysia, Myanmar and Viet Nam continued to be targets for MNEs in manufacturing, while the picture for other economies was mixed (figure 3.2). The figures and tables for this section can be found on page 82, and subsequent pages.

Japan, the EU, the United States and ASEAN are the principal source economies for manufacturing FDI, but large-scale divestments by the EU and the United States boosted the shares in total FDI of Japan (to 37 per cent) and ASEAN (to 22 per cent) in 2012–2016 (figures 3.3 and 3.4). Each Member State's share of FDI from different sources economies is relatively stable over time, but occasionally big movements – usually large divestments by a few MNEs – alter the picture (for instance, the Philippines' share of EU FDI fell in 2007–2011 as did Singapore's share relative to a number of FDI source economies in 2012–2016). Because Brunei Darussalam receives tiny amounts of manufacturing FDI, the share from different economies is volatile; in 2007–2011, 92 per cent of manufacturing FDI was from Japan, whereas the dominant share for 2012–2016, at 52 per cent, was from the EU.

There are some relatively stable patterns of FDI flows between sources and ASEAN host economies (figures 3.3 and 3.4). For instance, the largest source of FDI for both Indonesia and Thailand over the last decade has been Japan; and investments from this source were also significant for Malaysia over the same period. EU investment is a relatively large share of FDI in Malaysia, and normally also in the Philippines and Singapore. ASEAN FDI has constituted a large share of inward FDI to Lao PDR, Myanmar and Viet Nam (but not Cambodia) over the last decade; as well as to Indonesia and Malaysia, among richer member countries. Cambodia and Lao PDR are the only ASEAN Member States that receive Chinese manufacturing FDI on a consistent basis; and Cambodia and Viet Nam are favourite locations for investors from Hong Kong (China) and Taiwan. In contrast, apart from a steady focus on the Philippines, FDI from the United States appears to shift between countries – probably because of the scale of individual projects. Finally, investment from the Republic of Korea is low-key for the most part but widely dispersed across ASEAN.

3.2.2 Foreign MNEs

About 2,000 readily identifiable foreign manufacturing MNEs are active across ASEAN,[4] including nearly all of the world's largest companies, as well as many MSMEs. Foreign MSMEs primarily invest in ASEAN because of their proximity to the region (Australia, China, India) or because they

produce parts or inputs for the main manufacturers in the region. The biggest 150 foreign MNEs investing in the region each have assets of $1 billion or more; several have assets of more than $10 billion. Some 500 MNEs have invested $100 million or more; even at this threshold, most are major companies such as Nike (United States), Takeda Pharmaceuticals (Japan) and Tate & Lyle (United Kingdom). Many companies in industries as varied as garments, footwear and infrastructure, in fact have a far bigger footprint in the region than their assets because of their large (or exclusive) use of outsourcing and subcontracting of production and other activities (ASEAN Secretariat and UNCTAD 2012, 2015). An example is Nike (United States). Over the last 50 years, foreign MNEs have set up significant regional networks, motivated by access to markets, use of the region as a supply base (in regional value chains (RVCs)) or both (section 2.3). RVCs occur in all manufacturing industries, although they are most common in automobiles and electronics (table 3.4).

The largest MNE investments in ASEAN include those established by companies such as Agilent Technologies (United States), Danone (France), Dow Chemicals (United States), General Electric (United States), LafargeHolcim (Switzerland), Lenovo (Hong Kong, China), Panasonic (Japan), SmithKlineBeecham (United Kingdom), Tata Steel (India) and Toyota (Japan) (table 3.5). The industries they represent – computers and electronics, food and beverages, chemicals, electrical and general machinery, building materials such as cement and steel, pharmaceuticals and motor vehicles – paint a picture of the diverse, industrial region that ASEAN has become – and, to an extent, the foreign investment which has made that picture possible. These investments represent and reflect a production base within GVCs, as well as the allure of a rapidly growing market (section 2.1). Other foreign manufacturing MNEs, large and small, are drawn to the region in this context, as are suppliers of parts, specialized machinery and other inputs (e.g. Delphi Automotive (United Kingdom) or Minebea (Japan)).

The largest numbers of foreign manufacturing MNEs in ASEAN, among the 2,000 identified, are from Japan and the United States, followed by European countries such as France, Germany, the Netherlands, Sweden and the United Kingdom. Other big home countries of investors include neighbouring economies such as Australia, China, India, Hong Kong (China), Taiwan and the Republic of Korea, but investors from every continent operate in ASEAN.

The original Member States – Indonesia, Malaysia, the Philippines, Singapore and Thailand (the ASEAN-5) – are still to most subsidiaries established by foreign MNEs in the region. This applies in particular to the largest investments, partly because many were made before the newer Member States – especially the CLMV States – joined the Association. Moreover, with the vast amounts of capital sunk into their existing bases, a trained pool of capital, major improvements in infrastructure and sheer familiarity with the ASEAN-5, there is a degree of inertia on the part of manufacturing MNEs long established in the region in toward expanding into the CLMV States. Much investment into the new Member States is by newer, smaller MNEs, or those from neighbouring Asian economies, including ASEAN MNEs because they are more familiar with their neighbours (section 3.2.3). Nevertheless, foreign MNEs well-established in the ASEAN-5, such as Toyota (Japan), SmithKlineBeecham (United Kingdom) and Danone (France), are venturing into Brunei Darussalam and the CLMV States, a trend that will accelerate as their economies expand and become more integrated into ASEAN RVCs (ASEAN Secretariat and UNCTAD 2014, 2015). In addition, foreign MNEs' non-equity relationships, such as subcontracting, also extend into the CLMV countries, at times extensively, as in the case of Cambodia's garment industry.

Apart from RVCs, intra-ASEAN FDI by foreign manufacturing MNEs is especially prevalent where their products play a role in supporting industrial development, e.g. in the case of BASF (Germany), Heidelberg Cement (Germany) and LafargeHolcim (Switzerland), all of which provide inputs such as chemicals, cement and other materials for construction, infrastructure and heavy industry in host economies. Cheaper unskilled or relatively skilled labour is also a draw, as with Denso (Japan) and NIDEC (Japan), which produce auto parts and electric motors respectively, and require significant amounts of labour for some of their processes (table 3.5). For MNEs of all stripes, Viet Nam's profile as an FDI destination is becoming closer to that of the ASEAN-5, especially those of Indonesia, the Philippines and Thailand, the larger and more populated of the original Member States. This change is leading to a significant expansion of foreign MNEs into Viet Nam (table 3.5).

3.2.3 ASEAN MNEs

Larger ASEAN MNEs in manufacturing are often subsidiaries of conglomerates, or conglomerates themselves. DRB-HICOM (Malaysia), which owns the Proton car company and has a foothold in several manufacturing industries (and some services), is an example of the latter type. As observed in chapter 2, larger ASEAN MNEs have extensive operations across the world, including in manufacturing. For example, Wilmar International (Singapore) operates in 43 countries, Alliance Global (Philippines) in 41, Keppel Corp (Singapore) in 39, San Miguel (Philippines) in 19, DRB-HICOM (Malaysia) in 17, PTT Global Chemical (Thailand) in 16 and Asia Pulp and Paper (Indonesia) in 14 (table 3.6). Others have a more regional focus. Most large MNEs in manufacturing in ASEAN are from the ASEAN-5 (table 3.6).

Most ASEAN MNEs are in heavy industries such as chemicals, petrochemicals, cement, motor vehicles and power machinery, which are indispensable for establishing the industrial base of an economy, which is itself a prerequisite for both the formation and growth of domestic enterprise, and the encouragement of entry by foreign-owned companies (tables 3.6 and 3.7). Over time, many have also become more closely connected with foreign companies, e.g. by supplying inputs and by establishing joint ventures or contractual arrangements such as subcontracting and licensing arrangements. Along the way, they have become larger entities themselves and acquired the capabilities needed for foreign expansion (section 2.4, box 2.4).

In natural-resource-based industries, MNEs from Indonesia, Thailand and Malaysia appear to the fore, partly because their wealth of natural resources has encouraged the development of resource-based enterprises. Examples include, PTT Global Chemical (Thailand), Asia Pulp and Paper (Indonesia), Thai Plastic & Chemical (Thailand), Petronas Chemicals Group (Malaysia) and Pupuk Indonesia (Indonesia) (table 3.7). Other heavy industry ASEAN MNEs include Siam Cement (Thailand), PT Astra (Indonesia), YTL Power International (Malaysia) (which builds generators as well as generating electricity), PT Astra (Indonesia) and UMW Holdings (Malaysia), the last two both in motor vehicles, machinery and equipment (table 3.6). Most of these MNEs have invested across ASEAN, including in the CLMV States. Keppel Corp (Singapore) and Sembcorp Marine (Singapore) are to a large extent involved in offshore marine industries, including offshore platforms, shipbuilding and ship repair, which means that that their market focus is global.

Apart from heavy industries, a large number of ASEAN MNEs are in the food and beverage industry, including Wilmar (Singapore), San Miguel (Philippines), Charoen Pokphand Foods (Thailand), Alliance Global (Philippines), Mitr Phol Sugar (Thailand), and Sime Darby (Malaysia). As this is very much a market-oriented industry, these MNEs have extensive FDI networks across ASEAN, including in CLMV economies. Wilmar and Sime Darby also have large shares of their overseas operations in plantations (section 3.4).

Interestingly, none of the largest ASEAN MNEs is in the electronics industry to a significant degree, apart from Flex (Singapore), which originates from the United States. ASEAN MNEs that are more active in electronics and other advanced manufacturing industries tend to be smaller, partly because many began as suppliers to foreign MNEs (chapter 4).

3.3 Profile of FDI and MNEs in the services sector in ASEAN

3.3.1 FDI in services

As mentioned earlier, inward FDI flows in services to ASEAN have been on the rise over the last couple of decades, both to the region as well as to most Member States (figure 3.5). By 2016 total FDI services inflows were $80 billion, down from about $120 billion in 2012. Most of this decline is explained by volatility in FDI in financial services, which is important in services FDI flows to most ASEAN countries (Indonesia has seen large divestments in this sector in recent years) (figure 3.6). Services FDI to ASEAN is dominated by Singapore – in 2016 this Member State received nearly 90 per cent of all services FDI into the region. Moreover, as FDI in financial services accounts for two thirds of services investment in Singapore (including regional headquarters and holding companies), this one industry has a huge bearing on trends in the region (section 3.1, figures 3.5 and 3.6). The figures and tables for this section can be found on page 92, and subsequent pages.

Apart from financial services – as expected in a developing region – FDI in infrastructural services was widespread during 2012–2016, and especially high as a share of total services FDI in CLMV Member States such as Lao PDR, Myanmar and Viet Nam, as well as Indonesia and Malaysia (figure 3.6). MNE participation in infrastructure in ASEAN countries is most likely higher, but is not always captured by the data on FDI (box 3.1). FDI in closely connected industries such as construction and real estate was also proportionally high in some Member States over the same period, including in populous ones such as the Philippines, Thailand and Viet Nam. FDI in trade is also widespread – again, not unexpected for a region closely embedded into a number of GVCs. FDI in accommodation and food services is significant in CLMV members, such as Cambodia, Myanmar and Viet Nam, not only because of rising tourism but also, as importantly, growing business travel. FDI in other services is limited, though 16 per cent of services FDI to the Philippines in 2012–2016 was in arts, recreation and entertainment (including services for the film and software games industries) (figure 3.6). FDI in professional, technical and scientific services is almost invisible, but this is partly because it is typically made under the umbrella of regional headquarters subsidiaries or categorized under an industry (e.g. manufacturing R&D, even where an independent subsidiary is set up, or oil and gas services; section 3.4).

Since 2000, the three largest sources of investment in financial services in ASEAN – including regional headquarters and holding companies – have been the United States, EU and ASEAN Member States themselves, with their relative shares changing over time (figure 3.7). In 2000–2009, Europe and the United States were level, at about 20 per cent each, in financial services FDI. ASEAN investors contributed a third less (14 per cent) (figure 3.7a). By 2010–2016, United States MNEs' share of financial services FDI to the region had jumped to 28 per cent, with EU's share shrinking to 16 per cent and ASEAN's staying about the same at 23 per cent (figure 3.7b). Between the same two periods, Japan's share of FDI flows to ASEAN in financial services shrank from 7 to 1 per cent. In 2010–2016, the equivalent shares for China and Hong Kong (China) jumped to 6 per cent each, from much smaller levels (figure 3.7).

However, FDI in financial services from the United States and EU is concentrated in Singapore. For other Member States there is quite a lot of variability in source countries and regions. In 2010–2016, for example, ASEAN was the principal source of FDI in this industry in a number of countries, including Cambodia, Lao PDR, Indonesia and Malaysia (figure 3.7b). For the Philippines and Thailand, Japan was the largest single investor; for Brunei Darussalam, Hong Kong (China); and for Viet Nam, the Republic of Korea. (An equivalent breakdown for Myanmar is not available.)

BOX 3.1 FDI statistics do not capture the full extent of investments in infrastructure

When it comes to investment in infrastructure, users of FDI statistics are often puzzled by the numbers reported. They read about billions of dollars spent on infrastructure development yet see little evidence of it in the FDI statistics of many countries.

This anomaly arises because of several methodological and definitional issues in relation to reporting on infrastructure investment. A significant share of infrastructure activities occurs on a contractual basis; these activities are not captured through FDI accounting. Services provided in the development of infrastructure are captured under trade in services and not in FDI. In addition, investments in infrastructure are also dispersed in other foreign investments (through bilateral and multilateral loans of governments, including grants of official development assistance); a small amount of foreign portfolio investment (bonds and individual investments through specialized investment funds); commercial loans; private domestic investments; and public–private partnership (PPP) arrangements.

Accounting for FDI in infrastructure is made more difficult because there is no single industrial classification for infrastructure. The data must be culled from different industrial classifications in ISIC Rev4. Infrastructure such as railroads and harbours developed by a mining company appears as an investment in mining rather than in an infrastructure classification such as transportation. There is also the factor of errors and omissions in data compilation, especially related to construction based on engineering, procurement and construction (EPC) contracts associated with infrastructure, including many types of investment in real estate development (e.g. industrial estates, commercial, retail, recreational, free trade zones).

Source: Richard (2015).

3.3.2 Services MNEs

Major financial services MNEs in ASEAN were examined in sections 2.3 and 2.4, so this section deals with non-financial services. Among foreign MNEs in ASEAN, large MNEs are most common in trade and logistics, including Mitsubishi Corporation (Japan), A.P. Moller – Maersk (Denmark), U-Ming Marine (Taiwan), Vitol Holding (Luxembourg), Aeon Co. (Japan) and UPS (United States) (table 3.8). These have relatively widespread subsidiary networks across ASEAN, while the opposite is the case for ICT MNEs, such as Alphabet (United States) and Check Point Software (Israel). Infrastructure MNEs, such as Engie (France) and Electric Power Development (Japan), are also a significant presence among the largest non-financial foreign MNEs in the region (table 3.8).

Among larger ASEAN MNEs in non-financial services, the two most prominent sectors represented are real estate and infrastructure (table 3.9). Real estate foreign investors are commonly MNEs from Singapore (Capitaland, City Developments) and the Philippines (Ayala Corp, SM Investments), but the background of MNEs in infrastructure is more varied. Examples include Singtel (Singapore), Axiata (Malaysia), Hutchison Por Holdings (Singapore), PT Telekomunikasi (Indonesia), Advanced Info Services (Thailand) and Lopez Holdings (Philippines). As a whole, their subsidiaries are dispersed across ASEAN, including in CLMV Member States (table 3.9).

In service industries such as infrastructure, it is often difficult to get a full grasp of the extent and type of MNE involvement in an economy. This is partly due to data issues (box 3.1) but also because the infrastructure value chain encompasses companies and activities that are not classified as infrastructure, but nevertheless lead to outcomes such as power generation and supply. For example, an infrastructure MNE such as Enegie (France) might win a concession to supply power to an ASEAN economy, which is purchased by the Government and fed to end-users through the national power grid. Enegie might take over an existing power plant, or it might build one – usually a variant of a build-operate-transfer contract. This is not an FDI, unless it owns a share. Building a power plant likely involves construction companies, engineering companies, providers of materials (e.g. steel and cement) and specialized equipment providers, none of which are infrastructure companies per se and many of which are MNEs. Nevertheless, given the sheer scale of ASEAN's needs for new infrastructure over the next few decades (chapter 5), a huge amount of MNE-led activity is underway to provide power, transport, telecommunication, water and ICT connectivity to the region's economy and people (ASEAN Secretariat and UNCTAD 2015, box 3.2).

BOX 3.2 Power MNEs active in ASEAN – selected cases

Cambodia

Cambodia invites foreign players to participate in power generation. As a result, the number of foreign independent power producers (IPPs) in the country has been increasing. They operate under power purchase agreements ('s). Electricity transmission and distribution is controlled by the country's electricity agency. Foreign companies involved in the country's electricity industry are dominated by Chinese players, which include State Grid Corporation of China, Sinohydro Corporation, China Southern Power Grid, China Hydropower Corporation, Huadian and China National Heavy Machinery Corporation. Non-Chinese players include Pestech International (Malaysia), EVN (Viet Nam) and Korean MNEs.

Indonesia

Indonesia is encouraging the private sector to play a greater role in the development of the country's electricity infrastructure, including through PPPs and concessionary arrangements. An increasing number of MNEs are investing in power generation in the country. These companies include Solar Guys International (Australia), Daewoo Engineering and Construction (Republic of Korea), Genting (Malaysia), Itochu (Japan), Kyushu Electric Power (Japan), Tenaga (Malaysia), Sinohydro (China), Kansai Electric Power (Japan) and Tata Power (India).

Lao PDR

Lao PDR has a very significant hydropower potential of about 26 GW, but only 3 GW of capacity has been built. One of the key features of the industry is that it exports electricity to neighbouring countries such as Cambodia, Thailand and Viet Nam. These sales account for a significant share of the country's total export revenues. MNEs played an important role in the development of the electricity industry, in particular in power generation through hydropower. Investors from Thailand and China dominate in power plant investment. Some of the MNEs involved in the construction of power plants and the operation of power concessions include EDF (France), Velcan Energy (France), EGCO (Electricity Generating Company, Thailand), Banpu (Thailand), Glow Energy-Enegie (France), SK Engineering and Construction (Republic of Korea), Korean Western Power (Republic of Korea), Sinohydro Corporation (China), Viet Nam-Lao Power (VLP) (Viet Nam), Hoang Anh Gia Lai Group (Viet Nam), ITD (Thailand) and PTTi (Thailand).

Myanmar

Myanmar needs to invest more in power generation to increase capacity and to meet growing demand, including upgrading existing old facilities. More foreign investors have been investing in the country's infrastructure in recent years. MNEs from China are major players in the country's power generation sector. They include Sinohydro, Datang United Hydropower, China Southern Power, Gezhouba, China Heavy Machinery Corporation; Yunnan Machinery Export Import and Huadian. Other MNEs such as EGATi (Thailand), Toyo-Thai Corporation (Thailand) and Sumitomo Corporation (Japan) also have a presence in the country. .../

Philippines

The Philippine Government has actively privatized power plants, which has led to the emergence of local and foreign IPPs. To help the country cope with growing demand, private sector participation in IPPs is strongly encouraged. About 82 per cent of the country's installed capacity in 2014 belonged to private sector IPPs, which are dominated by large local players such as San Miguel, Aboitiz, the Lopez Group and Global Power Corporation. Foreign players such as AES (United States), EGCO (Thailand), KEPCO (Republic of Korea), LG (Republic of Korea), Mitsubishi Corporation (Japan), Tokyo Electric (Japan), Marubeni (Japan), Kyushu Electric (Japan) and TeaM Energy (Japan) have also been participating in power generation in the country, either as owners or EPC contractors of projects.

Singapore

Since 1995, Singapore has been liberalizing the electricity industry through various processes. The liberalization and privatization of power assets has encouraged the local and foreign private sectors to participate in the electricity industry as IPPs, in wholesale distribution for contestable markets and in retailing of electricity. About 80 per cent of the total licensed generation capacity in 2014 was associated with foreign-owned power plants. Through privatization, Senoko Power is now owned by Lion Power Holding, a consortium consisting of Marubeni (Japan), Enegie (France), Kansai Electric Power (Japan), Kyushu Electric Power (Japan) and the Japan Bank for International Cooperation. Tuas Power is owned and operated by Huaneng Power International (China) and Power Seraya by YTL Power International (Malaysia). PacificLight, a company owned by FPM Power Holdings and Petronas Power (Malaysia), also participated in power generation. The former in turn is owned by First Pacific (Hong Kong, China) and Meralco (Philippines). Upstream companies such as Shell Eastern Petroleum and ExxonMobil Asia Pacific also generate power. In addition, foreign players are involved in O&M activities; for example, Alstom (France) is a turnkey contractor of the 800 MW Keppel Merlimau Cogen expansion plant.

Thailand

Demand for electricity in Thailand has grown rapidly, and the importation of electricity from neighbouring countries is a common feature of electricity supply in Thailand. To supplement electricity supply, the Thai Government has signed PPAs with Cambodia, Lao PDR, Malaysia and Myanmar. The country has privatized electricity generation and encourages private sector participation through IPPs and PPAs. Key local players in power generation include the Electricity Generating Authority of Thailand (EGAT), EGCO, Ratchaburi Electricity Generating Holding and Banpu. Some of these companies also operate in neighbouring countries, exporting electricity back to Thailand to serve the local market. Foreign MNEs such as J-Power (Japan), Enegie (France), SPC Power Corporation (Philippines), China Light and Power (Hong Kong, China), and Mitsubishi, Tokyo Electric Power and Marubeni (all Japan) have invested in power generation in Thailand.

Source: ASEAN Secretariat and UNCTAD 2015.

3.4 Profile of FDI and MNEs in the primary sector in ASEAN

3.4.1 FDI and MNEs in the extractive sector

FDI in the extractive sector (mining, quarrying, oil and gas) in ASEAN, as elsewhere, is very volatile. Rising demand and prices from the mid-1990s in many commodities spurred investment in the sector, which was brought to an abrupt halt with the financial and economic crisis of 2008, although inward FDI in the sector continued to grow until 2011, buouyed by momentum and, for a period, continued growth among emerging economies. Since then, however, FDI inflows in extractive industries in ASEAN remained flat, until a sharp fall to about $3 billion in 2016 (figure 3.8). The figures and tables for this section can be found on page 100, and subsequent pages.

The largest recipients of FDI in this sector in ASEAN are Indonesia, Malaysia and Myanmar, although all Member States other than Singapore possess exploitable resources (including offshore oil and gas fields, bothe operational and prospective) (figure 3.8). The largest FDI source economies in the sector in 2010–2016 were EU (28 per cent), ASEAN (14 per cent) and Japan (7 per cent), with investment from the United States falling sharply to 1 per cent (compared with 15 per cent during (figure 3.9 and 3.10). China's share has also fallen, to 7 per cent from 11 per cent during 2000–2009. (Apart from countries such as Australia and Brazil, the "other" category also includes "unspecified invstments," so each country or region's share is likely a little greater.) Although the distribution of investors among the ASEAN-5 members in 2010–2016 has been relatively diverse, some – Brunei Darussalam and the CLMV Member States – have depended heavily on one source or another. For Brunei Darussalam, the vast bulk of investment is from EU (mostly Royal Dutch Shell (United Kingdom–Netherlands)); for Cambodia, it is from China; and for Lao PDR, from China and ASEAN. Viet Nam's investors are more diverse and include MNEs from Europe, Japan, the United States and ASEAN, as well as other sources.

The largest foreign extractive sector MNEs in ASEAN (table 3.10) include most of the "majors" in oil and gas (e.g. Royal Dutch Shell (United Kingdom–Netherlands), Chevron (United States) and Total (France)) and in mining (Rio Tinto (United Kingdom), Schlumberger (United States), and BHP Billiton (Australia)) – and many smaller ones, too. Most of these MNES have subsidiaries across the region. What is interesting is the size of the assets invested in ASEAN by specialist services companies in the oil and gas industry such as Aban (India) and Bonheur (Norway). Such companies supply services such as offshore drilling, platform support services, and the construction and installation of pipelines. Though active across ASEAN, they are typically based in a hub, such as Singapore, and supply services to principal oil and gas MNEs through contractual arrangements.

As with foreign MNEs, there are no surprises about the ASEAN MNEs in extractive industries, with the expected companies investing across the region in oil and gas (e.g. Petronas (Malaysia), PTT (Thailand), Energi Mega Persada (Indonesia) and Petron Corp.) and in mining (e.g. Banpu (Thailand), Bumi Resources (Indonesia) and Atlas Consolidated (Philippines)) (table 3.11).

Partly because of size, their subsidiary networks in ASEAN are not as wide-ranging as those of larger foreign MNEs. There are also several relatively specialist oil and gas services companies among ASEAN MNEs (Petrovietnam Drilling (Viet Nam), UMW Oil and Gas Corp (Malaysia) and Emas Offshore Ltd. (Singapore)) (table 3.11).

3.4.2 FDI and MNEs in agriculture

Apart from Brunei Darussalam and Singapore, the ASEAN Member States possess some of the world's richest agricultural land, as well as vast tracts of rainforest. Partly as a result of growing demand for agriculture (both for food and for cash crops such as oil palm) as well as rising prices, agricultural FDI flows into the region grew steadily for two decades, with some ups and downs, reaching $5.4 billion in 2015 (figure 3.11). However, these inflows plummeted in 2016. Indonesia dominates in the receipt of FDI inflows in agriculture in the region. A closer look at individual Member States generally reveals lacklustre performance in attracting FDI in agriculture, with quite a bit of volatility – probably because just a few large international investments can swamp other activity. Only Cambodia and Indonesia have seen a steady increase in FDI flows in agriculture, and the amounts received by the two are vastly different in scale (figure 3.11). There are concerns that investments in agriculture are not always recorded, either for definitional reasons (long-term land leases are not always considered FDI) or for a variety of other reasons (box 4.2).

In the period 2010–2016, most FDI in agriculture in Member States – except Malaysia, Thailand and Viet Nam – came from ASEAN (figure 3.13). European investors were the main source for investment for Malaysia and Thailand, while the Republic Korea, ASEAN and Japan were all significant sources for Viet Nam. However, because investment in agriculture in each Member State (apart from Indonesia) is relatively small in most years, major sources can change rapidly. For example, in the Philippines, the principal source of agriculture FDI in 2008–2009 was the United States, but in 2010–2016, United States investors accounted for only 20 per cent of inflows (figure 3.12 and 3.13).

The main reason why ASEAN investors are by far the most important investors in agriculture in the region today – including Indonesia, where 88 per cent of investment in 2010–2016 came from ASEAN – is that there are many formidable ASEAN MNEs in the industry (table 3.12). Some agriculture and agribusiness MNEs from ASEAN, such as Sime Darby (Malaysia) and San Miguel (Philippines), trace their roots to the 19th century (box 3.3). In addition to a strong presence across ASEAN, some are globally active: Olam International (Singapore) has subsidiaries in 50 countries, Kuala Lumpur Kepong (Malaysia) in 33, Selat (Singapore) in 27 and Boustead (Malaysia) in 32.

BOX 3.3 Selected agribusiness ASEAN MNEs

ASEAN is home to a number of MNEs focused on agriculture and food products; many are major players in ASEAN, and a few have diversified globally. The world's largest plantation-based MNEs, such as Wilmar International, are based in South-East Asia because of the region's wealth of agricultural resources and its history of planation-based agriculture.

San Miguel Corporation is headquartered in the Philippines. Established in 1890 as a brewery, today it is a conglomerate with beverages, food, agribusiness and packaging businesses. It has brewery operations in nine foreign markets, including four ASEAN Member States and China, and owns meat processing plants in Indonesia and Viet Nam, as well as a feed mill and hog farm facility in Viet Nam. Of its 24 principal overseas subsidiaries, 6 are in ASEAN.

Wilmar International, headquartered in Singapore, is one of the largest agribusiness MNEs in the world. With operations in over 40 countries and on four continents (including 120 subsidiaries in five ASEAN Member States) and annual revenues of nearly $40 billion in 2016, the company has evolved rapidly since it was established as a palm oil trading company in 1991. Following a series of greenfield investments and strategic M&A activities, it has systematically internalized nearly the entire palm oil value chain – from cultivation to sales of retail products. Today, the company is a substantial plantation operator in Malaysia and Indonesia, as well as in Africa; it operates over 250 processing plants in Asia and Europe, and sells edible oils under its own brands in China, India and Indonesia. By participating in the entire palm oil value chain, the company can capture the margins associated with each step. In addition, this integration allows the company to control markets for its products, since it can sell at any point along the value chain.

Olam International Limited, established in 1995 in Singapore, is one of the world's leading traders of agricultural commodities such as cocoa, coffee, cotton, cashew, rice, sesame, sugar and timber. Founded in 1989 as an agribusiness (mostly trading) unit of Kewalram Chanrai Group, initially it exported cashews from Nigeria to generate foreign exchange for the group's operations in that country. Gradually, its export activities in Nigeria extended to other products and then to other countries and more products in Africa; today it is active in every continent. It operates in 50 countries, including 5 ASEAN Member States, and has some 240 subsidiaries, most of which are located in developing countries. The most important ones are located in Indonesia, Viet Nam, Côte d'Ivoire, Ghana and Nigeria. Its activities extend from the farm gate in the key producing countries to the factory gate of the customers in the destination markets, including not only sourcing but also primary processing, storage, transport, warehousing, marketing and distribution. Olam supplies many of its products to international brand owners and processors, such as Cargill (United States) and Nestlé (Switzerland).

IOI Corp, headquartered in Malaysia, started as a real estate company in 1982. Today it is an integrated palm oil company involved in the entire value chain, from seedling, extraction and other value added manufacturing to processing, refinery and commodity trading activities. In 1985, it started oil palm plantation activities in Malaysia and in 2007 extended those activities to Indonesia. Most of its plantations are in Malaysia. It employs about 30,000 people in 15 countries. Through Loders Croklaan (Netherlands), an affiliate in refinery and specialty fats, which it acquired in 2002 from Unilever, IOI has operations in Brazil, Canada, China, Egypt, Ghana and the Netherlands.

Dao-Heuang Group (Lao PDR) was established in 1991. Although it is a large company today, it started as a small import-export company, specializing in the import and distribution of products from France and Singapore, and later Thailand. In 1998, it began exploring opportunities for producing coffee, tea, other agricultural products and industrial goods. By 2008 the company had expanded into the hotel and the food and beverage businesses – especially coffee, which it grows, processes and exports. Today, 80 per cent of the coffee revenue comes from exports, and the company is likely to set up a foreign sales subsidiary in the foreseeable future.

Source: ASEAN Secretariat, based on UNCTAD 2009 and ASEAN Secretariat and on UNCTAD 2016.

Sectoral profile of FDI and MNEs in ASEAN:

Figures and tables

TABLE 3.1 ASEAN: total inward FDI flows by economic sector and investor source, 2000–2016 *(Millons of dollars)*

Sector \ Source	Japan	United States	EU	Republic of Korea	Hong Kong, China	Taiwan	China	ASEAN	Other	Total
Agriculture, fishery and forestry	459	225	1 864	643	524	167	499	16 492	460	21 333
Mining and quarrying	4 592	3 616	18 921	764	1 188	115	5 371	8 365	18 094	61 025
Manufacturing	97 962	3 323	42 165	17 842	8 567	7 613	-2 594	54 132	40 977	269 986
Construction	1 126	-67	1 531	1 001	1 199	364	1 042	2 856	940	9 992
Trade, hotels and restaurants	18 712	21 940	56 306	3 964	7 058	2 650	8 745	10 049	29 605	159 029
Financial and insurance activities	8 781	87 657	59 774	4 159	15 791	6 397	17 095	44 261	91 077	334 990
Real estate	2 389	4 751	11 340	3 672	5 286	1 316	11 493	36 433	21 565	98 245
Other services	12 276	6 853	52 705	2 692	8 666	2 348	6 209	12 297	32 221	136 266
Others (including not elsewhere classified)	7 670	16 952	12 999	1 528	4 901	1 424	7 749	7 458	7 257	67 937
Total	153 966	145 248	257 605	36 266	53 180	22 392	55 610	192 343	242 195	1158 804

Source: ASEAN Secretariat.

TABLE 3.2 ASEAN: total inward FDI flows by economic sector and investor source, 2000–2016 *(Per cent of total FDI inflows)*

Sector \ Source	Japan	United States	EU	Republic of Korea	Hong Kong, China	Taiwan	China	ASEAN	Other	Total
Agriculture, fishery and forestry	0.0	0.0	0.2	0.1	0.0	0.0	0.0	1.4	0.0	1.8
Mining and quarrying	0.4	0.3	1.6	0.1	0.1	0.0	0.5	0.7	1.6	5.3
Manufacturing	8.5	0.3	3.6	1.5	0.7	0.7	-0.2	4.7	3.5	23.3
Construction	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.2	0.1	0.9
Trade, hotels and restaurants	1.6	1.9	4.9	0.3	0.6	0.2	0.8	0.9	2.6	13.7
Financial and insurance activities	0.8	7.6	5.2	0.4	1.4	0.6	1.5	3.8	7.9	28.9
Real estate	0.2	0.4	1.0	0.3	0.5	0.1	1.0	3.1	1.9	8.5
Other services	1.1	0.6	4.5	0.2	0.7	0.2	0.5	1.1	2.8	11.8
Others (including not elsewhere classified)	0.7	1.5	1.1	0.1	0.4	0.1	0.7	0.6	0.6	5.9
Total	13.3	12.5	22.2	3.1	4.6	1.9	4.8	16.6	20.9	100.0

Source: ASEAN Secretariat.

TABLE 3.3 ASEAN: total inward FDI flows by economic sector and host economy, 2012–2016 *(Millons of dollars)*

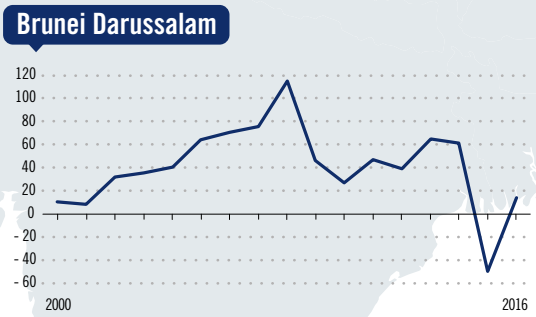
Economic sector	Brunei Darussalam	Cambodia	Indonesia	Lao PDR	Malaysia	Myanmar	Philippines	Singapore	Thailand	Viet Nam	Total	Lao PDR (2014–2016)
Agriculture, forestry and fishing	0	1 380	13 258	90	484	179	22	0	20	334	15 769	90
Mining and quarrying	1 551	59	9 159	382	15 863	4 628	292	0	828	205	32 967	382
Manufacturing	129	2 367	36 499	201	16 949	1 333	2 383	-8 399	16 071	35 304	102 837	201
Electricity, gas, steam and air conditioning supply	0	0	678	1 582	2 345	309	-287	0	-320	2 507	6 814	1 582
Water supply; sewerage, waste management and remediation activities	5	0	291	11	1	265	436	0	-44	310	1 273	11
Construction	32	128	540	324	1 396	0	229	304	440	1 419	4 811	324
Trade	102	0	7 354	58	2 368	0	432	73 047	1 383	2 053	86 797	58
Transportation and storage	16	0	3 555	2	432	3 036	101	5 892	-55	738	13 716	2
Accomodation and food service activities	5	464	-6	43	-313	484	129	0	34	636	1 477	43
Information and communication	-10	0	7 802	9	1 673	0	51	0	153	511	10 189	9
Financial and Insurance activities	189	2 119	-8 549	282	8 924	0	2 078	176 487	9 670	306	191 506	282
Real estate activities	0	381	3 940	23	2 777	288	656	27 999	6 465	4 712	47 241	23
Professional, scientific and technical activities	-14	0	0	26	142	0	-14	0	6 548	951	7 639	26
Administrative and support service activities	0	0	0	17	337	0	102	0	587	116	1 161	17
Public administration and defence; compulsory social security	0	0	0	0	18	0	0	0	0	0	18	0
Education	5	0	-2	4	34	0	3	0	14	128	185	4
Human health and social work activities	5	0	166	2	64	0	11	0	72	300	619	2
Arts, entertainment and recreation	0	0	0	1	14	0	751	0	20	229	1 015	1
Other services activities	39	1 641	4 009	9	46	213	-6	35 139	1 253	95	42 437	9
Others/unspecified	126	0	0	721	0	1	18 672	0	0	13	19 533	0
TOTAL	2 179	8 539	78 693	3 789	53 553	10 735	26 044	310 470	43 136	50 868	588 006	3 068

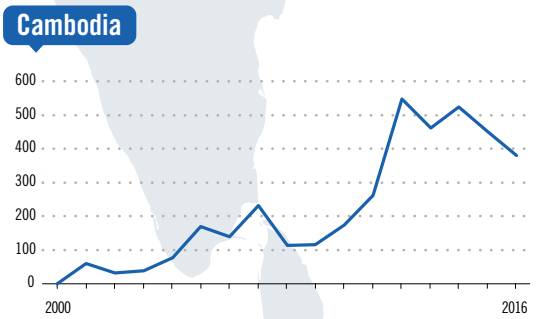
Source: ASEAN Secretariat.

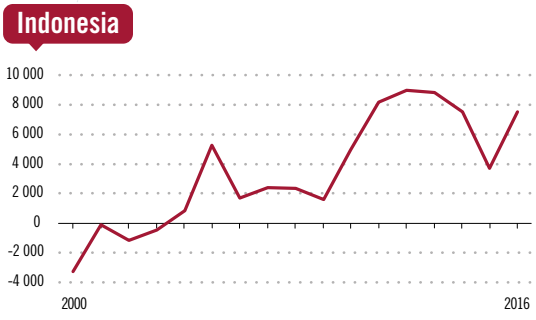
FIGURE 3.2

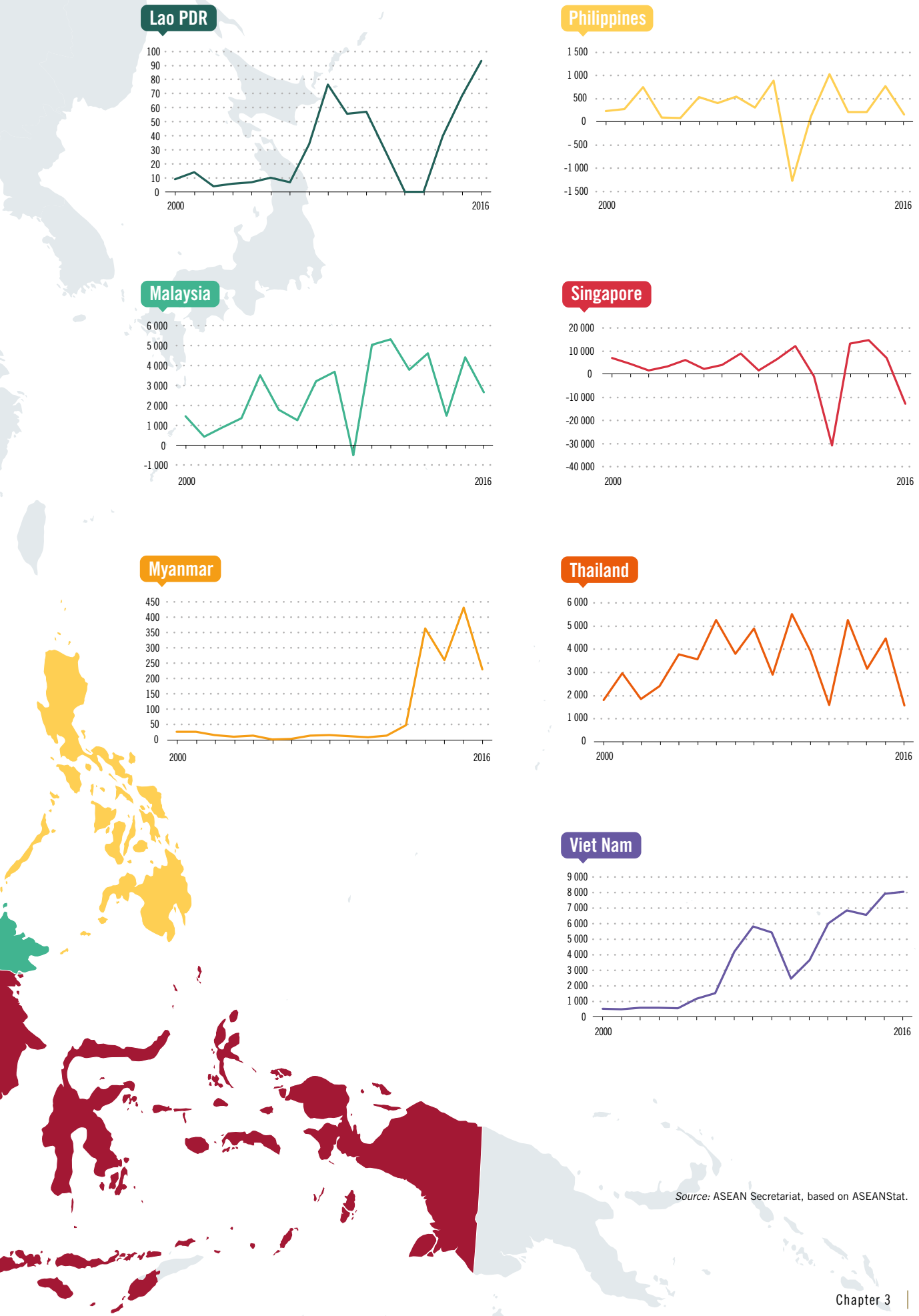
ASEAN: inward flows in manufacturing FDI, 2000–2016

(Millions of dollars)



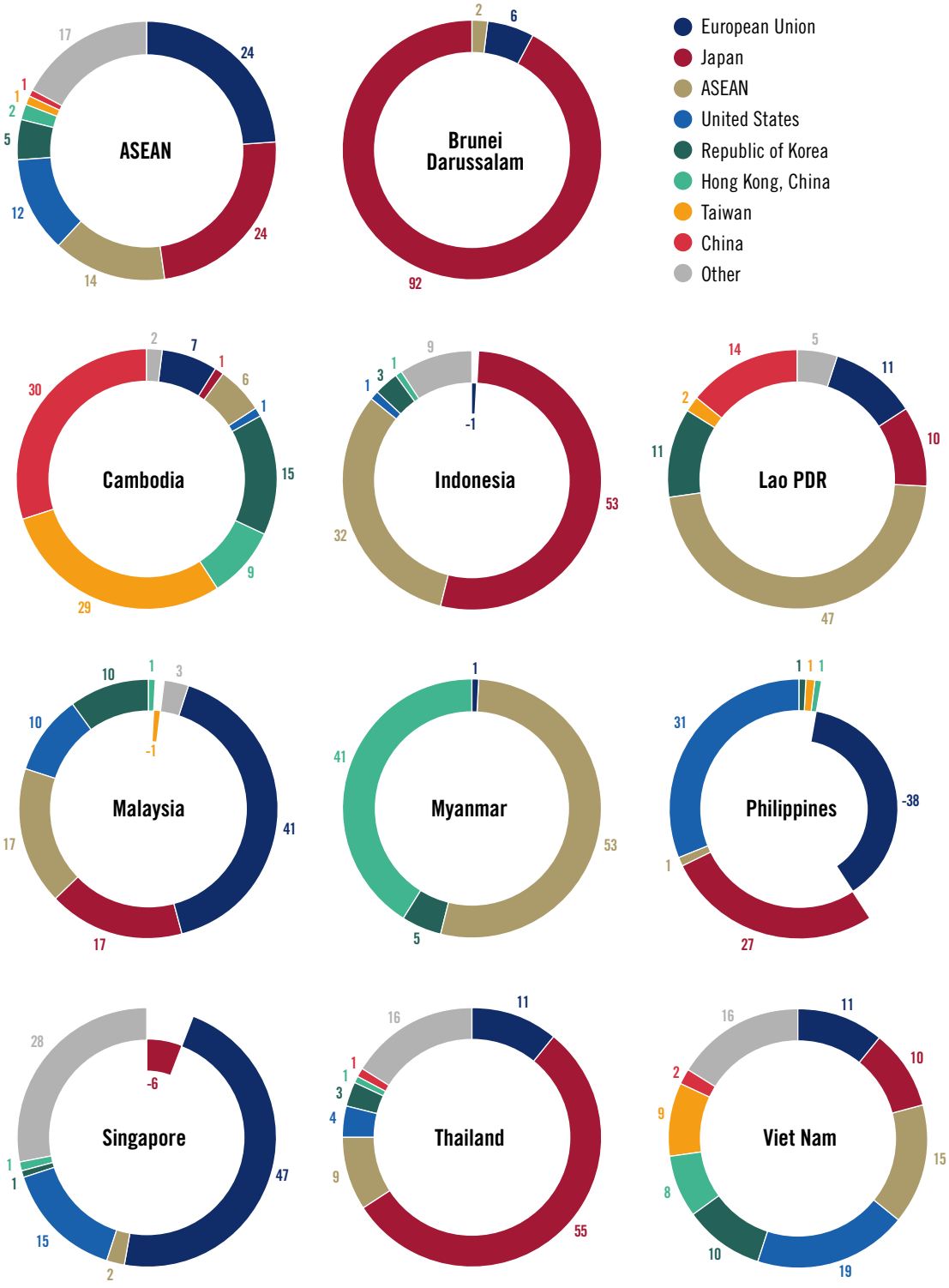






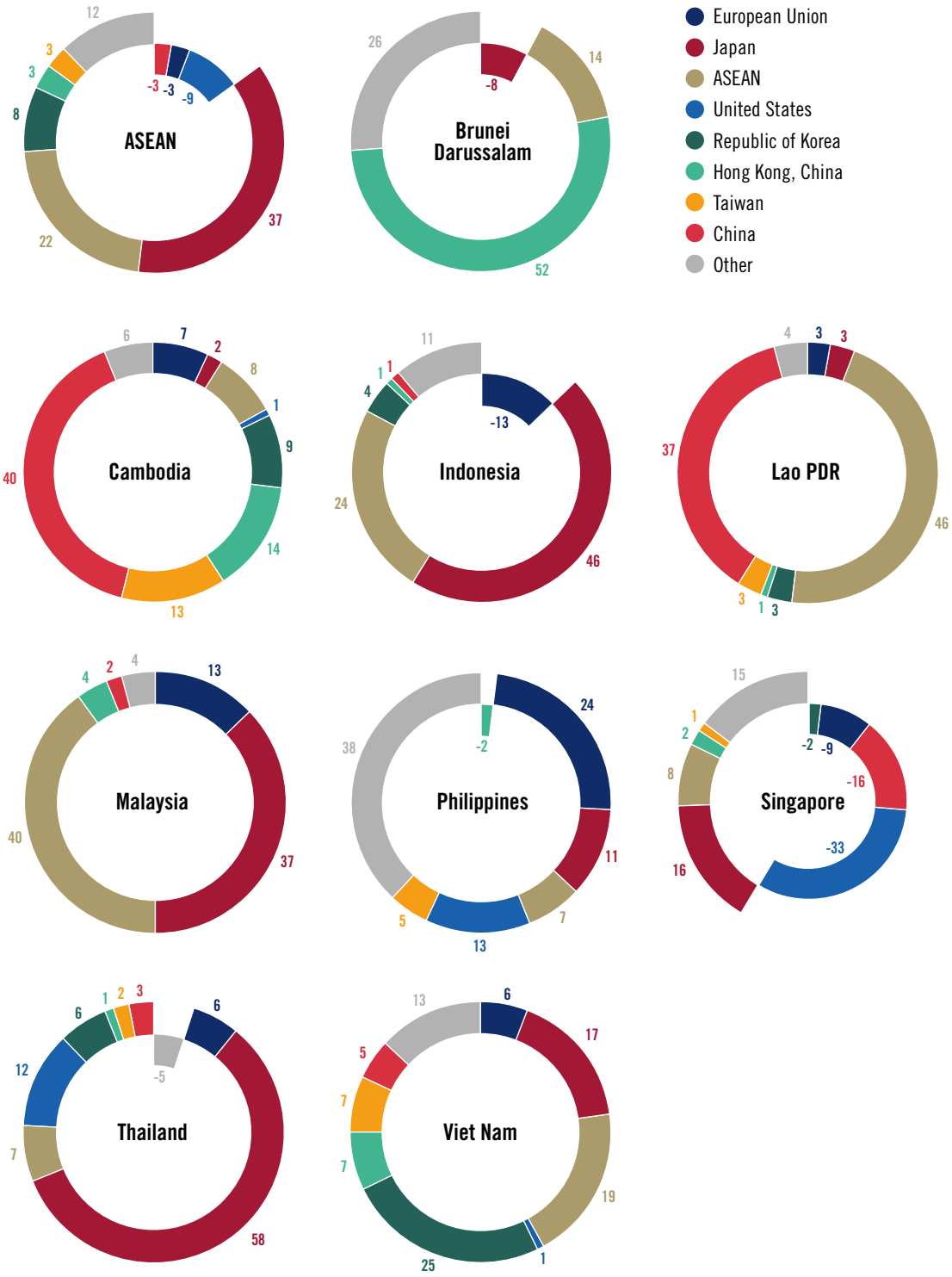
Source: ASEAN Secretariat, based on ASEANStat.

FIGURE 3.3 Manufacturing FDI inflows by source economy, 2007–2011 *(Per cent)*



Source: ASEAN Secretariat.

FIGURE 3.4 Manufacturing FDI inflows by source economy, 2012–2016 *(Per cent)*



Source: ASEAN Secretariat.

TABLE 3.4 Selected examples of regional value chains in ASEAN established by foreign MNEs

Company	Industry	Key value chain segments in ASEAN	Principal countries in RVC	Selected linkages in RVC
Infineon (Germany)	Electronics (Integrated circuits)	• Fabrication • Testing • Manufacturing • Sales and distribution • Regional headquarters functions	• Malaysia, Singapore and Indonesia for manufacturing activities, with distribution and sales in most ASEAN Member States	• Wafer fabrication in Malaysia and Singapore • Intrafirm facilities in these two host countries • Testing and packaging of integrated chips in Malaysia; back-end manufacturing in Indonesia and Singapore • Regional headquarters operations in Singapore • Connects with suppliers based in the region such as BASF and Siemens, especially in Malaysia
Mazda Motor (Japan)	Motor vehicles	• Vehicle manufacture/assembly • Component manufacturing • Sales and distribution	• Indonesia, Malaysia, Thailand and Viet Nam • Other companies connected through sales and distribution, as well as suppliers' RVCs	• Intracompany facilities in Malaysia and Thailand • Cross-country connections through affiliates in Malaysia, Thailand and Viet Nam • Strong relationship with foreign-owned suppliers (e.g. Toyo Tyres, Panasonic, NSK) in the region and local companies in the host country • Strong relationship with local suppliers • Joint venture partners with local companies such as Bermaz Motor (Malaysia) • Distribution centres in various ASEAN Member States
Western Digital (United States)	Electronics (HDD manufacturer)	• Manufacturing • Assembly • Sourcing and outsourcing • Marketing and distribution • Regional headquarters operation	• Manufacturing and assembly operations in Malaysia and Thailand • Operations in Singapore; distribution activities in other ASEAN Member States • Source parts and components from suppliers operating in Malaysia, Singapore, Thailand and other ASEAN Member States	• Conducts intrafirm activities involving production of key HDD parts and assembly functions, which link affiliates in Malaysia, Thailand and Singapore • Many foreign and local suppliers operating in ASEAN, supplying specific and precision components

Source: Adapted from ASEAN Secretariat and UNCTAD 2014.

Note: HDD = hard disk drive, RVC = regional value chain.

TABLE 3.5 Selected top foreign MNEs in manufacturing by total assets in ASEAN, 2016 *(Millions of dollars)*

Company	Home country	Principal Industry	Total assets in ASEAN ($ millions)	Presence (number of countries in which present)		Number of principal subsidiaries in ASEAN	ASEAN Member States in which principally present
				Foreign	ASEAN		
Qualcomm	United States	Computer and electronic products	26,600	26	1	5	Singapore
Toyota Motor Corp	Japan	Motor vehicles and transportation equipment	24,000	127	9	80	Malaysia, Thailand, Indonesia, Viet Nam, Philippines, Singapore, Brunei Darussalam, Cambodia, Lao PDR
Pfizer	United States	Pharmaceuticals	13,900	79	5	40	Singapore, Thailand, Malaysia, Philippines, Indonesia
General Electric Co	United States	Electrical and general machinery	13,500	103	6	80	Singapore, Malaysia, Indonesia, Thailand, Viet Nam, Philippines
Tata Steel Ltd	India	Other manufacturing	13,400	44	6	42	Singapore, Thailand, Malaysia, Philippines, Indonesia, Viet Nam
Apple	United States	Computer and electronic products	12,800	32	2	3	Singapore, Indonesia
Agilent Technologies	United States	Computer and electronic products	12,700	35	3	11	Singapore, Malaysia
Keysight Technologies	United States	Computer and electronic products	11,300	17	1	5	Singapore
Honda Motor Co Ltd	Japan	Motor vehicles and transportation equipment	9,744	39	6	81	Thailand, Indonesia, Malaysia, Philippines, Singapore, Viet Nam
Dow Chemical Co	United States	Chemicals and chemical products	9,717	67	6	49	Thailand, Singapore, Indonesia, Malaysia, Philippines, Viet Nam
Lenovo Group	Hong Kong (China)	Computer and electronic products	8,849	40	3	5	Thailand, Singapore, Malaysia
Panasonic Corp	Japan	Electrical and general machinery	8,614	57	6	79	Thailand, Malaysia, Singapore, Indonesia, Viet Nam, Philippines
HP Inc	United States	Computer and electronic products	8,569	84	6	29	Singapore, Indonesia, Malaysia, Philippines, Thailand, Cambodia
GlaxoSmithKline Plc	United Kingdom	Pharmaceuticals	8,472	91	7	32	Singapore, Malaysia, Philippines, Indonesia, Thailand, Viet Nam, Cambodia
Texas Instruments Inc	United States	Computer and electronic products	8,148	32	3	10	Malaysia, Singapore, Philippines
Danone	France	Food and beverages	7,912	80	7	31	Singapore, Indonesia, Philippines, Malaysia, Viet Nam, Thailand, Brunei Darussalam
Western Digital	United States	Computer and electronic products	7,465	33	4	21	Singapore, Malaysia, Philippines, Thailand

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Company	Home country	Principal Industry	Total assets in ASEAN ($ millions)	Presence (number of countries in which present)		Number of principal subsidiaries in ASEAN	ASEAN Member States in which principally present
				Foreign	ASEAN		
Seagate Technology Plc	Ireland	Computer and electronic products	6,573	29	4	14	Singapore, Malaysia, Philippines, Thailand
Nestle	Switzerland	Food and beverages	6,450	120	7	30	Malaysia, Philippines, Singapore, Thailand, Indonesia, Philippines, Cambodia
Applied Materials Inc	United States	Computer and electronic products	6,337	26	5	8	Singapore, Indonesia, Malaysia, Philippines, Thailand
Hitachi Ltd	Japan	Electrical and general machinery	5,800	62	8	114	Malaysia, Singapore, Thailand, Indonesia, Philippines, Viet Nam, Myanmar, Cambodia
LafargeHolcim Ltd	Switzerland	Other manufacturing	5,654	76	6	11	Philippines, Thailand, Indonesia, Cambodia, Malaysia, Singapore
Philip Morris International Inc	United States	Other manufacturing	5,405	74	5	20	Indonesia, Malaysia, Philippines, Singapore, Viet Nam
ASUSTeK Computer Corp	Taiwan	Computer and electronic products	5,393	39	6	17	Singapore, Malaysia, Indonesia, Viet Nam, Brunei Darussalam, Thailand
Isuzu Motors Ltd	Japan	Motor vehicles and transportation equipment	4,858	45	6	44	Thailand, Indonesia, Malaysia, Viet Nam, Philippines, Singapore
Asahi group holdings ltd.	Japan	Food and beverages	4,787	35	9	133	Thailand, Malaysia, Indonesia, Philippines, Singapore, Viet Nam, Myanmar, Cambodia, Lao PDR
International Business Machines Corp	United States	Electrical and general machinery	4,350	92	6	26	Singapore, Thailand, Philippines, Malaysia, Viet Nam, Indonesia
Daimler	Germany	Motor vehicles and transportation equipment	3,856	51	6	17	Indonesia, Thailand, Singapore, Malaysia, Viet Nam, Philippines
Lotte Chemical Corp	Republic of Korea	Chemicals and chemical products	3,702	10	1	2	Malaysia
Toshiba Corp	Japan	Computer and electronic products	3,588	46	6	69	Singapore, Malaysia, Thailand, Indonesia, Viet Nam, Philippines
Jabil Circuit Inc	United States	Computer and electronic products	3,579	45	5	14	Singapore, Malaysia, Indonesia, Thailand, Viet Nam
Bridgestone Corp	Japan	Other manufacturing	3,577	57	6	55	Thailand, Singapore, Philippines, Malaysia, Indonesia, Viet Nam
BMW	Germany	Motor vehicles and transportation equipment	3,546	42	5	17	Malaysia, Singapore, Thailand, Indonesia, Philippines
Nissan Motor Co Ltd	Japan	Motor vehicles and transportation equipment	3,530	45	7	107	Thailand, Indonesia, Malaysia, Viet Nam, Singapore, Lao PDR
NXP Semiconductors NV	Netherlands	Computer and electronic products	3,416	35	4	14	Malaysia, Philippines, Singapore, Thailand
Samsung Electronics Co, Ltd	Republic of Korea	Computer and electronic products	3,394	69	6	36	Malaysia, Singapore, Thailand, Philippines, Viet Nam, Indonesia

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Company	Home country	Principal Industry	Total assets in ASEAN ($ millions)	Presence (number of countries in which present)		Number of principal subsidiaries in ASEAN	ASEAN Member States in which principally present
				Foreign	ASEAN		
Merck & Co, Inc	United States	Pharmaceuticals	3,383	73	6	37	Singapore, Malaysia, Indonesia, Philippines, Thailand, Viet Nam
Denso Corp	Japan	Motor vehicles and transportation equipment	3,313	131	9	46	Thailand, Indonesia, Malaysia, Philippines, Viet Nam, Cambodia, Singapore, Myanmar, Brunei Darussalam
Daikin Industries Ltd	Japan	Electrical and general machinery	3,312	48	6	77	Malaysia, Thailand, Singapore, Viet Nam, Indonesia, Philippines
First Solar, Inc	United States	Computer and electronic products	3,284	13	3	4	Viet Nam, Singapore, Malaysia
Mitsubishi Motors Corp	Japan	Motor vehicles and transportation equipment	3,213	42	6	116	Thailand, Indonesia, Malaysia, Philippines, Viet Nam, Singapore
Mitsubishi Electric Corp	Japan	Electrical and general machinery	3,182	42	7	60	Thailand, Singapore, Malaysia, Indonesia, Viet Nam, Philippines, Myanmar
Sony Corp	Japan	Computer and electronic products	3,169	52	6	27	Thailand, Malaysia, Singapore, Indonesia, Philippines, Viet Nam
3m Co	United States	Other manufacturing	2,868	72	6	14	Singapore, Malaysia, Indonesia, Philippines, Thailand, Viet Nam
BASF	Germany	Chemicals and chemical products	2,845	93	7	27	Malaysia, Thailand, Singapore, Indonesia, Philippines, Myanmar, Viet Nam
Kubota Corp	Japan	Electrical and general machinery	2,839	34	7	32	Thailand, Indonesia, Singapore, Malaysia, Viet Nam, Myanmar, Philippines
Fonterra Co-operative Group Ltd	New Zealand	Food and beverages	2,559	19	4	10	Singapore, Malaysia, Indonesia, Thailand
Heidelberg Cement AG	Germany	Other manufacturing	2,530	63	6	51	Malaysia, Indonesia, Singapore, Brunei Darussalam, Myanmar, Thailand
Infineon Technologies AG	Germany	Computer and electronic products	2,516	36	4	16	Singapore, Malaysia, Philippines, Indonesia
Nidec Corp	Japan	Computer and electronic products	2,490	41	7	58	Thailand, Singapore, Viet Nam, Indonesia, Philippines, Malaysia, Cambodia

Source: ASEAN Secretariat, based on data extracted from Bureau van Dijk's Orbis database.

Notes: 1. This table provides an "order of magnitude" insight on key foreign MNE players in ASEAN, not a ranking per se. Some MNEs do not provide details of their assets in ASEAN countries (or do so only to a limited extent). Other MNEs provide asset details only for their largest subsidiaries. Companies with complex structures, e.g. those with a holding company, do not appear separately from their major subsidiary companies where the subsidiaries are companies in their own right. There are several issues concerning prospective MNEs owned by States; e.g. many are not listed and do not provide financial data, while others are not primarily engaged in FDI. Thus, State-owned enterprises that operate subsidiaries overseas are included, but not sovereign wealth funds because their overseas investments are primarily portfolio in nature. The asset numbers here mainly reflect the scale of these top MNEs' investments in ASEAN, but they should not be used as a basis for a definitive ranking; and the potential scale and significance of excluded MNEs for the reasons given should be borne in mind.

2. The industry type indicated for each MNE is that assigned to the parent company by Orbis; local subsidiaries might be involved in different industries and activities.

TABLE 3.6 Selected top manufacturing ASEAN MNEs by total assets, 2016 *(Millions of dollars)*

Company	Home country	Principal manufacturing Industry	Total assets in ASEAN ($ millions)	Presence (number of countries in which present)		Number of principal subsidiaries in ASEAN	ASEAN Member States in which present
				Foreign	ASEAN		
Wilmar International Ltd	Singapore	Food and beverages	37,000	43	5	128	Malaysia, Indonesia, Viet Nam, Philippines, Myanmar
San Miguel Corp	Philippines	Food and beverages	26,200	19	5	29	Malaysia, Thailand, Viet Nam, Indonesia, Singapore
Keppel Corp Ltd	Singapore	Transportation equipment	20,200	39	7	115	Malaysia, Thailand, Viet Nam, Indonesia, Philippines, Myanmar, Cambodia
PT Astra International Tbk	Indonesia	Motor vehicles and heavy machinery	19,500	4	2	6	Singapore, Viet Nam
Asia Pulp & Paper Co Ltd	Indonesia	Pulp and paper	17,500	14	2	6	Singapore, Malaysia
LT Group, Inc	Philippines	Food and beverages	16,600	1	1	2	Singapore
Charoen Pokphand Foods Pcl	Thailand	Food and beverages	16,200	29	7	28	Malaysia, Cambodia, Lao PDR, Singapore, Philippines, Viet Nam, Myanmar
The Siam Cement Pcl	Thailand	Cement	15,100	32	8	165	Viet Nam, Indonesia, Singapore, Philippines, Malaysia, Myanmar, Cambodia, Lao PDR
JG Summit Holdings Inc	Philippines	Food and beverages	13,400	14	6	80	Singapore, Thailand, Malaysia, Viet Nam, Myanmar, Indonesia
Flex Ltd	Singapore	Computer and electronic products	12,400	52	4	30	Malaysia, Philippines, Thailand, Indonesia
PTT Global Chemical Pcl	Thailand	Chemicals and chemical products	11,000	16	3	12	Malaysia, Lao PDR, Singapore
YTL Power International Bhd	Malaysia	Electrical and general machinery	10,800	9	2	10	Singapore, Indonesia
DRB-Hicom Bhd	Malaysia	Motor vehicles	10,700	17	7	14	Thailand, Viet Nam, Myanmar, Indonesia, Philippines, Singapore, Cambodia
Alliance Global Group, Inc	Philippines	Food and BEVERAGES	9,862	41	5	20	Singapore, Thailand, Viet Nam, Malaysia, Indonesia
Indorama Ventures Pcl	Thailand	Chemicals and chemical products	7,211	30	5	10	Indonesia, Singapore, Malaysia, Myanmar, Philippines
Petronas Chemicals Group Bhd	Malaysia	Chemicals and chemical products	7,121	4	2	3	Thailand, Viet Nam
Sembcorp Marine Ltd	Singapore	Transportation equipment	6,509	27	2	6	Indonesia, Malaysia
Pupuk Indonesia PT (Persero)	Indonesia	Chemicals and chemical products	6,115	1	0	0	Subsidiaries in other parts of Asia
Sime Darby Plantation Sdn Bhd	Malaysia	Food and beverages	5,251	19	3	33	Indonesia, Thailand Singapore
IRPC Public Company Ltd	Thailand	Chemicals and chemical products	4,810	5	4	8	Singapore, Lao PDR, Philippines, Viet Nam

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Company	Home country	Principal manufacturing Industry	Total assets in ASEAN ($ millions)	Presence (number of countries in which present)		Number of principal subsidiaries in ASEAN	ASEAN Member States in which present
				Foreign	ASEAN		
Batu Kawan Bhd	Malaysia	Chemicals and chemical products	4,779	8	2	9	Singapore, Indonesia
Thai Union Group Pcl	Thailand	Food and beverages	3,973	23	1	1	Viet Nam
Mitr Phol Sugar Corp Ltd	Thailand	Food and beverages	3,680	14	5	31	Singapore, Indonesia, Lao PDR, Philippines, Cambodia
Umw Holdings Bhd	Malaysia	Motor vehicles and equipment	3,625	19	7	26	Singapore, Thailand, Indonesia, Myanmar, Brunei Darussalam, Philippines, Viet Nam
Universal Robina Corp	Philippines	Food and beverages	2,931	12	6	17	Singapore, Viet Nam, Thailand, Myanmar, Malaysia, Indonesia

Source: ASEAN Secretariat, based in data extracted from Bureau van Dijk's ORBIS Database.

Note: 1. This table provides an "order of magnitude" insight on key ASEAN MNEs, not a ranking per se. Total MNE assets are a firm's global consolidated total assets. However, firms' shares of assets overseas differ (such data are scarce for many ASEAN MNEs). Some MNEs do not provide sufficient details about their assets. Companies with complex structures, e.g. those with a holding company, do not appear separately from their major subsidiary companies, where the latter are companies in their own right. There are several issues concerning prospective MNEs owned by States; e.g. many are not listed and do not provide financial data, while others are not primarily engaged in FDI. Thus, State-owned enterprises that operate subsidiaries overseas are included, but not sovereign wealth funds because their overseas investments are primarily portfolio in nature. The asset numbers mainly reflect the scale of these top MNEs' investments in ASEAN, but they should not be used as a basis for a definitive ranking; and the potential scale and significance of excluded MNEs for the reasons given should be borne in mind.

2. The industry type indicated for each MNE in this table is that assigned to the parent company by ORBIS; local subsidiaries might be involved in different industries and activities.

3. Total assets of ASEAN MNEs include those of the parent company.

TABLE 3.7 Selected top ASEAN MNEs in chemicals and chemical products by total assets, 2016 *(Millions of dollars)*

Company	Home country	Total assets in ASEAN ($ millions)	Presence (number of countries in which present)		Number of principal subsidiaries in ASEAN	ASEAN Member States in which present
			Foreign	ASEAN		
PTT Global Chemical Pcl	Thailand	11,000	16	3	12	Malaysia, Lao PDR, Singapore
Batu Kawan Bhd	Malaysia	4,779	8	2	9	Singapore, Indonesia
PT Chandra Asri Petrochemical Tbk	Indonesia	2,129	1	1	1	Singapore
HMC Polymers Co Ltd	Thailand	1,009	16	3	13	Malaysia, Singapore, Lao PDR
Thai Plastic & Chemical Plc	Thailand	739	6	5	20	Viet Nam, Cambodia, Indonesia, Lao PDR, Myanmar
Thai Rayon Pcl	Thailand	603	14	2	2	Indonesia, Lao PDR
Thai Carbon Black Pcl	Thailand	481	10	1	1	Indonesia,
Lautan Luas Tbk	Indonesia	421	4	3	3	Singapore, Thailand, Viet Nam
Pt Lalbe Farma Tbk	Indonesia	1,133	4	3	5	Singapore, Philippines, Malaysia

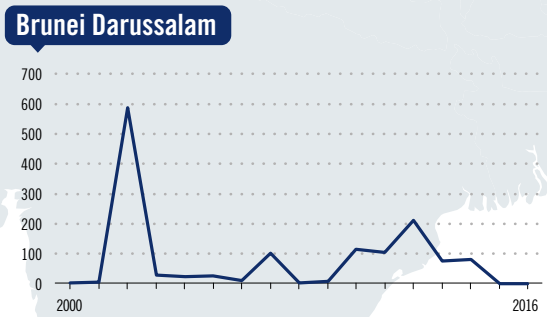
Source: ASEAN Secretariat, based in data extracted from Bureau van Dijk's ORBIS Database.

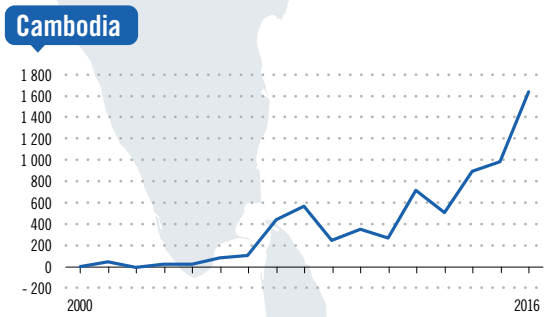
Note: See table 3.6.

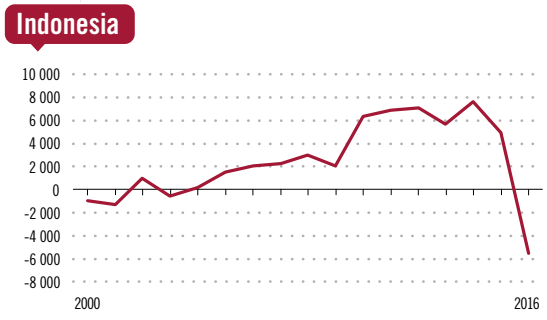
FIGURE 3.5

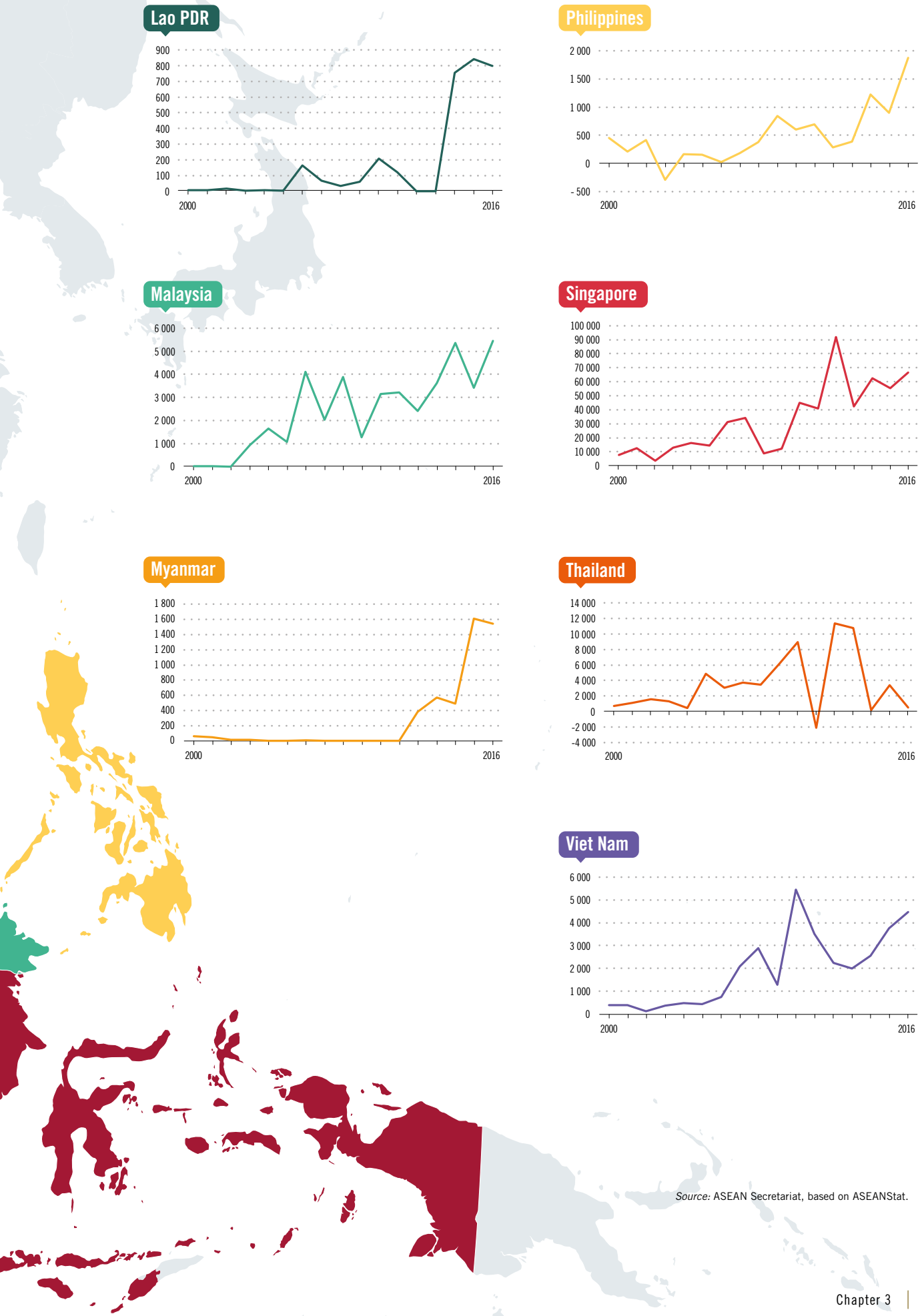
ASEAN: inward flows in services FDI, 2000–2016

(Millions of dollars)



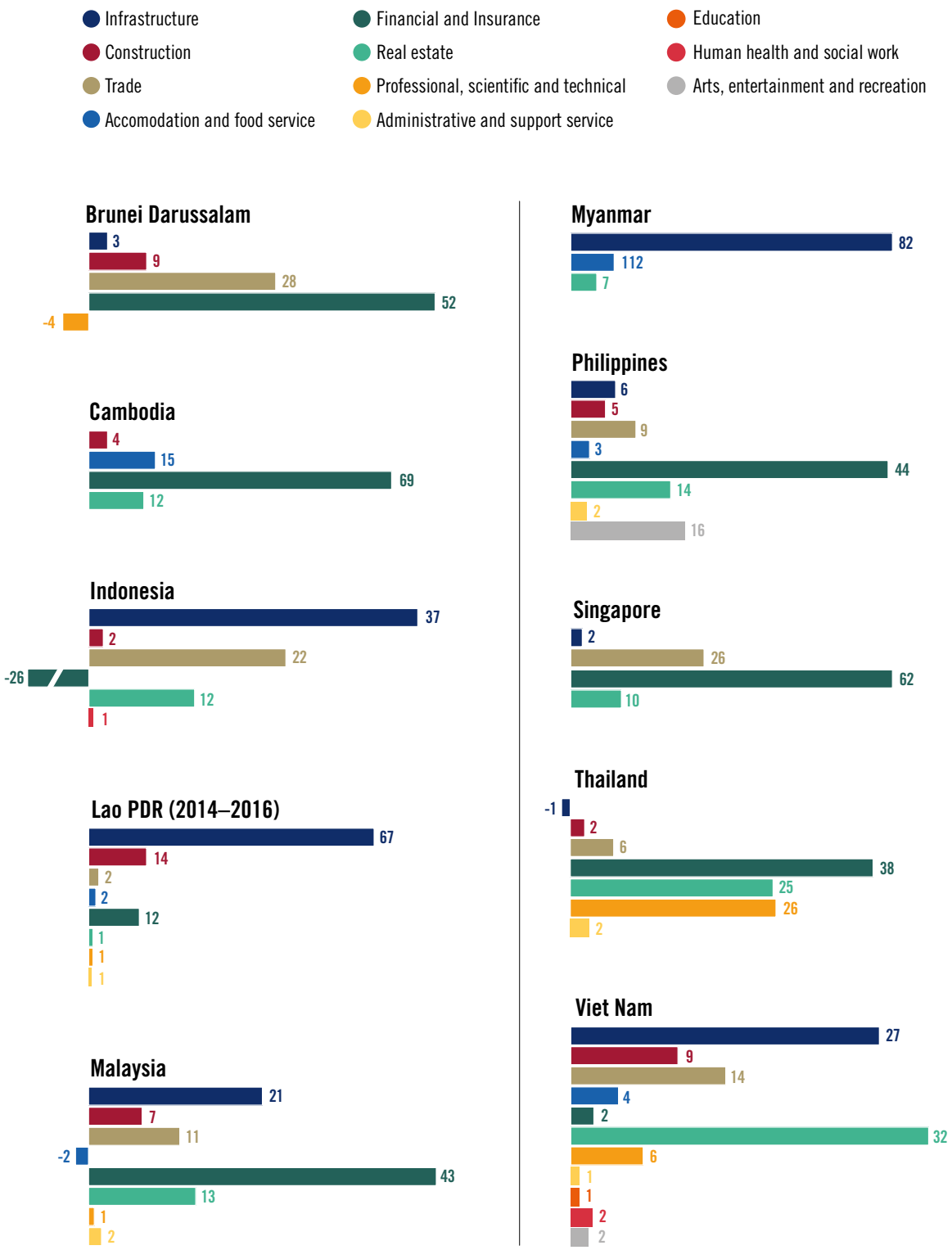






Source: ASEAN Secretariat, based on ASEANStat.

FIGURE 3.6 ASEAN: FDI inflows by service sectors, 2012–2016 *(Per cent)*

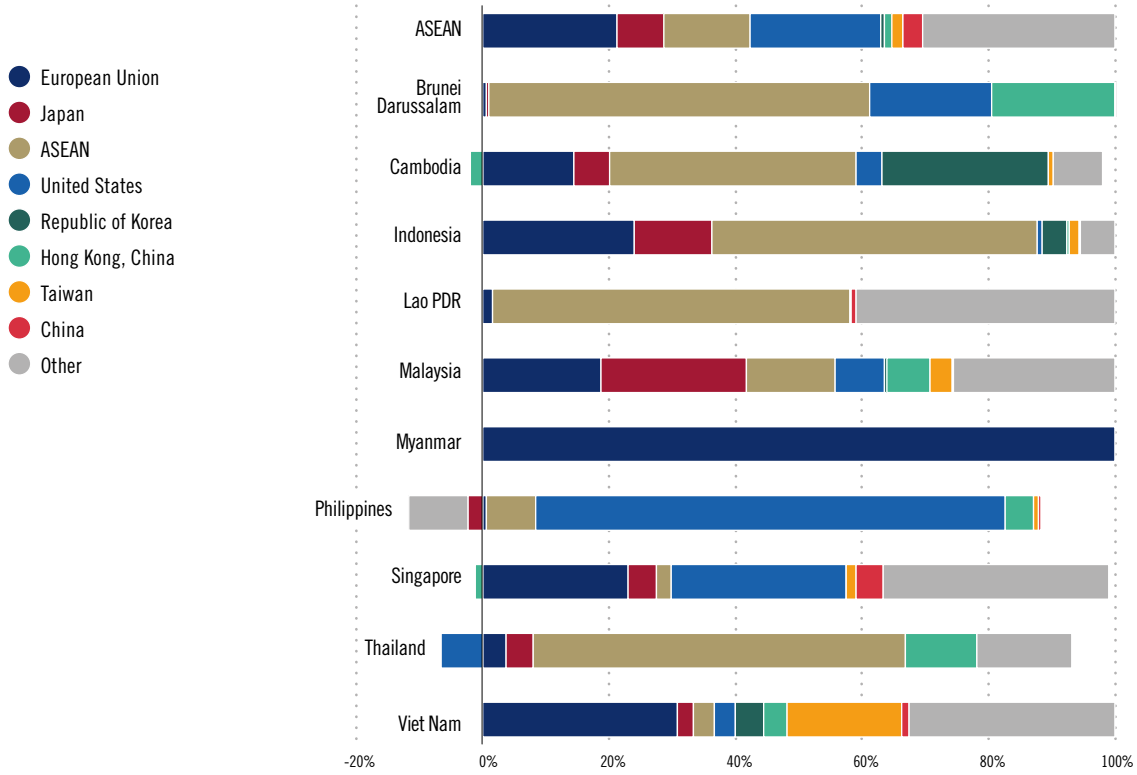


Source: ASEAN Secretariat.

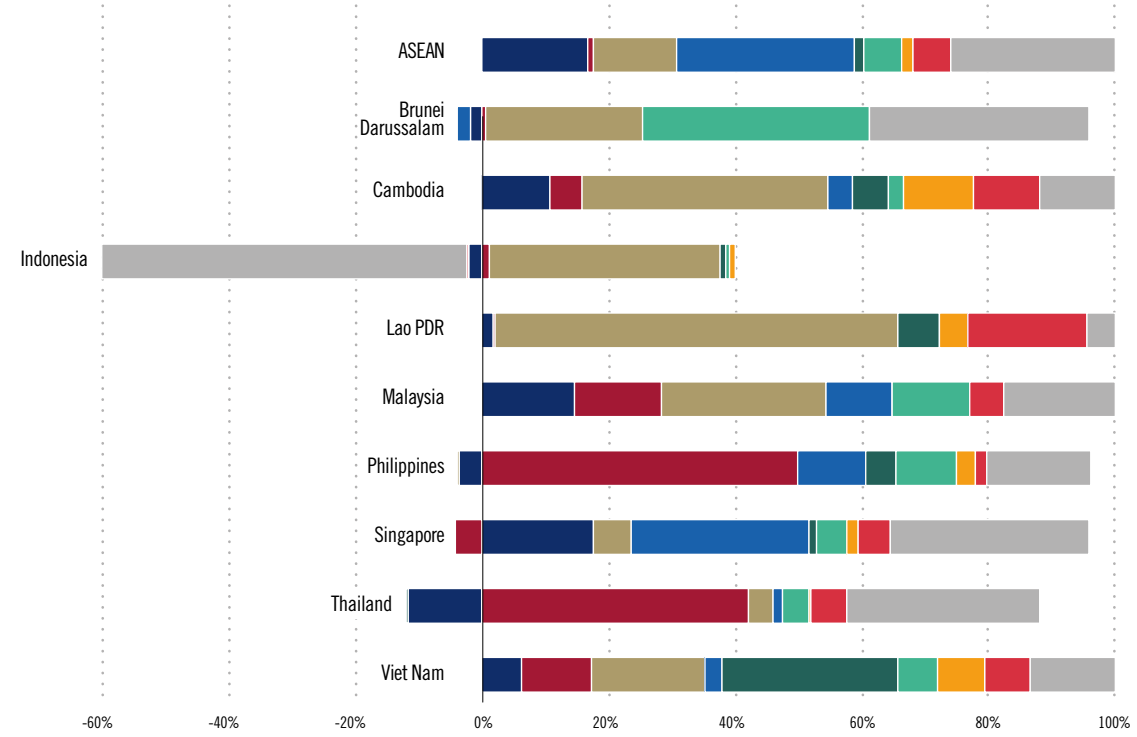
FIGURE 3.7 ASEAN: financial and insurance activities FDI inflows by source economy

(Per cent of total)

a. 2000–2009



b. 2010–2016



Source: ASEAN Secretariat.

TABLE 3.8 Selected top foreign MNEs in the non-financial services sector by total ASEAN assets, 2016 *(Millions of dollars)*

Company	Home country	Principal Industry	Total assets in ASEAN ($ millions)	Presence (number of countries in which present)		Number of principal subsidiaries in ASEAN	ASEAN Member States in which present
				Foreign	ASEAN		
Mitsubishi Corp	Japan	Wholesale and retail trade	9,792	59	8	63	Thailand, Singapore, Indonesia, Malaysia, Viet Nam, Philippines, Brunei Darussalam, Myanmar
Huaneng Power International, Inc	China	Infrastructure and utilities	9,562	15	3	15	Singapore, Indonesia, Thailand
A.P. Moeller - Maersk	Denmark	Transport and logistics	8,573	67	5	21	Viet Nam, Indonesia, Philippines, Singapore, Thailand
Engie	France	Infrastructure and utilities	6,624	38	5	11	Malaysia, Thailand, Singapore, Indonesia, Philippines
Marubeni Corp	Japan	Wholesale and retail trade	6,523	58	6	66	Indonesia, Singapore, Thailand, Philippines, Malaysia, Viet Nam
Electric Power Development Co Ltd	Japan	Infrastructure and utilities	5,581	32	5	31	Thailand, Singapore, Malaysia, Philippines, Indonesia
Microsoft Corp	United States	Information and communication technology	5,192	76	5	16	Singapore, Thailand, Malaysia, Indonesia, Viet Nam
Tesco Plc	United Kingdom	Wholesale and retail trade	5,091	48	3	19	Thailand, Malaysia, Singapore
Noble Group Ltd	Bermuda	Wholesale and retail trade	5,049	28	3	53	Indonesia, Singapore, Malaysia
John Swire & Sons Ltd	United Kingdom	Infrastructure and utilities	4,399	48	7	37	Singapore, Indonesia, Malaysia, Viet Nam, Brunei Darussalam, Philippines, Thailand
Vitol Holding II SA	Luxembourg	Wholesale and retail trade	3,665	51	2	16	Singapore, Malaysia
Mitsui & Co Ltd	Japan	Wholesale and retail trade	3,167	47	9	165	Thailand, Singapore, Malaysia, Indonesia, Philippines, Viet Nam, Cambodia, Lao PDR, Myanmar
Itochu Corp	Japan	Wholesale and retail trade	3,117	45	7	106	Thailand, Singapore, Indonesia, Viet Nam, Brunei Darussalam, Malaysia, Philippines
Wheelock and Company Ltd	Hong Kong (China)	Real estate activities	3,064	13	4	122	Singapore, Malaysia, Thailand, Indonesia
Alphabet Inc	United States	ICT	2,939	46	1	7	Singapore

.../

Company	Home country	Principal Industry	Total assets in ASEAN ($ millions)	Presence (number of countries in which present)		Number of principal subsidiaries in ASEAN	ASEAN Member States in which present
				Foreign	ASEAN		
DKSH Holding AG	Switzerland	Professional, scientific and technical	2,897	31	9	58	Malaysia, Thailand, Singapore, Viet Nam, Cambodia, Brunei Darussalam, Indonesia, Myanmar, Philippines
AEON Co Ltd	Japan	Wholesale and retail trade	2,780	25	9	57	Thailand, Viet Nam, Malaysia, Indonesia, Cambodia, Philippines, Myanmar, Singapore, Lao PDR
Li & Fung Ltd	Hong Kong (China)	Wholesale and retail trade	2,747	43	8	67	Singapore, Thailand, Malaysia, Indonesia, Philippines, Cambodia, Viet Nam, Brunei Darussalam
United Parcel Service Inc (UPS)	United States	Logistics	2,494	42	3	5	Singapore, Thailand, Viet Nam
Sumitomo Corp	Japan	Wholesale and retail trade	2,282	65	8	76	Thailand, Viet Nam, Indonesia, Singapore, Malaysia, Philippines, Myanmar, Cambodia
Indiabulls Real Estate Ltd	India	Real estate activities	2,034	6	1	2	Singapore
Hongkong Land Holdings Ltd	Hong Kong (China)	Real estate activities	1,854	13	6	37	Singapore, Malaysia, Indonesia, Viet Nam, Thailand, Philippines
Toyota Tsusho Corp	Japan	Wholesale and retail trade	1,771	83	7	77	Thailand, Malaysia, Viet Nam, Indonesia, Singapore, Cambodia, Myanmar
U-Ming Marine Transport Corp	Taiwan	Transport and logistics	1,756	23	5	20	Singapore, Thailand, Malaysia, Indonesia, Philippines
Check Point Software Technologies Ltd	Israel	Information and communication technology	1,685	36	1	1	Singapore

Source: ASEAN Secretariat, based in data extracted from Bureau van Dijk's Orbis database.

Note: 1. This table provides an "order of magnitude" insight on key foreign MNE players in ASEAN, not a ranking per se. Some MNEs do not provide details of their assets in ASEAN countries (or do so only to a limited extent). Other MNEs provide asset details only for their largest subsidiaries. Companies with complex structures, e.g. those with a holding company, do not appear separately from their major subsidiary companies where the subsidiaries are companies in their own right. There are several issues concerning prospective MNEs owned by States; e.g. many are not listed and do not provide financial data, while others are not primarily engaged in FDI. Thus, State-owned enterprises that operate subsidiaries overseas are included, but not sovereign wealth funds because their overseas investments are primarily portfolio in nature. The asset numbers here mainly reflect the scale of these top MNEs' investments in ASEAN, but they should not be used as a basis for a definitive ranking; and the potential scale and significance of excluded MNEs for the reasons given should be borne in mind.

2. The industry type indicated for each MNE is that assigned to the parent company by Orbis; local subsidiaries might be involved in different industries and activities.

TABLE 3.9 Selected top ASEAN MNEs in non-financial services by total assets, 2016 *(Millions of dollars)*

Company	Home country	Principal Industry	Total assets in ASEAN ($ millions)	Presence (number of countries in which present)		Number of principal subsidiaries in ASEAN	ASEAN Member States in which present
				Foreign	ASEAN		
Tenaga Nasional Bhd	Malaysia	Infrastructure and utilities	32,800	11	1	1	Indonesia
Singapore Telecommunications Ltd	Singapore	Telecommunication	32,200	53	7	115	Thailand, Malaysia, Philippines, Indonesia, Viet Nam, Cambodia, Lao PDR
Capitaland Ltd	Singapore	Real estate activities	31,600	22	4	37	Malaysia, Viet Nam, Philippines, Cambodia
Global Logistic Properties Ltd	Singapore	Logistics provider	23,100	17	1	1	Malaysia
Jardine Cycle & Carriage Ltd	Singapore	Diversified	21,600	11	5	345	Indonesia, Viet Nam, Thailand, Malaysia, Myanmar
Ayala Corp	Philippines	Diversified	18,300	26	3	37	Viet Nam, Malaysia, Singapore
Singapore Airlines ltd	Singapore	Infrastructure and utilities	17,600	20	5	9	Philippines, Thailand, Indonesia, Malaysia, Viet Nam
SM Investments Corp	Philippines	Real estate activities	17,300	39	5	14	Viet Nam, Indonesia, Malaysia, Singapore, Thailand
YTL Corp Bhd	Malaysia	Construction	16,700	18	4	53	Singapore, Thailand, Indonesia, Viet Nam
Sime Darby Bhd	Malaysia	Diversified	16,000	35	8	110	Indonesia, Singapore, Thailand, Viet Nam, Brunei Darussalam, Cambodia, Myanmar, Philippines
Axiata Group Bhd	Malaysia	Infrastructure and utilities	15,700	27	6	25	Singapore, Indonesia, Indonesia, Philippines, Cambodia, Thailand
Sembcorp Industries Ltd	Singapore	Diversified	15,400	38	5	158	Indonesia, Viet Nam, Malaysia, Myanmar, Philippines
Maxis Communication Bhd	Malaysia	Telecommunication	14,600	4	2	2	Indonesia, Singapore
Hutchison Port Holdings Trust	Singapore	Other service activities	14,600	4	1	2	Thailand
City Developments Ltd	Singapore	Real estate activities	13,700	48	6	98	Myanmar, Malaysia, Thailand, Philippines, Indonesia, Viet Nam

.../

Company	Home country	Principal Industry	Total assets in ASEAN ($ millions)	Presence (number of countries in which present)		Number of principal subsidiaries in ASEAN	ASEAN Member States in which present
				Foreign	ASEAN		
PT Telekomunikasi Indonesia	Indonesia	Telecommunication	13,400	8	2	5	Malaysia, Singapore
MISC Bhd	Malaysia	Infrastructure and utilities	12,500	26	3	15	Singapore, Philippines, Viet Nam
CP All Public Company Ltd	Thailand	Wholesale and retail trade	9,831	7	3	3	Myanmar, Singapore, Viet Nam
PLDT Inc	Philippines	Telecomm.	9,538	31	2	3	Indonesia, Malaysia
UOL Group Ltd	Singapore	Real estate activities	7,991	14	5	18	Malaysia, Thailand, Myanmar, Viet Nam, Indonesia
Thai Airways International Pcl	Thailand	Infrastructure and utilities	7,901	3	1	1	Singapore
Advanced Info Service pcl	Thailand	Infrastructure and utilities	7,693	1	1	1	Singapore
Lopez Holdings Corp	Philippines	Infrastructure and utilities	7,352	11	3	4	Indonesia, Thailand, Singapore
Metro Pacific Investments Corp	Philippines	Infrastructure and utilities	7,058	6	2	7	Viet Nam, Thailand

Source: ASEAN Secretariat, based in data extracted from Bureau van Dijk's ORBIS Database.

Note: 1. This table provides an "order of magnitude" insight on key ASEAN MNEs, not a ranking per se. Total MNE assets are a firm's global consolidated total assets. However, firms' shares of assets overseas differ (such data are scarce for many ASEAN MNEs). Some MNEs do not provide sufficient details about their assets. Companies with complex structures, e.g. those with a holding company, do not appear separately from their major subsidiary companies, where the latter are companies in their own right. There are several issues concerning prospective MNEs owned by States; e.g. many are not listed and do not provide financial data, while others are not primarily engaged in FDI. Thus, State-owned enterprises that operate subsidiaries overseas are included, but not sovereign wealth funds because their overseas investments are primarily portfolio in nature. The asset numbers mainly reflect the scale of these top MNEs' investments in ASEAN, but they should not be used as a basis for a definitive ranking; and the potential scale and significance of excluded MNEs for the reasons given should be borne in mind.

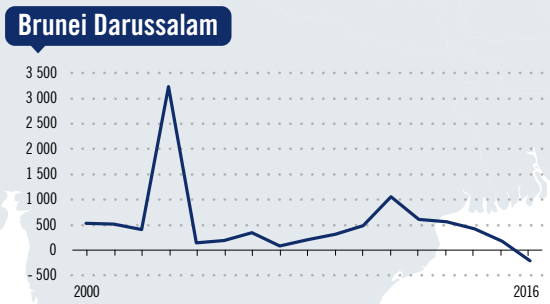
2. The industry type indicated for each MNE in this table is that assigned to the parent company by ORBIS; local subsidiaries might be involved in different industries and activities.

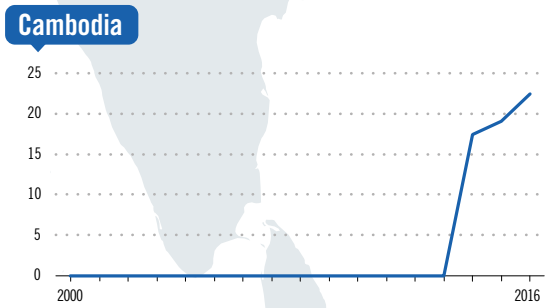
3. Total assets of ASEAN MNEs include those of the parent company.

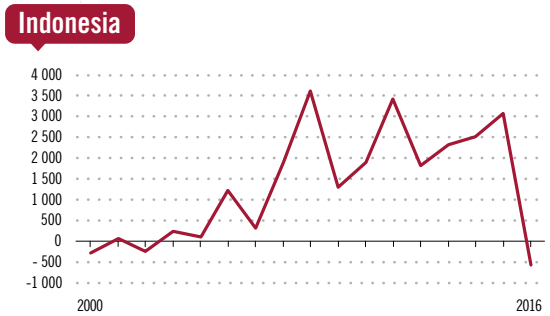
FIGURE 3.8

ASEAN: inward FDI flows in mining, 2000–2016

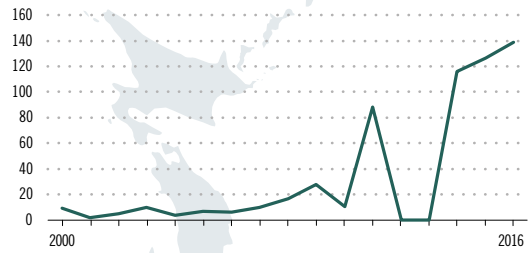
(Millions of dollars)



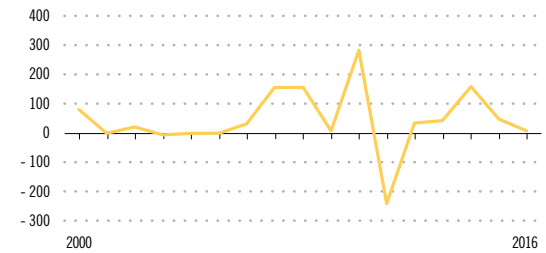




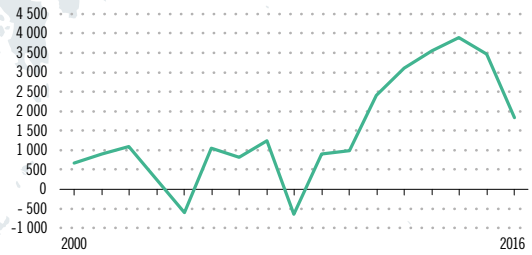
Lao PDR



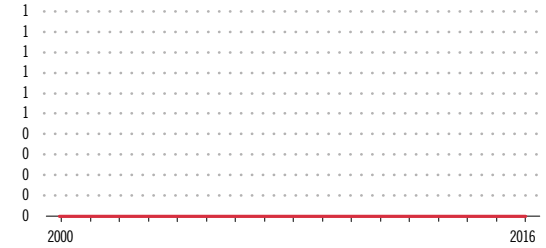
Philippines



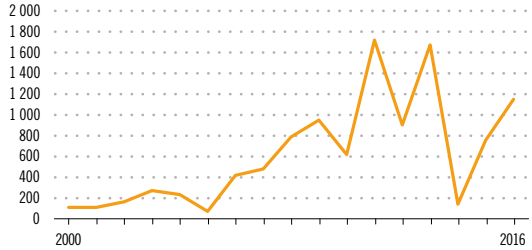
Malaysia



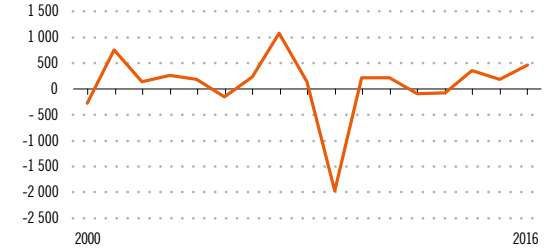
Singapore



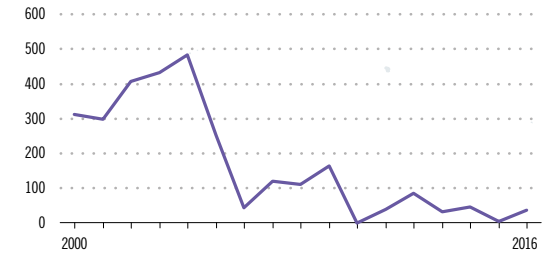
Myanmar



Thailand



Viet Nam



Source: ASEAN Secretariat, based on ASEANStat.

TABLE 3.10 Selected top foreign MNEs in the primary sector by total ASEAN assets, 2016 *(Millions of dollars)*

Company	Home country	Principal Industry	Total assets in ASEAN ($ millions)	Presence (number of countries in which present)		Number of principal subsidiaries in ASEAN	ASEAN Member States in which present
				Foreign	ASEAN		
Royal Dutch Shell Plc	United Kingdom–Netherlands	Oil and gas	42,000	87	8	90	Singapore, Malaysia, Brunei Darussalam, Philippines, Thailand, Indonesia, Cambodia, Viet Nam
Chevron Corp	United States	Oil and gas	9,647	50	5	22	Singapore, Thailand, Indonesia, Philippines, Malaysia
Glencore Plc	United Kingdom-Switzerland	Mining and quarrying	7,998	61	3	37	Singapore, Philippines, Malaysia
Aban Offshore Ltd	India	Oil and gas services	7,055	6	2	17	Singapore, Malaysia
Rio Tinto Plc	United Kingdom	Mining and quarrying	5,015	56	6	34	Singapore, Indonesia, Philippines, Lao PDR, Malaysia, Thailand
BP Plc	United Kingdom	Oil and gas	4,174	82	6	32	Singapore, Malaysia, Indonesia, Thailand, Philippines, Viet Nam
ConocoPhillips	United States	Oil and gas	3,146	24	2	3	Singapore, Malaysia
Total SA	France	Oil and gas	2,192	99	8	20	Singapore, Philippines, Viet Nam, Malaysia, Cambodia, Indonesia, Myanmar, Thailand
Exxon Mobil Corp	United States	Oil and gas	2,518	52	4	22	Thailand, Singapore, Indonesia, Malaysia
Bonheur asa	Norway	Oil and gas services	2,035	26	1	16	Singapore
Repsol s.a.	Spain	Oil and gas	1,819	59	2	4	Singapore, Malaysia
BW Offshore Ltd	Norway	Oil and gas services	1,706	17	2	15	Singapore, Indonesia
Weatherford international Plc	Switzerland	Oil and gas services	1,619	59	5	18	Singapore, Indonesia, Malaysia, Brunei Darussalam, Thailand

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Company	Home country	Principal Industry	Total assets in ASEAN ($ millions)	Presence (number of countries in which present)		Number of principal subsidiaries in ASEAN	ASEAN Member States in which present
				Foreign	ASEAN		
SK innovation Co, Ltd	Republic of Korea	Mining and quarrying	1,605	20	3	14	Singapore, Indonesia, Malaysia
Schlumberger NV	Curaçao	Mining and quarrying	1,540	66	5	36	Malaysia, Singapore, Indonesia, Thailand, Brunei Darussalam
MMA Offshore Ltd	Australia	Mining and quarrying	1,125	3	3	21	Singapore, Malaysia, Indonesia
Petrofac Ltd	United Kingdom	Oil and gas services	837	22	3	10	Malaysia, Singapore, Indonesia
BHP Billiton Ltd	Australia	Mining and quarrying	637	44	4	24	Malaysia, Singapore, Indonesia, Philippines
Petroleum Geo-services ASA	Norway	Oil and gas services	575,315	19	3	8	Malaysia, Singapore, Indonesia
Songa Offshore SE	Cyprus	Oil and gas services	511,952	5	2	6	Singapore, Malaysia
VTTI Energy Partners LP	Marshall Islands	Oil and gas services	354,393	11	1	1	Malaysia
Saipem SpA	Italy	Oil and gas services	308,801	47	3	4	Malaysia, Singapore, Indonesia
Occidental Petroleum Corp	United States	Oil and gas	290,711	23	1	3	Singapore

Source: ASEAN Secretariat, based on data extracted from Bureau van Dijk's Orbis database.

Note: 1. This table provides an "order of magnitude" insight on key foreign MNE players in ASEAN, not a ranking per se. Some MNEs do not provide details of their assets in ASEAN countries (or do so only to a limited extent). Other MNEs provide asset details only for their largest subsidiaries. Companies with complex structures, e.g. those with a holding company, do not appear separately from their major subsidiary companies where the subsidiaries are companies in their own right. There are several issues concerning prospective MNEs owned by States; e.g. many are not listed and do not provide financial data, while others are not primarily engaged in FDI. Thus, State-owned enterprises that operate subsidiaries overseas are included, but not sovereign wealth funds because their overseas investments are primarily portfolio in nature. The asset numbers here mainly reflect the scale of these top MNEs' investments in ASEAN, but they should not be used as a basis for a definitive ranking; and the potential scale and significance of excluded MNEs for the reasons given should be borne in mind.

2. The industry type indicated for each MNE is that assigned to the parent company by Orbis; local subsidiaries might be involved in different industries and activities.

3. Total assets of ASEAN MNEs include those of the parent company.

TABLE 3.11 Selected top ASEAN MNEs in extractive industries by total assets, 2016 *(Millions of dollars)*

Company	Home country	Principal Industry	Total MNE assets ($ millions)	Presence (number of countries in which present)		Number of principal subsidiaries in ASEAN	ASEAN Member States in which present
				Foreign	ASEAN		
Petronas	Malaysia	Oil and gas	138,000	55	5	30	Singapore, Philippines, Thailand, Viet Nam, Indonesia
PTT Exploration & Production Pcl	Thailand	Oil and gas	18,900	16	2	3	Malaysia, Indonesia
Sapura Energy Bhd	Malaysia	Oil and gas	8,454	21	4	22	Singapore, Brunei Darussalam, Thailand, Indonesia
Banpu Pcl	Thailand	Mining and quarrying	6,973	13	4	27	Singapore, Indonesia, Philippines, Lao PDR
PT Adaro Energy	Indonesia	Mining and quarrying	6,522	3	1	3	Singapore
Petron Corp	Philippines	Oil and gas	6,401	11	2	11	Malaysia, Singapore
Medco Energi Internasional	Indonesia	Oil and gas	3,597	9	3	8	Singapore, Malaysia, Cambodia
PT Bumi Resources	Indonesia	Mining and quarrying	3,102	10	1	16	Singapore
PT Berau Coal Energy	Indonesia	Mining and quarrying	1,773	47	7	97	Thailand, Viet Nam, Singapore, Malaysia, Philippines, Cambodia, Lao PDR
PT Energi Mega Persada	Indonesia	Oil and gas	1,516	8	2	8	Singapore, Malaysia
Atlas Consolidated Mining and Development Corp	Philippines	Mining and quarrying	1,483	31	2	3	Indonesia, Malaysia
UMW Oil & Gas Corp Bhd	Malaysia	Oil and gas services	1,460	4	2	7	Singapore, Thailand
Pt Benakat Integra	Indonesia	Oil and gas	1,437	2	1	3	Singapore
Pt Borneo Lumbung Energi & Metal	Indonesia	Mining and quarrying	1,329	2	1	1	Singapore

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Company	Home country	Principal Industry	Total MNE assets ($ millions)	Presence (number of countries in which present)		Number of principal subsidiaries in ASEAN	ASEAN Member States in which present
				Foreign	ASEAN		
Emas Offshore Ltd	Singapore	Oil and gas services	1,315	10	5	41	Malaysia, Brunei Darussalam, Philippines, Thailand, Viet Nam
Petrovietnam Drilling and Well Services Joint Stock Company	Viet Nam	Oil and gas services	1,044	1	1	1	Singapore
PT Bayan Resources	Indonesia	Mining and quarrying	824	2	1	3	Singapore
Philex Mining Corp	Philippines	Mining and quarrying	776	35	3	4	Indonesia, Malaysia, Singapore
PT Timah	Indonesia	Mining and quarrying	710	4	1	1	Singapore

Source: ASEAN Secretariat, based on data extracted from Bureau van Dijk's Orbis DATABASE.

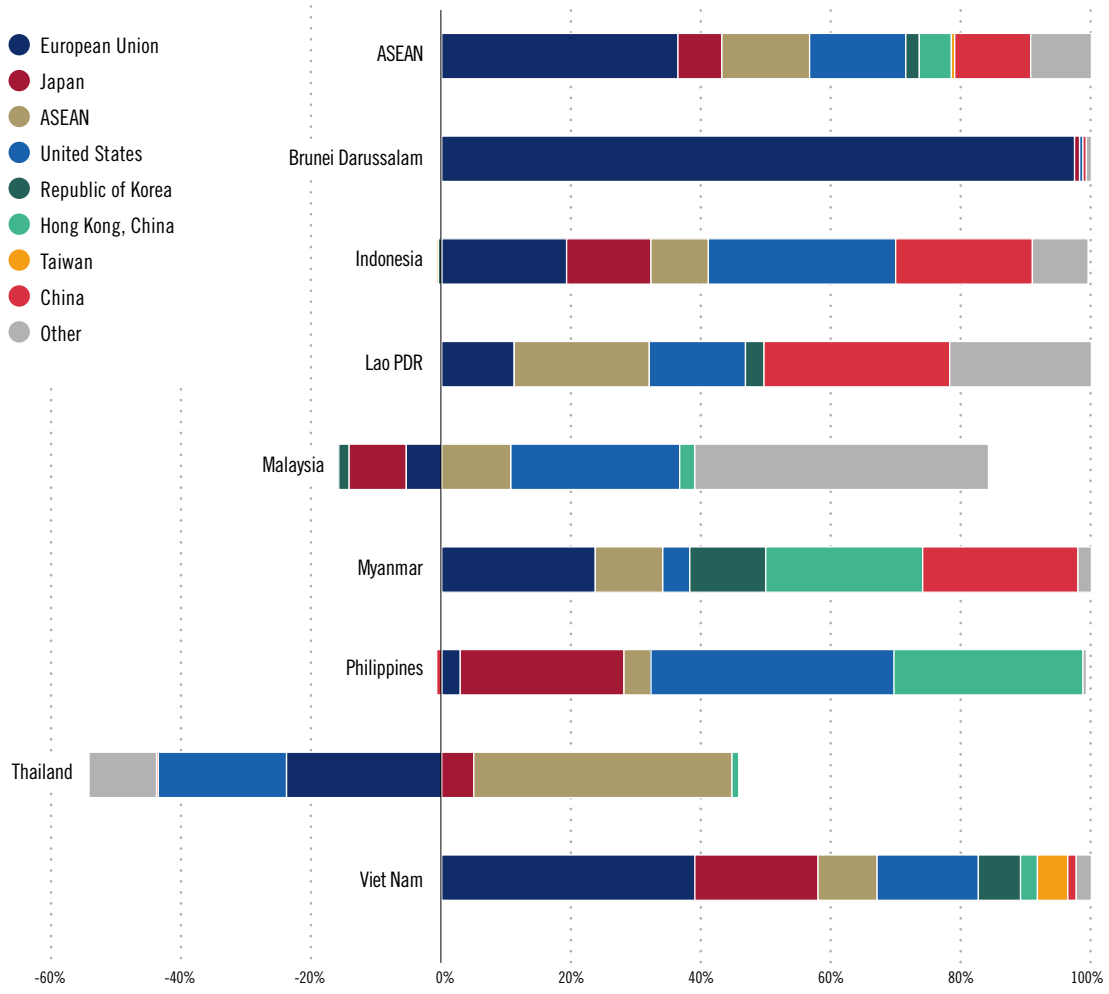
Note: 1. This table provides an "order of magnitude" insight on key ASEAN MNEs, not a ranking per se. Total MNE assets are a firm's global consolidated total assets. However, firms' shares of assets overseas differ (such data are scarce for many ASEAN MNEs). Some MNEs do not provide sufficient details about their assets. Companies with complex structures, e.g. those with a holding company, do not appear separately from their major subsidiary companies, where the latter are companies in their own right. There are several issues concerning prospective MNEs owned by States; e.g. many are not listed and do not provide financial data, while others are not primarily engaged in FDI. Thus, State-owned enterprises that operate subsidiaries overseas are included, but not sovereign wealth funds because their overseas investments are primarily portfolio in nature. The asset numbers mainly reflect the scale of these top MNEs' investments in ASEAN, but they should not be used as a basis for a definitive ranking; and the potential scale and significance of excluded MNEs for the reasons given should be borne in mind.

2. The industry type indicated for each MNE in this table is that assigned to the parent company by ORBIS; local subsidiaries might be involved in different industries and activities.

3. Total assets of ASEAN MNEs include those of the parent company.

FIGURE 3.9 ASEAN: mining and quarrying FDI inflows by source economy, 2000–2009

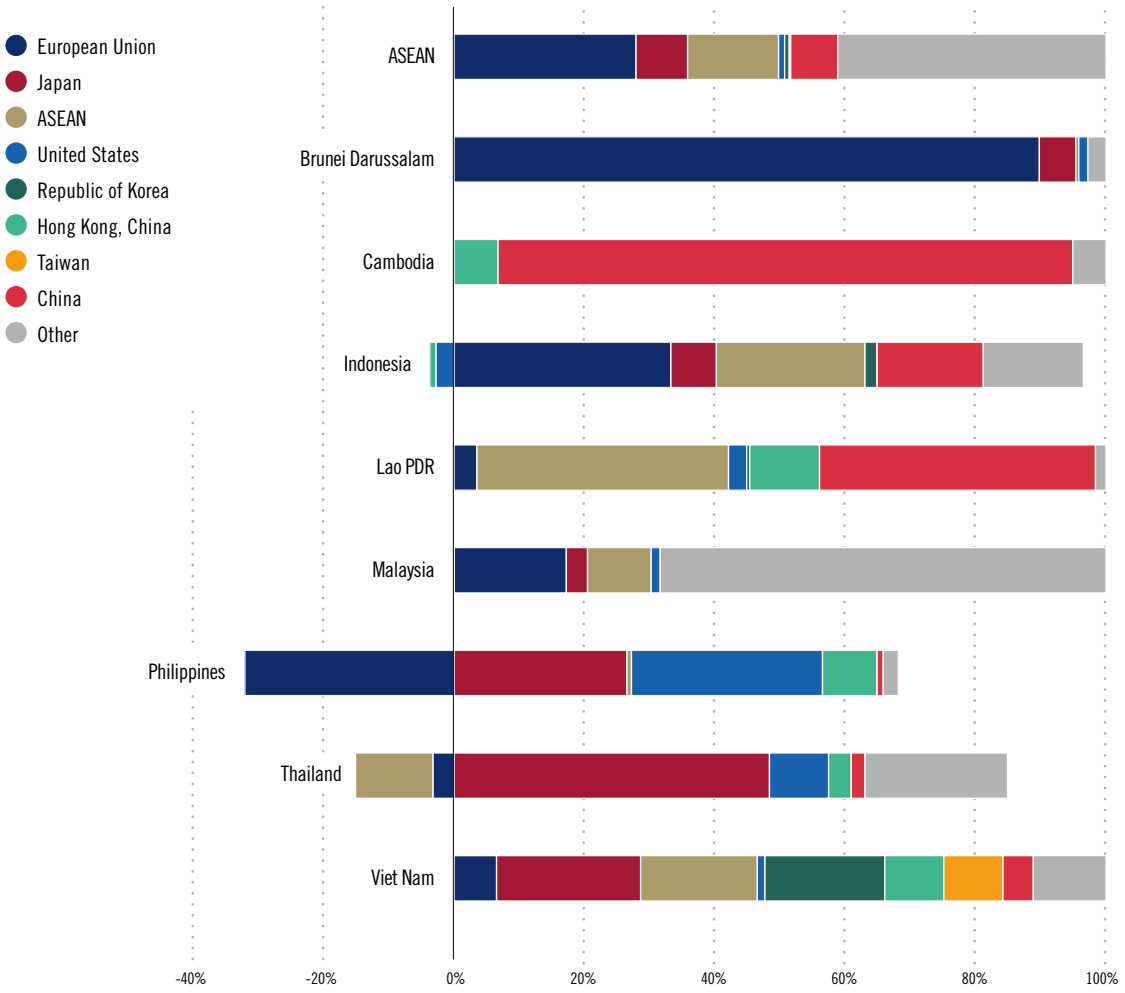
(Per cent of total)



Source: ASEAN Secretariat.

FIGURE 3.10 ASEAN: mining and quarrying FDI inflows by source economy, 2010–2016

(Per cent of total)

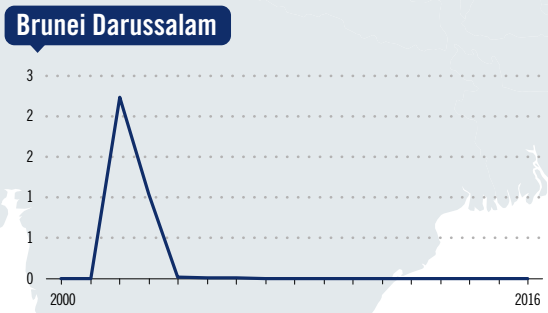


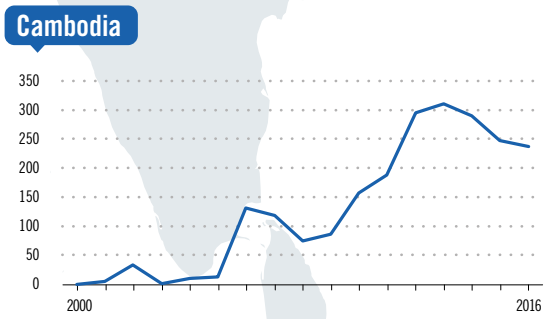
Source: ASEAN Secretariat.

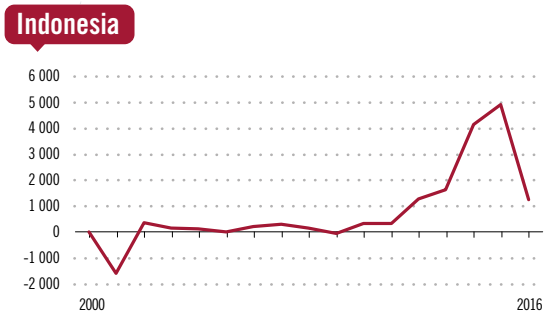
FIGURE 3.11

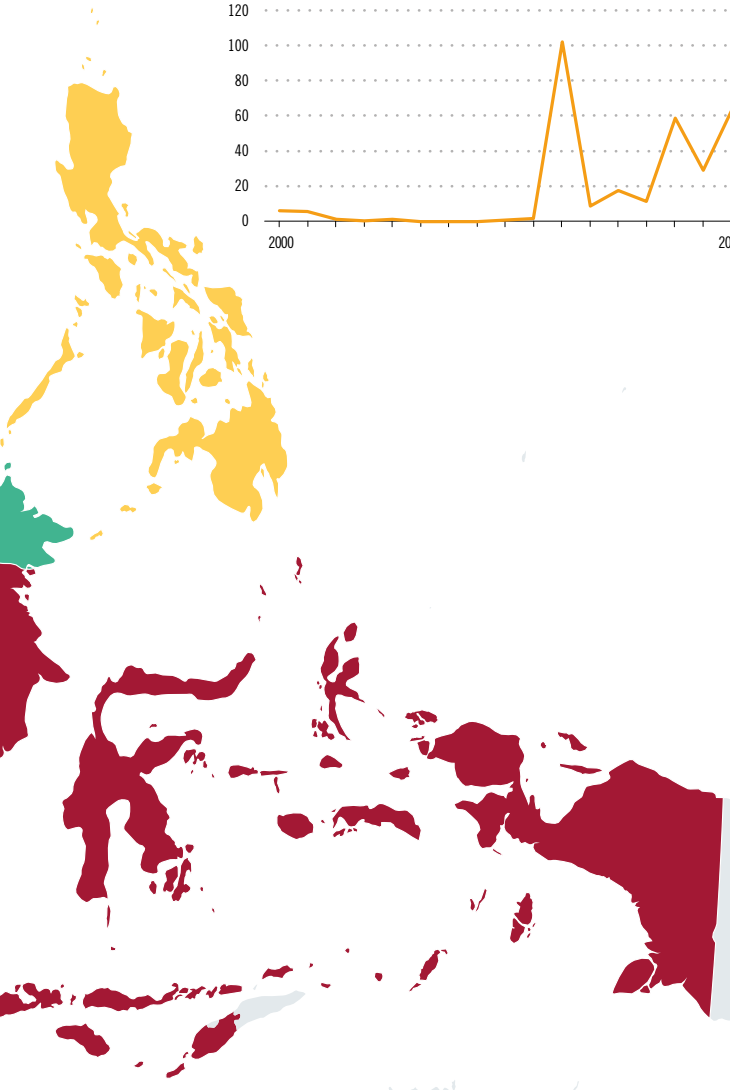
ASEAN: inward FDI flows in agriculture, 2000–2016

(Millions of dollars)

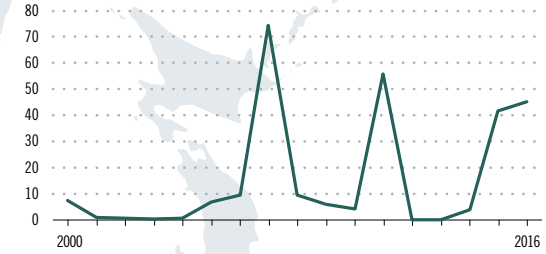




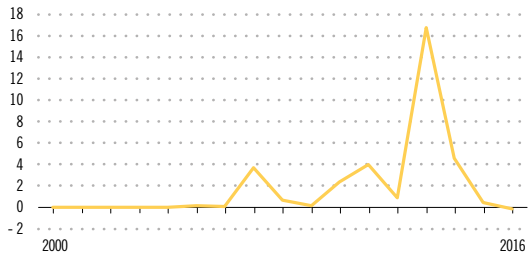




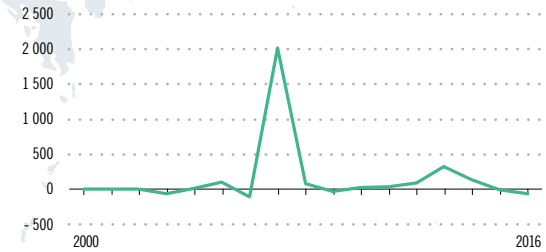
Lao PDR



Philippines



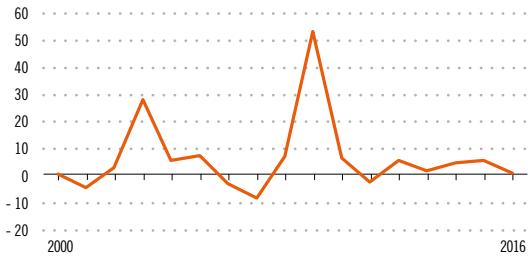
Malaysia



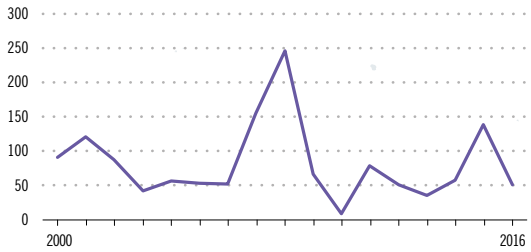
Singapore

Myanmar

Thailand

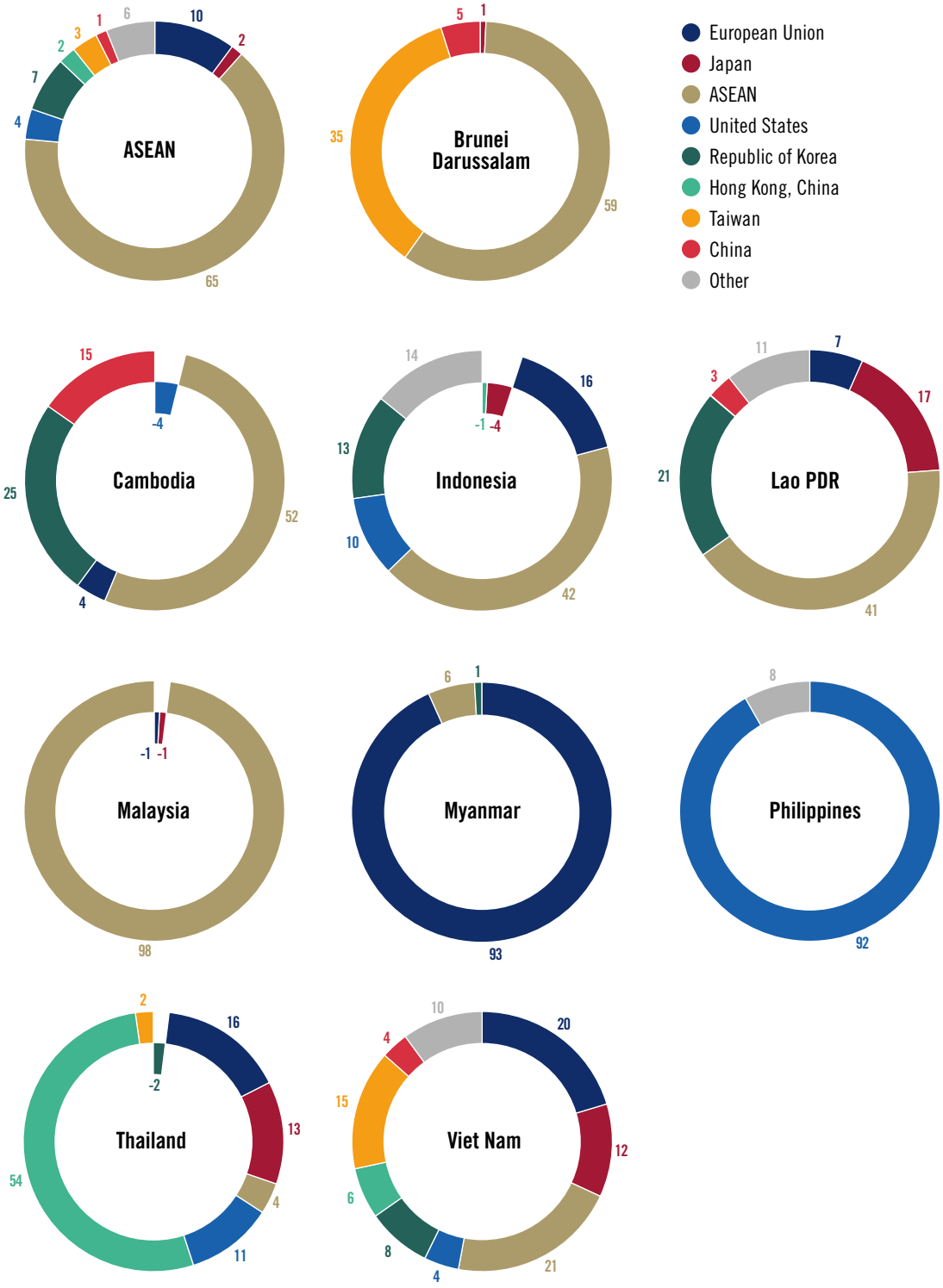


Viet Nam



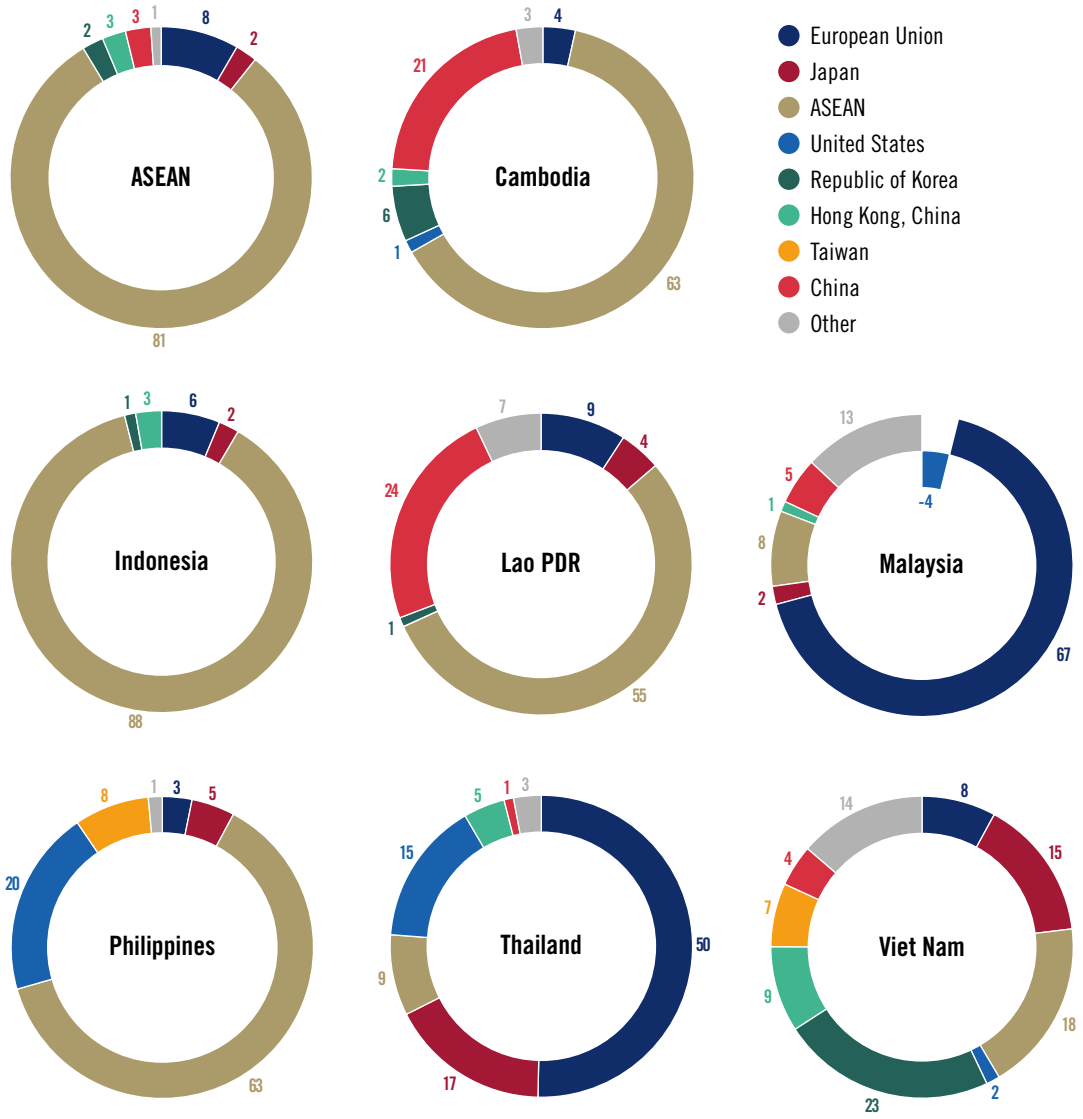
Source: ASEAN Secretariat, based on ASEANStat.

FIGURE 3.12 **ASEAN: agriculture, forestry, and fishing FDI inflows by source economy, 2000–2009** *(Per cent of total)*



Source: ASEAN Secretariat.

FIGURE 3.13 **ASEAN: agriculture, forestry, and fishing FDI inflows by source economy, 2010–2016** *(Per cent of total)*



Source: ASEAN Secretariat.

TABLE 3.12 Selected top ASEAN MNEs in agriculture by total assets, 2016 *(Millions of dollars)*

Company	Home country	Total MNE assets ($ millions)	Presence (number of countries in which present)		Number of principal subsidiaries in ASEAN	ASEAN Member States in which present
			Foreign	ASEAN		
Olam International Ltd	Singapore	16,200	50	5	12	Malaysia, Indonesia, Viet Nam, Lao PDR, Thailand
Felda Global Ventures Holdings Bhd	Malaysia	4,687	15	5	10	Indonesia, Cambodia, Lao PDR, Singapore, Thailand
Kuala Lumpur Kepong Bhd	Malaysia	4,423	33	4	74	Indonesia, Singapore, Lao PDR, Viet Nam
IOI Corp Bhd	Malaysia	4,364	15	2	42	Indonesia, Singapore
Boustead Holdings Bhd	Malaysia	3,997	32	9	60	Indonesia, Singapore, Thailand, Lao PDR, Brunei Darussalam, Philippines, Cambodia, Myanmar, Viet Nam
Selat (Pte) Ltd	Singapore	3,006	27	8	358	Malaysia, Thailand, Indonesia, Viet Nam, Philippines, Brunei Darussalam, Cambodia, Myanmar,
Indofood Agri Resources Ltd	Singapore	2,716	6	2	49	Indonesia, Philippines
Hap Seng Consolidated bhd	Malaysia	2,613	6	4	35	Singapore, Thailand, Viet Nam, Indonesia
Japfa Ltd	Singapore	2,525	8	3	33	Indonesia, Viet Nam, Myanmar
PT Astra Agro Lestari	Indonesia	1,803	1	1	1	Singapore
Genting Plantations Bhd	Malaysia	1,751	6	2	34	Singapore, Indonesia
PT Eagle High Plantation	Indonesia	1,209	1	1	2	Singapore
PT Bakrie Sumatera Plantations	Indonesia	1,094	5	1	1	Singapore
TSH Resources Bhd	Malaysia	782	9	2	18	Indonesia, Singapore
Kluang Rubber Co Bhd	Malaysia	278	26	6	113	Singapore, Thailand, Indonesia, Viet Nam, Brunei Darussalam, Myanmar

Source: ASEAN Secretariat, based on data extracted from Bureau van Dijk's Orbis database.

Note: 1. This table provides an "order of magnitude" insight on key ASEAN MNEs, not a ranking per se. Total MNE assets are a firm's global consolidated total assets. However, firms' shares of assets overseas differ (such data are scarce for many ASEAN MNEs). Some MNEs do not provide sufficient details about their assets. Companies with complex structures, e.g. those with a holding company, do not appear separately from their major subsidiary companies, where the latter are companies in their own right. There are several issues concerning prospective MNEs owned by States; e.g. many are not listed and do not provide financial data, while others are not primarily engaged in FDI. Thus, State-owned enterprises that operate subsidiaries overseas are included, but not sovereign wealth funds because their overseas investments are primarily portfolio in nature. The asset numbers mainly reflect the scale of these top MNEs' investments in ASEAN, but they should not be used as a basis for a definitive ranking; and the potential scale and significance of excluded MNEs for the reasons given should be borne in mind.

2. The industry type indicated for each MNE in this table is that assigned to the parent company by ORBIS; local subsidiaries might be involved in different industries and activities.

3. Total assets of ASEAN MNEs include those of the parent company.

Annex

ANNEX TABLE 3.1 Brunei Darussalam: total inward FDI flows by economic sector and investor source, 2012–2016 *(Millions of dollars)*

Economic sector	Japan	United States	EU	Republic of Korea	Hong Kong, China	Taiwan	China	ASEAN	Other	Total
Agriculture, forestry and fishing	0	0	0	0	0	0	0	0	0	0
Mining and quarrying	47	-11	1 419	0	0	0	0	15	82	1 551
Manufacturing	-13	0	1	0	81	0	0	21	40	129
Electricity, gas, steam and air conditioning supply	0	0	0	0	0	0	0	0	0	0
Water supply; sewerage, waste management and remediation activities	0	0	0	0	0	0	0	0	5	5
Construction	20	0	12	0	0	-2	0	2	0	32
Wholesale and retail trade; repair of motor vehicles and motorcycles	0	-1	69	0	0	0	0	50	-16	102
Transportation and storage	2	0	8	0	0	0	0	5	1	16
Accommodation and food service activities	0	0	0	0	2	0	0	0	2	5
Information and communication	0	0	0	0	0	0	0	-12	2	-10
Financial and insurance activities	1	-4	-4	0	76	0	0	46	74	189
Real estate activities	0	0	0	0	0	0	0	0	0	0
Professional, scientific and technical activities	0	0	-18	0	0	0	0	6	-2	-14
Administrative and support service activities	0	0	0	0	0	0	0	0	0	0
Public administration and defence; compulsory social security	0	0	0	0	0	0	0	0	0	0
Education	0	0	5	0	0	0	0	0	0	5
Human health and social work activities	0	0	0	0	0	0	0	5	0	5
Arts, entertainment and recreation	0	0	0	0	0	0	0	0	0	0
Other services activities	0	0	0	0	0	0	0	0	39	39
Others/unspecified	0	0	0	0	0	0	0	0	118	118
Total	57	-17	1 492	0	160	-2	0	137	345	2 171

Source: ASEANStat.

ANNEX TABLE 3.2 Cambodia: total inward FDI flows by economic sector and investor source, 2012–2016 *(Millions of dollars)*

Economic sector	Japan	United States	EU	Republic of Korea	Hong Kong, China	Taiwan	China	ASEAN	Other	Total
Agriculture, forestry and fishing	1	16	48	75	32	0	271	899	38	1 380
Mining and quarrying	0	0	0	0	4	0	52	0	3	59
Manufacturing	44	24	174	215	332	309	951	180	137	2 367
Electricity, gas, steam and air conditioning supply	0	0	0	0	0	0	0	0	0	0
Water supply; sewerage, waste management and remediation activities	0	0	0	0	0	0	0	0	0	0
Construction	70	0	0	0	0	0	1	39	18	128
Wholesale and retail trade; repair of motor vehicles and motorcycles	0	0	0	0	0	0	0	0	0	0
Transportation and storage	0	0	0	0	0	0	0	0	0	0
Accommodation and food service activities	31	6	20	111	102	0	117	71	8	464
Information and communication	0	0	0	0	0	0	0	0	0	0
Financial and insurance activities	114	96	235	118	46	281	248	733	248	2 119
Real estate activities	14	27	3	5	62	31	78	147	13	381
Professional, scientific and technical activities	0	0	0	0	0	0	0	0	0	0
Administrative and support service activities	0	0	0	0	0	0	0	0	0	0
Public administration and defence; compulsory social security	0	0	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0	0	0
Human health and social work activities	0	0	0	0	0	0	0	0	0	0
Arts, entertainment and recreation	0	0	0	0	0	0	0	0	0	0
Other services activities	115	25	275	134	120	21	530	186	236	1 641
Others/unspecified	0	0	0	0	0	0	0	0	0	0
Total	388	194	754	658	698	642	2 248	2 256	701	8 539

Source: ASEANStat.

ANNEX TABLE 3.3 Indonesia: total inward FDI flows by economic sector and investor source, 2012–2016 *(Millions of dollars)*

Economic sector	Japan	United States	EU	Republic of Korea	Hong Kong, China	Taiwan	China	ASEAN	Other	Total
Agriculture, forestry and fishing	221	36	702	130	373	0	2	11 811	-17	13 258
Mining and quarrying	1 122	-429	1 681	118	-151	0	2 022	2 920	1 876	9 159
Manufacturing	22 748	258	-6 219	1 852	429	169	260	11 836	5 166	36 499
Electricity, gas, steam and air conditioning supply	-19	-29	376	54	30	0	13	194	59	678
Water supply; sewerage, waste management and remediation activities	-8	-12	161	23	13	0	6	83	25	291
Construction	84	5	97	0	415	0	88	22	-171	540
Wholesale and retail trade; repair of motor vehicles and motorcycles	1 501	45	328	869	492	8	58	4 108	-54	7 354
Transportation and storage	203	172	682	3	237	0	0	1 001	1 257	3 555
Accommodation and food service activities	1	28	31	0	-34	0	0	129	-162	-6
Information and communication	451	400	1 438	6	554	0	0	2 232	2 722	7 802
Financial and insurance activities	234	-23	-514	199	243	204	-26	9 400	-18 267	-8 549
Real estate activities	244	30	265	15	293	0	1	2 680	412	3 940
Professional, scientific and technical activities	0	0	0	0	0	0	0	0	0	0
Administrative and support service activities	0	0	0	0	0	0	0	0	0	0
Public administration and defence; compulsory social security	0	0	0	0	0	0	0	0	0	0
Education	2	0	-5	0	0	0	0	1	0	-2
Human health and social work activities	100	0	0	0	0	0	5	22	40	166
Arts, entertainment and recreation	0	0	0	0	0	0	0	0	0	0
Other services activities	717	7	-31	12	318	0	53	1 421	1 513	4 009
Others/unspecified	0	0	0	0	0	0	0	0	0	0
Total	27 600	489	-1 006	3 279	3 212	381	2 481	47 858	-5 601	78 693

Source: ASEANStat.

ANNEX TABLE 3.4 Lao PDR: total inward FDI flows by economic sector and investor source, 2012–2016 *(Millions of dollars)*

Economic sector	Japan	United States	EU	Republic of Korea	Hong Kong, China	Taiwan	China	ASEAN	Other	Total
Agriculture, forestry and fishing	4	0	8	0	0	0	20	50	7	90
Mining and quarrying	0	10	14	2	42	0	162	149	4	382
Manufacturing	6	0	7	5	2	6	75	94	8	201
Electricity, gas, steam and air conditioning supply	108	0	55	69	11	5	1 268	34	32	1 582
Water supply; sewerage, waste management and remediation activities	0	0	0	0	0	0	11	0	0	11
Construction	0	0	0	15	0	0	289	19	2	324
Wholesale and retail trade; repair of motor vehicles and motorcycles	0	0	1	13	0	0	16	23	5	58
Transportation and storage	0	0	0	0	0	0	0	1	0	2
Accommodation and food service activities	0	0	0	1	0	0	39	2	1	43
Information and communication	1	0	0	0	0	0	7	1	0	9
Financial and insurance activities	2	0	5	23	0	15	63	160	15	282
Real estate activities	0	0	0	1	1	0	20	0	0	23
Professional, scientific and technical activities	0	0	0	2	2	0	15	6	1	26
Administrative and support service activities	0	0	1	1	0	0	1	12	1	17
Public administration and defence; compulsory social security	0	0	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	3	0	4
Human health and social work activities	0	1	0	0	0	0	0	0	0	2
Arts, entertainment and recreation	0	0	0	0	0	0	0	0	0	1
Other services activities	0	0	0	4	0	0	2	2	1	9
Others/unspecified	0	0	0	0	0	0	0	178	543	721
Total	122	12	91	136	59	26	1 989	735	619	3 789

Source: ASEANStat.

ANNEX TABLE 3.5 Malaysia: total inward FDI flows by economic sector and investor source, 2012–2016 *(Millions of dollars)*

Economic sector	Japan	United States	EU	Republic of Korea	Hong Kong, China	Taiwan	China	ASEAN	Other	Total
Agriculture, forestry and fishing	5	-12	433	0	-5	0	27	-45	81	484
Mining and quarrying	701	-86	3 266	-1	-9	0	6	1 466	10 520	15 863
Manufacturing	6 315	-39	2 282	-82	681	-2	272	6 885	637	16 949
Electricity, gas, steam and air conditioning supply	0	0	125	0	2 149	0	26	0	45	2 345
Water supply; sewerage, waste management and remediation activities	0	-8	0	0	0	1	24	-3	-13	1
Construction	62	1	66	265	380	0	367	205	51	1 396
Wholesale and retail trade; repair of motor vehicles and motorcycles	88	485	1 006	-120	100	49	54	128	579	2 368
Transportation and storage	27	-44	424	0	50	0	41	22	-89	432
Accommodation and food service activities	31	0	15	0	-172	0	0	-41	-147	-313
Information and communication	293	57	448	-53	47	-3	38	115	732	1 673
Financial and insurance activities	1 180	813	712	11	1 721	1	569	2 477	1 441	8 924
Real estate activities	66	-25	0	35	1 720	13	154	653	160	2 777
Professional, scientific and technical activities	47	19	18	-28	-12	0	9	-99	188	142
Administrative and support service activities	1	45	174	0	0	0	0	90	28	337
Public administration and defence; compulsory social security	0	0	18	0	0	0	0	0	0	18
Education	0	0	-3	0	0	0	0	2	34	34
Human health and social work activities	-254	37	0	0	0	0	0	49	232	64
Arts, entertainment and recreation	2	0	0	0	3	0	0	-23	32	14
Other services activities	0	0	0	0	43	0	0	-24	27	46
Others/unspecified	0	0	0	0	0	0	0	0	0	0
Total	8 563	1 244	8 984	26	6 696	58	1 588	11 857	14 536	53 553

Source: ASEANStat.

ANNEX TABLE 3.6 Philippines: total inward FDI flows by economic sector and investor source, 2012–2016 *(Millions of dollars)*

Economic sector	Japan	United States	EU	Republic of Korea	Hong Kong, China	Taiwan	China	ASEAN	Other	Total
Agriculture, forestry and fishing	0	3	0	0	0	2	0	16	0	23
Mining and quarrying	1	208	2	0	58	0	10	5	8	292
Manufacturing	282	312	594	0	-54	111	0	186	954	2 383
Electricity, gas, steam and air conditioning supply	21	73	-326	-2	-80	15	0	12	0	-287
Water supply; sewerage, waste management and remediation activities	399	-5	42	0	0	0	0	0	0	436
Construction	5	122	94	-1	4	0	0	4	1	229
Wholesale and retail trade; repair of motor vehicles and motorcycles	28	112	178	2	9	17	1	36	49	432
Transportation and storage	2	92	-1	-1	2	0	0	-19	26	102
Accommodation and food service activities	0	33	5	0	14	0	0	74	2	129
Information and communication	10	36	15	2	1	0	0	-12	-1	51
Financial and insurance activities	1 274	251	13	117	142	76	41	-54	219	2 078
Real estate activities	6	439	-9	6	85	12	6	75	36	656
Professional, scientific and technical activities	12	21	-47	-1	0	0	1	1	-1	-14
Administrative and support service activities	7	72	6	0	1	0	0	2	14	102
Public administration and defence; compulsory social security	0	0	0	0	0	0	0	0	0	0
Education	1	1	0	0	0	0	0	1	0	3
Human health and social work activities	0	13	6	0	0	5	0	-14	0	11
Arts, entertainment and recreation	4	5	5	0	591	0	0	3	142	751
Other services activities	0	0	0	0	0	0	0	0	-6	-6
Others/unspecified	1 958	3 870	2 617	677	1 594	286	71	517	7 082	18 672
Total	4 008	5 659	3 196	801	2 368	524	130	832	8 526	26 044

Source: ASEANStat.

ANNEX TABLE 3.7 Singapore: total inward FDI flows by economic sector and investor source, 2012–2016 *(Millions of dollars)*

Economic sector	Japan	United States	EU	Republic of Korea	Hong Kong, China	Taiwan	China	ASEAN	Other	Total
Agriculture, forestry and fishing	0	0	0	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0	0	0	0
Manufacturing	7 650	-15 989	-4 418	-298	910	497	-7 816	3 921	7 144	-8 399
Electricity, gas, steam and air conditioning supply	0	0	0	0	0	0	0	0	0	0
Water supply; sewerage, waste management and remediation activities	0	0	0	0	0	0	0	0	0	0
Construction	-145	0	376	-25	-21	-3	44	179	-101	304
Wholesale and retail trade; repair of motor vehicles and motorcycles	4 827	13 130	30 888	1 850	1 619	742	5 903	-2 343	16 432	73 047
Transportation and storage	607	465	-76	-288	461	473	3 757	705	-212	5 892
Accommodation and food service activities	0	0	0	0	0	0	0	0	0	0
Information and communication	0	0	0	0	0	0	0	0	0	0
Financial and insurance activities	-10 939	62 792	32 387	1 197	9 443	3 377	9 109	12 496	56 626	176 487
Real estate activities	409	659	262	79	528	71	8 892	13 908	3 192	27 999
Professional, scientific and technical activities	0	0	0	0	0	0	0	0	0	0
Administrative and support service activities	0	0	0	0	0	0	0	0	0	0
Public administration and defence; compulsory social security	0	0	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0	0	0
Human health and social work activities	0	0	0	0	0	0	0	0	0	0
Arts, entertainment and recreation	0	0	0	0	0	0	0	0	0	0
Other services activities	1 298	431	31 005	-28	-738	-29	1 393	-716	2 523	35 139
Others/unspecified	0	0	0	0	0	0	0	0	0	0
Unspecified	1 142	2 154	0	99	1 981	445	159	0	-5 949	30
Total	4 849	63 641	90 424	2 585	14 183	5 573	21 440	28 150	79 656	310 500

Source: ASEANStat.

ANNEX TABLE 3.8 Thailand: total inward FDI flows by economic sector and investor source, 2012–2016 *(Millions of dollars)*

Economic sector	Japan	United States	EU	Republic of Korea	Hong Kong, China	Taiwan	China	ASEAN	Other	Total
Agriculture, forestry and fishing	4	2	10	0	1	0	0	2	1	20
Mining and quarrying	574	133	40	0	61	0	5	-348	361	828
Manufacturing	10 309	2 050	1 004	1 108	143	363	591	1 326	-823	16 071
Electricity, gas, steam and air conditioning supply	23	7	-221	0	-80	-2	30	-13	-64	-320
Water supply; sewerage, waste management and remediation activities	1	-54	0	0	0	0	0	8	0	-44
Construction	300	5	-187	216	24	-5	33	43	10	440
Wholesale and retail trade; repair of motor vehicles and motorcycles	1 927	412	-1 769	110	420	13	114	310	-156	1 383
Transportation and storage	35	-7	-39	0	-16	0	5	74	-108	-55
Accommodation and food service activities	29	87	-23	0	7	2	-4	-73	9	34
Information and communication	39	-51	-109	4	910	0	0	-617	-22	153
Financial and insurance activities	11 505	225	-3 306	0	-45	61	543	-901	1 588	9 670
Real estate activities	247	1 151	1 377	16	1 160	149	206	1 012	1 147	6 465
Professional, scientific and technical activities	372	2 464	764	43	303	1	7	199	2 393	6 548
Administrative and support service activities	251	103	76	0	4	0	0	199	-48	587
Public administration and defence; compulsory social security	0	0	0	0	0	0	0	0	0	0
Education	1	0	0	0	-1	0	0	13	0	14
Human health and social work activities	0	1	1	13	32	0	0	19	5	72
Arts, entertainment and recreation	1	5	4	0	2	0	0	1	6	20
Other services activities	141	123	181	56	68	54	485	236	-91	1 253
Others/unspecified	0	0	0	0	0	0	0	0	0	0
Total	25 758	6 657	-2 193	1 565	2 995	637	2 017	1 490	4 211	43 136

Source: ASEANStat.

ANNEX TABLE 3.9 Viet Nam: total inward FDI flows by economic sector and investor source, 2012–2016 *(Millions of dollars)*

Economic sector	Japan	United States	EU	Republic of Korea	Hong Kong, China	Taiwan	China	ASEAN	Other	Total
Agriculture, forestry and fishing	50	4	22	87	22	25	15	60	49	334
Mining and quarrying	47	2	12	41	14	20	9	36	23	205
Manufacturing	6 050	402	2 065	8 792	2 355	2 629	1 887	6 514	4 610	35 304
Electricity, gas, steam and air conditioning supply	374	22	168	654	124	131	145	497	391	2 507
Water supply; sewerage, waste management and remediation activities	36	5	14	89	22	22	23	57	42	310
Construction	196	18	88	397	116	104	60	251	188	1 419
Wholesale and retail trade; repair of motor vehicles and motorcycles	340	27	111	502	130	172	121	372	278	2 053
Transportation and storage	107	11	39	192	51	63	44	131	101	738
Accommodation and food service activities	95	8	34	177	52	43	35	117	75	636
Information and communication	107	6	29	103	30	55	25	87	68	511
Financial and insurance activities	33	5	13	89	21	23	23	56	43	306
Real estate activities	770	56	295	1 198	348	386	199	831	630	4 712
Professional, scientific and technical activities	137	12	49	257	63	64	63	179	125	951
Administrative and support service activities	12	2	6	33	8	9	7	21	18	116
Public administration and defence; compulsory social security	0	0	0	0	0	0	0	0	0	0
Education	21	1	7	35	9	6	9	25	14	128
Human health and social work activities	50	4	17	83	30	22	11	52	29	300
Arts, entertainment and recreation	45	3	11	47	11	23	16	41	32	229
Other services activities	18	1	6	21	5	9	5	17	14	95
Others/unspecified	4	0	1	1	1	2	0	2	2	13
Total	8 491	589	2 988	12 798	3 410	3 810	2 698	9 348	6 734	50 868

Source: ASEANStat.

Notes

[1] While generally true, and observed in many economies, beginning with OECD countries, the shift varies between countries. For example, manufacturing is a bigger share of the German, Japanese and Korean economies than the OECD average; and vice versa, France, the United Kingdom and the United States have a bigger share of services than the average.

[2] Or a cross-border NEM if an outsourcing option is more cost-efficient and effective (box 2.2)

[3] The data for Lao PDR were only for two years out of five and may not be complete for other reasons.

[4] And many more MNEs, especially MSMEs which are particularly difficult to identify.

ASEAN 50
2017

Chapter 4
FDI and ASEAN: vignettes of impact

4.1 Channels of FDI impact on ASEAN economies

As MNEs have established a vast network of subsidiaries across South-East Asia over the last 50 years – in virtually every sector, industry and business niche – FDI flows into ASEAN have had a profound impact on regional and host-country economies, firms, citizens and communities (chapters 1 and 2). This impact occurs through several principal relationships and effects, leading to outcomes for people, communities and economies (figure 4.1).

FIGURE 4.1 FDI impact on ASEAN Member States: key relationships and effects

Source: ASEAN Secretariat.

MNE subsidiaries' relationships with companies in Member States are broadly of two types, which are not mutually exclusive. In the first type, MNE subsidiaries establish linkages with local firms along the supply chain, both as suppliers (raw materials, processed inputs and manufactured parts) to foreign firms and as vendors if the foreign firms sell their output locally (figure 4.1). Such linkages can be arms-length or contractual. In the earliest days of MNE investment in ASEAN, supply chain linkages were relatively inconsequential relative to the scale of subsidiary activity. Export-oriented subsidiaries primarily used local labour to assemble imported parts, with the output sent for further processing or sale in an MNE's home country or third market; for local-market-oriented subsidiaries, most local firms did not possess the capabilities to produce inputs or parts of the required quality.[1]

Over time this has changed, partly because MNEs have established closer relationships with local firms, helped their upgrading, and inculcated into them the standards and quality required to operate in global value chains (GVCs) – often aided by Member States' policies and institutional supports (chapters 1 and 2). Also, over time, MNE–subsidiary linkages have extended to firms in other ASEAN Member States and supported regional connectivity and integration (figure 4.1).

In the second type of relationship, MNE subsidiaries can have many kinds of linkages with local firms (figure 4.1). For instance, they can be symbiotic, whereby local firms provide complementary goods and services for the MNE subsidiary, including the physical and commercial basis of a modern, industrialized economy (such as power, transport and logistics, financial services, the construction of factories and offices). Many ASEAN MNEs[2] cut their teeth on just such activities – the fundamentals of development – and continue to apply their proficiency at home, in ASEAN and further afield[3] (chapters 2 and 3). The relationships can extend to partnerships and alliances, for instance by leveraging relative competencies in setting up a joint venture. Many foreign firms establishing subsidiaries that are aimed at ASEAN markets have found the knowledge, familiarity and other expertise provided by local companies indispensable (including for supply chain linkages). At the same time, MNEs and local firms can be competitors, with the ever-present risk that the proficiencies of the former might drive the latter out of business.

The risk can be a benefit, however, when such pressures force local companies to become more competitive, an outcome that can be reinforced by them observing and learning from MNEs. Such a demonstration effect can be very powerful, if a firm has the capabilities to respond, as illustrated by the rise of ASEAN MNEs (chapters 2 and 3). Interfirm relationships such as supply chain linkages, complementary operations, partnerships, and competitive and demonstration effects apply to all types and sizes of firms. They played a part in the rise of ASEAN MNEs in part because of planned knowledge and technology transfer (e.g. foreign MNE training of local enterprises or granting of licenses) and unplanned spillovers (e.g. knowledge transferred to a joint venture being cross-transferred to a partner's other operations, or staff who were trained at a subsidiary moving to a competitor firm or starting one of their own) (figure 4.1).

Perhaps the most direct impact that MNEs have on an economy is the employment of people (including women, section 4.3), which can lead to human capital development as workers learn on the job or are trained. A pool of trained labour grows directly with FDI expansion and indirectly through value chain linkages, and over time workers become mobile, moving between foreign and local companies (or indeed as expatriates, overseas). Entrepreneurial trained staff may also establish their own companies. As the number of employees rises, their expenditures can create significant consumption multiplier effects; and in a similar fashion, as the tax yield rises (MNEs, local firms and workers pay taxes), expenditure by Member State Governments has both immediate and longer-term multiplier effects (figure 4.1).

There is an extensive literature on FDI's impact on ASEAN Member States' growth and development (as well as the region overall). That impact is deemed mainly beneficial in ASEAN but can at times deleterious (box 4.1). The focus in this chapter instead is on local firms (in particular micro, small and medium-size enterprises (MSMEs); section 4.2) and individuals (in particular women, section 4.3), who are the main actors through which FDI affects an economy, as well as communities and social structures (box 4.2).

BOX 4.1 The impact of FDI: a summary of the evidence

Foreign MNEs tend to differ from domestic firms in size and capital intensity, and to have a higher propensity to import and export than local firms. The significant presence of MNEs therefore affects host economies, such as ASEAN Member States, in many ways, from the level of employment and fiscal revenues, to the technological base of the economy and local enterprises. *Direct* effects from FDI flow through employment and income generation, as well as balance of payments and trade. In these ASEAN is a big gainer, with millions of people being employed by MNEs across the region (e.g. MNEs employ over 500,000 people in just the garment industry in Cambodia). This is not surprising given that individual subsidiaries can employ thousands of people (e.g. Toyota has 17,000 employees in Thailand, not counting employment generated in suppliers and vendors; and Royal Dutch Shell's joint venture in Brunei Darussalam employs 3,500 people directly, as well as 8,000 staff being employed by local contractors). Thousands of MNEs operate in the region, and the largest have tens or hundreds of subsidiaries across the region (chapter 3). MNE subsidiaries and employees pay taxes, which generates revenues for Governments, and employees spend wages – all of which lead to various potential multiplier effects on ASEAN economies.

Indirect benefits, such as the transfer of managerial know-how and production techniques to local suppliers – through linkages, spillovers, competitive and demonstration effects, and trained employee turnover – are harder to quantify and thus open to interpretation (Narula and Pineli 2017). Through backward linkages, MNEs provide technical, managerial and financial assistance to their local suppliers (box 4.4, Eftech). They can induce a wider demonstration effect as well, including across sectors (Adewuyi and Oyejide 2012, Figueiredo and Piana 2016). Increased output by suppliers can enable those suppliers to benefit from scale and specialization economies, though this has to be managed carefully (box 4.5, Beyonics). However, the evidence drawn from studies in ASEAN, East Asia, Latin America and elsewhere, going back decades, indicates that indirect effects of FDI are rarely automatic. The benefits from FDI materialize only in the presence of certain conditions, the most important being the capability of domestic firms to absorb more advanced technology and skills. Where domestic firms do not have the absorptive capacity to internalize spillovers from MNEs, it may result in crowding-out, where they prove unable to survive competition with MNEs. As ASEAN Member States such as Singapore, Malaysia, Thailand and Viet Nam have shown, Governments can play a big role in ensuring indirect benefits can occur through various measures. These include, providing good infrastructure, institutions and systems supporting business activity and encouraging upgrading by local firms; ensuring fair competition; and a focus on ensuring that human capital is created and meets the needs of an evolving economy (Narula and Pineli 2017, Fadhil and Almsafir 2015, Ha and Giroud 2015, Narula 2014, ASEAN Secretariat and UNCTAD 2014, Nguyen 2011, Ramstetter and Sjöholm 2006, Rasiah 2004, Brooks and Hil 2004, Lall and Urata 2003, Giroud 2003, Mirza and Giroud 2003, McKendrick et al. 2000, Mirza 1986).

Other key factors need to be considered by both ASEAN Governments and firms. The nature of the MNE and its affiliates matter considerably, as not every dollar of FDI has the same potential to promote development. FDI differs in its underlying motives, mode of entry, and structure, among other factors; and the structure of modern GVCs are changing the nature of relationships between MNEs and local firms. In addition, many local ASEAN firms are much more sophisticated than in the past, and some are themselves MNEs.

Finally, each MNE subsidiary evolves, showing different effects from initial and sequential investments. Changes in commitment are a response to specific location characteristics of the host, and MNEs make these investments (and disinvestments) in direct response to how these characteristics evolve relative to other alternative locations. In other words, governments often ignore that FDI engagement and its effects are dynamic and ever-evolving. Quantitative studies using country-level data show that the determinants of inward FDI remain the same: availability of human capital and infrastructure, good institutions and governance, political stability, sound macroeconomic fundamentals (Narula and Pineli 2017, Meyer and Thein 2014). At the firm level, market characteristics, production costs and availability of resources are the main determinants of the location choice of FDI in developing countries.

Source: ASEAN Secretariat.

BOX 4.2 Managing FDI impact: the Lao PDR agriculture sector

Lao PDR is the most agriculturally dependent ASEAN nation. It has received significant attention from foreign investors in its agriculture and forestry sectors. The way these relationships have been managed, and their outcomes for rural communities, are instructive for other countries in the region.

Smallholder agriculture systems

Laotian farmers are typically smallholders with plots between 0.5 to 3 ha, used for a combination of rice farming, livestock raising, and forestry activities. Subsistence farmers also depend on resources from communal fields and forests, the rights to which the Government aims to protect. Approximately 80 per cent of the population works in agriculture, with women accounting for slightly more than half (54 per cent) of the agricultural workforce (ILOSTAT modeled estimates for 2016).

Women are responsible for most subsistence farming and household work, while men spend more of their time in commercial fishing, forestry and farming, and in work away from the town. Although women are responsible for managing household income, they often depend on men for land and are subordinated to them for major economic decisions. Combined with low female literacy levels, their disempowerment in decision-making is manifest in their extremely limited roles in village politics. Thus, they stand to be disproportionately disaffected by land investments if they are excluded from negotiations on the terms of such deals.

Although FDI offers many opportunities to economies, firms and communities, differences in motivation and power imbalances between MNEs and other actors mean that Governments need to manage the entry of MNEs into a country carefully. At the same time MNEs need to be responsible investors, especially in the context of the Sustainable Development Goals (SDGs) which apply to MNEs as much as to Governments. In addition, it is important to note that whereas for the ASEAN-5 FDI impact is increasingly about improving gains in more advanced manufacturing and service industries, for the CLMV economies the primary sector and labour-intensive manufacturing industries (e.g. garments) are still the focus.

Agricultural investment in Lao PDR

The Lao PDR Government has attempted to attract FDI in agriculture as an important means of development. The actual rate of investment has greatly exceeded their expectations. At least 600 companies from more than 30 countries were operating in the Lao agriculture, fisheries and forestry sectors, as of 2013. Over 1.1 million hectares of land have been conceded to investors in 2,642 transactions, and 72 per cent of the total area conceded went to foreigners.

Investment has been concentrated in several provinces. Most deals were in non-food crops, principally rubber and jatropha (for biofuels), or non-staple food crops (such as coffee, sugar and tobacco). Brief moratoriums on eucalyptus and rubber have been imposed in recent years, and in November 2016, banana plantations became prohibited because of the risks posed by hazardous chemicals. Principal investors are from within the Asia and Pacific region and include China, Viet Nam, South Korea, Malaysia and Thailand (section 3.4).

The type and scale of investment projects is a significant determinant of community impact. Plantation-style agricultural projects can create waged labour opportunities for women and other underemployed community members; however, they are often associated with poor conditions of pay and work, and sometimes involve large-scale displacement from the land (Sexsmith 2017). Contracts with small-scale outgrowers tend to be more beneficial to communities because farmers retain more control over their land and often develop new production-related skills. However, research has found that women's participation in outgrower projects is minimal – in one study, as low as 1.5 per cent of outgrowers (Smaller et al. 2015, UNCTAD and World Bank 2014).

The Government has promoted contract farming as an alternative to large-scale plantation-style land acquisition. There are two contract farming options: under "2 + 3", the investor provides farmers with capital to work their own land, while under "4 + 1", farmers provide their land and become waged labourers. Whereas investors tend to push for 4 + 1, which they find economically beneficial, villagers and the Government have preferred the 2 + 3 model, which does not transform environmental and social relations as drastically.

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The evidence on the outcomes for farmers of participating in foreign investment projects is mixed. On the one hand, most participants in tobacco, jatropha and banana projects in one field study reported an improvement in their cash income flow. These investments often create new waged labour opportunities, which benefit underemployed members of communities. As described below, several companies have undertaken direct community development and producer training initiatives, whose benefits are appreciated by community members.

However, several concerns have been identified from communities' perspectives. They include the long duration of leases (sometimes up to 35 years); the high initial capital costs to farmers; the loss of decision-making authority over one's own land; conflicts over ownership rights, particularly where tenure is informal; the transformation of the agricultural workforce from smallholders to insecure waged workers; concessions of communal forest to investors, resulting in declining food and nutrition security; increased total labour time for women, with the planting of additional crops; the exclusion of women from processes of negotiation and consent; and environmental damage to protected areas. Moreover, many investments have been insufficiently transparent and accountable to the public. For example, one study found that not even 10 per cent of land concession agreements had followed all the requisite procedures. In some cases, companies have used different names for the various pieces of documentation required to make an investment, which makes it difficult to hold a specific entity accountable.

Investment outcomes therefore depend on the specific set of practices used by the investor to protect and support community rights and development.

Responsible agricultural investment: good practices

The Ministry of Planning and Investment of Lao PDR, with the support of the German Corporation for International Cooperation, has recently undertaken a "Quality Investment Promotion" initiative to help ensure investors comply with their environmental and social responsibilities. Private sector interest in responsible investment is nascent but growing. In this context, there are several examples of excellent demonstrations of social responsibility, of which current and future investors could take note. The following highlights examples of specific good practices and is not meant to represent a comprehensive listing of all responsible investment activities by each company:

- Lao Tobacco Limited works with farmers to ensure quality production, makes advance commitments to buy a fixed amount of product at a guaranteed price and helps organize villagers into support groups.
- The Lao Banana Company contributes to community development by providing production training for all community members (not just employees), and by investing in improving roads and electricity access. The company also guarantees equal pay for permanent and casual workers, and for women and men workers.
- Since 2007, Stora Enso Lao PDR, an agroforestry company, has operated (predominantly) eucalyptus plantations for the export of timber to Viet Nam. The company's responsibility initiatives have included community land use planning, intercropping (to promote community food security), reliance on manual labor to create local jobs, special funds for development and for educational scholarships, and farmer study trips (Lette 2016).
- Outspan Bolovens Limited, which operates coffee plantations in Champasak Province, holds several sustainability certifications (including UTZ Certified and Rainforest Alliance), offers many permanent job opportunities, provides farmer training, gives interest-free loans, offers free medical and dental care for workers and their families, and directly supports community infrastructure such as schools and water supply.
- Oji Lao Plantation Forest Co. seeks sustainability certification for its tree plantations and has a dedicated social development program for the communities where it works (Lette 2016).

Lao PDR's experiences are playing out in agricultural regions of other ASEAN Member States that have large rural populations. Moreover, similar impacts from foreign investment are felt in the extractives and infrastructure sectors. Thus, Lao PDR and other nations looking to foreign investors for economic and social development should aim to uphold rigorous social and environmental standards, such as those illustrated above, to ensure country and community needs are met.

Source: ASEAN Secretariat, drawing principally on Daley et al. (2013), Sylvester and Phaophongsavath (2017) and Schoenweger and Üllenberg (2009).

4.2 MNE linkages and the rise of MSME MNEs

MNEs create and have access to technologies, skills, organizational capabilities and other resources to establish, manage and govern global networks and value chains. Entrepreneurs who set up and run ASEAN MSMEs[4] are locally focused, often possess narrowly focused skills and are part of local networks. Over the last 50 years these differences have provided a potential opportunity for symbiosis between two non-competing groups of entrepreneurs (MSMEs and MNEs), especially in this era of GVCs in which once-core MNE processes, activities and functions are outsourced. That said, power imbalances between the two groups mean that establishing linkages does not always go smoothly (section 2.1, box 4.3). For instance, in principle, MNEs have access to suppliers from across the world, but MSMEs, especially small, newly established ones, have much less choice. Moreover, in industries such as automobiles and electronics, it is not unusual for suppliers in MNEs' ecosystems to follow the principal firm to a host country and maintain their existing relationship; this can result in severe competition for local suppliers (chapter 2, box 4.1). However, many MNEs do offer support to local MSMEs to help them become more competitive. For example, Samsung Electronics (Republic of Korea) has a local ecosystem of both Korean and local suppliers in Viet Nam; and it has invested in technical training directly to the latter, as well as trying to nurture local talent indirectly through vocational training and an internship programme (ASEAN Secretariat and UNCTAD 2016).

BOX 4.3 The division of entrepreneurial labour between MNEs and MSMEs

A crucial aspect of developing-country policy is the integration of local firms into GVCs. The division of entrepreneurial labour substitutes for imperfect Government policy and information asymmetries between global interfirm networks and MSMEs. Reassurance and smooth integration into a host economy is a local entrepreneur's most significant offering in the division of labour between MSMEs and MNEs. The MSME plays a crucial role in reducing imperfections in information markets – about local supply conditions, labour availability, employment law and all the other types of tacit knowledge that a local entrepreneur possesses. The division of entrepreneurial labour reduces crowding-out of local businesses and fosters crowding-in.

The genesis of the division of entrepreneurial labour arises out of the asymmetry in the market for entrepreneurs between global orchestrators (i.e. interfirm networks) (Buckley and Strange 2015) and small firms. MNEs have access to a global market of mobile executives whom they train and acculturate in the mores of the company. Entrepreneurs who set up and run MSMEs may be less trained and more locally focused, and are more likely to be part of local networks. Their particular skills are more in demand in local networks rather than in MNEs. This provides an excellent opportunity for symbiosis between the two non-competing groups of entrepreneurs. Entrepreneurship occurs in large MNEs as well as MSMEs – hence the division of entrepreneurial labour.

In terms of risk-taking, this perspective goes beyond the leveraging of complementary capabilities to highlight the scope for MSMEs and MNEs to compensate for the deficiencies of the other. Typically, weakness emanates from the very source of strength: MSMEs' smallness (and often newness) facilitates flexibility but is associated with a paucity of legitimacy, and MNEs' largeness (and often oldness) offers greater resources but less flexibility. Potentially, MSMEs' legitimacy deficit could be mitigated through engagement with high-status MNEs, and MNEs could increase flexibility in the face of risk by partnering with agile MSMEs (Buckley and Casson 1998).

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These useful antidotes – which MNEs and MSMEs might well anticipate while making judgements about the extent of the market or niche of interest – are an important aspect of the division of entrepreneurial labour between MNEs and MSMEs.

Whereas MNE-MSME differentiation results in the potential for joint value creation, building interdependence is required to realize that potential. This is not straightforward to achieve in the case of asymmetric MNE-MSME partnerships because although the division of entrepreneurial labour offers possibilities for valuable interorganizational activity, it also leads to certain vulnerabilities (Katila et al. 2008). This is due to a "missing markets" problem: there is a vacuum at the interface of MNEs and MSMEs caused by high transaction costs, information asymmetry and low levels of trust. The prospect of malfeasance at the hands of the more powerful MNE could be a concern for MSMEs (Alvarez and Barney 2001) whereas identifying high-quality MSME partners (the "lemon" problem) can be difficult for MNEs. These vulnerabilities are symptomatic of deficits in distinct types of trust: structural and social (Madhok 1995). As Madhok (2006: 7) puts it, "The structural basis of trust is…synergistic complementarities, and social trust has more to do with the relationship process". Social trust deficits account for MSMEs' concerns regarding MNE intentions, while structural trust deficits are reflected in MNEs' concerns regarding MSME competence.

From the perspective of power-disadvantaged actors, the main concern pertains to the level of value appropriation that they can realistically achieve. This is highly relevant in the context of MNE-MSME relationships; bargaining over value appropriation is an area of strategic stress as entrepreneurs are in conflict over the allocation of residual rewards (Alvarez and Barney 2001). Accomplishing mutual dependence does not preclude the prospect of power imbalance. Conceivably, high levels of mutual dependence could exacerbate obstacles induced by power imbalances, by undermining harmonious negotiation – which enhances the risk that, by failing to agree terms, nothing productive will be achieved (Casciaro and Piskorski 2005).

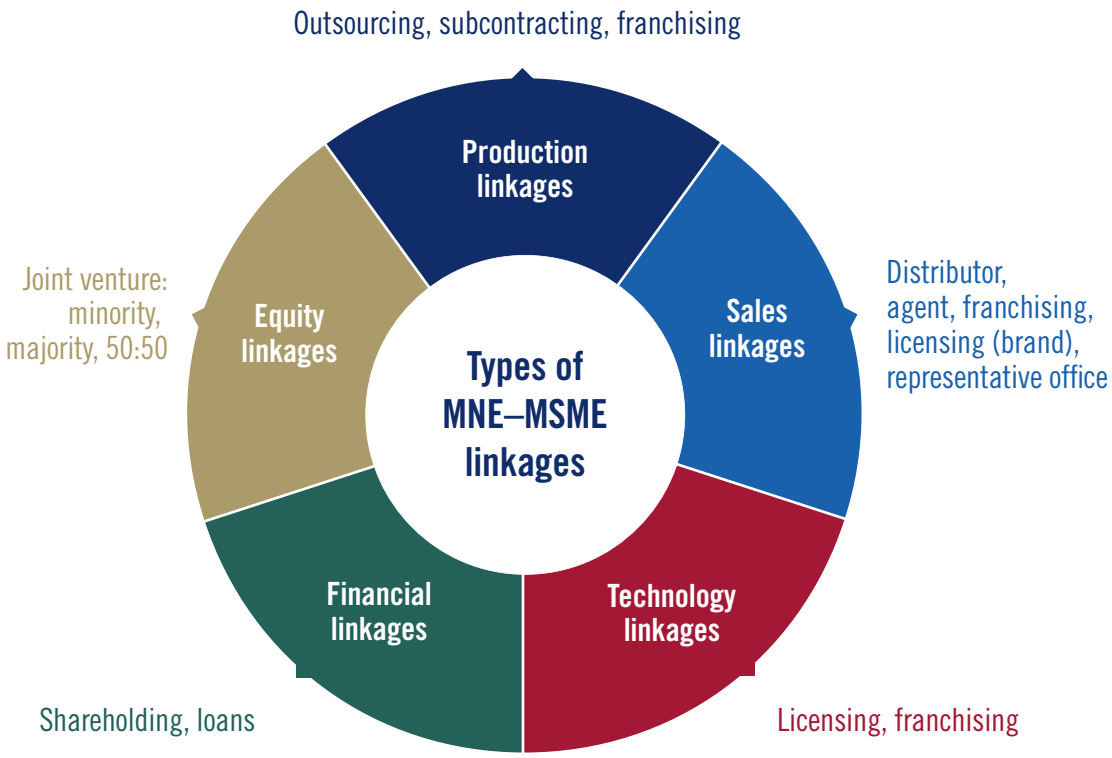
Fraught as the process of establishing a mutually satisfactory relationship is, the potential reward is too great an opportunity to miss. MNEs and MSMEs expend considerable resources in building trust – as well as negotiating contracts – precisely to ensure that once a relationship is established it is secure and long-term. Increasingly MNEs have moved into the role of "ecosystem developers" – involving innovation integration and platform leadership – while MSMEs play the role of "ecosystem participants". Such activities reflect the evolving policies of MNEs to forge a range of horizontal links in addition to their traditional vertical links within their GVC (Buckley and Strange 2015).

Proactive efforts are required on the part of MSMEs as well to determine whether to participate in an MNE ecosystem and if so, which ones. An important aspect of these decisions is whether to identify an MNE orchestrator ex ante or ex post. That is, the MSME could decide a priori to build its offering in order to be compatible with a particular MNE's platform technology, or to build an offering first and then determine which MNE ecosystem to associate itself with. In either case, an MSME ecosystem participant must undertake important activities: coordination, communication, and bonding in order for them to navigate effectively the ecosystem orchestrated by a principal MNE (Schreiner et al 2009).

Source: ASEAN Secretariat.

Whereas typical linkages between MNE subsidiaries and MSMEs are of the value chain types, especially in production – e.g. MNEs subcontracting the manufacturing of parts or outsourcing information and communication technology or other functions – they can also include linkages in sales, technology or finance, and ownership arrangements (figure 4.2). For instance, Jollibee (Philippines) began as a franchisee to a local MNE, San Miguel Corp, serving the latter's brand Magnolia Dairy Ice Cream. Over the next few years it diversified into a wider range of food products and discontinued its original franchise with San Miguel Corp. It is now a major national and international franchisor itself, having absorbed the business model in its early years in several brands (e.g. 'Jollibee' in fast food, 'Chowking' in oriental food). It runs a large network in Philippines, and has stores in Bahrain, Brunei, Hong Kong, Qatar, Saudi Arabia, Singapore, United Arab Emirates, United States and Viet Nam.[5]

FIGURE 4.2 Types of MNE–MSME linkages



Source: ASEAN Secretariat.

Note: Conceptually, competitive and demonstration effects which lead to spillovers are also arguably linkages.

Failure is an inherent risk for MSMEs, and a great many have leveraged linkages with MNEs to become competitive, grow and develop into major enterprises, especially in industries such as garments, electronics and motor vehicles; and the risks are even greater for MSMEs established by less advantaged groups such as women (section 4.3.2). Eftech (Malaysia), which grew from a micro enterprise in 2001 to a regional MNE today, is a classic example, using partnerships, supply relationships and acting as a distributor, with MNEs such as Hedley Purvis (United Kingdom), BJ Process and Pipeline Services (United States) and Petronas (Malaysia) to establish itself as a regional MNE (figure 4.2, box 4.4). Today Eftech operates in 9 countries, mostly in ASEAN.

In contrast to Eftech, Beyonics (box 4.5) – now a relatively large company of 5,000 staff located primarily in Singapore, China, Malaysia and Thailand – illustrates the difficulties that MSMEs face in attempting to insert themselves as ecosystem participants in MNE value chains, especially in industries or segments that are novel to them (even if they possess suitable skills and capabilities) (box 4.3). It also typifies how many MSMEs have nevertheless co-evolved with MNEs over time, including as part of regional networks and partnerships, by creating competitive participation offerings to match the ecosystems of existing MNE partners and potential new ones (box 4.5).

As MNEs have extended their regional networks across ASEAN (section 2.3), many MSMEs have internationalized to continue to supply them, for example through exports (under an intraregional contract) or by setting up a subsidiary of their own and supplying them from within another Member State (figure 4.3) (chapter 2; ASEAN Secretariat and UNCTAD 2016). Examples of MSMEs that have become MNEs in this fashion are Venture Corporation (Singapore) and Hana Microelectronics (Thailand) (table 4.1). The latter was established in 1978 in Bangkok with 30 employees supplying LED watch modules; today it employs 10,000 people in facilities in Cambodia, China, Thailand and the United States and serves a large array of customers in electronic RVCs and GVCs. Similarly, in textiles, garments and footwear, Indorama (Thailand) and MWE Holdings (Malaysia), founded in 1994 and 1964 respectively, have grown into MNEs with significant overseas operations in ASEAN and beyond (table 4.2). Indorama manufactures textiles for customers around the world, while MWE produces garments and footwear for major brands such as Nike, Under Armour, Oshkosh and Lacoste.

BOX 4.4 Eftech *(Malaysia)*

Efficient Technology (Eftech) (Malaysia) was established in 2001 to provide mechanical services to the Malaysian energy markets. As an MSME, it partnered with Hedley Purvis (United Kingdom) and BJ Process and Pipeline Services (United States) in 2001 and 2002 to bring their process and pipeline technologies to the oil and gas industry in Malaysia. Eftech grew rapidly with the domestic market and, in 2005, became an authorized local supplier of bolted-joint integrity and nitrogen-helium leak-testing services to Petronas (Malaysia), the national oil and gas company, under Petronas's vendor development programme. Since then, Eftech has developed further technical partnerships with Hydratight (United States) and Sparrows (United Kingdom). It also serves as the main contractor for formerly Canada-based Talisman Energy's leak-testing service work in Malaysia and Viet Nam.

As the oil and gas industry became more regionalized in the 2010s, Eftech began to go international by incorporating Eftech International in Singapore in 2013 to bring its expertise in engineering services to global lead firms in Singapore and the ASEAN region. To fulfill its first major liquefied natural gas services contract in Australia, Eftech established a subsidiary in Perth in 2015, investing A$5 million, and has extended its services further in Australia since. In addition to its parent company, today Eftech has principal subsidiaries in Australia, Malaysia and Singapore, and operates in 9 countries, most in ASEAN.

Taking advantage of regional integration in the oil and gas industry, Eftech has emerged from being a domestic MSME to become a provider of oilfield services to both upstream and downstream customers in regional oil and gas production networks. These range from process and pipeline services to well services, directional drilling, measurement while drilling and drilling engineering.

In order to connect to the ecosystems of lead MNEs – both foreign and ASEAN – Eftech International not only provides technical and operational expertise to support its expanding work in the ASEAN region and beyond, but also actively builds relationships with clients and customers in Singapore and in other operational hubs such as Indonesia, Myanmar, Thailand, and the Republic of Korea.

Source: ASEAN Secretariat.

BOX 4.5 Beyonics: from micro enterprise to multinational enterprise

In 1981 two Singaporean engineers decided to start their own company after they were laid off from the Singaporean subsidiary of the German camera manufacturer Rollei. Seeing that the local tool-and-die business in Singapore was underdeveloped — because most foreign firms tended to bring in their own tooling — they set up their own tool-and-die shop on a chicken farm owned by one of the founders' parents. From their experience at Rollei they knew that advanced lathes for precision metal cutting spun very fast but could be stopped quickly to make rapid set-up changes. The two retrofitted some inexpensive lathes with motorcycle brakes to achieve the same effect. The company, which was originally called Uraco, generated $700,000 in revenues during its first year of operation, mostly by supplying precision metal parts to American disk drive producers, which were investing heavily in manufacturing in Singapore and Malaysia at the time (Business Times 1995).

As Uraco grew, it began to supply a wider range of products to the disk drive industry, including precision metal stampings and assembled electronic circuit boards. Most of the company's business was with Seagate, the leading American disk drive manufacturer, but the company also exported precision parts to Hitachi's disk drive operations in the Philippines. Because of the extreme volatility in the disk drive and PC markets, in 1987 managers began the first of many efforts to diversify Uraco's customer base by distributing electronic components, eventually winning distributorships from Motorola, Harris Semiconductor and Siemens.

In the mid-1990s the company tried a more autonomous route, leveraging its experience with electronic components, contract manufacturing and warehouse management to manufacture and sell products of its own design, including connectors, crystals, automated warehouse vehicles, electronic ballasts for fluorescent lamps, light bulbs and telecommunication-related products. Ultimately, these attempts were not successful, and the bulk of Uraco's business remained in providing contract manufacturing services and precision-engineered metal parts to foreign firms operating in South-East Asia. As traditional distribution networks in the region matured, the need for the company's distribution services waned as well.

Nevertheless, in 1995 the company underwent a successful initial public offering on the Singaporean stock exchange. In 1996, as revenues were approaching $53 million, Uraco won an important contract to manufacture flatbed scanners for Hewlett Packard. The company's troubles were not over, however, and flagging profitability led to a management reshuffle in 2000 and a name change, to Beyonics, in 2001. The company returned to profitability in 2001, when it generated nearly $300M in revenues, with 62 per cent coming from contract manufacturing services, 29 per cent from precision engineering and 9 per cent from distribution.

The company's current product and service offerings are electronics manufacturing services (i.e., contract manufacturing), medical and consumer plastic injection moulding and assembly, precision engineering services, precision metal stampings, and precision tooling design and fabrication services. This is a highly focused and complementary product portfolio, covering many of the processes and a few of the basic products required to produce a wide variety of electronics and closely related goods. The company has followed the rest of the electronics contract manufacturing industry toward the bundling of services to enable the production of complete products through its acquisitions of precision plastic mouldings suppliers Techplas (in 2000) and Pacific Plastics (in 2002). In 2003 the company merged with a similar Singaporean contract manufacturer, Flairis Technology Corporation, to achieve additional economies of scale and scope. The company's distribution activities and attempts at selling its own branded products have been dropped entirely.

With this tighter focus, the company has expanded dramatically. In 2008 Beyonics' revenues of $1.57 billion (with a razor-thin net profit of 0.3 per cent) ranked the company thirteenth on a list of the world's largest electronics contract manufacturers. Through a combination of internal expansion and acquisition, Beyonics has developed a solid regional manufacturing footprint, most notably by establishing "vertically integrated" electronics contract manufacturing campuses in Kulai, Malaysia, in 2005; Suzhou, China, in 2006; and Batam, Indonesia, in 2007. In 2016 it merged with Chosen Holdings (Singapore), another precision engineering company. The company's current primary production facilities are in Singapore, Malaysia, China and Thailand, with seven sales offices in Europe and the United States.

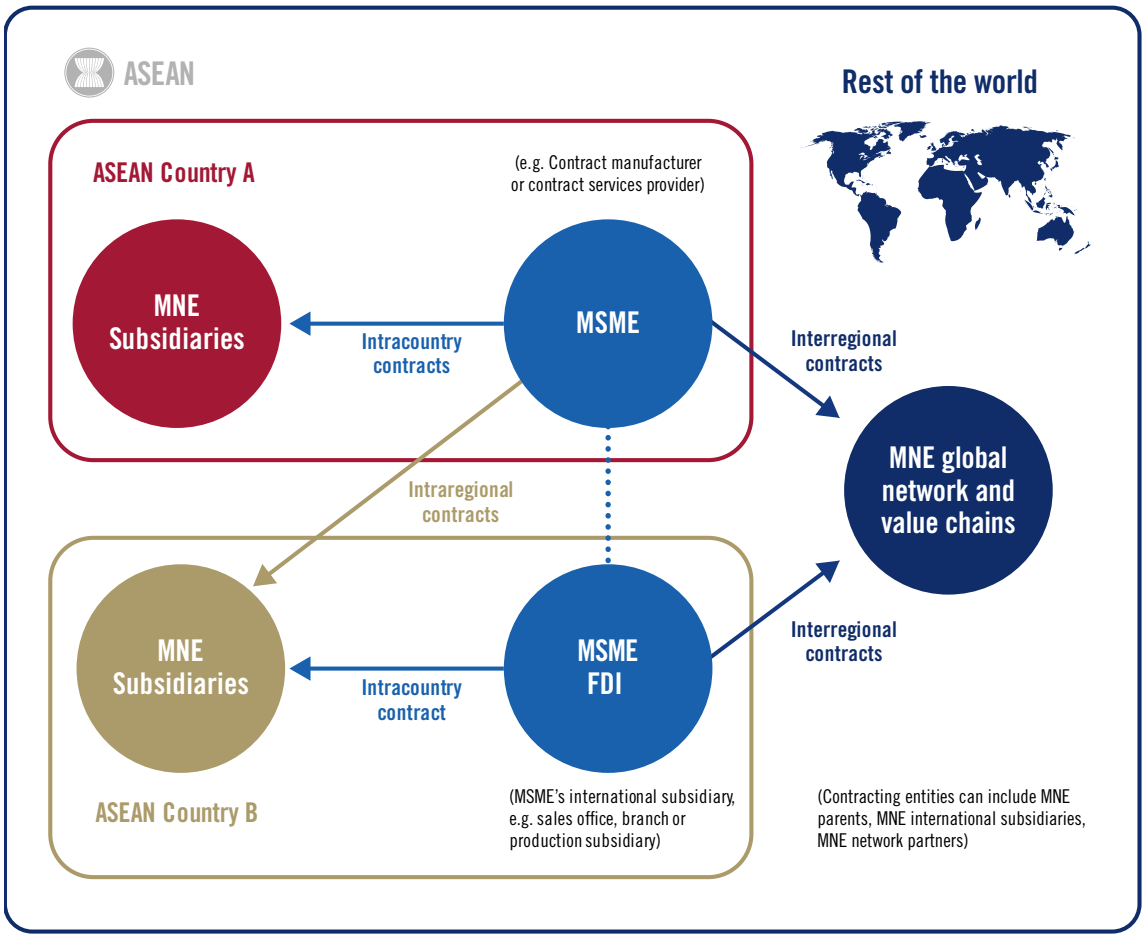
.../

Beyonics may have grown much larger than most local firms in East Asia that started as MSME suppliers to MNEs, yet there are several lessons to be drawn from its case. First, Beyonics' managers exercised dynamic capabilities (Teece 2009) for sensing opportunities, seizing them and transforming the company as needed. Second, they stumbled by trying to diversify and develop their own products, which required end-user marketing competences they had not yet developed, but recovered when they refocused on providing producer services to MNCs in the region. Third, like most large electronics contract manufacturers, Beyonics has struggled to remain profitable, even as the company has grown rapidly. Fourth, as the company expanded it chose a variety of lower-cost locations within East Asia, balancing its investments in China with locations in Malaysia, Thailand and Indonesia.

What the Beyonics case illustrates most dramatically, however, is how, with enough time, local firms with modest roots have been able to grow, master advanced technologies and set up multiple locations in East Asia, largely by serving MNE affiliates in the region. The shifting strategies that guided the development of Beyonics over the years were dynamically aligned with the evolving outsourcing strategies of its customers.

Source: Sturgeon and Linden 2011 (updated).

FIGURE 4.3 Global and regional value chains: potential MSME contractual relations with MNEs



Source: ASEAN Secretariat, adapted from Mirza 2004.

TABLE 4.1 Selected top ASEAN MNEs in computers and electronics by total ASEAN assets, 2016 *(Millions of dollars)*

Company	Home country	Total assets ($ millions)	Presence (number of countries in which present)		Number of principal subsidiaries in ASEAN	ASEAN Member States in which present
			Foreign	ASEAN		
Flex Ltd	Singapore	12,400	52	3	30	Malaysia, Indonesia, Thailand
Venture Corp Ltd	Singapore	1,907	13	2	9	Malaysia, Thailand
Multipolar Tbk	Indonesia	1,795	4	2	4	Singapore, Malaysia
Samart Corp Pcl	Thailand	703	5	4	12	Cambodia, Malaysia, Myanmar, Indonesia
Hana Microelectronics Pcl	Thailand	663	7	1	1	Cambodia
Integrated Micro-Electronics, Inc	Philippines	635	11	1	2	Singapore
KCE Electronics Pcl	Thailand	483	3	1	1	Singapore
Unisem	Malaysia	398	7	2	3	Indonesia, Singapore
United Test and Assembly Center Ltd	Singapore	382	2	1	1	Thailand
Excelpoint Technology Ltd	Singapore	308	4	1	1	Malaysia

Source: ASEAN Secretariat, based on data extracted from Bureau Van Dijk's Orbis database.

Note: 1. This table provides an "order of magnitude" insight on key ASEAN MNEs, not a ranking per se. Total MNE assets are a firm's global consolidated total assets. However, firms' shares of assets overseas differ (such data are scarce for many ASEAN MNEs). Some MNEs do not provide sufficient details about their assets.

2. The industry type indicated for each MNE in this table is that assigned to the parent company by ORBIS; local subsidiaries might be involved in different industries and activities.

The ASEAN MNEs represented in tables 4.1 and 4.2 are typical examples of ASEAN firms in well-developed GVCs – computers, electronics, textiles, garments and footwear – with a strong foreign MNE presence through both FDI and NEMs. In most cases, these ASEAN firms were suppliers which became MNEs by following their clients into nearby economies as the latter established regional networks and value chains (figure 4.3). The same type of development has also occurred to ASEAN MSMEs in other industries and value chains, including those in heavy industries such as basic chemicals and steel (section 3.2.3, box 4.6).

In due course, as MSMEs have become more adept internationally, they have expanded beyond ASEAN, most commonly to East Asia (many MNEs have production networks that span East and South-East Asia) but also further afield. Of course, by this stage many are no longer MSMEs. More recently, there has been a spate of start-ups in ASEAN which can be regarded as 'born regional' or 'born global', which are international at inception. These are often connected to e-commerce or other digital platforms which have a significant presence in ASEAN because of the prevalence of electronics and ICT MNEs; in many cases, the founders of these start-ups worked at or were associated with MNE subsidiaries (chapter 5, ASEAN Secretariat and UNCTAD 2016). Many were also founded or co-founded by women (section 4.3.3).

TABLE 4.2 Selected top ASEAN MNEs in textiles, garments and footwear by total ASEAN assets, 2016

Company	Home country	Total assets ($ millions)	Presence (number of countries in which present)		Number of principal subsidiaries in ASEAN	ASEAN Member States in which present
			Foreign	ASEAN		
Indorama Ventures Pcl	Thailand	7,211	30	5	10	Thailand, Indonesia, Philippines, Myanmar
Saha-Union Pcl	Thailand	670	3	1	1	Thailand
Wing Tai Malaysia Bhd	Malaysia	477	5	3	3	Malaysia, Singapore, Indonesia
Southland Resources Co Ltd	Thailand	242	4	3	2	Thailand, Singapore, Malaysia
MWE Holdings Bhd	Malaysia	211	7	3	4	Malaysia, Cambodia, Viet Nam, Singapore
Thanulux Pcl	Thailand	114	5	3	4	Thailand, Malaysia, Philippines
Ricky Putra Globalindo Tbk	Indonesia	95	1	2	2	Indonesia, Viet Nam
Summit Footwear Co Ltd	Thailand	86	4	3	3	Thailand, Singapore, Myanmar
PCCS Group Bhd	Malaysia	71	3	2	8	Malaysia, Cambodia
South Island Garment Sdn Bhd	Malaysia	62	1	2	7	Malaysia, Viet Nam

Source: ASEAN Secretariat, based on data extracted from Bureau van Dijk's Orbis database.

Note: 1. This table provides an "order of magnitude" insight on key ASEAN MNEs, not a ranking per se. Total MNE assets are a firm's global consolidated total assets. However, firms' shares of assets overseas differ (such data are scarce for many ASEAN MNEs). Some MNEs do not provide sufficient details about their assets.

2. The industry type indicated for each MNE in this table is that assigned to the parent company by ORBIS; local subsidiaries might be involved in different industries and activities.

3. Total assets of ASEAN MNEs include those of the parent company.

BOX 4.6 ICT Group Ltd *(Indonesia)*

The company was established in Indonesia in 1993. It sources and trades various steel products throughout ASEAN. It also sells steel products to China, Europe, Latin America and the United States. The company has a staff of 30. It has overseas marketing and sales offices in China, Hong Kong, Malaysia, Thailand and Viet Nam.

Most of the revenues of the company are generated abroad. It internationalized to service MNEs and other companies, and to source materials by operating close to suppliers. It is important for the company to have a presence in rapidly growing markets in the region. The initial inspiration for ICT Group's expansion abroad was the vision of the owner that some ASEAN Member States would witness rapid growth in demand for steel. It was a natural step for the company to do marketing and sales in China, Malaysia, Thailand and Viet Nam, as an export interface for its suppliers based in Indonesia.

The major customers and suppliers of the company vary from year to year. Most of them are steel companies and companies that produce steel products, with which ICT Group has been doing business for a long time.

A major challenge is to convince suppliers that it is worth their while to do business with the company's buyers in the region, considering the payment and country risks. The challenges to the company for expanding include regulatory constraints (anti-dumping safeguards, compliance with national standards) that restrict the trade of steel products. The company has never received any government support.

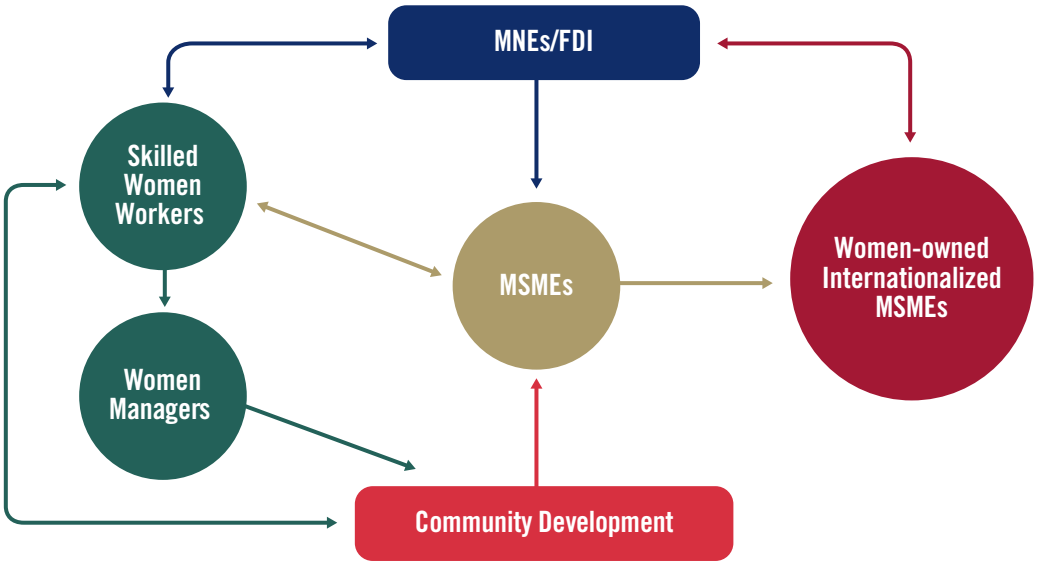
The company has some understanding of regional developments. However, it is not clear how much MSMEs will benefit from the AEC in view of various regulations and non-trade tariffs that remain in place, and given the financial constraints they face.

Source: adapted from ASEAN Secretariat and UNCTAD 2016.

4.3 Women, MNEs and community development

Women in ASEAN have benefited overall from FDI and are pivotal actors translating FDI outcomes into community development and change, but they are more likely than men to be affected by labour abuses and bad human resources practices. As employees for MNEs, working directly at a subsidiary or indirectly in MSMEs in a contractual relationship with a subsidiary, women (like men) have gained skills and expertise in a range of sectors, from agriculture through manufacturing in industries such as electronics, garments and motor vehicles, to banking, hospitality and other services (figure 4.4). As subsidiaries and industries have expanded in ASEAN, a common experience is for clusters of firms within cognate industries to develop, creating further job opportunities and enabling the development of skills in later generations of working women (section 4.3.1, box 4.1).

FIGURE 4.4 Channels of FDI impact on women



Source: ASEAN Secretariat.

Women workers accumulate savings and make economic transfers to their families and communities, who are often in poorer parts of a Member State, generating development gains. Women are more likely than men to spend their wages in ways that benefit child health, education and community development. In addition, for women in repressive, discriminatory contexts, social change also occurs when they leave for work, gaining economic independence and autonomy over life conditions. For example, women who obtain waged employment through large-scale agricultural investment projects have sometimes made significant lifestyle changes and report feeling more empowered and independent (UNCTAD and World Bank 2014, 2017).

FDI has enabled women to become active drivers of growth and community development, in large part due to the training and experience they receive while working for MNEs. With this knowledge some have moved up the occupational ladder to become managers and entrepreneurs, starting their own MSMEs (section 4.3.2). Many women have been trained in digital related industries, such as ICT and electronics, which stands them in good stead in the current era of digital platforms (section 4.3.3, chapter 5). Furthermore, some women entrepreneurs complete the cycle by internationalizing their businesses, sometimes in cooperation with MNEs.

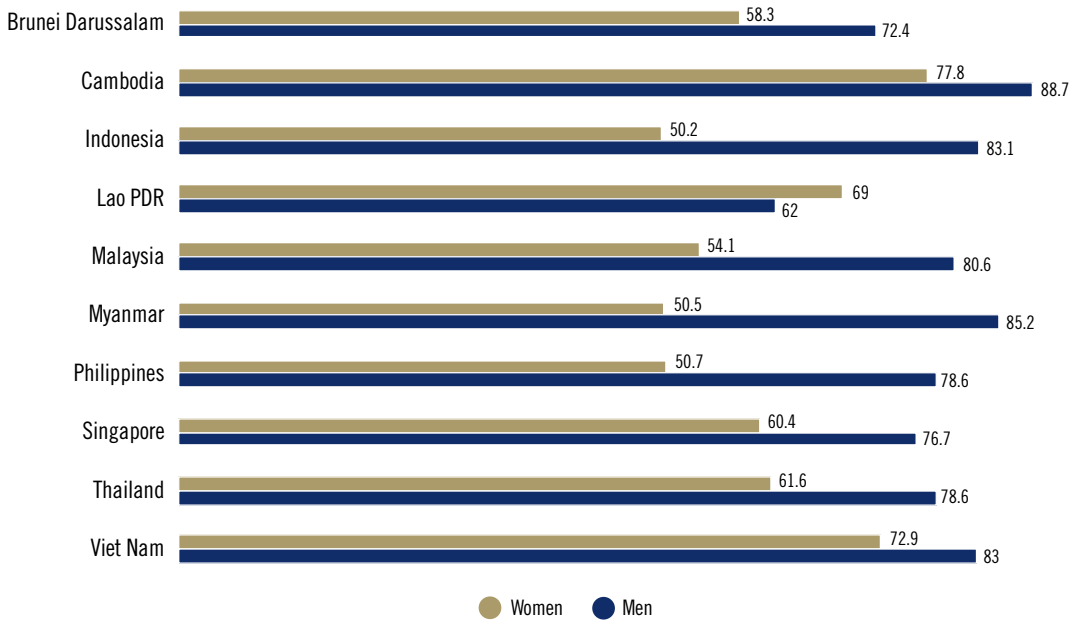
Women have a strong presence in many industries in which global value chains operate primarily through subcontractors , rather than FDI, who supply finished or semi-finished goods – for example, garments and textiles. Such arrangements can create accountability gaps that allow labour abuses to proliferate. (Of course, bad labour practices can also occur in subsidiaries and in all industries.) Women workers are particularly at risk, because they are more likely to be crowded into informal or temporary jobs, have often received less information about their rights, and are typically more fearful about speaking out when abuses occur (section 4.3.3). It is therefore essential that MNEs manage their value chains responsibly so that both FDI (subsidiaries) and NEMs (e.g. contractual relations with suppliers) contribute to gender equality, women's empowerment and community development, rather than undermine them.

4.3.1 Women in the workforce

Women are an extremely important constituent of the workforce for MNE activities. FDI in several key industries, including agribusiness, electronics, garments and textiles, has encouraged particularly high rates of labour force participation among women in many ASEAN countries. Women are most active in the labour force in Cambodia (77.8 per cent), Viet Nam (72.9 per cent), Lao PDR (69 per cent) and Thailand (61.6 per cent) (figure 4.5). However, these data do not include women's unpaid contributions to family farming and family businesses. Indonesia, Malaysia, Myanmar and the Philippines have the largest gaps in labour force participation between women and men. Cultural factors in these countries may help to explain the relatively low share of women in formal economic activity. Yet, they also have among the highest rates of activity by women entrepreneurs (section 5.3.2).

Whereas women have a notably strong presence in the ASEAN labour force, gender parity in their conditions of employment and work has yet to be achieved (figure 4.6). The data indicate a gender gap in pay, as measured by both actual work performed (earned income) and executives' perceptions of equal pay for equal work (wage equality). Viet Nam and Indonesia demonstrate the most demarcated inequality in wages for equal work, with women presumed to earn only 64 per cent and 68 per cent of what men earn, respectively. Wage equality seems the closest to being achieved in Singapore, where women are thought to earn 81 per cent of what men earn for equal work; in the Philippines the figure is 80 per cent and in Brunei Darussalam it is 79 per cent. Despite the gender pay gap, in several ASEAN countries (Lao PDR, Singapore, Thailand and Viet Nam) the ratio of female to male earned income is higher than in Iceland – which the World Economic Forum ranks as the most gender-equal country in the world.[6]

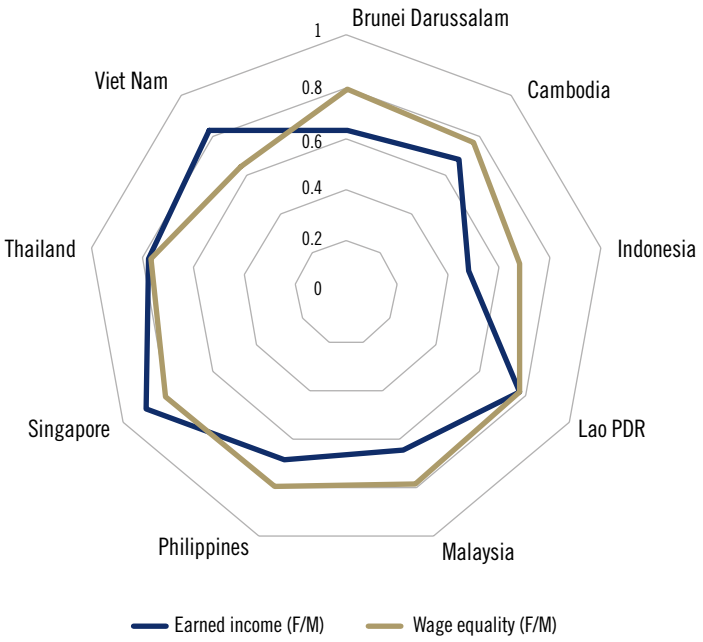
FIGURE 4.5 Labour force participation rates by gender, ASEAN Member States, latest years



Source: ASEAN Secretariat.

Note: Most recently available data, 2013 to 2015.

FIGURE 4.6 Gender pay gap indicators, ASEAN Member States



Source: *Calculated from World Economic Forum Global Gender Gap Report (2016). Earned income was calculated (by World Economic Forum researchers) using the methods of the UNDP Human Development Report. Wage equality ratios were sourced (by World Economic Forum researchers) from the World Economic Forum's Executive Opinion Survey, 2015-16. Wage equality data were rescaled for the Global Gender Gap Report as an opinion statement, 0 to 1, where 1 represents wage equality for equal work. Data for Myanmar are not available.*

A greater share of ASEAN women (16 per cent women in the region) are in high-skill occupations than in the Asia-Pacific region as a whole (14.3 per cent), as is the case in India (12.6 per cent) and in China (12 per cent) (table 4.3). These figures mask diversity in the occupational structures of China, India and ASEAN itself, but can be taken as indicative of women's inclusion in high-skill jobs at a general (national or regional) level. ASEAN women on average also fare better than African women in this category. As compared with women in higher-income regions of Latin America, the Arab world, North America and Europe, however, the share of ASEAN women in high-skill occupations is small (though participation levels also need to be considered). The Member States with the highest-skilled workforces in 2016 were Singapore, Brunei Darussalam, the Philippines, Malaysia and Thailand (table 4.4).[7]

TABLE 4.3 Employment distribution of women by skill level and region, 2016 *(Per cent)*

Area	High-skill Women (Total workforce)	Medium-skill Women (Total workforce)	Low-skill Women (Total workforce)
Europe and Central Asia	42.9 (38.3)	45.7 (51.4)	11.4 (10.3)
North America	41.4 (42.6)	44.6 (45.3)	14.0 (12.1)
Arab States	34.5 (23.7)	57.9 (63.6)	7.6 (12.7)
Latin America and Caribbean	23.5 (20.1)	55.9 (60.5)	20.6 (19.5)
ASEAN	**16.0** **(14.7)**	**63.8** **(63.7)**	**20.2** **(21.6)**
Asia and the Pacific	14.3 (14.9)	69.7 (69.0)	16.0 (16.1)
India	12.6 (15.2)	57.6 (58.2)	29.8 (26.6)
China	12.0 (12.2)	77.5 (79.6)	10.4 (8.2)
Africa	6.1 (8.7)	78.5 (78.2)	15.4 (13.1)
World	**19.7** **(19.1)**	**64.9** **(65.9)**	**15.4** **(15.0)**

Source: ASEAN Secretariat, based on data extracted from Bureau van Dijk's Orbis database.

Note: 1. This table provides an "order of magnitude" insight on key ASEAN MNEs, not a ranking per se. Total MNE assets are a firm's global consolidated total assets. However, firms' shares of assets overseas differ (such data are scarce for many ASEAN MNEs). Some MNEs do not provide sufficient details about their assets.

2. The industry type indicated for each MNE in this table is that assigned to the parent company by ORBIS; local subsidiaries might be involved in different industries and activities.

Relative gender employment patterns in ASEAN as a whole resemble those of high-income countries, in which a slightly higher share of women is employed in high-skill jobs than men (2 per cent more). Low-income or highly unequal ASEAN member nations (Cambodia, Lao PDR, and Myanmar) more closely resemble the world's low-income countries, where men are nearly twice as likely as women to work in high-skill jobs (5.8 per cent of men as compared with 3.0 per cent of women) (table 4.4). Singapore, a high-income ASEAN Member State, also has a higher share of men than women in high-skill employment. This might reflect the high share of male expatriates working for multinational enterprises; the data did not include this level of detail.

TABLE 4.4 Share of women and men in high-skill occupations in ASEAN Member States, 1991–2021 *(Per cent)*

ASEAN member nation	1991		2001		2011		2016		2021 projected	
	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
Brunei Darussalam	21.9	23.6	23.5	23.6	36.1	36.0	40.2	41.2	42.8	42.9
Cambodia	2.2	7.2	2.1	5.5	2.6	4.7	2.8	4.9	3.1	5.4
Indonesia	6.3	5.7	6.6	6.3	10.1	8.1	11.9	8.9	13.0	9.5
Lao PDR	2.9	6.1	3.1	6.5	3.2	7.0	3.2	7.1	3.3	7.3
Malaysia	18.9	23.5	22.6	25.2	27.7	25.5	27.5	24.6	29.3	25.5
Myanmar	11.7	15.6	12.4	17.1	13.8	20.9	16.8	26.4	18.0	28.2
Philippines	24.9	9.6	26.6	11.3	30.3	15.8	31.6	19.8	33.6	21.3
Singapore	20.7	31.5	40.9	49.8	50.1	57.1	52.1	59.4	52.3	58.9
Thailand	10.3	13.7	12.4	15.0	11.6	10.1	15.6	13.0	16.3	13.4
Viet Nam	5.4	5.1	6.0	5.9	10.2	9.7	11.6	10.4	12.8	11.2
ASEAN	**9.6**	**9.2**	**11.0**	**10.2**	**13.9**	**11.9**	**16.0**	**13.8**	**17.2**	**14.7**
High-income countries	**29.6**	**30.4**	**34.1**	**34.3**	**37.7**	**36.2**	**39.1**	**37.1**	**39.7**	**37.5**
Low-income countries	**2.7**	**5.3**	**2.8**	**5.5**	**2.9**	**5.6**	**3.0**	**5.8**	**3.0**	**6.0**
World	**14.3**	**13.8**	**15.6**	**15.1**	**18.6**	**17.5**	**19.9**	**18.6**	**20.5**	**19.1**

Source: Compiled from ILOSTAT publicly available modelled estimates. High-skill = managers, professionals, and technicians and associate professionals. Medium-skill = clerical, service and sales workers; skilled agricultural and trades workers; plant and machine operators; and assemblers. Low-skill = elementary occupations.

For ASEAN over the entire 1991–2021 period, a higher share of employed women than men has worked and will work in high-skill occupations, partly reflecting women's high participation rates in tertiary education and management, and their employment in MNE subsidiaries (box 4.7). For example, in 2016, a higher share of women than men worked in high-skill jobs in Indonesia, Malaysia, Thailand, Viet Nam, and – most remarkably – the Philippines, where 31.8 per cent of women – as compared with 19.8 per cent of men – work in high-skill occupations. Taken together, ASEAN countries have made significant strides with respect to the employment of women in high-skill occupations during the period and in forecasts to 2021 (figure 4.7).

Singapore, with an exceptionally high stock of FDI, has seen its share of women employed in high-skill jobs double since 1991 (from 20.7 per cent to 52.3 per cent) and since 1997 has outperformed high-income countries worldwide in this area. Singaporean women have made notable gains in the digital industries (section 4.3.3). Brunei Darussalam also achieved a rapid and significant shift of women workers into high-skill sectors during the period. The share of women in high-skill employment surpassed that of high-income countries in 2013, and it is forecast that 42.8 per cent of employed women will have high-skill employment by 2021. This reflects the growth of public sectors such as health and education, in light of the significant public resources arising from the exports of oil and gas. The industry is dominated by MNEs, primarily Royal Dutch Shell (United Kingdom) in a joint venture with the Member State (Brunei Shell Petroleum Company, or BSP).

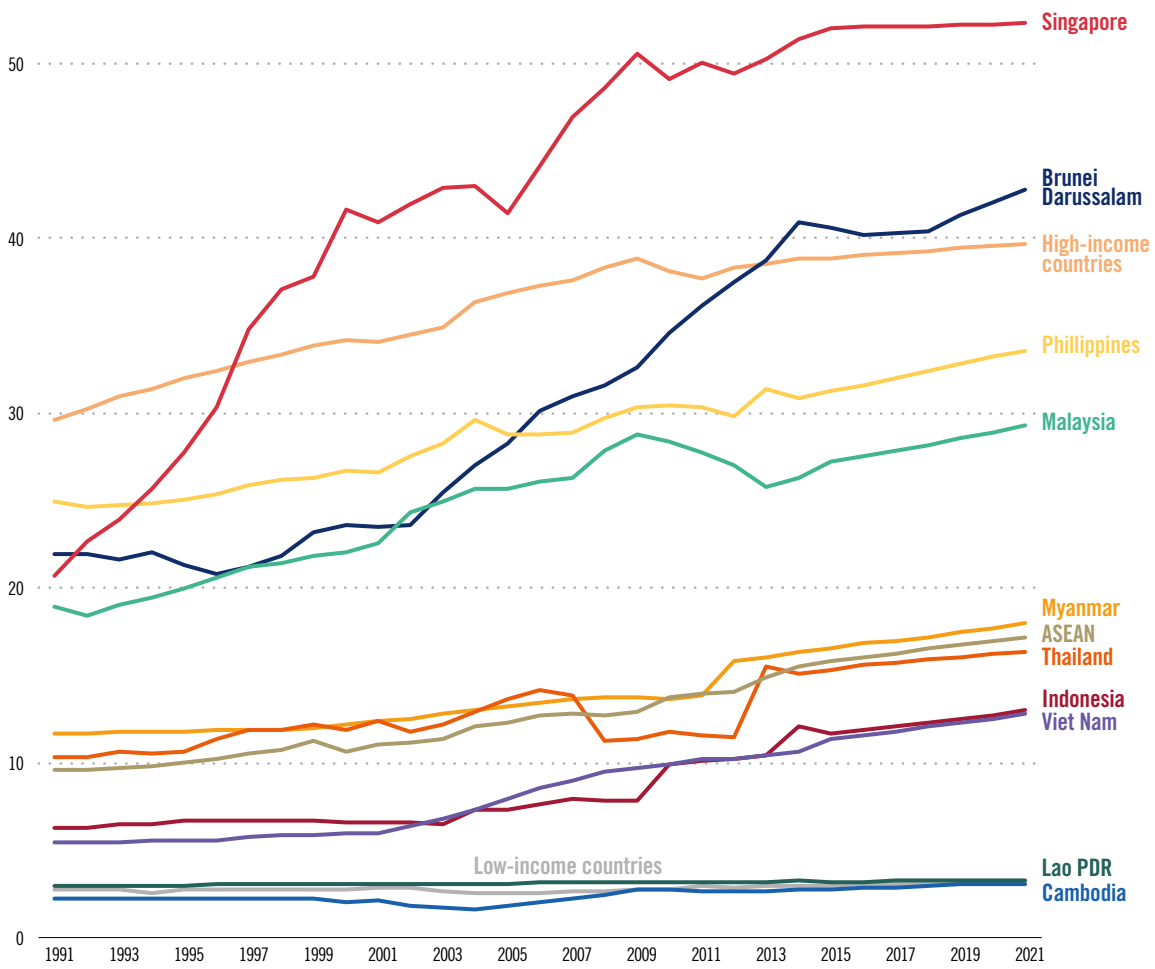
The Philippines and Malaysia have also achieved remarkable increases in the shares of employed women who held high-skill jobs, owing to the marked success of the electronics and digital industries.

In the Philippines this percentage increased from 24.9 per cent to 31.6 per cent between 1991 and 2016, and is forecast to reach 33.6 per cent by 2021. Malaysia began the period with 18.9 per cent of its employed women in high-skill jobs, and is forecast to reach 29.3 per cent by 2021.

In Thailand, the number of high-skill women is not insignificant, but its lower share might reflect the dominance of the automotive industry, which favours employing men. Although cultural gender norms in Indonesia restrict women's involvement in high-skill jobs, their proportion doubled to approximately 13 per cent during the period.

ASEAN's lower-income Member States have also achieved progress in this area. In fact, in all Member States the share of women in high-skill employment rose between 1991 and 2016. Furthermore, all are forecast to see a further increase by 2021. This is notable considering that the share of women in high-skill employment for low-income countries worldwide increased only marginally, from a very low 2.7 per cent to 3.0 per cent over the period. The ASEAN nations that roughly match this trend are Lao PDR and Cambodia (where foreign firms are present in agriculture, mining and garments), although the latter is forecast to achieve a higher percentage point increase (from 2.0 per cent to a forecasted 3.1 per cent by 2021).

FIGURE 4.7 Share of employed women in high-skill jobs, ASEAN Member States, low- and high-income countries, 1991–2021 *(Per Cent)*



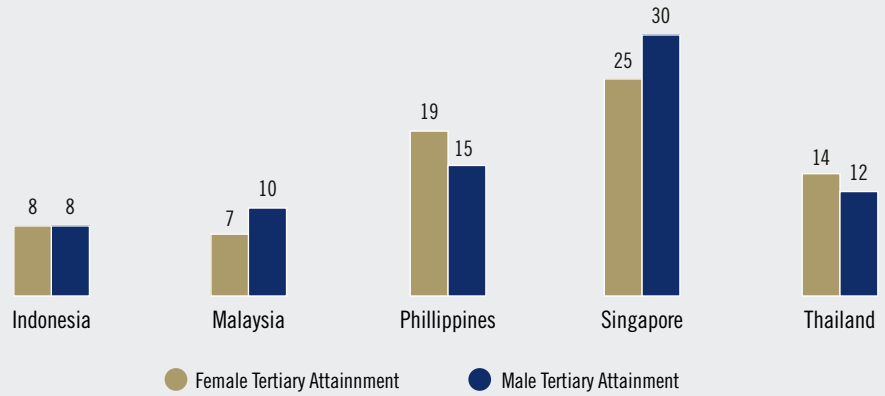
Source: ASEAN Secretariat, compiled from ILOSTAT publicly available modelled estimates.

BOX 4.7 Women in tertiary education, women entrepreneurs and top management

High rates of women's participation in tertiary education contribute to their strong presence in high-skill occupations (box figure 4.7.1).

In the Philippines and Thailand, female tertiary educational attainment is a little higher than that of men. The gender gap in favour of women is largest in the Philippines (19 per cent of the female population versus 15 per cent of the male population). In Indonesia, women and men alike complete tertiary education at a rate of 8 per cent. In Malaysia and Singapore, men have a higher rate of tertiary achievement than women.

BOX FIGURE 4.7.1 Gender differences in tertiary educational attainment, selected ASEAN States

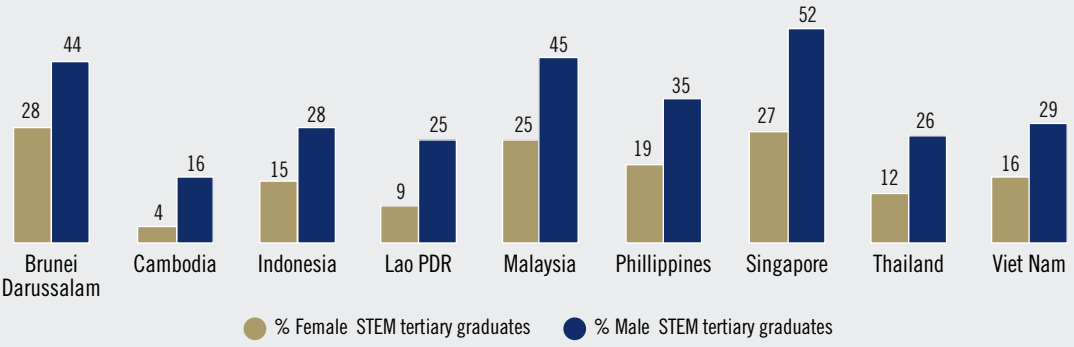


Source: WEF (2016).

Tertiary education is a crucial factor in promoting entrepreneurship. That is, entrepreneurs are far more likely than the average population to have tertiary education in several ASEAN countries (APEC 2013). It may be particularly important for women entrepreneurs (with the exception of micro-entrepreneurs). For example, in Indonesia, there is a significant difference in tertiary educational attainment between women and men entrepreneurs (76 per cent and 54 per cent respectively), and between entrepreneurs and the average population (23 per cent) (APEC 2013).

With respect specifically to STEM fields, which often lead to the highest-skill (and best-paid) jobs, men's participation in STEM fields is greater than women's in all ASEAN nations – unsurprising, given a similar global trend (box figure 4.7.2). The disparity is greatest in Cambodia, where the ratio of women to men in STEM is only 0.28, and it is smallest in Brunei Darussalam, at 0.63. Investment in women's participation in STEM fields through scholarships and encouragement to the private sector is a critical next step for ASEAN members seeking to promote women's participation in high-skill jobs.

BOX FIGURE 4.7.2 Share of tertiary graduates in STEM fields, by gender



Source: WEF (2016), citing data from UNESCO Institute for Statistics database (no specific year given). Data not available for Malaysia.

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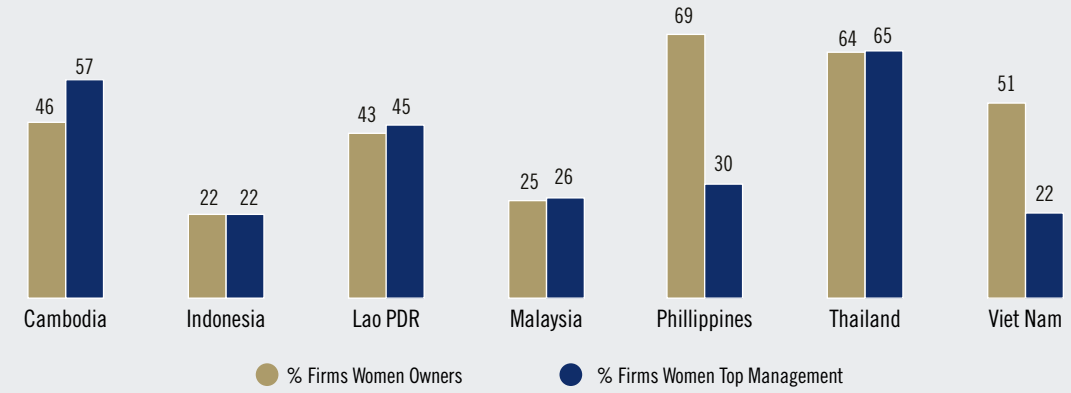
Women business owners and top managers

BOX FIGURE 4.7.3 Share of firms with female leadership, select ASEAN Member States



Source: OECD (2016), which sourced data from the World Bank's World Development Indicators for 2015, or the most recent available data. Top manager = highest-ranked manager, or CEO, and may overlap with business owner.

Women are represented among ownership or top management in at least 50 per cent of businesses in Cambodia, the Philippines, Thailand, and Viet Nam (box figure 4.7.3). Whereas Cambodia sees a notably higher share of women in top management (57.3 per cent) than in firm ownership (46.2 per cent), the reverse is true for the Philippines (69.2 per cent of businesses have female owners, while only 29.9 per cent have female top managers), and for Viet Nam (51.1 per cent of firms have female owners, while only 22.4 per cent have female top managers). Very high shares of women firm ownership in the Philippines, Thailand and Viet Nam might reflect women's active involvement in MSMEs.

Source: ASEAN Secretariat.

4.3.2 Women, entrepreneurship and MSMEs

Women entrepreneurs tend to be clustered in industries where they have developed skills and training working for MNEs or MNE-linked local firms. The share of women entrepreneurs in the retail, hotel, and restaurant industries is particularly high, at 75 per cent – for men entrepreneurs, the comparable figure is 59 per cent. However, they also play a significant role in electronics, garments and agriculture, among others, as discussed below. The most significant growth sectors for new female entrepreneurship in ASEAN are agriculture, forestry, and fishing (72 per cent increase) and manufacturing (69 per cent increase) (Xavier et al 2016). Examples of enterprises established by women, many of which have gone international, include TMA Solutions (Viet Nam) (box 4.8), Doku (Indonesia's leading e-payment business platform, established in 2007), Dao-Heuang Group (Lao PDR, agricultural products, 1991), Human Nature (Philippines, natural bath and beauty products, 2008), Grab (Singapore) (box 4.12) Zilingo (Thailand, leverages artificial intelligence to provide customers with a better shopping experience, 2015), Love, Bonito (Singapore, fashion blog shops, 2006), Rags2Riches (Philippines) (box 4.9) and FashionValet (Malaysia, online fashion and beauty designer, 2010).

Women entrepreneurs have been active in ASEAN for decades, and have created successful international companies, even in traditionally male-dominated industries companies engineering and software services (though this is changing, section 4.3.3); TMA solutions being a case in

point (box 4.8). Women entrepreneurs are adept at creating backward linkages that stimulate growth across the local economy, with particularly high benefits for women and local communities (box 4.6). For example, women business owners in Indonesia, Thailand, the Philippines, and Malaysia hire more female employees than men. Indonesian women business owners hire a particularly high share of female employees: on average, 45 per cent of employees of women-run business are female, as compared with 27 per cent in men-run businesses (APEC 2013).

BOX 4.8 TMA Solutions *(Viet Nam)*

TMA Solutions, a leading domestic Vietnamese ICT services firm, was established by Ms. Bui Ngoc Anh with 6 new graduate engineers in 1997. It expanded abroad in the ensuing years, opening sales offices in Canada, the US, Australia and Ireland. All of TMA's work in the early days was in telecommunications software (mostly for Nortel). With Nortel's bankruptcy eight years ago, business fell by 50% and it started to diversify into finance, health care, logistics, education and e-commerce. With a current workforce of 1800, It has clients across ASEAN, East Asia, Europe and North America. These include, Alcatel-Lucent (France), Avaya (United States), Nokia (Finland) and Sharp (Japan).

TMA Solutions recently established an R&D center in Viet Nam's most important software development zone, Quang Trung Software City. The aim of this team is to develop TMA-branded products to commercialize overseas. One product they are working on with a partner in Australia is a software solution to reduce human genome mapping time from several days to about less than an hour. While software outsourcing remains TMA's main line of business and source of revenue, the company, and others like it in Viet Nam, has staged efforts to develop proprietary products, drawing on local talent, with some but at present limited success because of a lack of experience.

Source: Sturgeon and Zylberberg 2016 (updated).

Women play a critical role in economic development in the ASEAN region as entrepreneurs, though they also face significant obstacles in this role (box 4.10). There are an estimated 61.3 million women entrepreneurs in the 10 ASEAN member nations, or 9.8 per cent of the total population (Xavier et al. 2016). Looked at another way, 45 per cent of businesses in ASEAN are owned by women (Sasakawa and Dalberg 2017). In fact, only 6 of the 60 countries studied by the Global Entrepreneurship Monitor have rates of women to men entrepreneurs that are equal or higher; 5 are ASEAN countries (the Philippines, Viet Nam, Thailand, Indonesia and Malaysia). Moreover, the share of the female population that owns a business in ASEAN countries ranges from 8 per cent to 21 per cent, significantly higher than the global average (8 per cent). Looking to the future, the share of women perceiving themselves to have the capability to start a business in ASEAN stood at 54.8 per cent between 2013 and 2015, which may be in part related to government investment in infrastructure and the promotion of an investment-friendly environment (Xavier et al. 2016, Sasakawa and Dalberg 2017).

In some Member States, the rate of female to male entrepreneurship (as shares of women and men entrepreneurs in the female and male populations, respectively) favours women; for instance, in Indonesia (1.2), the Philippines (1.3) and Viet Nam (1.3). In fact, in Indonesia, the rate of growth of women's ownership of MSMEs is 8 per cent per year, while ownership of MSMEs by men is declining; in Malaysia, women-owned MSMEs are growing at a rate of 9.7 per cent. Women-owned businesses are also growing at a faster rate than men's in Thailand. In Malaysia, a favourable business context for women has facilitated rapid growth of women's ownership of SMEs, albeit from a low starting point (APEC 2013).

BOX 4.9 Rags2Riches *(Philippines)*

Rags2Riches is a successful Filipino social enterprise that "turns garbage into gold". Its young female president, Reese Fernandez-Ruiz, says R2R "brings the worlds of fashion and development together" by employing women in Payatas, the largest dump site in Manila, to weave scrap textiles and organic materials into artisanal fashion accessories.

Fernandez-Ruiz, who helped co-found the company in 2007, has a global education in social entrepreneurship, having participated in the Harvard Business School Executive Education Program and the University of the Arts London Sustainable Fashion Program, as well as holding a science degree from Ateneo de Manila University. Long before these prestigious experiences, she grew up playing with street children as the daughter of a missionary. Her childhood taught her the equality of all human beings, which is reflected in her company's self-described eco-ethical, "4P" approach – People, Planet, Profit and Positive Influence.

Reese is a self-described "on-the-ground entrepreneur" who was appalled by the conditions of work of pay faced by the women of Payatas upon a visit around a decade ago. These micro-entrepreneurs were sourcing scraps of material and cloth from the famed dump – by some accounts, seven storeys high – and weaving them into rugs that were then sold by middlemen who paid them a meagre 20 cents per piece.

Fernandez-Ruiz and her colleagues first connected these artisan producers to a steady supply of waste material from nearby garment factories. The next step was to give the women training in creating other fashion products, and finally, to bring on board some of the Philippines' top fashion designers in order to enter high-end markets. Through partnerships with local civil society organizations and her own business savvy, Fernandez-Ruiz helped these women become successful micro-entrepreneurs producing global trend-setting handbags, garments and home accessories. Today, the company employs more than 200 artisans, many of whom work from home to help balance their work with family responsibilities, and has trained over 900 women in 21 Manila-area communities.

R2R understands the broad challenges faced by its women artisans. To address these challenges, the women are paid 40 per cent of the price of their product, earning on average between $9 and $16 per day. R2R also operates a "Quality of Life Programme" through which they can obtain insurance, business training and support with nutrition. Partnerships with several local civil society organizations complement these efforts. Moreover, the company has a strong environmental conscience, as exhibited by its recycling strategy and a zero-waste central production site.

About 90 per cent of company sales are within the Philippines, but, thanks in part to online sales through a modern and stylish webpage, has expanded to at least 12 cities around the world, including major western markets. A 2013 contract with urban fashion retailer Anthropologie (United States) to sell handbags in its U.S. and European stores helped it to reach global markets. In fact, the queens of Belgium and the Netherlands have been spotted sporting R2R handbags, which are attracting increasing interest in Europe for their rare indigenous materials, like coconut husk.

The company has achieved several major markers of success. Expected annual sales for 2016 were $380,000, up from $100,000 in 2014. Fernandez-Ruiz was one of Forbes 2015 "30 under 30" global "movers", a World Economic Forum Young Global Leader in 2012 and one of only five Rolex Young Entrepreneurs in 2010. R2R has been profiled in major international media outlets including Business World Online, CNN, The Guardian, Huffington Post, National Geographic and Vogue.

Source: ASEAN Secretariat, based on various sources.

BOX 4.10 Obstacles and risks for women entrepreneurs

There are several perceived barriers to women's entrepreneurship in the ASEAN region, which are summarised in this box. Such barriers affect how and the degree to which they interact with MNEs, including as subcontractors. The digital economy – and previous work at MNEs – is boosting their opportunities as entrepreneurs (section 4.3.3, chapter 5).

Gender discrimination against women in business. Gender norms that depict women's role as in the home, rather than in the business sphere, present a persistent barrier to their success. In the Philippines and Indonesia, male business owners are much more likely than businesswomen to believe that family life suffers when women work. Malaysian women believe that social norms have adapted to accept women as business owners, but that discrimination persists in business operations (UNESCAP 2013). Fear for one's safety and security as a business owner is also gendered. In Malaysia, as many as 90 per cent of women business owners worry about crime and physical security, as do 80 per cent in the Philippines (APEC 2013). Moreover, a large share (roughly 40 per cent) of Indonesian women and men business owners believe that women should worry more about crime and security.

Weakly developed business networks. Women tend to have greater difficulty accessing and benefitting from professional networks. However, an interesting exception is Indonesia, where women are 23 per cent more likely than men to be a member of a business association. There is evidence that having a female role model, such as a family member who already owns a business, is an important factor in encouraging women to become entrepreneurs (Sasakawa and Dalberg 2017, APEC 2013, UNESCAP 2013).

Constraints on time and mobility. Although women entrepreneurs believe that being married supports their ability to become business owners, their responsibilities in the household mean they have less time than men to spend on their business activities, including networking and capacity development (UNESCAP 2013). In fact, personal constraints, often related to domestic responsibilities and travel constraints, are a far stronger reason to exit one's business for women (one third of female business discontinuances in the region) than for men (one fifth of discontinuances) (Xavier et al. 2016).

Limited access to finance. Access to credit is extremely gendered given the bias against women in credit; and this bias exacerbates women's tendency to be risk averse. One study found that only 24 per cent of women entrepreneurs had obtained credit from a low-interest loan to start an SME. Over 40 per cent of women in Cambodia and Indonesia are unserved by credit markets, as are 24 per cent in the Philippines and 29 per cent in Viet Nam. In fact, those who feel they are well-served are in a small minority, ranging from 3 per cent in Cambodia to 21 per cent in Viet Nam (for these same four countries). In this constrained context, crowdfunding is emerging as an alternative financing option for Thai women entrepreneurs (Guelich and Guelich 2017, Sasakawa and Dalberg 2017).

Women entrepreneurs express a sense of frustration and distrust of credit markets. In fact, very large shares opt out of formal credit in Cambodia (48 per cent) and the Philippines (39 per cent). A study of male and female entrepreneurs in Thailand, Malaysia, Indonesia and the Philippines found that personal funds were the most common source of capital to start a business, and that 70 per cent of interviewees spent their entire personal savings to do so. Thus women, with lower personal capital levels, might face greater difficulty starting a business because of their lower levels of accumulated savings. In Indonesia, and likely elsewhere, women are also more sensitive to higher interest rates and are more likely than men to cite them as an obstacle to starting a business (APEC 2013).

Few opportunities for skill development. Unequal access to new business training and mentorship has created a gendered entrepreneurial skill gap. In Indonesia, for example, 32.5 per cent of men have access to training to start a business, as compared with only 18.2 per cent of women (OECD Gender, Institutions and Development database). Moreover, one quarter of Indonesian women acquire the skills required for their business through experiential learning and did not have access to capacity-building programs of either Government or the private sector (UNESCAP 2013).***

Weak development and gaps in policy and the regulatory frameworks. Business owners in some countries report their Governments are not easily accessible, with women even less likely than men to perceive them as supportive. Case studies of the policy environment has found that in some cases inadequate coordination

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among Government agencies responsible for women's entrepreneurship hampers registration and formalization. Formalizing a business may require a number of separate procedures that together take 50 days or more. Complicated formalization procedures create greater difficulty for women than men because of their time and mobility constraints. However, Malaysia performs more similarly to OECD high-income countries, requiring only three procedures and an average of 6 days. Adding to women's reluctance to undertake entrepreneurial activity are insufficient social safety nets in the case of failure or slow success (APEC 2013, UNESCAP 2013).

Gender disparities in access to information and communications technology. As explored further below, women and men are not equally connected to the digitalized economy. Men business owners are usually more aware of business-enhancing technologies than women.

These obstacles and risks place several limitations on the potential for women entrepreneurs to contribute positively to community development.

Small size: SMEs owned by women tend to be smaller and operate in less-profitable business sectors than SMEs owned by men. For example, in Malaysia fully 88 per cent of women-owned businesses are micro-enterprises (UNESCAP 2013). The small size of women's businesses means that their workforces are smaller, limiting their development contributions. Indeed, only 10 per cent of women's businesses in ASEAN employ more than five people. This significantly limits their job-creating capacity for other women. Moreover, ASEAN women entrepreneurs are less likely than men to say they expect to add new employees in the next five years (Sasakawa and Dalberg 2017, Xavier et al. 2016).

Business discontinuance: Women have more difficulty sustaining their businesses than men. In ASEAN, women's business exit rate (3.6 per cent) is higher than men's (2.2 per cent). Regardless, exit rates for both genders are very low (GEM 2016).

Necessity-driven: More women than men start their businesses because of a perceived lack of alternative livelihood options. This difference is relatively small for countries taken together. However, looked at individually, the gap is quite large in the Philippines, where 43 per cent women start their business out of a lack of perceived alternatives, as compared with 28 per cent of men. That said, the percentage of women in the region who perceive opportunities to start a business is growing at an extremely fast rate (Sasakawa and Dalberg 2017).

Source: ASEAN Secretariat, drawing on Sasakawa and Dalberg (2017), UNESCAP (2013), APEC (2013) and other sources.

4.3.3 Women, FDI and the future: contrasting opportunities and risks

Across ASEAN, women are active in the workforce because of educational and management experience, and also as a result of large-scale participation as staff and employees in MNEs and firms in their ecosystems. As a result, there is a sizeable share of women in higher-skill occupations, which is also supporting entrepreneurship in digital and advanced industries (section 4.3.2). At the same time, many women (and men) remain in low-paid, low-skilled jobs in GVCs such as garments, textiles and footwear. This distinction between different types of job, industry and GVCs (indeed, within industries and GVCs) will persist in the region for some time to come. This section, thus, contrasts these two types of situation using the garments, textiles and footwear industry, on the one hand, and the new digital economy on the other. In both cases, there are lessons to be drawn for women's empowerment and ensuring that FDI's contribution to economic and community development is generally beneficial and inclusive.

Women in the garments, textiles and footwear sector

Employment in the garments, textiles, and footwear industries is booming in many ASEAN countries, thanks to significant investments, and to a large degree because of subcontracting relationships with MNE manufacturers and retailers whose GVCs supply consumer markets in developed countries (chapter 2). These industries maintain their historic reliance on women workers.

Garments and textiles production employs 9 million people in ASEAN, primarily women, and is often young rural women's first job after leaving the agricultural sector. Taken together, the garments, textiles and footwear industries have the largest total workforces in Indonesia (nearly 4 million in 2014), Viet Nam (approximately 2.5 million in 2013), and Thailand (approaching 1 million in 2013). Although Cambodia is not a leader in employment in this sector, as a share of total merchandise exports, the country is extremely dependent on garments and footwear (77.4 per cent as of 2015). However, a closer look shows that women's employment varies significantly by subsector and by country (Chang et al. 2016, ILO 2015).

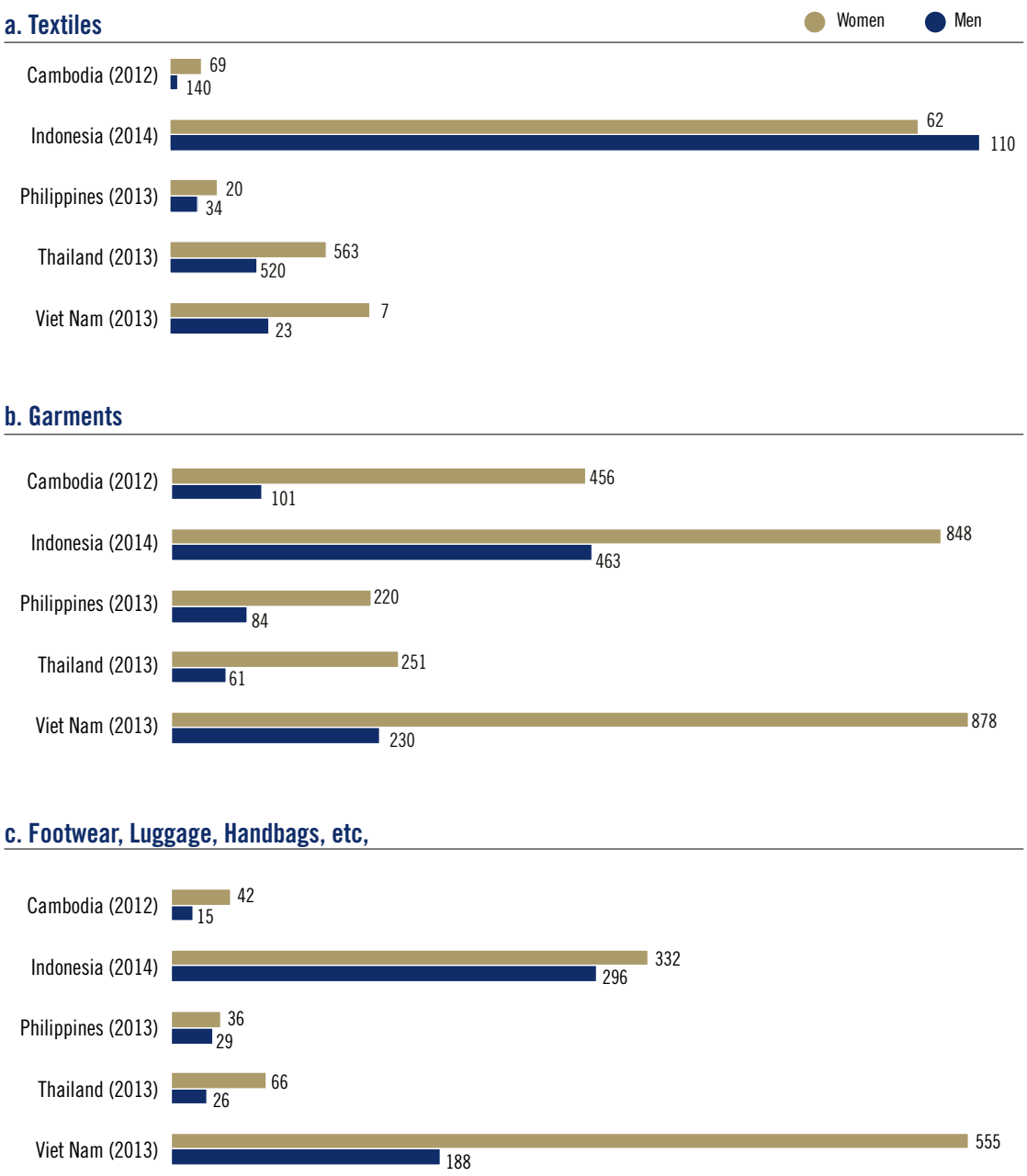
Figure 4.8 presents total numbers of women and men working in each industry by country. In the textiles industry, Indonesia outstrips all other ASEAN countries for which data are available in total employment as well as women's employment. In the garment industry, Indonesia but is marginally outpaced by Viet Nam, and it is vastly surpassed by the same country in the manufacturing of footwear, handbags and luggage.

Gendered employment patterns can be analysed even more closely by comparing the share of women workers in total employment for each industry, which makes it possible to draw several important conclusions about the role of women (figure 4.9). First, in the six ASEAN countries covered, the industries are heavily dependent on women's labour. In fact, women constitute a majority of workers in these industries in each country, with the exception of the Lao PDR footwear, luggage and handbags industry (14 per cent of workers), and the Indonesian textiles industry (a significant 48 per cent). Although all depend heavily the on women's work, the countries that make most use of women's labour (taking all three industries together) are Cambodia (81 per cent), Lao PDR (76 per cent), Viet Nam (76 per cent) and Thailand (74 per cent). The garments industry is particularly heavily dependent on women's work: more than three quarters of waged workers are women in Cambodia (82 per cent), Thailand (80 per cent), Viet Nam (79 per cent) and Lao PDR (77 per cent). Textile production in Lao PDR also depends heavily on women workers (94 per cent).

Moreover, young people are a particularly important source of labour for these industries. The average age of such workers was 24.5 years for Cambodia, 31.7 years for Indonesia, 27.8 years for Lao PDR, 30.4 years for Viet Nam, 36.5 years for the Philippines and 36.7 years for Thailand. Gaps between the average ages of women and men range from 1 year to 6.5 years (in Lao PDR, where men are older on average), to 4 years (in the Philippines, where women are older on average) (ILO 2015).

Employment and working conditions in these industries are under close observation by Governments and the international community for several reasons. One is pay: ASEAN workers in these industries are paid less than Chinese workers, reflecting differences in national minimum wages, and helping to explain the shift in production from China to ASEAN in recent years. Whereas all these workers are paid monthly wages of $491 in China (2013 data), the next closest pay rate is only $277 in Thailand

FIGURE 4.8 Employment by gender, selected ASEAN Member States *(Thousands)*



Source: Prepared from data presented in ILO (2015).

(2013) and falls as low as $96 in Cambodia (2012). Ensuring decent pay for this challenging job is particularly important in Lao PDR, which is dominated by home-based subcontracting (only one in three garment workers are salaried), and therefore a majority of workers are in the informal sector and are paid piece rates (ILO 2015, Chang et al. 2016).

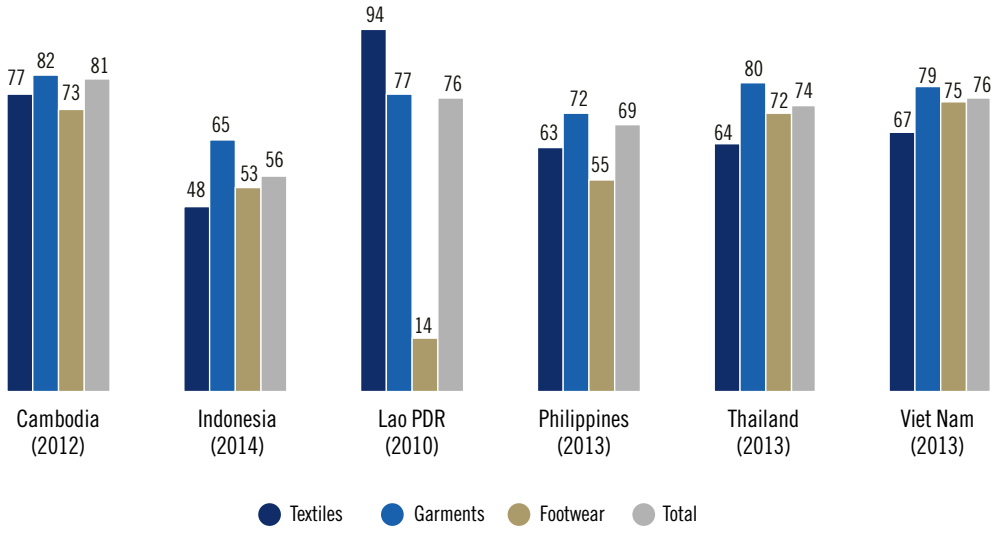
Moreover, there is a persistent and strong gender pay gap across ASEAN members. Adjusting for demographic and other differences, the gender pay gap in these industries ranges from 17 per cent to 25 per cent in the Philippines, Thailand and Viet Nam. However, it should be noted that this is

lower than in Pakistan (64.5 per cent) and India (34.6 per cent). Women are also more likely than men to find themselves exposed to sexual harassment in textiles and garment factories (ASEAN Secretariat 2016b).

The gender pay gap across the industry could reflect how women are crowded into low-skill jobs offering low pay. In Viet Nam, it is estimated that women constitute 65 per cent of workers, 52 per cent of supervisors, 47 per cent of middle managers and only 35 per cent of CEOs. In Myanmar, the presence of women among middle managers (and above) in the industry is as low as 10 per cent. Interviews with industry experts reveal the inside perspective: a majority of senior positions are held by men, with women clustered in low-skill, lesser-paid, junior positions. However, when they do make it to more senior positions, the benefits are substantial. Controlling for differences in gender and other factors, managers and technical professionals earn 21.1 per cent more than low-skill garment workers in Indonesia, 27 per cent more in Viet Nam and 52.6 per cent more in Lao PDR (ASEAN Secretariat 2016).

The future for ASEAN women in the textiles and garments industries looks cautiously optimistic. On the one hand, continued rising standards of living in China are likely to encourage manufacturers to continue shifting production to ASEAN countries, creating further economic opportunities for workers. On the other hand, several new technological trends in the sector, such as body scanners, "smart clothes" and green manufacturing, may contribute to the repatriation of production closer to customers who increasingly demand individually tailored apparel items. Automation of cutting and sewing – already seen in Myanmar – could further exacerbate the trend. Thus, a recommended way forward that could create a "win-win" for women workers and for customers would be to focus on production for local and regional markets, using more advanced technologies that women could be trained to operate. Investing in the education of women as skilled engineers and IT specialists could create significant advances for women's economic empowerment while benefitting the overall economy.

FIGURE 4.9 Women's employment as a share of total employment in textiles, garments and footwear, selected ASEAN Member States



Source: Prepared from data presented in ILO (2015).

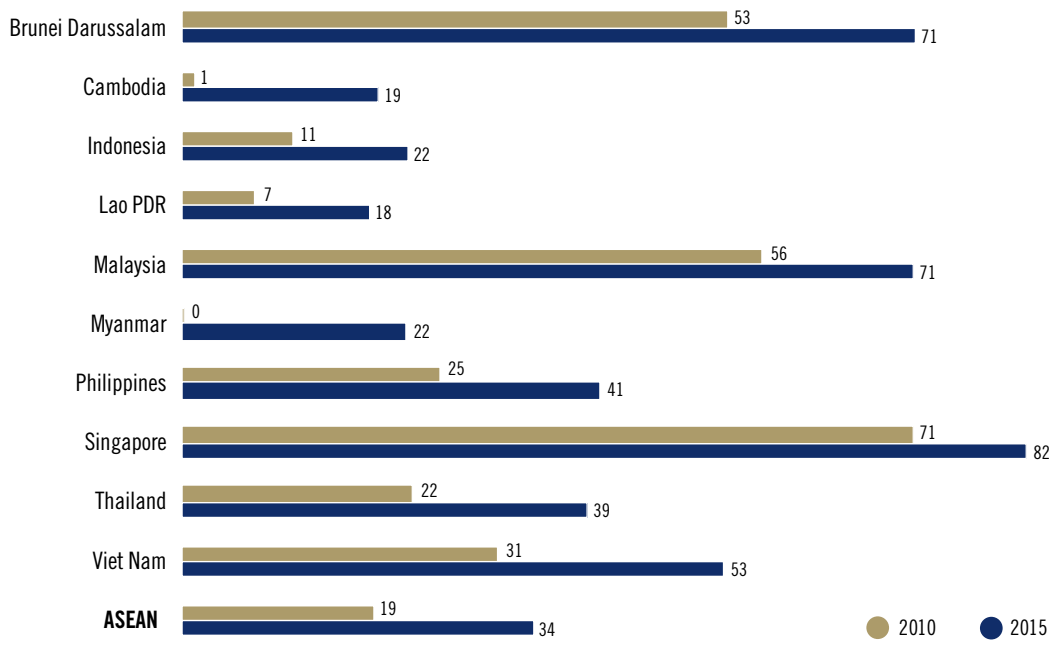
Women in the digital economy

The global economy is rapidly changing, as digitization and the fourth industrial revolution (chapter 5) disseminate and embed new technologies in nearly all realms of economic and social life. By some estimates, the global digital economy accounted for an estimated 22 per cent of the world economy in 2015, a share that will continue to increase. Innovations such as cloud computing, digital ecosystems and the platform economy are transforming the architecture of the world economy, the processes that undergird it and the labour force required to sustain it (Accenture 2016).

ASEAN Member States are no strangers to these processes, and indeed are at the forefront because of the region's centrality in the GVCs of ICT MNEs (chapter 5). Partly because of a MNE major presence, it is estimated that by 2030, some 80 per cent of ASEAN jobs will demand a digitally literate and ICT-capable workforce, with growth concentrated around activities such as e-commerce and digitally based or enhanced services and manufacturing (Sasakawa and Dalberg 2017, AT Kearney 2015). Whether women will benefit equally to men from these opportunities will depend on their access to digital technologies and related capacity development opportunities.

To keep up with, and in some cases, maintain leadership in these economic transformations, many ASEAN Governments and private sector actors are undertaking efforts to improve connectivity (chapter 5). Since 2010 alone the number of internet subscribers has increased rapidly in all ASEAN Member States (Figure 4.10).

FIGURE 4.10 Internet subscribers and users per 100 persons, ASEAN Member States, 2010 and 2015



Source: ASEAN Secretariat (2016a).

Several ASEAN members perform extremely well in terms of digital access. For example, Singapore is the second most highly ranked country worldwide in the Global Connectivity Index (GCI), and

considered a "frontrunner" nation in terms of digital connectivity (GCI 2017a). Malaysia is a "top mover" in the same index, thanks to significant Government investments in broadband bandwidth, 4G and cloud technology, and collaborations with telecommunication companies to improve coverage. Indonesia is expected to climb the CGI ranks fast, given the Government's commitment to invest in ICT development. Women and men have nearly equal access to the internet in ASEAN countries, for which such data is available (table 4.5). For example, under 50 per cent of the populations in Thailand and Indonesia at present use the internet, and less than 10 per cent of the population in Cambodia.

TABLE 4.5 Share of population using internet, women and men, selected ASEAN Member States *(Per cent)*

	Share of population	Share who are men	Share who are women	Female-male ratio
Cambodia (2015)	6.4	6.5	6.3	0.97
Indonesia (2016)	25.4	27.2	23.5	0.86
Malaysia (2016)	78.8	80	76.7	0.96
Singapore (2015)	79	80.5	77.6	0.96
Thailand (2016)	47.5	48.1	47	0.98

Source: International Telecommunication Union, Country ICT Data.

Many voices argue that the digitization of the economy will be a principal lever for the achievement of women's economic empowerment and their entrepreneurial participation. There are several reasons for optimism.

Flexible work. Digitization stands to benefit women because it enables more flexible, including home-based, work arrangements. One survey of "microworkers", most of whom were located in developing countries, found that approximately 45 per cent of women cited the ability to work from home and to work flexible hours as the main advantage of online work – roughly twice the percentage of men who identified this as the main benefit. This flexibility seems to be encouraging women's labour force participation. In fact, 44 per cent of freelance workers on the popular global Upwork platform are women, which is remarkable considering that women comprise only 25 per cent of the global non-agricultural workforce (World Bank 2016, UNCTAD 2017b).

Skilled work. The digital economy promises might improve women's access to high-skill jobs. Traditional gender norms about "women's work" will be challenged because of the intellectual (i.e. non-physical) nature of work in the digital realm. It has been estimated that the achievement of digital fluency by 2030 could reduce the gender pay gap by 21 per cent (UNCTAD 2017b).

Anonymity. The anonymous nature of internet participation can help to neutralize gender bias in the online community and promote entrepreneurial opportunities for women.

Low start-up costs. As the fourth industrial revolution pushes the global economy towards more flexible and personalized customer relationships, opportunities are created for small-scale manufacturing initiatives, such as in additive manufacturing (3D printing). Such enterprises have relatively low capital requirements because of the diminished need to stock inventories of products and parts. These and other ICT enterprises create new opportunity for women entrepreneurs who face difficulty amassing start-up capital (Janssen et al 2014).

Economic growth. The technological transformation known as "Industry 4.0" is expected to bring significant economic gains in terms of productivity, revenue growth, new employment and new investment. ASEAN Member States are investing heavily in connectivity in order to capitalize on these changes. Digitized national economies should therefore be well positioned for job creation throughout the economy, creating benefits across sectors, include those in which women are concentrated.

Collective voice. Women and girls are already finding a collective voice in the digital world through which they are gathering information, and building and supporting each other's aspirations. Technology can help build momentum for a feminist movement that helps women claim a more equal role in the economy and aspire to success (World Bank 2016).

Nevertheless, there are several obstacles and risks that must be taken into account, as well as the opportunities (box 4.11). First, while home-based work enhances labour force participation, it also promotes a form of employment that is both isolated and can deny basic labour protections. Leaders must carefully manage this double-edged sword of digitized work to ensure that gender equality and women's empowerment goals are achieved.

Second, there is already evidence that the ICT sector is replicating patterns of gender inequality in access to high-skill jobs. In developing countries, men are 2.7 times more likely than women to work in the ICT sector, and 7.6 times more likely than women to work in some ICT occupations (e.g., jobs such as network administrator or electrical and electronic engineer). Thus, for the digitized economy to enhance women's access to higher-skilled and entrepreneurial opportunities, broader inequalities in terms of gendered access to STEM education and to higher-skilled and status positions must be addressed (World Bank 2016, ASEAN Secretariat and UNCTAD 2016).

Third, digitization might further reinforce inequalities between wealthier, urban women and poorer, rural women. The benefits of greater connectivity have been concentrated in urban centres and wealthier nations, creating the risk that the poor will remain unconnected and left out. Moreover, "intelligent automation" is expected to incorporate machines and artificial intelligence into the workforce that put the jobs of low-skilled women workers at risk. Examples include the replacement of servers with drones at restaurants, the automation of administrative jobs such as scheduling, data cleaning and analysis, and even a Panasonic "Laundroid" that will wash, dry and fold clothes (Accenture 2016).

Fourth, women's anonymity on the internet is not guaranteed, and women and girls using the internet are at a far greater risk of sexual harassment and discrimination in the online world than are men.

Women and digital entrepreneurship. Increases in women's participation in high-skill jobs, driven by FDI growth in the region, has provided women with the opportunity to undertake strong, leadership positions as entrepreneurs in the digital economy. The digitalized economy refers to the ways that digitalization has cut across the economy, including the development of digital services in many industries. ASEAN women – drawing on their education and experience, including at MNEs – are taking advantage of such opportunities by setting up companies such as Ayannah (Philippines), a fintech company that supports banking and financial service, and has used venture capital from Singapore and the United States to expand into Silicon Valley; and Pomelo Fashion (Thailand), an e-commerce firm, operates in Indonesia, Singapore, and Korea. A very successful case is that of Grab (Singapore) (box 4.12).

BOX 4.11 Business process outsourcing in the Philippines

Nicknamed the "sunshine industry" in the Philippines for its growth, promise and substantial contributions to GDP (soon to outpace the $24 billion contributed by remittances), Business Process Outsourcing (BPO) stands to offer continued opportunities to improve women's participation in higher-skilled, well-compensated jobs.

BPO activities relate to both the front and back office needs of businesses, such as scheduling, accounting and customer relationship management. The Philippines has become a popular site for BPO among Western businesses thanks to its large labour force with strong English-language and interpersonal skills. Workers in this industry earn at least 2.7 times, and up to 5.4 times, more than the average Filipino worker. Although the difficult hours are associated with stress and fatigue, BPO jobs are generally coveted and the Government is investing in the industry's growth.

Women have benefitted significantly from the growth of this industry, representing 59 per cent of the country's BPO workforce. BPO has attracted female college graduates in particular: 80 per cent of women working in the industry have a college degree. As the national industry moves towards knowledge process outsourcing, a subset of BPO that refers more specifically to higher-skill tasks involving data analysis, financial analysis and forecasting, strategic planning and project management, the demand for workers with IT, finance, engineering and other skilled backgrounds will increase. Educated women are well-positioned to gain from these new opportunities.

In contrast, many jobs, particularly those occupied by lower-skilled women, are at risk of elimination due to intelligent automation. Simpler BPO services such as software installation and customer query resolution could be repatriated to the countries where BPO clients are located if automation eliminates the economic advantage of offshoring. As many as 89 per cent of the 600,000 call centre jobs could be lost, and women will be particularly hard hit.

This case study illuminates the strategic importance to both national economies and gender equality of preparing female workforces for the expected future increase in foreign demand for services in the digitized knowledge economy. As the economic architecture shifts towards knowledge-based work, investment in women's education and training, particularly in STEM fields, will help mitigate the exacerbation of inequalities between high- and low-skill women workers.

Source: ASEAN Secretariat, based on Chang et al 2016.

Such women-led firms have expanded both within and beyond the ASEAN region to major international markets. They have created significant economic benefits at home, and several are valued in the billions of dollars. Firms started by women entrepreneurs are employing hundreds and thousands of people across ASEAN and further afield. Thus, the significant volume of FDI in the region has come full circle; increasingly women are the originators of FDI-driven growth themselves.

BOX 4.12 Grab *(Singapore)*

Grab is one of the leading and largest tech start-ups in ASEAN. It was established in Malaysia as a taxi-hailing app in 2012 (as MyTeksi) to address safety concerns with traditional taxis (particularly for female passengers), as well as lengthy travel times in public transportation. With an average growth rate of 360 per cent and a valuation of $1.6 billion (in 2015), it is now clearly established as the premier ride-hailing platform in the ASEAN region. Grab's female co-founder, Tan Hooi Ling, is a graduate of Harvard Business School who developed significant experience in corporate strategy and operations with Salesforce and McKinsey & Company (both United States). Her oversight has helped the company to successfully internationalize throughout the ASEAN region. In fact, her own transportation-related frustrations and fears in Malaysia planted the creative seed for a tech company that strives to meet the needs of women and families.

A principal business strategy since the company's inception has been its focus on passenger and driver safety, particularly for its female passengers and drivers. The company uses digital technology in novel ways to achieve passenger trust. These innovations include the installation of in-car dash cams in thousands of vehicles driven by top-performing female drivers; a simple one-touch button in the Grab app that connects drivers to the nearest police station; an emergency button in the passenger app, that connects passengers instantly to the national emergency service; a "Share Your Ride" function in the app that allows customers to share their ride details with friends and families; and a telematics program that monitors drivers' road safety habits and reports back weekly on their performance. Thanks to these safety efforts, women are increasingly joining the Grab workforce, in a field traditionally dominated by men.

Since 2012, Grab has extended its product platform to meet a broad range of customer needs, with particular attention to those with small transportation budgets as well as women and families. Grab innovations include private car services (GrabCar), cars with booster seats for small children (GrabFamily), motorcycle taxis (GrabBike), last-mile delivery in urban areas with dense traffic (GrabExpress), food and parcel delivery (GrabFood), charter vehicles for groups (GrabCoach), and pre-booking for bus seats (GrabShuttle).

With several other new services, Grab has stablished itself as a leader in environmental responsibility in its field. Customers have the option to choose an electric car when hailing a taxi, to share their ride with another client (GrabShare) and to participate in a social carpooling platform with non-professional drivers (GrabHitch).

This ingenuity helped Grab bloom in five short years to establish operations in 132 cities across Viet Nam, Myanmar, Thailand, the Philippines, Indonesia, Malaysia and Singapore. With over 63 million mobile downloads, it boasts a 95 per cent market share of taxi hailing apps, and a 72 per cent market share of private car services. Moreover, its approximately 1.8 million drivers, many of whom are women, benefit from stable work and decent wages – approximately one third higher than average worker regions as a regional average.

With its focus on safety from a gender perspective, and wide range of services, Grab promises to maintain its leadership in digital ride-hailing in the coming years as the ASEAN region becomes increasingly connected to the online world.

Source: ASEAN Secretariat.

NOTES

1 Though many local conglomerates had the wherewithal to attend to this deficit quickly.

2 Including Government-linked companies and those set up as national champions, which in most cases afforded them cheap access to Government support in establishing their operations.

3 ASEAN MNEs in such industries are significant international players, partly because many developed countries did not privatize or corporatize their equivalent enterprises (especially in physical infrastructure) until the 1980s – or permit their internationalization. This allowed such ASEAN MNEs, as well as others from across developing Asia, to get a head start (UNCTAD 2008).

4 The definition of MSME varies across ASEAN, partly for historic and institutional reasons, but more importantly because there are considerable differences between the industries and the economies of Member States. The ASEAN Strategic Action Plan for SME Development 2016–2015 provides an overview of definitions across the region. This is replicated in ASEAN Secretariat and UNCTAD 2016, table 3.1.

5 Information from website: http://www.jollibee.com.ph.

6 For Iceland, the ratio of female to male earned income is 72 per cent (WEF 2016).

7 The share of women (and men) in high-skill occupations is also high for Myanmar, but the data are not reliable.

ASEAN 50
2017

Chapter 5
FDI foundations of the future

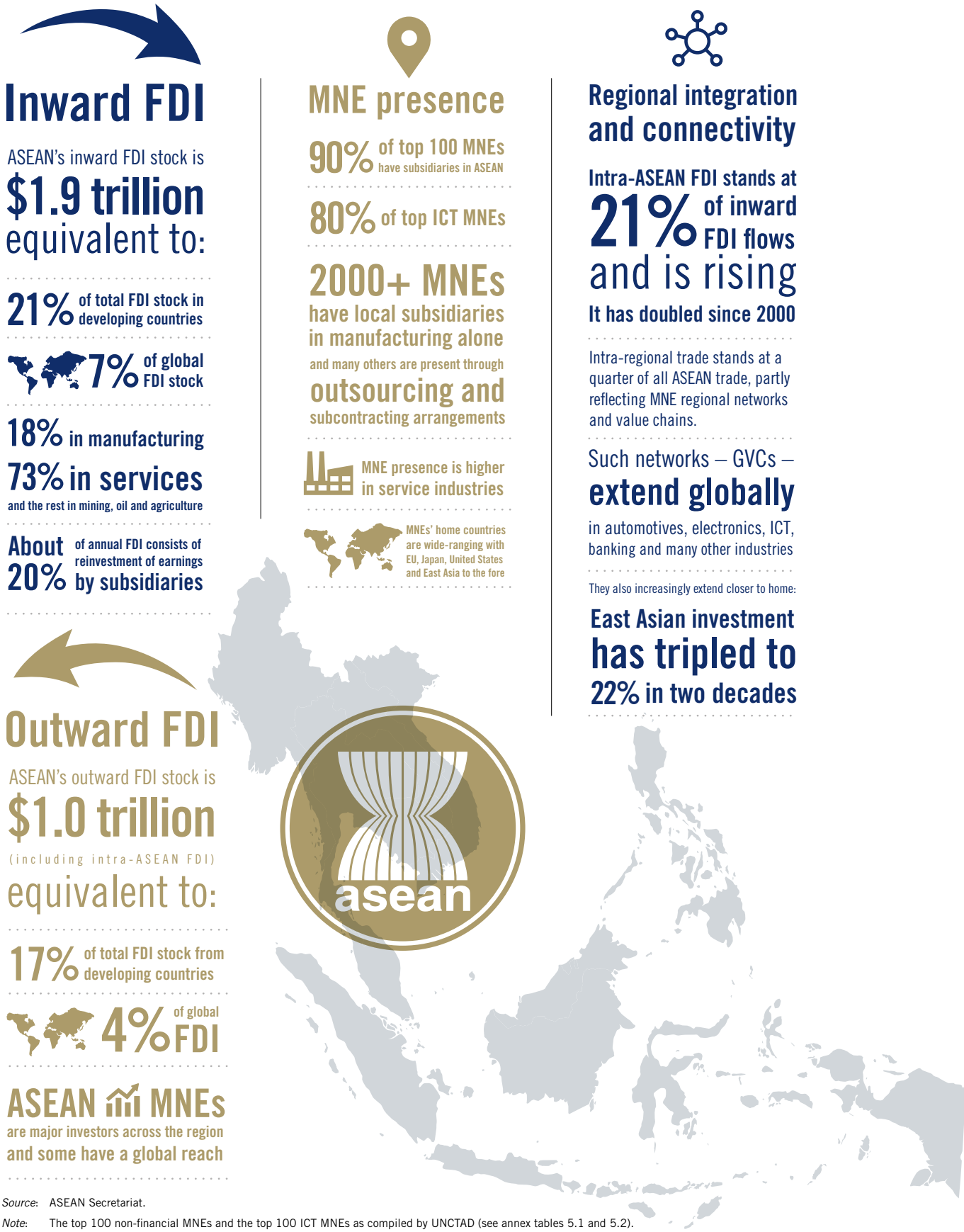
5.1 FDI and MNEs in ASEAN: taking stock

In 50 years ASEAN has come a long way economically, in part because of the region's deep participation in the world economy, including through inward and outward FDI (chapters 2 and 4). The level of FDI and the extent of the MNE presence in ASEAN is formidable and will remain so in the future. FDI in the region – across all 10 Member States – stands at some $1.9 trillion, across every sector and virtually every industry (figure 5.1, chapter 3). This total is equivalent to 21 per cent of the FDI stock in all developing countries, double ASEAN's share of the world population (10 per cent).

Foreign MNEs and ASEAN MNEs are increasingly pursuing ASEAN-wide regional investment strategies, both to serve growing local markets and as part of their regional value chains (chapter 2). intra-ASEAN FDI has doubled to 21 per cent of FDI in ASEAN in two decades, and intraregional trade accounts for a quarter of ASEAN trade (figure 5.1, chapter 2). These shares are poised to grow as MNE regional networks expand and intensify, facilitated by improving regional infrastructure – although relatively underdeveloped digital connectivity is a bottleneck (ASEAN Secretariat and ASEAN 2015, box 5.1). There is also a trend towards interregional FDI across Asia. The share of FDI in ASEAN from developing East Asia has tripled, to 22 per cent in the last 20 years, partly because of foreign MNEs' Pan-Asian subsidiary networks, sometimes complemented by policies of home-country Governments and ASEAN's pursuit of broader regional agreements.

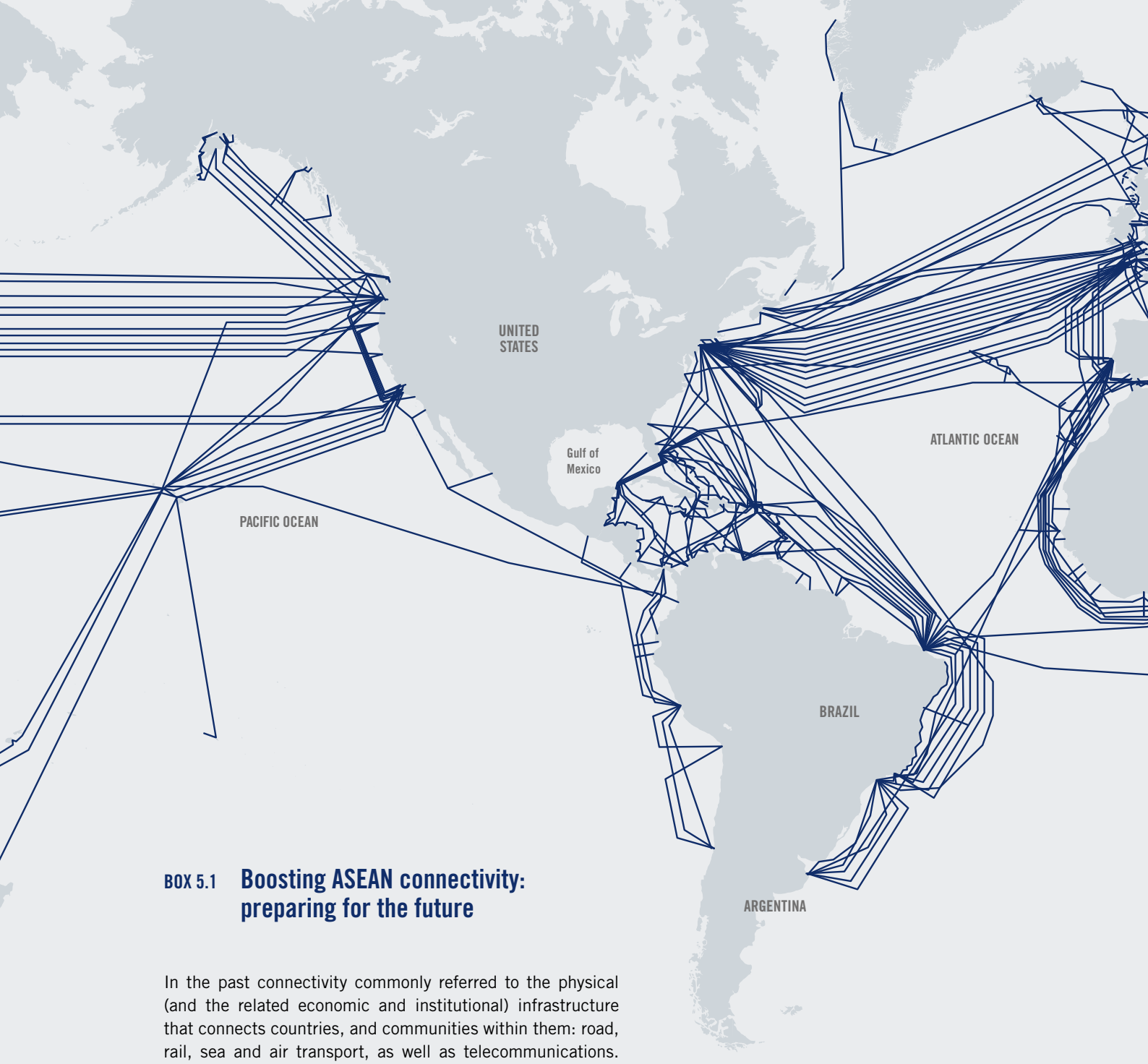
A critical mass of MNE subsidiaries, non-equity mode arrangements and regional value chains in ASEAN bodes well for the further expansion of FDI in the region (figure 5.1); but the rise of the digital economy is likely to bring challenges, as well as opportunities, for MNEs and other firms (sections 5.2 and 5.3).

FIGURE 5.1 **ASEAN: key dimensions of inward and outward FDI and MNE presence, 2016**



Source: ASEAN Secretariat.

Note: The top 100 non-financial MNEs and the top 100 ICT MNEs as compiled by UNCTAD (see annex tables 5.1 and 5.2).

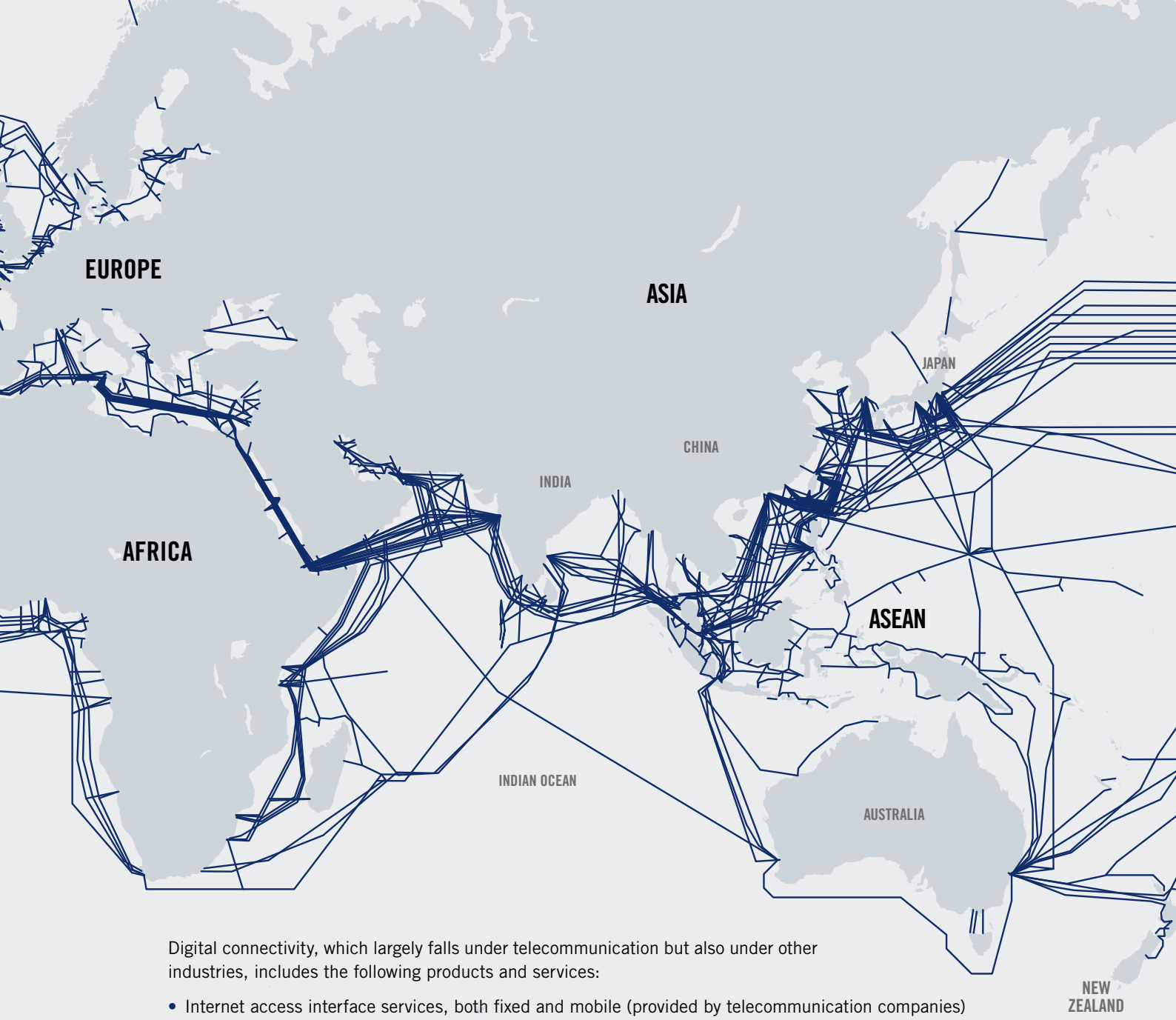


BOX 5.1 Boosting ASEAN connectivity: preparing for the future

In the past connectivity commonly referred to the physical (and the related economic and institutional) infrastructure that connects countries, and communities within them: road, rail, sea and air transport, as well as telecommunications. Increasingly, connectivity refers to the electronic or digital transfer of information, data, transactions and ideas that is enabling and driving economic and social change ("digital connectivity"); and this too depends on an infrastructure of equipment, technology, services, devices and software.

Source: www.submarinecablemap.com.

In terms of connectivity in its first (and still important) sense, ASEAN is reasonably well connected internationally, in part because of the scale of FDI in the region and the consequent international transport and communication infrastructure needed to serve global value chains (GVCs) (sea cable map on this page). Foreign and ASEAN MNEs have been major players in building ASEAN infrastructure, including transportation and telecommunication, often operating it under concessions from Governments (ASEAN Secretariat and UNCTAD 2015). Intraregionally and within countries, such connectivity has improved, but significantly more investment is required, especially in the CLMV countries (Cambodia, Lao PDR, Myanmar and Viet Nam). In order to deliver anticipated economic growth and development, the Asian Development Bank (ADB) estimates that ASEAN as a whole needs to invest about $3.2 trillion in infrastructure in total in the years until 2030, 40 per cent of that in connectivity (transport and telecommunication) and most of the rest in power (ADB 2017). This is a daunting goal but an attainable one, given ASEAN's available and potential resources, and the commitment of the public and private sectors.



Digital connectivity, which largely falls under telecommunication but also under other industries, includes the following products and services:

- Internet access interface services, both fixed and mobile (provided by telecommunication companies)
- Devices for the interface between services and users, such as desktop computers, laptops and tablets as well as smartphones
- Applications and services, from browsers, social media, e-commerce and other dedicated personal services, to the support technology and services for platform-enabled business.

ASEAN's condition in terms of digital connectivity is mixed, though it depends on the methodology used to assess this. The global connectivity index (CGI),[a] which includes broadband, data centres, cloud services and big data along with fundamentals such as ICT investment and smartphone penetration, ranks only Singapore in the top tier of connectivity. Malaysia vies with China in the next tier, with Member States such as Thailand, Indonesia, the Philippines and Viet Nam a little further behind. That said, many ASEAN Member States are improving their connectivity rapidly, with concerted Government action. Over the last three years, in the Philippines, cloud investment as a share of the economy grew 1.6 times faster than the global average; similarly, in Indonesia, mobile broadband users have increased to two thirds of the population and 4G coverage rose four times faster than the global average; and in Malaysia ICT services have grown at an average of more than 9 per cent per year (GCI 2017a).

Continued support for digital connectivity across ASEAN is critical for further growth and development in industries and regional networks that are currently prominent in the region, as well as in the digital-based economy of the future (section 5.3).

Source: ASEAN Secretariat, drawing on, among others, A.T. Kearney 2015, ADB 2017a and GCI 2017a and 2017b.

Note: [a] For the complete GCI methodology (and rankings), see huawei.com/minisite/gci/en.html.

5.2 The present into the future: MNEs' industrial base in ASEAN

ASEAN is an important hub in MNEs' global production systems and value chains: at least 94 of the world's 100 largest non-financial MNEs[1] by foreign assets are present in ASEAN, mostly through FDI, but in other cases through NEMs such as concessions (e.g. running power plants and services or seaports) or franchises (e.g. in fashion clothing or fast food) (annex table 5.1). The six that are not *directly* present in ASEAN are mostly in businesses where production and/or services are heavily concentrated in a few economies, e.g. Airbus (France) in aircraft, or regulated by Government license, e.g. America Móvil (Mexico), a mobile phone network operator. Even in such cases there may be an indirect or reduced presence. For example, Airbus has a minority joint venture with SIA Engineering Company (SIAEC) in Singapore which provides airframe maintenance and modification services for Airbus aircraft.[2]

The majority of top MNEs present in ASEAN possess extensive subsidiary networks, some in the hundreds across the region, especially those MNEs which have a long history in the region and are market oriented, such as Unilever (United Kingdom–Netherlands, food and beverages), Nissan (Japan, motor vehicles), General Electric (United States, industrial and commercial machinery), Royal Dutch Shell (United Kingdom–Netherlands, oil and gas) and Mitsui & Co. (Japan, general trading company). Moreover, since they are large, diversified companies, many of their major international subsidiary companies also have operations in ASEAN (a level of detail not reflected in the annex table).

Investment in ASEAN by the world's 100 largest non-financial MNEs is dispersed across all sectors and most industries, e.g. in oil and oil refining MNEs such as BP (United Kingdom), Total (France), Chevron (United States) and CNOOC (China); in mining, BHP Billiton (Australia), Glencore (Switzerland), and Vale (Brazil); in motor vehicles, Toyota Motor (Japan), BMW (Germany) and Volvo (Sweden); in food and beverages, Anheuser-Busch (Belgium), Nestlé (Switzerland) and Coca-Cola (United States); in chemicals, Procter and Gamble (United States), BASF (Germany) and Air Liquide (France); in pharmaceuticals, Pfizer (United States), Novartis (Switzerland) and Teva Pharmaceuticals (Israel); in computer equipment and electronics, Apple (United States), Hon Hai Precision Industries (Taiwan), Samsung (Republic of Korea), Sony (Japan) and Intel (United States); in software and data processing, Microsoft (United States), IBM (United States) and Alphabet (United States); in telecommunication, Softbank (Japan), Vodafone (United Kingdom) and Telefonica (Spain); in infrastructure services (apart from transport and telecommunications), EDF (France), RWE (Germany) and Enel SpA (Italy); in shipping and logistics, John Swire & Sons (United Kingdom), A.P. Moller-Maersk (Denmark) and China COSCO Shipping (China); and in e-commerce and various business services, Amazon (United States), WPP (United Kingdom) and SAP (Germany).

In addition to the top 100, thousands more MNEs in manufacturing, services, agriculture, mining and petroleum have also set up shop in the region. Moreover, apart from subsidiaries, or as a substitute for them in some industries and business areas,[3] MNEs also maintain a sizeable presence in ASEAN through contractual agreements (NEMs) such as subcontracting, outsourcing, franchising, licensing,

management contracts and concessionary arrangements with local companies or Governments (chapter 4; ASEAN Secretariat and UNCTAD 2015, UNCTAD 2011).

ASEAN MNEs are also active and are a potent force in most Member States (chapter 2). In an analysis of top MNEs by headquarters in 2014, McKinsey determined that 227 MNEs with revenues of $1 billion or more were headquartered in ASEAN – making the region the seventh largest host of such companies in the world (McKinsey 2014).[4] Many of these MNEs have a strong international presence (both regionally and globally) in heavy industries (such as chemicals and petrochemicals), agribusiness, banking, infrastructure services and real estate (chapter 3). In many respects these industries are the building blocks of an industrializing economy – and ASEAN MNEs are well placed to put these in place in less-developed countries, including in the CLMV Member States. Some ASEAN MNEs began as micro, small and medium-size enterprises (MSMEs) supplying manufactured parts or services to larger companies under contract (NEMs) and remain relatively small (chapter 4). As such, they have acquired and built capabilities and skills in advanced, sometimes narrow or niche, activities such as automobile parts and subassemblies, business process outsourcing (BPO) and other IT services, and precision tools – but also in industries such as garments and footwear.

Taken together, the investment and operations of foreign MNEs, ASEAN MNEs, MSMEs and other local companies constitute a highly diversified, deep-rooted and relatively competitive regional industrial base in the developing world. There are many major industries or clusters of activity in which MNEs are embedded, including agribusiness; banking and financial services; BPO, software and other IT services; consultancy and other business services; consumer electronics; garments; infrastructure services (including telecommunication); motor vehicles; oil and gas and related services; and semiconductors. These industries, among others, have reached critical mass in the region. Normal business risks and obsolescence aside, they represent major sectors which will continue to flourish in ASEAN into the future, sometimes with MNEs and FDI at the helm, but with local firms – including both MNEs and MSMEs – expanding apace.

From the global perspective, ASEAN is a regional bastion for both foreign and ASEAN MNEs,[5] and increasingly a part of a wider Asian megaregion. The region has been relatively stable for decades. Markets are growing, with sustained high GDP growth rates, a large and growing urbanized middle class and continued regional integration promising greater opportunity to access that middle class from anywhere in ASEAN (KPMG and Eurasia Group 2016). The average GDP per capita for ASEAN in 2016 was about $4,000 in current dollars; it is due to double by 2030, but it is much higher in terms of purchasing power parity (PPP). In 2016, GDP per capita at PPP among ASEAN countries varied from $4,000 (about the same as Bangladesh) to $88,000 (one of the highest in the world).[6] ASEAN's average per capita GDP of $11,400 is triple that of Africa, double that of South Asia, but still 20–30 per cent below that of Latin America and East Asia (ASEANStat, ADB 2017b, PRB 2017). At current growth rates, by 2050 ASEAN's GDP is projected to be the fourth largest in the world (McKinsey 2014). The region is also populous and increasingly well-educated, including among CLMV Member States; possesses deep pockets of skills honed in many advanced manufacturing and service industries, some cutting edge; has improving entrepreneurship; and will remain a relatively young society for decades to come (chapter 4, ADB 2017b). On top of this, the region has a wealth of natural resources and is well positioned logistically: astride the main trade routes between West and East Asia, well connected to the physical components of the digital economy and a hub for global financial markets (box 5.1, KPMG 2017, A.T. Kearney 2015).

Although ASEAN's short- and medium-term prospects, and the role of MNEs and FDI in them, are good, the world economy is changing and future prosperity depends on recognizing trends and responding accordingly. Perhaps the most important development is the rise of the new digital economy and interrelated developments referred to as the "fourth industrial revolution" or "i4" (section 5.3, UNCTAD 2017a and 2017b, KPMG 2017, EY 2017). The use of digital platforms, especially in new business and services, is dealt with in the next section. They are also affecting business processes across many industries, i.e. much of ASEAN's industrial base.

For instance, and perhaps most pressing, technological development is being affected by new digital tools, such as additive manufacturing, robotics, big-data-enhanced research and development (R&D), artificial-intelligence-augmented decision support and the internet of things (IoT). These developments have only just begun to play through industries, services, companies and supply chains, but ultimately they will have a profound effect on the world economy, including developing regions such as ASEAN (Rehnberg and Ponte, 2017, KPMG 2017, EY 2017, A.T. Kearney 2015). Several scenarios are possible. The first is that the tools of the new digital economy – because they will decrease demand for low-cost labour, through automation – will lead to a retreat from globalization, driving production close to end-use and near innovation, thereby resulting in a "reshoring" of manufacturing and offshored services to advanced economies (Sarma 2015). At the same time, and more positively for ASEAN, new technologies will also make it possible to upgrade and increase product variety in places where high-volume, export-oriented production has already shifted, such as Indonesia, Malaysia, Singapore, Thailand, Viet Nam and China.

To a degree, ASEAN is inoculated from the most severe effects of the new digital economy. As a base to most of the top 100 non-financial MNEs – and many others – which are at the forefront of i4, ASEAN can expect to see technological and other developments made by them in their global networks reflected in a region they consider a bastion. This sanguine perspective is reinforced by the fact that many or most of the ICT MNEs that are at the centre of the digital economy also have deep roots in ASEAN and nearby Asian economies (section 5.3). Nonetheless, it is imperative for ASEAN Member States to invest in education, infrastructure and other measures for the future (box 5.1, GCI 2017a and 2017b). Member States, already well aware of the challenges, are working at national and regional levels in conducting diagnostics and devising strategies (in the latter case, working with international groups such as AT Kearney).[7]

5.3 The future in the present: ASEAN and the rise of the new digital economy

New digital tools are emerging in a wide range of technology, including very advanced factory automation – 3D printing, ubiquitous data collection and its online aggregation and analysis in the cloud – as well as artificial intelligence software able to instantaneously take actions, make decisions and generate design options based on such "big data". While some have heralded this suite of technologies as fomenting a fourth industrial revolution (e.g. Schwab 2016), others have pointed out that the new digital economy is not entirely new, as it is emerging from long-standing trends towards increased computerization, automation, digitization, modularity and low-cost network connectivity (UNCTAD 2017b). Nevertheless, there is growing consensus that the business world is at or close to a series of tipping points with the potential to drive sudden advances in productivity, on the one hand, and decreased demand for labour, on the other. Although changes to business processes and labour requirements are certainly coming, and debates about the associated opportunities and risks of the new digital economy will continue for some time, the impact on existing industries and GVCs will depend on the rate of change (McAfee and Brynjolfsson 2017). The situation requires careful monitoring and advance preparation by both firms and policymakers in ASEAN (section 5.2).

However, if the new digital economy is viewed as an extension of what has come before – namely a set of technology standards that have enabled the fragmentation and relocation of value chains to places such as ASEAN and China (value chain modularity being the core process underlying GVCs and the new international division of labour, especially in technology-intensive industries), then current trends are likely to expand the palette of activities that can be organizationally and geographically separated and relocated in GVCs, especially knowledge-intensive business functions related to design and engineering (section 2.1). This kind of extension has already occurred since the 2000s, e.g. with the offshoring of software development and other ICT-enabled services to places such as India and the Philippines (Dossani and Kenny 2003), and it is occurring now with MNEs' current experiments in setting up globally distributed R&D.

The benefits for innovation could be the most important outcome for developing regions such as ASEAN. Again, there are two aspects to consider. On one hand, the companies that have created most of the core platforms of the digital economy (e.g. Alphabet, Amazon, Facebook and Apple) are – very alarmingly, for some – extremely concentrated, in terms of both market valuation and geographic location (they have a relatively small FDI footprint in ASEAN; annex table 5.2, Van Alstyne 2016). These and other platform companies thrive on "network effects" whereby additional users and third-party complementors (e.g. app makers for iTunes and GooglePlay ecosystems) provide tools and data and social connections that increase the value of the platform for additional users, leading to "winner take all" dynamics that crowd out new competitors. That the heartland of innovation for core platforms in the new digital economy appears to be firmly rooted in places such as Silicon Valley is not encouraging news for ASEAN.

However, when new digital economy platforms are considered as part of an expanding toolkit for innovation and business development, the prospects are much brighter (UNCTAD 2017b). For example, digital design software increasingly comes with artificial intelligence suites attached. It might thus require less and less skilled engineering labour, empowering developing-country firms – including MSMEs in less-developed economies such as CLMV Member States – to move up the value chain, become less dependent on the innovation and coordination functions of lead firms in GVCs and develop and produce globally competitive and compatible products on their own, including for specific markets (box 5.2, section 4.2, section 4.3.3 on women and digital platforms).

BOX 5.2 Mobivi (Viet Nam): employee benefits platform

Mobivi is an innovative firm started by an overseas Vietnamese entrepreneur who returned to Viet Nam to start a mobile payment platform similar to the successful Kenyan product called M-Pesa. In 2011, the company pivoted away from mobile money, given the low margins and opacity of the Vietnamese banking sector. Instead it developed iCare, an employee benefits platform for factory workers in Viet Nam. It enables factory workers making between $200 and $250 a month to buy consumer products (i.e. refrigerators, mobile phones, TVs) on an interest-free installment plan. Mobivi generates revenue by selling products at retail prices and buying at wholesale (20–30 per cent margin). The service has been successful in Viet Nam and is being rolled out in Lao PDR, Cambodia, Indonesia and India. The company uses existing local e-commerce firms, local distributors and existing enterprise resource planning tools to provide, sell and deliver products to an underserved segment of the population.

Source: Sturgeon and Zylberberg 2016.

There can even be "platforms of platforms", some of which can bring together MNE platform companies, non-profit organizations and Governments in socially desirable ventures (box 5.3). In Cambodia, Agribuddy has developed a credit scoring and distribution platform that connects rural credit customers to financial institutions so that small farmers can get cheaper loans and improve their profitability; and the platform also allows farmers to purchase agricultural inputs in bulk (in the pilot scheme 2,000 farmers made use of the system).[8]

Digital platforms can be used for products and service, as well as for marketing, distribution, customer contact and much else. There is scope for firms in ASEAN, especially MSMEs, to focus not only on global markets, but on regional markets as they design their products, services and business processes accordingly. And, there are vast opportunity for new platforms to emerge, especially higher-level platforms tailored to the specific market characteristics of ASEAN societies. ASEAN's high literacy in digital skills, arising from the region being a significant production centre for the ICT industry (box 5.4), means that over the last decade, there has been a spurt in MSME entrepreneurs (and established ASEAN firms) innovating in new platforms.

As a result, international venture capital funds have started to take note and funding for ASEAN companies, including start-ups and ASEAN MSMEs, jumped from $0.3 billion (99 deals) in 2012 to $6.5 billion (300 deals) in 2017 (up to September) (CB Insights 2017b). While still small compared to the total number of VC deals globally, ASEAN is becoming more of a technology hub, with Singapore as the largest base (figure 5.2). In addition, Indonesia, Malaysia and Thailand have seen significant numbers of start-ups, which have obtained venture capital funding. This also applies to firms from the Philippines and Viet Nam, to a lesser extent (figure 5.3). The venture capital (VC)

BOX 5.3 Using ICT tools and software platforms to support transportation authorities: the case of Manila

Until recently, very little was known about congestion in major developing country cities, such as Manila, because the equipment and human resources required to collect traffic data far exceeds available resources. Issues that such data can help address include traffic signal timing plans, public transit provision, roadway infrastructure needs, emergency traffic management and travel demand management.

When the Philippine Government approached the World Bank with a request for help creating a software platform to identify, implement and iterate solutions to traffic challenges, the idea of the Open Traffic Partnership (OTP) was conceived. The Partnership includes founding members Mapzen (United States, an open-source mapping platform company), the World Resources Institute (a non-government research organization), Miovision (Canada, a traffic data platform company), and NDrive (Brazil, a GPS navigation provider), along with the World Bank. The aim is to empower resource-constrained transport agencies to make better, evidence-based decisions. The data are provided by firms such as Easy Taxi (Brazil), Grab (Singapore), and Le.Taxi (France), three ridesharing companies which, combined, cover more than 30 countries and millions of customers.

For instance, Grab and the Bank team developed a pilot open-source platform for using anonymized GPS data generated by more than 500,000 Grab drivers. Using this platform and road incident data, city governments in the Philippines found they could, for the first time, answer fundamental questions necessary to address safety and congestion with viable solutions. For example, where and when is congestion most acute? Where and when are citizens most vulnerable to road incidents? And when they invested in interventions to mitigate accidents or congestion, did these investments work? What was their impact? Could they have done better?

Source: Based on worldbank.org/en/news/feature/2016/12/19/open-traffic-data-to-revolutionize-transport.

BOX 5.4 ASEAN's ICT MNEs: gateway to the future

Major MNEs providing digital platforms, solutions and services, such as Alphabet, Facebook, Amazon and Paypal (all United States), and Alibaba (China), have a relatively shallow local presence in ASEAN, However, ICT MNEs whose products and services support the digital economy are heavily represented.

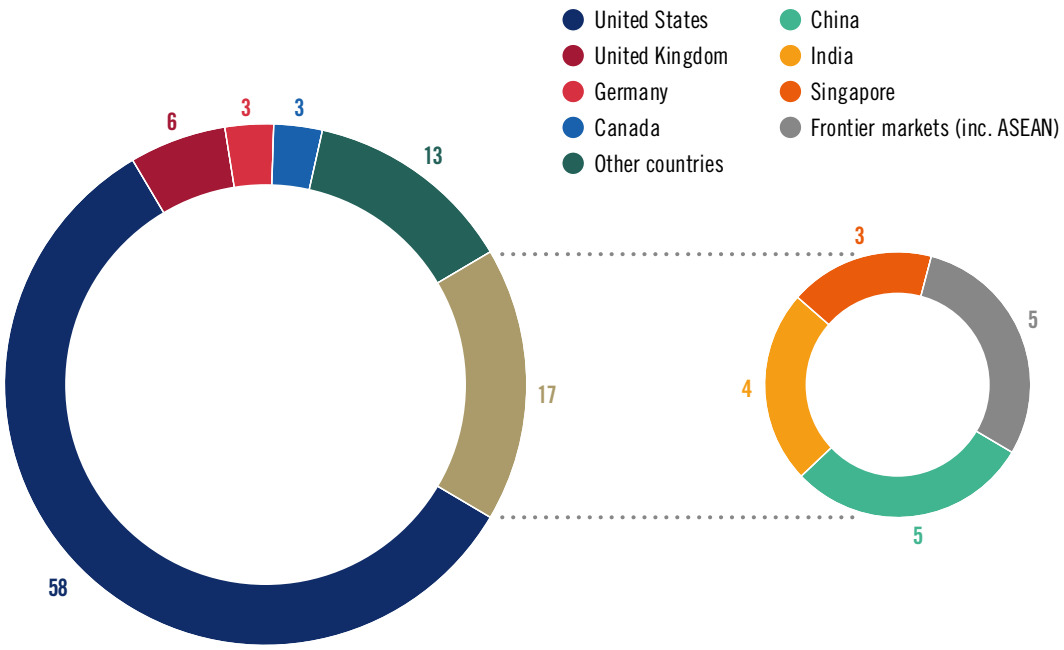
The top 100 ICT MNEs can be classified into three subgroups: IT devices and components (52 companies), IT software and services (21 companies) and telecommunication (the rest) (annex table 5.2). In the first group, all but two have a presence in ASEAN, though it is limited in the case of a few others. These MNEs include the likes of Apple (United States), Samsung (Republic of Korea), Hon Hai Precision Industries (Taiwan), Toshiba (Japan), ZTE (China), Quanta Computers (Taiwan), NXP Semiconductors (Netherlands), Flex (Singapore), Ericsson (Sweden) and Sony (Japan). All MNEs in the second group are present in ASEAN, including Microsoft (United States), NEC (Japan), SAP (Germany), Infosys (India), Capgemini (France), Oracle (United States) and CGI (Canada). About a third of the final group – telecommunication MNEs – are not in ASEAN, mostly because of their focus on other geographical markets, but the remainder include AT&T (United States), Softbank Group (Japan), Orange (France), Bharti Airtel (India), Telenor (Norway) and Vivendi (France).

This is a formidable roll call of MNEs with operations in ASEAN, which gives the region an edge in a highly important industry, on the cutting edge of technology. ICT MNEs play a big role in infusing i4 and technologies and pertinent ecosystems needed for the digital economy into ASEAN. The digital infrastructure and other underpinnings they thus create are vital for the success of other advanced industries in ASEAN. Equally, the skills base they generate, in their own operations and those of their partners, nourishes the broader ASEAN economy through job-hopping, spinoffs and entrepreneurial start-ups as well as in other ways.

Source: ASEAN Secretariat.

funds that are supporting start-ups in ASEAN come from across the world. The biggest VC investor in ASEAN to date, 500 start-ups, hails from the United States, while the second largest – East Ventures – is Japanese, and the third – Golden Gate Ventures – is based in Singapore. The other major investors are from United States, Japan, China and ASEAN itself (figure 5.3).

FIGURE 5.2 Global distribution of venture capital deals, 2012–July 2017



Source: Adapted from CB Insights (2017a).

Note: In addition to Singapore (which appears separately in the right pie chart), ASEAN venture capital deals are principally in Indonesia, Malaysia, Thailand and Viet Nam.

Start-ups and MSMEs which have received significant VC funding include Grab (Singapore) (section 4.3); Go-Jek (Indonesia), an on-demand courier service; Tokopedia (Indonesia), an online mall; and edotco (Malaysia), which offers communications infrastructure services. All are regional MSME MNEs or have a regional reach; indeed, edotoco and Go-Jek have also expanded to South Asia.

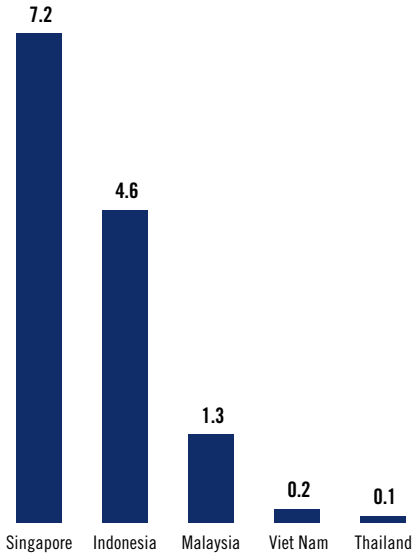
Apart from digital skills and entrepreneurship, the burst of start-ups in the digital economy in ASEAN is explained by a number of factors, some of which are at an early stage. These include a demographic dividend: a young, urbanized, educated and tech-savvy population; alongside this, the use of technology to facilitate the entry of previously unbanked populations into financial systems – especially online payment systems; improving digital infrastructure, including broadband services; improved data security and data protection; and rising smartphone penetration in most ASEAN Member States (BBVA 2017).

Because ASEAN Member States have long played key roles in MNE networks and GVCs – including close involvement with the production of ICT technologies, products and services – they will certainly play a role in the new digital economy, including through a burgeoning new wave of MSME start-ups. Recognizing that key challenges need to be addressed, ASEAN is nevertheless well poised to seize the opportunities that the new digital economy of the future begins brings.

FIGURE 5.3 Fintech investment in ASEAN, 2012–2017

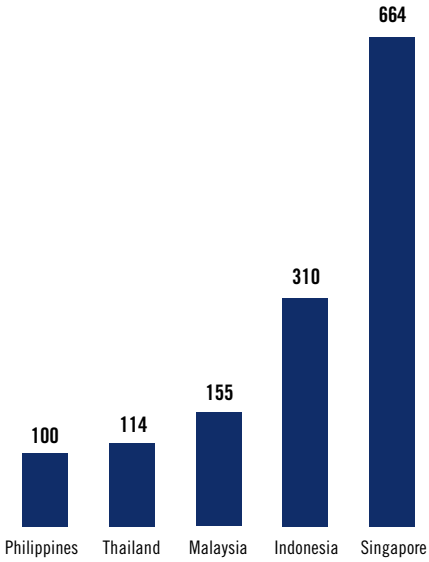
a. Investment

(Billion of dollars)



b. Activity

(Number of deals)



c. Major venture capital investors in ASEAN

500 Startups (United States)

East Ventures (Japan)

Golden Gate Ventures (Singapore)

CyberAgent Ventures (Japan)

Wavemaker Partners (United States)

Gobi Partners (China)

Convergence Ventures (Indonesia)

Fenox Venture Capital (United States)

Sinar Mas Digital Ventures (Indonesia)

Kickstart Ventures (Philippines)

Alibaba Group (China)

Kejora (Indonesia)

Vertex Ventures (Singapore)

Didi Chuxing (China)

Warburg Pincus (United States)

Source: Adapted from CB Insights (2017b).

5.4 The next 50 years

Fifty years ago, when the Association of Southeast Asian Nations was established, it would have been a remarkably prescient person who could have predicted the structure, dimensions and characteristics of the world economy today, let alone ASEAN's place within it. From unprepossessing beginnings, ASEAN has developed into an important international hub for FDI and a major regional economy – one that exhibits considerable momentum. This economic powerhouse is built on firm MNE foundations and young, dynamic, technologically proficient entrepreneurs, start-ups and MSMEs – in other words, the MNEs of the future.

Given the pace of technological change, abetted by the digitalization of practically everything, an accurate prediction for the next 50 years would require an equally unlikely prescience. Factoring in global issues from climate change to deep-seated poverty and rising inequality, it is clear that ASEAN in common with countries worldwide will face major hurdles over the next few decades. But the region is no stranger to challenges and, 50 years on, has the strength to overcome them and to seize the opportunities of the future.

Annex

ANNEX TABLE 5.1 The world's top 100 non-financial MNEs: presence in ASEAN

	Name	Home country	Industry classification	ASEAN presence	Number of principal subsidiaries in ASEAN Member States
1	Royal Dutch Shell plc	United Kingdom	Mining, quarrying and petroleum	√	90
2	Toyota Motor Corporation	Japan	Motor Vehicles	√	80
3	BP plc	United Kingdom	Petroleum Refining and Related Industries	√	31
4	Total SA	France	Petroleum Refining and Related Industries	√	20
5	Anheuser-Busch InBev NV	Belgium	Food & beverages	√	9
6	Volkswagen Group	Germany	Motor Vehicles	Limited	CKD, sales, after-sales oriented
7	Chevron Corporation	United States	Petroleum Refining and Related Industries	√	22
8	General Electric Co	United States	Industrial and Commercial Machinery	√	80
9	Exxon Mobil Corporation	United States	Petroleum Refining and Related Industries	√	22
10	Softbank Corp	Japan	Telecommunications	√	40
11	Vodafone Group Plc	United Kingdom	Telecommunications	√	8
12	Daimler AG	Germany	Motor Vehicles	√	17
13	Honda Motor Co Ltd	Japan	Motor Vehicles	√	81
14	Apple Computer Inc	United States	Computer Equipment	√	3
15	BHP Billiton Group Ltd	Australia	Mining, quarrying and petroleum	√	24
16	Nissan Motor Co Ltd	Japan	Motor Vehicles	√	107
17	Siemens AG	Germany	Industrial and Commercial Machinery	√	40
18	Enel SpA	Italy	Electricity, gas and water	√	2
19	CK Hutchison Holdings Ltd	Hong Kong, China	Retail Trade	√	21
20	Mitsubishi Corporation	Japan	Wholesale Trade	√	63
21	Glencore Xstrata PLC	Switzerland	Mining, quarrying and petroleum	√	37
22	Telefonica SA	Spain	Telecommunications	√	1
23	Eni SpA	Italy	Petroleum Refining and Related Industries	√	7
24	Nestlé SA	Switzerland	Food & beverages	√	30
25	BMW AG	Germany	Motor Vehicles	√	17
26	Johnson & Johnson	United States	Pharmaceuticals	√	10
27	Deutsche Telekom AG	Germany	Telecommunications	√	1
28	Iberdrola SA	Spain	Electricity, gas and water	x	Primary market focus elsewhere
29	Allergan PLC	Ireland	Pharmaceuticals	√	12
30	Rio Tinto PLC	United Kingdom	Mining, quarrying and petroleum	√	34

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	Name	Home country	Industry classification	ASEAN presence	Number of principal subsidiaries in ASEAN Member States
31	Fiat Chrysler Automobiles	United Kingdom	Motor Vehicles	√	2
32	Pfizer Inc	United States	Pharmaceuticals	√	40
33	EDF SA	France	Electricity, gas and water	√	Concessions and projects across ASEAN
34	Microsoft Corporation	United States	Computer and Data Processing	√	16
35	Mitsui & Co Ltd	Japan	Wholesale Trade	√	165
36	Altice NV	Netherlands	Telecommunications	x	Primary market focus elsewhere
37	Engie	France	Electricity, gas and water	√	11
38	ArcelorMittal	Luxembourg	Metals and metal products	√	10
39	Sanofi	France	Pharmaceuticals	√	21
40	Hon Hai Precision Industries	Taiwan Province of China	Electronic components	√	29
41	The Coca-Cola Company	United States	Food & beverages	√	12
42	Ford Motor Company	United States	Motor Vehicles	√	12
43	Novartis AG	Switzerland	Pharmaceuticals	√	21
44	China National Offshore Oil Corp (CNOOC)	China	Mining, quarrying and petroleum	√	Offshore concessions
45	Shire plc	Ireland	Pharmaceuticals	√	5
46	Airbus Group NV	France	Aircraft	x	Primary market focus elsewhere
47	Teva Pharmaceutical Industries Ltd	Israel	Pharmaceuticals	√	7
48	Roche Group	Switzerland	Pharmaceuticals	√	18
49	International Business Machines Corporation	United States	Computer and Data Processing	√	26
50	Samsung Electronics Co., Ltd	Korea, Republic of	Communications equipment	√	36
51	Procter & Gamble Co	United States	Chemicals and Allied Products	√	25
52	Orange SA	France	Telecommunications	√	11
53	Amazon.com, Inc	United States	E-Commerce	√	Subsidiary to be established in 2017
54	Nippon Telegraph & Telephone Corporation	Japan	Telecommunications	√	65
55	Statoil ASA	Norway	Petroleum Refining and Related Industries	√	Offshore concessions
56	GlaxoSmithKline PLC	United Kingdom	Pharmaceuticals	√	32
57	BASF SE	Germany	Chemicals and Allied Products	√	27
58	Lafargeholcim Ltd	Switzerland	Stone, Clay, Glass, and Concrete Products	√	11
59	Wal-Mart Stores Inc	United States	Retail Trade	x	Primary market focus elsewhere
60	Liberty Global plc	United Kingdom	Telecommunications	√	11
61	General Motors Co	United States	Motor Vehicles	√	12
62	ConocoPhillips	United States	Petroleum Refining and Related Industries	√	3
63	Unilever PLC	United Kingdom	Food & beverages	√	190
64	Robert Bosch GmbH	Germany	Motor Vehicles	√	35
65	Mondelez International, Inc.	United States	Food & beverages	√	88
66	John Swire & Sons Ltd	United Kingdom	Transport and storage	√	37
67	AstraZeneca PLC	United Kingdom	Pharmaceuticals	√	7

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	Name	Home country	Industry classification	ASEAN presence	Number of principal subsidiaries in ASEAN Member States
68	Renault SA	France	Motor Vehicles	√	Part of the Renault-Nissan alliance; some separate production operations.
69	Schlumberger Ltd	United States	Mining, quarrying and petroleum	√	36
70	Broadcom Ltd	Singapore	Electronic components	√	ASEAN Company
71	Anglo American plc	United Kingdom	Mining, quarrying and petroleum	√	15
72	Petronas - Petroliam Nasional Bhd	Malaysia	Mining, quarrying and petroleum	√	ASEAN Company
73	Marubeni Corporation	Japan	Wholesale Trade	√	66
74	Repsol YPF SA	Spain	Petroleum Refining and Related Industries	√	4
75	National Grid PLC	United Kingdom	Electricity, gas and water	x	Primary market focus elsewhere
76	Christian Dior SA	France	Textiles, clothing and leather	√	Primarily franchising operations
77	Bayer AG	Germany	Pharmaceuticals	√	14
78	Nokia OYJ	Finland	Communications equipment	√	23
79	Air Liquide SA	France	Chemicals and Allied Products	√	17
80	British American Tobacco PLC	United Kingdom	Tobacco	√	36
81	China COSCO Shipping Corp Ltd	China	Transport and storage	√	7
82	SAP SE	Germany	Computer and Data Processing	√	17
83	United Technologies Corporation	United States	Aircraft	√	20
84	Sumitomo Corporation	Japan	Wholesale Trade	√	76
85	Imperial Brands PLC	United Kingdom	Tobacco	√	14
86	Danone Groupe SA	France	Food & beverages	√	31
87	RWE AG	Germany	Electricity, gas and water	√	4
88	Amgen Inc	United States	Pharmaceuticals	√	1
89	Schneider Electric SA	France	Electricity, gas and water	√	45
90	Hewlett-Packard Co	United States	Computer and Data Processing	√	30
91	Alphabet Inc	United States	Computer and Data Processing	√	7
92	Intel Corporation	United States	Electronic components	√	9
93	Volvo AB	Sweden	Motor Vehicles	√	15
94	WPP PLC	United Kingdom	Business Services	√	141
95	ITOCHU Corporation	Japan	Wholesale Trade	√	106
96	E.ON AG	Germany	Electricity, gas and water	√	Concessions and projects across ASEAN
97	Sony Corporation	Japan	Electric equipment	√	27
98	AP Moller - Maersk A/S	Denmark	Transport and storage	√	Concessions and projects across ASEAN
99	Vale SA	Brazil	Mining, quarrying and petroleum	√	12
100	América Móvil SAB de CV	Mexico	Telecommunications	x	Primary market focus elsewhere

Source: ASEAN Secretariat, based on UNCTAD table of 'the world's top 100 non-financial MNEs, ranked by foreign assets, 2016' (UNCTAD 2017a). The subsidiary data are extracted from Bureau van Dijk's ORBIS Database and other sources.

ANNEX TABLE 5.2 The world's top 100 ICT MNEs: presence in ASEAN

	Name	Home country	ASEAN presence	Number of principal subsidiaries in ASEAN Member States
	IT Devices and Components			
1	Apple	United States	√	3
2	Samsung Electronics	Republic of Korea	√	36
3	Hon Hai Precision Industry	Taiwan	√	29
4	International Business Machines	United States	√	26
5	Sony	Japan	√	27
6	Intel	United States	√	9
7	Dell Technologies	Unite States	√	Through partners and subsidiary companies
8	Toshiba	Japan	√	69
9	Cisco Systems	United States	√	35
10	HP	United States	√	29
11	LG Electronics	Republic of Korea	√	16
12	Legend Holdings	China	√	1
13	Lenovo Group	Hong King, China	√	5
14	Fujitsu	Japan	√	46
15	Pegatron	Taiwan	√	3
16	Quanta Computer	Taiwan	√	Joint venture companies, e.g. with 3M
17	LM Ericsson	Sweden	√	14
18	Compal Electronics	Taiwan	√	7
19	Taiwan Semiconductor Manufacturing	Taiwan	√	Manufacturing presence in Viet Nam
20	Flex	Singapore	√	ASEAN Company
21	Sharp	Japan	√	90
22	Wistron	Taiwan	√	13
23	Jabil Circuit	United States	√	14
24	SK Hynix	Republic of Korea	√	1
25	ZTE	China	√	9
26	Nokia	Finland	√	23
27	Asustek Computer	Taiwan	√	17
28	Kyocera	Japan	√	38
29	Texas Instruments	United States	√	10
30	Western Digital	United States	√	21
31	Micron Technology	United States	√	3
32	Inventec	Taiwan	√	1
33	Seagate Technology	United States	√	14
34	China Greatwall Computer Shenzhen	China	x	-
35	TPV Technology	China	√	5
36	Innolux	Taiwan	x	-
37	AU Optronics	Taiwan	√	2
38	Murata Manufacturing	Japan	√	13
39	TDK	Japan	√	64
40	Seiko Epson	Japan	√	22
41	Japan Display	Japan	√	1
42	Advanced Semiconductor Engineering	Taiwan	√	9
43	Acer	Taiwan	√	39
44	STMicroelectronics	Switzerland	√	8
45	Alps Electric	Japan	√	11
46	Asml Holding	Netherlands	√	4
47	Lite-On Technology	Taiwan	√	1
48	Mediatek	Taiwan	√	4
49	Renesas Electronics	Japan	√	2
50	Nxp Semiconductors	Netherlands	√	14
51	Tokyo Electron	Japan	√	1
52	Nvidia	United States	√	2

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	Name	Home country	ASEAN presence	Number of principal subsidiaries in ASEAN Member States
	IT Software and Services			
53	Microsoft	United States	√	16
54	Hewlett Packard Enterprise	United States	√	30
55	Oracle	United States	√	23
56	Accenture	Ireland	√	32
57	NEC	Japan	√	43
58	Qualcomm	United States	√	5
59	SAP	Germany	√	17
60	Tata Consultancy Services	India	√	8
61	NTT Data	Japan	√	5
62	Capgemini	France	√	4
63	Cognizant Technology Solutions	United States	√	118
64	Atos	France	√	1
65	Infosys	India	√	4
66	CGI Group	Canada	√	2
67	Wipro	India	√	13
68	Harris	United States	√	6
69	Computer Sciences Corporation	United States	√	4
	(Now part of DCX Technology)			
70	Samsung SDS	Republic of Korea	√	5
71	Datatec	South Africa	√	16
72	Adobe Systems	United States	√	3
73	HCL Technologies	India	√	10
	Telecommunication companies			
74	AT&T	United States	√	4
75	Nippon Telegraph and Telephone	Japan	√	65
76	Softbank Group	Japan	√	40
77	Deutsche Telekom	Germany	√	1
78	Vodafone Group	United Kingdom	√	8
79	America Movil	Mexico	x	Primary market focus elsewhere
80	Telefonica	Spain	√	1
81	Orange	France	√	11
82	BT Group	United Kingdom	√	40
83	Telecom Italia	Italy	√	2
84	Telstra	Australia	√	48
85	Altice	Netherlands	x	Primary market focus elsewhere
86	Bharti Airtel	India	√	3
87	Telenor	Norway	√	3
88	Emirates Telecommunication Group	United Arab Emirates	x	Primary market focus elsewhere
89	Saudi Telecom Company	Saudi Arabia	√	1
90	Swisscom	Switzerland	√	1
91	Vivendi	France	√	2
92	Telia Company	Sweden	√	3
93	Vimpelcom	Netherlands	x	Primary market focus elsewhere
94	MTN Group	South Africa	x	Primary market focus elsewhere
95	Ooredoo	Qatar	√	Limited presence
96	Level 3 Communications	United States	√	1
97	Millicom	Sweden	x	Primary market focus elsewhere
98	Mobile Telesystems	Russia	x	Primary market focus elsewhere
99	Vodacom Group	South Africa	x	Primary market focus elsewhere
100	PCCW	Hong Kong, China	√	2

Source: ASEAN Secretariat, based on UNCTAD table of 'the world's top 100 ICT MNEs, ranked by sales/operating revenues, 2015' (UNCTAD 2017a). The subsidiary data were extracted from Bureau van Dijk's ORBIS Database and other sources.

Notes

[1] The same broadly applies to the top banks and financial service MNEs, many of which have the largest assets in ASEAN (chapter 2).

[2] SIAEC is a subsidiary of Singapore International Airlines. It holds a 65 per cent in the JV with Airbus, known as Heavy Maintenance Singapore Services Pte Ltd (HMS Services). It was established in 2016.

[3] For example, mass merchandisers which subcontract companies in ASEAN (sometimes local subsidiaries of, among others, Hong Kong, Republic of Korea and Taiwanese companies) to produce garments and footwear; or infrastructure service providers which normally build, produce and provide electricity, toll roads etc. under concessions granted by Governments (UNCTAD 2011).

[4] After the United States, Japan, China, Germany, United Kingdom and France.

[5] As indicated by MNEs in many CEO surveys and similar. For example, AMCHAM (2017), ASEAN Secretariat and Allurentis (2017).

[6] By way of comparison, in PPP terms in 2016, Australia's GDP per capita was $47,000 and Japan's was $41,000; developing Asia and the Pacific's average GDP per capita at PPP was $17,000 (ADB 2017b).

[7] See, atkearney.com/web/world-economic-forum/shaping-the-future-of-production.

[8] For more information, see www.agribuddy.com/case-studies/acleda-bank.

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