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## Cross-border mergers & acquisitions: the facts as a guide for international economics

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# CROSS-BORDER MERGERS & ACQUISITIONS: THE FACTS AS A GUIDE FOR INTERNATIONAL ECONOMICS

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# CROSS-BORDER MERGERS & ACQUISITIONS: THE FACTS AS A GUIDE FOR INTERNATIONAL ECONOMICS

## Abstract

Using a detailed and large data set on cross-border merger and acquisitions we discuss the relationship between theory and observed empirical characteristics:

(i) most FDI is in the form of M&As, (ii) firms engaged in M&As seem to be ‘market-seeking’, (iii) M&As come in waves (the most recent wave is still unfolding), (iv) economic integration (international deregulation) stimulated M&As, (v) the size of and inequality between M&As grows over time.

Our contention in this chapter is that these stylized facts drive and should drive recent theoretical contributions in the field of international economics that try to understand cross-border mergers and acquisitions. Although some models (notably Neary, 2003) explain a number of the characteristics, a full-fledged model of cross-border M&As that, at least in principle, can deal with all the characteristics is still lacking.

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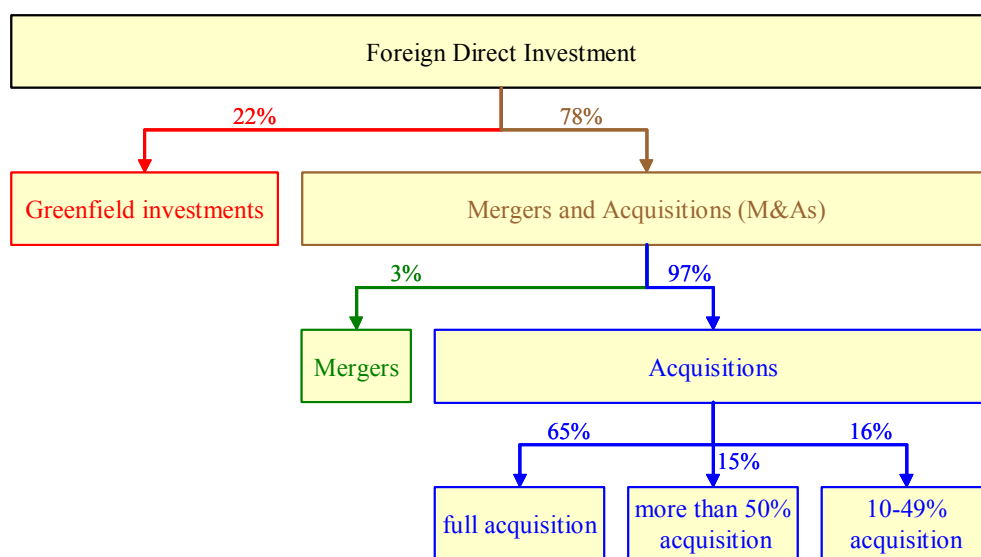
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## 1 Introduction

Theoretical developments in international economics are sometimes motivated by empirical findings. The ‘new trade theory’, for example, was to a large extent inspired by empirical work on intra-industry trade (Neary, 2004b). This also holds for the recent outburst of research on foreign direct investment (FDI) as one of the driving forces behind the current wave of globalization. Many observers have noted that FDI grows much faster than world merchandise trade (Barba Navaretti and Venables, 2004). This is clearly a stylized fact in search of an explanation. For years, students of FDI used the OLI-categorisation scheme of Dunning (1993) to understand why firms engage in FDI. Notwithstanding its usefulness in the case of FDI, a categorisation scheme is not a model. New theories are being developed in which the firm’s decision on FDI engagement is determined in a full-fledged micro-economic model.

Figure 1 Distribution of different types of FDI



Source: Brakman et al. (2006); data: UNCTAD (2000); 78-22% in value terms, other % in # of deals

Interestingly, looking at FDI as a broad category obscures the fact that most FDI is in the form of so-called cross-border *Mergers & Acquisitions* (henceforth: M&As). Figure 1 shows a decomposition of FDI from which it is clear that M&As constitute the bulk of FDI, whereas greenfield FDI is less important than M&As. The main difference between these two investments is that in an M&A “control of assets and operations is transferred from a local to a foreign company, the former becoming an affiliate of the latter” (UNCTAD, 2000, p. 99). Only recently models in international

economics have been developed that enable us to understand M&As (Neary, 2004b). Neary's model takes the standard explanations for M&As a step further. Usually two motives are mentioned to explain M&As: a strategic motive (reduce competition) and an efficiency motive (cost reductions). An explanation of *cross-border* M&As, however, also has to explain the cross-border part of the deals. Trade theory suggests that comparative advantage could be included in full explanations of M&As, see Neary (2004a). A different, equally novel line of research in international economics (see Barba-Navaretti and Venables, 2004, or Helpman, 2006, for excellent surveys), seeks to understand the conditions under which firms decide to locate (part of) their production abroad (the off-shoring decision). When they decide to off-shore, some firms do so under the flag of FDI, while other firms go for outsourcing. In this literature, and in contrast to the empirical relevance illustrated in Figure 1, the role of cross-border M&As is, however, largely ignored. The aim of this chapter is to present stylized facts on cross-border M&As. This is not only interesting in its own right (see also Evenett, 2004), but may also act as a guide for the recent upsurge of interest in FDI and its alternatives in international economics regarding the facts that the modern theory of FDI should be able to explain. When highlighting the stylized facts in this chapter, we therefore briefly point out those FDI models in international economics that are able to cope with the facts under consideration.

We proceed as follows. Section 2 presents basic characteristics of M&As using the database of *Thomson Financial Securities Data* (Thomson, hereafter). The advantage of this source over UNCTAD data is that it consists of individual data on each and every M&A, enabling us to look at M&As at a very detailed level. Section 3 provides information at the country level. Section 4 looks at the regional composition of target and acquirer, which are both typically to be found in the OECD countries. Section 5 confronts gross M&As with net M&As and discusses some developments over time, confirming that emerging markets, like China and Eastern Europe, are increasingly becoming net targets. Section 6 argues that the inequality within the set of M&As tends to increase over time. Section 7 discusses the characteristics of firms involved in FDI. Section 8, finally, concludes and summarizes our findings.

## 2 Cross-border M&As: basic characteristics

Our overview of the structure and developments of cross-border M&As is based on Thomson's *Global Mergers and Acquisitions database*, which provides the best and most extensive data source for M&As to date. Thomson gathers information on M&As exceeding 1 million US dollar. Its main sources of information are financial newspapers and specialized agencies like Bloomberg and Reuters. Our Thomson data set begins in 1979 and ends in August 2006. Initially, Thomson focused on American M&As. Systematic M&A data for almost all countries is available for about the last 20 years. In presenting the data we therefore focus on the period 1986 – 2005, usually grouped in four five-year sub-periods to mitigate the large annual fluctuations characteristic of M&As and to enable us to discern longer term trends.

*Table 1 Overview of cross-border M&As*

	# of deals	per cent
Cross-border M&As, 1986-2005	27,541	
Effective M&As	27,461	99.7
Average per cent of shares acquired		75.5
Average per cent of shares owned after deal		80.1
# of tender offers	2,476	9.0
# horizontal M&As (2-digit level)	13,605	49.4
-----		
Public status of target		
government	658	2.4
joint venture	977	3.5
subsidiary	11,053	40.1
public	7,343	26.7
private	7,489	27.2
unknown / other	21	0.1
-----		
Public status of acquirer		
government	298	1.1
joint venture	499	1.8
subsidiary	6,814	24.7
public	15,796	57.4
private	4,067	14.8
unknown / other	67	0.2
-----		
# of deals involving cash	25,665	93.2
if so average share of payment		94.4
# of deals involving stock	2,635	9.6
if so average share of payment		73.1

We collected information on all completed / unconditional *cross-border* M&As with a deal value of at least \$10 million. In the period 1986 – 2005 this provided us with 27,541 cross-border M&As, see the overview in Table 1.

There is usually no or only a very short time difference between the date of announcement of an M&A deal and the date the deal is effective (such that 99.7 per cent of the deals is effective). The announced date is the same as the effective date for about 38 per cent of the M&A deals. On average the difference between these two dates is 0.18 year. We therefore used the date of announcement for classifying the M&A deals over time, see also Brakman, Garretsen, and van Marrewijk (2005, 2006). In general, a large share of a company (on average 75.5 per cent) is acquired by the deal, leading to a majority ownership after the deal is completed (on average owning 80.1 per cent of the acquired company). This indicates that most firms already have ‘intimate’ knowledge of the firm that is acquired. Payment for the acquisition usually involves cash (93.2 per cent of the deals) and, if so, it is usually completely paid for in cash (on average 94.4 per cent of the deals involving cash is paid for in cash). Payment of the deal using shares occurs regularly (9.6 per cent of the deals) and, if so, it is usually completely paid for in shares (on average 73.1 per cent of the deals involving stocks is paid for in stocks). The fact that many takeovers are financed with cash does not imply that shares are not important in those deals: raising cash is very much facilitated if stock prices of the firms involved are high. This might be the motive to announcing takeovers before the actual takeover takes place; announcements tend to affect share prices in an upward direction (see also Box 1).<sup>1</sup>

#### *Box 1 Cross-border M&A profitability*

For this chapter it is instructive to present a simple way of looking at a cross-border M&A. It is more a way of organizing thoughts than a complete model, but it illustrates the key issues involved. Let “1” and “0” indicate the *post*- and *pre*-merger situation, respectively. Then the gain of taking over a Home firm,  $G_H$ , by a foreign firm is given by:

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<sup>1</sup> As to (negative) relation between profits and share prices w.r.t. M&As see Fridolfsson and Stennek (2005).

$$(1) \quad G_H = [\pi_1^*(n-1, n^* | \cdot) - \pi_0^*(n, n^* | \cdot)] - \pi_0(n, n^* | \cdot) > 0$$

The first term (in square brackets) relates to the gain in profitability from reduced competition by taking over the domestic firm: the number of domestic firms is reduced by 1, from  $n$  to  $(n-1)$ . The number of foreign firms,  $n^*$ , does not change. The second term indicates the cost of acquiring the domestic firm. This is a function of profits of the target – the more profitable a target is, the higher the take-over costs – and the cost of financing the take-over. If the acquirer has a windfall gain, for example, higher share prices due to the takeover, the finance costs are smaller. The  $| \cdot$  indicates that other variables are taken as given. The balance between the change in profits and the costs involved in the M&A determines whether or not a takeover will take place. Whether the increase in profits really materializes after the M&A has taken place is another issue, but the equation illustrates how in international economics (the equation is taken from Neary, 2004a) the firm decision on whether or not to engage in a cross border M&A is very simple. The firm (and its organizational set-up) itself is something of a black box and the focus is on how changes in the external environment (fall in transportation costs, lowering of tariffs) might have an impact on equation (1), and thus on the M&A decision.

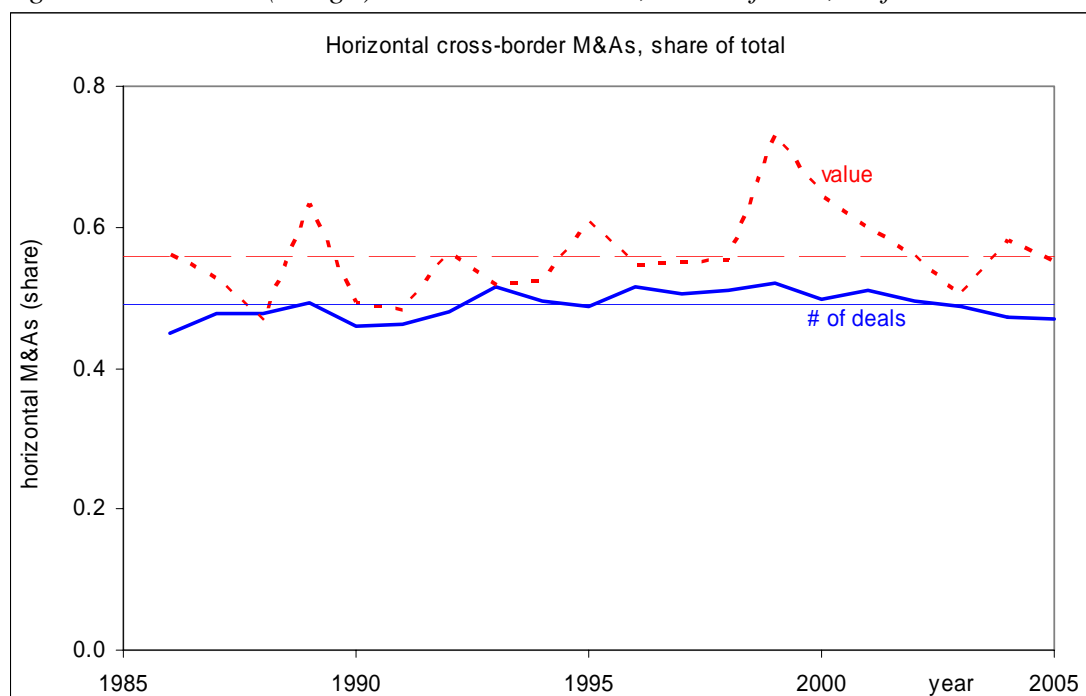
There are substantial differences between the public status of acquiring and target firms. The majority of acquiring firms are public companies (57.4 per cent), followed by subsidiaries (24.7 per cent), and private firms (14.8 per cent), respectively. The target company, on the other hand, is usually a subsidiary (40.1 per cent), followed by a private company (27.2 per cent) and a public company (26.7 per cent), respectively. The share of subsidiaries and private companies among the target companies is therefore substantially larger and the share of public companies is substantially lower.

To classify M&As between horizontal and other types of deals (be they vertical or conglomerate), we used the SIC classification of target and acquirer as provided by Thomson at the 2-digit level; a deal is therefore an horizontal M&A in our classification if the acquirer and target are active in the same 2-digit sector. On average, about half of the M&As are horizontal deals (49.4 per cent, see below for



further details). Thus to a large extent investments take place in the same sector. One can speculate why this might be the case. Strategic motives may of course be at work here, but as we will argue below the most likely explanation is probably that most cross-border M&A belong to the category of market-seeking FDI. Taking one of your competitors out of the market reduces competition and increases profits. Buying a firm outside one's own sector might be motivated by an efficiency motive: it can be profitable to control a larger part of the value chain. Both motives increase profits after the take-over. We also argue that, since most cross-border M&As belong to the category of horizontal FDI, market-seeking motives play a dominant role in M&As.

Figure 2 Horizontal (2-digit) cross-border M&As; share of total, # of deals and value

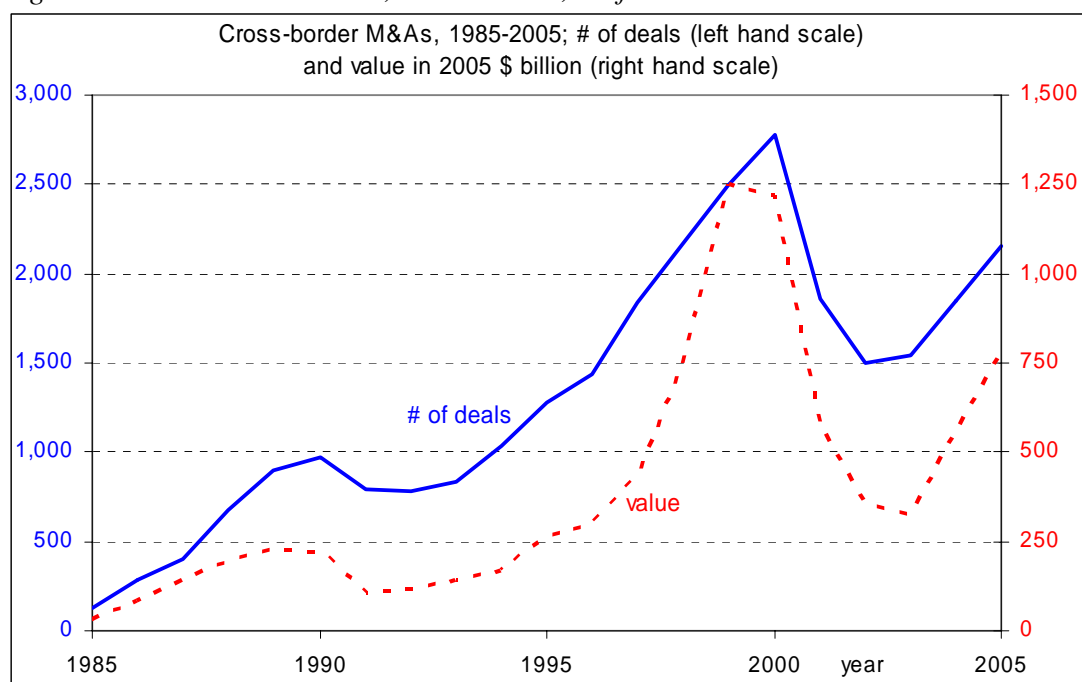


Horizontal lines indicate averages for the period 1986-2005.

Figure 2 illustrates that the share of horizontal M&As is very stable over time when measured using the *number* of deals; fluctuating relatively little around the average of 49 per cent, ranging from a low of 45.1 per cent in 1986 to a high of 51.5 per cent in 1996. Horizontal M&As are substantially more volatile when measured using the *value* of the deals; fluctuating around the average of 56 per cent, ranging from a low of 46.7 per cent in 1988 to a high of 73.0 per cent in 1999. Using either measure, we find little support for the argument that the share of horizontal M&As is declining. Those who would argue that the value of horizontal M&As has declined since 1999

are obviously obscuring the fact that this peak in 1999 is not representative over a longer time horizon. The current (2005) value of horizontal M&As of 55.2 per cent is very close to the long run average of 56 per cent. From an international economics' perspective, see our introduction, the question is if existing theories of FDI can explain the dominance of horizontal FDI. At first sight, this is not the case. Assuming that during our sample period 1985-2005 trade costs broadly defined have, if anything, decreased the standard FDI model then predicts that horizontal FDI should become less important. With falling trade costs foreign markets might *ceteris paribus* be better served by exporting instead of FDI, and in the well-known *proximity-concentration* trade-off, a drop in trade costs shifts the trade-off in favor of exporting. However, Neary (2005) shows that falling trade costs might still explain the rise of horizontal FDI, and thus of the bulk of cross-border M&As, once we allow for an FDI model that explicitly incorporates the possibility of cross-border M&As instead of merely looking at FDI as a black box (see Neary, 2004a).

Figure 3 Cross-border M&As, 1985 – 2005; # of deals and value



An historical perspective reveals a remarkable characteristic of M&As. Figure 2 depicts the evolution of all cross-border M&As over time, both measured as the number of deals and the value of deals (in constant 2005 \$ bn., using the US GDP deflator). Clearly, there is substantial variation over time, with periods of rapid increase followed by periods of rapid decline. Five merger waves have been identified

during the 20<sup>th</sup> century, three of which are recent (Andrade, Mitchell, and Stafford, 2001). The 3<sup>rd</sup> wave took place in the late 1960-early 1970s. The 4<sup>th</sup> wave ran from about the mid 1980s until 1990. The 5<sup>th</sup> wave started around 1995 and ended in 2000 with the collapse of the “new economy”. Figure 3 shows that a subsequent 6<sup>th</sup> (still ongoing) merger wave started in the 21<sup>st</sup> century around 2003. Note, that the data used in this chapter cover the last two waves.

Merger waves are positively correlated with increases in share prices and p/e ratios, and with the overall business cycle in general. However, the causality of the relation is not always clear. On the one hand, an upswing of the business cycle increases share prices, and high share prices reduce the cost of financing a M&A. On the other hand the same upswing of the business-cycle increases the profits of the target and increase take-over costs (see also Box 1). When one sticks to standard M&A motives, like the efficiency argument, it is rather difficult to explain the synchronicity of M&As. Gugler et al. (2004) argue that merger waves can be understood if one acknowledges that M&As do *not* boost efficiency and hence do not increase shareholders' wealth. Instead, they find that M&A waves are best looked upon as the result of overvalued shares and managerial discretion. For the case of the USA and restricting their sample to firms that are publicly traded, Andrade et al. (2001) show that with each merger wave the value of the M&A deals (measured by firms' market capitalization) increases strongly. Merger waves in Europe seem to follow those in the USA with a short lag. During the 5<sup>th</sup> merger wave, European firms engaged in a number of (mega) M&As with the cross-border take-over of Mannesmann (Germany) by Vodafone (UK) for \$203 bn. in 1999/2000 as to date the largest M&A. It turns out that especially this part of M&A waves is difficult to model. First of all, an M&A wave must start at some point in time. Equation (1) points at a difficulty in this respect. A reduction of competition makes an M&A profitable, which implies that it is rational to wait for other M&As to go first, because this reduces competition and makes the next M&A more profitable than the first one. Second, an M&A wave must stop at some point. Both elements should be incorporated in a full M&A model. Neary (2004a) does just that: waves have to start at some point in time or else M&A profits are foregone. Moreover, since it is a general equilibrium model, the excess supply on the labor market following an M&A (lower wages resulting in higher profits) finally stop the wave.

### 3 Countries and M&As in 2005

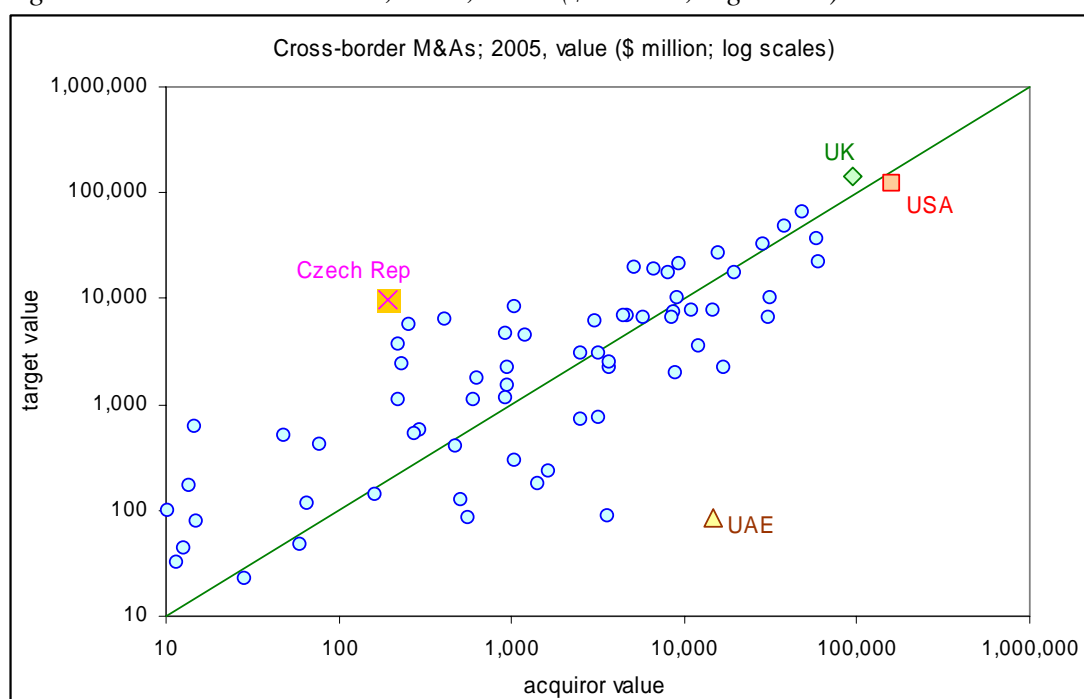
This section provides an overview of the currently (2005) most active countries in M&As. There were 2,154 cross-border M&As in 2005 with a total value of about \$774 bn. Table 2 provides an overview of the top 20 countries ranked in order of acquirer value. Not surprisingly, the United States tops the list, both in value and number of deals, acquiring 514 foreign firms with a total value of about \$158 bn (20.4 per cent of the total). The United States is also the largest target country in 2005 when measured in number of deals (356) and the second largest target in value terms (\$125 bn). The United Kingdom is the second largest acquiring country (286 deals and \$94 bn) and the largest target country in value (\$144 bn; second largest in number of deals). Among the other countries listed in Table 2 are the “usual suspects” of high income (European) countries: Spain, France, Germany, Italy, Switzerland, Netherlands, Sweden, Denmark, Norway, Israel, Australia, Canada, Japan, Russia, and Hong Kong. More remarkable, presumably, are the high ranks for Egypt, United Arab Emirates (UAE), and even tiny Luxembourg.

*Table 2 Cross-border M&As; top 20 countries in 2005  
(ranked according to acquirer value)*

	Country	in value terms (\$ million)			in # of deals	
		acquirer	% of total	target	acquirer	target
1	United States	157,924	20.4	124,764	514	356
2	United Kingdom	94,104	12.2	143,754	286	262
3	Spain	59,953	7.7	22,531	49	58
4	France	58,606	7.6	36,733	86	110
5	Germany	48,081	6.2	65,053	79	136
6	Italy	37,897	4.9	48,593	48	58
7	Australia	31,722	4.1	10,048	137	106
8	Switzerland	30,973	4.0	6,710	35	22
9	Netherlands	28,664	3.7	32,416	64	38
10	Sweden	19,555	2.5	17,799	63	44
11	Egypt	16,992	2.2	2,227	6	9
12	Canada	15,679	2.0	26,943	121	87
13	Luxembourg	14,584	1.9	7,808	21	7
14	United Arab Emirates	14,565	1.9	86	11	1
15	Japan	12,034	1.6	3,538	70	26
16	Russia	11,088	1.4	7,818	22	28
17	Denmark	9,341	1.2	20,933	27	33
18	Hong Kong	9,213	1.2	10,107	60	63
19	Israel	8,847	1.1	2,001	17	18
20	Norway	8,799	1.1	7,329	20	33

As suggested by the fact that the USA and the UK take the two top spots in Table 2 both as acquirer and target, there is substantial coincidence between acquirers and targets (large acquiring countries are usually also large target countries, and vice versa). Indeed, of the 20 countries listed as the largest acquirers in value terms in Table 2, fifteen also appear among the top 20 as largest targets in value terms. Only Switzerland, Egypt, UAE, Japan, and Israel would have to be replaced by Belgium, China, Turkey, Czech Rep., and South Korea. This coincidence is illustrated in Figure 4 using logarithmic scales. The figure also indicates that the Czech Rep. is indeed a relatively large target and the UAE is indeed a relatively large acquirer.

Figure 4 Cross-border M&As; 2005, value (\$ million, log scales)



The thin line is the 45° line.

What can we conclude from the fact that M&As mostly take place between high income countries? As stated before an important classification in the literature is the difference between so-called horizontal and vertical FDI. The difference is important because in case of horizontal FDI firms are ‘market-seeking’ (looking for large and profitable markets), in case of vertical FDI firms have a ‘factor-market’ motive. In the former case firms are interested in the high wages of consumer, instead of low cost in factor markets (for example low wages) as in the latter case. Thus, both forms need very different models. As horizontal FDI seems to dominate the data, models that stress ‘market-seeking’ reasons to engage in M&As are potentially the most

appropriate for empirical research. Having acknowledged this, see also the previous section, these models have trouble explaining FDI in the face of increased economic integration (falling trade costs), see also Evenett (2004, p. 427). It is here that the models in international economics might gain (Neary, 2005) from differentiating more clearly between various forms of FDI, notably by including cross-border M&As as a separate category of FDI.

#### **4 Regional distribution of cross-border M&As**

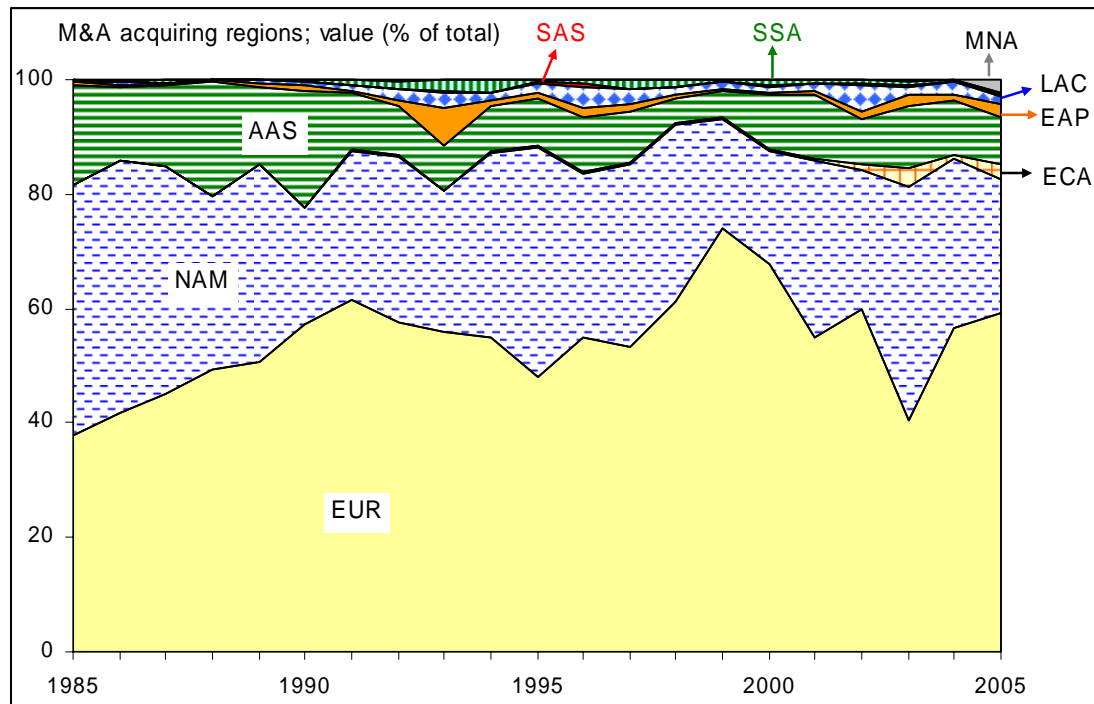
In section 3 we showed that the majority of cross border M&As is between relatively rich countries. There is, however, in the public debate on off-shoring, *which thus includes all forms of FDI and thus also cross border M&As as well as outsourcing*, a strong undercurrent that looks at off shoring and thereby at FDI and its main component cross border M&A as “threatening”. Workers in the industrialized countries would lose out because of the re-location of their jobs to other, notably low-wage countries. This fear is far from new, as illustrated by the former American presidential hopeful Ross Perot’s “giant sucking sound” comments (in)famously made in 1992 on the alleged migration of jobs from the USA to Mexico. To assess these developments over time it is useful to define more or less coherent *groups of countries*, which we label “global regions.” We identify nine global regions, namely six developing regions and three high income regions. The six developing regions are based on the World Bank’s grouping in global regions (see the appendix for details):

1. EAP: East Asia and Pacific (includes China and Indonesia)
2. ECA: (East) Europe and Central Asia (includes Turkey and Russia)
3. LAC: Latin America and Caribbean (includes Brazil and Mexico)
4. MNA: Middle East and North Africa (includes Egypt)
5. SAS: South Asia (includes India)
6. SSA: Sub-Sahara Africa (includes Nigeria and South Africa)

The World Bank’s group of high income countries is sub-divided into three global regions following van Marrewijk (2002, Ch. 1; see also Table A1 in the appendix):

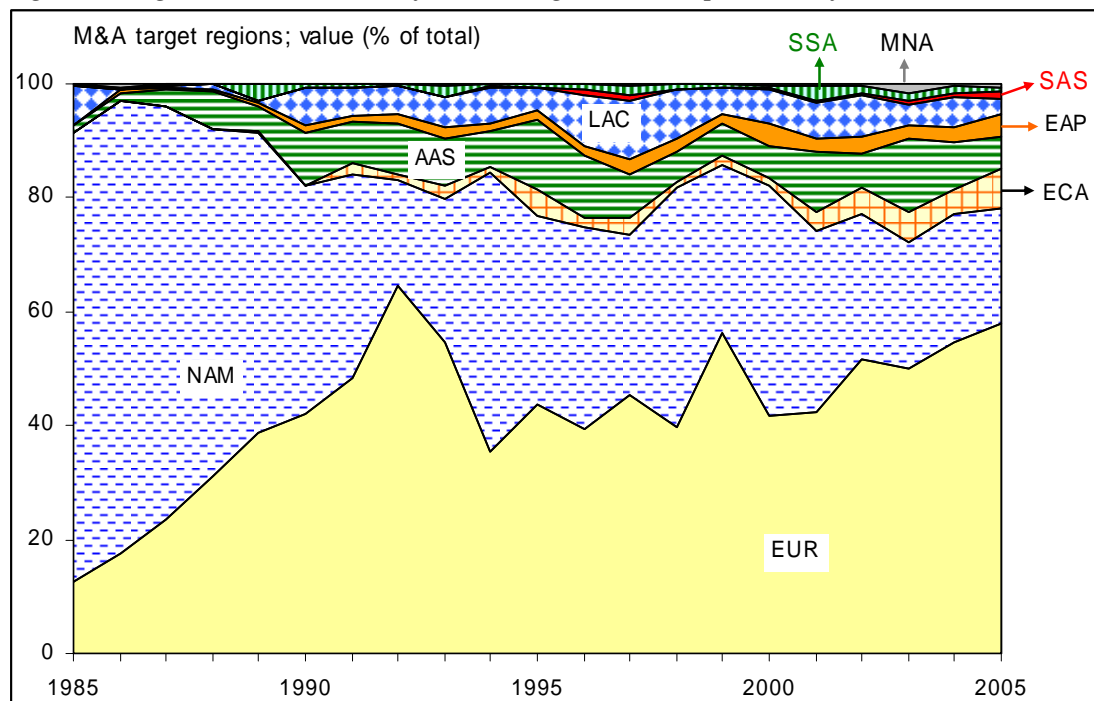
7. AAS: AustalAsia (includes Australia, Japan, and South Korea)
8. EUR: Western Europe (includes France, UK, and Germany)
9. NAM: North America (includes Canada and USA)

Figure 5 Regional distribution of M&A acquirers; value, per cent of total



EAP = East Asia and Pacific; ECA = (East) Europe and Central Asia; LAC = Latin America and Caribbean; MNA = Middle East and North Africa; SAS = South Asia; SSA = Sub-Sahara Africa; AAS = AustralAsia; EUR = Western Europe; NAM = North America.

Figure 6 Regional distribution of M&A targets; value, per cent of total



For abbreviations: see Figure 5.

Figures 5 and 6 depict the evolution over time of the global regions in terms of acquirer and target in cross-border M&As, as a per cent of the total value of M&As in the respective year.

- Western Europe (EUR) is by far the largest acquirer (on average about 55 per cent of the total), followed by North America (30 per cent) and AustralAsia (10 per cent). Over time, the share of Western Europe as an acquirer has increased and of North America has decreased. At the world scale, the importance of East Asia and Pacific (EAP) and Latin America (LAC) as an acquirer is limited (between 1 and 2 per cent) and of the other global regions is minimal (less than 1 per cent). Western Europe and North America are about equally important as the world's largest target regions for M&As, on average about 44 and 38 per cent of the world total, respectively. Western Europe has clearly become a more important target region over time, whereas North America's position has clearly declined. AustralAsia is again third (about 7 per cent), closely followed by Latin America (5 per cent). The importance of Eastern Europe as a target region has clearly increased, as has, to a lesser extent, the importance of East Asia and Pacific and Latin America. The importance of South Asia (SAS), the Middle East and North Africa (MNA), and Sub-Sahara Africa (SSA) has a target region is minimal (less than 1 per cent).

In the light of the “fear of globalization” debate that we alluded to at the beginning of this section, the increased importance of Eastern Europe and also of East Asia and the Pacific and Latin America as target region provides some evidence that cross-border M&As are increasingly used as a vehicle to invest from high-income countries to low-income countries. The changes are, however, (still) modest; it remains true even in our regional classification above that the vast majority of FDI takes place between and within the three high-income regions. Table 3 provides more detail in this respect by giving the regional distribution of cross-border M&As in percentages of the total for acquirer and target region for each of the four five-year sub-periods. It shows, for example, that EUR acquired 48.8 per cent of the cross-border M&As in the period 1986-1990, of which 26.4 percentage point were destined for NAM and 19.8 percentage points for EUR itself. Since then EUR's share as an acquirer has been above 50 per cent, while its share as a target has been close to 50 per cent. Also note the relative importance of the *intra*-regional M&As.



Table 3 Regional distribution of cross-border M&amp;As; 5 year averages (% of total)

Average value 2001 – 2005										target
acquirer	AAS	EAP	ECA	EUR	LAC	MNA	NAM	SAS	SSA	
AAS	3.7	1.0	0.1	2.5	0.1	0.0	2.0	0.0	0.0	9.6
EAP	0.4	0.5	0.0	0.2	0.1	0.1	0.0	0.0	0.0	1.4
ECA	0.0	0.0	1.4	0.2	0.0	0.0	0.1	0.0	0.0	1.7
EUR	2.1	0.5	2.9	34.6	2.0	0.4	10.2	0.3	1.1	54.2
LAC	0.0	0.0	0.0	0.0	1.4	0.0	0.8	0.0	0.0	2.2
MNA	0.0	0.0	0.0	0.4	0.0	0.1	0.0	0.0	0.0	0.5
NAM	2.3	0.7	0.5	13.3	1.4	0.1	11.2	0.2	0.1	29.8
SAS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3
SSA	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.2	0.5
	8.8	2.7	4.9	51.4	5.1	0.7	24.3	0.6	1.5	100
Average value 1996 – 2000										target
acquirer	AAS	EAP	ECA	EUR	LAC	MNA	NAM	SAS	SSA	
AAS	2.6	1.6	0.1	1.1	0.1	0.0	1.8	0.1	0.0	7.5
EAP	0.4	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.9
ECA	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2
EUR	1.8	0.4	1.2	33.0	3.5	0.1	21.9	0.1	0.2	62.2
LAC	0.0	0.0	0.0	0.0	1.6	0.0	0.2	0.0	0.0	1.9
MNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NAM	2.2	0.3	0.2	9.8	2.3	0.0	11.0	0.2	0.2	26.1
SAS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2
SSA	0.1	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.4	1.0
	7.1	2.5	1.7	44.5	7.6	0.2	35.1	0.5	0.8	100
Average value 1991 – 1995										target
acquirer	AAS	EAP	ECA	EUR	LAC	MNA	NAM	SAS	SSA	
AAS	3.0	0.7	0.2	1.3	0.2	0.0	3.1	0.0	0.0	8.5
EAP	0.5	0.2	0.0	1.2	0.0	0.0	0.1	0.0	0.0	2.0
ECA	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2
EUR	2.6	0.3	1.4	34.0	1.4	0.1	15.4	0.0	0.4	55.6
LAC	0.0	0.0	0.0	0.1	0.9	0.0	0.7	0.0	0.0	1.8
MNA	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
NAM	2.3	0.3	0.4	12.3	2.4	0.0	12.7	0.0	0.1	30.5
SAS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
SSA	0.2	0.0	0.0	0.5	0.2	0.0	0.3	0.0	0.2	1.4
	8.7	1.5	2.1	49.3	5.1	0.1	32.3	0.1	0.7	100
Average value 1986 – 1990										target
acquirer	AAS	EAP	ECA	EUR	LAC	MNA	NAM	SAS	SSA	
AAS	2.5	0.4	0.0	4.0	0.0	0.0	9.2	0.0	0.1	16.2
EAP	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.5
ECA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EUR	1.0	0.0	0.1	19.8	1.2	0.0	26.4	0.0	0.3	48.8
LAC	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.0	0.0	0.4
MNA	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
NAM	1.3	0.0	0.0	6.6	0.4	0.0	24.9	0.0	0.4	33.7
SAS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSA	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.2
	4.9	0.5	0.1	30.6	1.8	0.1	61.1	0.0	0.9	100

For abbreviations: see Figure 5.

Most noteworthy in Table 3 is, of course, the large share of European firms buying other European firms, which has been close to one third of the world total since 1990. It seems difficult not to argue that the intra-European M&A activity has been stimulated by the process of EU integration, the completion of the single market. But if this is the case, the modern FDI models that serve as a benchmark for our chapter have some trouble explaining as they predict that (horizontal) FDI would become less important. One explanation (Barba Navaretti and Venables, 2004, chapter 3) might be that (independently from the level of trade costs) the fixed cost of taking over another European firm has fallen because of the streamlining of national legislation. Table 3 also shows that the share of intra-regional M&As has been high for AustralAsia and North America (see also below) and that South Asia and the Middle East and North Africa are virtually absent as acquirer and target regions throughout the period.

*Table 4 Change in regional distribution of cross-border M&As; 2001-2005 five year average minus 1986-1990 five year average, rounded to nearest integer*

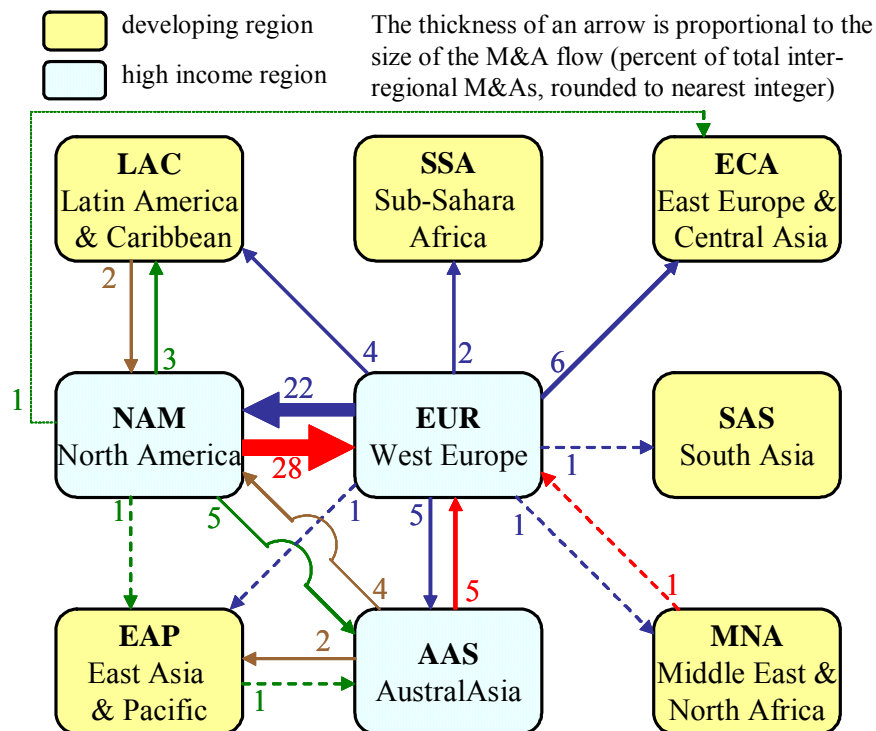
Average value 2001 – 2005 acquirer	target									
	AAS	EAP	ECA	EUR	LAC	MNA	NAM	SAS	SSA	
AAS	1	1		-1			-7			-7
EAP										1
ECA			1							2
EUR	1	1	3	15	1		-16		1	5
LAC					1					2
MNA										
NAM	1	1		7	1		-14			-4
SAS										
SSA										
	4	2	5	21	3	1	-37	1	1	

For abbreviations: see Figure 5.

Table 4 highlights the changes in the distribution of cross-border M&As by subtracting the percentages in the period 1986-1990 from the percentages of the period 2001-2005 and rounding to the nearest integer. AustralAsia and North America have decreased most substantially as acquirer (minus 7 and minus 4 percentage points, respectively), while West and East Europe and Latin America have increased their position (plus 5, 2, and 2 percentage points, respectively). At the expense of North America (minus 37 percentage points) all the other regions have become more important targets, particularly Western and Eastern Europe, AustralAsia, and Latin America (plus 21, 5, 4, and 3 percentage points). The inside of the table shows that

the most important distributional change has been European firms buying European instead of American firms, and similarly for American firms.

Figure 7 Inter-regional cross-border M&As; % of total (value), 2001-2005



NB: all *intra*-regional M&As are excluded from the figure. The total value of *inter*-regional M&As is 100 per cent; only flows above 0.5 per cent are shown (this excludes 53 of 72 possible arrows).

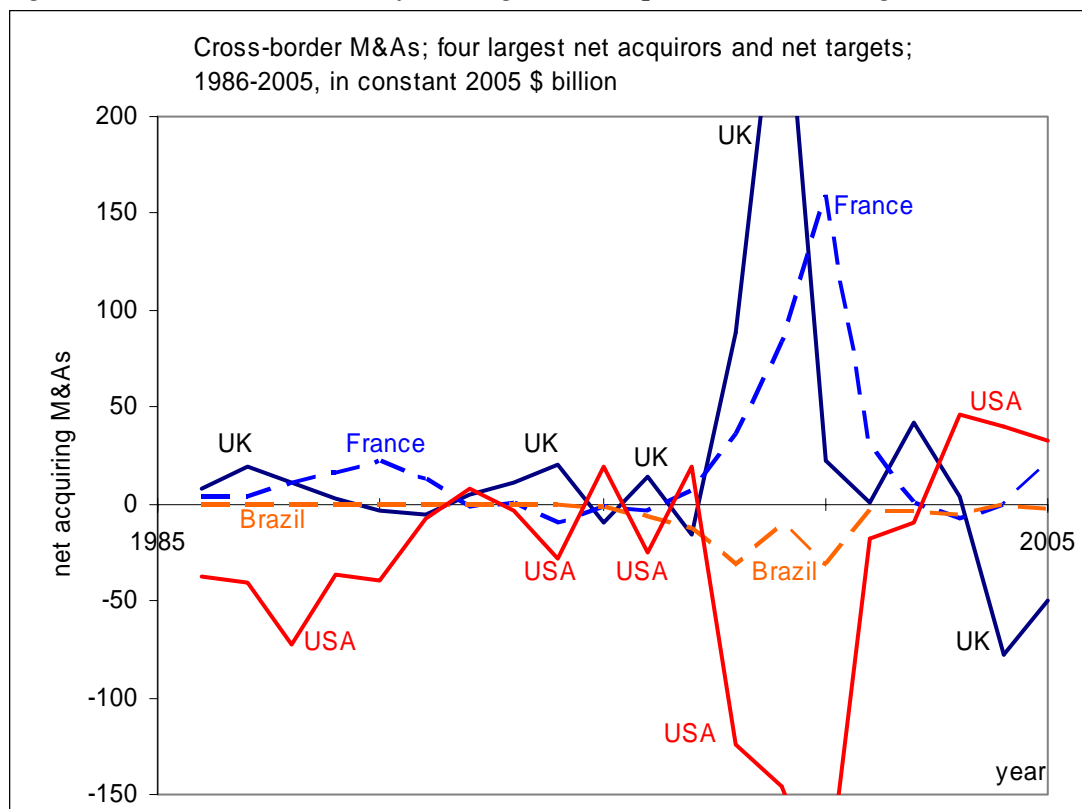
Finally, we focus attention on *inter*-regional M&As, which gives us an indication of the extent to which different global regions interact with one another. These flows can obviously be (roughly) deduced from Table 3 or the various sub-periods by disregarding the diagonal entries (which sum to about 50 per cent of the total) and re-adjusting the remaining entries to sum to 100 per cent inter-regional M&As. Figure 7 graphically depicts the inter-regional cross-border connections for the most recent five-year period (2001-2005), rounded to the nearest integer. Since there are 9 global regions there are 72 different inter-regional connections. Only 19 of these are actually shown in Figure 7 because the remaining 53 are rounded to 0 per cent. First, we note that by far the largest inter-regional M&As are from North America to Western Europe (28 per cent of the total), and vice versa (22 per cent of the total). Together these two flows account for 50 per cent of all inter-regional M&As and clearly dwarf the importance of all other inter-regional connections. Second, we note that Western Europe is substantially buying up firms in Eastern Europe (6 per cent). Third, we note

that the other connections between the high income regions (between EUR and AAS and between NAM and AAS) are substantial (about 5 per cent each). Fourth, we note that M&As toward East Asia and the Pacific are still rather small, certainly compared to the attention this receives in the popular media. Fifth, and finally, we note that Western Europe is the only global region with connections to all other regions. This is reminiscent of the dominance of Western Europe in inter-regional trade flows, see van Marrewijk (2007, Ch. 1). So, it seems safe to conclude this section with the observation that indeed most FDI and M&As take place between the relatively wealthy parts of the world. This observation is in line with our previous findings as to cross border M&As being mainly of the horizontal type.

## **5 Countries and M&As over time**

In view of the high coincidence between acquiring and target countries discussed in sections 3 and 4, it is interesting to make a difference between the largest *gross* acquirers and targets and the largest *net* acquirers and targets of M&As. Looking at net figures corrects for (country) size differences and reveals possible changes in the direction of FDI flows. Since the value and number of cross-border M&As varies substantially even for the world as a whole, see Figure 3, it should come as no surprise that this variation is even more substantial at the country level, certainly when we look at *net* M&A flows. This is illustrated in Figure 8 for the two largest net acquiring countries (UK and France) and net target countries (USA and Brazil) for the period 1985-2005. For the UK, for example, the fluctuations around the average of \$19.1 bn per year range from a low of -\$78 bn in 2004 to a high of \$295 bn in 1999. For the USA, similarly, the fluctuations around the average of -\$31.3 bn per year range from a low of -\$205 bn in 2000 to a high of \$46 bn in 2003.

Figure 8 Cross-border M&As; four largest net acquirers and net targets



To mitigate the impact of fluctuations over time and to identify important trends over longer time periods, Table 5 lists the most important countries for each of the four categories identified above for the period 1986-2005 as a whole, sub-divided into four five-year sub-periods.

- Table 5a lists the top 10 acquiring countries, consisting of the USA, Canada, Australia, Japan, and six European countries (UK, France, Germany, Netherlands, Switzerland, and Spain). The US and the UK are about equally important in this respect, although the US tops the list in three of the four sub-periods. The role of the Netherlands and Spain as an acquiring nation has become more important in the last 10 years and that of Australia in the last 5 years. In contrast, the role of Japan as an acquiring nation has clearly reduced over time.
- Table 5b lists the top 10 target countries. Except for Italy and Sweden (which replace Switzerland and Japan) it consists of the same countries as Table 5a. The US is undisputedly the largest target country, followed by the UK and Germany. The role of the UK as a target country has clearly increased over time. Similarly, to a lesser extent, has the role of other European countries, particularly in the last five years.

Table 5 Largest M&amp;A countries; acquiring and targets, gross and net flows

a. Ten largest acquiring M&A countries, 1986-2005 (constant 2005 \$ billion)						
country	annual average acquiring flows				1986-2005	
	1986-1990	1991-1995	1996-2000	2001-2005		
1	United States	41.1	42.3	142.3	118.0	85.9
2	United Kingdom	37.2	27.0	200.3	76.7	85.3
3	France	17.0	13.2	85.6	34.9	37.7
4	Germany	6.4	10.7	68.7	31.5	29.3
5	Netherlands	4.3	8.1	39.8	32.8	21.2
6	Canada	13.3	7.5	29.9	24.1	18.7
7	Switzerland	6.1	8.0	28.8	15.8	14.7
8	Spain	2.0	2.9	27.1	24.5	14.1
9	Australia	8.2	3.7	14.1	21.4	11.9
10	Japan	16.0	3.7	13.7	8.9	10.6

b. Ten largest target M&A countries, 1986-2005 (constant 2005 \$ billion)						
country	annual average target flows				1986-2005	
	1986-1990	1991-1995	1996-2000	2001-2005		
1	United States	86.5	44.6	238.4	99.6	117.3
2	United Kingdom	29.6	22.7	119.7	92.7	66.2
3	Germany	4.1	7.9	83.3	40.3	33.9
4	Canada	11.3	6.9	37.6	22.2	19.5
5	France	5.8	12.9	28.9	26.1	18.4
6	Netherlands	3.0	5.7	29.4	20.6	14.7
7	Australia	4.1	8.4	18.0	13.5	11.0
8	Italy	3.8	5.8	10.4	21.8	10.5
9	Sweden	1.7	4.9	23.7	10.3	10.2
10	Spain	3.1	5.0	11.1	11.8	7.8

c. Five largest net acquiring M&A countries, 1986-2005 (constant 2005 \$ billion)						
country	annual average net acquiring flows (acquiring – target)				1986-2005	
	1986-1990	1991-1995	1996-2000	2001-2005		
1	France	11.3	0.3	56.8	8.8	19.3
2	United Kingdom	7.6	4.3	80.6	-16.0	19.1
3	Switzerland	3.5	5.5	20.3	8.0	9.3
4	Netherlands	1.3	2.4	10.3	12.3	6.6
5	Spain	-1.1	-2.1	16.0	12.7	6.4

d. Five largest net target M&A countries, 1986-2005 (constant 2005 \$ billion)						
country	annual average net target flows (target – acquiring)				1986-2005	
	1986-1990	1991-1995	1996-2000	2001-2005		
1	United States	45.4	2.3	96.1	-18.4	31.3
2	Brazil	0.2	0.6	18.6	2.8	5.6
3	Germany	-2.4	-2.7	14.5	8.8	4.6
4	China	0.0	0.2	11.4	5.3	4.2
5	Argentina	1.8	1.3	11.0	1.8	4.0

- Table 5c lists the top 5 net acquiring countries, consisting of five European countries: France, UK, Switzerland, the Netherlands, and Spain. Of these five,

Switzerland and the Netherlands have been stable net acquiring countries throughout the time period, whereas the net position of France has been more volatile. The UK's net position recently switched from acquiring to target, and vice versa for Spain.

▪ Finally and most interestingly from the globalization debate perspective, Table 5d lists the top 5 net target countries, consisting of the US, Brazil, Germany, China, and Argentina. Of these five, Brazil and Argentina have been stable net target countries throughout the period, whereas China, like Germany, became an important net target in the last 10 years only. The US has been a primary net target most of the time, switching roles with the UK only in the last five years. The analysis reveals that despite the dominant position of the US, recently high income countries are turning towards emerging markets, of which China stands out as the most recent *net* target. Folk wisdom about the increasing importance of China – and other promising markets – thus seems correct in this respect. This also implies a challenge for FDI modeling. Typically, see Barba Navaretti and Venables (2004, chapter 3), when the possibility of M&A as an FDI option is taken into account this is in models of *horizontal* FDI, which given the facts we have presented so far, should not come as a surprise. But, the information provided by Table 5d suggests that (increasingly?) cross border M&A is also aimed at low(er) income countries where the market seeking aspect is probably far less relevant than the (labor) cost saving argument. This means that cross border M&A should be part of models of vertical FDI as well. It might be that cross border M&As become an increasingly viable alternative for Greenfield FDI or outright outsourcing in view of the well-known asymmetric information problems (the hold up problem) associated with the FDI-versus-outsourcing decision.

## **6 Inequality between cross-border M&As**

One of the reasons for the attention for the M&A phenomenon in- and certainly outside academia is undoubtedly the sense of involvement of national pride in M&A deals (either positively or negatively). Another, perhaps even more important, reason for this attention is the size of some of the cross-border M&A. Indeed, some of the deals are so large that they can have a substantial influence on a country's position as a (net) acquirer or target. Table 6 lists the largest deals by year of announcement, valued in current and constant dollars, as well as the two countries that are involved. Several conclusions can be drawn from this table. First, there is substantial variation in the maximum value over time (a 50-fold difference between the highest and lowest

value). Second, a single deal can indeed have a substantial influence. The Vodafone takeover of Mannesmann already mentioned in section 2 is by far the largest M&A. It has also clearly influenced the net acquiring position of the UK and the net target position of Germany. Third, the USA is by far the most popular target country for these mega deals (12 out of 20 observations), while Europe is the most popular acquiring region (13 out of 20 observations). Fourth, and finally, even when measured in constant dollars, there seems to be a tendency for the maximum value to increase over time.<sup>2</sup> This has led to the suggestion in the literature that the size distribution of M&As has become more unequal over time (Evenett, 2004). This section analyzes that suggestion in more detail.

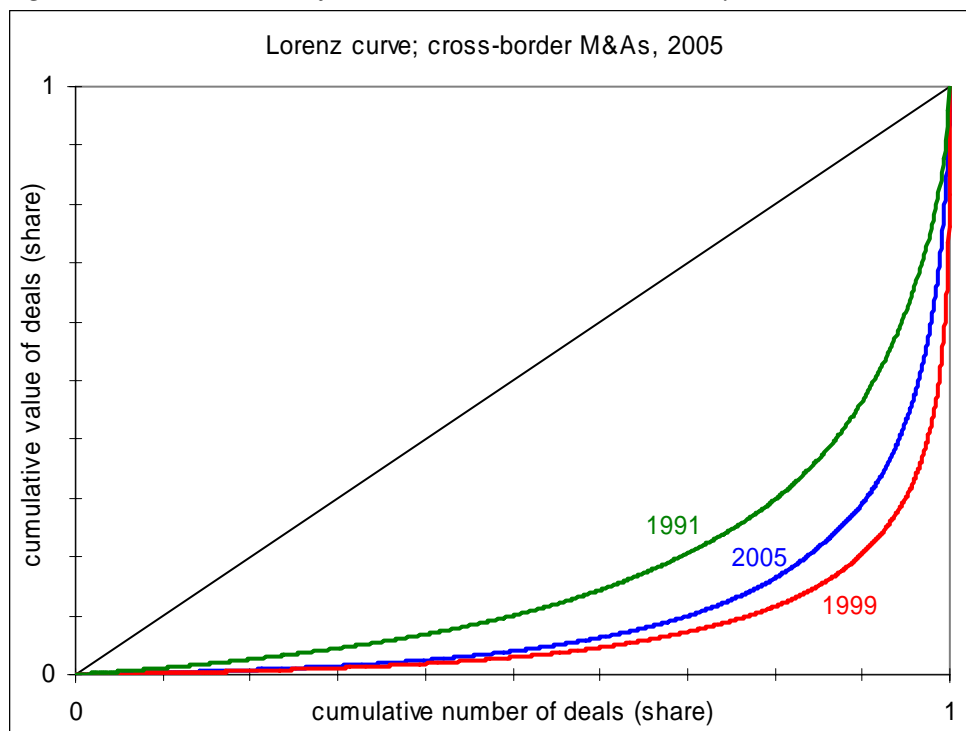
*Table 6 Value of largest cross-border M&As (announced year)*

year	value of deal (bn.)		Firm and country information			
	current \$	constant 2005 \$	acquiring		target	
			firm	country	firm	country
1986	3.6	5.6	Campeau	Canada	Allied Stores	USA
1987	7.9	12.0	BP America	USA	Standard Oil	USA
1988	6.5	9.7	Campeau	Canada	Fed Dep St.	USA
1989	7.9	11.4	Beecham	UK	Smith Kline	USA
1990	7.4	10.3	Matsuhita E	Japan	MCA	USA
1991	3.3	4.3	Altus Fin.	France	Ex. Life	USA
1992	4.6	6.0	Reed	UK	Elsevier	Netherl.
1993	6.3	8.0	Metro etc.	Malaysia	ASKO etc.	Germany
1994	5.3	6.5	Roche	Switzerl.	Syntex	USA
1995	7.3	8.8	Hoechst	Germany	Marion etc.	USA
1996	4.2	5.0	Fresenius	Germany	Nat Med ca	USA
1997	17.1	19.8	Zürich Vers	Switzerl.	BAT Ind	UK
1998	48.2	54.9	BP	UK	Amoco	USA
1999	202.8	228.7	Vodafone	UK	Mannesman	Germany
2000	46.0	51.1	France Tel	France	Orange	UK
2001	12.8	14.0	Citigroup	USA	Banacci	Mexico
2002	15.3	16.2	HSBC	UK	Household I	USA
2003	11.1	11.6	Manulife	Canada	J Hancock	USA
2004	74.6	76.5	R D Petrol	Netherl.	Shell Transp	UK
2005	31.7	31.7	Telefonica	Spain	O2	UK

<sup>2</sup> A trendline of the logarithm of the maximum value in the period 1985-2005 explains about half of the variance and suggests a rate of increase at 0.13 per cent per year.



Figure 9 Lorenz curves of cross-border M&amp;As, selected years



A proper understanding of the degree of inequality of a distribution must, of course, take all observations into consideration, rather than focusing just on the maximum value. An excellent, and popular, method is to construct Lorenz curves, where the observations are ordered in increasing value, with the share of the cumulative number of deals on the horizontal axis and the share of the cumulative value of these deals on the vertical axis. Figure 9 provides examples of these curves in the years 1991, 1999, and 2005. If all the observations in a particular year had an equal value, the Lorenz curve would coincide with the diagonal. The area below the diagonal and above the curve (times two) therefore provides a measure of the inequality of the observations, a number between 0 (complete equality) and 1 (complete inequality) known as the Gini coefficient. We calculated the Gini coefficient for each year of our data set.

Figure 10 Cross-border M&As, 1985-2005; Gini coefficients and value

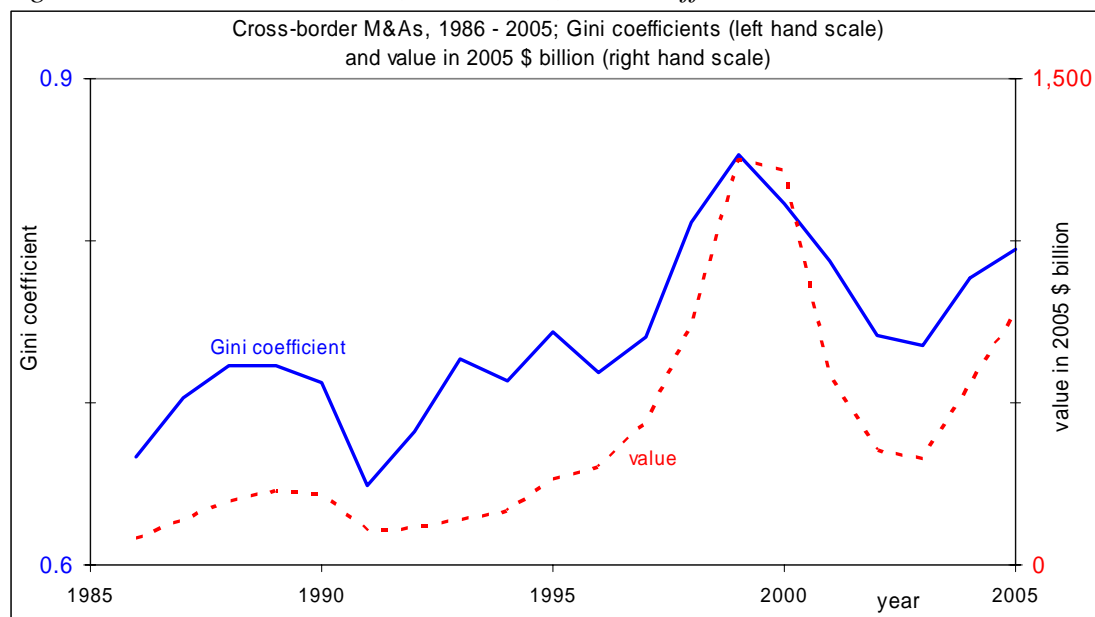


Figure 10 provides an overview of the evolution of the Gini coefficient over time for the period 1986-2005. There is, indeed, a tendency of the Gini coefficient to increase over time, supporting the suggestion that the degree of inequality in cross-border M&As increases over time.<sup>3</sup> The variation from year to year is substantial, however, ranging from a low of 0.649 in 1991 to a high of 0.853 in 1999, see also the associated Lorenz curves in Figure 9. More importantly, by including the evolution over time of the total value of cross-border M&As in the same diagram, Figure 10 draws attention to the relationship between inequality as measured by the Gini coefficient and the wave phenomenon. Clearly, the Gini coefficient increases during the 4<sup>th</sup> wave of the late 1980s, then declines after this peak has been reached, to increase again during the 5<sup>th</sup> wave of the late 1990s, to decline again after the absolute peak in 1999, and starts to increase again during the 6<sup>th</sup> wave starting in 2003.

<sup>3</sup> A trendline of the Gini coefficient explains almost half of the variance and suggests an increase in the Gini value at a rate of about 0.0061 per year.

Figure 11 Relative changes in value of M&As and Gini coefficient, 1986-2005

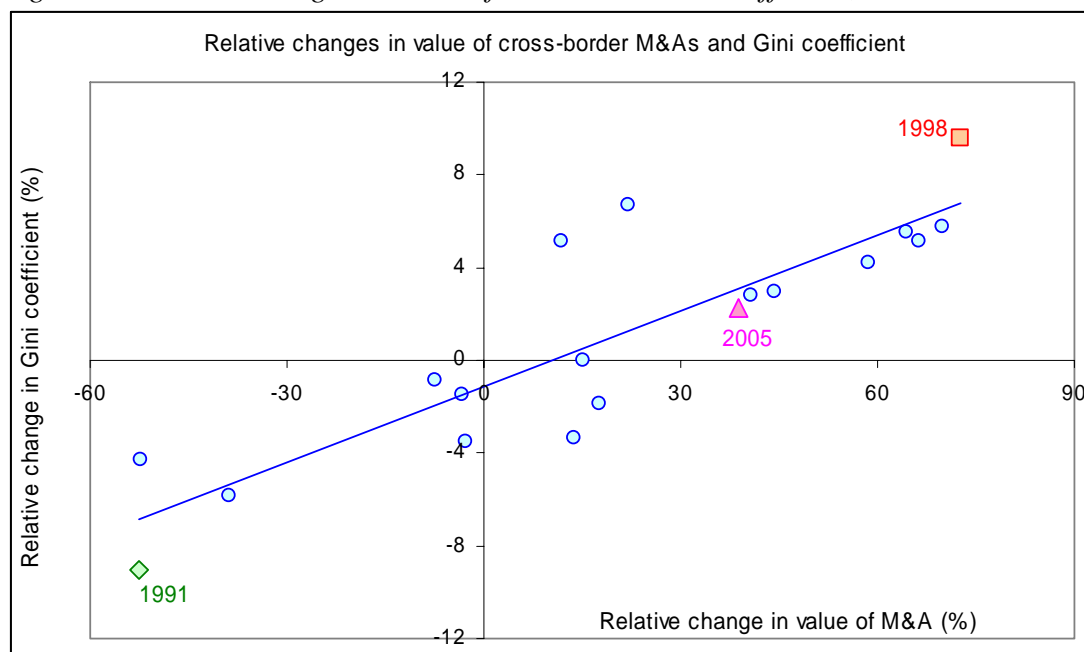


Figure 11 illustrates the coincidence of changes in inequality, measured by the relative change in the Gini coefficient, and merger waves, measured by the relative change in the value of cross-border M&As. There is a clear positive relationship between these two phenomena. If we let  $GI_t$  be the Gini coefficient in year  $t$ ,  $V_t$  the value of cross-border M&As (in constant 2005 \$ bn), and let  $\sim$  denote a relative change, that is  $\tilde{x}_t \equiv (x_t - x_{t-1}) / x_{t-1}$  for  $x_t = GI_t, V_t$ , then we get (t-values in parentheses):

$$(2) \quad \tilde{GI}_t \approx -1.1207 + 0.1085 \cdot \tilde{V}_t; \quad \bar{R}^2 = 0.75$$

(-1.76)
(7.38)

A one per cent increase in the value of cross-border M&As therefore causes about a 0.1 per cent increase in the Gini coefficient. The gradual increase in the real value of cross-border M&As over time is therefore probably largely responsible for the observed increase in inequality.<sup>4</sup> This begs the question what causes the increase in the value of the M&As during the 1990s. The most important reason is that regulations with respect to M&A have changed over time. Especially the financial service sector, banking sector, (tele)communication sector, and media firms have been allowed to merge with or acquire ‘over-seas’ firms (Evenett, 2004, Muelfeld et al., 2007). Once the regulations became more relaxed, the local ‘giants’ were looking for profitable M&A. Does this make sense from the perspective of the modern FDI

<sup>4</sup> It should be noted, moreover, that changes in the maximum M&A value are only weakly (positively) correlated with changes in the Gini coefficient.

theories that play such a dominant role in the current research in international economics? To start with, the idea of merger waves can be explained as equation (1) already suggests that once the *initial* mergers have taken place and competition is reduced it becomes profitable for other firms to also become engaged in the M&A activity, but the problem is how to explain the initial mergers. The association of the merger wave, with a strong European flavor, with changes in regulation can be aligned with theoretical models of (horizontal) FDI as long as this is looked upon as a decrease in the organizational costs of setting up and arranging a M&A. If these costs are to be looked upon as a fall in trade costs and thus as a manifestation of increased economic integration these models are thus, as we have argued before, not very well equipped to explain the data in Figure 10. May be, the limits of existing FDI models with more or less all build on equation (1) come to the fore here and to understand what is driving merger waves we might look at alternative theories like the managerial hubris theory (Roll, 1986). Managers tend to err positively when it comes to the valuation of targets, and thus tend to overpay. Especially during the hay day of the dotcom bubble in the late 1990s this could explain the increase in value of the M&As. Although managerial hubris is not part of our categorization scheme from box 1, it points to the fact that M&A are facilitated in the upswings of business cycles.

## **7 Looking more closely at individual firms that engage in M&A**

Until now we have not discussed individual firms.<sup>5</sup> In this section we briefly discuss the main insight that results from the research on FDI and firm heterogeneity namely that within a sector there is considerable firm heterogeneity to the effect that only the most productive firms are expected to be engaged in FDI and thus in cross-border M&A (as an acquiring firm). The idea that firms from the same sector differ (a lot) is probably not a path breaking observation, but for the fact that there is a systematic relation between plant productivity and the mode of entry in international trade. Bernard et al. (2003) show that a systematic relation exists between productivity and whether or not firms are engaged in exports. They show that of 200.000 (US-) firms in their sample only 21 percent report any export. Less than 5 per cent of these firms export more than 50 per cent, which shows that even if firms are engaged in

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<sup>5</sup> The Thomson data do not allow us to calculate the productivity measures as used by Bernard et al. (2003) or differentiate between domestic sales exports or FDI at the plant level. In this section we review some of the relevant literature that has original plant level data on productivity.

international trade, most are still most active in domestic markets – two-thirds of the exporters export less than 10 per cent of their output. Most interestingly, those that export have higher productivity levels, and thus are able to charge a higher mark-up. Given the fact that international trade is more costly than domestic sales, only productive firms are able to cover trade costs. Despite these trade costs they can still be competitive in foreign markets, just because they are efficient. So, export reveals high productive plants.

Helpman et al. (2004) take this line of reasoning one step further by not only looking at the export decision, but by also taking the FDI decision into account. Because FDI is even more expensive than exports, only the most efficient firms are able to engage in FDI. They find strong evidence for a sample of US and European firms that only the most productive firms are engaged in FDI. Studies like these confirm the notion that transportation costs are not only important to describe international trade patterns, but also FDI flows. We report these results because they also explain why most FDI is between rich countries (see sections 3 and 4). Instead of emphasizing market-seeking arguments, the firm heterogeneity argument points out that most FDI and thus cross border M&A is between rich countries because that is where the most productive firms are located. Our data set, the Thomson data set on M&A, does not allow for an easy differentiation of firms in terms of productivity, but additional stylized facts on the productivity of firms engaged in cross border M&A could help to establish if this new firm heterogeneity literature makes sense when applied to M&A. We leave this for future research.

## **8 Summary and Conclusions**

The well-known advice of Leamer and Levinsohn (1995) to “estimate, don’t test”, implies that, given the current state of the theories and the quality of the data, the Popperian test of falsifying a theory is hardly possible (ibid, p. 1314): “we may statistically “reject” the theory, but leave it completely unharmed nonetheless. After all, we already knew it wasn’t literally true.” What empirical work should be doing, according to them, is (ibid, p. 1342): “not to test the validity of the theory but to determine if the theory is working adequately in its limited domain.” So, in practice the distinction between verifying or falsifying theories is less clear-cut than one would ideally want. This boils down to ask theorists to think about the link between theory and *observable*

phenomena. The aim of this chapter is to present the correlations in the data on cross border M&As, and ask the theorists to develop useful models that give us some understanding about the underlying causation. Our chapter provides guidelines for theory on an very important phenomenon, cross-border M&As, as to what the most important correlations might be. Using the well-known Thomson data set, we show that cross-border mergers and acquisitions (M&As) have a number of features:

- most FDI is in the form of cross-border M&As,
- firms engaged in cross-border M&As seem to be ‘market-seeking’,
- cross-border M&As come in waves (the most recent wave is still unfolding),
- economic integration (international deregulation) stimulated M&As,
- the size of and inequality between M&As grows (over time).

Our contention in this chapter is that these stylized facts drive and should drive theoretical contributions from international economics that try to understand cross-border M&As. A number of recent models that are firmly rooted in the 1<sup>st</sup> principles of trade theory, see Neary (2003), go a long way in explaining some of these facts. What is still missing, given our stylized facts, is a full-fledged model of M&As. It might of course be that tools of modern international economics do not allow for such an all encompassing theory but ongoing research by economists like Neary, Helpman or Mélitz suggests that our understanding of cross-border M&As will improve in the near future. This is real progress, because from the perspective of mainstream international economics, cross-border M&As has too long been a case of interesting facts in search of a theory.

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**Appendix Global regions***Table A1 Global regions: country composition*

EAP – East Asia and Pacific; 27 developing countries		
American Samoa	Marshall Islands	Samoa
Cambodia	Micronesia	Solomon Islands
China	Mongolia	Taiwan
Fiji	Myanmar	Thailand
Indonesia	Nauru	Timor, East
Kiribati	N. Mariana Islands	Tonga
Korea, North	Palau	Tuvalu
Laos	Papua New Guinea	Vanuatu
Malaysia	Philippines	Vietnam
ECA – Europe and Central Asia; 28 developing countries		
Albania	Hungary	Russia
Armenia	Kazakhstan	Serbia and Montenegro
Azerbaijan	Kyrgyz Republic	Slovak Republic
Belarus	Latvia	Tajikistan
Bosnia-Herzegovina	Lithuania	Turkey
Bulgaria	Macedonia	Turkmenistan
Croatia	Moldova	Ukraine
Czech Republic	Poland	Uzbekistan
Estonia	Romania	Yugoslavia
Georgia		
LAC – Latin America and the Caribbean; 33 developing countries		
Argentina	Ecuador	Nicaragua
Barbados	El Salvador	Panama
Belize	French Guiana	Paraguay
Bolivia	Grenada	Peru
Brazil	Guatemala	St Kitts and Nevis
Chile	Guyana	St Lucia
Colombia	Haiti	St Vincent & Grenadines
Costa Rica	Honduras	Suriname
Cuba	Jamaica	Trinidad And Tobago
Dominica	Martinique	Uruguay
Dominican Republic	Mexico	Venezuela
MNA – Middle East and North Africa; 14 developing countries		
Algeria	Jordan	Syria
Djibouti	Lebanon	Tunisia
Egypt	Libya	West Bank
Iran	Morocco	Yemen
Iraq	Oman	
SAS – South Asia; 8 developing countries		
Afghanistan	India	Pakistan
Bangladesh	Maldives	Sri Lanka
Bhutan	Nepal	

*Table A1 continued*

SSA - Sub Sahara Africa; 48 developing countries		
Angola	Gabon	Niger
Benin	Gambia	Nigeria
Botswana	Ghana	Rwanda
Burkina Faso	Guinea	Sao Tome And Principe
Burundi	Guinea-Bissau	Senegal
Cameroon	Kenya	Seychelles
Cape Verde	Lesotho	Sierra Leone
Central African Republic	Liberia	Somalia
Chad	Madagascar	South Africa
Comoros	Malawi	Sudan
Congo	Mali	Swaziland
Congo, Dem Rep (Zaire)	Mauritania	Tanzania
Cote D'ivoire	Mauritius	Togo
Equatorial Guinea	Mayotte	Uganda
Eritrea	Mozambique	Zambia
Ethiopia	Namibia	Zimbabwe
AAS - Australasia; 8 high income countries		
Australia	Japan	New Zealand
Brunei	Korea, South	Singapore
Hong Kong	Macao	
EUR - Western Europe; 36 high income countries		
Andorra	Greenland	New Caledonia
Austria	Iceland	Norway
Bahrain	Ireland	Portugal
Belgium	Isle Of Man	Qatar
Channel Islands	Israel	San Marino
Cyprus	Italy	Saudi Arabia
Denmark	Kuwait	Slovenia
Faeroe Islands	Liechtenstein	Spain
Finland	Luxembourg	Sweden
France	Malta	Switzerland
Germany	Monaco	United Arab Emirates
Greece	Netherlands	United Kingdom
NAM - North America; 11 high income countries		
Antigua and Barbuda	Canada	Puerto Rico
Aruba	Cayman Islands	United States
Bahamas	Guam	Virgin Islands (Us)
Bermuda	Neth. Antilles	

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