

# 1

## EXPLAINING GLOBAL TRENDS IN FDI IN 2015 AND BEYOND

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### A. Introduction

With the growing complexity of the multinational enterprise (MNE) and the rise of financial property, what is the actual content of foreign direct investment (FDI) statistics? Is FDI still primarily a means for firms to expand their real economic presence overseas, with a view to capturing market share, offshoring production, or exploiting natural resources and human capital? FDI retains this function, yet the relative incidence of these types of economic activities, as we **1.01**

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\* This chapter benefited greatly from feedback from Lise Johnson, Lisa Sachs, Rob Petersen, and two external reviewers. Thanks must go to Alessandra Mistura for her invaluable help in completing the chapter. All mistakes made are of course my own.

imagine them, has become secondary in recorded FDI statistics. The reality that FDI must reckon with today stems from what the MNE has become.<sup>1</sup>

- 1.02** UNCTAD's 2015 top 100 largest MNE database gives us some insight into what a modern day MNE looks like. These 100 global corporate giants have on average 549 affiliates and 19 holding companies, which perform investment, ownership, and finance related activities on behalf of the corporate group. Each corporate group crosses 56 countries on average, with the affiliate being owed by the ultimate controlling parent through, on average, 5 intermediate firms.<sup>2</sup> These 100 MNEs account for more than 30 per cent of the total number of foreign affiliates globally, and more than 60 per cent of total MNE value added globally.<sup>3</sup> In total these firms own around 55,000 affiliates and effectively control a further 3,000 potentially major companies.<sup>4</sup>
- 1.03** This burgeoning intra-firm MNE network ultimately supports a growing international division of labour in production—what traditional FDI theory is largely concerned with explaining. Yet the growing expanse of the MNE today also reflects an expansion in the financial and structural division of labour of the firm, established to manage its global assets and revenue, and the financing of its cross-border operations. This follows from the fact that the MNE, as the organizer, operator, and owner of its affiliates, does not merely establish production globally, but has to continuously manage all incoming and outgoing financial receipts and payments tied to its global operations (through payment factories and cash pooling structures), as well as raise and redeploy financing to support global expansions. The development of globalized financial markets<sup>5</sup> has underwritten this process.<sup>6</sup>
- 1.04** It is the financial and 'managerial' infrastructure of the MNE that has become increasingly important to understanding movements in, and the composition of, FDI flows. Yet in John Dunning's classic 'eclectic paradigm',<sup>7</sup> which remains

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<sup>1</sup> For example, John H Dunning and Sarianna M Lundan, *Multinational Enterprises and the Global Economy* (2nd edn, Edward Elgar Publishing 2008) (hereafter Dunning and Lundan, *Multinational Enterprises*).

<sup>2</sup> UNCTAD, *World Investment Report 2016. Investor Nationality: Policy Challenges* (United Nations Publications 2016) (hereafter UNCTAD, *World Investment Report 2016*) 135.

<sup>3</sup> UNCTAD, *World Investment Report 2016* (n 2) 133–34.

<sup>4</sup> *ibid* 135.

<sup>5</sup> John Grahl, 'Globalized Finance. The Challenge of the Euro' (2001) 8 *New Left Review* 23 (hereafter Grahl, 'Globalized Finance').

<sup>6</sup> We are unable to explore the underlying drivers of the changes in the substantive content of what the corporation is today. The IMF attributes recent changes to its balance of payments manual to 'globalization, increasing elaboration of balance sheet issues, and financial innovation'. IMF, *Balance of Payments Manual* (6th edn, IMF 2009) 4. See also RE Lipsey, 'Defining and Measuring the Location of FDI Output' (2007) NBER Working Paper Series 12996; Adolf A Berle and Gardiner C Means, *The Modern Corporation and Private Property* (Transaction Publishers, 1967 edition) (hereafter Berle and Means, *The Modern Corporation*).

<sup>7</sup> John H Dunning, 'The eclectic paradigm as an envelope for economic and business theories of MNE activity' (2000) *International Business Review* 9 (2000) 163–90.

popular among FDI theorists, we are told the MNE is primarily a vehicle for internalizing product markets as it expands its real economic activities globally. FDI statistics increasingly pose a challenge to this paradigm: FDI comes and goes from physical locations that are not always centres of global production and consumption. Instead we see that global financial and operational centres—Hong Kong, the Netherlands, Singapore, Ireland, the Cayman Islands, and so forth—have also become centres of global FDI flows. This is because FDI flows today are, first and foremost, financial flows. This follows not only from the increasing predominance of property in its financial form,<sup>8</sup> but also from the fact that much FDI today is between entities who are already in an FDI relationship.

FDI theory has much less to say about what happens once the FDI relationship has been established; to the profits earned by the direct investor's overseas affiliate, yet these FDI financial flows can no longer be ignored given that they account for a significant portion of global FDI flows today. (This is connected to the important fact that FDI flows include almost<sup>9</sup> all financial flows between the direct investor and its non-resident direct investment entity (the 'affiliate'), and not just the initial equity purchase of 10 per cent or greater ('FDI-equity'), generally<sup>10</sup> required to establish the direct investment relationship.) For example: US MNEs 'reinvested' 70 per cent of their foreign affiliates' income with the affiliate itself in 2015. This led to 94 per cent of total US outward FDI flows in 2015 consisting of the reinvestment of such investment income back into the affiliate's economy as retained earnings-FDI.<sup>11</sup> The challenge today in other words, lies less in explaining why production is kept internal to the MNE, and more in explaining why and when profits, as financial capital, is kept 'internal' to (ie retained with) the MNE's affiliates. In this paradigm the firm can just as much be a vehicle for internalizing financial markets across borders within a corporate group, as it is about internalizing product markets. This is taken up further in section D.

Chapter 1 contains four subsequent sections (B through E). After this introduction, section B tries to explain recorded foreign direct investment (FDI) flows in 2015 relative to 2014,<sup>12</sup> challenging 'traditional' explanations for FDI flows, such as changes in market size, the offshoring motive, and supply-side constraints.<sup>13</sup> Section B illustrates that changing conditions in financial markets and

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<sup>8</sup> As a colleague wrote to me: 'Under the crucible of globalized finance, every form of property dissolves into its financial equivalent.'

<sup>9</sup> For example, according to the OECD, 'positions and transactions in financial derivatives between entities in a direct investment relationship should be excluded from direct investment'. OECD, *Benchmark Definition of Foreign Direct Investment* (4th edn, OECD 2008) 60 (hereafter OECD, *Benchmark Definition*).

<sup>10</sup> Since 'fellow enterprises' and 'reverse investment' are now exceptions.

<sup>11</sup> When reinvested it becomes a financial flow.

<sup>12</sup> This is the most recent year on which we have relatively complete data.

<sup>13</sup> UNCTAD, *World Investment Report 1998. Trends and Determinants* (United Nations Publications 1998) (hereafter UNCTAD, *World Investment Report 1998*).

the evolving complexity of contemporary corporate structures are increasingly important factors in driving movements in FDI flows, including during 2015. Section C contextualizes FDI flows in 2015 as part of the longer-term trend of stagnating FDI since the 2007–08 financial crisis.

- 1.07** Section D offers a partial response to the findings of sections B and C by proposing that FDI increasingly reflects the intra-firm financing decision.<sup>14</sup> This is premised in the notion that a large portion of FDI flows today reflects transactions between firms who are within an MNE group structure *and* who are in a pre-existing direct investment relationship with each another. At the heart of the intra-firm financing decision is whether the MNE should let the affiliate largely self-finance its operations (where possible), using the affiliate’s own earnings to meet its ongoing obligations and capital expenditure requirements. This in turn will shape the related financing imperatives facing the affiliate, and its need for additional equity and debt financing. Section D begins with the fact that that firms largely self-finance their investment expenditures (using retained earnings),<sup>15</sup> and then explores to what extent this fact can help us understand FDI flows. This is a highly simplified framework, and in the future needs to explicitly take into account how the use of special purpose entities (to hold earnings) impacts the aggregate rate of reinvestment. Section E concludes with a few summary points.

## B. FDI Flows in 2015: Investment Without Growth

- 1.08** The key FDI trends for 2015<sup>16</sup> seem innocuous enough:

- 1) In 2015 global FDI (in)flows recovered to US\$ 1.76 trillion, the highest level since 2007, and a 38 per cent increase on the US\$ 1.27 trillion in 2014. A strong recovery on the face of it.
- 2) Both developed and developing economies saw an absolute increase in FDI inflows, but the size of this magnitude was far greater into developing economies.
  - a) Inward FDI flows to developed economies almost doubled to US\$ 962 billion, receiving 55 per cent of global FDI in 2015, up from 41 per cent in 2014.
  - b) Developing economies saw their FDI inflows reach a new absolute high of US\$ 765 billion, 9 per cent higher than in 2014. Developing economies continued to comprise half of the top ten host economies for FDI

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<sup>14</sup> Martin G Gilman, *The Financing of Foreign Direct Investment: A Study of the Determinants of Capital Flows in Multinational Enterprises* (1981, Bloomsbury Academic Collection 2013) (hereafter Gilman, *The Financing of Foreign Direct Investment*).

<sup>15</sup> Jenny Corbett and Tim Jenkinson, ‘How Is Investment Financed? A Study of Germany, Japan, the United Kingdom and the United States’ (1997) 65 *The Manchester School Supplement* 69 (hereafter Corbett and Jenkinson, ‘How Is Investment Financed?’).

<sup>16</sup> UNCTAD, *World Investment Report 2016* (n 2).

flows. Developing Asia, with FDI inflows surpassing half a trillion dollars, remained the largest recipient region of FDI in the world.

- 3) Outward FDI flows from developed economies increased by 33 per cent to US\$ 1.1 trillion, driven in part by investors resident in Europe and Japan. Europe became the world's largest investing region in 2015 with FDI outflows of US\$ 576 billion.

But perhaps the two most important facts to try and explain are that:

**1.09**

- 1) The considerable increase in global FDI (in)flows in 2015, to US\$ 1.76 trillion, took place amidst continued low global growth.<sup>17</sup> Global real GDP growth even *declined* marginally from 2.6 per cent in 2014 to 2.4 per cent in 2015. Global real GDP growth has stagnated between 2.4 per cent– 2.6 per cent since 2012.<sup>18</sup>
- 2) Although global FDI inflows increased in 2015, despite GDP growth remaining meagre, the increase in FDI did not 'impact' the real economy. Notes UNCTAD: '[The] FDI recovery was strong in 2015, but lacked [a] productive impact.'<sup>19</sup>

How are we to explain these two facts? They are interrelated and can be reconciled by noting that FDI increased in 2015 due largely to favourable monetary conditions and 'corporate restructuring'. The 'traditional' drivers of FDI are less compelling in explaining FDI movements in 2015, as this chapter attempts to show.<sup>20</sup> As a result, FDI movements in 2015 appear to be somewhat disconnected from expansions in productive investment.

**1.10**

### **1. Increase in European FDI: Both inward and outward?**

A 'traditional' explanation for some of the increase in FDI flows in 2015 is that slow growth in Europe drove European MNEs to invest abroad in order to escape a stagnating domestic market. As a result, Europe became the largest investing region in 2015 at US\$ 576 billion.<sup>21</sup> This is a 'push' explanation, relating mainly to changes in domestic (i.e. European) demand.

**1.11**

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<sup>17</sup> Low growth should lead to low investment growth—not strong investment growth as we see in 2015—since investment by firms is largely driven by profits, and historically, the biggest determinant of profits (growth) is revenue (growth), which is itself a function of economic growth. See Russ Koesterich, 'US Is Suffering a Profits Recession' *Financial Times* (London, 9 November 2015) <<https://www.ft.com/content/a137f388-7f26-11e5-ae43-f6d4a22c5a1a>> accessed 31 May 2017 (stating that 'quarterly changes in real GDP explain roughly 30% of the variance in quarterly earnings growth').

<sup>18</sup> Data from World Bank. <http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators> accessed 31 May 2017.

<sup>19</sup> UNCTAD, *World Investment Report 2016* (n 2) 3.

<sup>20</sup> UNCTAD, *World Investment Report 1998* (n 13).

<sup>21</sup> All data in Section 2 comes from the Annex tables included in UNCTAD, *World Investment Report 2016* (n 2) unless stated otherwise.

- 1.12** This story is unconvincing for two reasons: first, the headline figure used by UNCTAD to show the large increase in global FDI flows in 2015 is an FDI *inflow* figure, rather than an FDI outflow. FDI outflows increased only modestly in 2015 (by 11.8 per cent to US\$ 1.4 trillion), compared to a 38 per cent increase in FDI inflows in 2015 to US\$ 1.76 trillion.<sup>22</sup> Moreover, Europe's macroeconomic situation did not deteriorate further in 2015 (or 2014).<sup>23</sup> If anything it improved somewhat.<sup>24</sup> Why then would European firms have chosen 2015 as the year to suddenly invest abroad (unless it had been planned several years in advance, which is a possibility)?<sup>25</sup> As we see below, the data is unable to conclusively confirm or disconfirm the above speculation.
- 1.13** Disaggregating the data by country shows that outward FDI declined out of Europe's key economic centres in 2015 while surging out of its financial investment hubs. In aggregate, this still led to an increase in FDI out of Europe, though it is unclear why, or where the ultimate controlling investors were incorporated.
- 1.14** Outward FDI seemingly fell in 2015 from the major European economies of Germany and France, and even turned negative out of the United Kingdom (UK) in 2015. This is all the more salient since outward FDI from the UK in 2007 was gargantuan, being only slightly less in magnitude than the combined outward FDI from Germany, Italy, and France.<sup>26</sup> Declining FDI out of France and Germany, and negative FDI out of the UK—the three largest European economies—went hand-in-hand with outward FDI increasing significantly in 2015 out of Europe's financial centres of Ireland, the Netherlands, and Cyprus (of less significance). Germany's economy is more than ten times the size of Ireland's, yet outward FDI from Ireland in 2015 was larger than Germany's.<sup>27</sup> A similar picture is true for the Netherlands. It is no secret that today the financial circuitry<sup>28</sup> connecting the European—and global—MNE has more relevance to understanding recorded movements in European FDI flows, than real economy variables, such as GDP and GDP per capita, economic growth rates, population size, unit labour costs, and levels of human capital. So while a long intended 'escape' from Europe

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<sup>22</sup> In theory the inflows and outflows should be the same, but given the growing complexity of FDI it has become increasingly difficult to properly record the final source and destination of all flows in a consistent manner across countries.

<sup>23</sup> GDP growth (annual percentage) improved in Germany, Italy, and France in 2015. It only declined in the UK. Similarly, in 2014 GDP growth increased in Germany, France, and the UK, only declining in Italy.

<sup>24</sup> World Bank data shows the EU's rate of GDP growth (annual percentage) increasing continuously since 2011, between 2012–15.

<sup>25</sup> In general one is unable to explain something that is changing with something that is remaining constant (not changing).

<sup>26</sup> This may reflect the role of the UK as a regional financial centre for incorporation, financing, and investment.

<sup>27</sup> On a per capita basis Ireland is larger than Germany though.

<sup>28</sup> Regulatory issues play a notable role though, especially on tax and corporate regulations.

might have motivated the increase in outward FDI by European firms in 2015, aggregate data at this level cannot tell us much about this.

Perhaps the surge in global FDI inflows in 2015 is then due to the large increase in inward FDI to Europe? Inflows to Europe rose by a considerable 38 per cent to US\$ 504 billion in 2015, accounting for 29 per cent of global FDI inflows. These inflows could have feasibly been driven by favourable European company valuations, which seemed inexpensive due to a weak Euro<sup>29</sup> and low company price-to-earnings ratios.<sup>30</sup> While this could be the motivating factor, we have no way of knowing without great difficulty, since FDI inflows into Europe in 2015 were directed to just two European destinations, making geographical indicators of FDI uninformative.<sup>31</sup> **1.15**

Taking a longer-term view of outward FDI trends, the real rupture over the past several years has been the massive aggregate decline—*not increase*—in cross-border outward direct investment by advanced economy firms. The entire decline in outward FDI since the financial crisis—and then some more—has been due to developed economy firms effectively going on a cross-border investment strike. From its 2007 peak, FDI out of developed economies has almost halved in absolute terms, declining by 42 per cent to just over US\$ 1 trillion in 2015.<sup>32</sup> **1.16**

Most of the decline in advanced economy outward FDI since 2007 originates with European firms, though US direct investors have also played a role.<sup>33</sup> FDI out of Europe more than halved in 2015 relative to its 2007 level. This is all the more remarkable since global GDP had long surpassed its pre-crisis peak. On aggregate, weaker growth in Europe can be said to have instead led to a deterioration in the ability of European firms to sustain outward FDI, rather than as **1.17**

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<sup>29</sup> Yet the Euro's continued longer-term expected depreciation would have in fact deterred foreign, primarily US, investors from purchasing European companies who may be generating earnings largely in depreciating Euros.

<sup>30</sup> For a typical overview of this argument, see Alice Ross, Andrew Bolger, and Michael Mackenzie, 'The Bull Case for European Equities' *Financial Times* (London, 25 November 2014) <<https://www.ft.com/content/548c3632-7425-11e4-b444-00144feabdc0>> accessed 31 May 2017.

<sup>31</sup> Assuming this FDI was not transit FDI, and intended for elsewhere. UNCTAD notes, 'This rebound [in inward FDI to Europe in 2015] was driven by large increases in a relatively few countries such as Ireland (a threefold increase) and Switzerland (a 10-fold increase), which more than offset declining inflows in 19 economies [in Europe].' UNCTAD, *World Investment Report 2016* (n 2) 66. This author counts 17 using the uploaded data appendix for the World Investment Report.

<sup>32</sup> UNCTAD, *World Investment Report 2016* (n 2) Annex table 02, 'FDI outflows, by region and economy, 1990–2015, 21 June 2016'. Developing economy firms have stepped in as the willing buyer, taking advantage of low assets prices, with their outward FDI increasing 38 per cent between 2007–15, from US\$ 0.27 trillion to US\$ 0.37 trillion. This increase in outward FDI from developing economies has been almost entirely driven by the rise of Chinese investors, as a glance at the official statistics bares out. No doubt this is driven in large part by real economy conditions.

<sup>33</sup> The US doesn't invest much despite being of similar size to the EU. No doubt this is in part due to the US's Federal Union not recording cross-state investments as FDI, while in the EU, the equivalent—ie investment from an Italian resident entity into France, say—is counted as FDI.

a positive impetus for the opposite.<sup>34</sup> The above discussion needs to be taken with a large pinch of salt though: it generally does not take into account the geographical location of the ultimate investor, only the immediate investor. As such, the changing geographical origin and destination of FDI flows might just as much reflect a changing MNE holding and incorporation structure, rather than changes in which firms are actually doing the investing.

## 2. Increase in FDI into Asia?

- 1.18** A second ‘traditional’ explanation for some of the increase in FDI inflows in 2015 could be that profitable investment projects in Asia were finally found by foreign direct investors, after being absent in the years prior. This is a ‘pull’ factor relating to changing economic conditions in Asia (and globally). Direct investment into Asia increased by 15 per cent in 2015, to US\$ 0.54 trillion.<sup>35</sup> As an ‘outlets for surplus’ theory (ie investors saw profitable opportunities and put to use some of their cash piles), might this offer a partial explanation for the surge in global FDI inflows?
- 1.19** Again, the timing seems odd: did supply or demand conditions relating to production improve particularly in Asia, or globally, in 2015 or in the immediate years prior? Not according to the data. A closer look at the FDI figures does not help us unravel this mystery much: it shows that 84 per cent of *the increase* in FDI into Asia in 2015 went to a single country, Hong Kong—a major regional financial centre. Hong Kong (US\$ 0.174 trillion) and Singapore (US\$ 0.065 trillion) together accounted for 44 per cent of the FDI into Asia in 2015. (Mainland) China accounted for US\$ 0.135 trillion. Together, the three accounted for 70 per cent of the FDI into Asia in 2015.
- 1.20** UNCTAD attributes an unidentified ‘part’ of the increase in FDI into Hong Kong in 2015 to the restructuring of two large conglomerates.<sup>36</sup> But surely dramatically deteriorating economic sentiment in China in 2015, as its stock market crashed and the Renminbi depreciated, must feature strongly in explaining the FDI increase into Asia. The question is how this would manifest from a statistical point of view: the relative economic downturn in China in 2015 would suggest a large, positive, net FDI *outflow* from China, while the headline figure points to a large, positive, net FDI *inflow* into Asia?!
- 1.21** 2015 saw a large increase in Chinese households and investors trying to take their money out of the country, including through FDI (given state restrictions in place on capital movements abroad). China set a record in cross-border mergers and acquisitions (M&A) in 2015, spending \$110.3 billion (an 85.8 per cent jump

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<sup>34</sup> As much as a weak pound and relative low equity prices in 2016 created a large impetus for inward FDI into the UK.

<sup>35</sup> Using the annex tables on FDI inflows in UNCTAD, *World Investment Report 2016* (n 2).

<sup>36</sup> UNCTAD, *World Investment Report 2016* (n 2) 3–46.

from 2014)—consistent with investors and households trying to shift their assets abroad.<sup>37</sup> This is partly why in 2016 we see China clamp down on ‘needless’ outward FDI, which can consist of buying peripheral overseas assets as vehicles for shifting Renminbi abroad. But as we see later, official Chinese outward FDI data does not reflect this surge. Instead it shows only a 3 per cent increase in 2015. This might be expected: cross-border M&A data quoted in the financial press includes all deals, not just those with equity transactions that qualify as FDI (covering 10 per cent or more of the ownership of the company). Moreover, Hong Kong acts as a regional financial centre, making outward FDI data from China less instructive as to the actual investment decisions undertaken by Chinese firms.<sup>38</sup>

A large portion of China’s outbound FDI is first routed through the intermediary locations of Hong Kong, British Virgin Islands, and Cayman Islands. Large round-tripping also takes place. It is estimated that around 40 per cent of total outbound investment flows to China’s stopover locations of Hong Kong, British Virgin Islands, and Cayman Islands is round-tripped back to China.<sup>39</sup> Moreover, official Chinese FDI figures do not record the final destination of FDI flows and do not include reverse investment or reinvested earnings, a considerable limitation.<sup>40</sup> This means that much of the FDI into Asia in 2015 may have feasibly come from Chinese investors routing FDI through Hong Kong, though a more careful analysis is required. **1.22**

Regardless of the veracity of the above speculation, it seems difficult to provide a simple real economy explanation for the increase in FDI into Asia in 2015. The increase in inflows into Asia at best accounts for US\$ 72 billion (US\$ 0.072 trillion) of the US\$ 0.48 trillion increase in FDI inflows in 2015, or 15 per cent of the total. **1.23**

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<sup>37</sup> Robert Hennelly, ‘Currency Controls Aren’t Slowing China’s Foreign M&A’ *CBS Moneywatch* (15 January 2016) <<http://www.cbsnews.com/news/currency-controls-arent-slowng-chinas-foreign-m-a/>> accessed 31 May 2017.

<sup>38</sup> China’s economy is more than 35 times larger than Hong Kong’s, yet receives less FDI than it. World Bank Development Indicators, GDP in current US\$.

<sup>39</sup> China’s Ministry of Commerce requires companies to register the first, rather than the final, destination of cross-border transactions and does not take into account reverse flows. See Xia Le, ‘China’s Numbers Don’t Tell Full Story on Foreign Investment’ *Nikkei Asian Review* (23 July 2015) <<http://asia.nikkei.com/magazine/20150723-PRAYING-FOR-RAIN/Viewpoints/Xia-Le-China-s-numbers-don-t-tell-full-story-on-foreign-investment>> accessed 31 May 2017. See also Alicia Garcia-Herrero, Xia Le, and Carlos Casanova, ‘Chinese Outbound Foreign Direct Investment: How Much Goes Where After Round-Tripping and Offshoring?’ BBVA Research Working Paper No 15/17 (2015) <[https://www.bbvaresearch.com/wp-content/uploads/2015/06/15\\_17\\_Working-Paper\\_ODI.pdf](https://www.bbvaresearch.com/wp-content/uploads/2015/06/15_17_Working-Paper_ODI.pdf)> accessed 31 May 2017. See also Farok J Contractor, ‘The Hidden Story in China’s FDI Statistics’ *The Straits Times* (14 September 2015) <<http://www.straitstimes.com/opinion/the-hidden-story-in-chinas-fdi-statistics>> accessed 31 May 2017.

<sup>40</sup> UNCTAD notes that ‘Between 2010 and 2014, Hong Kong (China), the Russian Federation, China and Brazil accounted for 65% of investment flows to the two largest Caribbean financial centers, the British Virgin Islands and the Cayman Islands’. See UNCTAD, *World Investment Report 2016* (n 2) 20.

### 3. Cross-border M&A and ‘corporate reconfigurations’

- 1.24** If anything may be common cause to the above two regional discussions, it is that global financing conditions for FDI have been improving (along with improving investor sentiment generally). The improved financing conditions relate to ‘loose’ central bank policy in Europe, Japan, and the US; and the continued accumulation of retained earnings by firms (in the midst of uneven levels of global aggregate demand and US tax policy).
- 1.25** Global FDI financial flows in 2015 were supported significantly by cross-border FDI M&A activity, facilitated by an easy monetary environment and positive investor sentiment. Cross-border FDI mergers and acquisitions (M&As) increased by two-thirds in 2015 to US\$ 721 billion, up from US\$ 432 billion in 2014 (an increase of US\$ 289 billion).<sup>41</sup> Between 1990–2015, cross-border M&As accounted for roughly 40 per cent of global FDI outflows (Figure 1.1, solid horizontal line). But in 2015 we can see it approach 50 per cent (Figure 1.1, dotted horizontal line).
- 1.26** The short-term drivers of this increase in M&A were ‘cheap money’, with interest rates remaining low in 2015 (but expected to increase slowly), combined with firms holding enormous amounts of uninvested excess cash.<sup>42</sup>
- 1.27** Investors globally in October 2016<sup>43</sup> were holding uninvested *cash* three times the annual economic output of the US, according to BlackRock research. That’s US\$ 50 trillion in cash (or near cash), held in different funds around the world, which the owners and fund managers are unable to invest profitably in expanding production, domestically or internationally. 60 per cent of BlackRock’s clients’ holdings were sitting in cash in October 2016, with Blackrock managing more than US\$ 5 trillion (an amount larger than the Japanese economy). In comparison, global FDI inflows were US\$ 1.7 trillion in 2015—or 3 per cent of the uninvested cash held by investors. Hence, if just a portion of these savings come into play, global economic aggregates can change dramatically. As it happens several major cross-border M&A deals in 2015 were financed, partially or fully, out of cash.<sup>44</sup>

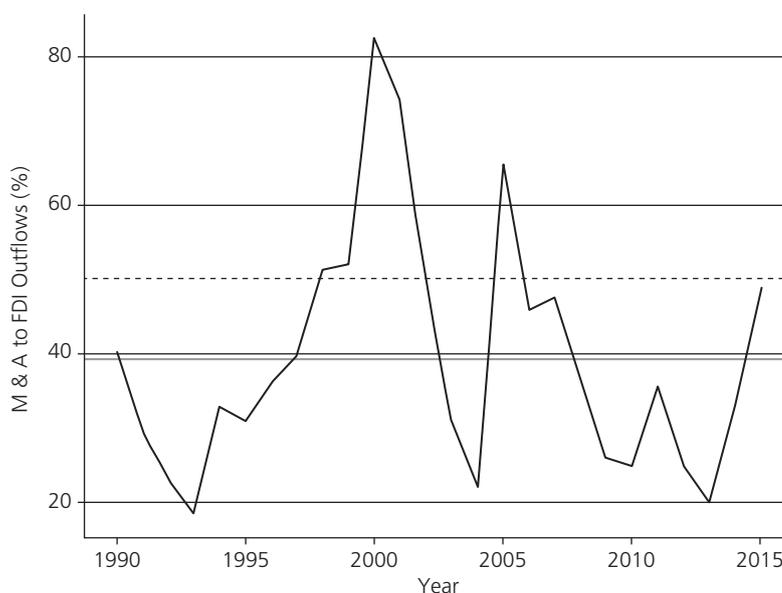
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<sup>41</sup> UNCTAD, *World Investment Report 2016* (n 2) 2.

<sup>42</sup> Conditions in the stock market are also very important. We do not discuss them here though due to space limitations. Aggregate demand remained depressed due to high levels of debt, asset bubbles being kept in relative check, bank lending being limited, contractionary government policies, and high levels of economic inequality.

<sup>43</sup> Lisa Abramowicz, ‘The Market’s \$50 Trillion Safety Net’ *Bloomberg* (New York, 19 October 2016) <<https://www.bloomberg.com/gadfly/articles/2016-10-19/50-trillion-cash-safety-net-aches-for-a-market-fall>> accessed 31 May 2017.

<sup>44</sup> See BMI Research, ‘Corporate Financing Analysis—Cash Remains King in M&A Ring’ *Corporate Financing Week* (16 January 2017) <<http://www.corporatefinancingweek.com/corporate-financing-analysis-cash-remains-king-ma-ring-16-jan-2017>> accessed 31 May 2017. See also Deloitte, *M&A Trends Report 2015. Our Annual Comprehensive Look at the M&A Market* (2015) <<https://www2.deloitte.com/content/dam/Deloitte/au/Documents/mergers-acquisitions/deloitte-au-ma-2015-trends-240415.pdf>> accessed 31 May 2017. For discussion of this trend till 2014 by



**Figure 1.1 Global M&A outflows as a percentage of global FDI outflows, 1990–2015.**

*Data Source:* UNCTAD World Investment Report 2016 Annex Tables, <http://unctad.org/en/Pages/DIAE/World%20Investment%20Report/Annex-Tables.aspx>.

*Note:* The dotted line is drawn-in 50 per cent line. The thicker line below the 40 per cent line is mean line calculated from the data. Calculated from WIR Appendix tables for M&A Purchases, and FDI Outflows. M&A data is not strictly comparable to national accounts FDI compiled data but this gives a rough idea of the relative magnitudes.

Real interest rates were another important factor facilitating large cross-border M&A flows in 2015: rates remained low in 2015, and even negative for certain countries, owing to monetary policy by major central banks in the US, Europe, and Japan being very ‘accommodating’ to the conditions of low growth. Low interest rates<sup>45</sup> reduce the cost of debt, a key source of funding for M&A activity. 1.28

firm size see Ian Macmillan, Sriram Prakash, and Russel Shoult, ‘The Cash Paradox: How Record Cash Reserves Are Influencing Corporate Behavior’ (2014) 15 Deloitte Review <<https://dupress.deloitte.com/dup-us-en/deloitte-review/issue-15/excess-cash-growth-strategies.html>> accessed 31 May 2017. For the Chinese buyer exception see Peter Fuhrman, ‘M&A The Chinese Way: Buying First and Paying Later’ *Financial Times* (London, 7 May 2015) <<https://www.ft.com/content/9d2902d3-0f50-3b93-ba0b-59d82e187bc1>> accessed 31 May 2017. Share buybacks are the other popular alternative for US corporate cash piles. See Lina Saigol, ‘Share Buybacks or M&A: What to Do with Extra Cash’ *Financial Times* (London, 28 September 2010) <<https://www.ft.com/content/b90e7044-caf5-11df-bf36-00144feab49a>> accessed 31 May 2016. See also Robin Wigglesworth, ‘Where Will America’s Overseas Cash Piles Go?’ *Financial Times* (London, 5 December 2016) <<https://www.ft.com/content/ee554c60-b6ed-11e6-961e-a1acd97f622d>> accessed 31 May 2017. Other factors also led to an increase in M&A in 2015. See White & Case, *Record Breaker: US M&A in 2015* (2016) <<http://events.whitecase.com/pdfs/white-case-us-mergers-acquisitions-fy-2015.pdf>> accessed 31 May 2017.

<sup>45</sup> The Economist, ‘China’s M&A Boom. Money Bags’ (2 April 2016) <<http://www.economist.com/news/finance-and-economics/21695915-chinas-global-investment-spree-fuelled-debt-money-bags>> accessed 31 May 2017. See also Arash Massoudi, Don Weinland, and James

Financing costs (and corporate capital structure) are in general a major determinant of M&A activity given the enormous sums involved.<sup>46</sup>

- 1.29** While short-term changes in financial markets can unleash pockets of cross-border M&A activity, shareholders and investors tend to take a longer-term view, asking what economic benefits a merger or acquisition will bring in the coming years. In this respect, M&A is also very much driven by conditions in the real economy and can lead to notable increases in firm efficiency and competitiveness. Despite this, UNCTAD writes that much of the 2015 cross-border FDI through M&A reflected corporate restructuring, including through tax inversions, which lacked a directly productive motivation.<sup>47</sup> The increase in global cross-border M&A (an increase of around US\$ 289 billion) in 2015 explains as much as 60 per cent of the total year-on-year increase in FDI inflows in 2016, which amounted to US\$ 485 billion. Nevertheless, that still leaves us with a US\$ 124 billion in unexplained FDI inflows in 2015.

### C. Was FDI in 2015 Really Such an Aberration? A Look at FDI Trends

- 1.30** Movements in yearly FDI flows need to be looked at relative to the past several years, rather than just the most recent year. When this is done, FDI inflows in 2015 do not seem like such an outlier, as the above narrative has suggested, but instead appears reflective of a longer-term trend, whereby FDI has become less responsive to changes in global output.

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Fontanella-Khan, 'Taste Remains for the Big Cross-Border Deal' *Financial Times* (29 September 2016) <<https://www.ft.com/content/3233ecde-865b-11e6-a29c-6e7d9515ad15>> accessed 31 May 2017.

<sup>46</sup> Notes Robin Marris: 'if the social accounting essence of managerial capitalism lies in the existence of corporate capital, its economic-institutional essence lies in the widespread separation, not so much of ownership from control as organization from finance'. See Robin Marris, *The Economic Theory of 'Managerial Capitalism'* (Free Press of Glencoe, 1964) 33 (hereafter Marris, *The Economic Theory*).

<sup>47</sup> As UNCTAD notes, 'Discounting these large-scale corporate reconfigurations implies a more moderate increase of around 15% in global FDI flows', instead of an increase of 38 per cent. UNCTAD, *World Investment Report 2016* (n 2) 2. The type of investor engaging in the acquisition is also increasingly important: a private equity buy-out fund engaging in the purchase of a non-resident company with a view to asset stripping, or selling the company after five years, might have little lasting-interest motivation when engaging in the foreign direct investment—though it is unclear what constitutes a 'lasting interest' in the economy today, whereby the time horizon of investors is often short-term. The scale of private investment firms in FDI remains a mystery, though anecdotal evidence indicates that they are playing a big role in FDI in emerging markets where other investors are more risk averse, such as in Africa. See UNCTAD, *World Investment Report 2014. Investing in the SDGs. An Action Plan* (United Nations Publications 2014). See also UNCTAD, *World Investment Report 2015. Reforming International Investment Governance* (United Nations Publications 2015).

Figure 1.2 indicates that global FDI inflows in 2015 (lightly filled-in point in top right hand corner) were substantially higher relative to 2014, but relative to previous years remained largely consistent with the longer-term post-crisis FDI trend. Post-2007 FDI has been stuck in the top right-hand corner of Figure 1.2. The graph, using the log scale to improve our ability to compare numbers of different magnitudes on a single axis, shows that the year 2000, and perhaps also 1999, are the real outliers, and not 2015.<sup>48</sup> **1.31**

Figure 1.2 shows one way to approach the data: with (at least) two different, or significantly changing, underlying processes in generating the economic phenomena we see. When this is done (by dividing the data into two groups and fitting two separate ordinary least squares regression lines), we see that after the 2007 financial crisis the, albeit crude, estimated relationship between GDP and FDI changes. Any set of explanations would, therefore, need to account for this shift. The OLS fitted regression lines for periods 1990–2007 and for 2008–15 show the following: prior to 2007 a 1 per cent increase in global GDP was associated with a 4 per cent increase in global inward FDI, all else equal. From 2008–15, a much weaker relationship appears, whereby a 1 per cent increase in global GDP is associated with a 1 per cent increase in inward FDI. In fact, the world economy was around 10 per cent bigger in 2015 than in 2007, yet FDI inflows in 2015, at US\$ 1.76 trillion, remained below the 2007 peak of US\$ 1.9 billion. In other words: there was 10 per cent more global output, and in turn incomes, in 2015 than in 2007, yet the total value of FDI financial flows in 2015 was around 7 per cent less.<sup>49</sup> This fact can also help us account for the increase in global corporate ‘cash piles’, mentioned in the previous section.<sup>50</sup> **1.32**

If we deconstruct the above trend by developing versus developed economy, we see that the decline in FDI inflows is almost entirely attributable to advanced economy firms not investing abroad as they used to (see section B). Relative to its 2007 peak, FDI out of developed economies has almost halved in absolute terms, declining by 42 per cent to just over a trillion dollars in 2015.<sup>51</sup> In fact, developed economy firms invested less abroad in direct investment in 2015 than in 2000. However, a significant portion of this observed statistical trend may be due to advanced economy firms using developing economy offshore jurisdictions for incorporation and investment services. **1.33**

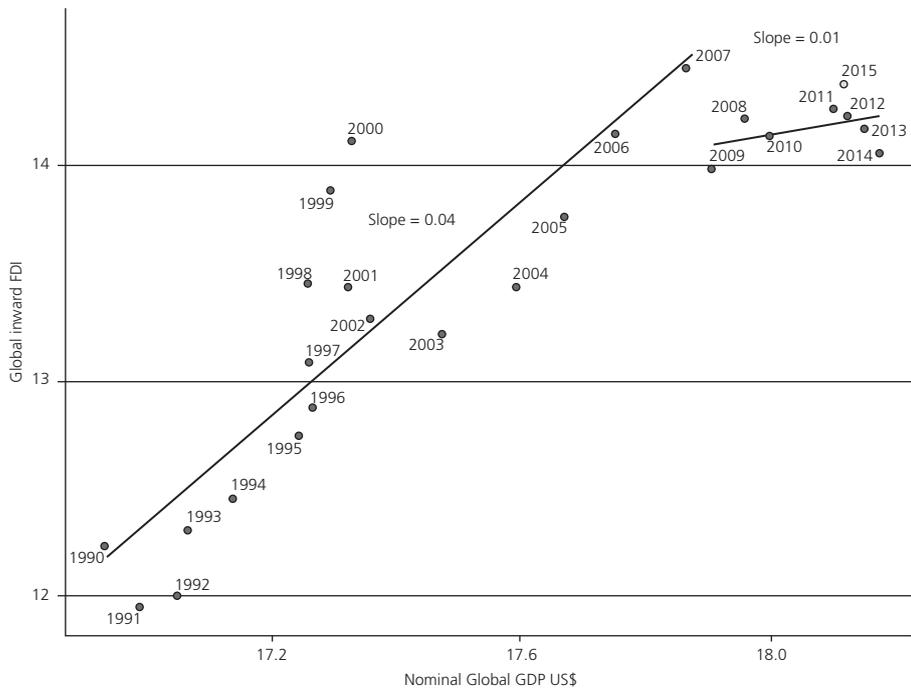
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<sup>48</sup> One can also fit a log relationship to the data instead of two separate (OLS) linear relationships. If this is done then 2007 will stand out from the log trend, along with 2000 and 1999.

<sup>49</sup> Capital expenditures by the largest 5,000 MNEs declined in 2015 by 10.5 per cent. ‘Acquisition outlays’, however, rose to a post-2007–08 financial crisis high. See UNCTAD, *World Investment Report 2016* (n 2) 3.

<sup>50</sup> One alternative approach would be to see the data coming from a single underlying data-generating process and fit a log least squares lines with a single, though weakening, trend.

<sup>51</sup> See n 31.



**Figure 1.2 Global inward FDI flows and global nominal GDP (log scales), with fitted OLS regression lines, 1990–2015.**

*Data source:* For GDP Data, World Bank: <http://data.worldbank.org/indicator/NY.GDP.MKTP.CD>. For FDI data, UNCTAD World Investment Report 2016 Annex Tables. Online: <http://unctad.org/en/Pages/DIAE/World%20Investment%20Report/Annex-Tables.aspx>.

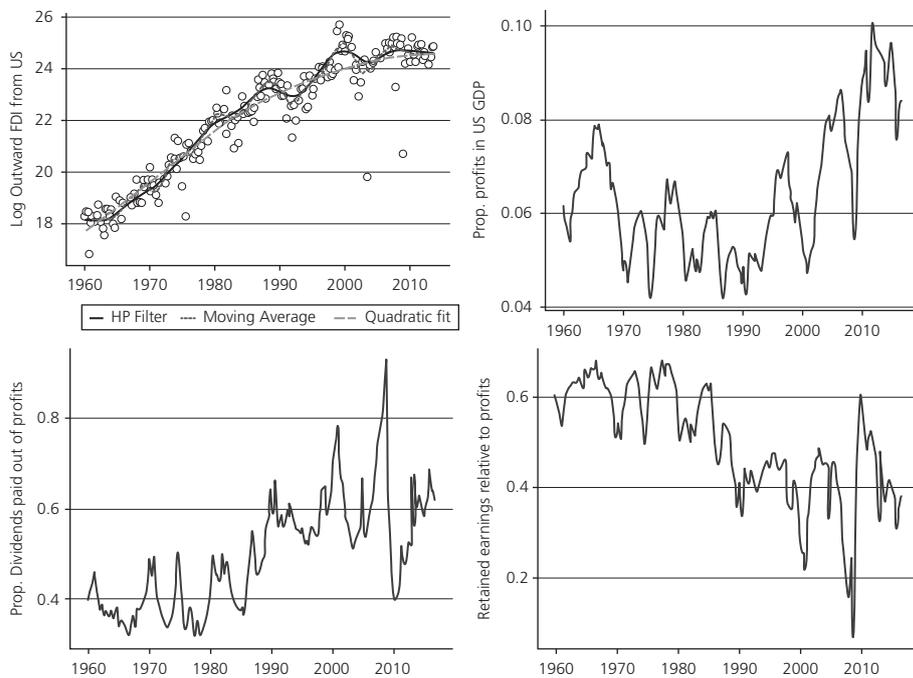
*Note:* Log transformation used for both variables. OLS fitted regression lines for years 1990–2007 and for 2008–15. In practice we can also see a break in the data after 2000, such that from 2001 we get a log of sorts. The regression coefficient \* 100 = percentage change, ie an increase in global GDP by 1 per cent is associated with a 4 per cent increase in global inward FDI increase, all else equals, for the sample 1990–2007. From 2008–15 we see a much weaker relationship, whereby a 1 per cent increase in global GDP is associated with only a 1 per cent increase in inward FDI. Not shown is that the same relationship for outward FDI, from 2008–15 becomes negative (when leaving 2009 out which appears as an outlier in that series), such that a 2 per cent decrease in outward FDI is associated with a 1 per cent increase in nominal GDP.

### 1. Changing US corporate investment behaviour: Structural or cyclical? A Bayesian VAR approach

**1.34** How are we to account for the above structural break? Looking just at US firms, their behaviour since the crisis appears to be particularly risk averse, focusing on distributing earnings back to shareholders through buybacks and dividends (Figure 1.3).<sup>52</sup> As Larry Fink, BlackRock CEO, bemoans to

<sup>52</sup> The combined impact of weak global aggregate demand and cheap money has been, according to the US Chicago Fed that ‘Corporate [US] profits have stagnated since 2012, and business fixed investment has continued to be sluggish. Yet, at least in nominal-dollar terms, corporate distributions to shareholders have remained near record levels, and industry studies indicate that

## Explaining Global Trends in FDI in 2015 and Beyond



**Figure 1.3 US outward FDI (log scale) and US corporate financial indicators (as proportions on a log scale, time is quarterly from 1960-01-01 to 2016-01-07).**

*Data source:* Federal Reserve Economic Data (FRED). Federal Reserve Bank of St. Louis. Online: <https://fred.stlouisfed.org>.

*Note:* FDI quarterly data ends 2013-10-01. Log scale used for outward FDI. This means that years with negative outflows are omitted from the graph. The log scale helps us see more clearly the trend (by linearizing the somewhat exponential growth initially) and makes the scale comparable between early and later years which otherwise would not be able to be compared on a single graph. Corporate Profits After Tax with Inventory Valuation Adjustment (IVA) and Capital Consumption Adjustment (CCAdj). Nominal GDP seasonally adjusted at an annual rate. For outward FDI (top left corner): HP Filter with  $\lambda = 1600$  used; Moving Average is calculated with a window of 3; The quadratic fit is calculated using the built-in Local Polynomial Regression Fitting (LOESS) in R. See 'R Help Guide' for further details on how the fitting is done locally: <https://stat.ethz.ch/R-manual/R-devel/library/stats/html/loess.html>.

U.S. corporations are holding historically high quantities of liquid assets. Thus, one concern is that firms may be hesitating to undertake productive projects, instead hoarding cash or perhaps bowing to stockholder pressure for unsustainably high pay-out ratios. At the same time, corporate debt issuance has been strong, raising concerns about the ability of firms to service their debt in an environment in which the funds are not being put to productive use, particularly if interest rates rise.' Thomas King and Timothy Larach, 'Corporate Cash Flows and Its Uses' (2016) US Chicago Fed Letter No 368 <<https://www.chicagofed.org/publications/chicago-fed-letter/2016/368>> accessed 31 May 2017. This builds upon a similar 2015 analysis by Board of Governors of the Federal Reserve System. See Joseph W Gruber and Steven B Kamin, 'The Corporate Saving Glut in the Aftermath of the Global Financial Crisis' (2015) International Finance Discussion Papers 1150 <<https://www.federalreserve.gov/econresdata/ifdp/2015/files/ifdp1150.pdf>> accessed 31 May 2017.

shareholders:<sup>53</sup> ‘For the 12 months ending in the third quarter of 2016, the value of dividends and buybacks by S&P 500 companies exceeded those companies’ operating profit.’<sup>54</sup> Warren Buffet puts this conduct down to rational corporate behaviour in light of relative share prices and a lack of enticing investment projects.<sup>55</sup>

- 1.35 On the log scale, US outward FDI appears to have undertaken a slowing in its rate of growth since the 2000s (top left-hand corner, Figure 1.3). This may be artificial and due in part to US corporates restructuring their operations abroad,<sup>56</sup> rather than any genuine decline in the pace of outward FDI growth by US firms—an observation partly supported by the fact that US corporates are generating an increasing share of their revenue overseas since the crisis.<sup>57</sup> US outward FDI also seems to be particularly depressed since the 2007 crisis, indicating cyclical factors at play too.
- 1.36 Our analysis below tries to assess if the relative slowdown in US outward FDI is due to the more recent post-crisis shift in US corporate behaviour, or if it instead reflects a longer structural change in US firms’ investment behaviour.<sup>58</sup>
- 1.37 This question is explored using a Bayesian vector autoregression (VAR), with time-varying parameters and stochastic volatility<sup>59</sup>—see the Appendix to this chapter for further details. We look at how changes in US GDP growth impact US outward FDI as a percentage of GDP. In the VAR estimated below, US GDP growth has a ‘contemporaneous’ (ie same period) impact on US retained earnings, which can in the next period impact ‘normalized’ US outward FDI. (This

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<sup>53</sup> Larry Fink, ‘Annual Letter to CEOs’ (24 January 2017) <<https://www.blackrock.com/corporate/en-us/investor-relations/larry-fink-ceo-letter>> accessed 31 May 2017.

<sup>54</sup> On a historical basis it seems that we are also witnessing a shift in how companies distribute profits through share buybacks as opposed to dividends. See Tim Koller, ‘Are Share Buybacks Jeopardizing Future Growth?’ *McKinsey & Company* (New York, October 2015) <<http://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/are-share-buybacks-jeopardizing-future-growth>> accessed 31 May 2017.

<sup>55</sup> Stephen Foley, ‘Warren Buffet Endorses Share Buybacks’ *Financial Times* (London, 25 February 2017) <<https://www.ft.com/content/0a9bda54-fb60-11e6-96f8-3700c5664d30>> accessed 31 May 2017.

<sup>56</sup> UNCTAD, *World Investment Report 2016* (n 2) 21.

<sup>57</sup> Steve Goldstein, ‘S&P 500 Companies Generate Barely Over Half Their Revenue at Home’ *MarketWatch* (New York, 19 August 2015) <<http://www.marketwatch.com/story/sp-500-companies-generate-barely-over-half-their-revenue-at-home-2015-08-19>> accessed 31 May 2017. See also S&P Dow Jones Indices, ‘S&P 500 Foreign Sales at 44.3%, Lowest Level Since 2006’ *PRNewswire* (27 July 2016) <<http://www.prnewswire.com/news-releases/sp-500-foreign-sales-at-443-lowest-level-since-2006-300304662.html>> accessed 31 May 2017.

<sup>58</sup> For example, Martin Wolf, ‘Corporate Surpluses Are Contributing to the Savings Glut’ *Financial Times* (London, 17 November 2015) <<https://www.ft.com/content/b2df748e-8a3f-11e5-90de-f44762bf9896>> accessed 31 May 2017.

<sup>59</sup> Giorgio E Primiceri, ‘Time Varying Structural Vector Autoregressions and Monetary Policy’ (2005) 72 *Review of Economic Studies* 821 (hereinafter Primiceri, ‘Time Varying Structural Vector’). See also Marco Del Negro and Giorgio E Primiceri, ‘Time Varying Structural Vector Autoregressions and Monetary Policy. A Corrigendum’ (2015) 82(4) *Review of Economic Studies* 1342 (hereinafter Del Negro and Primiceri, ‘Time Varying Structural Vector’).

is the ordering of our stacked variables.) In this framework, changes in US GDP growth can impact normalized outward FDI from the US directly, and indirectly through impacting retained earnings.

We can take advantage of the fact that the coefficient matrix is allowed to change over time by implementing impulse responses with the coefficient matrix set to different time periods. This allows us to investigate if outward FDI (relative to GDP) has responded differently to changes in US GDP at different decades. Has US outward FDI become more or less responsive over the past several decades to changes in US GDP? A consistent decline over the decades in the responsiveness of normalized outward FDI from the US to changes in US GDP, would be consistent with the notion that changing FDI behaviour by US firms reflects longer-term structural factors at play, rather than just short-term cyclical factors. **1.38**

Figure 1.4 is called an impulse-response graph and shows how a 1 unit standard deviation change in US GDP growth impacts the median percentage change in outward FDI (relative to US GDP). Figure 1.4 indicates, first and foremost, that US outward FDI (as a percentage of GDP) has become less responsive over the last several decades to changes in US GDP growth, though a positive relationship remains. Secular factors appear to be at play here given the persistent decline in this relationship.<sup>60</sup> **1.39**

This result is consistent with a number of different hypotheses, including increased corporate restructuring making US data less representative of the activities of US firm; FDI behaving more like a short-term flow and so being less responsive to changing long-term economics fundamentals; and a growing disconnect between long-term orientated investment (in the form of outward FDI) and real economy conditions, as financial markets have impacted the planning time-horizon of corporates.<sup>61</sup> **1.40**

## D. FDI as Reflecting the Intra-firm Financing Decision

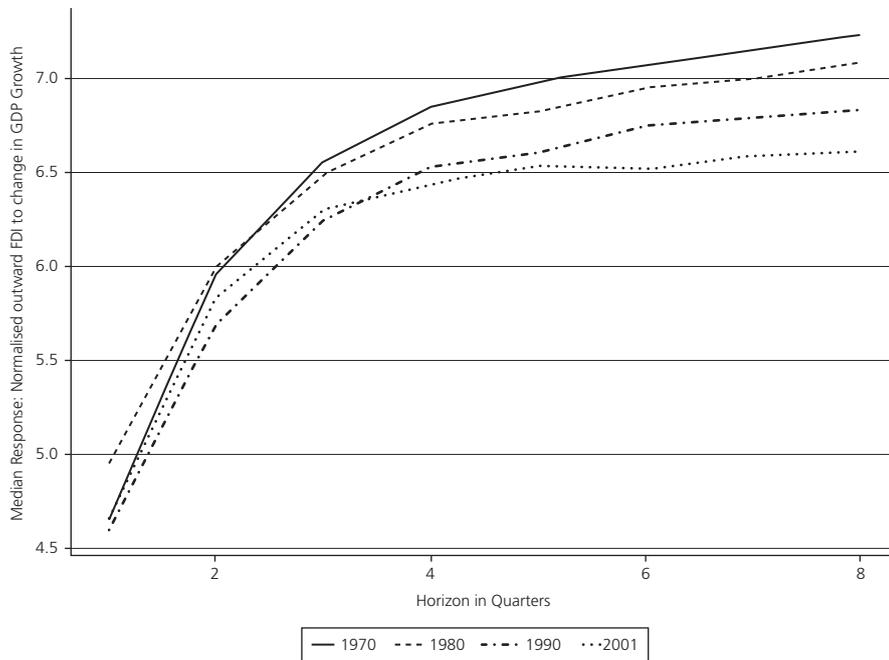
How are we to understand the increasingly complex world of FDI flows?<sup>62</sup> I propose that FDI financial flows increasingly reflect the intra-firm financing (and financial **1.41**

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<sup>60</sup> Note also that the graph is *not* the cumulative change in FDI. As such, what it shows is that the impact of changes in US GDP on normalized outward FDI is strongest at least eight quarters (two years) after the initial change in GDP. This makes sense given that firms cannot respond immediately to changes in their revenues and the health of the economy.

<sup>61</sup> Adolf A Berle raised this possibility 50 years ago, writing: ‘... one effect of the corporate system has been to set up a parallel, circulating ‘property-wealth’ system, in which the wealth flows from passive wealth-holder to passive wealth-holder without significantly furthering the functions of capital formation, capital application, capital use, or risk bearing’. Berle and Means, *The Modern Corporation* (n 6) xxxiv. He continues: ‘passive property—notably stocks—increasingly loses its “capital” function. It becomes primarily a method for distributing liquid wealth and a channel for distributing income whose accumulations for capital purposes is not required’. Berle and Means, xxviii.

<sup>62</sup> As a financial flow (through the financial account), leaving aside FDI investment income (current account).



**Figure 1.4 Median impulse response over 8 quarters of normalized US outward FDI (outward FDI as a percentage of US GDP) to a shock to US GDP growth, 1960–2013.**

*Data source:* Federal Reserve Economic Data (FRED). Federal Reserve Bank of St. Louis. Online: <https://fred.stlouisfed.org>.

*Note:* Quarterly data, 1960-01-01 to 2013-10-01 using 1 lag giving us  $n = 174$ . Differences are notable since the y axis is measured as a percentage of GDP. The graph shows how a 1 unit standard deviation change in US GDP growth leads to a median percentage increase in outward FDI (relative to US GDP). It is not the cumulative change. It highlights how the impact increases with time and is strongest at least 8 quarters (2 years) after the initial change. This makes sense. The median is used since the posterior is not entirely normal.

management) decision. Two facts help us establish this argument: first, a large portion of FDI today takes place within the complex MNE structure, and second, these FDI flows within the MNE are between entities already in an established FDI relationship.

- 1.42** There is good reason to believe that, because large MNEs account for a disproportionate share of global foreign affiliates, a large portion of FDI flows today takes place within this corporate structure. This is an important fact since a glance at the contemporary MNE structure helps us to understand why FDI flows can be several steps removed from the ‘real’ economy. According to UNCTAD’s 2015 top 100 largest MNEs (as ‘parent companies’) database,<sup>63</sup> these super-firms had on average 549 affiliates and 19 holding companies to perform investment,

<sup>63</sup> As of November 2015.

ownership, and finance related activities for the corporate group. This covered 56 countries on average, with the affiliate being owed by the parent through, on average, 5 intermediate firms.<sup>64</sup> Even though less than 1 per cent of all MNEs, globally, have more than 100 affiliates, the top 100 large MNEs account for more than 30 per cent of the total number of foreign affiliates globally, and more than 60 per cent of total MNE value added globally.<sup>65</sup> In total these 100 large MNEs own around 55,000 affiliates. Furthermore, looking at control more rationally considered (after taking into consideration how companies are actually held by shareholders), a further 3,000 companies could be considered as within the control perimeter of the Top 100 MNEs.<sup>66</sup> This would greatly extend the size of the network controlled by these corporations. As such, a significant portion of FDI flows today are intra-MNE flows, and reflect a growing financial and structural division of labour within the MNE, rather than a growing division of labour in the real economy.

The proliferation of resident special purpose entities (SPEs), used by firms as intermediaries to channel funds elsewhere, and hold certain assets, reflects the growing division of labour and specialization within an MNE group. SPEs are firms which usually exist largely on paper and act as intermediaries to manage intra-firm transactions (especially in raising debt); flows usually just pass through them. In the Netherlands, SPEs accounted for approximately 80–85 per cent of their FDI positions in 2012. Over 14,000 of these entities exist in the Netherlands, holding total foreign assets in excess of € 3,000 billion in 2012, well over five times the Dutch GDP.<sup>67</sup> In practice, when particularly distorting, statistical agencies try to ‘look-through’ SPEs to the final intended destination of the flow, to reduce the overstatement of FDI statistics and to provide more realistic estimates of FDI source/destination locations. But this presumes the national statistical agency in question, acting in relative isolation from the agencies of other nations, knows where the end destination of the (fungible) transit flow is.<sup>68</sup> In an effort to ‘look through’ to the ultimate destination of these funds, the European Union (EU) has compiled an MNE register: ‘for reference year 2014 EGR [the EuroGroups Register of companies investing in the EU]<sup>69</sup> produced a final picture on *61 000 multinational enterprise groups covering 781 000 thousand legal units*’ investing in the EU.<sup>70</sup>

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<sup>64</sup> UNCTAD, *World Investment Report 2016* (n 2) 135.

<sup>65</sup> *ibid* 133–4.

<sup>66</sup> *ibid* 135.

<sup>67</sup> Pim Claassen and Gerrit van den Dool, ‘The Effects of Including SPEs on BoP and FDI Statistics’ (2013) Twenty-Sixth Meeting of the IMF Committee on Balance of Payments Statistics.

<sup>68</sup> *ibid*.

<sup>69</sup> The EGR (EuroGroups Register) is a statistical business register of multinational enterprise groups having at least one legal unit in the territory of the EU or EFTA countries.

<sup>70</sup> Eurostat, EuroGroups Register.

- 1.44** In general, the FDI concepts used by statistical agencies to record official FDI financial flows increasingly take the existence of the corporate group as its starting point. This is reflected in the far-reaching updates made to how FDI is recorded in the EU<sup>71</sup> and the US, in 2013 and 2014 respectively. FDI statisticians introduced the concepts of ‘fellow enterprises’ (no FDI relationship between enterprises B and C but they have common parent A); and ‘reverse investment’ (from affiliate to parent but less than 10 per cent equity). These concepts no longer limit the collection of FDI statistics to flows between entities whereby one controls the other through a minimum (direct or indirect) 10 per cent equity stake. The FDI statistics, in circumventing the 10 per cent equity floor previously required to establish a direct investment relationship, are tending to focus more on the structure of the corporate group as a whole in determining what to include in FDI statistics.<sup>72</sup>
- 1.45** The second observation that can help us gain clarity on the web of global intra-MNE FDI flows is that a large portion of FDI flows are not flows which are establishing new foreign direct investment relationships. Instead, they are FDI flows between entities who are already in foreign direct investment relationships. This follows from the FDI statistical conventions discussed below, as well as the above facts regarding the dominance of large MNEs in global production networks and the increasing financial and property holding division of labour within the MNE. As firms become more complex and specialized, intra-firm financing and financial management transactions have become more ubiquitous. As such, flows between firms in pre-existing FDI relationships are increasing in importance relative to flows establishing new FDI relationships.
- 1.46** In general, the FDI relationship is established when a direct investor (juridical or real) purchases a minimum of 10 per cent equity in a non-resident enterprise (the ‘affiliate’). The idea is that this 10 per cent is the minimum equity stake that can signify the direct investor establishing a degree of influence or control

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<sup>71</sup> After implementing the IMF Balance of Payments Manual, 6th edn (BPM6), and the OECD Benchmark Definition of FDI, 4th edn (BD4), see Eurostat, ‘Implementing the New International Standards for Foreign Direct Investment (FDI) Statistics’ (15 December 2014) <[http://ec.europa.eu/eurostat/statistics-explained/index.php/Implementing\\_the\\_new\\_international\\_standards\\_for\\_foreign\\_direct\\_investment\\_\(FDI\)\\_statistics](http://ec.europa.eu/eurostat/statistics-explained/index.php/Implementing_the_new_international_standards_for_foreign_direct_investment_(FDI)_statistics)> accessed 31 May 2017.

<sup>72</sup> Yet in many ways this does not go far enough. In today’s economy, stock pyramids, cross-ownership structures, and dual class equity can all be used to quite thoroughly separate control from cash flow rights, such that control can occur without substantial equity ownership. This leaves the 10 per cent minimum equity stake generally needed to indicate substantial influence, or control, over a non-resident enterprise, and required for a direct investment relationship to exist, increasingly without much rational force. Lucian A Bebchuck, Reinier Kraakman, and George Triantis, ‘Stock Pyramids, Cross-Ownership and Dual Class Equity: The Mechanisms and Agency Costs of Separating Control from Cash-Flow Rights’ in Randall K Morck, *Concentrated Corporate Ownership* (University of Chicago Press 2000) (hereafter Bebchuk, Kraakman, and Triantis, ‘Stock Pyramids’). See also UNCTAD, *World Investment Report 2016* (n 2) 131–33.

over the non-resident affiliate. Once the FDI relationship has been established, (almost) all subsequent flows between the two entities are then recorded as FDI flows. These subsequent financial flows, as well as the initial equity purchase, can be divided into: (1) FDI-equity flows, (2) FDI-debt flows, and (3) FDI-retained/reinvested earnings flows.<sup>73</sup> FDI-equity flows cover the initial direct investment establishing the FDI relationship as well all subsequent purchases or disposal of equity.<sup>74</sup> FDI-debt flows are when a loan or debt obligation,<sup>75</sup> and/or its repayment, occurs between the direct investor and its affiliate.<sup>76</sup> FDI-retained earnings flows are when the direct investor chooses to keep (ie 'retain') some, or all, of the earnings generated by the assets and activities of the direct investment enterprise abroad with the enterprise itself, instead of distributing it back to investors. For example: if an affiliate receives a loan from its direct investment enterprise, that loan counts as inward FDI-debt from the affiliate's perspective.<sup>77</sup> If an affiliate retains some or all of its earnings, then that is recorded as inward retained-earnings FDI into the affiliate's economy.<sup>78</sup> The rationale for how the latter is recorded is that the decision to retain the earnings of the affiliate is said to be made by the direct investor abroad and not by the affiliate itself.<sup>79</sup>

In what follows I focus on FDI-retained earnings flows for a few reasons. It serves as a useful analytical anchor for talking about intra-MNE FDI flows as a whole; It dominates FDI outflows from the US, the largest outward investor globally; It also raises important questions about how, under the current balance of payments compilation conventions, growing relative FDI stocks might come to dominate the global FDI outflows of mature economies. Some facts are first required to explain why retained earnings FDI matters and how they come about. We then discuss its relationship to the intra-MNE financing decision.

1.47

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<sup>73</sup> Notes the IMF: 'Retained earnings of an enterprise shows the net earnings from production and primary and secondary income transactions before attributing reinvested earnings. It is equal to net operating surplus plus primary income, current transfers receivable, and change in pension entitlements, and minus primary income (excluding reinvested earnings payable to the enterprise's direct investors and owners of investment funds) and current transfers payable.' IMF, *Balance of Payments Manual* (n 6) 188.

<sup>74</sup> So long as the FDI relationship remains intact.

<sup>75</sup> Interest payments are covered by direct investment income, not here, by the financial flow.

<sup>76</sup> It includes: 'payables and receivables between enterprises in a direct investment relationship arising from loans, deposits, debt securities, suppliers' (trade) credit, financial leases, and non-participating preference (preferred) shares ... debt positions between FDI related financial intermediaries (such as commercial banks, savings institutions, credit unions, mutual funds or finance companies) are excluded from direct investment (though this exclusion does not apply if one of the parties is a holding company)'. OECD, *Benchmark Definition* (n 9) 67.

<sup>77</sup> In proportion to the direct investment equity held by the direct investor in the direct investment enterprise.

<sup>78</sup> *ibid.*

<sup>79</sup> This inward FDI flow is, therefore, an imputed flow in the financial accounts.

- 1.48** Statistically, the outward FDI stock consists of the direct investor's pro rata net financial claims (through equity and debt), on its affiliates.<sup>80</sup> Part of the affiliates' net earnings can be distributed to shareholders (of which the direct investor may be one among many). All remaining earnings (that is, earnings which have not been distributed) are considered to be retained or reinvested with the direct investment enterprise itself. The equity ownership that the direct investor holds in its affiliates, therefore, records the pro rata value of the foreign affiliates' earnings that the direct investor has, as a shareholder, a residual claim to. For example, if the direct investor owns 10 per cent of affiliate B's ordinary shares then it has a claim to 10 per cent of B's distributed earnings. But, in addition, as a direct investor they also exercise a degree of influence, or control, over the affiliate and in turn the affiliate's initial decision over what portion of net earnings to distribute to its shareholders in the first place. The greater the stock of direct investment assets held abroad by the direct investor, the more direct investment earnings that can be generated, and so the greater the decision that confronts the parent company vis-à-vis its affiliates: what to do with these overseas earnings? The punch line is this: If the parent chooses to keep some or all of these direct investment earnings abroad with the affiliate, then, through imputation, FDI inflows into the affiliate economy will increase, and a corresponding FDI financial outflow from the direct investor's economy will be recorded (as an imputation). This decision to retain or distribute affiliate earnings can become essential to the FDI flows of the affiliate's economy and the direct investors.<sup>81</sup> For mature economies, with relatively large outward FDI stocks, retained-earnings FDI outflows from the direct investor back to their affiliates may be so considerable that they even overwhelm additions provided to FDI outflows through greenfield FDI investments (including through cross-border M&A, and additional equity injections into pre-established affiliates).
- 1.49** This situation is exactly where the US, the most significant global foreign direct investor, finds itself today: the majority of its outward FDI consists of flows between entities in an established direct investment relationship. This is reflected primarily in the overwhelming contribution of its retained earnings

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<sup>80</sup> For simplification I ignore income derived from debt assets held by the direct investor in the direct investment enterprise in the discussion that follows.

<sup>81</sup> FDI stocks tend to grow exponentially (even without any new greenfield FDI abroad), in proportion to affiliates' return on assets (say around 10 per cent), and the rate of reinvestment of these returns abroad, which further swell the outward FDI stock (say 40 per cent of that 10 per cent return). The rate of growth of the outward FDI capital stock in this example, without any Greenfield additions or loans, would be 4 per cent. The US tends to reinvest at least two thirds of its investment income in any given year, which implies, using the above heuristic and a 10 per cent rate of return on assets, a rate of growth of the US outward FDI stock of 6.66 per cent. In practice we saw the US outward FDI stock grow at an annual average of 7.6 per cent between 2000–16, which will include net Greenfield additions, changes in pre-existing equity positions, and the

FDI to its total FDI outflows. Large equity purchases are, in general, unable to dramatically change the composition of its FDI outward financial flows.<sup>82</sup>

As a result of the US' large stock of outward FDI, as well as its particular set of tax policies (and related holding structures), reinvested earnings have overwhelmed US outward FDI for some time, only to be punctured by large cross-border merger and acquisition deals. Historically, between 1966–76, almost 60 per cent of the growth in the US outward FDI stock was from keeping retained earnings abroad.<sup>83</sup> In 1979 around 75 per cent of the absolute contraction in outward FDI was due to a net outflow of retained earnings by US affiliates abroad. In 1984, 100 per cent of US outward FDI was attributable to the increase in US retained earnings abroad,<sup>84</sup> such that reinvested earnings was US\$ 6.7 billion and outward FDI as a whole was US\$ 6.2 billion. In 1990, however, reinvested earnings accounted for only a third of outward FDI from the US: retained earnings were US\$ 6.4 billion while outward FDI as a whole 'surged' to a record US\$ 19.3 billion on the back of an enormous cross-border M&A, indicating a large equity FDI purchase.<sup>85</sup> By the early 1990s, Lipsey notes that 'U.S. direct investment abroad seems to have entered an era of mature self-financing, with few new firms entering the list of overseas investors'.<sup>86</sup> Today, the vast majority of US outward FDI consists of retained earnings flows abroad, with US debt-FDI outflows being on average two-thirds of its equity-FDI outflows (Table 1.1 below). US BEA data<sup>87</sup> shows that on US firms' stock of outward FDI assets of US\$ 5.04 trillion,<sup>88</sup> direct investment income of US\$ 0.4 trillion was generated in 2015, or a 7.9 per cent return on assets. The proportion of this direct investment income which was

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accumulation of loans abroad. New Greenfield FDI flows by direct investors in the US (and other mature economies) will struggle to overwhelm the automatic FDI flows generated by the retained earnings of affiliates huge base of assets held abroad.

<sup>82</sup> From the data we cannot be sure if equity-FDI reflects equity injections between firms already in an FDI relationship or equity purchases in what was previously an unrelated firm.

<sup>83</sup> Robert E Lipsey, 'Foreign Direct Investment in the United States: Changes over Three Decades' in Kenneth A Froot (ed), *Foreign Direct Investment* (University of Chicago Press 1993) 140 (hereafter Lipsey, 'Foreign Direct Investment').

<sup>84</sup> Due to net FDI-equity sales occurring such that outward equity FDI was negative.

<sup>85</sup> Bureau of Economic Analysis, *Survey of Current Business. December 1980* (United States Department of Commerce), 'Table 1. US international transactions', <[https://fraser.stlouisfed.org/files/docs/publications/SCB/1980-89/SCB\\_121980.pdf](https://fraser.stlouisfed.org/files/docs/publications/SCB/1980-89/SCB_121980.pdf)> accessed 31 May 2017. See also Bureau of Economic Analysis, *Survey of Current Business. December 1985* (United States Department of Commerce) 62 <[https://fraser.stlouisfed.org/files/docs/publications/SCB/1980-89/SCB\\_121980.pdf](https://fraser.stlouisfed.org/files/docs/publications/SCB/1980-89/SCB_121980.pdf)> accessed 31 May 2017. See also Bureau of Economic Analysis, *Survey of Current Business. December 1991* (United States Department of Commerce) 3 <[https://fraser.stlouisfed.org/files/docs/publications/SCB/1980-89/SCB\\_121980.pdf](https://fraser.stlouisfed.org/files/docs/publications/SCB/1980-89/SCB_121980.pdf)> accessed 31 May 2017.

<sup>86</sup> Lipsey, 'Foreign Direct Investment' (n 83) 140.

<sup>87</sup> Bureau of Economic Analysis, 'International Data, Direct Investment and MNEs' <<https://www.bea.gov/iTable/iTable.cfm?ReqID=2&step=1#reqid=2&step=10&isuri=1&202=1&203=31&204=99&205=1,2&200=1&201=1&207=52&208=2&209=2>> accessed 31 May 2017.

<sup>88</sup> The UNCTAD figure for this is different but is cited below for purposes of comparability across countries.

retained with the affiliate was 70 per cent, or US\$ 0.285 trillion. Given the relative magnitudes involved, this 70 per cent rate of reinvestment of affiliate income by US direct investors, led to 94 per cent of US outward FDI in 2015 being due to this reinvestment of affiliates earnings abroad.<sup>89</sup> This reinvestment decision, therefore, is the key one to grasp and explore further, at least for the US and other ‘mature self-financing’ direct investors with relatively large outward FDI stocks.

- 1.51 The enormity of the US’s stock of direct investment assets held abroad is precisely why President Donald Trump’s potential change in the tax treatment of deferred earning by US firms on their foreign corporate subsidiaries is so quantitatively significant, for the US and for the world of FDI flows as a whole.<sup>90</sup>
- 1.52 Other countries have much smaller accumulated FDI stocks than the US (relative to the size of their annual FDI outflows), such that decisions by their resident parent companies to retain, or reinvest, affiliate earnings will have less of an impact on their FDI outflows. Moreover, they have different tax systems, and access to financing through different avenues, thereby changing the relative merits of affiliates drawing on external financing through debt or equity, and in using different MNE financial management structures (an important fact but one not explored further here).
- 1.53 Yet the trend in the US remains important for at least three reasons. First, its FDI stock was around 23.8 per cent of the world’s in 2015;<sup>91</sup> as such, its reinvestment financing decision will remain central to global FDI outflows for the foreseeable future. Second, its firms carry sophisticated assets that are important for host countries; in other words, its FDI reinvestment decision can have a real material impact on its hosts’ economies (as well as their balance of payments), but only when not reinvested into an SPE! And third, if other countries’ FDI stocks accumulate relatively rapidly, their FDI data is likely to eventually reflect this same dominance of what is here called *the intra-firm FDI financing* decision (though we do not have space to explore debt-FDI).

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<sup>89</sup> Note that this is not telling us what portion of the affiliates net operating surplus is reinvested. Such reinvested earnings FDI is calculated from the total net direct investment income on equity earned by that affiliate. Retained earnings, as a financial FDI flow, is calculated from the total net *pro rata* investment income earned by the affiliate which is reinvested. This includes the net operating surplus of the firm plus the *net* interest receivable/payable on all financial assets and liabilities (including loans), plus dividend income receivable/payable, plus reinvested earnings receivable (if the affiliate is a direct investor itself), plus net current transfers receivable/payable. See OECD, *Benchmark Definition* (n 9) 182.

<sup>90</sup> For an overview of this issue see letter by Chief of Staff for Congress Committee on Taxation, August 3, 2016: <http://waysandmeans.house.gov/wp-content/uploads/2016/09/20160831-Barthold-Letter-to-BradyNeal.pdf>.

<sup>91</sup> In comparison, the total outward FDI stock of developing economies in 2015 came to US\$ 5.4 trillion, using UNCTAD World Investment Report 2016 Annex Tables. Online: <http://unctad.org/en/Pages/DIAE/World%20Investment%20Report/Annex-Tables.aspx>. BEA data gives quite a different figure for the US outward stock (smaller US\$ 0.9 trillion).

‘Retained earnings FDI flows’ and ‘debt FDI flows’ are here referred to as intra-firm financial FDI flows, since they necessarily must take place between entities who are already in a direct investment relationship, and also possibly within a much larger MNE corporate group.<sup>92</sup> Equity FDI can also be included when reflecting new equity injections between entities in a pre-established FDI relationship. Intra-firm FDI financial flows reflect a financing choice within the MNE, between the ultimate controlling parent company and its many affiliates, and in particular, how and at what level the parent should finance its affiliates operations:<sup>93</sup> should it expand its affiliates operations? And, if so, should it do so by using the affiliate’s earnings? Or should it instead use other funds, external to the affiliate but internal to the MNE as a whole? Within an MNE structure, how to deploy an affiliate’s funds is complicated by the fact that there are other existing profitable avenues, within and outside the MNE, where affiliate earnings can be profitability reinvested. Where the scope for profitable reinvestment of the affiliate’s surpluses is limited locally, there is an inbuilt compulsion within the MNE for it to take the affiliate’s surpluses and to seek profitable investment opportunities elsewhere, either to other branches of the MNE or outside of it. What presumptions, then, can we make as to what an MNE will do with the earnings of its affiliates, or how it will choose to finance its affiliates operations? **1.54**

One important clue is that firms in advanced economies finance the majority of their investment expenditures (by value) from their own retained earnings. Moreover, this trend seems to be growing.<sup>94</sup> During the period 1970–1994, Corbett and Jenkinson find that for the United Kingdom and the United States, internal financing dominated firms’ investment financing, at 93 per cent and 96 per cent, respectively.<sup>95</sup> In contrast, the figures for Germany and Japan were lower, at around 79 per cent and 70 per cent, respectively. Updating this picture for the last two decades, Lapavistas<sup>96</sup> finds that internal financing has become more important for all these countries, not less. In the US, internal funds account **1.55**

<sup>92</sup> As evidenced by the large portion of debt-FDI flows taking place between fellow enterprises.

<sup>93</sup> We do not deal with the payment structure within the MNE here, ie how an affiliate may pay another entity within the MNE for use of certain intellectual property, for example. Though this will shape the retained earnings available to the affiliate and so is important to consider and include within this framework in the future.

<sup>94</sup> Using enterprise surveys from the World Bank, ‘proportion of investments financed internally’ we see: Germany (2005) 50.6 per cent; Sweden (2014) 75.9 per cent; China (2012) 89.6 per cent; Korea (2005) 65 per cent; South Africa (2007) 68.5 per cent; Russia (2012) 84.3 per cent; Portugal (2005) 66.2 per cent; Ireland (2005) 48.5 per cent; and Israel (2013) 63.8 per cent. Germany’s other sources are banks 22.6 per cent, 9.3 per cent equity, and 4.2 per cent supplier credit (which do not add up to 100 per cent).

<sup>95</sup> See Corbett and Jenkinson, ‘How Is Investment Financed?’ (n 15).

<sup>96</sup> Costas Lapavistas, *Profiting Without Producing: How Finance Exploits Us All* (Verso Books 2014) (hereafter Lapavistas, *Profiting Without Producing*). He uses the same methodology as Corbett and Jenkinson, based on the sources and uses of funds. This looks at *net* financing from various sources of finance using national income data, which will include a mix of foreign and domestic firms. For issues in measurement, Andreas Hackethal and Reinhard Schmidt,

for all of firm capital expenditures today, while external funds have declined considerably in importance.<sup>97</sup> Similarly, for the UK, internal finance funds all of firm capital expenditures now. In Japan, internal funds have grown in importance dramatically over the past two decades, but its actual level is difficult to calculate. In Germany, retained earnings have increased in significance since the 2000s considerably, accounting for most capital expenditure today.<sup>98</sup>

- 1.56** The Anglo–US system of market-based finance seems to be in the ascendency globally, compared to the relational, insider systems of Japan and Germany (commonly considered to be bank-based systems). This trend reflects the global integration of previously national financial markets, such as in foreign exchange markets, bond markets, and bank financing, and put within a globalized payment system.<sup>99</sup> Surely too the spread and growth of the multinational enterprise has played a central role in facilitating this transformation. By integrating global finance across borders, it has been the vehicle through which insider-financing systems have been cracked open, and are drifting towards market-based systems.<sup>100</sup> In other words, by influencing how firms across advanced economies finance their operations, the spread of the MNE has played an important role in changing the intra-firm financing decision, and in turn movements in FDI financing flows.
- 1.57** Will the dominant use of internal financing by firms at the individual level, to fund their investment expenditures (detailed above) translate directly to how the parent company finances its affiliates' operations? Put differently: will the MNE choose to self-finance its affiliates expenditures, leading to large retained earnings FDI flows? Not necessarily. For one, very large expenditures, related to capital formation or company acquisitions, appear (in the past at least) to be predominantly financed using external funds.<sup>101</sup> In addition, affiliates have non-investment

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'Financing Patterns: Measurement Concepts and Empirical Results' (2004) *Frankfurt Dept of Science Working Paper* [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=254463](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=254463) accessed 31 May 2017.

<sup>97</sup> See also James Montier, 'The World's Dumbest Idea' (2014) *GMO White Paper*, Exhibit 13 <<https://www.gmo.com/docs/default-source/research-and-commentary/strategies/asset-allocation/the-world%27s-dumbest-idea.pdf>> accessed 31 May 2017. In fact today, far from providing capital to the US corporate sector, shareholders have been extracting it. Hence internal financing accounts for more than 100 per cent of firms' capital expenditures. This is true of the UK and the US for the period 1970–94 too. See Corbett and Jenkinson, 'How Is Investment Financed?' (n 15).

<sup>98</sup> See Lapavistas, *Profiting Without Producing* (n 96). For a critical review of the wider argument raised see Ralph Atkins, 'A Marxist Take on Economic Meltdown' *Financial Times* (London, 8 December 2013) <<https://www.ft.com/content/5a71e7f2-5b7d-11e3-a2ba-00144feabdc0>> accessed 31 May 2017.

<sup>99</sup> Grahl, 'Globalized Finance' (n 5).

<sup>100</sup> *ibid* 45 and footnote 48.

<sup>101</sup> See Ralf Elsas, Mark J Flannery, and Jon A Garfinkel, 'Financing Major Investments: Information About Capital Structure Decisions' (2014) 18 *Review of Finance* 1341 <<https://pdfs.semanticscholar.org/e87c/e5bf38a7a1390d3a0713a4bb035585b804bb.pdf>> accessed 31 May 2017.

expenditures to be financed, which the above empirical findings do not relate to (since they only discuss the funding of investment). More importantly, might the MNE not constantly shift funds back and forth between its affiliates to ensure their optimal usage (ie using finance internal to the MNE but external to the affiliate in question)? And might not the extensive internal division of labour within the MNE result in funds being raised instead by a specialized financing entity, such as an SPE, and then deployed elsewhere within the corporate group, thereby further diminishing the role of affiliate self-financing? This last point is particularly important, since MNEs will use SPEs, often in tax-favorable jurisdictions, to hold their earnings. As such affiliate earnings today will be quite centralized.<sup>102</sup> All of this, and we have not even explored the distortions in the data that arise from firms incorporating in any country they please and the role of national tax systems in guiding affiliate financing decisions.

The FDI data presented below cannot answer these questions with any degree of precision, therefore, but they raise questions for further consideration. **1.58**

Table 1.1 shows the average percentage of direct investment income retained abroad with the affiliate by the direct investor (leading to retained earnings FDI). On average, between 2007–16, US firms retained almost 65 per cent of their direct investment income with their affiliates, far more than other firms except those registered in Hong Kong. This may be due to the US tax system and its impact on the typical US MNE financial holding structure. Japanese firms retained around 40 per cent of their affiliates income abroad, while German firms retained only 22.6 per cent of affiliate investment income abroad. The results seem to imply very different financing structures of affiliates by direct investors across advanced economies that need to be explained.<sup>103</sup> This decision, regarding what portion of investment income to ultimately retain with the affiliate, lies at the heart of the intra-firm financing decision.<sup>104</sup> For this decision shapes the extent to which the MNE might need to utilize other forms of financing for the affiliate's activities, including through debt and equity financing internal or external to the MNE. **1.59**

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<sup>102</sup> See Mihir A Desai, 'The Finance Function in a Global Corporation' (2008) 86 HBR 108; see also Alan C Shapiro, *Multinational Financial Management* (10th edn, Wiley 2013); Bureau of Economic Analysis, *U.S. Direct Investment Abroad (USDIA). Activities of U.S. Multinational Enterprises (MNEs)* <<https://www.bea.gov/international/di1usdop.htm>> accessed 31 May 2017; Jonathan SH Kornbluth and Joseph D Vinso, 'Capital Structure and the Financing of Multinational Corporation: A Fractional Multiobjective Approach' (1982) 17(2) *The Journal of Financial and Quantitative Analysis* 147 <[https://www.jstor.org/stable/2330843?seq=1#page\\_scan\\_tab\\_contents](https://www.jstor.org/stable/2330843?seq=1#page_scan_tab_contents)> accessed 31 May 2017; Gilman, *The Financing of Foreign Direct Investment* (n 14); Quyen TK Nguyen and Alan M Rugman, 'Internal Equity Financing and the Performance of Multinational Subsidiaries in Emerging Economies' (2015) 46(4) *Journal of International Business Studies* 468 <<https://link.springer.com/article/10.1057/jibs.2014.64>> accessed 31 May 2017.

<sup>103</sup> It may well be that these earnings are distributed back to the affiliate, but just not immediately, or not through an FDI channel, thus leading to similar financing structures across the MNEs of the different countries.

<sup>104</sup> Gilman, *The Financing of Foreign Direct Investment* (n 14).

**Table 1.1 Percentage of direct investment income retained abroad as retained earnings FDI,\* average 2007–16**

	Rate of Reinvestment
US	64.9
Hong Kong	63.5
Japan	40
UK	25.4
Germany	22.6
Euro Area	13.5

\*As a financial flow, not as retained earnings income.

*Note:* Calculated not as the average of yearly proportions but as the sum of total retained earnings (in the financial account) during the period in question divided by the sum of direct investment income received (credit), made into a percentage. Invest income will include not just the pro rata income from the net operating surplus of the affiliate but also property income.

*Source:* IMF BoP6, Data Tables, by Indicator, Standard Presentation. Online: <http://data.imf.org/?sk=7A51304B-6426-40C0-83DD-CA473CA1FD52&slid=1409773422141>

In this way, debt-FDI and retained-earnings FDI are not only complimentary financing flows but also potentially substitutes.

- 1.60** Different intra-firm financing structures, following from the retained earnings decision, can in turn greatly shape the level and composition of FDI flows of these recording countries (Table 1.2).
- 1.61** Table 1.2 looks at the average percentage contribution to total outward FDI flows from debt-FDI, equity-FDI, and retained earnings-FDI. The high reinvestment rates shown in Table 1.1 for the US and Hong Kong are associated with high levels of retained earnings FDI flows in total FDI outflows in Table 1.2. For other countries, the financing choice may be overwhelmed by large new equity investments made abroad (Japan potentially), or the large amount of bank based, or intra-firm/relational, finance used to finance affiliates operations (Germany potentially). This, however, is only one among several possible interpretations for the data we see.
- 1.62** Table 1.2 also highlights the importance of debt-FDI in the outward FDI flows of Germany and the Euro Area, in stark contrast to the US and Japan. Note that debt-FDI may start out as MNE retained earnings, generated in any branch of its corporate group, and then on-lent by the direct investor to one of its affiliates as a loan. It does not have to be a debt incurred by the MNE (ie external financing) which is then on-lent to the affiliate in question (though it can be). This means that the prominence of debt-FDI does not necessarily reflect a ‘bank-based’ system of MNE financing, but

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**Table 1.2 Average percentage contribution to total outward FDI between 2007–16, by FDI type**

	Retained earnings-FDI	Debt-FDI	Equity-FDI
Hong Kong	75.1	12.6	12.3
US	74.8	9.4	15.8
UK	47	3.9	22.1
Japan	23	9.2	67.8
Germany	18.7	27	54.3
Euro Area	8.4	21.9	69.7

*Note:* See above table for calculation information.

*Source:* IMF BoP6, Data Tables, by Indicator, Standard Presentation. Online: <http://data.imf.org/?sk=7A51304B-6426-40C0-83DD-CA473CA1FD52&slId=1409773422141>

can instead point to an MNE structure where affiliate earnings are constantly recycled as loans across the MNE (increasingly common for tax purposes), or a greater division of labour in financing takes place within the MNE as a whole.

Lastly, just as internal finance has grown in relative importance in its financing contribution to firm capital expenditures in advanced economies, so too has retained earnings grown in importance in its contribution to outward FDI from advanced economies (Table 3). This makes some sense: FDI stocks are accumulating rapidly, and the MNE financing decision may be tending towards the use of retained earnings for affiliate funding as MNEs grow in size. The only exception to this trend is Japan, where retained earnings as a percentage of outward FDI has remained constant (Table 1.3).

**1.63**

**Table 1.3 Average percentage contribution of retained earnings to total outward FDI, 1997–2006 vs. 2007–16**

	1997–2006 average*	2007–2016 average	2015 outward FDI stock as percentage of world
Hong Kong	39.2	75.1	5.9
US	45.8	74.8	23.9
UK	31.5	47	6.1
Japan	23.8	23	4.9
Germany	6.9	18.7	7.2
Euro Area	6.6	8.4	28.6

*Note:* Data for Hong Kong and for Euro Area begins in 1999. Calculated not as the average of yearly proportions but as the sum of total retained earnings (in the financial account) during the period in question divided by the sum of total outward FDI flows, made into a percentage.

*Source:* IMF BoP6, Data Tables, by Indicator, Standard Presentation. Online: <http://data.imf.org/?sk=7A51304B-6426-40C0-83DD-CA473CA1FD52&slId=1409773422141>

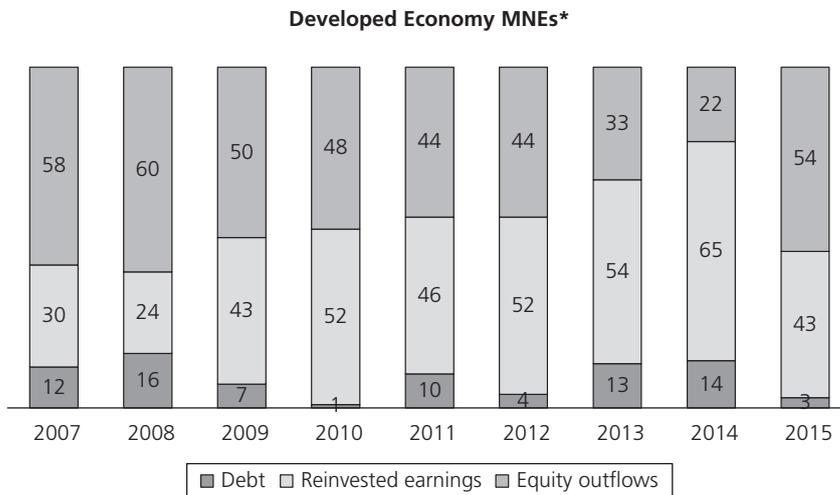
- 1.64** To formalize the above: much<sup>105</sup> FDI today can be seen as reflecting the intra-firm financing decision of the parent company vis-à-vis its affiliates. Should the affiliate, who is part of a much larger corporate group, draw on funds that are primarily:<sup>106</sup>
- 1) *Internal to the affiliate*: leading to **retained earnings FDI** from the direct investor to the affiliate—since the decision to use retained earnings to fund the affiliates operations is said to be made by direct investor.
  - 2) *External to the affiliate but internal to the MNE as a whole*: funds internal to the MNE as a whole are retained earnings, but when lent by the direct investor to the affiliate, they become **debt-FDI**.
  - 3) *External to the MNE and borrowed/raised by the MNE*: this covers bank finance and other forms of debt (such as bonds) raised by the MNE.<sup>107</sup> This also covers equity issuance by the MNE. When the financing raised via debt or equity is lent to the affiliate via a direct investor then this will be recorded as **debt-FDI**.
  - 4) *External to the MNE and borrowed/raised by the affiliate*: **no FDI flow** will take place when the affiliate draws on external funding which it raises, or borrows, directly from a non-MNE source, such as bank credit, or the issuing of debt securities purchased by non-direct investors.
  - 5) *MNE financing to the affiliate via the market*: the direct investor can also provide financing by purchasing new equity or debt securities issued by the affiliate. This would be recorded as a **debt-FDI** or **equity-FDI** flow to the affiliate.
- 1.65** A major complication for FDI recording purposes is that funds external to the affiliate but still internal to the MNE may be used for its financing, but unless they are on-lent by an entity who has a direct investment relationship to the affiliate (however indirectly), then the transaction will not be included as FDI. In addition, the place of substantial ‘greenfield’ (ie new) FDI flows in global FDI trends cannot be incorporated into the above framework as it stands.
- 1.66** Regardless, of these important limitations, Figure 1.5 below highlights the need for FDI trends to take better into account these intra-firm financing flows.

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<sup>105</sup> But certainly not all.

<sup>106</sup> The use of equity finance by the affiliate to fund its operations is a complicating factor. This does not directly impact FDI flows, since no transfer of funds from the direct investor to the affiliate has taken place—assuming that the investors purchasing the additional equity issued by the affiliate are unrelated to the affiliate. However, the equity issuance can have a considerable indirect impact on FDI flows if it changes the ownership percentage which the direct investor has in the affiliate. Similarly, share repurchases can impact FDI flows in a similar way.

<sup>107</sup> Excluding the affiliate.



**Figure 1.5 Developed Economy FDI financial outflows by Type (percentage, 2007–15).**

Source: UNCTAD, World Investment Report 2016, at 7.

Note: We do not show the equivalent table for developing countries as the sample is not sufficiently representative. Note: \*For all developed economies as of 2016, according to UNCTAD note.

Around half of FDI outflows from advanced economies consist of debt-FDI flows and retained earnings-FDI flows.

In 2014, debt-FDI and retained earnings-FDI amounted to around 80 per cent of FDI out of advanced economies, who still account for the majority of global FDI outflows. If the above three types of FDI flows all behaved identically, responding in exactly the same way to the same factors, then neglecting these financing flows would not be of much consequence. But this is not the case. These three types of FDI flows can have very different motivations and drivers.<sup>108</sup> Debt-FDI flows can be particularly volatile as interest rates change and treasury centres spring up. Or they might be even more stable than equity-FDI (what we see in practice), if debt securities are issued with long-term structures, and if they reflect the recycling of earnings within the MNE in a favorable manner. In contrast, retaining earnings FDI flows can respond to changes in the earnings cycle, changes in dividend policies (ie the amount of earnings to distribute to shareholders), changes in primary income received (eg income from financial assets and other ‘factors of production’), and even changes in pension policy entitlements.

<sup>108</sup> For example, notes OECD) comparing debt FDI vs. equity FDI: ‘Analysing FDI by looking separately at equity versus debt reflects the relative stability of equity and the greater volatility of debt. As compared to equity, the debt component (and consequently the country breakdown of FDI) is more influenced by the location of, for example, treasury centres.’ See OECD, *Benchmark Definition* (n 9) 25.

## 1. Financial market drivers

- 1.68** The immediate (ie cyclical) drivers of all three types of FDI (debt, retained earnings, and equity) are increasingly to be found in the events taking place in financial markets. Cross-border M&A, a type of equity-FDI, which accounts for a large portion of global FDI flows, illustrates this well. Financial market conditions help drive share prices as well as the cost of financing share purchases (through debt or equity). Together, these two key factors help shape cycles in cross-border M&A patterns (though not necessarily long-term trends). To the extent that real economy conditions have diverged, however temporarily and far, from financial market conditions, so too will the gap in their respective ability to explain FDI flows diverge.
- 1.69** Financial market conditions are also crucial in explaining the occurrence of the other two types of FDI financial flows: debt-FDI flows and retained earnings FDI flows. Monetary conditions help determine the relative cost of debt and its servicing cost. Moreover, financial market conditions, and the expectations of those who hold the company's securities in the secondary markets, can be decisive in determining distributed earnings levels (through informing the company's dividends policy, earnings targets, and the attention it pays to minimizing its cost of capital).
- 1.70** The increasingly complex internal structure of the MNE becomes the other key factor in explaining all three types of FDI flows. This follows from the fact that most FDI today concerns intra-firm flows. FDI remains grounded in an international division of labour in the real economy, though its exact ties to production can become fairly tenuous as MNEs restructure operations solely to exploit cross-border regulatory differences. Tax differentials across countries have become particularly important in accelerating this process.

## 2. Real economy impact of FDI financing

- 1.71** Following from the above approach, we can make no presumption as to what will be done with the intra-firm FDI financing flows. The financing flows can be used to fund 'consumption' spending by the affiliate, it can be saved, or it can be reinvested. We can make no presumption a priori as to the impact of these FDI financing flows on the host economy, as we do not know what the FDI financing is being used for. For example, with real interest rates very high in Brazil,<sup>109</sup> there is very high FDI into the country. This may partly reflect high reinvested earnings temporarily taking advantage of the high interest income it can earn there. Similarly, debt-FDI can be used to fund an affiliate's dividend payments (ie distributed earnings), capital expenditures, or any outlay.

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<sup>109</sup> See Joe Leahy, 'Business Bets on Brazil Economic Rally' *Financial Times* (Sao Paulo, 7 February 2017) <<https://www.ft.com/content/ab46f7ec-e4d9-11e6-8405-9e5580d6e5fb>> accessed 31 May 2017.

Since we do not know what the intra-firm FDI financing is being used for, we do not generally know the level of real economic activity FDI reflects or supports. As a result, it is difficult to make presumptions regarding the motivation, or immediate driver, of a major portion of global FDI flows. At times, the *immediate* driver of intra-firm FDI financing might be similar to the drivers of portfolio flows, including the relative cost to different forms of finance driven by interest rate changes, capital market imperfections, transaction costs, and regulatory concerns.<sup>110</sup> This can be true even if the ultimate motivating force remains the decision by the firm to expand its affiliate's operations to meet changing conditions in demand and/or supply. **1.72**

### **3. Substitute financing**

Moreover, we do not know if the activity undertaken by the foreign affiliate would have occurred without the FDI financing or not. This is not a new observation,<sup>111</sup> but has become more relevant as financing arrangements have become more complex and flexible. **1.73**

As a financing choice, intra-firm FDI financial flows to the affiliate can potentially be substituted with other forms of (non-FDI) financing. This is true not just for intra-firm debt-FDI or retained earnings FDI,<sup>112</sup> which an affiliate can substitute for funds raised locally (debt, bank credit, or equity), but is easier to illustrate in these cases. **1.74**

The affiliate could, if the MNE wanted, substitute FDI-financing with other forms of non-FDI financing. As such any decline in FDI might simply reflect a change in how an MNE has funded its affiliates operations, rather than a decline in the actual operations of that affiliate. To the extent that intra-firm FDI financing is substitutable with intra-firm, or extra-firm, non-FDI financing, this will occur. For example, when the US and the UK put controls on outward FDI in the 1960's the actual level of investment undertaken by MNEs and their affiliates abroad did not appear to change much, even though official FDI figures declined. What changed was how those MNEs financed their overseas operations, new and existing. As a result FDI declined, not necessarily because the MNEs investments abroad declined, but because FDI, as a financing flow, was substituted with other forms of non-FDI financing.<sup>113</sup> **1.75**

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<sup>110</sup> Olivier Blanchard and Julien Acalin, 'What Does Measured FDI Actually Measure?', *Peterson Institute for International Economics. Policy Brief* (October 2016) <<https://piie.com/publications/policy-briefs/what-does-measured-fdi-actually-measure>> accessed 31 May 2017.

<sup>111</sup> Charles P Kindleberger, *American Business Abroad: Six Lectures on Direct Investment* (Yale University Press 1969) (hereafter Kindleberger, *American Business Abroad*).

<sup>112</sup> It is also true for equity-FDI. In 2016, Glencore sold a 49 per cent stake in its agriculture business to two Canadian pension funds for more than US \$3 billion to help reduce debt.

<sup>113</sup> Neil Rollings, 'Multinational Enterprise and Government Controls on Outward Foreign Direct Investment in the United States and in the United Kingdom in the 1960s' (2011) 12(2) *Enterprise & Society* 398 <<http://www.jstor.org/stable/23701395>> accessed 31 May 2017.

- 1.76** The recent case of Chevron is instructive. Chevron has recently chosen to on-lend debt raised abroad to its affiliate in Australia, in order to reduce profits registered by the affiliate in Australia. Chevron has done this by charging the Australian affiliate above market rates for the debt.<sup>114</sup> These debt flows will be recorded as FDI flows if lent by any Chevron entity who is a direct investor in the Australian affiliate. In this instance, are these (let us assume) debt FDI flows contributing anything to the nature of the operations of the Australian affiliate which domestic bank credit could not have? In this way, while the presence of FDI can still provide many tangible and intangible benefits, the recorded level of FDI may not always mean much.<sup>115</sup>

#### 4. Shift away from control exercised by managers

- 1.77** Even if equity FDI becomes only a minority of global FDI flows, it remains paramount. For it is still through equity relations that the parent controls the totality of intra-firm FDI finance. Equity is used to control, and access, financing for the MNE as a whole.<sup>116</sup> As indicated above, control through equity ownership is in reality ‘intra-firm’ control, and reflects a control over intra-corporate financing and earnings, rather than necessarily indicating an immediate control over real investment flows—since we cannot presuppose what the firm will do with the financing.
- 1.78** We must question though the extent to which the direct investor is actually in ultimate ‘control’ of its financing. An MNE deploys its capital and earnings increasingly in accordance with how ‘the market’ deems it best to. The discretion which managers have is severely curtailed by the market, which may nevertheless consist of millions of dispersed stockholders, acting in seeming isolation, but who together hold considerable sway over management decisions—including the *management appointed by the direct investor*. The ability of dispersed shareholders to ‘sell’ their equity, in determining the share price of the MNE, sets a publicly posted barometer of health for the company and the performance of its management. The share price also acts as a partial guard against managers being dismissed, or the company being taken over, as well as determining the cost of risk-bearing capital for that company.<sup>117</sup>
- 1.79** In this way the economy has witnessed a *shift from managers to markets*, and in turn a shift in where significant influence over the operations and investment

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<sup>114</sup> See Bradley Olson and Robb M Stewart ‘Chevron Tax Strategy Faces Crackdown in Australia’ *Wall Street Journal* (New York, 23 May 2017) <[https://www.wsj.com/articles/chevron-tax-strategy-faces-crackdown-in-australia-1495531801?shareToken=st4cbd818b9a3c4b8ca6e9c15547e894f1&reflink=article\\_email\\_share](https://www.wsj.com/articles/chevron-tax-strategy-faces-crackdown-in-australia-1495531801?shareToken=st4cbd818b9a3c4b8ca6e9c15547e894f1&reflink=article_email_share)> accessed 31 May 2017.

<sup>115</sup> Kindleberger, *American Business Abroad* (n 111).

<sup>116</sup> Grahl, ‘Globalized Finance’ (n 5).

<sup>117</sup> Moreover, ‘[i]n this context, the fact that stock markets do not provide significant net amounts of industrial finance is irrelevant’. *ibid* 38.

decisions of a company lies. While it remains true in theory that ‘the directors of the corporation are not ‘owners’, they are not agents of the shareholder and are not obliged to follow their instructions’,<sup>118</sup> in practice, the dictates of this secondary market for company securities by the owners and the potential owners, have become central in determining the behaviour of the managers of the company, including those appointed by direct investors. Under these conditions, deliberation and control in detail may be overwhelmed by the external pressure from the market to achieve an expected rate of return, usually in the short term, or at least not fall behind in that regard. Long-term planning remains essential to the MNE’s ultimate competitive survival, but today must be balanced with other demands placed on the firm by the decisions of the millions of its shareholders—and not just its direct investors.

## E. Conclusion

The main argument advanced in this chapter is that FDI flows increasingly record financing flows of debt and retained earnings within a corporate group, thereby reflecting the financing (and financial management) decision of the parent company with respect to its many affiliates. The data for most countries is unable to show this clearly, but as the size of their FDI stocks grow relative to their economies, so too should debt-FDI and retained-earnings FDI overwhelm any new large FDI equity investments. **1.80**

Given that a considerable portion of global FDI outflows consist of intra-firm financing flows—around 50 per cent of annual FDI outflows consist of debt-FDI and retained earnings-FDI—increasing thought needs to be given to account for these flows. Financial market conditions, as well as the complexity of the MNE structure, can help explain their cyclical movements. Given that we do not know what the intra-firm FDI financing flows will be used for (either investment, ‘consumption’, or savings), we can make no presumption as to if it will have any impact on the real economy, and whether the flow is short-term in nature and potentially volatile, or instead stable and long-term orientated. **1.81**

As the recording of FDI statistics becomes more focused on capturing the flows between entities in pre-existing FDI relationships, its focus will increasingly turn to the MNE network. And the more it does, the more FDI will have to confront the issue that substantial influence, and even full control, can arise from any size equity stake, rather than just the minimum 10 per cent.<sup>119</sup> **1.82**

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<sup>118</sup> See Berle and Means, *The Modern Corporation* (n 6) xxxvi.

<sup>119</sup> See Bebchuk, Kraakman, and Triantis ‘Stock Pyramids’ (n 72).

APPENDIX

Description of the Bayesian VAR Regression

Primiceri<sup>120</sup> and Del Negro and Primiceri<sup>121</sup> propose a vector autoregressive (VAR) model in which regression coefficients and variance parameters are allowed to evolve according to random walks ('time-varying parameters and stochastic volatility'). I use the associated R package to run this model due to time limitations. This sort of model is useful when there is evidence that the mean and volatility of macroeconomic variables change over time, as is the case here.<sup>122</sup> As a result our model allows both the coefficients and the entire variance covariance matrix of the shocks to vary over time (for discussion of VARs see).<sup>123</sup> We estimate the model using Bayesian methods, taking the median impact from the posterior distribution when calculating the impulse-response functions.<sup>124</sup> The model is as follows:

$$y_t = c_t + \beta_{1,t}y_{t-1} + \dots + \beta_{k,t}y_{t-p} + A_t^{-1}\Sigma_t\epsilon_t$$

where  $y_t$  is an  $n \times 1$  vector of observed endogenous variables. The unique feature is that the intercept,  $c_t$ , and the coefficient matrices  $\{\beta_{j,t}\}_{j=1}^p$ , change over time. The composite error  $A_t^{-1}\Sigma_t\epsilon_t$  also implies that the residual variance-covariance (VCV) matrix is allowed to vary over time as well. The full model is:

$$\begin{aligned} y_t &= X_t'\beta_t + A_t^{-1}\Sigma_t\epsilon_t \\ \beta_t &= \beta_{t-1} + v_t \\ \alpha_t &= \alpha_{t-1} + \xi_t \\ \log \sigma_t &= \log \sigma_{t-1} + \eta_t \end{aligned}$$

Where  $y_t$  is a vector stacking the  $n$  variables at a given date,  $X_t' = I_n \otimes [1, y_{t-1}, \dots, y_{t-p}]$ ;  $\beta_t$  collects the parameters  $c_t$  and  $\{\beta_{j,t}\}_{j=1}^p$  of the main equation.  $A_t$  is lower triangular matrix with ones on the main diagonal and whose free elements are stacked in the vector  $\alpha_t$ .  $\Sigma_t$  is a diagonal matrix with positive elements  $\sigma_t = \text{diag}(\Sigma_t)$ .  $\epsilon_t$  follows an  $n$ -variate standard normal distribution, and  $v_t, \xi_t, \eta_t$  are mean zero, homoscedastic and mutually independent Gaussian random vectors of appropriate dimension.<sup>125</sup> I use normal and inverse Wishart priors, and a lag length of  $p = 1$  (ie 1 quarters), all for computational convenience (actual recommended lag selection is very high).

Our stacked variables,  $y_t$ , with  $n = 3$  are nominal GDP growth, retained earnings, and outwards FDI relative to GDP (in that order), all in quarterly, millions US\$, not seasonally adjusted, taken from St Louis FRED, from Q1 1960 to Q4 2013. The idea behind the ordering is that nominal GDP growth impacts firms retained earnings in the same period ('contemporaneous impact'), while both only impact outward FDI from the following quarter (time period). This is how the structure of this VAR perceives the relationship.

<sup>120</sup> See Primiceri, 'Time Varying Structural Vector' (n 59).

<sup>121</sup> See Del Negro and Primiceri, 'Time Varying Structural Vector' (n 59).

<sup>122</sup> See Primiceri, 'Time Varying Structural Vector' (n 59).

<sup>123</sup> See James Stock, 'Vector Autoregression' (2001) 15(4) *Journal of Economic Perspectives* 101 <[https://faculty.washington.edu/ezivot/econ584/stck\\_watson\\_var.pdf](https://faculty.washington.edu/ezivot/econ584/stck_watson_var.pdf)> accessed 31 May 2017.

<sup>124</sup> See Gary Koop and Dimitris Korobilis, 'Bayesian Multivariate Time Series. Methods for Empirical Macroeconomics' (2009) 3(4) *Foundations and Trends in Econometrics* 267.

<sup>125</sup> For more models, see Del Negro and Primiceri, 'Time Varying Structural Vector' (n 59).

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Impulse response functions provide an estimate of the response of  $y_{t+h,i}$  (eg outward FDI in period  $t+h$ ) given an unexpected shock to  $y_{t,j}$  (eg GDP growth or retained earnings in period  $t$ ), with  $t$  being the most recent time period. These estimates are functions of the model parameters in Equation 1.<sup>126</sup> This impulse response uses varying parameters. More precisely, it estimates the impact of a one-unit shock in some element of  $\epsilon_t$ . The elements of  $c_t, \beta_{j,t}, A_t$ , and  $\Sigma_t$ . Equation 1 are kept fixed at their time  $t$  values. The elements of  $\epsilon_t$  are assumed to be independent but the results depend on the ordering of the variables in  $y_t$ .<sup>127</sup>

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<sup>126</sup> James Hamilton, *Times Series Analysis* (Princeton University Press, 1994). See also Helmut Lütkepohl, *New Introduction to Multiple Time Series Analysis*, (Springer 2005).

<sup>127</sup> For a discussion and references, see Lutz Kilian, 'Structural Vector Autoregressions', in N Hashimzade and Michael A Thornton (eds), *Handbook of Research Methods and Applications in Empirical Macroeconomics* (Edward Elgar, 2013) 515–54.

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